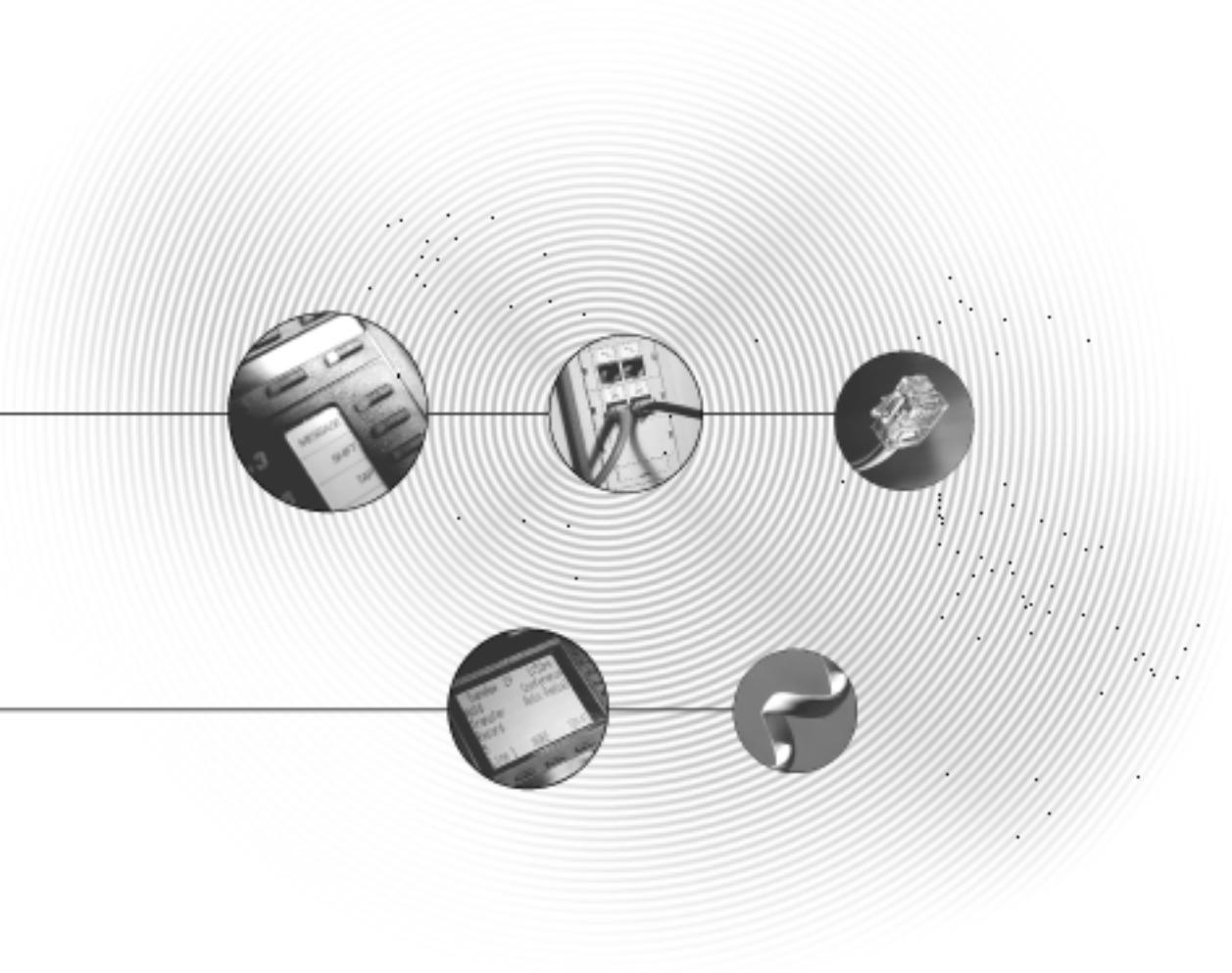


# DSU II Digital Telephone System

## System Hardware & Software Instructions

This publication supports Impact, Impression, DigiTech, and Scout Telephones



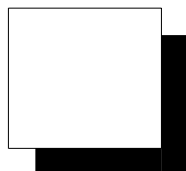
***This manual is for the following system:***

**DSU II Digital Telephone System**

This System Manual applies to the following equipment:

- J0408, with software revision 5C and later
- J0816, with software revision 5C and later
- J1632, with software revision 5C and later

Contact your Comdial dealer for updates of this as well as other Comdial publications.



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# 1

## Using this Manual

This publication contains a technical discussion of the DSU II; it provides step-by-step instructions for installation and programming. If you are unfamiliar with the equipment, read this manual at least once before you attempt to install and program the system. The five chapters in this manual are as follows:

- Chapter One, *Using This Guide*, is a general description of the digital telephone system, the telephones, accessories, related publications, and the equipment hardware.
- Chapter Two, *Telephone System Installation*, contains installation instructions and connection details.
- Chapter Three, *System Options and Accessories*, provides instructions for installing accessories such as the battery backup, the analog terminal interface, data interface unit, the digital voice announcer, the personal computer interface unit, and voice mail.
- Chapter Four, *Programming*, contains instructions for programming and configuring the DSU II.
- Chapter Five, *System Records*, contains charts for recording programming settings
- Appendix A, *Describing the System Features*, is a glossary of the DSU II's features.

## **Using Related Publications**

The following publications contain information applicable to the digital telephone system. Should you need copies of these publications, contact your Comdial inside sales representative.

Comdial  
Inside Sales Department  
P.O. Box 7266  
Charlottesville VA 22906  
Call: 1-800-347-1432

### **Working with Electrostatically Sensitive Components**

- IMI 01-005  
*Handling of Electrostatically Sensitive Components*

### **Operating with DigiTech Telephones and Consoles**

These user guides are for DigiTech telephones with product codes 7700S, 7714X, and 7714S, with revision A through H, and console DD32X.

- GCA70–183—DigiTech Multiline Telephone System User’s Guide
- GCA70–182—DigiTech Attendant’s Guide
- GCA70–184—DigiTech Station User’s Guide
- GCA70–232—DigiTech Single-Line Proprietary Telephone User’s Guide
- GCA70–187—DigiTech DSS/BLF Console User’s Guide

These user guides are for DigiTech telephones with product codes 7700S, 7714X, and 7714S, with revision I and later, and console DD32X.

- GCA70–220—DigiTech LCD Speakerphone System User’s Guide
- GCA70–221—DigiTech Multiline Telephone System User’s Guide
- GCA70–228—DigiTech Attendant’s Supplement
- GCA70–232—DigiTech Single-Line Proprietary Telephone User’s Guide
- GCA70–187—DigiTech DSS/BLF Console User’s Guide

### **Operating with Impact Telephones and Consoles**

These user guides are for telephones with product codes 8324SJ, 8312SJ, 8212S, 8201N, IMIST, 8024S, 8124S, 8012S, 8112N, 8101N, and consoles IB48X and IB64X.

- GCA70–245—Impact LCD Speakerphone System User’s Guide
- GCA70–244—Impact Multiline Telephone System User’s Guide
- GCA70–247—Impact Attendant’s Supplement

- GCA70–248—Impact Station User’s Guide
- GCA70–246—Impact Single-Line Proprietary Telephone User’s Guide
- GCA70–256—Impact DSS/BLF Console User’s Guide

### **Operating with Impression Telephones**

These user guides are for telephones with product codes 2022S, 2122S, 2122X, and 2101N.

- GCA70–328—Impression LCD Speakerphone System User’s Guide
- GCA70–329—Impression non-LCD Speakerphone and Monitor Telephone System User’s Guide
- GCA70–330—Impression Single Line Proprietary Telephone User’s Guide
- GCA70–332—Impression LCD Speakerphone Station User’s Guide
- GCA70–333—Impression non-LCD Speakerphone And Monitor Telephone Station User’s Guide

### **Operating with Industry-Standard Telephones through the ATI-D**

- GCA70–239—User’s Guide For The Industry-Standard Telephone
- IMI89–037—Installation Instructions For The Analog Terminal Interface (ATI-D).

## **Detailing the Accessory Information**

The digital telephone system is capable of supporting several accessory software and hardware devices. You can add voice mail, industry standard telephones, and headset capabilities to your digital telephone system.

### **Analog Terminal Interface**

By employing the Analog Terminal Interface device (ATI-D), the digital telephone system can support the operation of the following accessories:

- VVP and voice processing systems,
- industry-standard telephones and telephone devices.

For more information on the ATI-D, see *Installing the Analog Terminal Interface* on page 85.

## **Headset Operation**

The Comdial DigiTech speakerphones with product codes of 7700S, revision H and earlier, include a built-in headset port. Speakerphones with a revision of I and later and Impact LCD speakerphones with product code 8024S provide an auxiliary jack for headset interface.

Additionally, the system can enable the auxiliary jack features on the SCS models 8312SJ, 8324SJ, and 8324FJ. The headset volume has 8 steps. The Impression telephone provides headset capability through its handset jack.

Contact your Comdial Inside Sales Representative for a list of compatible headset manufacturers.

***NOTE:** The system delivers subdued off-hook voice announce (SOHVA) messages to the headset port. Because a telephone headset exhibits a “coupling” effect between the ear piece and the microphone, it may allow the outside party to hear the SOHVA message.*

## **Battery Backup**

You can install an optional battery backup that provides power to the system in the event of a power failure. For more information, see *Connecting the Battery Backup Assembly* on page .

## **DSS/BLF Console**

You can add a separate DSS/BLF console to provide additional DSS/BLF buttons to a particular station (such as an attendant). These additional DSS/BLF buttons work just like the DSS/BLF buttons on the telephone. For more information, see *Installing DSS/BLF Consoles* on page 51.

## **Caller ID**

Using the Caller Identification Interface (product code CID08), the digital telephone system provides caller ID information as part of the SMDR printout and as ASCII data input for use with PC-based application programs.

## **Tracker**

With Tracker you can send messages to Tracker Pagers assigned to a station extension number. When the pager is activated the user reads the message on the pager’s LCD display. The system delivers alpha/numeric or numeric-only messages depending on the Tracker Model being used.

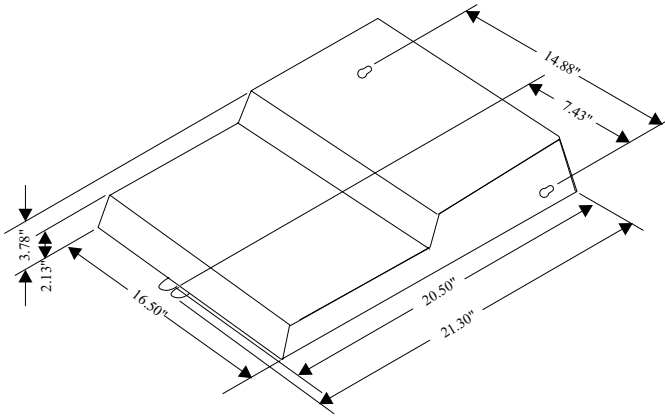
## **DVA**

Digital voice announcing uses a hardware peripheral device (product code DVA01) connected to a digital station port to play recorded messages during an in-progress call. The DVA stores the messages in its memory for recall when needed.

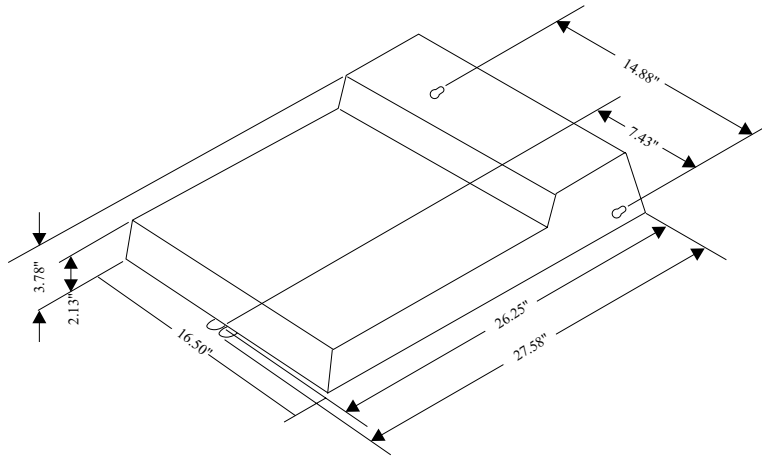
## **DIU**

The Data Interface Unit (DIU) is a device connected to a digital station port of a DSU. The DIU provides connections for a digital multiline telephone and another device such as a industry standard telephone (IST), FAX, or modem. The DIU switches the voice path from the DSU to either the digital telephone or the IST by pressing a button on the digital telephone.

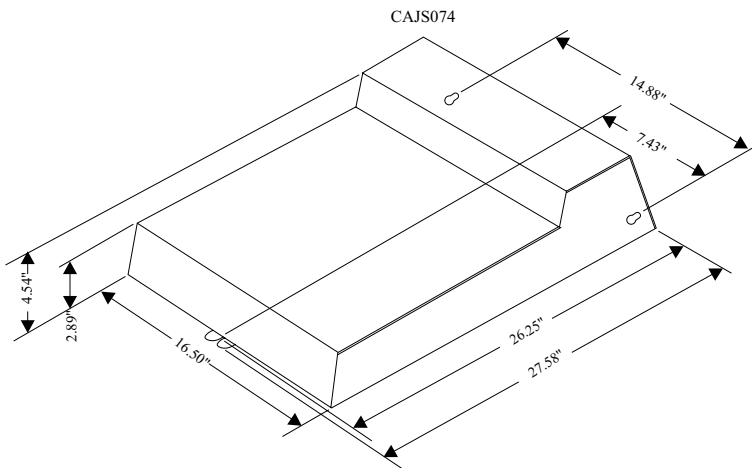




**4-Line, 8-Station Base Unit**



**8-Line, 16-Station Base Unit**



**16-Line, 32-Station Base Unit**

**Common Equipment Dimensions**

## Summarizing the Hardware

The digital telephone system consists of an electronic Digital Service Unit (DSU)—usually referred to as “common equipment”—optional expansion modules to extend station and line capacities, dedicated digital electronic key telephones, and interconnecting wiring consisting of small, 2- or 4-conductor, twisted-pair cable. The digital telephone system supports all Comdial proprietary digital telephone models.

The station and line capacity of the base unit and optional expansion modules are detailed in the following chart.

<b>Model Number</b>	<b>CO/PBX Capacity</b>	<b>Station Capacity</b>
J0408	4	8
J0816	8	16
J1632	16	32
JM408	4	8
JM008	0	8 industry-standard telephones

## Describing the Common Equipment

The common equipment base unit for the DSU II digital telephone system 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 digital telephone stations. The software design of the common equipment provides complete system support and great flexibility of operation.

All DSU II systems have analog, loop-start line interfaces to the public switched network. Special integrated circuits (COder/DECoder or CODEC chips) in the line circuits translate analog voice information to and from the digital domain. Internally, the system is fully digital and has Pulse Code Modulation (PCM) highways that are time-division multiplexed into PCM channels. Each digital station has two B-channels available for voice and/or data and one D-channel available for telephone control. This arrangement is known as 2B+D. The system maintains communication with the stations with digital loop transceiver circuits that are under system software control. A time switch integrated circuit, also under system software control, routes calls, creates conferences, and set padding levels as required.

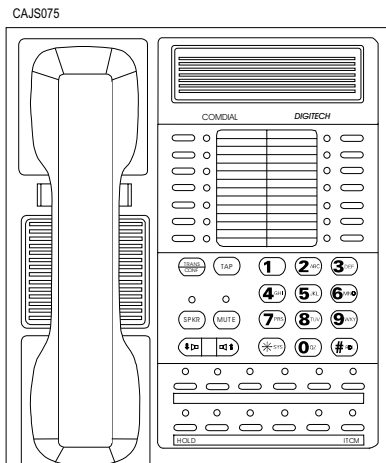
The common equipment consists of a base unit, which provides complete feature support, and optional expansion modules for additional lines and stations. It is contained in a contemporary metal housing designed to be inconspicuous in a modern office environment. It is engineered to be wall or rack mounted.

# Describing the Stations

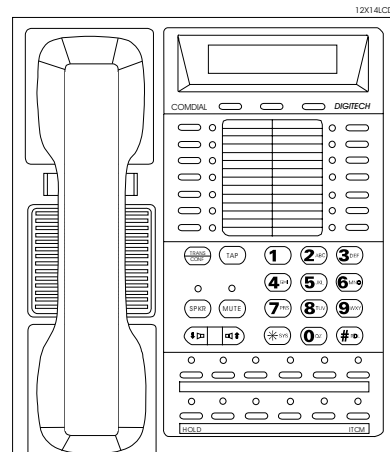
The digital telephones used with the DSU II digital telephone system are electronic, microprocessor-controlled, devices. They allow not only multiline pickup but also single button access to features available from the serving CO, PBX, CENTREX, or common equipment. The digital telephones are available in several different styles with several models available in each style. The following list details the available telephones.

## DigiTech Telephones

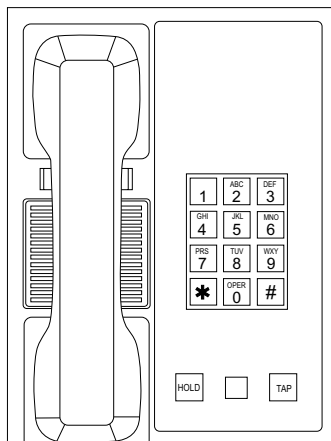
**NOTE:** Comdial no longer makes or sells DigiTech or Impression telephones. The information is included in this manual to support DigiTech and Impression telephones already in the field.



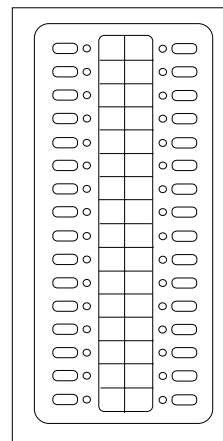
7714X Monitor Telephone  
7714S Speaker Telephone



7700S LCD Speakerphone

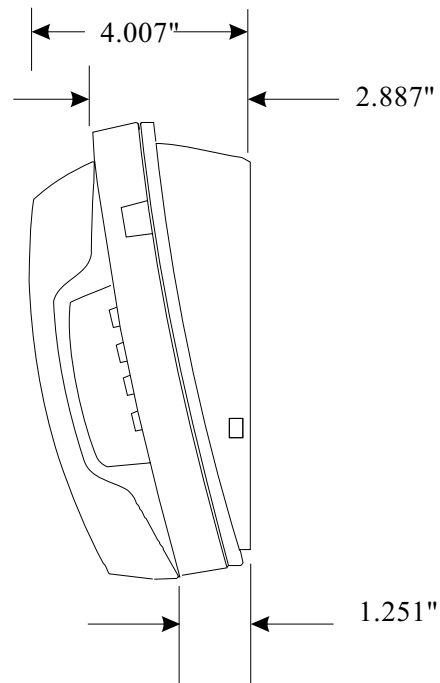
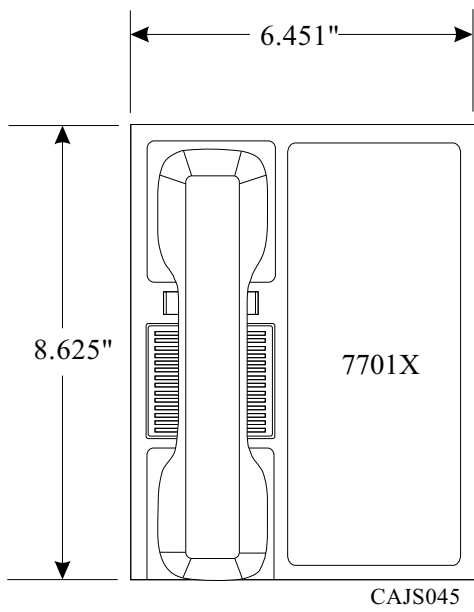
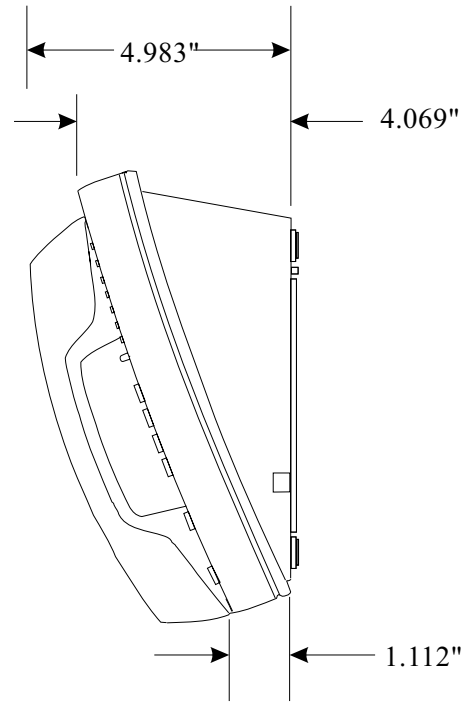
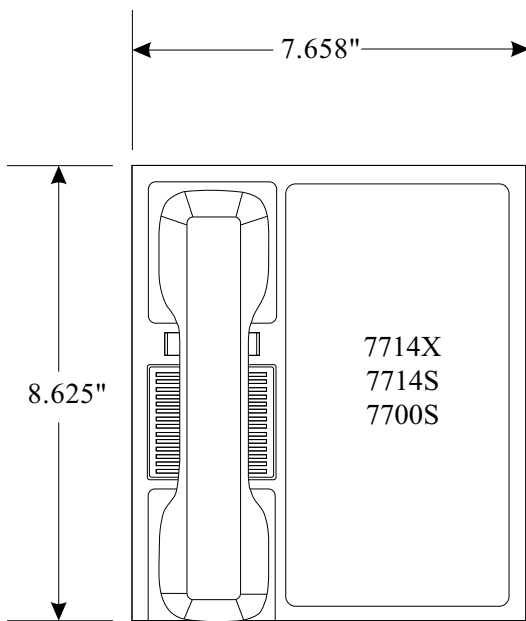


7701X Single Line Proprietary Telephone



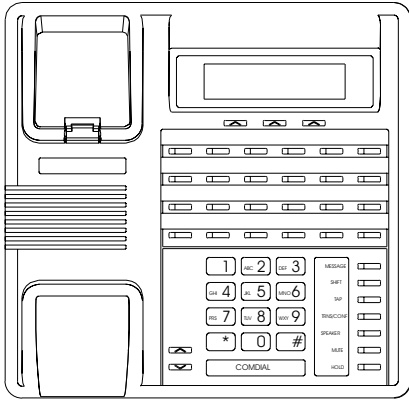
DD32X DSS/BLF Console

### Viewing the DigiTech Telephone Images

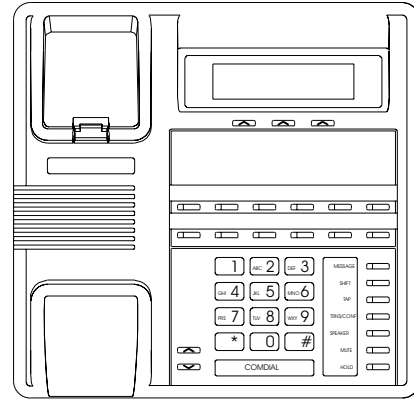


**Detailing DigiTech Dimensions**

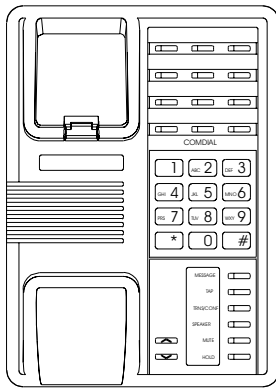
# Impact SCS Telephones



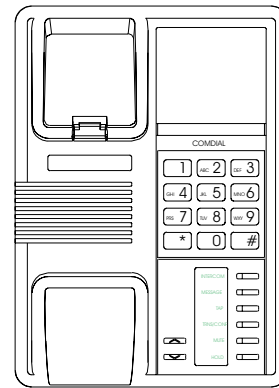
8324SJ



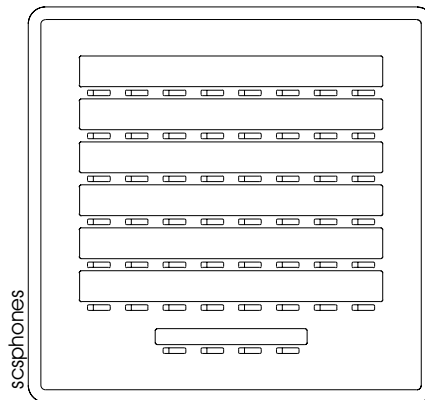
8312SJ



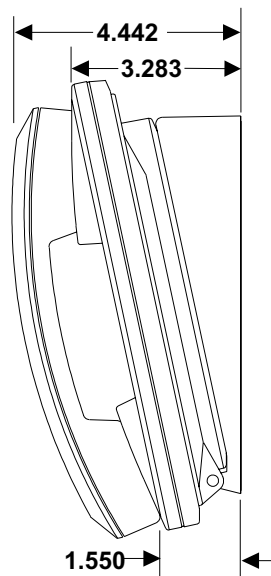
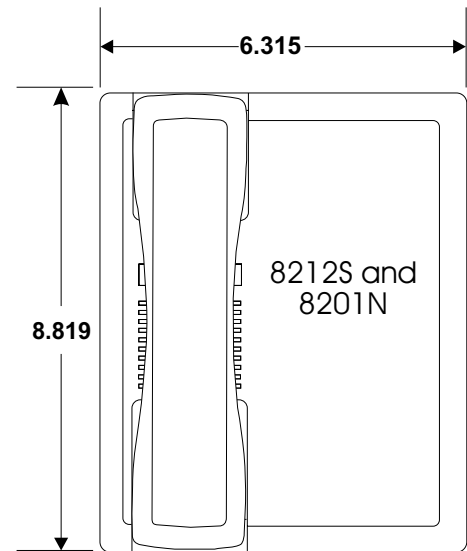
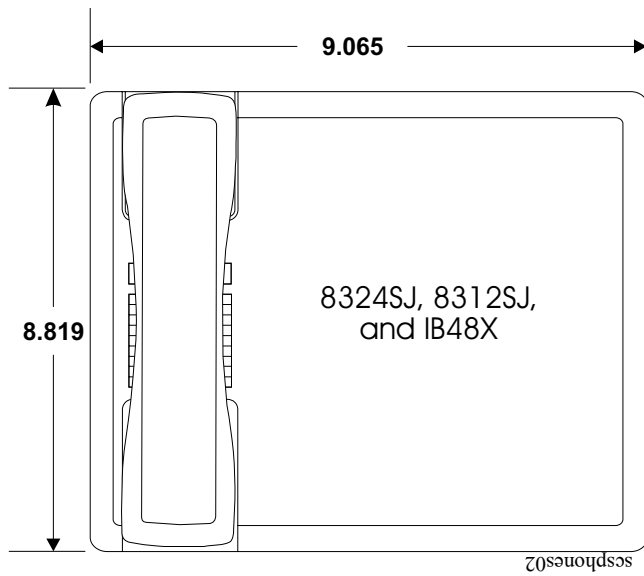
8212S



8201N

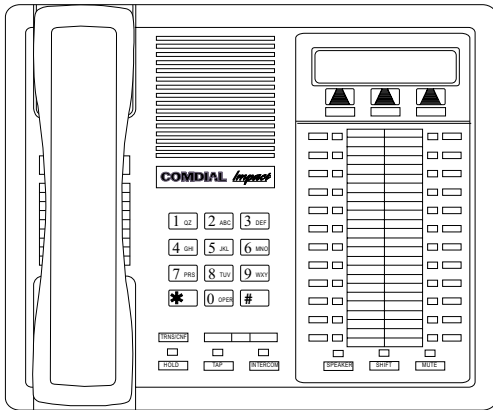


IB48X

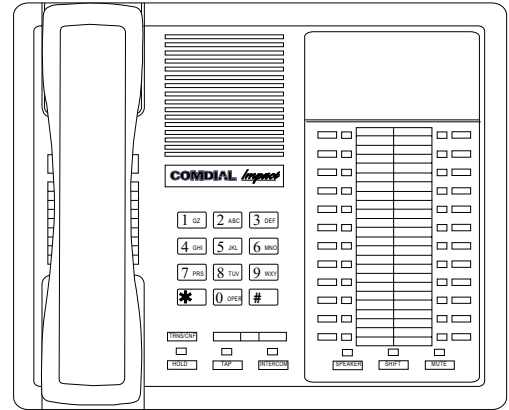


**Impact SCS Telephone Dimensions**

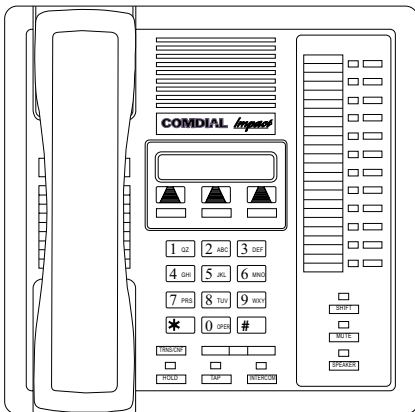
# Impact Telephones



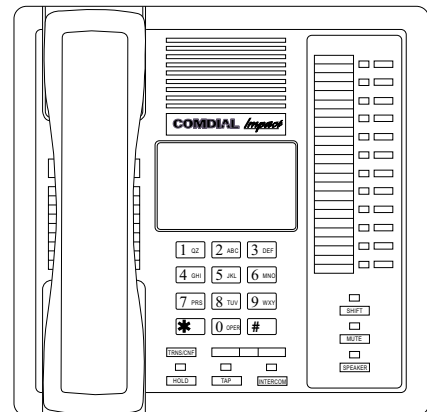
8024S LCD Speakerphone



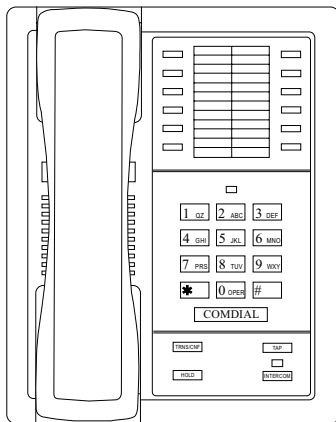
8124S Speakerphone



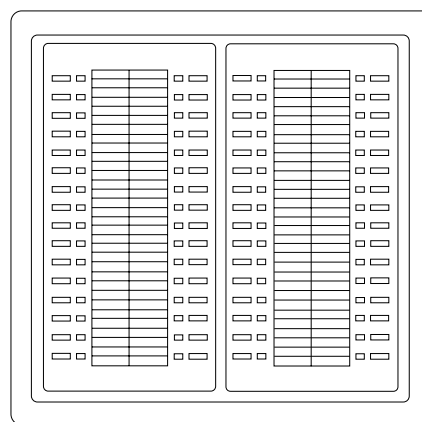
8012S LCD Speakerphone



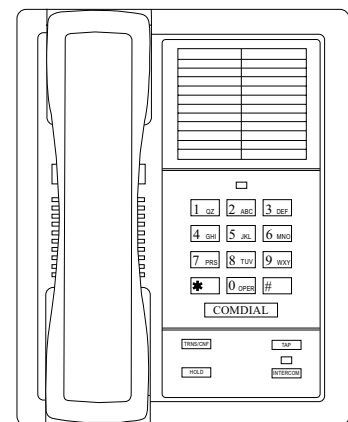
8112S Speakerphone



8112N Non-Monitor

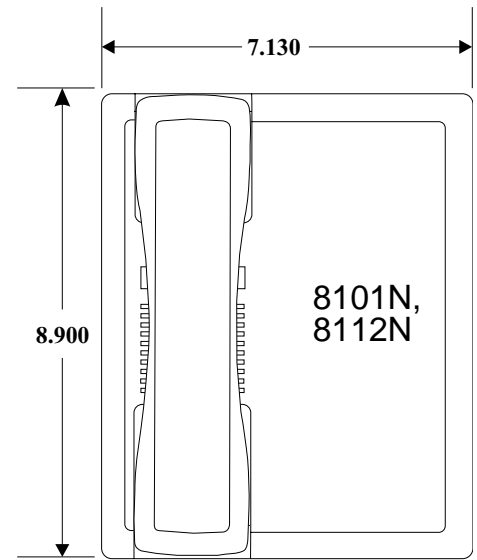
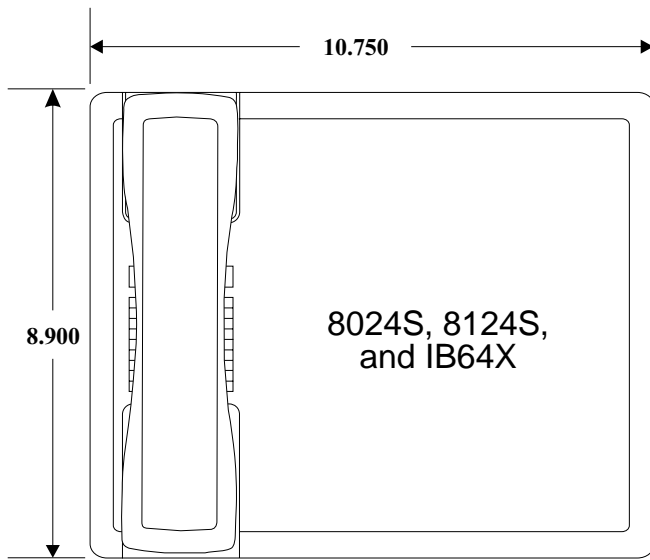


IB64X DSS/BLF Console

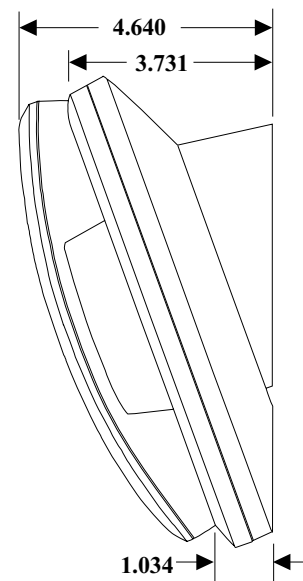
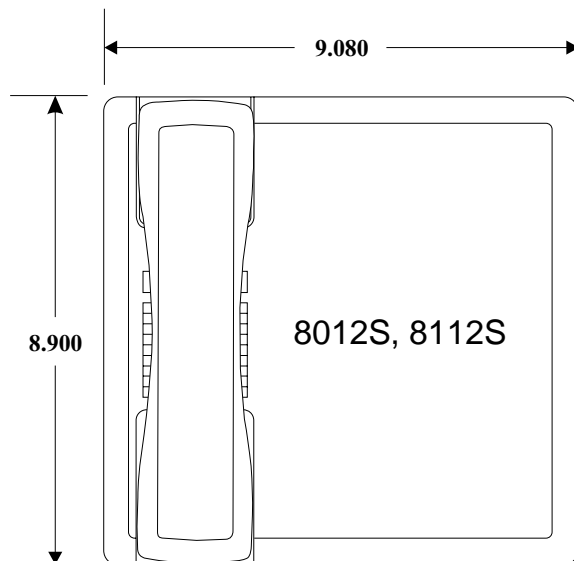


8101N Single Line Proprietary Telephone

## Viewing the Impact Telephone Images



CAJS077

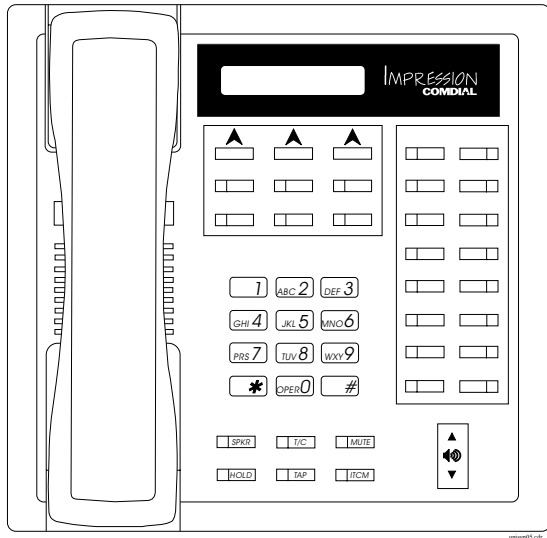


**Detailing the Impact Dimensions**

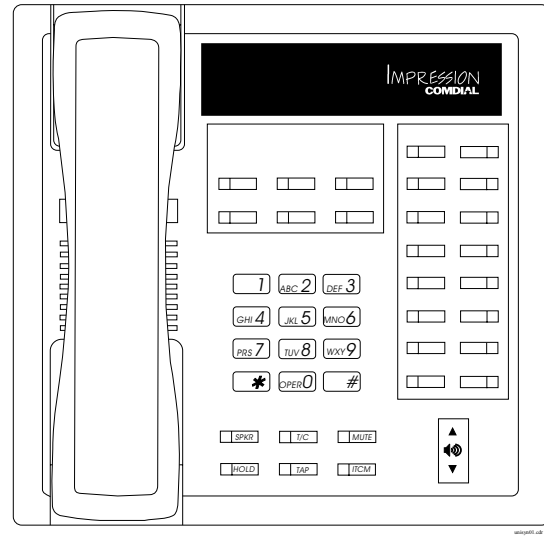


## Impression Telephones

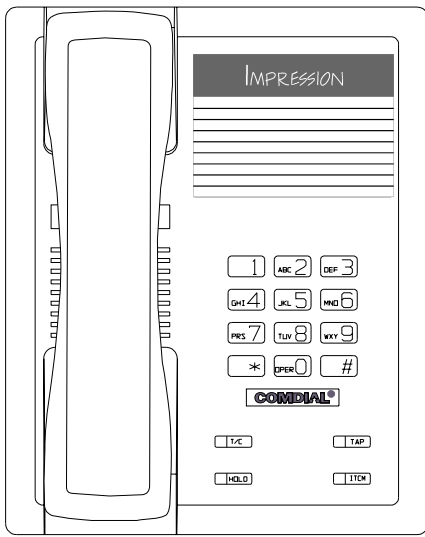
**NOTE:** Comdial no longer makes or sells DigiTech or Impression telephones. The information is included in this manual to support DigiTech and Impression telephones already in the field.



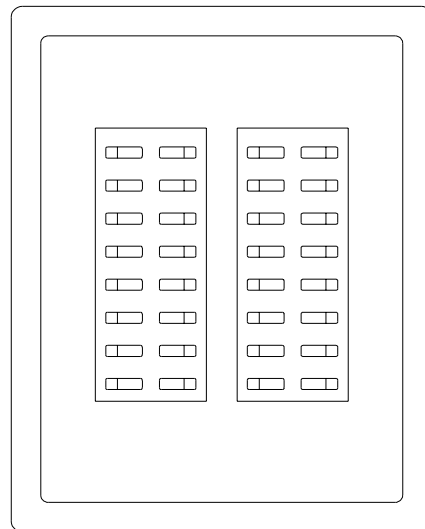
2022S (22-Line LCD Speakerphone)



2122S (22-Line Speakerphone)  
2122X (22-Line Monitor Telephone)



2101N (Single Line Proprietary Telephone)

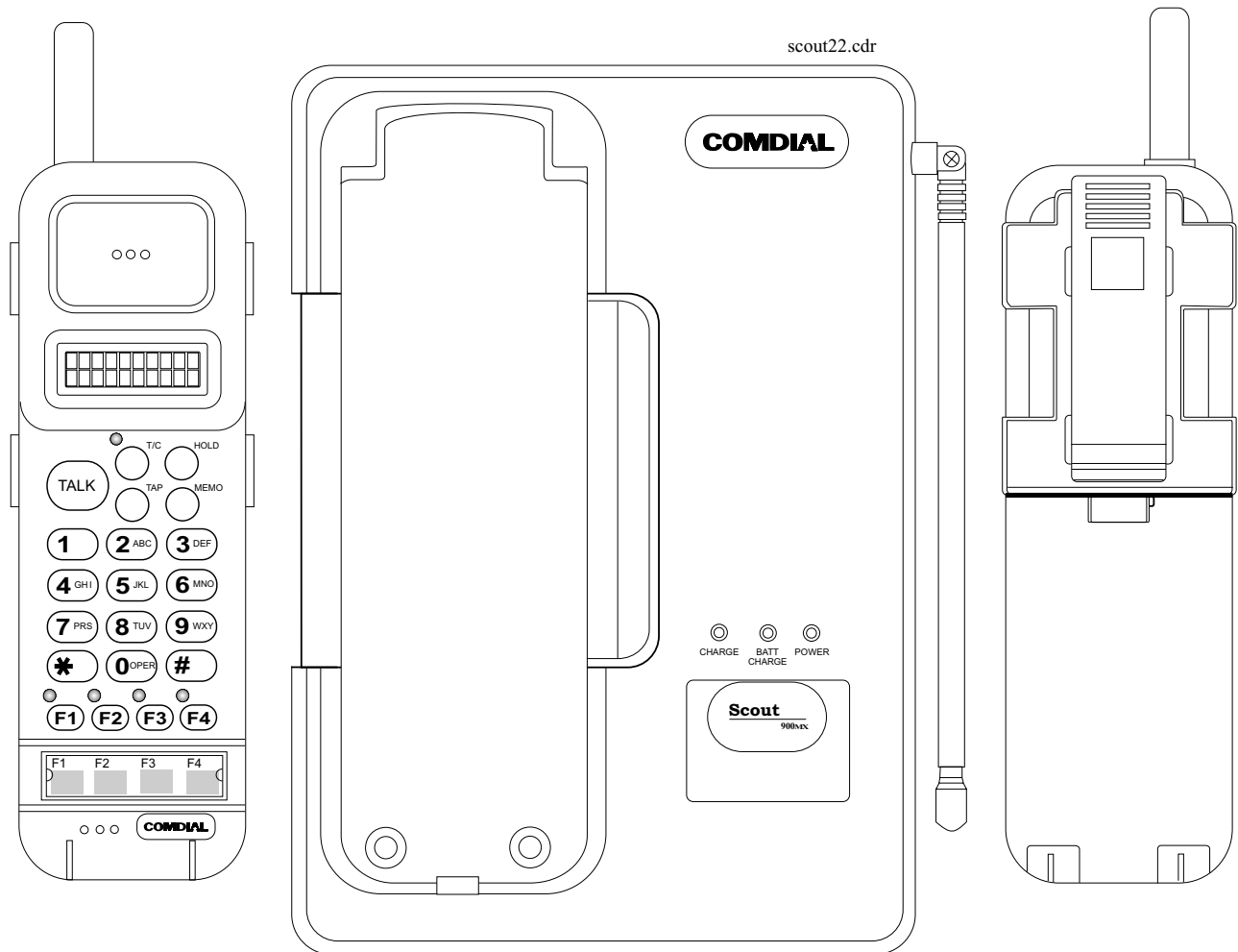


DU32X (32-Button DSS/BLF Console)

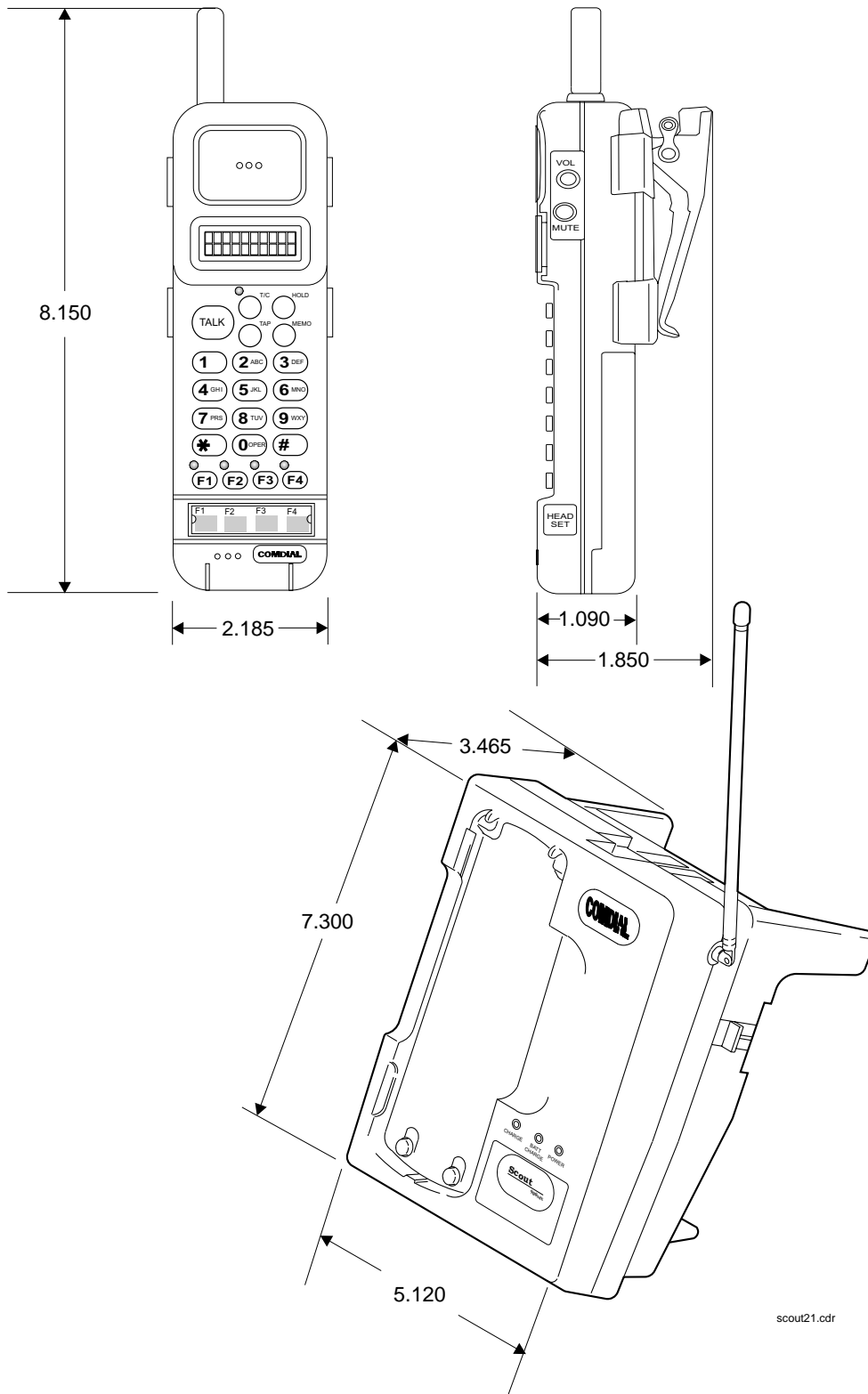
unisyn11.cdr

### Viewing the Impression Telephone Images

# Scout 900MX Telephone



Viewing the Scout 900MX Telephone



**Detailing the Scout 900MX Dimensions**

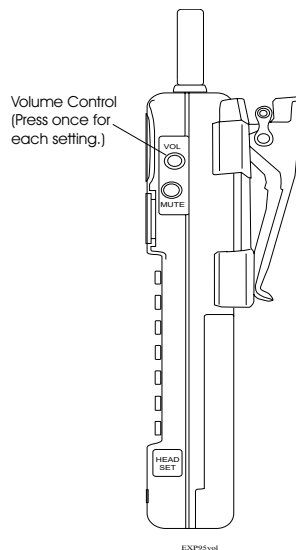
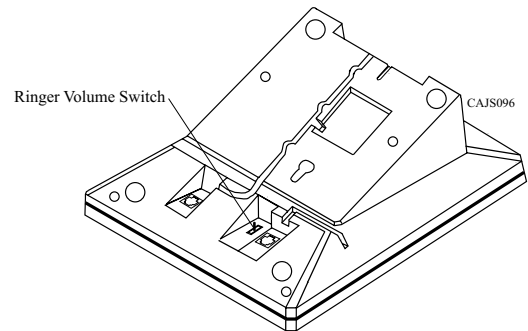
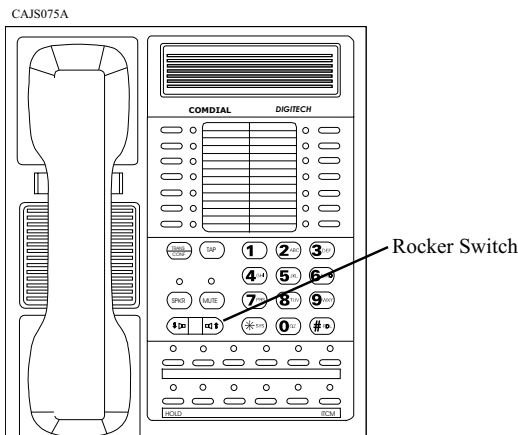
# Station Controls and Indicators

## Ringer Volume Control

Each station has a ringer volume control. Adjust the ringer volume of each station to suit your needs.

Telephone Model	Control Location
7114S, 7114X, 8024S, 8124S, 8012S, 8112S, 2022S, 2122S, 2122X	Rocker switch located on front face plate. Adjust while ringing to set volume.
7701X, 8101N, 8112N, 2101N	Switch on bottom housing. Set for fixed volume levels
Scout 900MX	Button on telephone's upper right edge

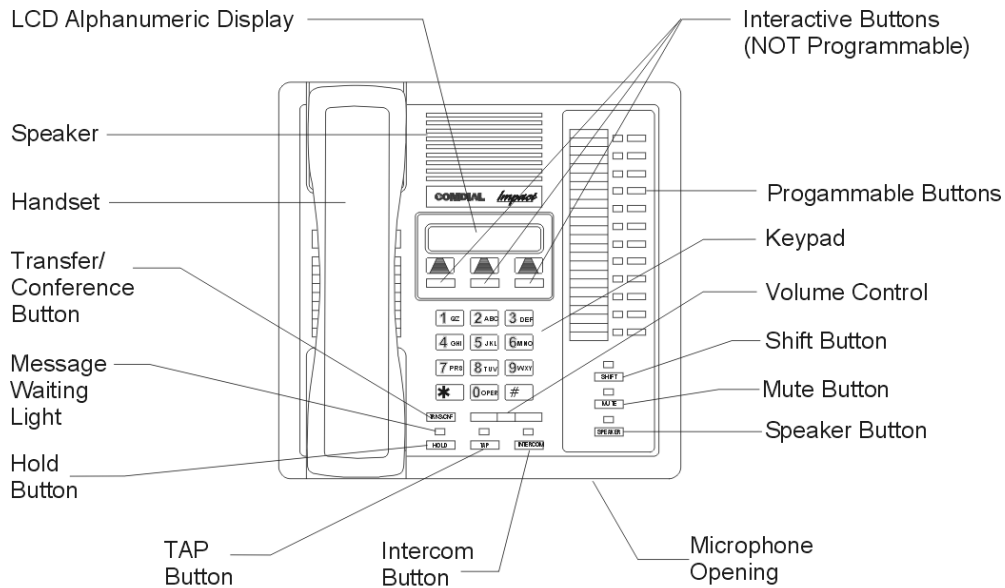
### Locating the Telephone Ringer Volume Control



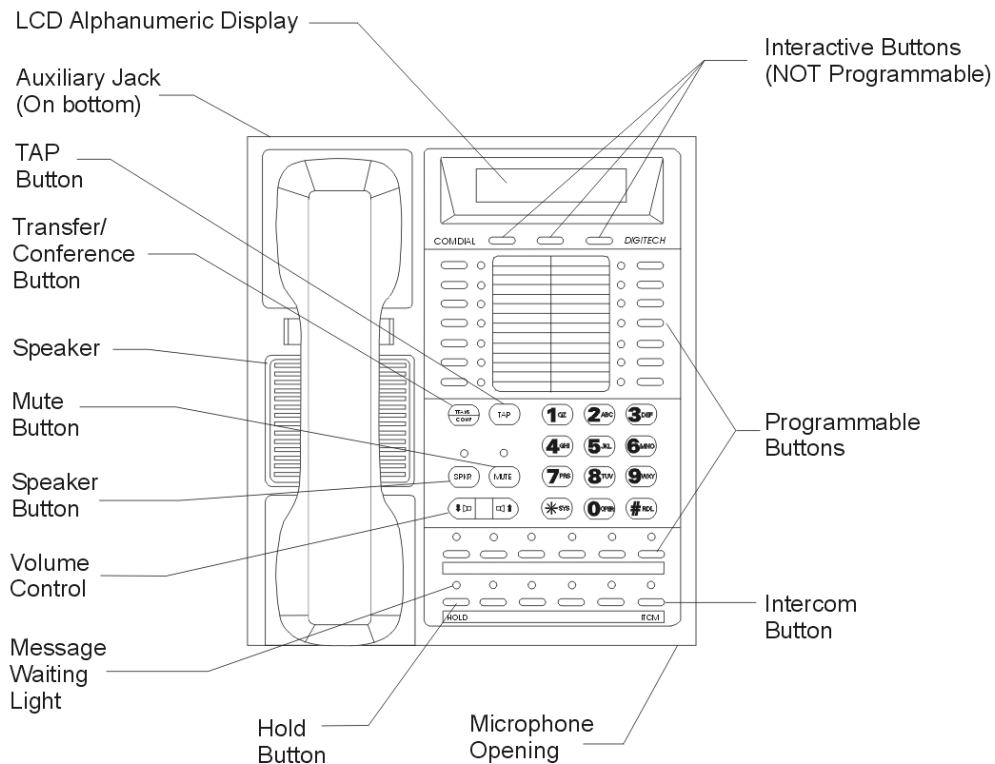
## Display Intensity

You can adjust the intensity (brightness and contrast) of the display on LCD telephones any time the telephone is idle and on-hook.

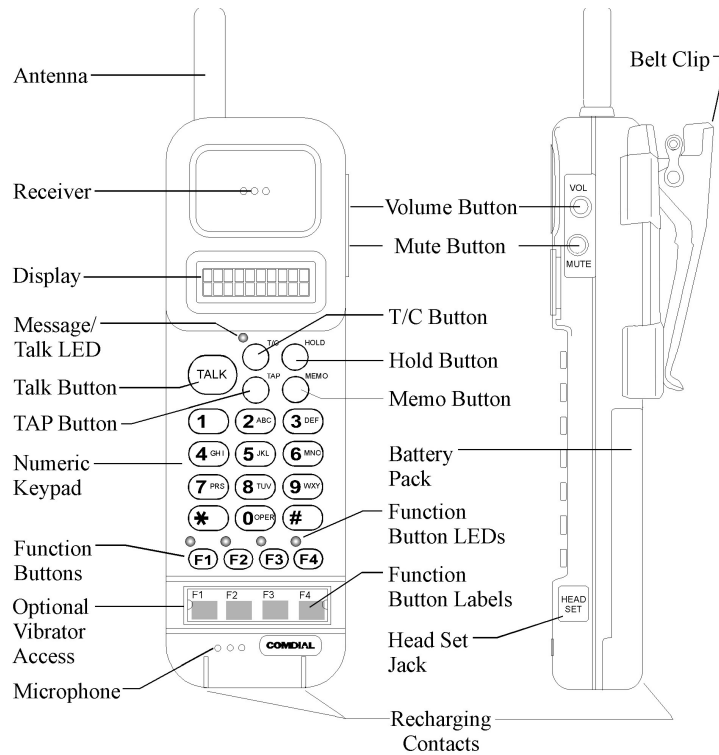
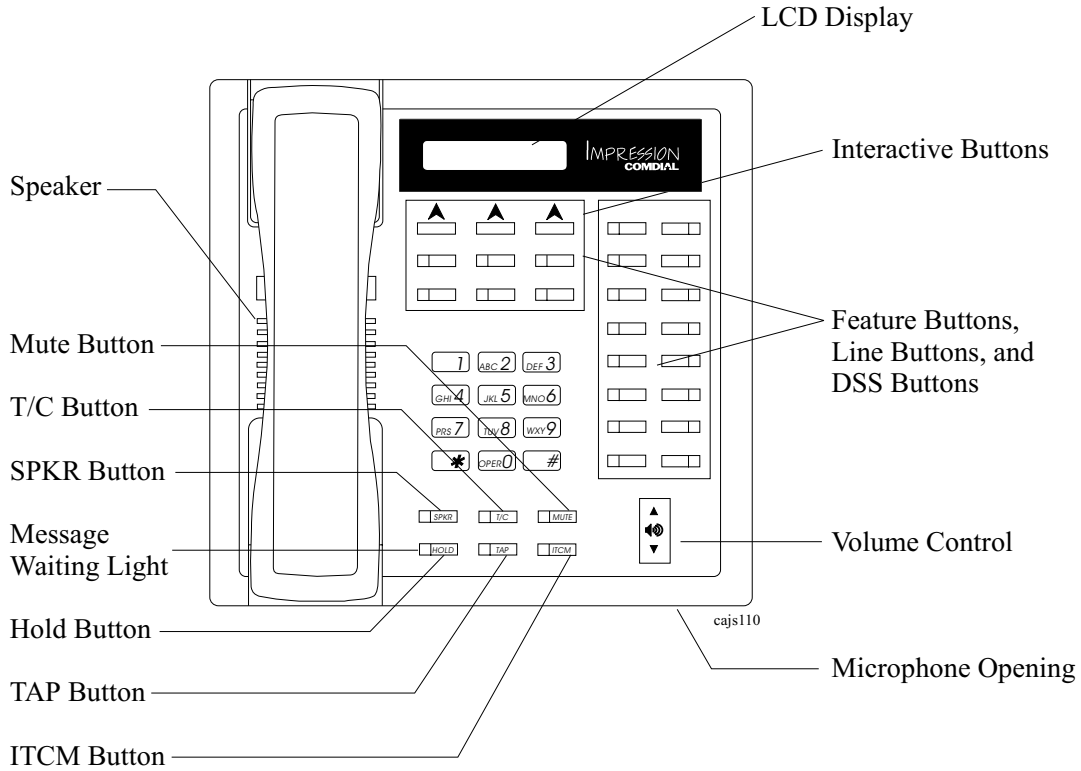
To adjust the display intensity, press and hold the MUTE button on DigiTech telephones until you achieve the desired intensity or select **DISP** on *Impact* and *Impression* telephones through the interactive buttons.



CAJS107



### Locating DigiTech and Impact Controls and Indicators



## Understanding the General Specifications

### System Capacity

	<b>J0408</b>	<b>J0816</b>	<b>J01632</b>	<b>JM408</b>	<b>JM008</b>
<b>Lines</b>	4	8	16	4	0
<b>Stations</b>	8	16	32	8	8 IST
<b>DSS/BLF Consoles</b>	Two per station—one per station port	Two per station—one per station port	Two per station—one per station port	Two per station—one per station port	Not Applicable
<b>Intercom Paths</b>	Non-blocking	Non-blocking	Non-blocking	Non-blocking	Non-blocking
<b>Maximum Simultaneous Intercom Conversations</b>	Non-blocking	Non-blocking	Non-blocking	Non-blocking	Non-blocking
<b>Paging Ports</b>	1	1	1	Not Applicable	Not Applicable
<b>Park Orbits</b>	9	9	9	Not Applicable	Not Applicable
<b>System Speed Dials</b>	99	99	99	Not Applicable	Not Applicable
<b>Station Speed Dials</b>	10	10	10	Not Applicable	Not Applicable
<b>auto</b>	Unused Button	Unused Buttons	Unused Buttons	Not Applicable	Not Applicable
<b>Power Fail Circuits</b>	1	1	1	1	Not Applicable
<b>Memory Retention After Power Loss</b>	60 hours minimum				

### Common Equipment Dimensions

	<b>J0408</b>	<b>J0816</b>	<b>J1632</b>	<b>JM408 and JM008</b>
<b>Width (inches)</b>	16.5	16.5	16.5	16.5
<b>Height (inches)</b>	21.3	27.1	27.6	9.25
<b>Depth (inches)</b>	3.8	3.8	4.5	1.75
<b>Weight (pounds)</b>	17.5	26	30.5	4

**Conferencing**

	<b>J0408 and J0816</b>	<b>J1632</b>
Maximum Combinations at Any One Time	1 five-way plus 1 three-way plus 2 SOHVA	4 five-way plus 1 three-way plus 1 SOHVA
	2 four-way plus 2 SOHVA	6 four-way plus 2 three-way
	1 four-way plus 3 three-way	3 four-way plus 9 three-way
	5 three-way plus 1 SOHVA	16 three-way

**SMDA Storage Capacity**

<b>J0408</b>	<b>J0816</b>	<b>J1632</b>
800	1600	1600

**Station Cable Requirements**

<b>Type</b>	2-wire (1-pair) twisted, non-shielded cable
<b>Maximum Length</b>	1000 feet with 24 gauge wire, 2000 feet with 22 gauge wire
<b>Switching Principle</b>	Digital, time division multiplexing (TDM). Provides non-blocking switching with stored program control

**Operating Environment**

<b>Temperature</b>	32-122 degrees F (0-50 degrees C)
<b>Humidity</b>	90 percent relative, non-condensing

**Power Requirements**

	<b>J0408</b>	<b>J0816</b>	<b>J1632</b>	<b>JM408 and JM008</b>
<b>Voltage</b>	90-129 VAC Single phase all models			
<b>Current</b>	0.6A	2.0 A	2.1A	Not Applicable
<b>Power</b>	70W	135W	150W	Not Applicable
<b>Volt/Amps</b>	80VA	190VA	200VA	Not Applicable

**Terminations**

<b>Station</b>	Standard 50-pin male connectors for connection to external distribution field
<b>Line</b>	Standard 6-conductor mini-jack (USOC 14C)



**Music Interface**

<b>Input Level</b>	3 Volts peak-to-peak maximum
<b>Input Impedance</b>	Approximately 500 Ohms
<b>Connector</b>	RCA phono jack

**Station Message Detail Recording Port**

<b>Format</b>	Serial, pseudo RS-232C
<b>Parity</b>	None
<b>Data Bits</b>	7 or 8 (programmable)
<b>Stop Bits</b>	1 or 2 (programmable)
<b>Baud Rate</b>	Programmable in class of service
<b>Handshaking</b>	X on -X off      Hardware -CTS
<b>Cable Length</b>	500 feet maximum

**PA Port**

<b>Output Level</b>	400 Millivolts peak-to-peak (typical speech)
<b>Output Impedance</b>	Approximately 500 Ohms
<b>Connector</b>	RCA phono jack

**Central Office Limits**

<b>Loop Limits</b>	1900 Ohms maximum loop
<b>Cable Insulation Leakage</b>	15,000 Ohms minimum

### Industry/Regulatory Standards

FCC Part 15, Class A RF emissions certified
FCC Part 68 Telco registered (fully protected)
IC CS03 Telco certified
UL 1459 safety approved by OSHA approved NAVLAP
CSA C22.2 No. 225 safety approved by OSHA approved NAVLAP
EIA RS478
Bell publication 48002 guidance
Hearing aid compatible handset

### Regulatory Codes

<b>FCC Registration Number–Key System</b>	CVWUSA-61535-KF-E
<b>FCC Registration Number–Hybrid System</b>	CVWUSA-61536-MF-E
<b>Facilities Interface Code (FIC)</b>	02LS2
<b>Universal Service Ordering Code (USOC)</b>	9.0Y
<b>Universal Service Ordering Code (USOC) Jacks</b>	RJ14C or RJ21X
<b>Ringer Equivalence Number(J0408, J0816, and J1632)</b>	0.4B
<b>Ringer Equivalence Number (JM408)</b>	1.2B

### Feature Codes

Feature		Dialing Code
All Call Page (through station speakers)		INTERCOM, <input type="text" value="8"/> <input type="text" value="7"/>
Attendant Calling		INTERCOM, <input type="text" value="0"/>
Automatic Redialing		Programmed Button
Background Music	On	INTERCOM, <input type="text" value="*"/> <input type="text" value="1"/>
	Off	INTERCOM, <input type="text" value="#"/> <input type="text" value="1"/>
Automatic Call Back	Activate	INTERCOM, (ext no), <input type="text" value="*"/> <input type="text" value="6"/>
	Cancel	INTERCOM, <input type="text" value="#"/> <input type="text" value="6"/>
Station-to-Station Messaging	Activate	INTERCOM, (ext no), <input type="text" value="*"/> <input type="text" value="7"/>
	Cancel	INTERCOM, <input type="text" value="#"/> <input type="text" value="7"/> , (ext no)
LCD Messaging	Set	INTERCOM, <input type="text" value="*"/> <input type="text" value="0"/> <input type="text" value="2"/> (1-0)
	Cancel	INTERCOM, <input type="text" value="#"/> <input type="text" value="0"/> <input type="text" value="2"/>

Feature		Dialing Code
Call Forward	Personal	INTERCOM, *05, (ext no)
	Cancel	INTERCOM, #05
	All Calls	INTERCOM, *5, (ext no)
	Cancel	INTERCOM, #5
Call Forward Outside System (CFOS)	Activate	INTERCOM, *07, (ext no)
	Cancel	INTERCOM, #07
Call Park	Park Orbits 1-9	INTERCOM, * (91-99)
	Pick Up	INTERCOM, # (91-99)
Call Pick Up	Directed	INTERCOM, *4, (ext no)
	Group	INTERCOM, #4
Call Waiting Tone	Send	INTERCOM, (ext no), *01
	Cancel	Hang Up
Do Not Disturb	Set	Programmed Button
	Cancel	Programmed Button
Executive Override		INTERCOM, (ext no), *03
External Page		INTERCOM, 89
Answer Inhibit	Set	MUTE
	Cancel	MUTE
Hold	Manual	HOLD
	Exclusive	HOLD, HOLD
	Direct	INTERCOM, *90, (ext no)
	Direct Hold Pick Up	INTERCOM, #90
Line Answer From Any Station		INTERCOM, 80
Line Group Access	Group 1	INTERCOM, 9
	Group 2	INTERCOM, 81
	Group 3	INTERCOM, 82
	Group 4	INTERCOM, 83
Line Queuing	Enable Line Group	INTERCOM, (gp code), *8
	Cancel	INTERCOM, #8
Meet Me Answer Paging		INTERCOM, 88

Feature		Dialing Code
Message Waiting	Set	INTERCOM, *3, (ext no)
	Cancel From Idle	INTERCOM, #3, (ext no)
	Cancel On Line	INTERCOM
	Retrieve Message	INTERCOM, HOLD
Night Transfer (Attendant)	On	INTERCOM, *#03, Programmed Button
	Off	INTERCOM, *#03, Programmed Button
Personal Ringing Tones	Set Tones 1-6	INTERCOM, **4 (1-6)
Pulse/Tone Switching		#
Redial Last Dialed Number		#
Save Number Redial	Use	HOLD, Programmed Button
	Store	Programmed Button
Service Observing		INTERCOM, #03, (ext no)
Speed Dial	Station	0-9
	System	*01-99
TAP (on line)	Activate	INTERCOM, #04
Toll Restriction Override	Activate	INTERCOM, **6 (extension number, code)
Tracker Pager	Enable	INTERCOM, *06
	Disable	INTERCOM, #06
	Send Message	INTERCOM, #01
Voice Announce Block	Block	INTERCOM, *2
	Unblock	INTERCOM, #2
Zone Page	Zone 1	INTERCOM, 84
	Zone 2	INTERCOM, 85
	Zone 3	INTERCOM, 86

## System Ringing Patterns

<b>Ring Type</b>	<b>Ring Cadence</b>
CO/PBX Line Ring	Host system ring cadence
Intercom Tone Signaling	Two 150 msec. tone bursts every four seconds
Voice Signaling alert	One 215 msec. tone burst
Timed hold recall at station that put call on hold	Three 150 msec. tone bursts at the end of each timeout period
Call back alert	One 80 msec. tone burst followed by three 150 msec. tone bursts and one 80 msec. tone burst
Queue Enabled	
Call forward alert	One 80 msec. tone burst
Transfer ringing	Two 1.1 sec tone busts every four seconds

<b>Tone Type</b>	<b>Tone Cadence</b>
Dial Tone	Continuous on
Called station ring-back	One sec. on and three sec. off
Base level program entry	80 msec. tone burst sounded once
Error tone—incorrect entry	530 msec. tone burst sounded three times
All-call and zone paging notification tone	80 msec. tone burst followed by 280 msec. tone
Busy tone	530 msec. tones sounded continuously
Override feature not allowed	
Night transfer feature not allowed	
Call waiting tone	Three 80 msec. tone bursts sounded once
Called station in do-not-disturb mode	140 msec. tone burst sounded twice every 1.5 sec.
Call-back busy feature on	260 msec. tone burst sounded once
System is awaiting memory dial number or key mapping entry after location is specified	80 msec. tone burst sounded continuously
Override feature on warning tone	Six 100 msec. tone bursts sounded for 1.5 secs.
DISD ringback tone	Dual 440/480 Hz tone sounded 1 sec. on/1 sec. off
DISD dial tone	381 Hz tone sounded continuously
DISD confirmation tone	Two 125 sec. bursts of 381 Hz tone sounded once
DISD busy/error tone	Three 500 msec. bursts of 381 Hz tone sounded once

## Seeking Repair Assistance

“In warranty” defective product may be returned to American Phone Centers, postage or freight prepaid. American Phone Centers will, at its option, repair or replace the defective product free of charge.

“Out of warranty” defective equipment may be returned (postage or freight prepaid) to American Phone Centers without prior authorization. American Phone Centers will, at its option, repair or replace the defective unit, if the unit is deemed by APC to be repairable, at APC’s then current rate for the repair. An evaluation and testing fee may be invoiced by APC if a unit is judged by APC to be not repairable for any reason. Units are re-dated to allow for a new warranty, which is half of the original warranty period.

Returns should be carefully packed to prevent damage. Any damage incurred during shipment will be the responsibility of the sender.

A complete repair rate schedule is available by calling: **800-877-4448**

All returns should be sent to:

**American Phone Centers (APC)  
395-120 Reas Ford Road  
Earlsville VA 22936**

**2**

## **Telephone System Installation**

### **Considering the Mounting Requirements**

The following requirements will help you to install the DSU II digital telephone system.

- Locate the equipment cabinet within four feet of an AC electrical outlet dedicated exclusively to the use of this equipment. The outlet must be a 117 VAC 15 AMP circuit with a third-wire ground supplied to a standard electrical outlet (NEMA 5-15R).
- Mount the common equipment within 25 feet of the TELCO/PBX jacks. The recommended nominal distance is 7 feet.
- Choose a secure and dry mounting location that has adequate ventilation. The temperature range of the location must be within 32–122 degrees F (0–50 degrees C) and that the relative humidity is less than 90 percent, non-condensing.
- If the mounting surface is damp or if it is made of concrete or masonry material, you must attach a backboard to the mounting surface for mounting the common equipment. Suitable mounting backboards are available commercially or you can construct one from 3/4-inch plywood by cutting it to size.

### **Tools and Hardware**

You will need the following tools and materials to install the common equipment.

- 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,
- Volt/Ohm Meter.

## Underwriters Laboratories Installation Notice

Per The Underwriters Laboratories standard 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 un-insulated telephone wires or terminals unless the telephone line has been disconnected at the network interface,
- use caution when installing or modifying telephone lines.

## Hybrid Installation

Whenever a programmer assigns lines to line groups, the digital telephone system automatically assumes the hybrid mode. Your local telephone company may charge a higher monthly fee for operation of a hybrid system; therefore, the FCC requires that you report the equipment-type category designation number (KF for key system, MF for hybrid system) to the telephone company at the time of installation.

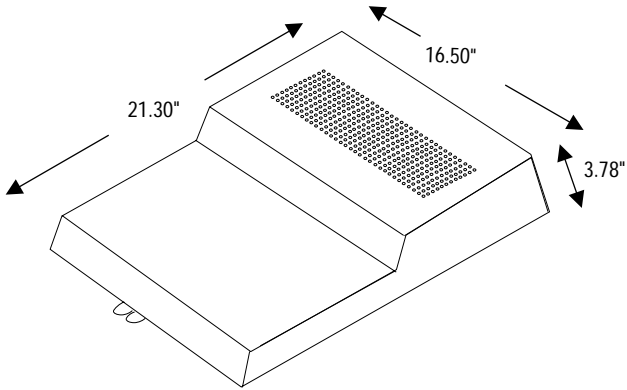
<b>FCC Registration</b>	
<b>Key System</b>	CVWUSA-61535-KF-E
<b>Hybrid System</b>	CVWUSA-61536-MF-E



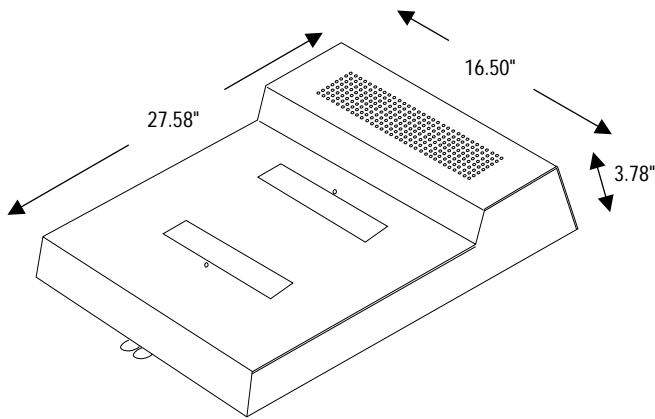
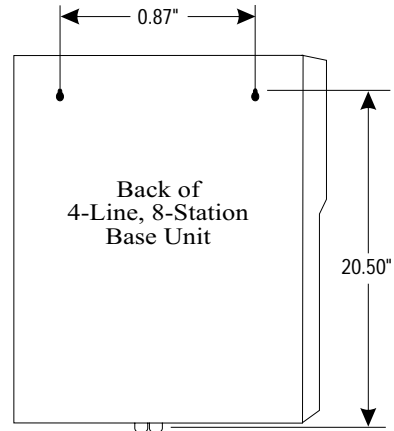
## **Mounting the Cabinet**

After thoroughly reviewing *Considering the Mounting Requirements* on page 27 and fully understanding its subject matter, use the following procedure to mount the common equipment cabinet.

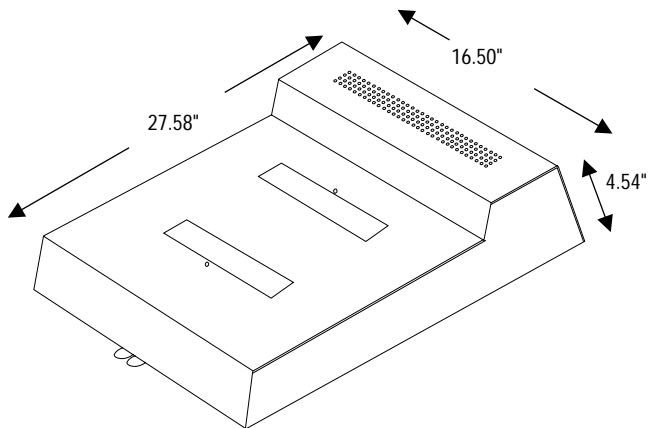
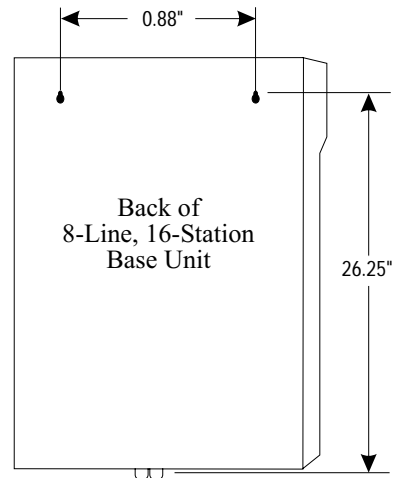
1. Unpack and carefully inspect all equipment for shipping damage. Notify the shipper immediately of any damages that you find. Verify that the packages contain all parts and accessories needed for proper installation and operation.
2. If the mounting location requires a backboard, attach it securely to provide a stable mounting surface for the equipment.
3. Refer to the figure on the next page or to the PP032-001 mounting template included in the literature that accompanies the common equipment cabinet for the locating dimensions required for the three mounting screws, and mark their locations 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 two 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 snap 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 telephone stations as desired and in keeping with accepted industry and office standards. You can wall mount a telephone station if necessary (see *Wall Mounting the Telephone Station* on page 48 for details).



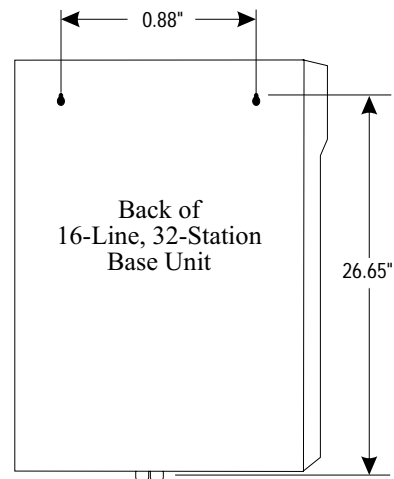
**4-Line, 8-Station Base Unit**



**8-Line, 16-Station Base Unit**



**16-Line, 32-Station Base Unit**



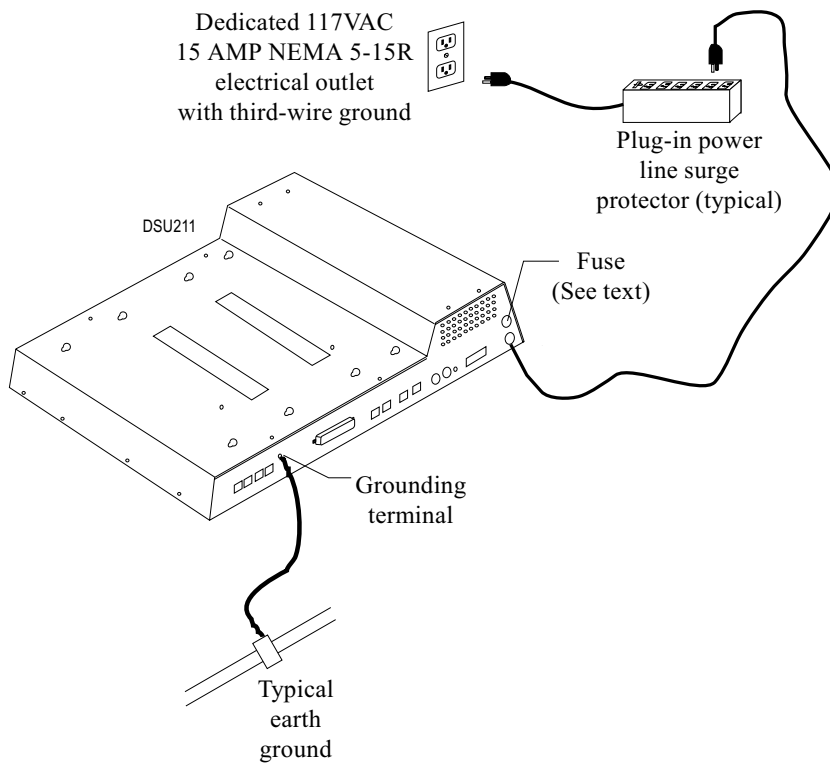
DSU250.CDR

**Detailing the DSU II Cabinet Dimensions**

## Making the AC Power Connection

You must employ a dedicated 15 AMP circuit, with a third-wire ground, supplied to a standard electrical outlet (NEMA 5-15R) for the AC power connection.

- For added equipment protection, connect a plug-in power line surge protector between the power cord and the AC outlet.
- Thoroughly check out the installation before connecting the power cord to an electrical outlet to apply AC power to the system.



**Making the AC Power Connections**

## Identifying the Fuses

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

<b>Comparing Cabinets and their Fuse Types</b>	
<b>Cabinet</b>	<b>Fuse Value</b>
J0408	1A 250V slow-blow type
J0816	3A 250V slow-blow type
J1632	3A 250V slow-blow type

## Grounding the System

If spare conductors exist in the cables between the station and the 66M-xx connector blocks, it is good practice to connect them to an earth ground. Doing this may help prevent them from inducing radio frequency and/or AC interference into the system. It is also good practice to disconnect any unused station jacks from the connector block and ground that wiring to an earth ground as well.

Transient voltage spikes, if induced onto CO or CENTREX lines, can travel through the cable and into the common equipment. The telephone company offers basic protection against this condition but it is usually designed to protect the central office circuits. While it will also provide some protection to the common equipment, you should not rely upon it for total protection. To help ensure that external over-voltage surges do not damage the system, you should install and properly ground primary protection devices, such as gas discharge tubes or similar devices, on all lines. While the line boards have internal secondary surge protection on all line ports, in order for this protection to be effective, you **MUST** connect the common equipment cabinet to a reliable, effective earth ground.

Proper DSU grounding is necessary for trouble-free operation and personnel safety. The DSU has the following three types of grounds:

- **Service Ground**—a neutral power line wire that is connected to the ground bus in the premises' AC power panel,
- **System Ground**—a non-current carrying power line wire that is connected to the ground bus in the premises' AC power panel,
- **Frame Ground**—a low impedance conductor that places the common equipment cabinet at reference ground potential. The frame ground provides the greatest safety by limiting electrical potential between non-current carrying parts of the system. The common equipment cabinet provides a ground stud on its cabinet for access to its frame ground.

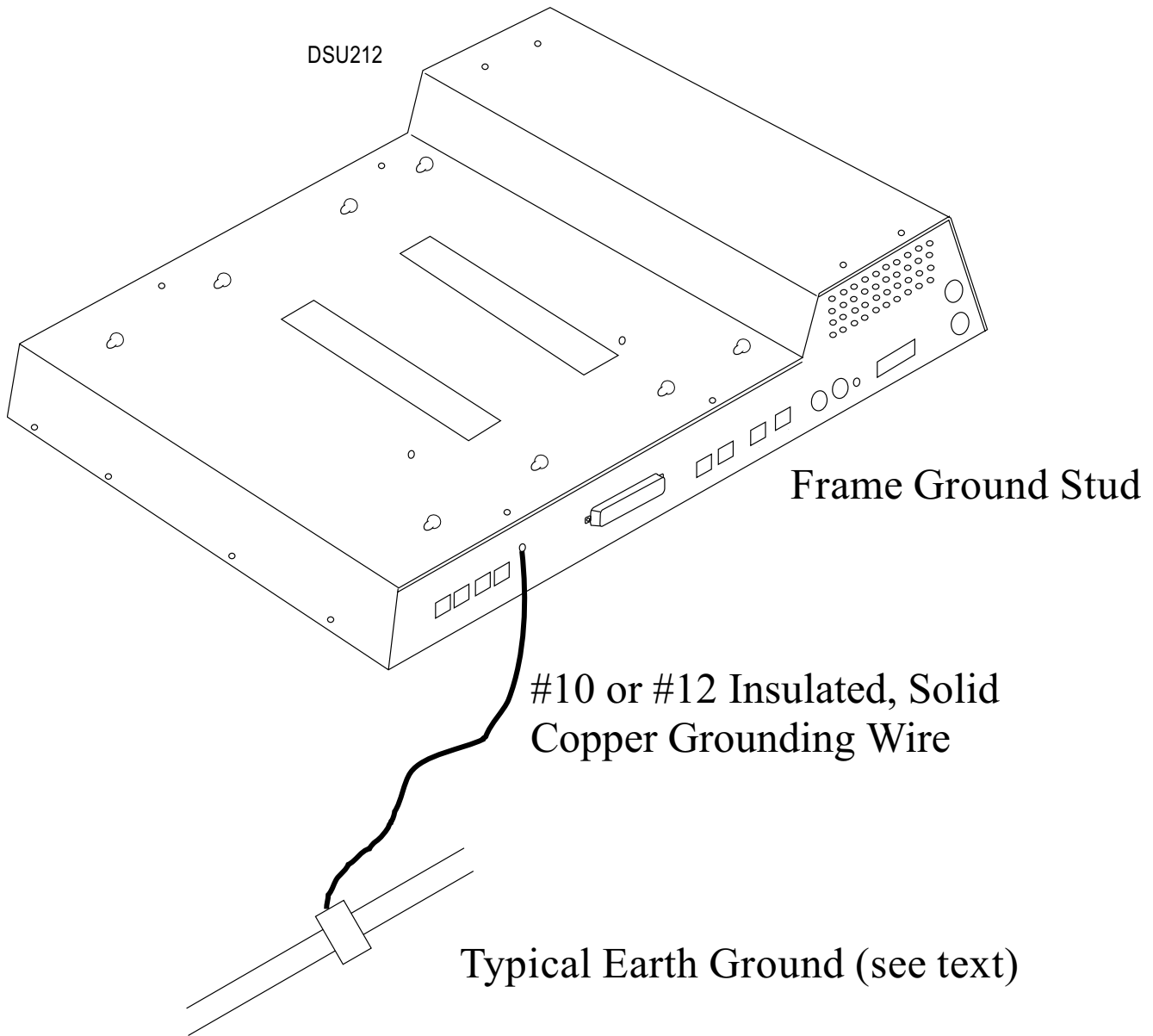
Effective grounding requires that you connect the frame ground to a good earth ground. A good earth ground is one such as the ground bus in the premises' AC power panel or a public metallic cold water pipe at a point immediately at its entrance to the premises and ahead of any meters, pumps, or insulating sections that have been added for vibration reduction. Avoid using the premises' structural steel frame as it may not be at earth ground potential. Make the ground connection with #10 or #12 insulated, solid copper grounding wire. **Keep the ground wire separate from the three-wire AC line cord ground, do not splice it, and keep it as short as possible.**

The impedance of the wiring between the common equipment cabinet and the earth ground must not exceed 0.25 ohms and the impedance between the earth ground and the power company's reference standard ground must not exceed 4 ohms. Use an acceptable low impedance measuring device to measure the impedance of these paths. The #10 or #12 wire size will minimize the wiring impedance; however, if the impedance between earth ground and the power company's standard reference ground exceeds 5 ohms, contact the local power company. The ground path must always be of sufficient current-carrying capacity to prevent a build up of voltages that may result in circuit noise, hazard to personnel, or equipment damage.

Be sure that all of the ground connections are without splices and are visible for inspection and maintenance. Tag all of the ground connections with a sign that reads: *Do Not Remove Or Disconnect.*

If you install expansion modules on the base cabinet, attach at least a #10 or #12 insulated, solid copper wire between the frame ground stud on the expansion module(s) to the frame ground stud on the base cabinet.

Remember, if spare conductors exist in the cables that run between the stations and the connector blocks, it is good practice to connect them to earth ground. Doing this may help prevent them from introducing radio frequency and/or AC interference into the system. Also remember that it is good practice to disconnect any unused station jacks from the connector block and ground that wiring to earth ground as well.

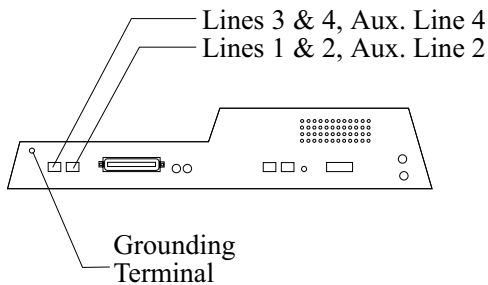


**Grounding the System**

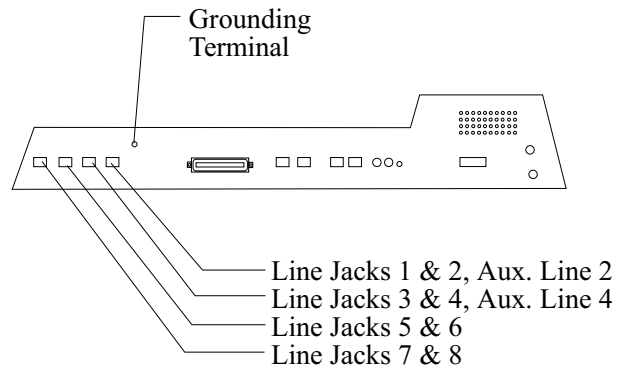
## Connecting the Lines

The line terminations for the common equipment cabinet are standard modular plug/jack connections. Line configuration must be loop start only. Each modular jack provides termination for two lines. Modular line jacks 1 and 2 also provide termination for an auxiliary pair in addition to the two outside lines. The outside line termination can be a type 66M-xx connector block or individual 6-position modular jacks. The line cord that is routed between the outside line termination and the common equipment termination should be twisted-pair wiring. The J0408, J0816 and J1632 common equipment supports the installation of up to 4, 8, or 16 lines, respectively. Add-on expansion modules are available to expand the line capacity of the systems.

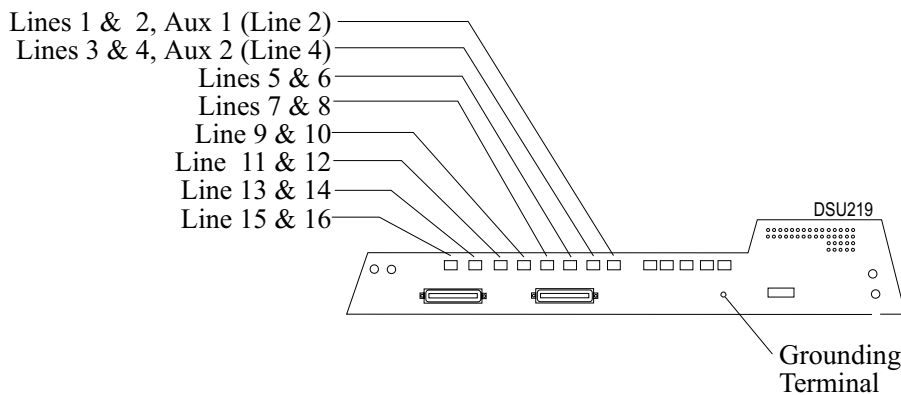
### 4-Line, 8-Station Base Unit



### 8-Line, 16-Station Base Unit

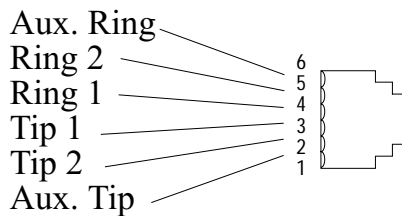
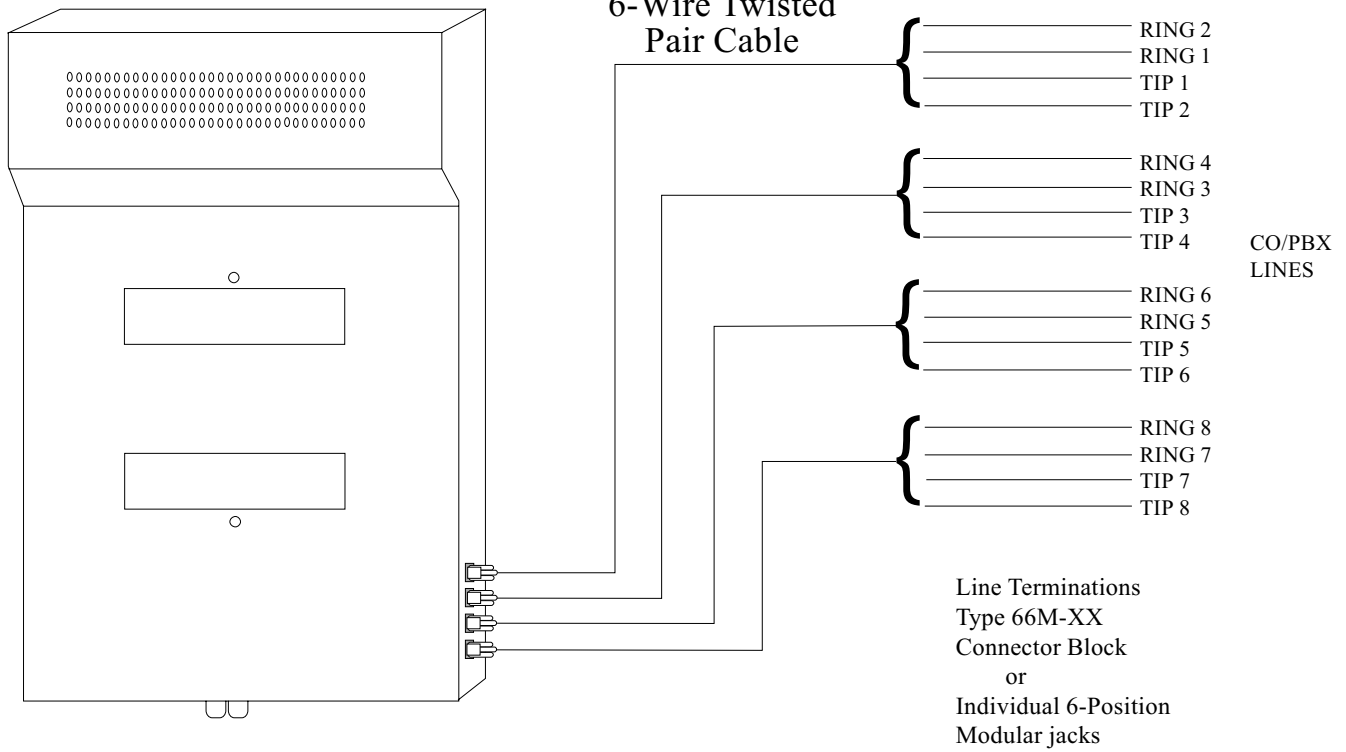


### 16-Line, 32-Station Base Unit

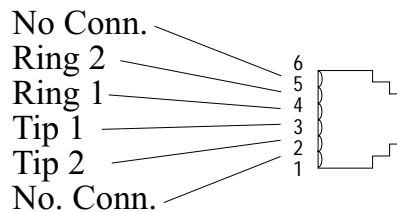


### Locating the Line Connections

**(Typical 8-Line, 16-Station Base Unit Shown)**



Pin designation for  
Line Jacks 1 and 2



Pin designation for  
Line Jacks 5 and 6

CAJS083

**Detailing the CO Interface**

## **Detailing the Line Connections**

The table on the next page shows the line connection details for all three of the common equipment base units. Jacks one and two are the same for all three cabinets, jacks three and four are the same for both the and J1632 cabinets, and jacks five through eight are only available on the J1632 cabinet.

## **Reassigning the Line Ports**

After you have initially connected a line to a particular line port and programmed its attributes (or left it with the system defaulted values), you can reassign the line and its attributes to a different port by programming action if you wish. Refer to Chapter 3 for the line to line port reassignment programming details.

### **CAUTION**

*While this feature allows you to make adds, moves, and changes without relocating the line wiring, it is not a substitute for correct wiring and should not be used as such. Be sure to record any reassignments that you make.*

## **Protecting the Lines**

Transient voltage spikes, if induced onto CO or CENTREX lines, can travel through the cable and into the common equipment. The telephone company offers basic protection against this condition but it is usually designed to protect the central office circuits. While it will also provide some protection to the common equipment, it should not be relied upon for total protection. To help ensure that external over-voltage surges do not damage the system, the manufacturer recommends that gas discharge tubes, or similar primary protection devices, be installed and properly grounded on all lines (a selection of solid-state protection devices that are useful for this purpose is available from ITW Linx, Elk Grove Village, Illinois 60007).



<b>Understanding the Line Connection Details</b>				
<b>Common Equipment Type</b>	<b>Line Jack</b>	<b>Pin No.</b>	<b>Connection</b>	<b>Telephone Number</b>
J0408, J0816, and J1632	1	1	Auxiliary 1 (Line 2) Tip	
		2	Line 2 Tip	
		3	Line 1 Tip	
		4	Line 1 Ring	
		5	Line 2 Ring	
		6	Auxiliary 1 (Line 2) Ring	
	2	1	Auxiliary 2 (Line 4) Tip	
		2	Line 4 Tip	
		3	Line 3 Tip	
		4	Line 3 Ring	
		5	Line 4 Ring	
		6	Auxiliary 2 (Line 4) Ring	
J0816 and J1632	3	1	No Connection	
		2	Line 6 Tip	
		3	Line 5 Tip	
		4	Line 5 Ring	
		5	Line 6 Ring	
		6	No Connection	
	4	1	No Connection	
		2	Line 8 Tip	
		3	Line 7 Tip	
		4	Line 7 Ring	
		5	Line 8 Ring	
		6	No Connection	
J1632	5	1	No Connection	
		2	Line 10 Tip	
		3	Line 9 Tip	
		4	Line 9 Ring	
		5	Line 10 Ring	
		6	No Connection	
	6	1	No Connection	
		2	Line 12 Tip	
		3	Line 11 Tip	
		4	Line 11 Ring	
		5	Line 12 Ring	
		6	No Connection	

Understanding the Line Connection Details				
Common Equipment Type	Line Jack	Pin No.	Connection	Telephone Number
J1632 continued	7	1	No Connection	
		2	Line 14 Tip	
		3	Line 13 Tip	
		4	Line 13 Ring	
		5	Line 14 Ring	
		6	No Connection	
	8	1	No Connection	
		2	Line 16 Tip	
		3	Line 15 Tip	
		4	Line 15 Ring	
		5	Line 16 Ring	
		6	No Connection	

## Connecting the Stations

The DSU II digital telephone system supports the operation of proprietary Comdial telephones.

The J0408, J0816 and J1632 common equipment supports the installation of up to eight, 16, or 32 telephones, respectively. Add-on expansion modules are available to expand the station capacity of the systems. You can add one expansion module to the J0408, and two expansion modules to the J0816 and J1632. The JM408 expansion module provides interface for eight proprietary stations (plus interface for four lines) while the JM008 expansion module provides interface for eight industry-standard devices.

Connections between the common equipment and the stations are typically via type connector blocks which are cable connected to the common equipment's 50-pin male connector. The connector block is, in turn, wired to modular jacks that accept the modular line cord connected between it and the telephones.

The maximum distance allowed from the common equipment to the stations is per the following list:

- Multiline Telephones—1000 feet using #24 gauge, twisted-pair cable or 2000 feet using #22 gauge cable

When installing the system telephones keep in mind that each station port supports only one proprietary telephone and the system does not allow you to bridge two stations to a single modular jack.

**Always** route station wiring a minimum of 12 inches from any other parallel wires or electrical devices. If electrical noise or RF energy is at a high level, you may need to use shielded cable with the shield connected to the cabinet ground lug.

## Grounding the Unused Station Cables

Remember, if spare conductors exist in the cables that run between the stations and the connector blocks, it is good practice to connect them to earth ground. Doing this may help prevent them from introducing radio frequency and/or AC interference into the system. Also remember that it is good practice to disconnect any unused station jacks from the connector block and ground that wiring to earth ground as well.

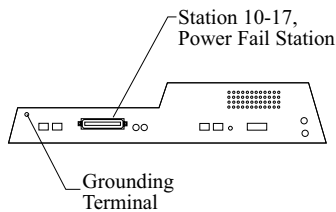
Remove insulation and twist together all spare wires at the wall outlet. Ground the wires at the to the common equipment cabinet ground lug.

## Relocating the Stations

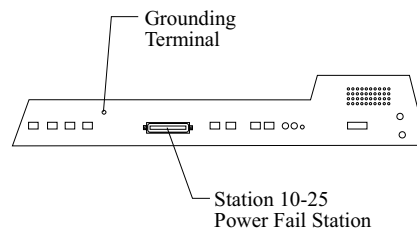
The Comdial proprietary telephones identify themselves to the system when you install them. The system assigns an extension number and all other programmable attributes to station ports as a default that you can reprogram as needed. Plus, you can use programming action to reassign attributes of one station port to a different station port if you wish. Refer to the automatic station relocation programming procedure and the station-to-station programming procedure found in Chapter 3.

**NOTE:** The system will not allow you to relocate the station 10 to station port 10 assignment.

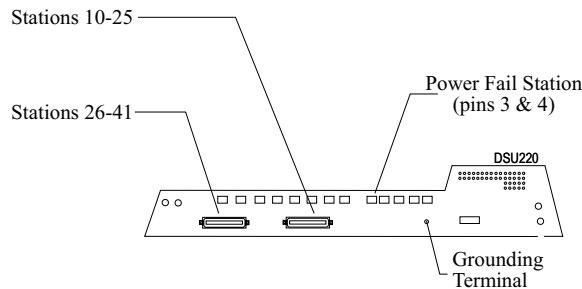
**4-Line, 8-Station Base Unit**



**8-Line, 16-Station Base Unit**



**16-Line, 32-Station Base Unit**



### **Locating the Station Connections**

**CAUTION**

While this feature allows you to make adds, moves, and changes without relocating the station wiring, it is not a substitute for correct wiring and should not be used as such. Be sure to record any reassignments that you make.

## Installing the Cable Clips

Each cabinet-mounted 50-pin male connector is equipped with a retaining clip. This clip is designed to secure the mated connection once it is made. The clip does this by snapping into a slot on the cable-mounted connector when it is pressed together with the cabinet-mounted connector. This retaining clip must be pulled back slightly to unsnap it before the connectors can be separated.

## Connecting Stations to the J0408

This table shows the color-coded connections for a J0408 common equipment cabinet.

<b>Connecting Stations to the J0408 Common Equipment Cabinet</b>							
<b>25-Pair Connections</b>			<b>Two-Wire Connections</b>			<b>Station Connections</b>	
<b>Wire Color</b>	<b>Pair</b>	<b>Pin No.</b>	<b>Clip Term.</b>	<b>Pair</b>	<b>Wire Color</b>	<b>Station</b>	<b>Location</b>
White-Blue	1	26	1	Signal Path	Green	10	
Blue-White		1	2		Red		
White-Orange	2	27	3	Signal Path	Green	11	
Orange-White		2	4		Red		
White-Green	3	28	5	Signal Path	Green	12	
Green-White		3	6		Red		
White-Brown	4	29	7	Signal Path	Green	13	
Brown-White		4	8		Red		
White-Slate	5	30	9	Signal Path	Green	14	
Slate-White		5	10		Red		
Red-Blue	6	31	11	Signal Path	Green	15	
Blue-Red		6	12		Red		
Red-Orange	7	32	13	Signal Path	Green	16	
Orange-Red		7	14		Red		
Red-Green	8	33	15	Signal Path	Green	17	
Green-Red		8	16		Red		

Connecting Stations to the J0408 Common Equipment Cabinet							
25-Pair Connections			Two-Wire Connections			Station Connections	
Wire Color	Pair	Pin No.	Clip Term.	Pair	Wire Color	Station	Location
Red-Brown	9	34	17				
Brown-Red		9	18				
Red-Slate	10	35	19				
Slate-Red		10	20				
Black-Blue	11	36	21				
Blue-Black		11	22				
Black-Orange	12	37	23				
Orange-Black		12	24				
Black-Green	13	38	25				
Green-Black		13	26				
Black-Brown	14	39	27				
Brown-Black		14	28				
Black-Slate	15	40	29				
Slate-Black		15	30				
Yellow-Blue	16	41	31				
Blue-Yellow		16	32				
Yellow-Orange	17	42	33				
Orange-Yellow		17	34				
Green-Yellow	18	43	35				
Yellow-Green		18	36				
Brown-Yellow	19	44	37				
Yellow-Brown		19	38				
Yellow-Slate	20	45	39				
Slate-Yellow		20	40				
Violet-Blue	21	46	41				
Blue-Violet		21	42				
Orange-Violet	22	47	43				
Violet-Orange		22	44				
Green-Violet	23	48	45				
Violet-Green		23	46				
Brown-Violet	24	49	47				
Violet-Brown		24	48				
Violet-Slate	25	50	49				
Slate-Violet		25	50				

## Connecting Stations to the J0816

This table shows the color-coded connections for a J0816 common equipment cabinet.

<b>Connecting Stations to the J0816 Common Equipment Cabinet</b>							
<b>25-Pair Connections</b>			<b>Two-Wire Connections</b>			<b>Station Connections</b>	
<b>Wire Color</b>	<b>Pair</b>	<b>Pin No.</b>	<b>Clip Term.</b>	<b>Pair</b>	<b>Wire Color</b>	<b>Station</b>	<b>Location</b>
White-Blue	1	26	1	Signal Path	Green	10	
Blue-White		1	2		Red		
White-Orange	2	27	3	Signal Path	Green	11	
Orange-White		2	4		Red		
White-Green	3	28	5	Signal Path	Green	12	
Green-White		3	6		Red		
White-Brown	4	29	7	Signal Path	Green	13	
Brown-White		4	8		Red		
White-Slate	5	30	9	Signal Path	Green	14	
Slate-White		5	10		Red		
Red-Blue	6	31	11	Signal Path	Green	15	
Blue-Red		6	12		Red		
Red-Orange	7	32	13	Signal Path	Green	16	
Orange-Red		7	14		Red		
Red-Green	8	33	15	Signal Path	Green	17	
Green-Red		8	16		Red		
Red-Brown	9	34	17	Signal Path	Green	18	
Brown-Red		9	18		Red		
Red-Slate	10	35	19	Signal Path	Green	19	
Slate-Red		10	20		Red		
Black-Blue	11	36	21	Signal Path	Green	20	
Blue-Black		11	22		Red		
Black-Orange	12	37	23	Signal Path	Green	21	
Orange-Black		12	24		Red		
Black-Green	13	38	25	Signal Path	Green	22	
Green-Black		13	26		Red		
Black-Brown	14	39	27	Signal Path	Green	23	
Brown-Black		14	28		Red		
Black-Slate	15	40	29	Signal Path	Green	24	
Slate-Black		15	30		Red		
Yellow-Blue	16	41	31	Signal Path	Green	25	
Blue-Yellow		16	32		Red		

Connecting Stations to the J0816 Common Equipment Cabinet							
25-Pair Connections			Two-Wire Connections			Station Connections	
Wire Color	Pair	Pin No.	Clip Term.	Pair	Wire Color	Station	Location
Yellow-Orange	17	42	33				
Orange-Yellow		17	34				
Green-Yellow	18	43	35				
Yellow-Green		18	36				
Brown-Yellow	19	44	37				
Yellow-Brown		19	38				
Yellow-Slate	20	45	39				
Slate-Yellow		20	40				
Violet-Blue	21	46	41				
Blue-Violet		21	42				
Orange-Violet	22	47	43				
Violet-Orange		22	44				
Green-Violet	23	48	45				
Violet-Green		23	46				
Brown-Violet	24	49	47				
Violet-Brown		24	48				
Violet-Slate	25	50	49				
Slate-Violet		25	50				

## Connecting Stations to the J1632

The following two tables show the color-coded connections for a J1632 common equipment cabinet.

<b>Connecting Stations to J1 on the J1632 Common Equipment Cabinet</b>							
<b>25-Pair Connections</b>			<b>Two-Wire Connections</b>			<b>Station Connections</b>	
<b>Wire Color</b>	<b>Pair</b>	<b>Pin No.</b>	<b>Clip Term.</b>	<b>Pair</b>	<b>Wire Color</b>	<b>Station</b>	<b>Location</b>
White-Blue	1	26	1	Signal Path	Green	10	
Blue-White		1	2		Red		
White-Orange	2	27	3	Signal Path	Green	11	
Orange-White		2	4		Red		
White-Green	3	28	5	Signal Path	Green	12	
Green-White		3	6		Red		
White-Brown	4	29	7	Signal Path	Green	13	
Brown-White		4	8		Red		
White-Slate	5	30	9	Signal Path	Green	14	
Slate-White		5	10		Red		
Red-Blue	6	31	11	Signal Path	Green	15	
Blue-Red		6	12		Red		
Red-Orange	7	32	13	Signal Path	Green	16	
Orange-Red		7	14		Red		
Red-Green	8	33	15	Signal Path	Green	17	
Green-Red		8	16		Red		
Red-Brown	9	34	17	Signal Path	Green	18	
Brown-Red		9	18		Red		
Red-Slate	10	35	19	Signal Path	Green	19	
Slate-Red		10	20		Red		
Black-Blue	11	36	21	Signal Path	Green	20	
Blue-Black		11	22		Red		
Black-Orange	12	37	23	Signal Path	Green	21	
Orange-Black		12	24		Red		
Black-Green	13	38	25	Signal Path	Green	22	
Green-Black		13	26		Red		
Black-Brown	14	39	27	Signal Path	Green	23	
Brown-Black		14	28		Red		
Black-Slate	15	40	29	Signal Path	Green	24	
Slate-Black		15	30		Red		
Yellow-Blue	16	41	31	Signal Path	Green	25	
Blue-Yellow		16	32		Red		



Connecting Stations to J1 on the J1632 Common Equipment Cabinet							
25-Pair Connections			Two-Wire Connections			Station Connections	
Wire Color	Pair	Pin No.	Clip Term.	Pair	Wire Color	Station	Location
Yellow-Orange	17	42	33				
Orange-Yellow		17	34				
Green-Yellow	18	43	35				
Yellow-Green		18	36				
Brown-Yellow	19	44	37				
Yellow-Brown		19	38				
Yellow-Slate	20	45	39				
Slate-Yellow		20	40				
Violet-Blue	21	46	41				
Blue-Violet		21	42				
Orange-Violet	22	47	43				
Violet-Orange		22	44				
Green-Violet	23	48	45				
Violet-Green		23	46				
Brown-Violet	24	49	47				
Violet-Brown		24	48				
Violet-Slate	25	50	49				
Slate-Violet		25	50				

**Connecting Stations to the J1632 (continued)**

<b>Connecting Stations to J2 on the J1632 Common Equipment Cabinet</b>							
<b>25-Pair Connections</b>			<b>Two-Wire Connections</b>			<b>Station Connections</b>	
<b>Wire Color</b>	<b>Pair</b>	<b>Pin No.</b>	<b>Clip Term.</b>	<b>Pair</b>	<b>Wire Color</b>	<b>Station</b>	<b>Location</b>
White-Blue	1	26	1	Signal Path	Green	26	
Blue-White		1	2		Red		
White-Orange	2	27	3	Signal Path	Green	27	
Orange-White		2	4		Red		
White-Green	3	28	5	Signal Path	Green	28	
Green-White		3	6		Red		
White-Brown	4	29	7	Signal Path	Green	29	
Brown-White		4	8		Red		
White-Slate	5	30	9	Signal Path	Green	30	
Slate-White		5	10		Red		
Red-Blue	6	31	11	Signal Path	Green	31	
Blue-Red		6	12		Red		
Red-Orange	7	32	13	Signal Path	Green	32	
Orange-Red		7	14		Red		
Red-Green	8	33	15	Signal Path	Green	33	
Green-Red		8	16		Red		
Red-Brown	9	34	17	Signal Path	Green	34	
Brown-Red		9	18		Red		
Red-Slate	10	35	19	Signal Path	Green	35	
Slate-Red		10	20		Red		
Black-Blue	11	36	21	Signal Path	Green	36	
Blue-Black		11	22		Red		
Black-Orange	12	37	23	Signal Path	Green	37	
Orange-Black		12	24		Red		
Black-Green	13	38	25	Signal Path	Green	38	
Green-Black		13	26		Red		
Black-Brown	14	39	27	Signal Path	Green	39	
Brown-Black		14	28		Red		
Black-Slate	15	40	29	Signal Path	Green	40	
Slate-Black		15	30		Red		
Yellow-Blue	16	41	31	Signal Path	Green	41	
Blue-Yellow		16	32		Red		

Connecting Stations to J2 on the J1632 Common Equipment Cabinet							
25-Pair Connections			Two-Wire Connections			Station Connections	
Wire Color	Pair	Pin No.	Clip Term.	Pair	Wire Color	Station	Location
Yellow-Orange	17	42	33				
Orange-Yellow		17	34				
Green-Yellow	18	43	35				
Yellow-Green		18	36				
Brown-Yellow	19	44	37				
Yellow-Brown		19	38				
Yellow-Slate	20	45	39				
Slate-Yellow		20	40				
Violet-Blue	21	46	41				
Blue-Violet		21	42				
Orange-Violet	22	47	43				
Violet-Orange		22	44				
Green-Violet	23	48	45				
Violet-Green		23	46				
Brown-Violet	24	49	47				
Violet-Brown		24	48				
Violet-Slate	25	50	49				
Slate-Violet		25	50				

## Wall Mounting the Telephone Stations

The DigiTech (product code 77nnn), *Impact* (product code 8nnnn), and *Impression* (product code 2nnnn) telephones are shipped from the factory configured for desk use. To convert them for wall mounting, follow the procedures outlined below.

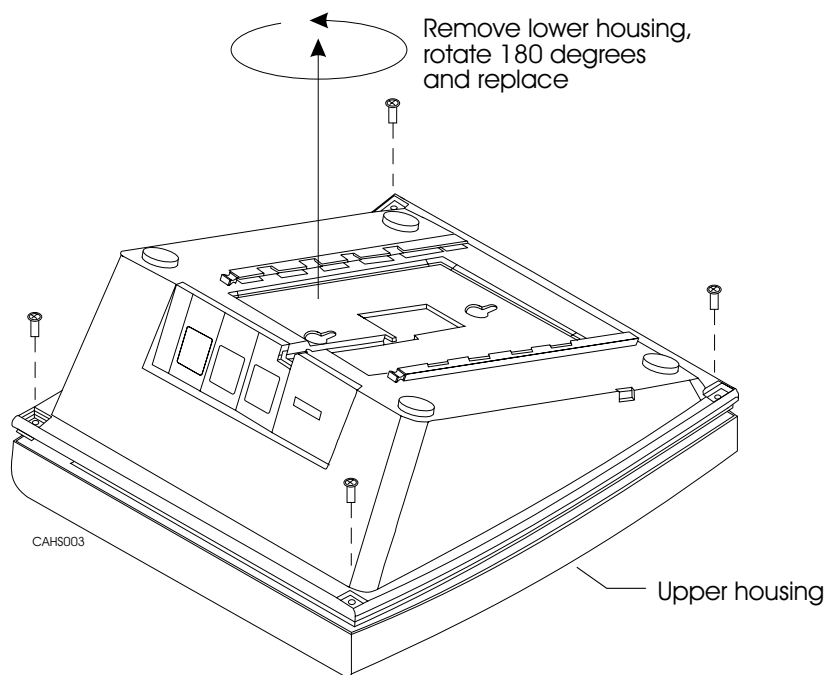
### To convert the model 77nnn telephones for wall mounting,

1. Disconnect line cord and handset cord from telephone.
2. Turn telephone over to expose lower housing.

#### **CAUTION**

*The telephone circuitry is sensitive to static electricity discharge. Be sure that your body and the workplace are properly grounded to avoid any static electricity discharge while you perform step 3.*

3. Remove screws that attach lower housing to upper housing. Carefully separate lower and upper housings making sure not to disconnect wiring between them.
4. Rotate lower housing 180 degrees. Do not disturb any internal wiring.
5. Reattach lower housing to upper housing. Make sure no wires are caught between upper and lower housings. Do not over-tighten screws while refastening the housings.
6. Route line cord through appropriate channel on lower housing, and reconnect it to telephone. You may substitute a shorter line cord if you wish.
7. Reconnect the handset cord.

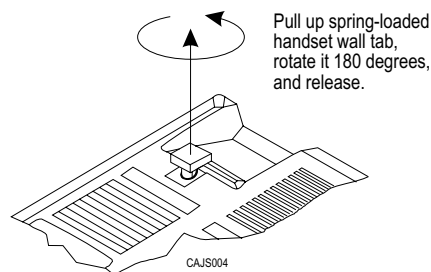
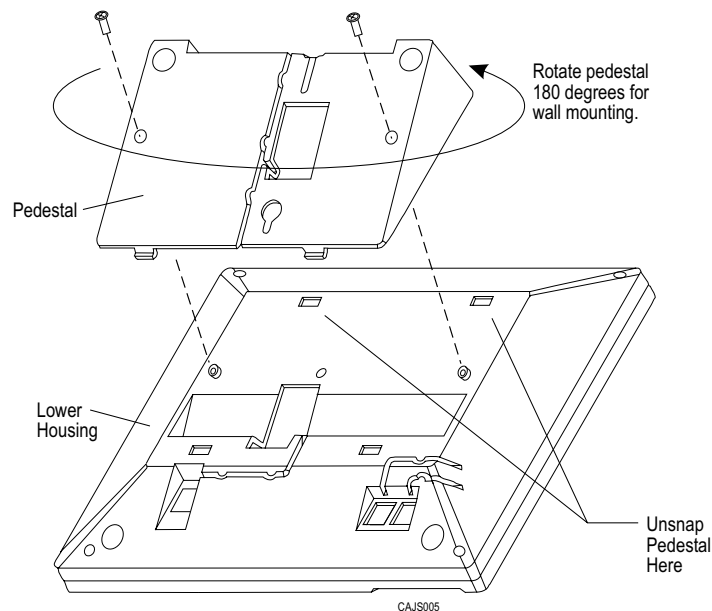


### Rotating the Lower Housing on Model 77nnn Telephones

**To convert the Impact (models 80nnn and 81nnn) and Impression (models 20nn and 21nnn) telephones for wall-mounting,**

1. Turn telephone over and disconnect line cord and handset cord from telephone. Do not damage line cord on plastic dressing tabs.
2. Remove screws from pedestal and unlatch it from telephone housing, rotate it 180 degrees, re-latch its tabs in the slots in the lower housing of the telephone, and replace screws.
3. Route line cord as appropriate, and reconnect it to telephone. Substitute shorter line cord if desired.
4. This telephone has a reversible handset retaining hook. When wall mounting, pull up this hook and rotate it 180 degrees.
5. Reconnect the handset cord.

There are wall-mounting enhancement kits available through your normal distribution channels. These kits include a handset cradle cup that you can screw-mount to the telephone's upper housing. The product codes for these enhancement kits are: HCCI for the *Impact* telephones (models 80nnn and 81nnn) and Impression telephones (models 20nnn and 21nnn), and HCCX for the DigiTech telephones (model 77nnn).



**Reversing the Pedestal and Handset Hook  
(Model 80nnn, 81nnn, 20nnn, and 21nnn Telephones)**

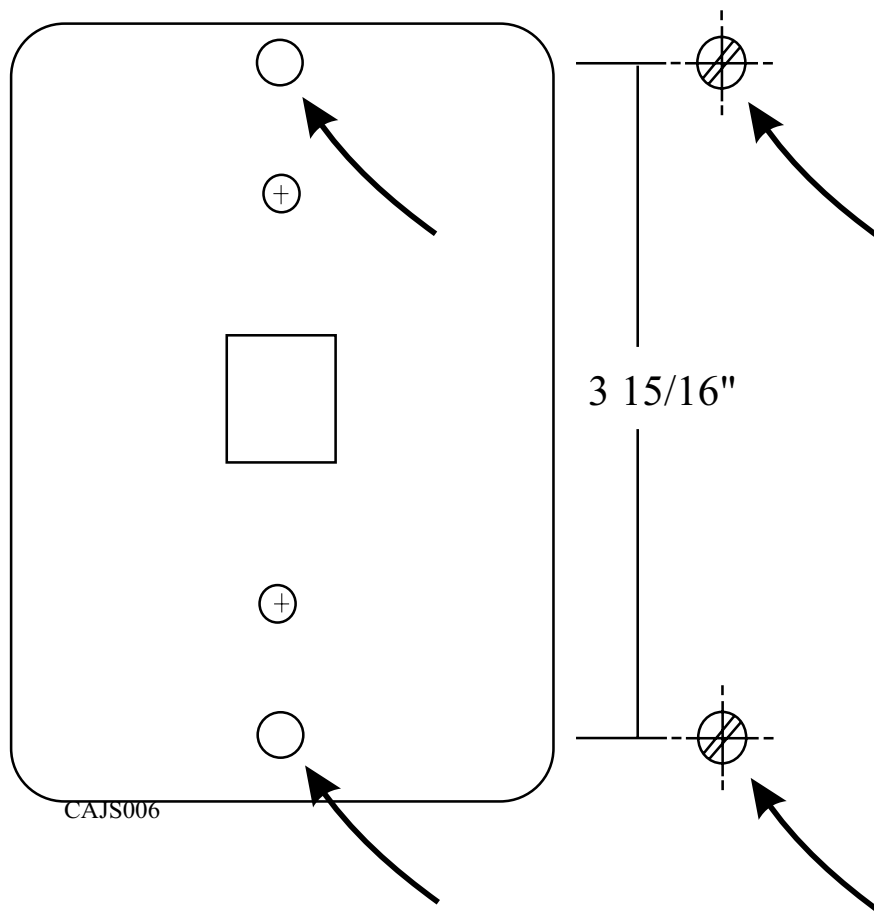
**To wall-mount the telephones,**

After configuring a telephone for wall mounting, either mount it directly on the wall using two #10 pan-head screws (obtained locally), or mount it on a wall jack cover plate. If using a wall jack cover plate, use an AT&T type wall plate for best results.

1. If #10 screws are used, thread them into the wall within 1/8-inch of the surface. Refer to the illustration for the spacing dimensions.
2. Position the keyhole-shaped holes in the bottom of the telephone over the #10 screws or the cover plate studs. Slide the telephone down until a slight click is felt.
3. To remove the telephone, lift to unsnap both screws or studs from the bottom housing, and then lift away from the wall.

**Wall Plate - OR - #10 Screws**

**NOTE:** For a secure mount, Installers recommend that you use an AT&T 630B wall plate.



**Detailing the Station Wall Mounting**

## Installing DSS/BLF Consoles

The digital telephone system supports the installation and use of DigiTech DD32X, Impact IB64X, and Impression DU32X consoles at any available station port. The number of installed consoles is limited only by port availability; however, since a console complements a companion telephone located in an adjacent station port, you can use up to one-half of the available station ports for consoles. In addition, with the dual console feature (discussed later), a full two-thirds of the total station port capacity is available for console use.

You can assign two consoles to one telephone, each taking its own station port. This feature is especially useful with DD32X and Impression DU32X consoles and a J1632 system that has one or two JM408 expansion modules included with it. This *dual console feature* allows a station user to monitor up to 48 stations from one station location using 32-button consoles.

Install the first console at the station port that is logic-paired with the station that you wish to complement. Install the second console at any station port except 10 or 11 and, using class of service programming, assign it to the same station port that is logic-paired with the first console.

<b>Detailing the Digital Station Port Logic Pairing</b>		
10-11	26-27	42-43
12-13	28-29	44-45
14-15	30-31	46-47
16-17	32-33	48-49
18-19	34-35	50-51
20-21	36-37	52-53
22-23	38-39	54-55
24-25	40-41	56-57

You can install the DSS/BLF console at any station port and assign it to a station without first installing a console at the station's logic-paired port if you wish. This configuration is convenient for adding a console to an existing telephone installation that already has its logic-paired port occupied; however, do not use this configuration for assigning a console to station ports 10 and 12 because the console buttons will not be usable for programming. As discussed above, this feature is also useful for adding a second console to a station that already has a paired console installed with it.

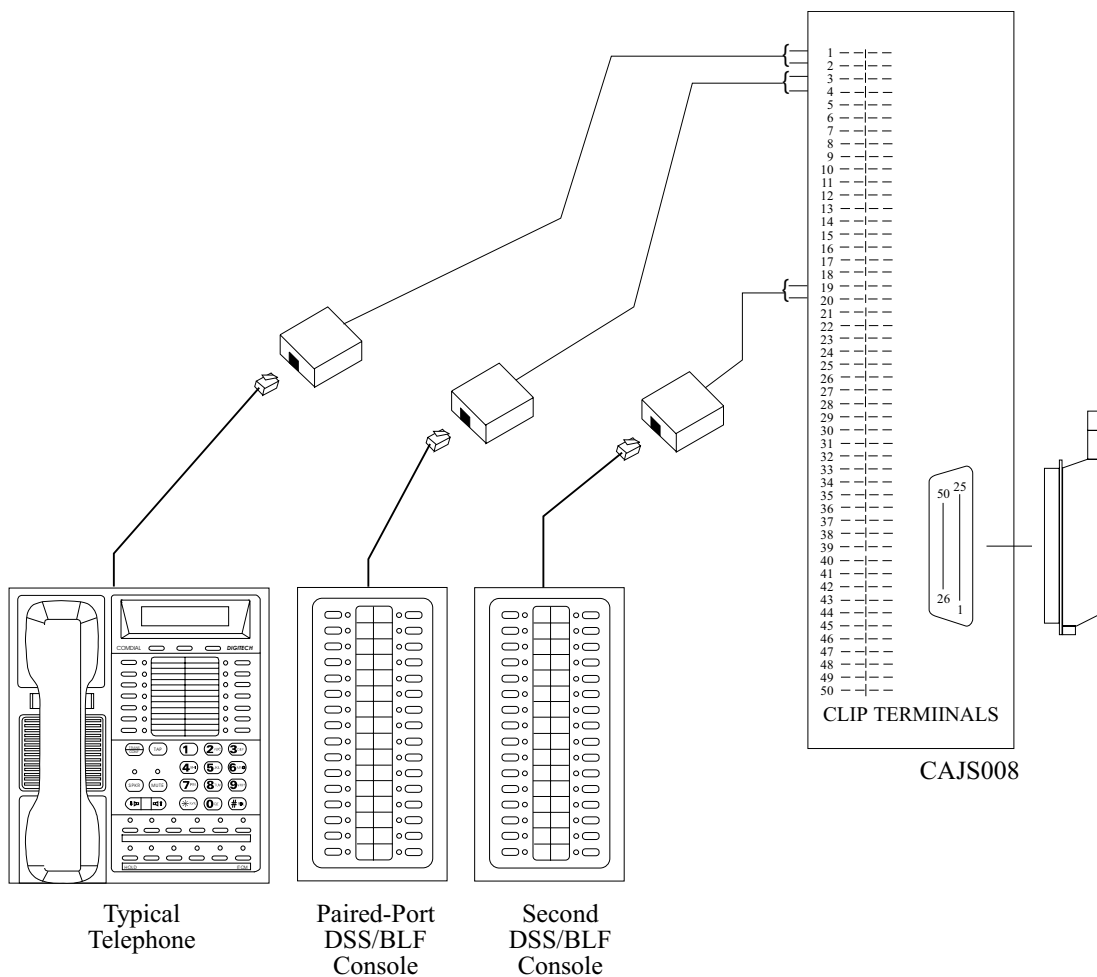
The digital telephone system automatically recognizes a console when you connect it to a station port and automatically assigns the station intercom numbers to the console buttons for direct station selection (DSS) purposes with associated busy lamp field (BLF) status lights. However, the console buttons are fully programmable and the station user can customize them as he or she sees fit by programming them as DSS buttons or as automatic dialing (auto dial) buttons.

When the user programs the buttons for DSS use, capability is also available at a secondary level at each DSS button.

While the first console (the one installed at the logic-paired port) extends the auto dial buttons of the paired telephone by 48 and provides DSS/BLF coverage for station ports 10 through 57, the second console (the one installed at the programmed station port) provides DSS/BLF coverage as follows:

- On a 32-station system with two 8-station expansion modules, the first 16 buttons are automatically assigned (defaulted) to station ports 42 through 57 for DSS purposes.
- On a 32-station system with one 8-station expansion module, the first 8 buttons are automatically assigned (defaulted) to station ports 42 through 49 for DSS purposes.
- On any other smaller station capacity system, all buttons are unassigned.

When you install a console and program it to complement a telephone without first having a console installed at a port that is logic-paired to that telephone, its button assignment is automatically defaulted, as described above, but the user can reprogram it as required. It is important to remember that when you program for a second console, the system sets the console button mapping to that which is described above. When you clear the assignment, the system resets the button mapping to match a logic-paired console. This means that when you clear the second console feature, the console installed at that port complements the telephone that is installed at its logic-paired port instead of the telephone that is located at the program-designated port, and its buttons are automatically reassigned to station ports 10 through 57.



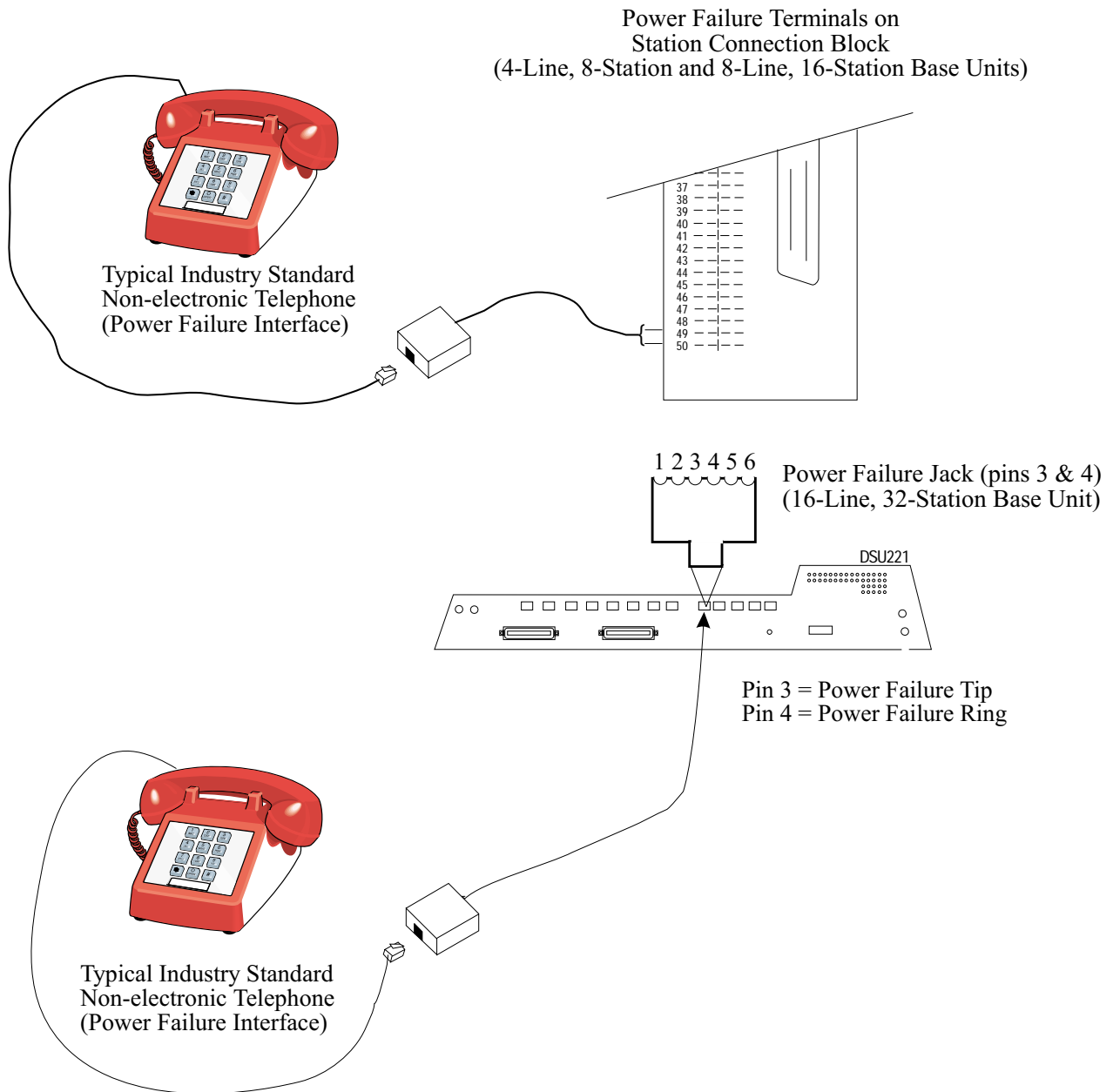
**Connecting DSS/BLF Consoles**



## Connecting a Power Failure Station

The system provides a tip and ring pair connected to line 1 as an emergency power failure circuit. This circuit is active during a commercial AC power failure if an external battery assembly is not installed to provide battery backup power to the system. Connect an industry standard, single-line telephone, such as a model 2500, to a power failure pair and use it to provide communications capability until the AC power to the system is restored.

**NOTE:** The system also provides one power failure connection with each add-on expansion module, with the exception of the JM008 which is non-applicable.



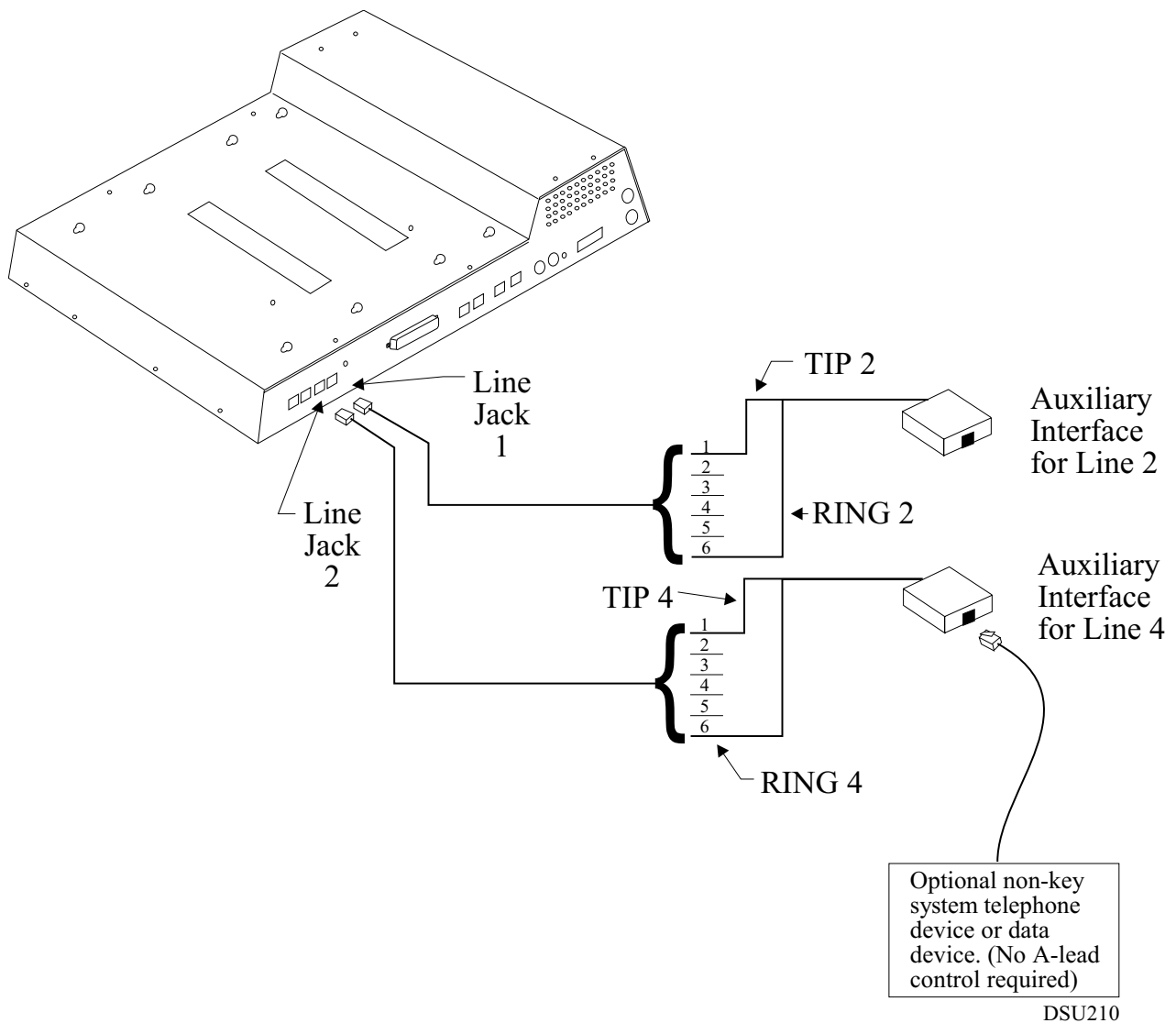
**Making a Power Failure Connection**

## Using the Auxiliary Equipment Interface

You can connect an industry-standard telephone or a data device such as a modem or a FAX machine on a line ahead of the common equipment if you wish. If you do so, the system can detect an off-hook condition in the connected device and turn on the line status light at the system telephones to indicate that the line is busy.

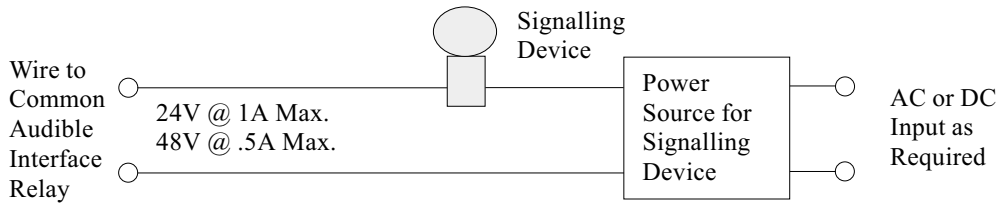
Connection is across tip and ring of lines 2 and 4. The system provides the auxiliary interface connections at terminals 1 and 6 of common equipment line jacks 1 and 2.

**NOTE:** When you are employing this auxiliary interface feature, the line-to-line port reassignment feature (page 148) works as described except in regard to line 2 and line 4. You can only reassign Line 2 to line port 4 and line 4 to line port 2.

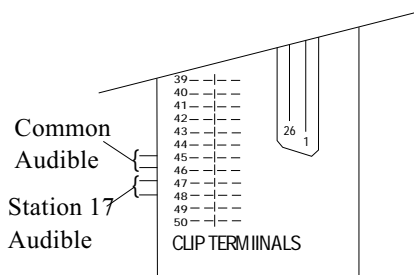
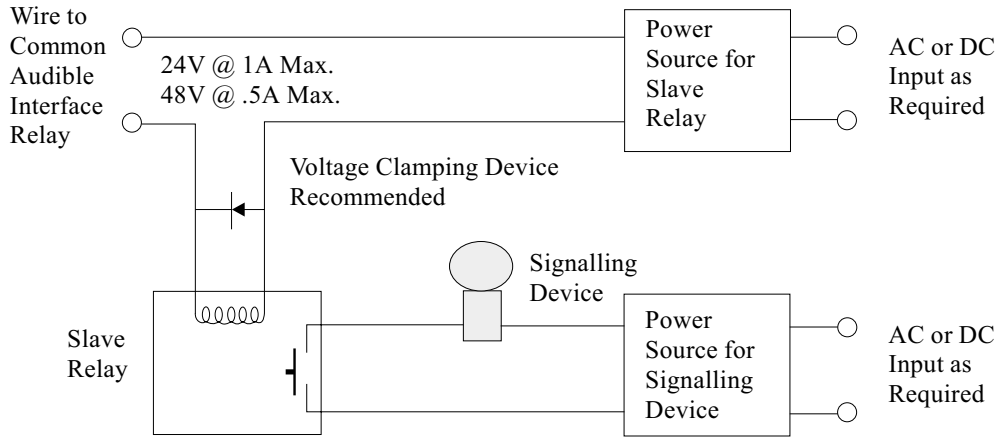


**Making the Auxiliary Interface Connections**

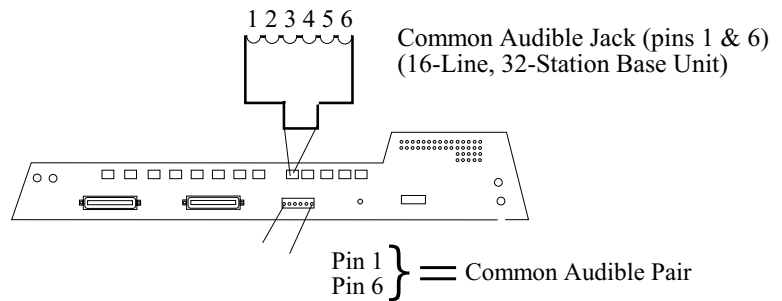
(Wiring shown for low current application - see caution text)



(Wiring shown with slave relay connection for high current application - see caution text)



Station Connector Block  
(4-Line, 8-Station and  
8-Line, 16-Station Base Units)



DSU222

**Connecting Typical Common Audible Interface Wiring**

## **Connecting the Common Audible and Auxiliary Ringing Interface**

You can use the relay closure dry-contact points for controlling external audible equipment. These contact closures track the pattern of the ringing for incoming calls. The contacts are closed during the ringing period and are open during the silent period.

### **CAUTION**

*Do not exceed a 1 amp at 24 volts (0.5 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 LINE.*

## **Connecting Outside Lines**

*Common audible terminals* provide a dry-contact closure whenever any of the outside lines that you have connected to the common equipment ring with an incoming call.

## **Connecting Selected Ports**

Station 17 audible terminals provide a dry-contact relay closure whenever ringing is sent to station 17 or to a programmable destination. Use class of service programming to choose either the station 17 or the programmable paging port as the ringing destination. Refer to Chapter 3 for programming details.

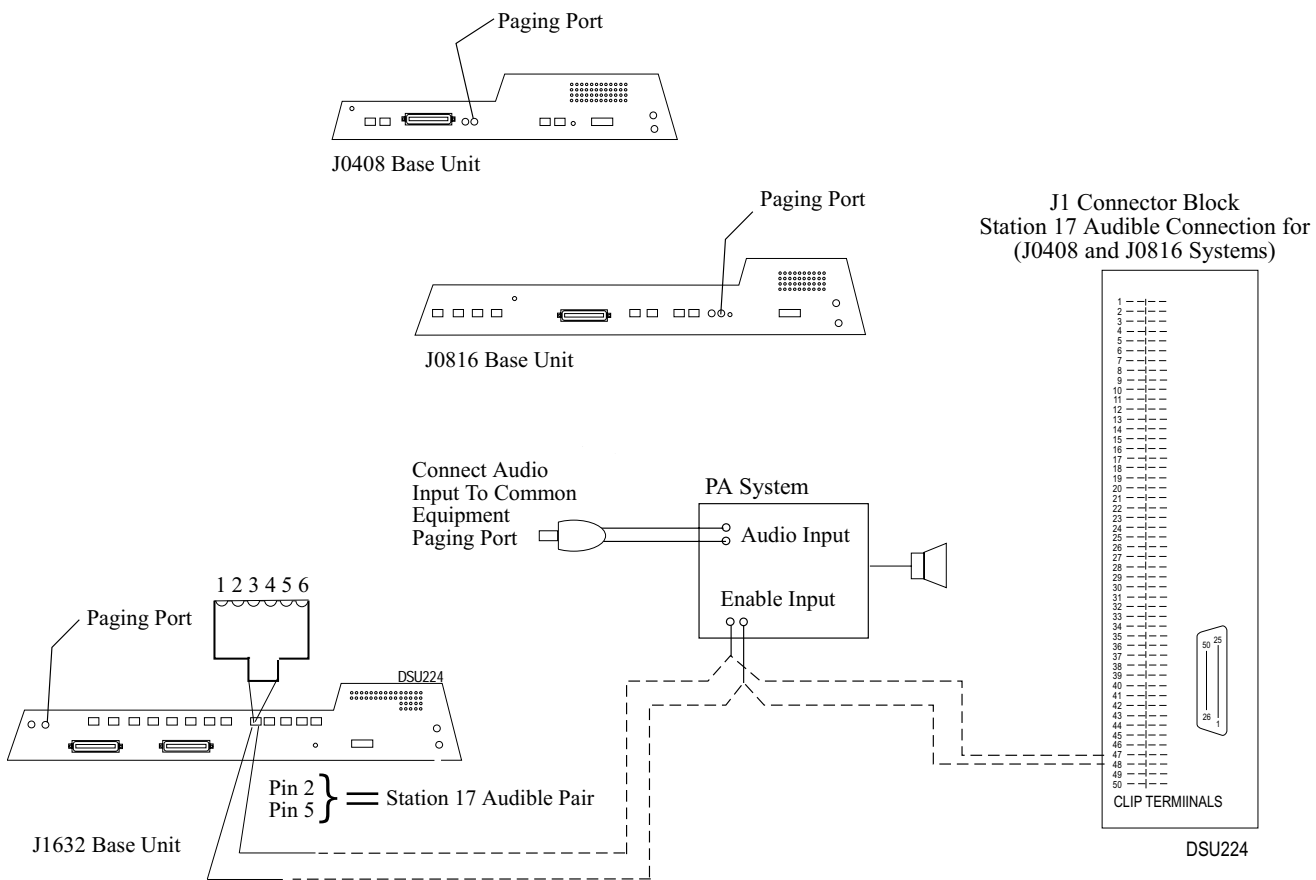
When you have programmed for station port 17 ringing, it is a common practice to use a customer-supplied external device to provide loud ringing and connected in a manner similar to the common audible arrangement shown in the illustration on the next page.

### **CAUTION**

*Do not connect an external paging device or any external ringing device to station port 17 connections.*

When you have programmed for paging port ringing, it is a common practice to use a customer-supplied external paging amplifier connected to the paging port to amplify and broadcast the ringing tones sent to the paging port by the system. You can employ the relay closures that appear at the ringing terminals to energize the external paging amplifier during the periods when the ringing tones are being sent if necessary.

**NOTE:** Refer to Using the External Paging Interface beginning on page 58 for a discussion of external paging amplifier connections and information for using the paging port ringing terminals in an alternate paging enable function.



**Connecting a Typical External Paging Interface**

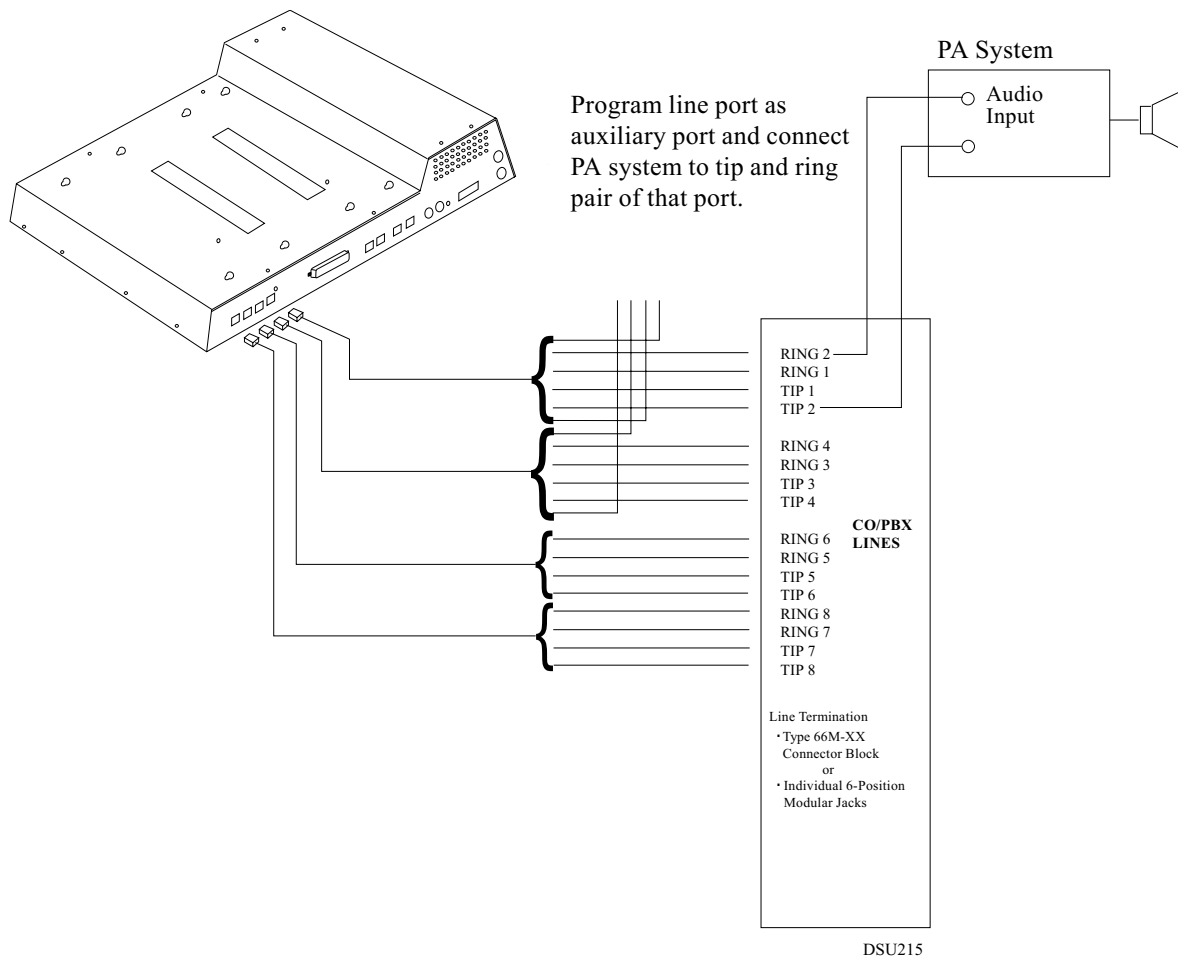
## Using the External Paging Interface

The system provides a special transformer-isolated paging port that you can use to couple the system to a customer-supplied external paging amplifier. This external paging port does not provide a talk-back path nor will it recognize dial tones.

You can use the relay closure dry-contact points that the system makes available at the ringing port terminal for controlling the external paging amplifier during a paging operation. These contacts close and stay closed during the time that a paging operation is active to provide a constant enable signal path for the paging amplifier.

**NOTE:** This paging enable constant closure function overrides the ring pattern closure provided when ringing is sent to the paging port.

- Connect the audio input of a customer-supplied external paging amplifier to the paging port.
- If the paging amplifier requires an enable signal, connect the enable leads to the station 17 audible terminals.



**Connecting a Line Port as an External Paging Port**

## Using a Line Port as an External Paging Interface

You can use class of service programming to program a line port to be an AUXILIARY port. As an AUXILIARY port, a user can use it to couple a telephone to an external paging device that you have wired to the line port. He or she does this from any station with that line presence by pressing the proper line button to select the AUXILIARY port. The user can dial DTMF tones or dial pulses through the AUXILIARY port as needed. The paging enable relay closure feature discussed previously is not available for use with this installation.

- Connect the audio input of a customer-supplied external paging amplifier to the tip and ring leads of the AUXILIARY port.
- You can install a tone select, zone-paging amplifier if you wish. If you do install this type of amplifier, the user must dial the zone-select code after he or she presses the AUXILIARY port line select button.

## Connecting Data Devices to the System

The DSU II includes serial data ports for use. The common equipment cabinet provides these ports as standard modular jacks labeled COM 1 and COM 2. This section contains information on two stages of wiring these connections for data devices.

*Making Modular Jack Data Connections*, explains connections from stations to modular jacks. *Making the Common Equipment Data Connection* on page 61 details wiring from the modular jack to the DSU.

### Making Modular Jack Data Connections

Modular jack connections are wiring connections from a station to a modular (wall) jack.

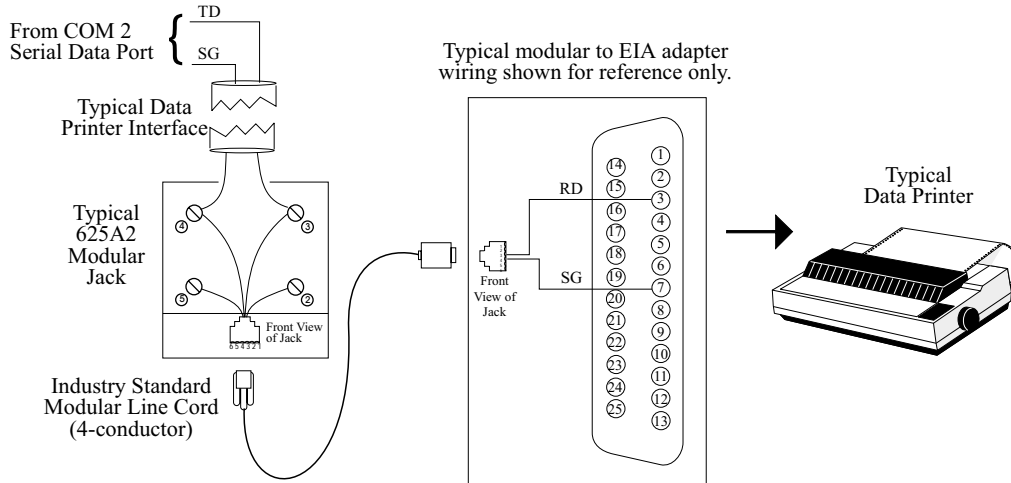
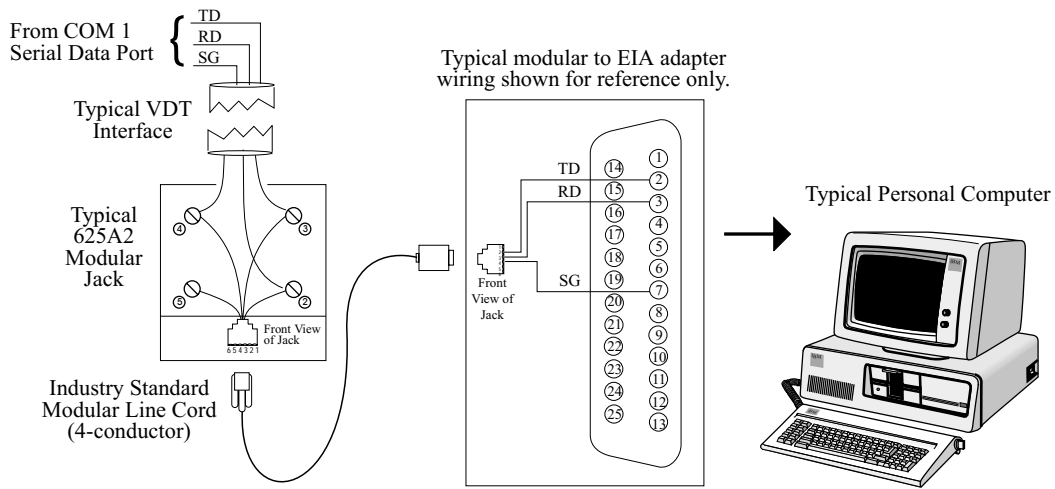
The system provides two serial data ports on the J0408:

- Connect a video display terminal (VDT), Tracker, or Voice Mail to COM 1.
- Connect a serial data printer or Caller ID to COM 2.

The system provides four serial data ports on the J0816 and J1632:

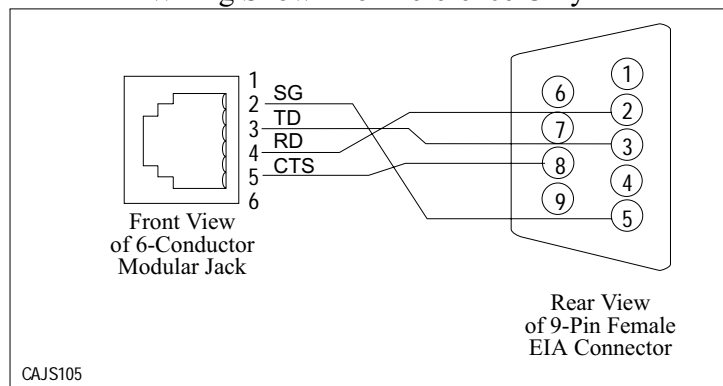
- Connect a video display terminal (VDT) to COM 1.
- Connect a serial data printer or Caller ID to COM 2.
- Connect Voice Mail to COM 3.
- Connect Tracker to Com 4.

**NOTE:** *The distance between a data device and the common equipment can be up to 500 feet in a quiet electrical environment. Some sites may require shielded cable for long runs. For longer distances, you must install limited distance modems to relay the data communications between the common equipment and a data device.*



dsu263.cdr

Typical Modular To 9-Pin EIA Adapter Wiring Shown For Reference Only



Connecting Data Devices through Modular Connections



When preparing a cable for connection to a data device, refer to the manufacturer's manual for the equipment being interfaced and make the following wiring connections:

- Wire the common equipment RD (data from device to common equipment) connection to the device TD (transmit data) connection.
- Wire the common equipment TD (data to device from common equipment) connection to the device RD (receive data) connection.
- Wire the common equipment SG (signal ground) connection to the device SG (signal ground) connection.
- If required for proper operation, wire the common equipment (clear-to-send status from device to common equipment) connection to the device RTS (request-to-send) connection.

***NOTE:** The common equipment requires a positive voltage, with respect to signal ground, in order to send data.*

### **Making the Common Equipment Data Connections**

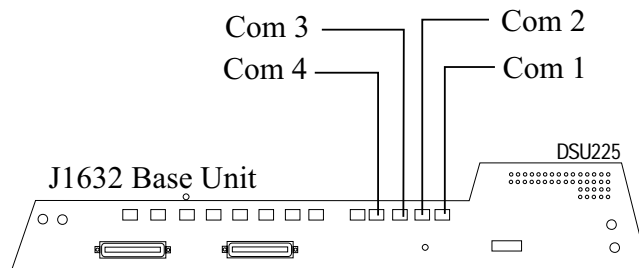
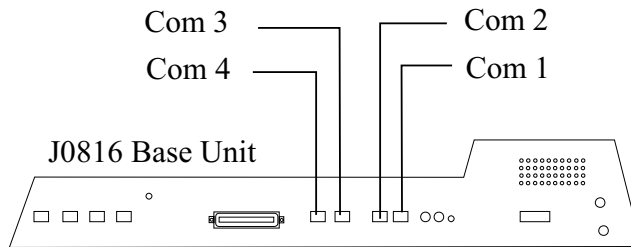
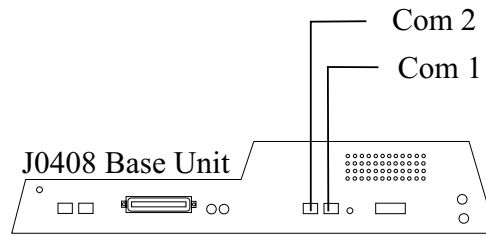
You must make wiring connections from the modular jack (wall jack) to the common equipment cabinet modular jack for the data connection.

The default data communications format is as follows:

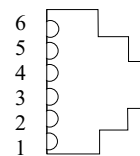
- 8-bit data with 1 stop bit and no parity
- Baud rate of 9600 baud.

Configure a data device to match this format for initial operation or reprogram the system's data format to match those of a data device. The tables below list the system's data ports.

***NOTE:** The distance between a data device and the common equipment can be up to 500 feet in a quiet electrical environment. Some sites may require shielded cable for long runs. For longer distances, you must install limited distance modems to relay the data communications between the common equipment and a data device.*



- 1.= Request to Send (RTS)
- 2.= Clear to Send (CTS)
- 3.= Receive Data (RD)
- 4.= Transmit Data (TD)
- 5.= Signal Ground (SG)
- 6.= No Connection



(Front View of Jack)

**Making Data Connections to the System**

## **Connecting a Personal Computer for Remote Programming**

You can connect a personal computer (PC) to the DSU II digital telephone system remotely through modems as described below. For more specific information, see IMI66-094. (For information on direct connection, refer to page 59 of this manual.)

You will need the following customer-supplied equipment:

- PC and appropriate software program,
- pair of data modems.

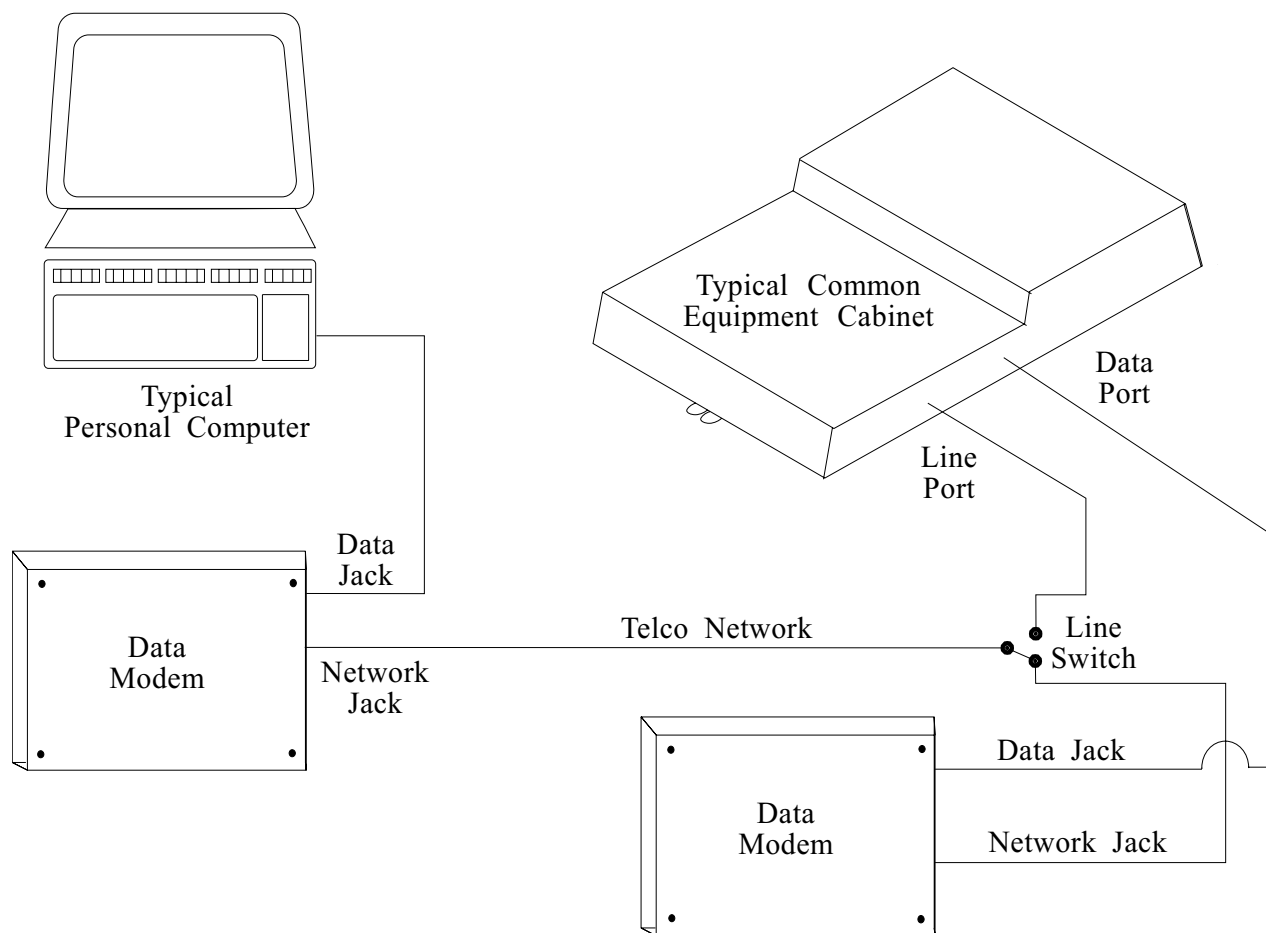
The data modems must be “Hayes-compatible,” capable of 300-, 1200-, 2400-, or 9600-baud data speeds, and have auto-answer capability. Be sure to verify the auto-answer capability before purchasing the units. You are assured of best results if you employ modems of the same make and model at both the installation site and the remote programming site.

### **Make the equipment connections per the following procedure:**

1. Determine the signal needs of the modem from the user’s manual for it. (The digital telephone system only requires TD, RD, and SG but the modems may require more signals. Check with the modem manufacturer for special requirements.)
2. Wire the proper connector (to match the data jack) on one end of a length of multiline cable.
3. Punch down the appropriate leads on the connector block.
4. Connect the network jack of the data modem to an outside telephone line. (If a line is not reserved for remote programming, have a line switch installed so that on site personnel can switch the outside telephone line between the data modem and the digital telephone system cabinet when you are going to perform remote programming.)
5. Refer to the user’s manual for the modem, and program the modem to automatically answer after the first ring.
6. Interface the PC with the modem at the programming site per the user’s manuals for the equipment to be used.
7. Establish a communications link for programming the system from a remote site.
  - If you have had a line switch installed at the customer site, call someone there and ask them to set it for modem operation.
  - After the outside line is connected to the modem, make the data link between the originating and the remote modems, and perform programming from your remote site just as if the PC was connected directly to the system.

If you experience difficulty in establishing a communications path between your PC, modems, and the digital telephone system, note the suggestions that are listed below.

- Confirm that the modems are wired correctly. Be sure RD, TD, and SG are connected to the system's serial data connection. Reverse connections at pins 2 and 3 if necessary. Sometimes you must strap pin 4 to 5, or pin 6 to 7, or pin 6 to 8 to 20 in the modem wiring. Check the modem's installation manual for this requirement. Also check the manual for any additional wiring connections.
- Use a breakout box data tester to troubleshoot the data communications lines.
- Be sure that your modem has: auto-answer capability, DTR override, and CD override and that the Result Codes, On-Line Echo, Off-Line Echo, and Flow Control are disabled. Plus, make sure that you have enabled the modem's auto-answer feature. The way to do this is to program an initialization string into the modem. A typical initialization string that uses generic modem AT Commands for connection to a telephone system's serial data port is as follows: **AT E0 F1 L2 Q1 S0=0 &C0 &D0 &K0 &W0 &Y0**. Remember, this is a typical initialization string—not all modems will respond to it. You should refer to your modem's instruction manual if you have difficulty.

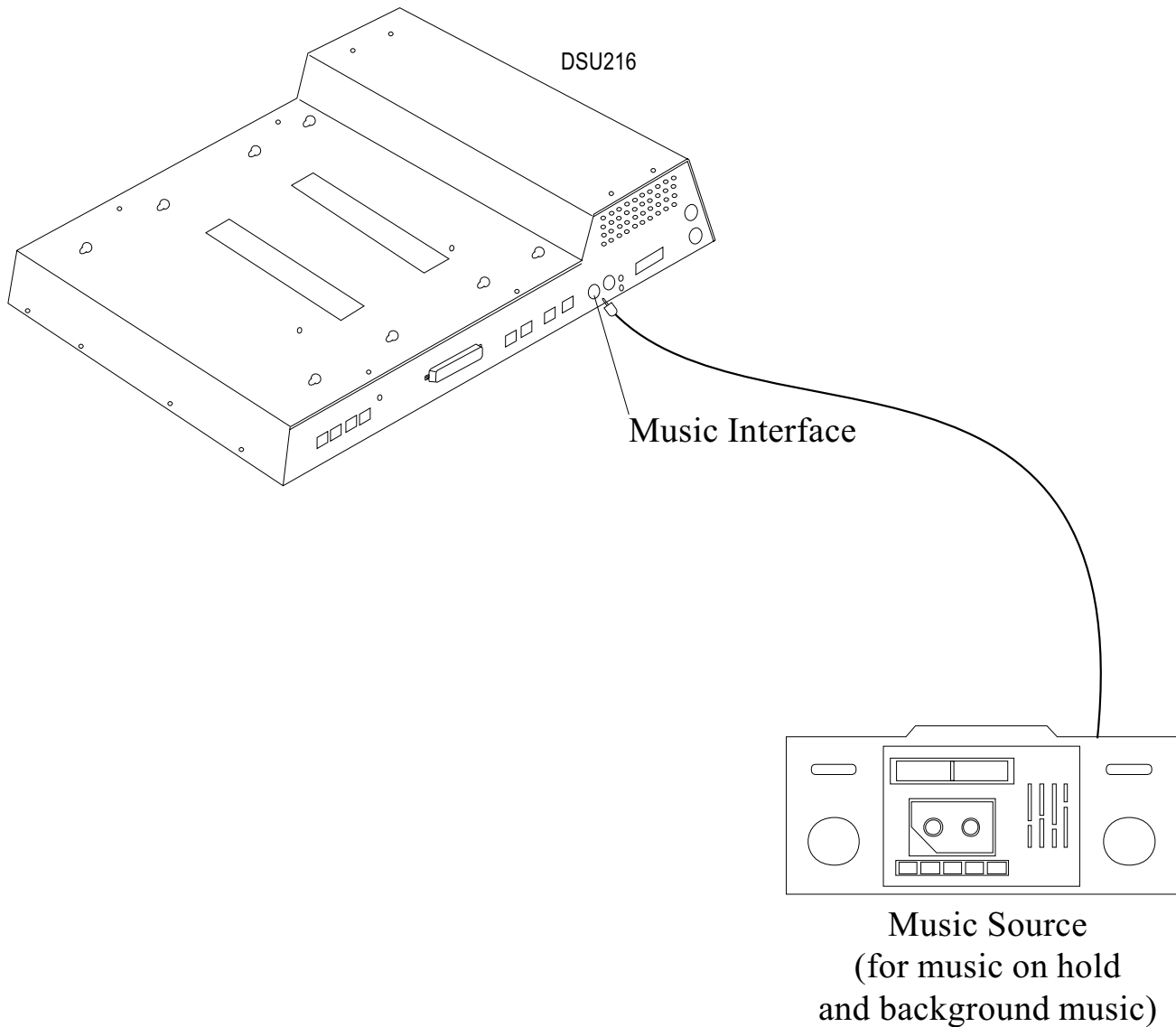


dsu260.cdr

### Installing a Personal Computer for Remote Programming

## Using the Music Interface

If music is to be part of the system, connect a customer-provided music source to the common equipment music interface jack (phono jack) provided for this purpose. Use the volume control on the music source to adjust the audio level of the music as required.



### Using the Music Interface

## Using the Add-on Expansion Modules

You can install optional add-on expansion modules to the DSU II common equipment base unit to increase the line and station capacity of an installed system.

- The JM408 expansion module provides an additional four lines and eight digital proprietary stations.
- The expansion module provides interface and ring generation for eight industry-standard telephone devices.

Base Unit Type	Base Unit Capacity		Expansion Module Type	Total System Capacity		
	Lines	System Stations		Lines	Systems Stations	ISTs
J0408	4	8	one JM408	8	16	-
			one JM008	4	8	8
J0816	8	16	one JM408	12	24	-
			two JM408	16	32	-
			one JM008	8	16	8
			two JM008	8	16	16
			one JM408 and one JM008	12	24	8
J1632	16	32	one JM408	20	40	-
			two MJ408	24	48	-
			one JM008	16	32	8
			two JM008	16	32	16
			one JM408 and one JM008	20	40	8

## **Using the JM408 Module**

The JM408 expansion module provides to an installed system an additional four lines and eight digital proprietary stations. The default numbering of the expanded lines and stations begin with the next higher line or station port number from that provided by the host base unit. The numbering continues sequentially from top module to bottom module if two modules are installed. For example: The defaulted 8-line, 16-station base unit provides station ports 10 through 25 and lines 1 through 8. When installed, a JM408 expansion module provides station ports 26 through 33 and lines 9 through 12 thus creating a 12 line by 24 station system.

Each expansion module provides a tip and ring pair as an emergency power failure circuit. This circuit is connected to the first module-provided line.

### ***Connecting Lines to the JM408 Expansion Module***

The expansion module's line connections are available at two modular jacks. When facing the jack openings, lines 1 and 2 are provided by the jack on the right and lines 3 and 4 are provided by the jack on the left.

<b>Line Jack</b>	<b>Pin Number</b>	<b>Connection</b>	<b>Telephone Number</b>
1	1	No Connection	
	2	Line 2M Tip	
	3	Line 1M Tip	
	4	Line 1M Ring	
	5	Line 2M Ring	
	6	No Connection	
2	1	No Connection	
	2	Line 4M Tip	
	3	Line 3M Tip	
	4	Line 3M Ring	
	5	Line 4M Ring	
	6	No Connection	

### Connecting Stations to the JM408 Expansion Module

The station connections are available at a 50-pin connector.

Connecting Stations to the J0408 Expansion Module							
25-Pair Connections			Two-Wire Connections			Station Connections	
Wire Color	Pair	Pin No.	Clip Term.	Pair	Wire Color	Station	Location
White-Blue	1	26	1	Signal Path	Green	1M	
Blue-White		1	2		Red		
White-Orange	2	27	3	Signal Path	Green	2M	
Orange-White		2	4		Red		
White-Green	3	28	5	Signal Path	Green	3M	
Green-White		3	6		Red		
White-Brown	4	29	7	Signal Path	Green	4M	
Brown-White		4	8		Red		
White-Slate	5	30	9	Signal Path	Green	5M	
Slate-White		5	10		Red		
Red-Blue	6	31	11	Signal Path	Green	6M	
Blue-Red		6	12		Red		
Red-Orange	7	32	13	Signal Path	Green	7M	
Orange-Red		7	14		Red		
Red-Green	8	33	15	Signal Path	Green	8M	
Green-Red		8	16		Red		
Red-Brown	9	34	17				
Brown-Red		9	18				
Red-Slate	10	35	19				
Slate-Red		10	20				
Black-Blue	11	36	21				
Blue-Black		11	22				
Black-Orange	12	37	23				
Orange-Black		12	24				
Black-Green	13	38	25				
Green-Black		13	26				
Black-Brown	14	39	27				
Brown-Black		14	28				
Black-Slate	15	40	29				
Slate-Black		15	30				
Yellow-Blue	16	41	31				
Blue-Yellow		16	32				



Connecting Stations to the J0408 Expansion Module										
25-Pair Connections			Two-Wire Connections			Station Connections				
Wire Color	Pair	Pin No.	Clip Term.	Pair	Wire Color	Station	Location			
Yellow-Orange	17	42	33							
Orange-Yellow		17	34							
Green-Yellow	18	43	35							
Yellow-Green		18	36							
Brown-Yellow	19	44	37							
Yellow-Brown		19	38							
Yellow-Slate	20	45	39							
Slate-Yellow		20	40							
Violet-Blue	21	46	41							
Blue-Violet		21	42							
Orange-Violet	22	47	43							
Violet-Orange		22	44							
Green-Violet	23	48	45							
Violet-Green		23	46							
Brown-Violet	24	49	47							
Violet-Brown		24	48							
Violet-Slate	25	50	49					Signal Path	Tip	Power Fail Station
Slate-Violet		25	50						Ring	

### Using the JM008 Module

The expansion module provides an interface for a wide variety of industry-standard telephone (IST) equipment such as 500- and 2500-type telephones, cordless telephones, voice mail systems, answering machines, FAX machines, and data modems.

Each IST port drives a load with a maximum ringer equivalence number (REN) of 2.0. Check the REN number of the connected IST equipment so you do not exceed the capacity of the IST port. Improper operation may result if you exceed the REN maximum.

The default numbering of the expansion module stations begin with the next higher station port number from that provided by the host base unit. The numbering continues sequentially from top module to bottom module if two modules are installed. For example: The defaulted 8-line, 16-station base unit provides station ports 10 through 25. When installed, a JM008 expansion module provides station ports 26 through 33. A second JM008, when installed in the bottom mounting location, provides station ports 34 through 41.

#### **CAUTION**

*If you install both a JM408 and a JM008 on the same cabinet, you must install the JM408 at the upper expansion module location or the lines provided by the JM408 will not function.*

When you install the JM008 and connect IST devices to it, there are several programming requirements that you must consider. Refer to the programming section *Industry Standard Telephone Interface* beginning on page 220 for programming details.

### Connecting Stations to the JM008 Module

The station connections are available at a 50-pin connector.

Connecting Stations to the J008 Module							
25-Pair Connections			Two-Wire Connections			Station Connections	
Wire Color	Pair	Pin No.	Clip Term.	Pair	Wire Color	Station	Location
White-Blue	1	26	1	Signal Path	Tip	1M	
Blue-White		1	2		Ring		
White-Orange	2	27	3	Signal Path	Tip	2M	
Orange-White		2	4		Ring		
White-Green	3	28	5	Signal Path	Tip	3M	
Green-White		3	6		Ring		
White-Brown	4	29	7	Signal Path	Tip	4M	
Brown-White		4	8		Ring		
White-Slate	5	30	9	Signal Path	Tip	5M	
Slate-White		5	10		Ring		
Red-Blue	6	31	11	Signal Path	Tip	6M	
Blue-Red		6	12		Ring		
Red-Orange	7	32	13	Signal Path	Tip	7M	
Orange-Red		7	14		Ring		
Red-Green	8	33	15	Signal Path	Tip	8M	
Green-Red		8	16		Ring		
Red-Brown	9	34	17				
Brown-Red		9	18				
Red-Slate	10	35	19				
Slate-Red		10	20				
Black-Blue	11	36	21				
Blue-Black		11	22				
Black-Orange	12	37	23				
Orange-Black		12	24				
Black-Green	13	38	25				
Green-Black		13	26				
Black-Brown	14	39	27				
Brown-Black		14	28				
Black-Slate	15	40	29				
Slate-Black		15	30				
Yellow-Blue	16	41	31				
Blue-Yellow		16	32				

Connecting Stations to the J008 Module							
25-Pair Connections			Two-Wire Connections		Station Connections		
Wire Color	Pair	Pin No.	Clip Term.	Pair	Wire Color	Station	Location
Yellow-Orange	17	42	33				
Orange-Yellow		17	34				
Green-Yellow	18	43	35				
Yellow-Green		18	36				
Brown-Yellow	19	44	37				
Yellow-Brown		19	38				
Yellow-Slate	20	45	39				
Slate-Yellow		20	40				
Violet-Blue	21	46	41				
Blue-Violet		21	42				
Orange-Violet	22	47	43				
Violet-Orange		22	44				
Green-Violet	23	48	45				
Violet-Green		23	46				
Brown-Violet	24	49	47				
Violet-Brown		24	48				
Violet-Slate	25	50	49				
Slate-Violet		25	50				

## Checking Industry-Standard Telephone Connections to the JM008 Module

When you connect industry-standard telephones to the JM008 expansion module, the maximum distance allowed from the common equipment to the telephone is 1500 feet if you use #24 gauge or larger, twisted-pair cable.

Check the installation of industry-standard telephones for proper operation by performing the following voltage measurements under the conditions listed:

- have both the common equipment and the stations connected to the station connector block,
- have bridging clips installed on the connector block,
- have the system powered and operational.

Measure DC voltage across the tip and ring pair of each installed industry-standard telephone with a DC voltmeter. You should read: **+24 volts DC +/- 2 volts.**

Call each industry-standard telephone to stimulate the ring generator assembly, and measure the AC ringing voltage across the tip and ring pair of each called telephone.

You should read: **55 volts AC +/- 5 volts.**

If your measured voltages are different from the values shown above, it could indicate a wiring error or equipment problem.

## Installing an OPX Long Loop Adapter with the JM008

You must use an OPX long loop adapter if you wish to adapt the JM008's IST station port to support an off-premise IST application. An OPX long loop adapter connects to a single telephone line and can greatly extend the line's loop length (the Proctor Model 46222 adapter\*, for example, can extend line length to 30,000 feet).

\*Proctor & Associates Company, Redmond WA

### CAUTION

*When you connect an OPX long loop adapter to an off-premise extension (OPX), you must install primary protectors in series with the tip/ring pair of the telephone line that is routed to the OPX. This action is necessary to protect both the user and the equipment from transient voltage spikes that can travel through the cable. The telephone company offers basic protection against this condition; however, that protection is usually designed to safeguard the central office circuits and you cannot rely upon it to protect common equipment. To help insure that external over-voltage surges do not damage the system, installation specialists recommend that you install and properly ground gas discharge tubes or similar primary protection devices on the telephone line that routes between the adapter and the OPX.*

### To install the OPX long loop adapter:

1. Follow manufacturer's instructions for unpacking, inspecting, mounting and wiring the adapter unit.
2. Plug a modular cable into the system jack on the adapter and connect the opposite end of the cable to the station port.
3. Plug a modular cord into the telephone jack on the adapter and connect the opposite end of the cord to the line.
4. Plug the adapter power cord into a standard 117 VAC, 3-wire electrical outlet.

## **Installing an Add-on Expansion Module**

Each JM408 add-on expansion module measures 15.5" wide x 9.4" high x 1.6" wide and weighs approximately 4 pounds. The modules are designed so that you can attach them to the base unit and connect them to it via cabling.

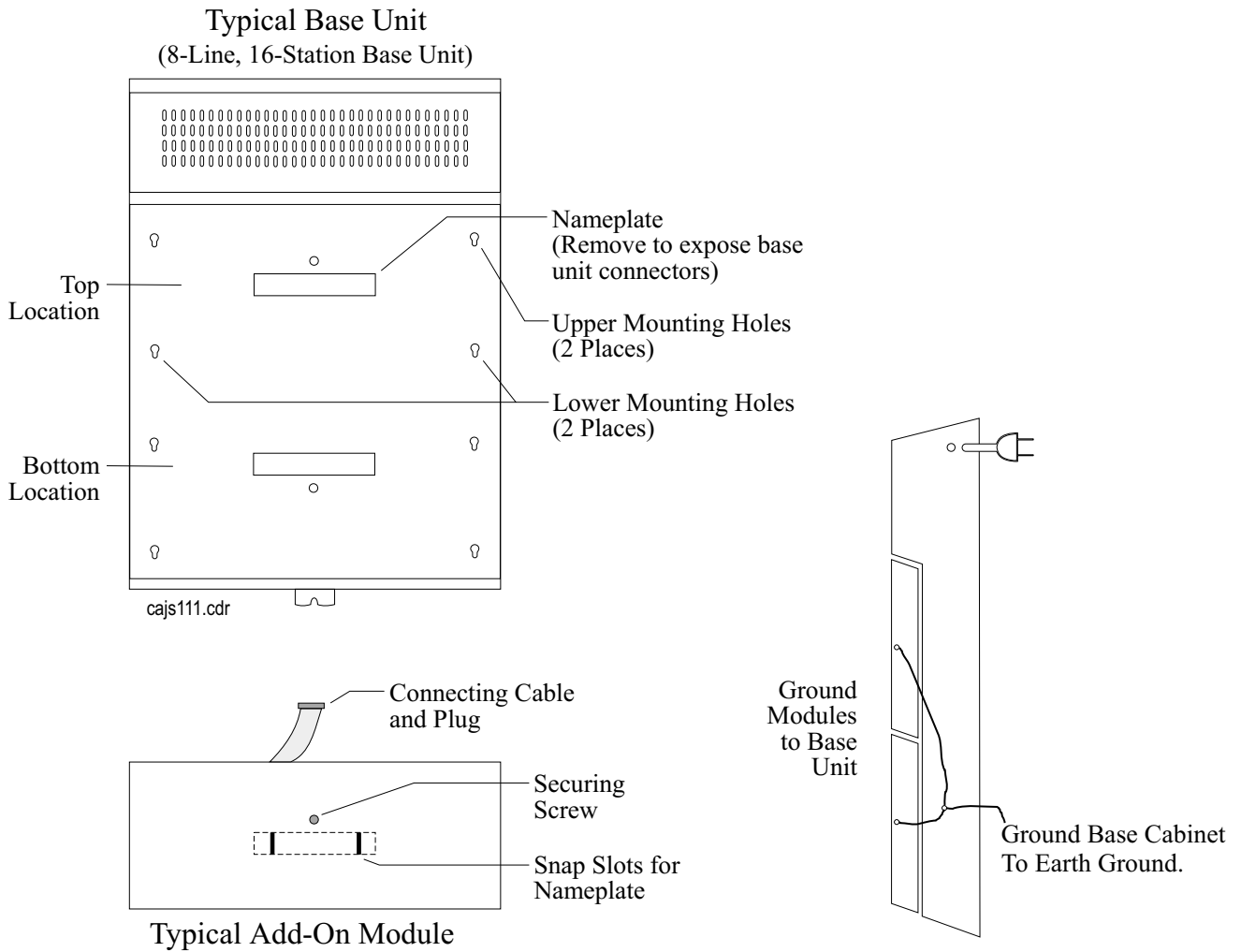
**NOTE:** *If you plan to upgrade the system software at the same time that you add expansion modules, add the expansion modules first by following steps 1 through 11. Then, after you have installed the expansion modules and programmed for the new stations and line ports, upgrade the software as described in the discussion titled, Loading and Upgrading the System Software.*

To install an expansion module to a base unit, follow the procedure detailed in steps 1–11.

### **CAUTION**

*You must always connect the first module to the top location on the base unit.*

1. Disconnect both AC power and external battery backup power from the system.
2. Remove the nameplate from the base unit and set it aside. This action exposes the internal cable connector on the base unit's circuit board.
3. Reach through opening in base unit and mate module cable plug with base unit circuit board connectors.
4. Push excess cable inside base unit housing through connector opening.
5. Install expansion module in place on all four mounting holes. Be sure excess cable is not pinched between add-on module and base unit.
6. Pull module down to latch in place.
7. Use appropriate screw driver to tighten module securing screw into base unit threaded fastener.
8. Snap nameplate into slots on top of module housing.
9. Attach #10 or #12 insulated, solid copper wire between the frame ground stud on the expansion module and the frame ground stud on the common equipment cabinet.
10. Reconnect the power to the system.
11. Referring to Chapter 4, perform configuration programming for new station and line ports.



**Installing the Add-on Expansion Module**

## Checking the System Installation

The system operating features are set to default conditions at initial power-up. These conditions provide a basic operating system with a known set of parameters, and you should check out the system with the default conditions in place. At any time while the system is operating, you can reset default conditions from station port 10 or 12 following the instructions provided in Chapter 4, *Programming*.

### Checking the Resistance

Measure the resistance 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.

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:

- Greater than 700 ohms

### Checking the Voltage

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 the signal pair. The measured voltage for proprietary telephones must be within the following limits:

- 28-36

**NOTE:** Refer to *Using the JM008 Module* on page 69 for information on testing industry-standard telephones connected through the expansion module.

## Checking the General Operating Conditions

1. Check the green light emitting diode (LED) system status indicator. Be sure that it is on steady. If it is off or flashing, refer to the paragraph below titled *Checking the System Status Indicator*.
2. Refer to the user's guide for operating information and perform a general operational test of the system by exercising the features from station port 10 or 11. Operational parameters are per the system default conditions as detailed in Chapter 5 until class of service programming is performed.
3. Once the basic system is verified as operational, perform the class of service programming as described in Chapter 4.

## Isolating Failures

*Loading and Upgrading the System Software* on page will help you to find and identify problems that might occur in the digital telephone system.

## Checking the System Status Indicator

A green LED located on the common equipment cabinet is the system status indicator. This indicator light comes on when power is supplied to the system. If the indicator flashes after power up, it signals that the processor has failed or that the software is not operating. Unplug and reconnect the AC power to the power supply and observe the LED indication. If it still shows a flashing indication, equipment replacement may be necessary.

## Testing the Stations

To test the multiline stations for proper operation:

1. Disconnect line cord at station base then reconnect it.
2. On DigiTech telephones, press and hold the **MUTE** button.  
On Impact and Impression telephones, press and hold **1** on the keypad.  
Station will automatically perform self test routine.
3. Release test button as soon as test begins. Sequence of test is as follows:
  - a. indicators will light in sequence,
  - b. ringer will sound—be sure volume is set to low or high,
  - c. indicators and ringer will then turn off at the same time.
4. Replace any station that does not pass the self test.



## **Loading Software**

The DSU II contains flash memory that stores the system operating software. Beginning at the following common equipment cabinet revisions, the factory pre-loads system software:

- J0408—revision H,
- J0816—revision J,
- J1632—revision J.

Because the software is pre-loaded, you do not need to perform an initial software load as part of a system installation, nor do you need a software key to make the system software operational.

However, software *upgrades* require a software key. For information on performing software upgrades, see IMI89-318, *Loading Instructions for DSU II Software Upgrades*. It is included in the software key package.

## **FCC Rules and Regulations**

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

### **Notifying the 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. Provide the telephone company with the lines (telephone numbers) involved, the FCC registration number, the ringer equivalence number, the Facilities Interface Code (FIC), the Universal Service Ordering Code (USOC), and the USOC jack required. The FCC registration number and the ringer equivalence number is provided on the label attached to the common equipment. The FIC and USOC information is provided in the equipment's general specifications found in equipment system manual. The user/installer is required to notify the telephone company when final disconnection of this equipment from the telephone company line occurs.

### **Understanding Telephone Network Compatibility**

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.

### **Understanding Installation Requirements**

Connection of the electronic key 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.

### **Understanding Party Line and Coin Line Limitations**

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

### **Troubleshooting the Service Problem**

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.

## **Authorizing Repairs**

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.

## **Recognizing Radio Frequency Interference**

The electronic key 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 DSU, 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 equipment has been tested and found to comply with the limits of a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

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 pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques (de la classe A) prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministre des Communications du Canada.

### **CAUTION**

*Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.*

## **Determining the 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.

## **Notes**

# 3

## System Options and Accessories

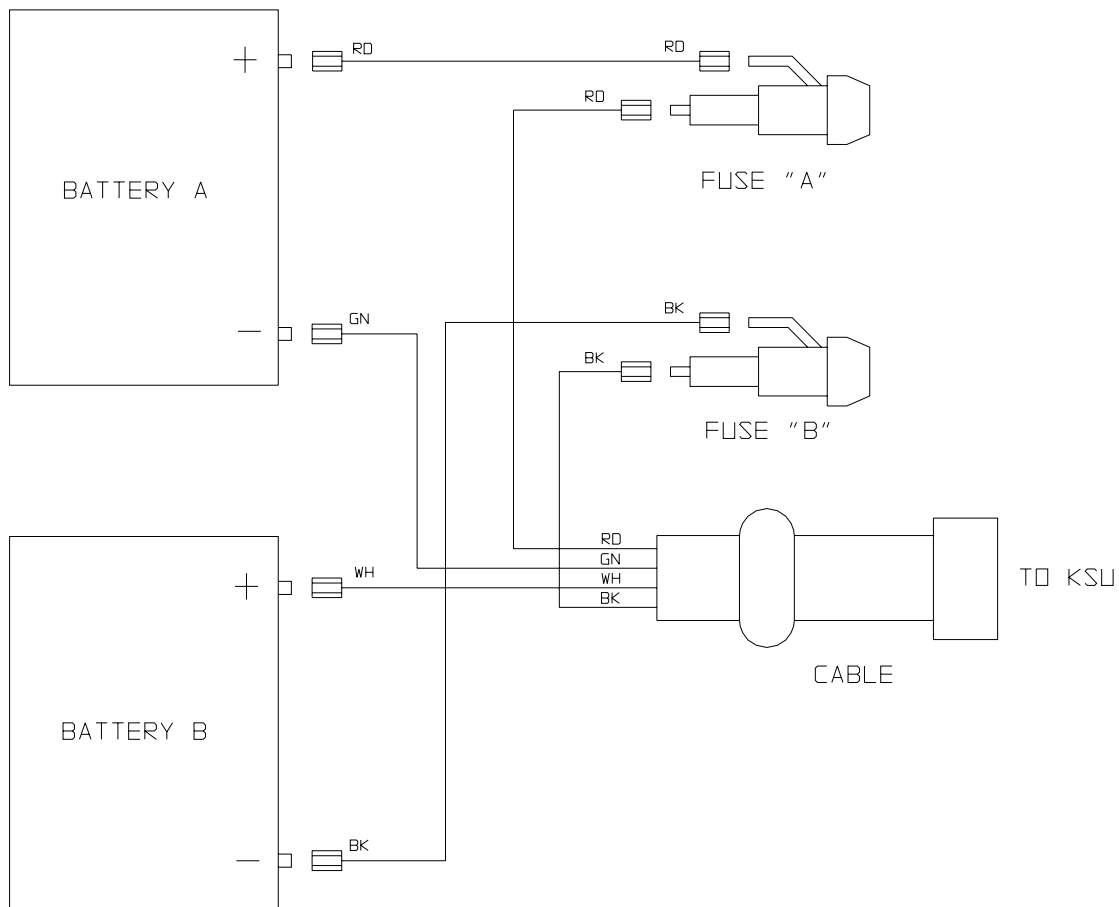
### Installing the Optional Battery Backup Assembly

#### Preparing the Battery Backup Assembly for Use

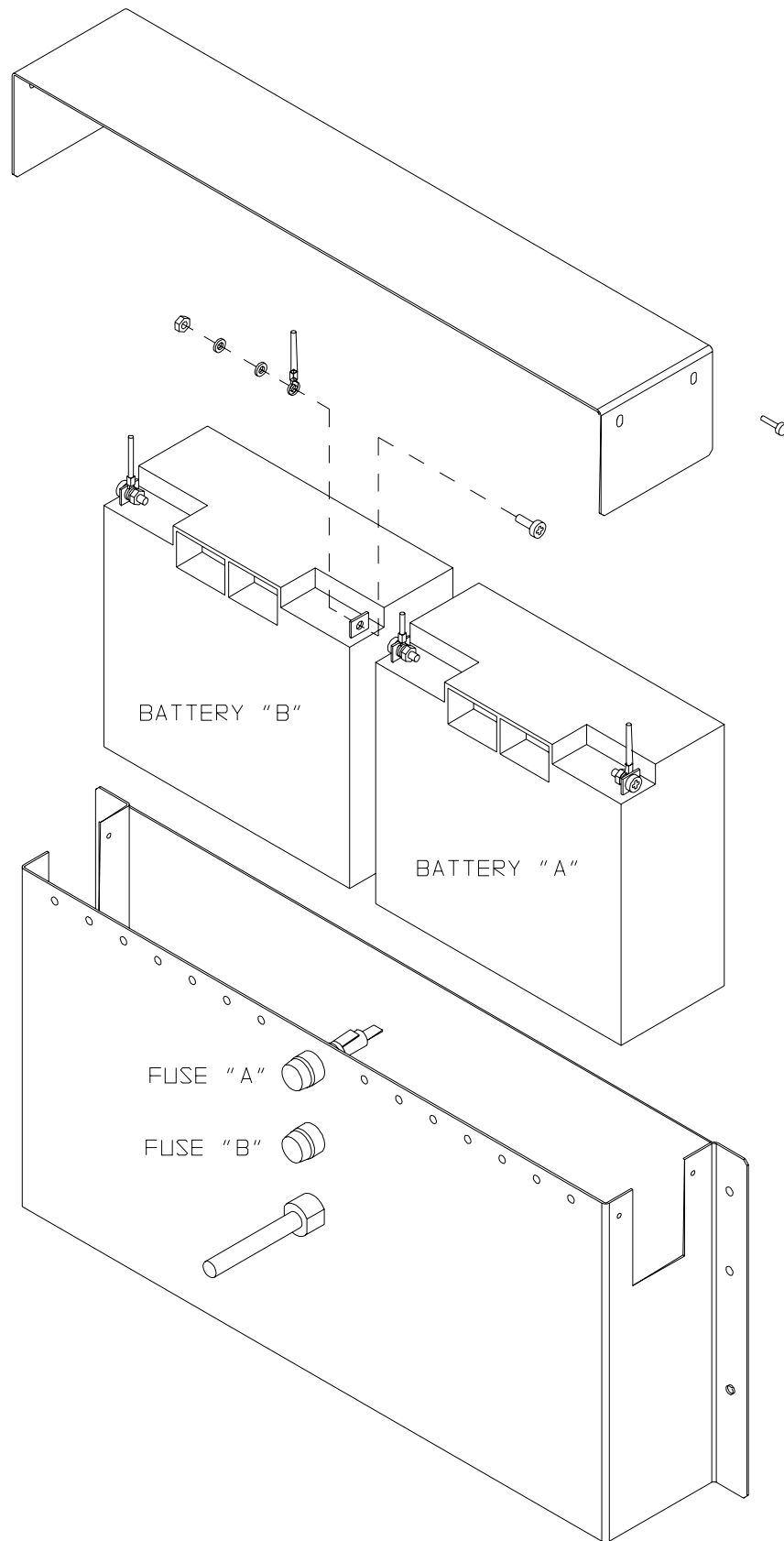
The factory ships the battery backup assembly with the harness installed in the enclosure. To complete the assembly, perform the following operations:

- Remove the lid from the metal enclosure and save the retaining hardware,
- Install the batteries in the metal enclosure and connect the wiring per the schematic shown below,
- Replace the lid.

You can wall mount the battery backup enclosure if you wish. If you do, follow the same guidelines and instructions for mounting the common equipment cabinet as set forth at the beginning of this chapter.



**Wiring the Batteries**



**Installing the Batteries**

## Connecting the Battery Backup Assembly

The common equipment provides an interface connector for the connection of an optional external battery assembly.

### CAUTION

*Be sure that the AC power cord is connected to the electrical outlet before connecting an 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.*

The external battery assembly provides a minimum of one hour of operation should the AC power to the system be interrupted. The assembly has a 15 ampere-hour current rating and is fused with the following value: 4A 250V 3AG type.

The external battery assembly may include batteries from either of the following suppliers:

- Model PS-12150 from Power-Sonic Corporation, Redwood City CA, 94032
- Model PE12V15 from GS PORTALAC, City Of Industry CA, 91748

The minimum battery backup time for a fully configured system can be calculated using the formula:

$$\text{Backup Time (in hours)} = \frac{K(15)}{1 + [(0.1) (N)]}$$

$$\begin{aligned} K \text{ (Constant)} &= 0.9 \text{ for J0408 with or without an expansion module} \\ &0.8 \text{ for J0816 with or without expansion modules} \\ &0.8 \text{ for J1632 with or without expansion modules} \end{aligned}$$

15 = ampere-hours

N = total number of stations

Example:

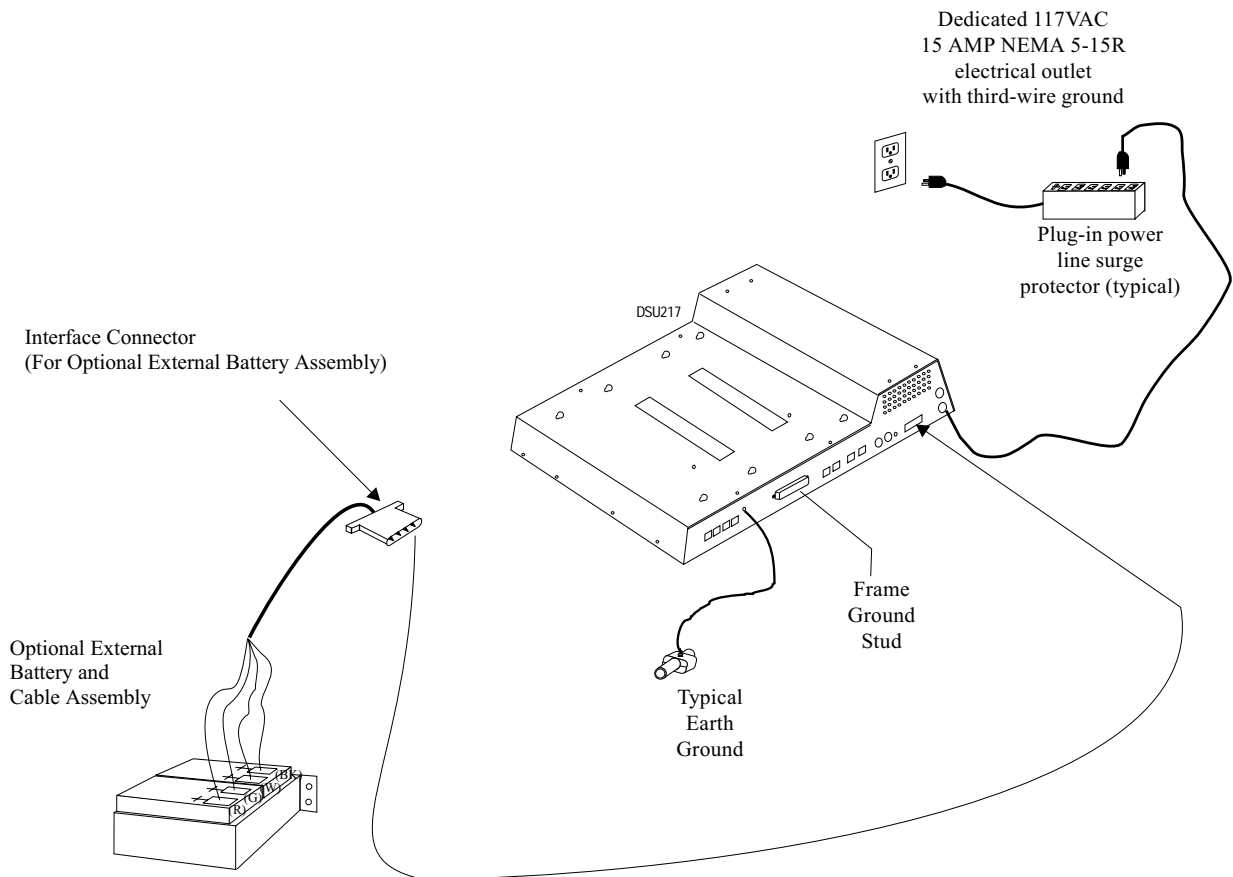
Assume that a J1632 system plus two JM408 modules are installed along with the optional battery assembly to provide backup power.

$$\text{Backup time} = \frac{(0.8) (15)}{1 + [(0.1) (48)]} = \frac{12}{5.8} = 2.1 \text{ Hours}$$

During AC operation, the common equipment provides recharging current to maintain the voltage potential of the external battery assembly at an operational level. The charging circuit may not provide an adequate charge if an installed battery assembly has a current rating of greater than 40 ampere-hours. You should measure the battery assembly voltage every three months.

For proper backup capabilities, make sure the batteries meet the following specifications:

- With a fully-charged battery assembly disconnected from the common equipment, the measured voltage must be greater than 12 VDC but should not exceed 13.5 VDC.
- With a fully-charged battery assembly connected to the common equipment, the measured voltage should be less than 13.8 VDC. If the voltage measures higher than this limit, contact your Comdial Technical Services representative.
- The open output of the common equipment battery charger connection measures 13.6-13.8 VDC. If the charging voltage measures higher or lower than this range, contact your Comdial Technical Services representative
- An optional external battery assembly requires approximately 10 hours to completely re-charge to full potential after it has been completely discharged and, in some cases, when initially installed.



**Connecting the Battery Backup Assembly**



## Installing the Analog Terminal Interface

### Introducing the Analog Terminal Interface (ATI-D)

The ATI-D is a multipurpose, **on-premise** accessory for the DSU II digital telephone system. It has dual circuits that provide the following features:

- **INDUSTRY-STANDARD TELEPHONE (IST) INTERFACE**—This feature adapts most industry-standard telephone (IST) devices to the digital telephone system. The ATI-D will accept both tone (DTMF) and pulse (rotary) dialing from these devices.
- **SYSTEM INTERCONNECTION**—This feature allows an installer to connect two digital telephone systems to each other using two ATI-Ds and on-premise wiring. When interconnected, either telephone system treats the other telephone system as an IST device. The two telephone systems are not integrated together and do not share features.
- **MODEM ADAPTER**—This feature allows the flow of switched data between a data source and a data receiver through the digital telephone system.
- **VOICE MAIL/ANSWERING MACHINE INTERFACE**—This feature allows an installer to connect voice mail systems and automated answering devices to the digital telephone system.

#### **CAUTION**

*The ATI-D by itself does not support any off-premise service. Never connect the ATI-D to a telephone company-supplied line unless you have first installed an acceptable OPX long loop adapter.*

The ATI-D is housed in a self-contained metal enclosure that can be wall mounted if desired. The ATI-D is powered by the digital telephone system through the station port connections and employs an internal ringing generator to generate a ringing signal for an IST. Dual, high-quality, low-loss, balanced, telephone transmission circuitry supports two IST inputs.

One 2-pair cable (four-wire) connects the ATI-D to two common equipment station ports. A single pair of wires connects the external analog IST equipment to the ATI-D. Modular connectors are provided to allow quick connections.

Each ATI-D circuit drives a load with a maximum ringer equivalence number (REN) of 2.0, thus allowing more than one IST connection at each interface input. Check the REN number of the connected IST equipment so as not to exceed the capacity of the ATI-D. Improper operation may result if the REN maximum of the ATI-D is exceeded.

The ATI-D supports a wide variety of IST equipment such as 500 and 2500-type telephones, cordless telephones, voice mail systems, answering machines, FAX machines, and data modems.

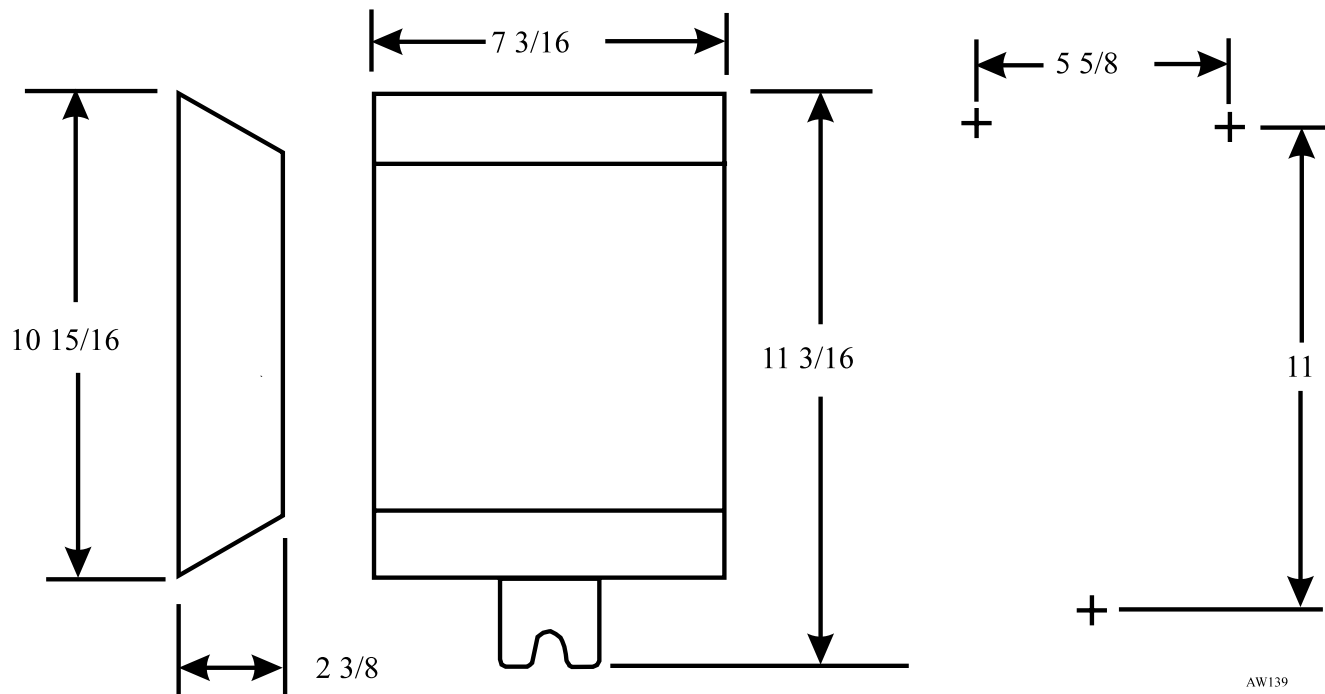
<b>Detailing the Analog Terminal Interface Specifications</b>	
<b>Power Requirements</b>	<b>Supplied by the Common Equipment</b>
Ringing voltage	55 VAC Nominal @ 20 Hz (45 VAC minimum) Power rated to maximum REN = 2.0
Battery feed voltage	24 VDC nominal
Loop current limits between ATI-D and IST interface	20 ma min. at 620 ohms 70 ma max. at 0 ohms
DC loop limits from ATI-D to industry standard interface per port	620 ohms maximum including interfaced telephony device. (Approximately 4000 feet with #26 AWG twisted-pair cable and 300 ohm device load.) (Approximately 500 feet if two IST devices are connected in parallel on same tip and ring pair.)
DC loop limits from ATI-D to voice mail system	Approximately 1000 feet with #26 AWG twisted-pair cable.
Cable insulation resistance	30,000 ohms minimum
Cable requirement ATI-D to system	2-pair twisted cable; 25 feet maximum length. (Both common equipment station ports must always be connected to the ATI-D for every installation, and they must be paired in sequence - 12 & 13, 14 & 15, etc.)
Cable terminations	623-type, 4-conductor mini jacks
Dialing	Industry-standard DTMF or Dial pulse (rotary) with nominal make/break ratio of 40/60 @ 10 PPS
Ringing cadence	Outside calls = 2 second on - 4 seconds off Intercom calls = Two bursts: 1 second on - .5 second off, 1 second on - 3.5 seconds off
Operating temperature	32-122 F (0-50 C)
Humidity	90 % relative, non-condensing
Height	2.375 inches
Width	8.062 inches
Length	11.125 inches
Weight	4 lbs. (plus 2 lbs. for packing material)
FCC registered and listed for safety compliance as part of digital telephone system	
FCC certified, Part 15 (class A)	

## **Mounting the Analog Terminal Interface**

Refer to *Considering the Mounting Requirements* on page 27 for system mounting considerations that are also applicable to the analog terminal interface.

### **Mounting Procedure**

1. Unpack and carefully inspect the ATI-D for shipping damage. Notify the shipper immediately of any damage found. Verify that the package contains 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.
3. Use the base of the ATI-D as a template or measure for mounting hole locations per the dimension details shown in the illustration on the next page.
4. Drill holes of a proper size to accommodate the hardware being used into the mounting surface. If necessary, prepare these holes with inserts, anchors or other attachment devices as dictated by the type of mounting surface.
5. Insert the two top screws into the mounting surface and tighten them to within approximately 1/8-inch of the surface.
6. Hang the ATI-D 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 snap 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; tighten it into place.



Outline Dimensions  
(In Inches)

Spacing For  
Mounting Hardware  
(In Inches)

AW139

**Detailing the ATI Dimensions**

## Connecting the Analog Terminal Interface

Connect the ATI-D per the diagram on the following page. A grounding wire is not required for operation; however, one is desirable for decreasing radio frequency interference and electrostatic discharge susceptibility. The ATI-D housing provides a frame ground stud for this purpose. Connect a #10 or #12, insulated, solid copper wire between this ground stud and a reliable earth ground.

**NOTE:** You must connect both station ports to the ATI-D, even if you plan to use only one IST device. Connect the first ATI-D port to an even station port. All ATI-D ports must be paired.

### CAUTION

*Be careful when connecting the wiring between the common equipment and the ATI-D. Be sure to connect the common equipment station ports to the COMMON EQUIPMENT (KSU) jack on the ATI-D. Damage to the ATI-D could occur if this wiring is mistakenly connected to the IST jack.*

Use a voltmeter to check for the presence of voltage on the IST jack.

1. Be sure that you have installed all the wiring between the ATI-D and the common equipment station ports.
2. Measure for DC voltage on IST jack:
  - Measure between TIP leads and common equipment grounding stud.
  - Measure between RING leads and common equipment grounding stud.
  - Measure between TIP leads and RING leads

The measured voltage must be within following limits:

Measurement	Voltage
Tip to Ground	+3 to +11 VDC
Ring to Ground	-13 to -21 VDC
Tip to Ring	+23 to +25 VDC
(The TIP lead is positive with respect to the RING lead.)	

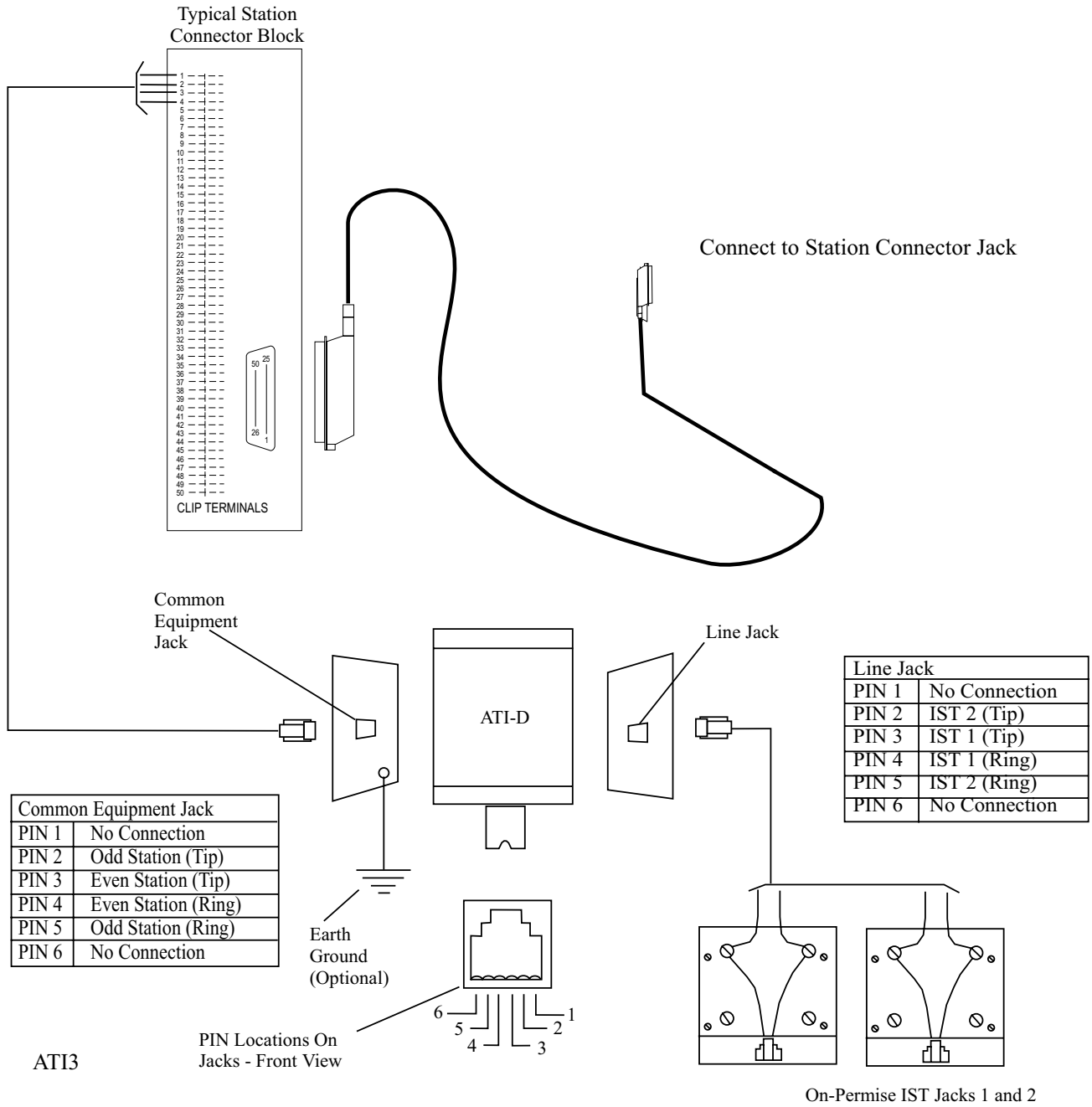
## Understanding Analog Terminal Interface Programming Requirements

Once you have connected the ATI-D to the system there are several programming steps that you should take to make it fully operational. Refer to the section titled, *The Industry Standard Telephone (IST) Interface* on page 220 for complete details.

## Installing a Voice Mail Interface

You can use the ATI-D to provide interfacing for a customer-supplied voice processing system. The ATI-D, using paired station ports (such as 12 and 13, or 14 and 15), will support two voice mail ports.

To complete the installation, connect the voice mail ports to the IST jacks on the ATI-D.



### Connecting the ATI-D

## **Installing an OPX Long Loop Adapter to the Analog Terminal Interface for Off-Premise Service**

As stated previously, the analog terminal interface is an on-premise device. You must use an OPX long loop adapter if you wish to adapt the ATI-D to support an off-premise application. An OPX long loop adapter connects to a single telephone line and can greatly extend the line's loop length (the Proctor Model 46222 adapter\*, for example, can extend line length to 30,000 feet).

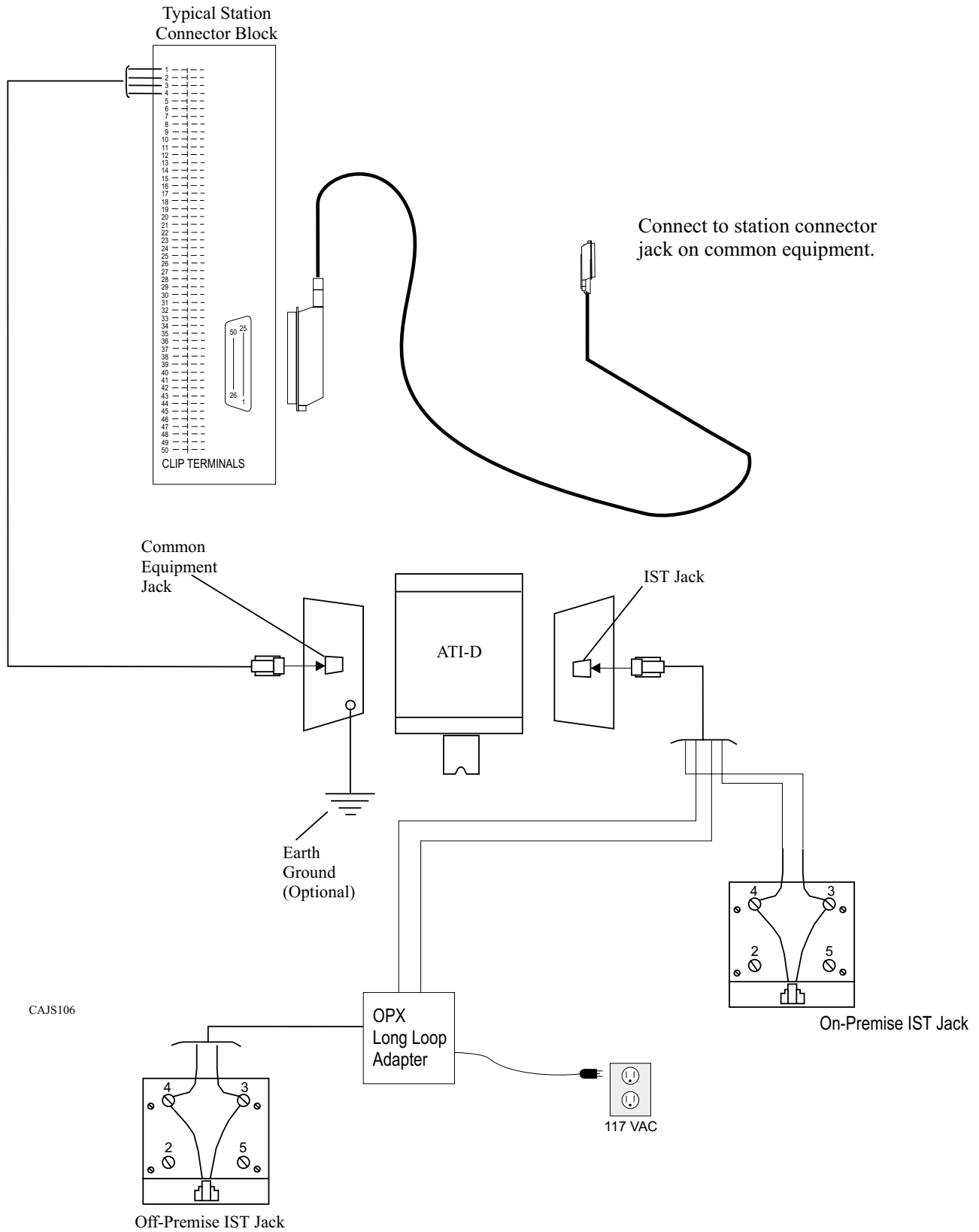
\*Proctor & Associates Company, Redmond WA

### **CAUTION**

*When you connect an adapter to an off-premise extension (OPX), you must install primary protectors in series with the tip/ring pair of the telephone line that is routed to the OPX. This action is necessary to protect both the user and the equipment from transient voltage spikes that can travel through the cable. The telephone company offers basic protection against this condition; however, that protection is usually designed to safeguard the central office circuits and you cannot rely upon it to protect common equipment. To help insure that external over-voltage surges do not damage the system, installation specialists recommend that you install and properly ground gas discharge tubes or similar primary protection devices on the telephone line that routes between the adapter and the OPX.*

To install the OPX long loop adapter:

- Follow manufacturer's instructions for unpacking, inspecting, mounting and wiring the adapter unit.
- Plug a modular cable into the system jack on the adapter and connect the opposite end of the cable to the IST jack on the ATI-D.
- Plug a modular cord into the telephone jack on the adapter and connect the opposite end of the cord to the OPX line.
- Plug the adapter power cord into a standard 117 VAC, 3-wire electrical outlet.



**Installing the Long Loop Adapter**



## Installing the Data Interface Unit

Unpack the Data Interface Unit (DIU) and check for the following parts:

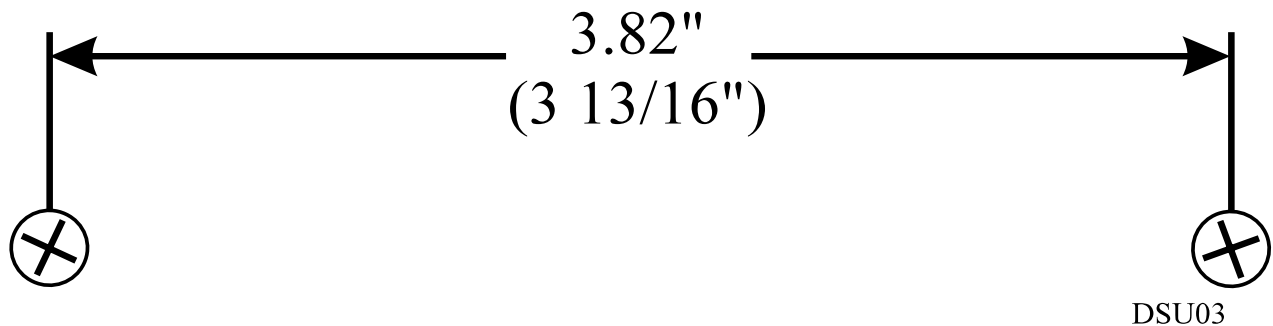
- telephone line cord,
- power cable with attached transformer.

### Installing the Mechanical Components

You can install the DIU as a free-standing device, or you can mount it on a wall.

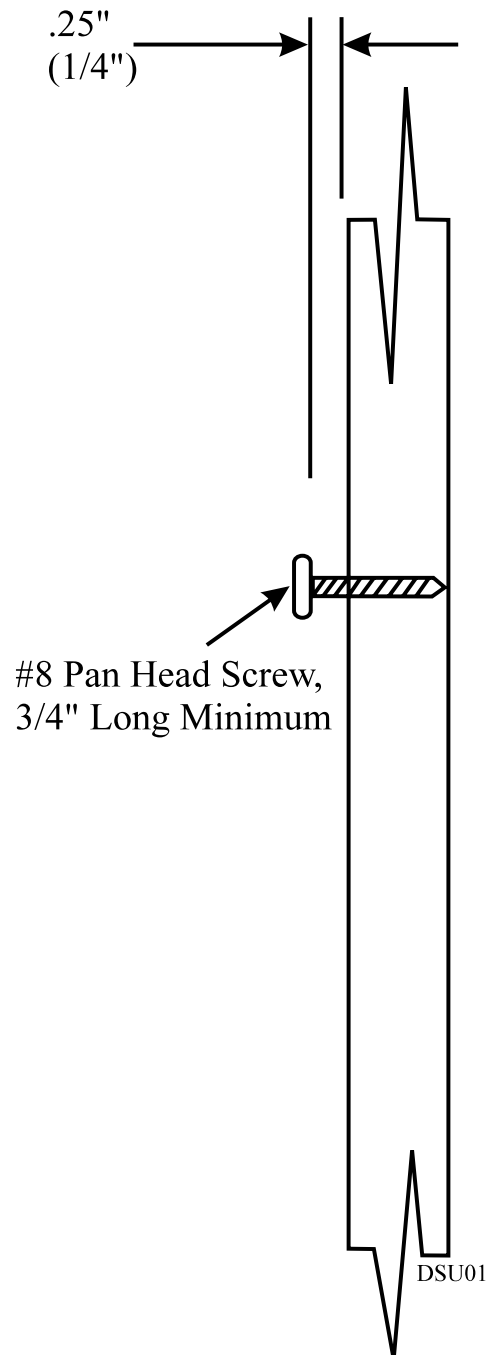
When mounting the DIU on a wall:

1. Select a location that is close to a standard 115 VAC electrical wall outlet. The location you select should also be convenient to the digital telephone and the Industry Standard Telephone (IST), FAX, or modem-whichever one you will be connecting to the DIU.
2. Once you have selected the location for mounting the DIU, mark two locations for the mounting screws as follows:
  - a. make the first mark,
  - b. measure 3 13/16 inches horizontally from the first mark and make the second mark.



### **Mounting the Data Interface Unit**

3. Install two #8 X 3/4-inch screws in the wall at the locations you marked in step 2. Tighten the screws until the screw heads are 1/4-inch from the surface of the wall.
4. Place the DIU on the wall with the screw heads inserted into the slots provided on the bottom surface of the DIU. Slide the DIU onto the screw heads until it is firmly attached to the screws.



**Installing the DIU Mounting Screws**

## **Making the Data Interface Unit Cable Connections**

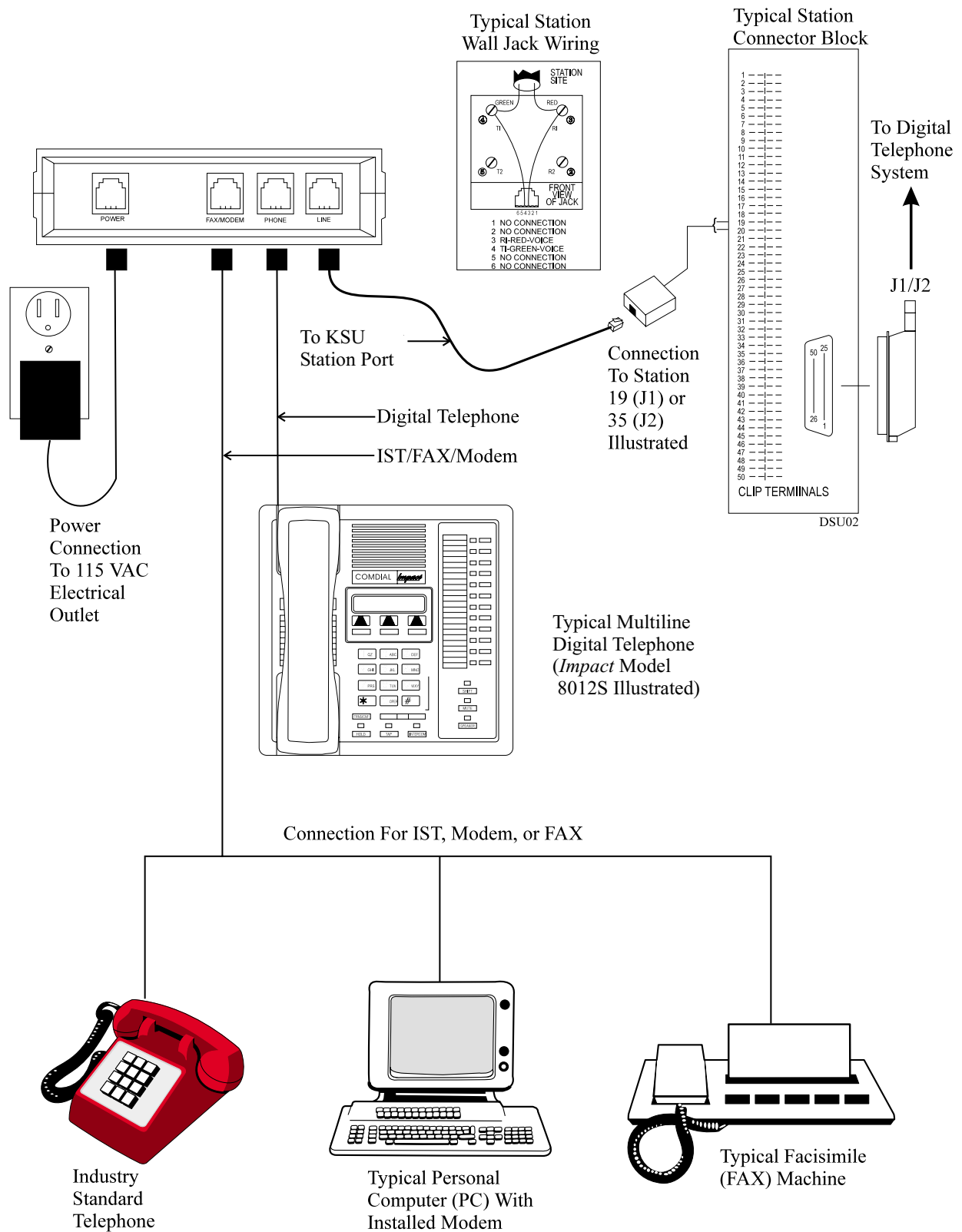
Four cable connections are required to the DIU-station line cord, digital telephone line cord, IST/FAX/MODEM line cord, and power cable.

1. Disconnect the line cord on the digital telephone from the digital station port connector and plug it into the connector labeled PHONE on the DIU.
2. Plug the line cord from the IST device you are installing with the DIU (such as a FAX machine, or modem) into the DIU connector labeled FAX/MODEM.
3. Plug the transformer attached to one end of the power cable into a 115 VAC electrical wall outlet. Connect the other end of the power cable into the DIU connector labeled POWER. The green LED on the DIU will be on to indicate power is being supplied to the DIU.
4. Plug one end of a standard line cord into the connector labeled LINE on the DIU. Plug the other end of the line cord into the digital station port connector.

***NOTE:** DIU power loss creates the same symptoms as disconnecting the DIU from the digital telephone system. If this occurs, plug the multiline digital telephone directly into a digital station port connector.*

## **Preparing the DSU II for DIU Operation**

Once you have verified that the system contains the correct software, you must program the system for operation. See Chapter 4, *Programming* for programming details.



**Making the DIU Cable Connections**

## **Supporting DVA Operation**

Digital voice announcing uses a hardware peripheral device (product code DVA01) connected to a digital station port to play announcements and messages during a call. The DVA stores the messages for recall when needed.

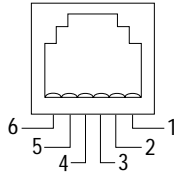
The DVA derives its operating power from the common equipment cabinet's digital station port; however, the DVA also has internal connections for a battery. When installed, this battery powers memory that holds the stored messages should someone disconnect the DVA. Should you need to replace this battery, use one that meets the following specifications:

- output—8.4 volts, 100 mAh
- type—sealed, rechargeable Ni-Cad battery
- model—Varta V7/8R or equivalent (Varta Batteries Inc., 300 Executive Blvd., Elmsford NY 10523)

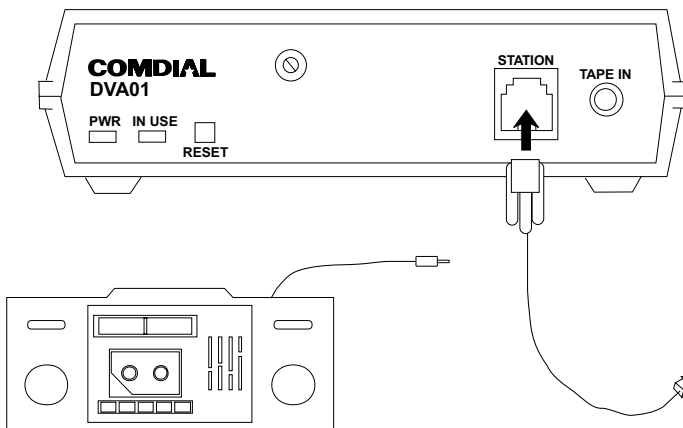
### **To Install the DVA Device**

1. Position the DVA01 in a convenient location.
2. Connect the DVA01 to a digital station port using an RJ14C-configured standard two-wire line cord.
3. If you need to record messages during programming, use a customer-supplied audio cable terminated with 3.5mm (1/8 inch) phone plug on one end and appropriate tape recorder connector on the other end.
4. Referring to Chapter 4 for details, program the system for DVA operation.

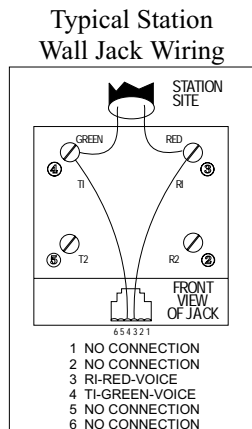
DVA003



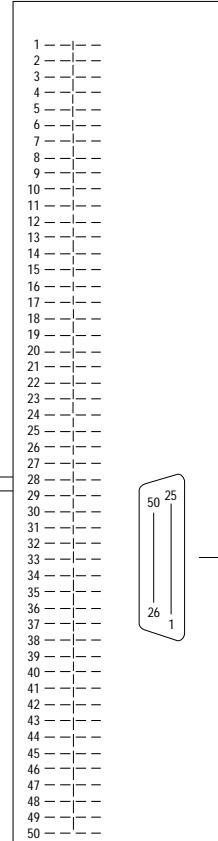
Station Jack Pin-Out	
Pin 1	No Connection
Pin 2	No Connection
Pin 3	Tip 1
Pin 4	Ring 1
Pin 5	No Connection
Pin 6	No Connection



Audio Tape Recorder  
For DSU installations, connect to DVA01's tape in jack.



Typical Station Connector Block



25-Pair Male To Female Cable (Typical) To Common Equipment Cabinet

CLIP TERMINALS

**Interconnecting the DVA Device**

## Installing the Personal Computer Interface Unit

The Personal Computer Interface Unit (PCIU) is a device that you can connect between a digital station port and its proprietary telephone. The PCIU allows telephone users to initiate telephone and voice mail related functions from their personal computer (PC).

The PCIU includes Service Provider Interface (SPI) software on computer diskettes. When you install this SPI software on a PC, the PC users can employ their Telephony Applications Programming Interface (TAPI), third-party Microsoft\* Windows applications programs to control many useful telephone functions.

When you make the Visual Voice Processing (VVP) Visual Call Manager software option available, the voice mail system can use the serial data path to the PCIU to send messages to the telephone's display and to the SPI on the PC.

\*Microsoft is a registered trademark of Microsoft Corporation, Redmond, Washington

### Making the PCIU Cable Connections

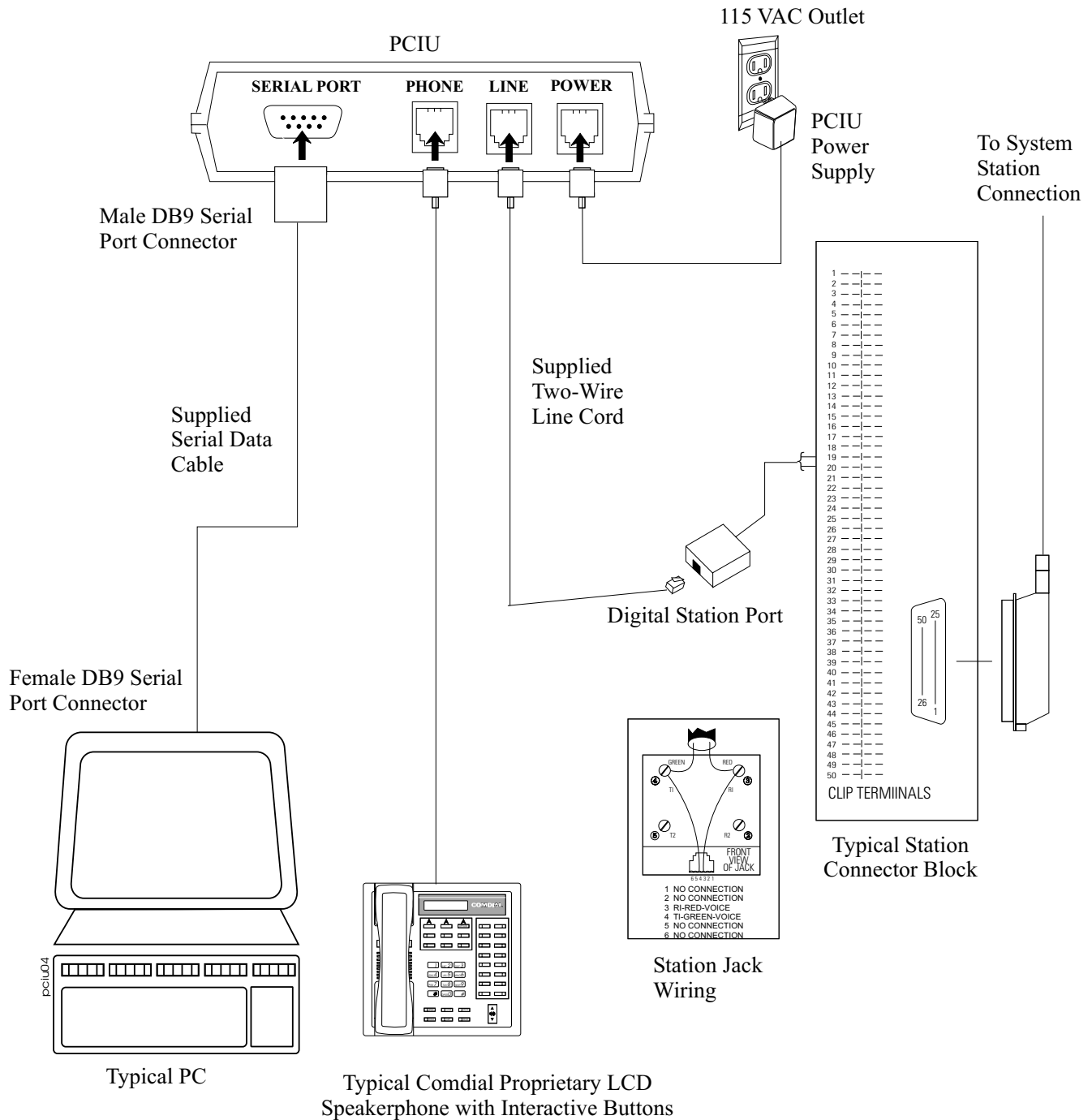
Four cable connections are required to the PCIU-station line cord, digital telephone line cord, PC cable, and power cable.

1. Disconnect the line cord on the digital telephone from the digital station port connector and plug it into the connector labeled PHONE on the PCIU.
2. Connect the supplied serial data cable between the PC's serial data port (COM port) and the serial port connector.
3. Plug one end of a standard line cord into the connector labeled LINE on the PCIU. Plug the other end of the line cord into the digital station port connector.
4. Plug the transformer attached to one end of the power cable into a 115 VAC electrical wall outlet. Connect the other end of the power cable into the PCIU connector labeled POWER. The green LED on the PCIU will be on to indicate power is being supplied to the PCIU.

**NOTE:** *PCIU power loss creates the same symptoms as disconnecting the PCIU from the digital telephone system. If this occurs, plug the digital telephone directly into a digital station port connector.*

## Making the PCIU Operational

To make the operational, you need only follow the instructions enclosed with the SPI software, and load it on the user's PC. There is no programming action required on the DSU II digital telephone system to make the PCIU operational; however, it does require that the software revision be at 2A or later. However, if you use the PCIU with the VVP voice mail system, you must program enable the Visual Voice Mail (VVM) option.



### Making the PCIU Cable Connection

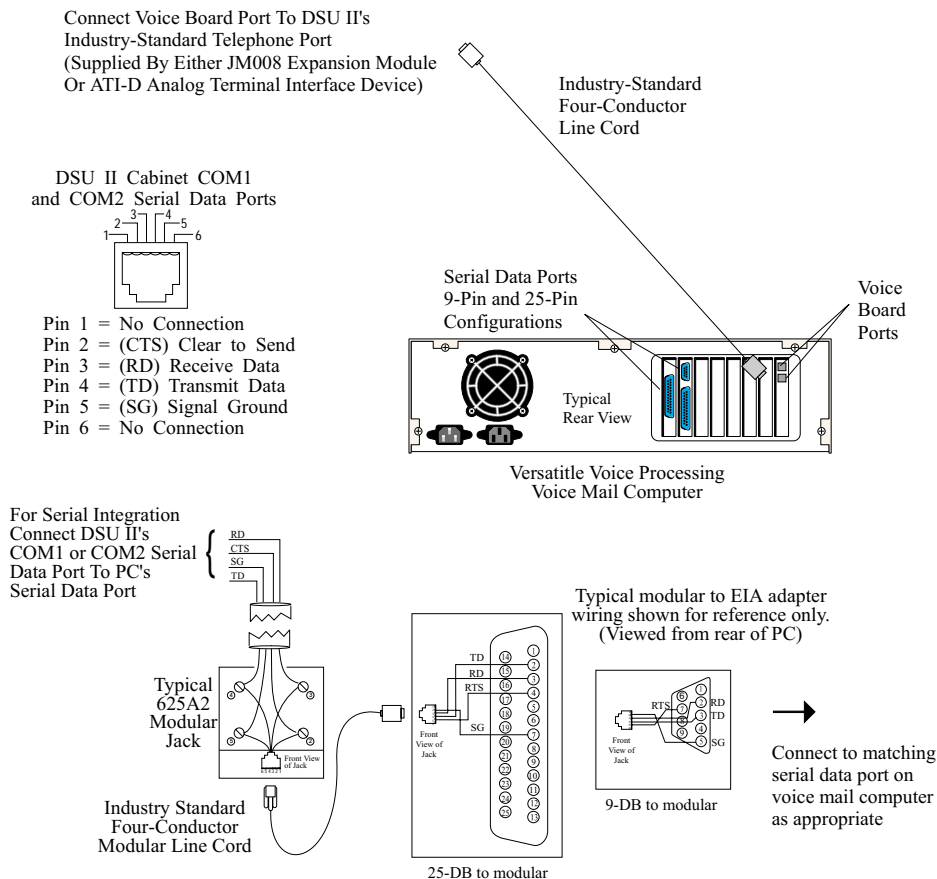


# Connecting the Voice Mail System

The voice processing (VP) system provides voice mail and automatic attendant features to the DSU II digital telephone system. A Comdial proprietary voice board and proprietary software package installed in a personal computer (PC) provides the VP feature. A separate publication, which is supplied with the VP equipment, discusses its installation, programming, and operating details. The information contained below discusses the VP connections to the DSU II.

The VP requires industry-standard telephone (IST) station ports for its interface to the DSU II. Each VP voice port requires its own IST interface. To provide the necessary IST interfaces, you must either install a JM008 expansion module or connect an ATI-D (*Installing the ATI-D*, page 85) to the DSU II common equipment cabinet. Remember, one JM008 expansion module provides eight IST ports while each ATI-D provides two.

The VP software uses both voice and signaling paths between the DSU II and the voice processing circuit board. By using an in-band signaling technique, the IST ports handle both of these paths. The efficiency of in-band signaling is dependent upon the availability of idle paths, and busy systems that rely on in-band signaling sometimes slow down. Busy systems work more efficiently when the signaling path is provided through a serial data connection between the VP's PC and the DSU II's common equipment. This arrangement is termed serial integration. You must provide serial integration if VP includes the optional Visual Voice Mail (VVM) feature or if you are using the PCIU. See *Installing the Personal Computer Interface* on page 99 for installation information.



## Connecting VP to the Digital Telephone System

## **FCC Regulatory Rules and Regulations**

### **Federal Communications Commission (FCC) And Industry Canada (IC) Rules And Regulations**

#### ***FCC Part 15 RF Emission Information***

This equipment 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 the 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 and 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 receiving antenna, and/or relocate the system, the individual telephone stations, and the radio or television 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, DC, 20402. Stock No. 004-000-00345-4.

#### ***FCC Part 68 Information***

This equipment complies with Part 68 of the FCC Rules. A label, located on the exterior lower left side of the cabinet, contains the FCC Registration Number(s) and Ringer Equivalence Number (REN).

Notify the local telephone company when you connect the equipment to the network and provide the information shown in the following table:

Line Type	Service Order Code*	Facilities Interface Code*	Ringer Equivalence Number*	Universal Service Order Code Connector
Loop Start	9.0F	02LS2	See Equipment Specification Sheet	RJ21X
Ground Start (See note)	9.0F	02GS2	See Equipment Specification Sheet	RJ21X
DID Lines	9.0F-AS.2	02RV2-T	Not Applicable	RJ21X
E&M Lines	9.0F	TL11M	See Equipment Specification Sheet	RJ2EX
T1 Line	6.0Y	04DU9-1SN	Not Applicable	RJ48C
T1/PRI (ISDN) Line	6.0Y	04DU9-1SN	Not Applicable	RJ48C
<p><i><b>NOTE:</b> State tariffs do not permit ground start operation for KF registered equipment (key system operation). Ground start operation is only permitted for MF registered equipment (KTS/PBX hybrids with both manual and pooled outgoing and incoming access to the network). The system <u>must</u> be configured for MF operation when using ground start operation.</i></p> <p><i>* Refer to the paragraph titled Terms and Definitions for detailed explanations.</i></p>				

This equipment may not be used on coin service provided by the telephone company. Connection to party lines is subject to state tariffs.

Should the equipment cause harm to the telephone network, the telephone company may disconnect your service temporarily. If possible, they will notify you in advance. If advanced notice is not practical, they will notify you as soon as possible. You will be informed of your right to file a complaint with the FCC. The telephone company may make changes in its facilities, equipment, operations or procedures that could affect the proper functioning of your equipment. If they do so, they will notify you in advance to give you an opportunity to maintain uninterrupted telephone service. In addition, the telephone company may ask that you disconnect this equipment from the network until the problem has been corrected or until you are sure that the equipment is not malfunctioning.

If you experience trouble with this equipment, please contact:

Comdial Corporation  
P.O. Box 7266  
Charlottesville, VA 22906-7266  
Telephone: 1-804-978-2200

## Terms and Definitions

**Service Order Code (SOC)** defines type of service and system protection.

9.0F = analog service, full protection to the network from systems using live voice. Only registered terminal equipment can be connected to station ports.

9.0F-AS.2 = analog service, same as 9.0F above but with system ports which provide answer supervision (for system types such as CD, KF, MF, PF, VM, etc.).

6.0Y = digital service, provides total protection, including billing protection and encoded analog content.

**Facilities Interface Code (FIC)** is a tariff reference used by customers to order correct facilities to be provided by the telco.

02LS2 = analog service, 2-wire, local switched access, loop-start

02GS2 = analog service, 2-wire, local switched access, ground-start

02RV2-T = analog service, 2-wire, local switched access, reverse-battery

TL11M = analog service, tie line, lossless interface, type 1 transmission-2 wire, type 1 E&M interface, provides battery on M lead to originate

04DU9-1SN = digital service, 1.544 Mbps ANSI ESF and B8ZS without line power

**Ringer Equivalence Number (REN)** is useful to determine the quantity of devices that may be connected to the telephone line and still have all of those devices ring when the telephone number is called. In most, but not all areas, the sum of the REN's of all devices connected to one line should not exceed five (5.0). To be certain of the number of devices that you may connect to your line, you may want to contact your local telephone company to determine the maximum REN for your calling area.

**Universal Service Order Code Connector (USOC Con)** defines the FCC Part 68 approved telco provided connector, electrically and mechanically, required to interface with the customer equipment. To avoid legal, warranty, insurance, and casualty problems, do not pass anything through the network connector other than those permitted in the FCC Part 68 RJ series connectors. Definitions of connectors listed above is as follows:

RJ21X is a 25 line, 2-wire, T/R, 50 position connector

RJ2EX is a 12 Tie trunks, 2-wire, T/R, E&M Type 1, 50 position connector

RJ48C is a single line, 4-wire, T/R, T1/R1, 1.544 Mbps, 8 position connector

## Industry Canada RF Emission Information

This digital device does not exceed the Class A limits for radio noise emissions from digital apparatus set out in Radio Interference Regulations of Industry Canada.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la class A prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministre des Industry Canada.

## **Industry Canada TELCO Information**

**NOTICE:** The Industry Canada label identifies certified equipment. This certification means that the equipment meets certain telecommunications network protective, operational and safety requirements. Industry Canada does not guarantee the equipment will operate to the user's satisfaction.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. In some cases, the company's inside wiring associated with a single line individual service may be extended by means of a certified connector assembly (telephone extension cord). The customer should be aware that compliance with the above condition may not prevent degradation of service in some situations.

Repairs to some certified equipment should be made by an authorized maintenance facility designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

### **CAUTION**

*Users should not attempt to make such connections themselves, but should contact the appropriate electrical inspection authority, or electrician, as appropriate.*

**NOTICE:** The ringer equivalence number (REN) assigned to each terminal device provides an indication of the maximum number of terminals allowed to be connected to the telephone interface. The termination on an interface may consist of any combination of devices subject only to the requirement that the sum of the ringer equivalence numbers of all the devices does not exceed 5.

**AVIS:** L'étiquette de Industrie Canada identifie le matériel homologué. Cette étiquette certifie que le matériel est conforme à certaines normes de protection, d'exploitation et de sécurité des réseaux de télécommunications. Le Ministère n'assure toutefois pas que le matériel fonctionnera à la satisfaction de l'utilisateur. Avant d'installer ce matériel, l'utilisateur doit s'assurer qu'il est permis de le raccorder aux installations de l'entreprise locale de télécommunication. Le matériel doit également être installé en suivant une méthode acceptée de raccordement. L'abonné ne doit pas oublier qu'il est possible que la conformité aux conditions énoncées ci-dessus n'empêche pas la dégradation du service dans certaines situations. Les réparations de matériel homologué doivent être effectuées par un centre d'entretien canadien autorisé désigné par le fournisseur. La compagnie de télécommunications peut demander à l'utilisateur de débrancher un appareil à la suite de réparations ou de modifications effectuées par l'utilisateur ou à cause de mauvais fonctionnement. Pour sa propre protection, l'utilisateur doit s'assurer que tous les fils de mise à la terre de la source d'énergie électrique, des lignes téléphoniques et des canalisations d'eau métalliques, s'il y en a, sont raccordés ensemble. Cette précaution est particulièrement importante dans les régions rurales.

**AVERTISSEMENT**

*L'utilisateur ne doit pas tenter de faire ces raccordements lui-même; il doit avoir recours à un service d'inspection des installations d'inspection des installations électriques, ou à un electricien, selon le cas.*

**AVIS:** L'indice d'équivalence de la sonnerie (IES) assigné à chaque dispositif terminal indique le nombre maximal de terminaux qui peuvent être raccordés à une interface. La terminaison d'une interface téléphonique peut consister en une combinaison de quelques dispositifs, à la seule condition que la somme d'indices d'équivalence de la sonnerie de tous les dispositifs n'exécède pas 5.

# 4

## Programming

### Understanding System Programming

While the Digital Telephone System offers many functional possibilities, it is your programming that determines the system's operation. You can program the system in two ways: using a telephone, or using a Video Display Terminal (VDT) or personal computer running communications software. The programming instructions in this manual detail the telephone programming method. If you wish to employ the VDT programming method, refer to IMI66-094, *Video Display Terminal Programming* manual.

#### Using a Telephone to Program the System

Perform Class of Service (COS) configuration programming from station port 10 or station port 12. The system will not accept programming commands from any other station port in the system. For best programming results, use an LCD speakerphone and a DSS/BLF console at station port 11 or 13 to see which features are assigned to individual stations. While you can install any non-LCD digital telephone and use it for programming, visual feedback of the programming operations will not be available. You must always keep the handset of the LCD speakerphone on-hook while you use this telephone to program the system.

***NOTE:** Be sure the system is not in the night transfer (of ringing) mode of operation when you perform the programming steps.*

#### Supporting Telephones (Revision I and later)

There are several items that you need to consider when connecting Revision I and later DigiTech telephones to the DSU II digital telephone system:

- Always program station ports to provide ringing line preference to Revision I and later DigiTech telephones (and to all Impression and Impact telephones) that are connected there. This action is necessary to activate the orange LED feature on these telephones. The orange status light indicates a ringing line to distinguish it from lines that are in use or on hold.

## Converting Button Designations

When you first power a new DSU II system with no telephones connected, it defaults its station ports as Impact 24-line speakerphones.

When you connect a telephone to a powered-up system or when you turn on the AC power to a system after you have connected a telephone to it, the system automatically button maps the telephone according to the type of software the system has. To change the button mapping default, install different software and master clear the system.

The buttons on Impact telephones are designated as L buttons; the buttons on DigiTech and Impression telephones are designated as A and B buttons. The Buttons Designation Conversion Chart table below lists each A and B button and its equivalent on an Impact telephone. The programming steps in this manual use A and B button designations; if you are programming from an Impact telephone, you must use the proper telephone programming overlay with the A and B designations. Telephone overlays are included with the literature package for the digital telephone system.

<b>Button Designation Conversion Chart</b>		
<b>Impression</b>	<b>DigiTech</b>	<b>Impact</b>
A1	A1	L1
A2	A2	L2
A3	A3	L3
A4	A4	L4
A5	A5	L5
A6	A6	L6
A7	A7	L7
A8	A8	L8
A9	A9	L9
A10	A10	L10
A11	A11	L11
A12	A12	L12
A13	A13	L13
A14	A14	L14
A15	B9	L15
A16	B10	L16
B1	B1	L17
B2	B2	L18
B3	B3	L19
B4	B4	L20
B5	B5	L21
B6	B6	L22
	B7	L23
	B8	L24



When you perform COS programming from stations 10 or 12 and you have placed an Impact telephone at the programming port, you should place the programming overlay on it.

This makes the button designations match the A and B designations called for in this system programming manual.

When button mapping using a telephone different from the telephones being programmed (cross-model button mapping), you will need to use either a programming overlay or the button designation conversion chart on page 108, depending on the type of telephone installed at the programming port.

If all system telephones are the same, when you press a button at the programming station, you select the same button on the telephone that you are mapping. No overlay or conversion chart is needed.

If you are cross-model mapping, you will need either an overlay or the button designation conversion chart. The overlay works best when you are using an Impact telephone to button map an Impression or DigiTech telephone. The chart is more convenient when you are using a DigiTech or Impression telephone to button map an Impact telephone. In either case, when you map a line to a selected button, it is best if you choose the line by dialing its code rather than by pressing a button on the programming station to represent it. To choose lines 1 through 24, you must dial  through .

The following examples explain when you need to use conversions.

- To select button **L21** for reprogramming on an Impact telephone using another Impact telephone at station 10 for programming, press button **L21** on the station 10 telephone. (No conversion is required in this example.)
- To select button **B5** for reprogramming on an Impression or DigiTech telephone while using an Impact telephone for programming, press the button designated as **B5** by the programming overlay on the Impact telephone at station 10 (this is actually **L21** but the overlay did the conversion for you).
- To select button **L21** for reprogramming on an Impact telephone while using an Impression or DigiTech telephone for programming, press button **B5** on the Impression or DigiTech telephone at station 10. (You use the conversion chart to convert the **B5** button to an L21 button.)

## Using Block Programming

You can program a group of lines or stations to have the same configuration as one that you have already programmed. This block programming feature eliminates the need to individually program every line or station that requires the same configuration.

## **Master Clearing the System**

After you have completely installed a telephone system for the first time—or if a system that you previously installed has been turned off and placed out of service for a period of time (several weeks, for example)—perform a master clear programming procedure before placing it into service. If you plan to perform a master clear procedure, perform it before performing any other programming procedure. The master clear procedure clears all memory locations of any unwanted data that may be stored there. Master clearing also clears any previously programmed data, such as autodial numbers, and defaults all COS conditions. Therefore, never perform a master clear procedure on an existing installed system unless data loss and COS default are acceptable. Refer to the information provided in the procedure titled Master Clear on page 111 for programming details.

## **Using Programming Overlays**

The literature package with the system includes a programming overlay for use in identifying the buttons required for programming. The overlay fits over the buttons of the programming station. The overlays correspond to the programming steps listed for each feature, so when you are directed to press **B1**, for example, the overlay details which button is **B1** for your telephone.

If you are programming the system from a VDT, it is best to allow the telephones to identify themselves to the system before you button map them. When you do this, the VDT presents the proper button designations in its prompt and you will not need an overlay or conversion chart. The system queries you to designate the telephone type for unoccupied station ports. Upon your response, the system presents the proper button designations in the prompts for these ports.

## Master Clearing and Defaulting the System

You can return the entire programming configuration to the factory settings using the master clear procedure. You can also return the individual system, line, and station class of service configurations to their factory settings using the system, line, and station default procedures. The operating parameters and class of service values provided by the factory setting will provide satisfactory performance in a broad range of site applications.

### **CAUTION**

*Not only does the master clear procedure return ALL programmed variables to a known state of operation, it also clears all currently stored autodial and speed dial numbers.*

### Master Clearing the System

**Description:** Returns entire system configuration to factory settings and clears all stored auto and speed dial numbers.

**To Program:**

1. Press **INTERCOM**, dial      . “*CONFIG MODE*”
2. Dial  . “*MASTER CLEAR*”
3. Dial      to clear the entire system. System returns to normal operation mode automatically.

### Defaulting the System

**Description:** Returns the system configuration features to factory settings.

**To Program:**

1. Press **INTERCOM**, dial      . “*CONFIG MODE*”
2. Dial  . “*SYSTEM DEFAULT*”
3. Press  to default system features. System returns to configuration mode automatically.

### Defaulting the Lines

**Description:** Returns the line configuration features to factory settings.

**To Program:**

1. Press **INTERCOM**, dial      . “*CONFIG MODE*”
2. Dial  . “*LINE DEFAULT*”
3. Press  to default line features. System returns to configuration mode automatically.

## Defaulting the Stations

**Description:** Returns the station configuration features to factory settings.

**To Program:**

1. Press **INTERCOM**, dial      . “*CONFIG MODE*”
2. Dial  . “*STATION DEFAULT*”
3. Dial   to default station ports system-wide  
—OR—  
Select individual station port to be defaulted:  
Station 10-57 = Dial  — .
4. Dial  for next station to default  
—OR—  
Dial   for configuration mode  
—OR—  
Press **SPEAKER** to quit.

## Defaulting the Button Assignments

**Description:** Returns the button mapping of individual stations to its factory setting.

**To Program:**

1. Press **INTERCOM**, dial      . “*CONFIG MODE*”
2. Dial  . “*BUTTON MAPPING*”
3. Dial  . “*BUTTON MAPPING*”
4. Select station ports to be defaulted  
Station 10-57 = Dial  — .
5. Dial  for next button mapping feature  
—OR—  
Dial   for configuration mode  
—OR—  
Press **SPEAKER** to quit.

## Defaulting the Toll Restriction Tables

**Description:** The system defaults two toll restriction tables with preprogrammed values and assigns them to the lines. You need only to assign them the stations to put them into effect. The preprogrammed values are as follows:

### Table 1 (deny)

Entry 1 = 1

Entry 2 = 976

Entry 3 = 411

Entry 4 = 0

### Table 2 (allow)

Entry 1 = 1800

Entry 2 = 911

These values will provide satisfactory system performance in a broad range of site applications; however, they can be changed as needed to meet different toll restriction needs.

### **To Program:**

1. Dial .
2. Press  to default toll tables
3. Dial  for configuration mode

“DEFAULT TOLL”

—OR—

Press **SPEAKER** to quit.

## Programming Password Protection

**Description:** The system provides two different entry levels for programming and allows for a different password for each entry. You must use the VDT programming method to change them as needed to provide security against unauthorized program entries. The two programming entry levels are the installer level and the administrator level. You enter the installer level, using the installer password, to perform all programming functions including major changes such as master clearing or line type programming. Administrators enter the administrator level, using the administrator password, to perform most programming functions except those major changes just mentioned. You can make the two passwords different to limit access to either programming level to only certain special or authorized people. Additionally, you can construct a password that will prevent all COS programming entry from station 10.

### **Default Passwords**

The default passwords are detailed in the following list:

VDT Installer	I*nnn* (nnn=746)
VDT Administrator	I*nnn* (nnn=236)
Station 10 Installer	INTERCOM *#nnn* (nnn=746)
Station 10 Administrator	INTERCOM *#nnn* (nnn=236)

### Customized Passwords

Customized passwords can be alphanumeric or numeric only (no spaces allowed) and must contain six characters. To retain the ability to enter programming from station 10, you must maintain the I\*nnn\* format in the VDT password and you must enter only numbers in the nnn entry; however, you must not enter a zero for the leading **n**.

Once you customize a password, it remains customized and you must use the new password to gain entry into the system for future programming tasks. Neither default nor master clear will erase the customized password. It is very important that you keep a hard copy of the customized password since it provides the only entry to system COS programming through either the VDT or station 10. If no one can remember the customized password, Comdial's Technical Services department can provide emergency entry *but it charges a fee for this service*. Otherwise, you must disconnect all AC power and any battery backup equipment, wait an extended period of time (up to several weeks) for the internal memory protection to completely discharge, and reprogram the system using the default password to gain entry.

**NOTE:** Password protection programming is a Video Display Terminal feature only. You cannot customize a password using station 10 programming entry.

#### To Program:

1. From keyboard, type I\*746\* for the programming mode.
2. From main COS programming menu.  
Type **6** to change installer password  
—OR—  
Type **7** to change administrator password and press **RETURN**.
3. At menu prompt, type customized password using any six alphanumeric or numeric only characters.

**NOTE:** To retain the ability to enter programming from station 10, you must maintain the I\*nnn\* format in the VDT password and you must enter only numbers in the nnn entry; however, you must not enter a zero for the leading **n**.

4. As directed by next menu prompt, repeat step 3 to ensure that you entered correct code.
5. When finished, return to main menu and log out of programming.

## System Features

Configuring the system means that you are setting the parameters that will be true system-wide. You should make a record in Chapter 5 of all programming decisions that you make—it will help you keep track of what you have done and will help you troubleshoot any problem that might arise later.

***NOTE:** A lighted LED next to the programming button for the selection indicates the current configuration. When a single button provides a toggle (on/off) action, the lighted LED indicates the active feature.*

The first step in any programming sequence is to enter the base level. Once in this mode, you can dial the feature code for any desired configuration. Enter the base level with the following procedure: press **INTERCOM** then dial      . When you want to end the programming, press the **SPEAKER** button to end the programming procedure and return the system to normal operation.

### Automatic Station Relocation

**Description:** With this feature, the system will automatically recognize a particular station should that station be relocated to a different station port. The system will supply the same COS parameters at this new port as was programmed for the station at the original port. This feature allows users to relocate their telephone from one station port location to another yet retain their original telephone features.

***NOTE:** If you turn this feature on, be sure to make the station users understand that their telephone parameters could change if they trade telephones from port to port. If you want automatic relocation to take place, do nothing until the message waiting light quits flashing, or press the **HOLD** button to immediately accept the relocation.*

*If you do not want automatic relocation to take place, press the  button while the message waiting light is flashing.*

#### **To Program:**

1. Dial  . “AUTO STA RELOCAT”
2. Press **A1** to toggle between enable and disable (LED On = Enable)  
—OR—  
Dial  to Enable (**A1** LED On).  
Dial  to Disable.
3. Dial  for configuration mode.

To change setting, repeat procedure and make opposite selection.

## Data Baud Rate

**Description:** The speed or baud rate of the data bit stream, which carries the SMDR and configuration data between the system and an external data device, must be programmed to match the requirements of the data device.

*NOTE: If you use XMODEM protocol for data transfer between a PC and the common equipment, you must use 8-bit data.*

### To Program:

1. Dial . “BAUD RATE”
2. Dial code for serial data port to be programmed:
  - Dial  for COM 1.
  - Dial  for COM 2.
  - Dial  for COM 3.
  - Dial  for COM 4.
3. Choose baud rate:
  - Dial  or press **A1**. “WnD nS 110”
  - Dial  or press **A2**. “WnD nS 150”
  - Dial  or press **A3**. “WnD nS 300”
  - Dial  or press **A4**. “WnD nS 600”
  - Dial  or press **A5**. “WnD nS 1200”
  - Dial  or press **A8**. “WnD nS 2400”
  - Dial  or press **A9**. “WnD nS 4800”
  - Dial  or press **A10**. “WnD nS 9600”
  - Dial  or press **A11**. “WnD nS 19200”
  - Dial  or press **A7** for 7 data bits and 2 stop bits. “W 7D 2S ZZZZZ”
  - Dial  or press **A14** for 8 data bits and 1 stop bit. “W 8D 1S ZZZZZ”
4. Dial  for next data port  
—OR—  
Dial  for configuration mode.

To change setting, repeat procedure and make opposite selection.



## Do Not Disturb (DND)

All of the following features are part of the Do Not Disturb (DND) application.

### **Do Not Disturb Button**

**Description:** A telephone user can press a button (either one that you have mapped on that station or one that is provided by an interactive button on an LCD speakerphone) to set the station to a DND condition.

#### **To Program:**

1. Dial . “*BUTTON MAPPING*”
2. Dial . “*ASSIGN DND CODE*”
3. Select button to be programmed:  
Press **A1–A14, B1–B10**.
4. Select station ports to be programmed with a DND button.  
Station 10–57 = Dial , or press **C10–C57**.
5. Dial  for further DND button assignment  
—OR—  
Dial  for next button mapping feature  
—OR—  
Dial  for configuration mode.

To clear, dial , press button, dial  and repeat steps 4 and 5.

### **Do Not Disturb Inhibit**

**Description:** You can inhibit the ability to set DND on a system-wide basis.

#### **To Program:**

1. Dial . “*DND*”
2. Press **A1** to toggle between Enable and Disable (LED On = Enable).  
—OR—  
Dial  to Enable (**A1** LED On). “*DND ENABLED*”  
Dial  to Disable. “*DND DISABLED*”
3. Dial  for configuration mode.

To change setting, repeat procedure and make opposite selection.

### ***Do Not Disturb Override Capability***

**Description:** A caller to a DND station can override a DND condition when you program the calling station to have the DND override feature.

**To Program:**

1. Dial  . *“STATION FEATURES”*
  2. Dial  . *“DND OVERRIDE”*
  3. Select station ports to be programmed.  
Station **10-57** = Dial   -  , or press **C10-C57**.
  4. Dial  for next station feature.
- OR—
- Dial   for configuration mode.

To change setting, repeat procedure and make different selection.

### **Exclusive Hold**

**Description:** This feature prevents a telephone user at one station from picking up a call that a user placed on hold at another station. You can enable or disable it system-wide using this procedure.

**To Program:**

1. Dial  . *“XXXXXXXX EXC HOLD”*
  2. Press **A1** to toggle between enable and disable (LED On = Enable).
- OR—
- Dial  to Enable (**A1** LED On). *“ENABLE EXC HOLD”*
- Dial  to Disable. *“DISABLE EXC HOLD”*
3. Dial  for configuration mode.

To change setting, repeat procedure and make opposite selection.

## **Music On Hold**

**Description:** When you connect an external music source to the system, it will provide music to outside lines that are placed on hold. You can disable the music using this programming procedure. System attendants also have access to this feature.

### **To Program:**

1. Press **04**. “MOH XXXXXXXX”
2. Press **A1** to toggle between enable and disable (LED On = Enable).  
—OR—  
Dial **1** to Enable (**A1** LED on). “MOH ENABLED”  
Dial **2** to Disable. “MOH DISABLED”
3. Dial **\*** for configuration mode.

To change setting, repeat procedure and make opposite selection.

## **LCD Messaging**

**Description:** You can create messages that telephone users can set at their stations to be displayed by any LCD speakerphone that calls them on the intercom line. The system provides two standard messages but you can use this programming procedure to create up to 10 custom messages. System attendants also have access to this feature, but they must use station 10 or 12 to program messages.

### **To Program:**

1. Dial **05**. “LCD MESSAGES”
2. Dial **1-10** for message number. “XXXX...”
3. Dial **#** to clear current message.
4. Refer to the character code table on page 120, and compose message (maximum 16 characters).
5. Dial two-digit codes to create message. “YYYYYYY...”  
—OR—  
Dial **10** for preprogrammed message. “BACK AT”  
—OR—  
Dial **20** for preprogrammed message. “CALL”
6. Dial **\*** for next message location and repeat steps 2-5.  
—OR—  
Dial **\*\*** for configuration mode.

Character Code Table					
Character	Code	Character	Code	Character	Code
A	21	a	24	Space	12
B	22	b	25	-	15
C	23	c	26	;	17
D	31	d	34	/	18
E	32	e	35	“	19
F	33	f	36	.	27
G	41	g	44	,	28
H	42	h	45	:	29
I	43	i	46	1	01
J	51	j	54	2	02
K	52	k	55	3	03
L	53	l	56	4	04
M	61	m	64	5	05
N	62	n	65	6	06
O	63	o	66	7	07
P	71	p	74	8	08
Q	11	q	14	9	09
R	72	r	75	0	00
S	73	s	76		
T	81	t	84		
U	82	u	85		
V	83	v	86		
W	91	w	94		
X	92	x	95		
Y	93	y	96		
Z	13	z	16		

## PA Port Options

The common equipment includes a special paging port that you can use to couple the system to a customer-supplied external paging amplifier. The following section details the programming features for the paging port.

### **Ringing Type**

**Description:** You can assign lines to the PA port for direct ring, delayed ring, or night transfer (of ringing).

#### **To Program:**

1. Dial . *“PA OPTIONS”*
2. Choose ringing assignment:
  - Dial  for direct ring. *“DIRECT RING”*
  - Dial  for delay ring. *“DELAY RING”*
  - Dial  for night ring. *“NIGHT RING”*
3. Select line ports:
  - Line port 1–14 = Dial  or press **A1–A14**.
  - Line port 15, 16 = Dial ,  or press **B1, B2**.
  - Line port 17–24 = Dial  or press **HOLD** then press **A1–A8**.

***NOTE:** LEDs turn on when the line is assigned.*

4. Dial  for next PA option  
—OR—  
Dial  for configuration mode.

To change setting, repeat procedure and make opposite selection.

## Zone Paging

**Description:** You can also assign zone or all-call paging to the PA port.

### To Program:

1. Dial . “PA OPTIONS”
2. Dial  to assign zone paging. “PA ZONES”
3. Choose zone:  
Press **A1** or Dial  for zone 1.  
Press **A2** or Dial  for zone 2.  
Press **A3** or Dial  for zone 3.  
Press **A4** or Dial  for all-call.

**NOTE:** A1, A2, A3, or A4 LED turns on when a zone is assigned.

4. Dial  for next PA option.  
—OR—  
Dial  for configuration mode.

To change setting, repeat procedure and make different selection.

## Ringling Relay Tracking

**Description:** You can select the tracking source for the ringing relay to be either station 17 ringing or the ringing that you have assigned to the paging port. Making it track the ringing that you have assigned to the PA port provides relay control for the customer-supplied PA amplifier if needed.

### To Program:

1. Dial . “PA PORT”
2. Dial . “RELAY XXXXXXXX”
3. Choose relay tracking assignment.

Press **A1** to toggle between paging port and station port 17 (LED On = Paging Port).

—OR—

Dial  for station port 17. “RELAY STA. 17”

Dial  for paging port. “RELAY PA PORT”

4. Dial  for next PA option.

—OR—

Dial  for configuration mode.

To change setting, repeat procedure and make different selection.

## Ringling Tones

**Description:** You can choose between the intercom tone and the DTMF tone for these PA port ringing tones. The intercom tone provides a soft tone and the DTMF provides a loud tone.

### To Program:

1. Dial . “PA PORT”
2. Dial . “PA XXXX TONE”

3. Choose tone assignment:

Press **A1** to toggle between intercom and DTMF tone (LED On = Intercom Tone).

—OR—

Dial  for intercom tone. “PA ITCM TONE”

Dial  for DTMF tone. “PA DTMF TONE”

4. Dial  for next PA option.

—OR—

Dial  for configuration mode.

To change setting, repeat procedure and make different selection.



## **Station Monitoring**

You can enable two types of station monitoring: visual ring indication and audible monitoring.

### ***Visual Ring Indication***

**Description:** The DSS/BLF at a station provides idle, busy, and ringing status of all of the monitored stations. If users find the flashing BLF lights distracting, you can disable the visual indication system-wide using this procedure.

#### **To Program:**

1. Dial . *“MONITOR XXXXXXXX”*
2. Press **A1** to toggle between enable and disable (LED On = Enable).  
—OR—  
Dial  to Enable (**A1** LED = On). *“MONITOR ENABLED”*  
Dial  to Disable. *“MONITOR DISABLED”*
3. Dial  for configuration mode.

To change setting, repeat procedure and make opposite selection.

### **Audible Monitoring (Station Monitoring)**

**Description:** If you enable this visual ring indication, you can also enable audible indication of both direct and delayed ringing on a per-station basis if you wish.

#### **To Program:**

1. Dial  . *“STATION FEATURES”*
2. Dial  . *“AUDIBLE MONITOR”*
3. Dial  for no audible monitoring. *“NONE”*  
     Dial  for direct ring monitoring. *“DIRECT RING”*  
     Dial  for delayed ring monitoring. *“DELAYED RING”*
4. Select stations for programming:  
     Station 10-57 = Dial   -  , or press **C10-C57**.
5. Dial  next monitoring condition.  
     —OR—  
     Dial   for next station feature.  
     —OR—  
     Dial    for configuration mode.

To change setting, repeat procedure and make different selection.

## **System Alarm Reporting**

The system can send special codes that convey certain system alarm conditions to selected stations where they will show on their LCD displays.

### **System Alarm Report Enabling**

**Description:** Enable the system alarm reporting on a system-wide basis using this feature.

**To Program:**

1. Dial . *“ALARM REPORTS”*
2. Press **A1** to toggle between enable and disable (LED On = Enable).  
—OR—  
Dial  to Enable. *“MONITOR ENABLED”*  
Dial  to Disable. *“MONITOR DISABLED”*
3. Dial  for configuration mode.

To change setting, repeat procedure and make different selection.

### **System Alarm Report Stations**

**Description:** Enable the system alarm reporting on the desired stations using this feature.

**To Program:**

1. Dial . *“STATION FEATURES”*
2. Dial . *“ALARM RECEIVE”*
3. Select station ports for programming:  
Station 10-57 = Dial , or **C10-C57**.
4. Dial  for next station feature.  
—OR—  
Dial  for configuration mode.

To change setting, repeat procedure and make different selection.

## System Clock

**Description:** The system clock maintains current date and time information. The system provides this information to LCD speakerphones for display. Set the system time with this feature. The system attendant also has access to this feature.

### To Program:

1. Dial .

“SET CLOCK”

#### LONG FORM

Dial  for yr.

Dial  for mo.

Dial  for day.

Dial  for hr.

Dial  for min.

#### SHORT FORM

Dial  for hr.

Dial  for min.

Dial  to assign hrs and mins.

2. Dial  for configuration mode.

To change setting, repeat procedure and make different selection.

## System Speed Dial

**Description:** The system speed dial is a system-wide list of numbers that all users can access for automatic dialing. Those users with two-line display LCD speakerphones can scroll through the list of names that you assign to the system speed dial numbers using their speakerphone's display. After scrolling through the list, they can pick the name they wish to call, and automatically dial the number assigned to the name. The system scrolls this index of names in the sequence that you or the attendant sorted the entries; therefore, be sure to arrange the entries in a sequence that best meets users' needs.

### To Program:

1. Dial . "SYS SPEED DIAL"
2. Dial  for storage location. "XXXXXXX..."
3. Dial  to clear current entry. "LINE: "
4. Choose line, line group, or intercom to be used with speed dial number. "LINE XX"
  - Line port 1-14 = Dial  or press **A1-A14**.
  - Line port 15, 16 = Dial ,  or press **B1, B2**.
  - Line port 17-24 = Dial  or press **HOLD, A1-A8**.
  - Dial  for last line used or prime line. "PRIME LINE"
  - Dial  for line group 1-4. "LINE GROUP I"
  - Press **ITCM** button for intercom line. "XXXXX..."
5. Dial number for storage (32 digits max).
  - If required, press **HOLD** button to store a pause.
  - If required, press **TAP** button to store a hookflash.
6. Press **T/C** button to program name.
7. Enter digits from character chart on page 130 to spell name (up to 16 characters).
  - OR—
  - Press **T/C** button to leave name blank.
8. Press **T/C** button to save the number and name.
9. Repeat steps 2-9 for all speed dial numbers.
  - OR—
  - Press  for configuration Mode.

<b>Character Code Table</b>					
<b>Upper Case Characters</b>		<b>Lower Case Characters</b>		<b>Symbol &amp; Number Characters</b>	
<b>Character</b>	<b>Code</b>	<b>Character</b>	<b>Code</b>	<b>Character</b>	<b>Code</b>
A	21	a	24	Space	12
B	22	b	25	-	15
C	23	c	26	;	17
D	31	d	34	/	18
E	32	e	35	“	19
F	33	f	36	.	27
G	41	g	44	,	28
H	42	h	45	:	29
I	43	i	46	1	01
J	51	j	54	2	02
K	52	k	55	3	03
L	53	l	56	4	04
M	61	m	64	5	05
N	62	n	65	6	06
O	63	o	66	7	07
P	71	p	74	8	08
Q	11	q	14	9	09
R	72	r	75	0	00
S	73	s	76		
T	81	t	84		
U	82	u	85		
V	83	v	86		
W	91	w	94		
X	92	x	95		
Y	93	y	96		
Z	13	z	16		

## Tandem Attendant

**Description:** When you enable this feature, a recall from an unanswered call transfer or timed hold recall will ring at both attendant stations. When you disable it, only the attendant station that transferred the call will ring.

### To Program:

1. Dial . “TANDEM ATTN XXX”
2. Press **A1** to toggle between enable and disable (LED On = Enable).
- OR—
- Dial  to Enable (**A1** LED is on). “TANDEM ATTN ON”
- Dial  to Disable. “TANDEM ATTN OFF”
3. Dial  for configuration mode.

To change setting, repeat procedure and make different selection.

## Tone or Voice Signaling

**Description:** Intercom calls can be tone signaled or voice signaled. Use this programming feature to select the system’s signaling choice. With either method set as the system’s first choice, the user can choose the other method as needed.

### To Program:

1. Dial . “XXXXXX ANN. FIRST”
2. Press **A1** to toggle between Voice to Tone (LED On = Voice Signaling).
- OR—
- Dial  for Voice First. “VOICE ANN. FIRST”
- Dial  for Tone First. “TONE ANN. FIRST”
3. Dial  for configuration mode.

To change setting, repeat procedure and make different selection.

## Inhibiting System Features

**Description:** You can disable certain features system-wide to prevent unauthorized users from tampering with the system. You can perform the system default procedure to re-enable features that you disable with this feature inhibit procedure.

### To Program:

1. Dial . “FEATURE INHIBIT”
2. Select feature:
  - Dial  to disable Line Group 1.
  - Dial  to disable Line Group 2.
  - Dial  to disable Line Group 3.

- Dial **0 4** to disable Line Group 4.
- Dial **0 5** to disable Zone 1 Paging.
- Dial **0 6** to disable Zone 2 Paging.
- Dial **0 7** to disable Zone 3 Paging.
- Dial **0 8** to disable All Call.
- Dial **0 9** to disable Meet Me Page.
- Dial **1 0** to Disable Night Transfer.
- Dial **1 1** to disable Background Music.
- Dial **1 2** to disable Voice Announce Block.
- Dial **1 3** to disable Message Waiting.
- Dial **1 4** to disable Call Pickup.
- Dial **1 5** to disable Call Forward.
- Dial **1 6** to disable Automatic Call Back.
- Dial **1 7** to disable Station-to-Station Messaging.
- Dial **1 8** to disable Line Group Queue.
- Dial **1 9** to disable Directed Station Hold.
- Dial **2 0** to disable Call Park orbit 1.
- Dial **2 1** to disable Call Park orbit 2.
- Dial **2 2** to disable Call Park orbit 3.
- Dial **2 3** to disable Call Park orbit 4.
- Dial **2 4** to disable Call Park orbit 5.
- Dial **2 5** to disable Call Park orbit 6.
- Dial **2 6** to disable Call Park orbit 7.
- Dial **2 7** to disable Call Park orbit 8.
- Dial **2 8** to disable Call Park orbit 9.
- Dial **2 9** to disable Call Waiting.
- Dial **3 0** to disable LCD Messaging.
- Dial **3 1** to disable Executive Override/Service Observing.
- Dial **3 2** to disable Account Code.
- Dial **3 3** to disable Personal Call Forward.
- Dial **3 4** to enable all features.
- Dial **\*** for next item.
- Dial **\* \*** for configuration mode.



## Ringback on Transfer

**Description:** With Ringback on Transfer enabled, when an outside call is transferred to another station, the system gives ringback to the outside caller instead of music on hold. This feature is disabled at default.

### To Program:

1. Dial  for system features.                   “SYSTEM FEATURES”
2. Dial  for ringback of transfer.                   “RINGBACK XFER XXX”
3. Press **A1** to toggle between enabled and disabled (LED On = Enabled).  
—OR—  
Dial  to Enable.   “RINGBACK XFER ON”  
Dial  to Disable.   “RINGBACK XFER OFF”
4. Dial  for configuration mode.

To change setting, repeat procedure and make different selection.

## Call Forward Outside System

**Description:** Call Forward Outside System (CFOS) gives station users the ability to forward line calls to a location outside the DSU II Digital Telephone System. Be sure to set the abandon hold release time on all lines that you use for CFOS to match the CO abandon hold release time.

### To Program:

1. Press **ITCM**, dial .                   “CONFIG MODE”
2. Dial  for system features.                   “SYSTEM FEATURES”
3. Dial  for system CFOS.                   “CFOS XXXXXXXX”
4. Press **A1** key to toggle between enable and disable (LED On = Enable).  
—OR—  
Dial  to Enable.   “CFOS ENABLED”  
Dial  to Disable.   “CFOS DISABLED”
5. Dial  for system features.
6. Dial  for configuration mode.

## Activating CFOS from Individual Stations

**NOTE:** CFOS remains in effect in the event of a loss of power or a system reset.

### To activate the CFOS feature,

1. Press **ITCM**, dial \*07.
2. Press the speed dial button programmed with the target number.

—OR—

Press a line button.

—OR—

Dial 0 for the Prime line or last used line.

—OR—

Dial 1-4 Line Group number.

3. Dial desired digits 0-9 (max 16 digits).
4. Press **HOLD** for Pause or press **TAP** for Flash.

—OR—

Press **SPEAKER** to end.

### To deactivate the CFOS feature,

1. Press **INTERCOM**, dial #07.

## System Timing

The digital telephone system has several attributes that control timing aspects of system operation. The following features set these various timing attributes.

### Call Park Recall Time

**Description:** A call that remains in a parking orbit for a programmed length of time automatically returns to a timed hold recall conditions at the parking station. Set the call park recall time with this programming feature.

#### **To Program:**

1. Dial  . “CP RECALL X”
2. Select recall time (program button LED On = Selected Time)
 

Dial <input type="text" value="1"/> or press <b>A1</b> = 1 min.	“CP RECALL 1”
Dial <input type="text" value="2"/> or press <b>A2</b> = 2 min.	“CP RECALL 2”
Dial <input type="text" value="3"/> or press <b>A3</b> = 3 min.	“CP RECALL 3”
Dial <input type="text" value="4"/> or press <b>A4</b> = 4 min.	“CP RECALL 4”
Dial <input type="text" value="5"/> or press <b>A5</b> = 5 min.	“CP RECALL 5”
Dial <input type="text" value="6"/> or press <b>A8</b> = 6 min.	“CP RECALL 6”
Dial <input type="text" value="7"/> or press <b>A9</b> = Never Recall.	“NEVER RECALL”
3. Dial  for configuration mode.

To change setting, repeat procedure and make different selection.

## Extended DTMF Tones for Automatic Dialing

**Description:** When a telephone user dials a number automatically (auto dial, saved number redial, etc), the duration of the generated DTMF tones are as you set them with this programming option. This feature is useful when automatically dialed numbers access answering machines, banking computers, or voice mail, for example, that require DTMF tones that are longer than standard tones.

### To Program:

1. Dial . *“DTMF DIALING XXXX”*
2. Choose DTMF tone length:
 

Dial <input type="text" value="0"/> <input type="text" value="1"/> or press <b>A1</b> = 60 msec.	<i>“DTMF DIALING 60”</i>
Dial <input type="text" value="0"/> <input type="text" value="2"/> or press <b>A2</b> = 80 msec.	<i>“DTMF DIALING 80”</i>
Dial <input type="text" value="0"/> <input type="text" value="3"/> or press <b>A3</b> = 100 msec.	<i>“DTMF DIALING 100”</i>
Dial <input type="text" value="0"/> <input type="text" value="4"/> or press <b>A4</b> = 120 msec.	<i>“DTMF DIALING 120”</i>
Dial <input type="text" value="0"/> <input type="text" value="5"/> or press <b>A5</b> = 160 msec.	<i>“DTMF DIALING 160”</i>
Dial <input type="text" value="0"/> <input type="text" value="6"/> or press <b>A6</b> = 240 msec.	<i>“DTMF DIALING 240”</i>
Dial <input type="text" value="0"/> <input type="text" value="7"/> or press <b>A7</b> = 320 msec.	<i>“DTMF DIALING 320”</i>
Dial <input type="text" value="0"/> <input type="text" value="8"/> or press <b>A8</b> = 400 msec.	<i>“DTMF DIALING 400”</i>
Dial <input type="text" value="0"/> <input type="text" value="9"/> or press <b>A9</b> = 480 msec.	<i>“DTMF DIALING 480”</i>
Dial <input type="text" value="1"/> <input type="text" value="0"/> or press <b>A10</b> = 560 msec.	<i>“DTMF DIALING 560”</i>
Dial <input type="text" value="1"/> <input type="text" value="1"/> or press <b>A11</b> = 720 msec.	<i>“DTMF DIALING 720”</i>
Dial <input type="text" value="1"/> <input type="text" value="2"/> or press <b>A12</b> = 880 msec.	<i>“DTMF DIALING 880”</i>
Dial <input type="text" value="1"/> <input type="text" value="3"/> or press <b>A13</b> = 1040 msec.	<i>“DTMF DIALING 1040”</i>
3. Dial  for configuration mode.

To change setting, repeat procedure and make different selection.

## Pause Time

**Description:** During autodials and speed dials, it is sometimes necessary to delay the sending of digits to give switching equipment time to prepare for receiving them. A pause is stored for this purpose whenever the user presses the **HOLD** button. You can set the length of the pause with this programming feature.

### To Program:

1. Dial . *“PAUSE TIME XXX”*
2. Select time:
 

Dial <input type="text" value="1"/> or press <b>A1</b> .	<i>“PAUSE TIME 0.50”</i>
Dial <input type="text" value="2"/> or press <b>A2</b> .	<i>“PAUSE TIME 1”</i>
Dial <input type="text" value="3"/> or press <b>A3</b> .	<i>“PAUSE TIME 1.50”</i>
Dial <input type="text" value="4"/> or press <b>A4</b> .	<i>“PAUSE TIME 2”</i>
Dial <input type="text" value="5"/> or press <b>A5</b> .	<i>“PAUSE TIME 3”</i>
Dial <input type="text" value="6"/> or press <b>A8</b> .	<i>“PAUSE TIME 5”</i>
Dial <input type="text" value="7"/> or press <b>A9</b> .	<i>“PAUSE TIME 7.50”</i>
Dial <input type="text" value="8"/> or press <b>A10</b> .	<i>“PAUSE TIME 10”</i>
Dial <input type="text" value="9"/> or press <b>A11</b> .	<i>“PAUSE TIME 15”</i>
Dial <input type="text" value="0"/> or press <b>A12</b> .	<i>“PAUSE TIME 20”</i>
3. Dial  for configuration mode.

To change setting, repeat procedure and make different selection.

## Recall/Flash

**Description:** The system can generate either a line disconnect (recall) or a host system feature access signal (flash) depending upon the programmed time.

### To Program:

1. Dial  . “RECALL/FLSH XXXX”
2. Select time:
  - Dial  or press **A1**. “RECALL/FLSH 0.08”
  - Dial  or press **A2**. “RECALL/FLSH 0.30”
  - Dial  or press **A3**. “RECALL/FLSH 0.50”
  - Dial  or press **A4**. “RECALL/FLSH 0.60”
  - Dial  or press **A5**. “RECALL/FLSH 0.75”
  - Dial  or press **A8**. “RECALL/FLSH 0.88”
  - Dial  or press **A9**. “RECALL/FLSH 1”
  - Dial  or press **A10**. “RECALL/FLSH 1.50”
  - Dial  or press **A11**. “RECALL/FLSH 2”
  - Dial  or press **A12**. “RECALL/FLSH 3”
3. Dial  for configuration mode.

To change setting, repeat procedure and make different selection.

## Timed Hold Recall

**Description:** 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.

### To Program:

1. Dial  . *“HOLD RECALL XXX”*
2. Select time:
  - Dial  or press **A1**. *“HOLD RECALL 30”*
  - Dial  or press **A2**. *“HOLD RECALL 60”*
  - Dial  or press **A3**. *“HOLD RECALL 90”*
  - Dial  or press **A4**. *“HOLD RECALL 120”*
  - Dial  or press **A5**. *“HOLD RECALL 180”*
  - Dial  or press **A8**. *“HOLD RECALL 240”*
  - Dial  or press **A9**. *“HOLD RECALL 300”*
  - Dial  or press **A10**. *“HOLD RECALL 360”*
  - Dial  or press **A11**. *“HOLD RECALL 420”*
  - Dial  or press **A12**. *“HOLD RECALL 0”*
3. Dial  for configuration mode.

To change setting, repeat procedure and make different selection.

## Unanswered Call Transfer Recall Time

**Description:** A transferred call that remains unanswered after a programmed length of time will return to the transferring station.

### To Program:

1. Dial . “TRANSFER RECALL”
2. Dial  (station transfer recall). “STA XFR RCL XXX”
- OR—
- Dial  (department transfer recall). “DEPT XFR RCL XXX”
3. Choose transfer time:
  - Dial  or press **A1**. “STA XFR RCL 10”
  - Dial  or press **A2**. “STA XFR RCL 20”
  - Dial  or press **A3**. “STA XFR RCL 25”
  - Dial  or press **A4**. “STA XFR RCL 30”
  - Dial  or press **A5**. “STA XFR RCL 45”
  - Dial  or press **A8**. “STA XFR RCL 60”
  - Dial  or press **A9**. “STA XFR RCL 90”
  - Dial  or press **A10**. “STA XFR RCL 120”
  - Dial  or press **A11**. “STA XFR RCL 180”
  - Dial  or press **A12**. “STA XFR RCL 400”
4. Press  for next transfer recall feature.
- OR—
- Press  for configuration mode.

To change setting, repeat procedure and make different selection.



## Line Programming

By using line configuration, you can program the parameters for individual lines. The programming decisions you make for a particular line will only be true for that line and not for the entire telephone system. You should make a record in Chapter 6 of all programming decisions that you make—it will help you keep track of what you have done and will help you troubleshoot any problem that might arise later.

***NOTE:** A lighted LED next to the programming button for the selection indicates the current configuration. When a single button provides a toggle (on/off) action, the lighted LED indicates the active feature.*

The first step in any programming sequence is to enter the base level. Once in this mode, you can dial the feature code for any desired configuration. Enter the base level with the following procedure: press **INTERCOM** then dial \*#746\*. The last step is to press the **SPEAKER** button to end the programming procedure and return the system to normal operation.

To make a line port selection, press a programming button or dial a selection number on the keypad as detailed in the following chart.

<b>Line Port Codes</b>		
<b>Line</b>	<b>Program Buttons</b>	<b>Keypad Buttons</b>
1–14	A1–A14	01–14
15, 16	B1, B2	15, 16
17–24	HOLD plus A1–A8	17–24

### Abandoned Hold Release

**Description:** When a distant party abandons a hold condition and disconnects from a line (hangs up), the central office sends a forward disconnect signal to the digital telephone system. This signal can be either 50 ms or 350 ms in length. Find out from the telephone company what the signal length is, and program all of the central office line ports to match it using this programming procedure.

**To Program:**

- Dial 38. *“HOLD RELEASE 50”*
- Select hold release time for line ports (LED On = 50 msecs).  
 Line port 1–14 = Dial 01-14 or press **A1–A14**.  
 Line port 15, 16 = Dial 15, 16 or press **B1, B2**  
 Line port 17–24 = Dial 17-24 or press **HOLD** then press **A1–A8**.
- Dial \* for configuration mode.

To change setting, repeat procedure and make different selection.

## **Automatic Privacy**

You can make a line private or non-private. In the private mode, a station has exclusive use of a line during a call. Lines are private unless you reprogram them and make them non-private.

### ***Private or Non-Private Lines***

**Description:** Use this programming feature to set which lines are private or non-private.

#### **To Program:**

1. Dial . *“PRIVACY RELEASE”*
2. Select line ports to be non-private (LED On = Non-Private):  
Line port 1–14 = Dial  or press **A1–A14**.  
Line port 15, 16 = Dial ,  or press **B1, B2**.  
Line port 17–24 = Dial  or press **HOLD** then press **A1–A8**.
3. Dial  for configuration mode.

To change setting, repeat procedure and make different selection.

## Automatic Privacy Release

**Description:** You can arrange for an individual station to automatically release privacy while on certain lines. With this arrangement, other stations can join that particular station whenever it is on the privacy release line.

### To Program:

1. Dial . “STA/LINE CONFIG”
2. Dial . “PRIVACY RELEASE”
3. Select line ports:
  - Line port 1–14 = Dial  or press **A1–A14**
  - Line port 15, 16 = Dial ,  or press **B1, B2**
  - Line port 17–24 = Dial  or press **HOLD** then press **A1–A8**.
4. Dial  when all line ports are selected.
5. Select station ports to be programmed:
  - Station 10–57 = Dial  or press **C10–C57**.
6. Dial  when all station ports are selected.
  - OR—
  - Dial  for next station/line feature.
  - OR—
  - Dial  for configuration mode.

To change setting, repeat procedure and make different selection.

## Line Disable

**Description:** You can take a line port out of service when necessary (because of defect or some other reason) using this programming procedure.

### To Program:

1. Dial . “DISABLE LINES”
2. Select line ports to be disabled
  - Line port 1–14 = Dial  or press **A1–A14**.
  - Line port 15, 16 = Dial ,  or press **B1, B2**.
  - Line port 17–24 = Dial  or press **HOLD** then press **A1–A8**.
3. Dial  for configuration mode.

To enable a disabled line, use the procedure described in *Line Port Functions*, and program it as a central office line.

## Line Groups

**Description:** Group outside lines of the same type together for dial-up outgoing access. Access codes for the line groups are as follows:

Group 1 = Dial

Group 2 = Dial

Group 3 = Dial

Group 4 = Dial

***NOTE:** When you perform this procedure, the system automatically arranges itself for hybrid operation. Remember, hybrid operation may incur a higher monthly tariff than what the key system operation incurs. Ask the local telephone company for details.*

### **To Program:**

1. Dial . “ASSIGN LINE GRPS”
2. Dial  for no groups assigned. “NO LINE GROUP”  
—OR—  
Dial  for Line Group 1. “LINE GROUP 1”  
Dial  for Line Group 2. “LINE GROUP 2”  
Dial  for Line Group 3. “LINE GROUP 3”  
Dial  for Line Group 4. “LINE GROUP 4”
3. Select line ports to be assigned (LED On = Line Assigned).  
Line port 1–14 = Dial – or press **A1–A14**.  
Line port 15, 16 = Dial ,  or press **B1, B2**.  
Line port 17–24 = Dial – or press **HOLD** then press **A1–A8**.
4. Dial  for next group.  
—OR—  
Dial  for next feature.  
—OR—  
Dial  for configuration mode.

To change the settings, repeat procedure and make different selections.

## Line Names

**Description:** You can name lines as to their function to identify them for use. Names such as WATTS, CO, etc., when appearing on the LCD speakerphone displays, make locating a line easier. A line name can contain up to five characters. See the chart on page 146 for the line-name characters.

### To Program:

1. Dial . “LINE NAME”
  2. Select line ports to be assigned.
    - Line port 1–14 = Dial  or press **A1–A14**.
    - Line port 15, 16 = Dial ,  or press **B1, B2**.
    - Line port 17–24 = Dial  or press **HOLD** then press **A1–A8**.
  3. Press  to clear current name.
  4. Dial line name character codes (5 characters maximum for each line port from the character code table shown on page 146—each character is represented by two digits).
    - Examples: WATTS = Dial
    - 0156 = Dial , , ,
  5. Dial  and repeat last three steps for next line.
- OR—
- Dial  for configuration mode.

To change setting, repeat procedure and make different selection.

Character Code Table					
Character	Code	Character	Code	Character	Code
A	21	a	24	Space	12
B	22	b	25	-	15
C	23	c	26	;	17
D	31	d	34	/	18
E	32	e	35	“	19
F	33	f	36	.	27
G	41	g	44	,	28
H	42	h	45	:	29
I	43	i	46	1	01
J	51	j	54	2	02
K	52	k	55	3	03
L	53	l	56	4	04
M	61	m	64	5	05
N	62	n	65	6	06
O	63	o	66	7	07
P	71	p	74	8	08
Q	11	q	14	9	09
R	72	r	75	0	00
S	73	s	76		
T	81	t	84		
U	82	u	85		
V	83	v	86		
W	91	w	94		
X	92	x	95		
Y	93	y	96		
Z	13	z	16		

## Line Port Functions

You can set individual line ports to function as auxiliary line ports, for an external paging amplifier, for example, or to function with standard CO lines.

### **Auxiliary Lines**

**Description:** You can condition a line port to serve as a port for an external paging amplifier.

#### **To Program:**

1. Dial . *“AUXILIARY LINES”*
2. Select line ports to be assigned (LED On = Assigned).  
 Line port 1–14 = Dial  or press **A1–A14**.  
 Line port 15, 16 = Dial ,  or press **B1, B2**.  
 Line port 17–24 = Dial  or press **HOLD** then press **A1–A8**.
3. Dial  for configuration mode.

To change setting, repeat procedure and make different selection.

### **Central Office Lines**

**Description:** You can condition line ports to serve as ports for standard telephone company supplied central office lines.

#### **To Program:**

1. Dial . *“CO Lines”*
2. Select line ports to be assigned  
 Line port 1–14 = Dial  or press **A1–A14**.  
 Line port 15, 16 = Dial ,  or press **B1, B2**  
 Line port 17–24 = Dial  or press **HOLD** then press **A1–A8**.
3. Dial  for configuration mode.

To change setting, repeat procedure and make different selection.

## Line to Line Port Reassignment

**Description:** You can reassign the programming attributes for a line that the installer has connected to a particular line port to a different line port with this programming action. This feature allows you to automatically exchange all software attributes for one with those assigned to another at a different line port without physically relocating the lines or reprogramming any of the attributes.

### To Program:

1. Dial . *“ASSIGN LOGICAL/PHYS”*
  2. Select currently assigned line port number.  
Line port 1–14 = Dial  or press **A1–A14**.  
Line port 15, 16 = Dial ,  or press **B1, B2**.  
Line port 17–24 = Dial  or press **HOLD** then press **A1–A8**.
  3. Dial new line port number (01–24 = line 1–24.) *“LOGICAL LINE XX”*
  4. Dial  to make assignment.
  5. Repeat steps 2–4 for another assignment.
- OR—
- Dial  for configuration mode.

To change setting, repeat procedure and make different selection or make same port selections in both steps 2 and 3 to match logical to physical assignment.



## **Pulse/Tone Switchable**

You can configure individual lines to have tone dialing or pulse dialing at default.

### **Pulse Dialing**

**Description:** If the installer has connected rotary dial lines to the system, you must condition those line ports as pulse dial ports.

***NOTE:** The user can switch from pulse dialing (rotary dial signaling) to tone dialing (dual tone multiple frequency—DTMF) for accessing special circuits requiring DTMF tones, such as banking machines, when they need to do so from a rotary dial line.*

#### **To Program:**

1. Dial . “PULSE DIAL”
2. Select pulse dial line ports (LED On = Pulse).
  - Line port 1–14 = Dial – or press **A1–A14**.
  - Line port 15, 16 = Dial ,  or press **B1, B2**.
  - Line port 17–24 = Dial – or press **HOLD** then press **A1–A8**.

—OR—

  - Dial  to default all lines to pulse dial.
3. Dial  for configuration mode.

To change setting, repeat procedure and make different selection.

## **Tone Dialing**

**Description:** If the installer has connected tone dial lines to the system, you must condition those line ports as tone dial ports.

### **To Program:**

1. Dial . *“TONE DIAL”*
2. Select tone dial line ports (LED On = Tone).
  - Line port 1–14 = Dial – or press **A1–A14**.
  - Line port 15, 16 = Dial ,  or press **B1, B2**.
  - Line port 17–24 = Dial – or press **HOLD** then press **A1–A8**.

—OR—

  - Dial  to default all lines to tone dial.
3. Dial  for configuration mode.

To change setting, repeat procedures and make different selection.

## **Block Programming**

**Description:** You can use this configuration procedure to assign those features that you have assigned to any one line (using the procedures detailed beginning on page 149) to any other line or to an entire block of lines.

### **To Program:**

#### **Line Button Method,**

1. Dial . *“BLK PROGRAMMING”*
2. Select model line port. *“MODEL LINE XX”*
  - Line port 1–14 = press **A1–A14**.
  - Line port 15, 16 = press **B1, B2**.
  - Line port 17–24 = press **HOLD** then press **A1–A8**.
3. Select lines to match model line (as detailed above).
4. Dial  and repeat steps 2 and 3 for next model line.
  - OR—
  - Dial  for configuration mode.

**Keypad Method,**

1. Dial **4 2**. “BLK PROGRAMMING”
  2. Select model line port. “MODEL LINE XX”  
Line port 1–24 = Dial **0 1-2 4**.
  3. Dial first line port in block (dial 01–24).
  4. Dial **#**.
  5. Dial last line port in block (dial **0 1-2 4**).
  6. Dial **#**.
  7. Dial **\*** for next model line.
- OR—
- Dial **\* \*** for configuration mode.

***NOTE:** The first, last, and all line ports in between will be block programmed like the model line port. To block program an individual line port, select the first line port and last line port to be the same number. For example: 01, 02#, 02# programs line 02 the same as line port 01 if programmed.*

**Positive Disconnect Supervision**

**Description:** When a station is on line with an outside caller and the caller hangs up, the CO may send a positive disconnect signal to the DSU II. You can enable the positive disconnect supervision feature on a per-line basis. If you enable positive disconnect supervision, when the system receives the CO's positive disconnect signal the system resets the toll restriction, releases the current call record, and creates a new call record in its place.

**To Program:**

1. Dial **4 8**. “DIS. SUPERVISION”
2. Select line ports for disconnect supervision (LED On = Lines Selected to Receive Tables).  
Line port 1–14 = Dial **0 1-1 4** or press **A1–A14**.  
Line port 15, 16 = Dial **1 5, 1 6** or press **B1, B2**.  
Line port 17–24 = Dial **1 7-2 4** or press **HOLD** then press **A1–A8**.
3. Dial **\*** for configuration mode.

## Disconnect Notification

**Description:** With the Disconnect Notification feature, the system sends a DTMF “A” digit to the IST station ports whenever the distant party (internal or external) hangs up. The system also sends a disconnect digit when an IST telephone signals a hookflash to retrieve a line from hold that has been dropped through abandon hold release. Installers must enable line disconnect supervision for this feature to function on outside calls. This feature is disabled at default. The purpose of this feature is to avoid delays that may occur on disconnects when the CT Voice application is being used.

### To Program:

1. Press **ITCM**, dial      . “*CONFIG MODE*”
2. Dial   for station features. “*STATION FEATURES*”
3. Dial   for disconnect notification. “*DISCONNECT NOTIF*”
4. Select station ports (LED On = Feature Assigned):  
Station 10–57: Dial     or press **C1–C57**.
5. Dial  for next station feature.  
—OR—  
Dial   for configuration mode.

## Station Features

Station programming means that you are programming the functions for one particular station, or port. While it isn't necessary, it is a good idea to do station programming after you have done system and line programming. You should make a record in Chapter 5 of all programming decisions that you make—it will help you keep track of what you have done and will help you troubleshoot any problem that might arise later.

***NOTE:** A lighted LED next to the programming button for the selection indicates the current configuration. When a single button provides a toggle (on/off) action, the lighted LED indicated the active feature.*

The first step in any programming sequence is to enter the base level. Once in this mode, you can dial the feature code for any desired configuration. Enter the base level with the following procedure: press **INTERCOM** then dial      . The last step is to press the **SPEAKER** button to end the programming procedure and return the system to normal operation.

Make station port selection by dialing a selection number on the keypad or pressing the console button according to the following reference table.

<b>Station Port Codes</b>		
<b>Station Ports</b>	<b>Keypad Buttons</b>	<b>Console Buttons</b>
10-57	<input type="text" value="1"/> <input type="text" value="0"/> — <input type="text" value="5"/> <input type="text" value="7"/>	C10-C57

## Access Denied

**Description:** You can deny certain stations access to certain lines. When you do this, a station user cannot select a denied line.

### To Program:

1. Dial . “STA/LINE CONFIG”
2. Dial . “ACCESS DENY”
3. Select line ports (LED On = Access Denied).  
 Line port 1–14 = Dial - or press **A1–A14**.  
 Line port 15, 16 = Dial ,  or press **B1, B2**.  
 Line port 17–24 = Dial - or press **HOLD** then press **A1–A8**.
4. Dial  when all line ports are selected.
5. Select station ports (LED On = Feature Assigned):  
 Station 10–57 = Dial - or press **C10–C57**.
6. Dial  when all station ports are selected.  
 —OR—  
 Dial  for next station/line feature.  
 —OR—  
 Dial  for configuration mode.

To change setting, repeat procedure and make different selection. To clear current setting, repeat procedure.

## All-Call and Zone Paging

You can program the system so that the users can make announcements to stations located in certain areas of the site or to all of the stations. Similarly, you can program a station with one-button access to the paging feature.

**Description:** Telephone users can receive voice announcements through their telephone loudspeakers, or through an external paging amplifier and speaker connected to a PA port. They can transmit these announcements with their telephone handsets. You can arrange the programming so that the users can make announcements to stations located in certain areas of the site or to all of the stations. By default, All-Call Originate and Receive is available to all stations.

### To Program:

1. Dial **55**. “PAGING”
2. Choose paging assignment:
 

Dial <b>1</b> for zone 1 originate.	“ORIGINATE ZONE 1”
Dial <b>2</b> for zone 2 originate.	“ORIGINATE ZONE 2”
Dial <b>3</b> for zone 3 originate.	“ORIGINATE ZONE 3”
Dial <b>4</b> for all-call originate.	“ALL-CALL ORIG.”
Dial <b>5</b> for zone 1 receive.	“RECEIVE ZONE 1”
Dial <b>6</b> for zone 2 receive.	“RECEIVE ZONE 2”
Dial <b>7</b> for zone 3 receive.	“RECEIVE ZONE 3”
Dial <b>8</b> for all-call receive.	“ALL-CALL RECEIVE”
Dial <b>9</b> to clear all assignments.	“CLEAR PAGING”
3. Select station ports (LED On = Feature Active):
 

Station 10-57 = Dial **10F657** or press **C10-C57**.
4. Dial **\*** to assign other paging.
 

—OR—

Dial **\*\*** for configuration mode.

To change setting, repeat procedure and make different selection.

## Assign All-Call and Zone Paging Button

**Description:** If you wish, you can assign a paging button to provide a station with one-button access to the all-call and zone paging feature.

### To Program:

1. Dial . “BUTTON MAPPING”
2. Dial . “ASSIGN ZONE”
3. Select button to be programmed (LED On = Paging Button):  
Press **A1–A14, B1–B8**.
4. Dial  for zone 1–3. “ASSIGN ZONE X”  
—OR—  
Dial  for all-call. “ASSIGN ALL CALL”
5. Select station ports (LED On = Button Assigned to Port):  
Station 10–57 = Dial  or press **C10–57**.
6. Dial  for further paging button assignment.  
—OR—  
Dial  for next button mapping feature.  
—OR—  
Dial  for configuration mode.

To clear a paging button, dial , press paging button, dial , and repeat steps 5 and 6.



## **Audible Monitoring**

The DSS/BLF at a multiline station provides a visual indication of idle, busy, and ringing status of the monitored stations. You can also provide audible indication of direct and delayed ringing for selected stations; however, you must first enable the station monitoring feature on a system-wide basis.

### ***Enable Audible Monitoring***

**Description:** Enable audible monitoring on a system-wide basis using this feature.

**To Program:**

1. Dial **20**. *“MONITOR XXXXXXXX”*
2. Press **A1** to switch between enable and disable (LED On = Enable).  
—OR—  
Dial **1** to Enable. *“MONITOR ENABLED”*  
Dial **2** to Disable. *“MONITOR DISABLED”*
3. Dial **\*** for configuration mode.

To change setting, repeat procedure and make opposite selection.

## Assign Audible Monitoring to Stations

**Description:** Once you have enabled audible monitoring system-wide, you must select each station and the type of audible monitoring that you want to program.

### To Program:

1. Dial  . *“STATION FEATURES”*
2. Dial  . *“AUDIBLE MONITOR”*
3. Select monitoring type:
  - Dial  for no audible monitoring. *“NONE”*
  - Dial  for direct ring monitoring. *“DIRECT RING”*
  - Dial  for delayed ring monitoring. *“DELAYED RING”*
4. Select station ports (LED On = Feature Assigned):  
Station 10-57 = Dial   -   or press **C10-C57**.
5. Dial  next monitoring condition.
  - OR—
  - Dial   for next station feature.
  - OR—
  - Dial    for configuration mode.

To change setting, repeat procedure and make different selection.

## **Automatic Hold**

You can give station users the ability to place an existing line or intercom call on hold when she or he presses another line button.

### **Automatic Hold with Line Calls**

**Description:** When you enable this feature, the telephone user can automatically place an existing line call on hold when she or he presses another line button to answer a second call.

#### **To Program:**

1. Dial . “STATION FEATURES”
  2. Dial . “AUTO HOLD”
  3. Select station ports (LED On = Feature Assigned):  
Station 10-57 = Dial  or press **C10-C57**.
  4. Dial  for next station feature.
- OR—
- Dial  for configuration mode.

To clear current setting, repeat procedure.

### **Automatic Hold with Intercom Calls**

**Description:** If you want the telephone user to also have the automatic hold feature while he or she is on an existing intercom call and presses another intercom button or a line button, take this additional programming action.

#### **To Program:**

1. Dial . “STATION FEATURES”
  2. Dial . “ITCM AUTO HOLD”
  3. Select station ports (LED On = Feature Assigned):  
Station 10-57 = Dial  or press **C10-C57**.
  4. Dial  for next station feature.
- OR—
- Dial  for configuration mode.

To clear current setting, repeat procedure.

## Automatic Privacy

You can make a line private or non-private. In the private mode, a station has exclusive use of a line during a call. You can arrange for individual stations to automatically release privacy while on private lines.

### **Make a Line Private or Non-Private**

**Description:** Use this feature to make a particular line private or non-private.

#### **To Program:**

1. Dial . “*PRIVACY RELEASE*”
2. Select line ports to be non-private (LED On = Non-private Port):  
Line port 1–14 = Dial  or press **A1–A14**.  
Line port 15, 16 = Dial ,  or press **B1, B2**.  
Line port 17–24 = Dial  or press **HOLD** then press **A1–A8**.
3. Dial  for configuration mode.

To clear current setting, repeat procedure.

## Arrange Station to Automatically Release Privacy on Private Line

**Description:** You can arrange for individual stations to automatically release privacy while on private lines. With this arrangement, other stations can join the programmed station whenever it is on the line that you have assigned as a privacy release line.

### To Program:

1. Dial **54**. “STA/LINE CONFIG”
2. Dial **4**. “PRIVACY RELEASE”
3. Select privacy releases line ports (LED On = Selected Ports).  
 Line port 1–14 = Dial **01-14** or press **A1–A14**.  
 Line port 15, 16 = Dial **15, 16** or press **B1, B2**.  
 Line port 17–24 = Dial **17-24** or press **HOLD** then press **A1–A8**.
4. Dial **#** when all line ports are selected.
5. Select station ports (LED On = Feature Assigned):  
 Station 10–57 = Dial **10-57** or press **C10–C57**.
6. Dial **\*** when all station ports are selected.  
 —OR—  
 Dial **\*\*** for next station line feature.  
 —OR—  
 Dial **\*\*\*** for configuration mode.

To clear current setting, repeat procedure.

## Call Forward on Busy/Ring—No Answer

The system can automatically forward busy and/or ring—no answer (RNA) calls to a new station. The system sends these calls to any idle station associated either by intercom hunt group or by department with the called station. Use this feature to arrange for calls to cycle rapidly through such associated stations by testing each one in turn with several rings.

### Call Forwarding of RNA Calls

**Description:** Enable call forward of RNA calls for individual stations using this programming feature.

*NOTE: If you enable this feature, also program the system intercom signaling as tone for the first choice.*

#### To Program:

1. Dial . “STATION FEATURES”
2. Dial . “CALL FWD RNA”
3. Dial  for 0–9 rings before forwarding. “RINGS = X”
4. Select station ports (LED On = Feature Assigned):  
Station 10–57 = Dial  or press C10–C57.
5. Dial  for additional station ring assignments:  
—OR—  
Dial  for next station feature:  
—OR—  
Dial  for configuration mode.

To remove call forwarding from a station, assign 0 rings.

## Call Forwarding of Busy Calls

**Description:** Enable call forward of busy calls for individual stations using this programming feature.

### To Program:

1. Dial . “STATION FEATURES”
  2. Dial . “CALL FWD BUSY”
  3. Select station ports (LED On = Feature Assigned):  
Station 10-57 = Dial  or press **C10-C57**.
  4. Dial  for next station feature.
- OR—
- Dial  for configuration mode.

## Call Forward Outside System for Station Ports

**Description:** Use this procedure to enable or disable the Call Forward Outside System (CFOS) feature for the station ports you select.

### To Program:

1. Press **ITCM**, dial . “CONFIG MODE”
  2. Dial . “STATION FEATURES”
  3. Dial . “CFOS STATIONS”
  4. Select station ports for programming to toggle status:  
Station 10-57 = Dial
- OR—
- Press DSS keys **C10-C57** on DSS console to enable or disable (LED On = Enabled).
5. Dial  for station features.
- OR—
- Dial  for configuration mode.

### Set Tone First Intercom Signaling

**Description:** You must set the first choice intercom signaling method to tone first to ensure forwarding of calls that encounter a busy signal or a ring with no answer.

#### To Program:

1. Dial . “XXXXXX ANN. FIRST”
2. Press **A1** to toggle from Voice to Tone (LED Off = Tone).  
—OR—  
Dial  for Tone First. “TONE ANN. FIRST”
3. Dial  for configuration mode.

To change setting, repeat procedure and make opposite selection.

### Intercom Hunt Group

**Description:** You can link stations together to form intercom hunt groups. Calls to a busy station that is in a hunt group will search the group for an idle station to ring.

#### To Program:

1. Dial . “STATION FEATURES”
2. Dial . “HUNT LINK”
3. Select first linking station:  
Station 10-57 = Dial  or press **C10-C57**.
4. Select second linking station:  
Station 10-57 = Dial  or press **C10-C57**.
5. Dial  for another link:  
(Example A: 17 to 16, 18 to 16, and 19 to 16)  
(Example B: 16 to 17, 17 to 18, and 18 to 16)  
—OR—  
Dial  for next station feature.  
—OR—  
Dial  for configuration mode.

To clear current setting, hunt link station to itself.



## Call Origination Denied

**Description:** You can deny users of selected stations the ability to originate calls on specified lines. This feature does not prevent the user from answering incoming calls on these lines.

### To Program:

1. Dial . “STA/LINE CONFIG”
2. Dial . “ORIGINATION DENY”
3. Select line ports (LED On = Selected Ports):
  - Line port 1–14 = Dial  or press **A1–A14**.
  - Line port 15, 16 = Dial ,  or press **B1, B2**.
  - Line port 17–24 = Dial  or press **HOLD** then press **A1–A8**.
4. Dial  when all line ports are selected.
5. Select station ports (LED On = Feature Assigned):
  - Station 10–57 = Dial  or press **C10–C57**.
6. Dial  when all station ports are selected.
  - OR—
  - Dial  for next station/line feature.
  - OR—
  - Dial  for configuration mode.

To clear current setting, repeat procedure.

## Central Message Desk

**Description:** Use this feature to designate one station in the system as the central message desk. When you do this, the system automatically arranges for the central message desk station to have message wait originate capability so that it can control message waiting lights at other stations.

### To Program:

1. Dial “STATION FEATURES”
  2. Dial “MSG DESK”
  3. Select station ports (LED On = Feature Assigned):  
Station 10-57 = Dial C10-C57.
  4. Dial  for next station feature.
- OR—
- Dial  for configuration mode.

To clear current setting, repeat procedure.

## Data Security Port

**Description:** While port is active on a call, this feature prevents any incoming tones associated with other system features from interrupting the call.

### To Program:

1. Dial “STATION FEATURES”
  2. Dial “DATA SECURE PORT”
  3. Select station port (LED On = Feature Assigned):  
Station 10-57 = Dial C10-C57.
  4. Dial  for next station feature.
- OR—
- Dial  for configuration mode.

To clear current setting, repeat procedure.

## Dual Console Feature

**Description:** The dual console feature allows users to have two DSS/BLF consoles to complement one telephone.

**To Program:**

1. Dial . “STATION FEATURES”
2. Dial . “SECOND CONSOLE”
3. Select console port:  
Station 10-57 = Dial  or press C10-C57.
4. Select station port that console is to complement:  
Station 10-57 = Dial  or press C10-C57.
5. Dial  for next station feature.  
—OR—  
Dial  for configuration mode.

**To clear second-console assignment, perform the following steps:**

- (a) Repeat steps 1 through 3 above.
- (b) Type console port number twice.
- (c) Dial  for configuration mode.

## Executive Override

**Description:** You can provide selected stations with busy override. This feature allows a station to override a busy condition at another station, sound a warning tone, and gain access to the existing conversation.

**To Program:**

1. Dial . “STATION FEATURES”
2. Dial . “EXEC. OVERRIDE”
3. Select station ports (LED On = Feature assigned):  
Station 10-57 = Dial  or press **C10-C57**.
4. Dial  for next station feature.

—OR—

Dial  for configuration mode.

To clear current setting, repeat procedure.

## Flexible Ringing Assignments

You can enable different ringing assignments for individual lines and stations.

### **Direct/Delayed Ringing**

**Description:** You must program ringing assignments on a per station/per line basis. You can control ringing for every line that has appearance at a station assigning immediate, or direct, ringing to some lines and delayed ringing to others.

***NOTE:** Do not program direct ringing for lines that you assign to the direct department calling feature.*

#### **To Program:**

1. Dial  . “STA/LINE CONFIG”
2. Dial . “DIRECT RING”
- OR—
- Dial . “DELAY RING”

***NOTE:** For no station ringing, skip step 3 and make no line selection.*

3. Select line ports for ringing (LED On = Selected Ports):
  - Line port 1–14 = Dial   -   or press **A1–A14**.
  - Line port 15, 16 = Dial  ,   or press **B1, B2**.
  - Line port 17–24 = Dial   -   or press **HOLD** then press **A1–A8**.
4. Dial  when all line ports are selected.
5. Select station ports (LED On = Feature Assigned):
  - Station 10–57 = Dial   -   or press **C10–C57**.
6. Dial  when all station ports are selected.
  - OR—
  - Dial   for next station/line ringing assignment.
  - OR—
  - Dial    for configuration mode.

To clear current setting, repeat procedure.

## Night Transfer (of Ringing)—Line/Station Assignments

**Description:** You or the system attendant can place the system into the night transfer (of ringing) mode of operation. While in this mode, the system will activate special line/station ringing assignments. Use this procedure to program these assignments.

### To Program:

1. Dial **54**. “STA/LINE CONFIG”
2. Dial **3**. “NIGHT RING”
3. Select line ports for night ringing (LED On = Selected Ports):
  - Line port 1–14 = Dial **01-14** or press **A1–A14**.
  - Line port 15, 16 = Dial **15, 16** or press **B1, B2**.
  - Line port 17–24 = Dial **17-24** or press **HOLD** then press **A1–A8**.
4. Dial **#** when all line ports are selected.
5. Select station ports (LED On = Feature Assigned):
  - Station 10–57 = Dial **10-57** or press **C10–C57**.
6. Dial **\*** when all station ports are selected.
  - OR—
  - Dial **\* \*** for next station/line ringing assignment.
  - OR—
  - Dial **\* \* \*** for configuration mode.

To clear current setting, repeat procedure.

### **Night Transfer (of Ringing)—Operation**

**Description:** After you have assigned Night Transfer (of Ringing) to all desired stations and lines, you must enable the feature operation with this procedure.

**To Program:**

1. Dial  . “NIGHT XFER XXX”
2. Press **A1** to toggle between enable and disable (LED On = Enabled):  
—OR—  
Dial  to Enable (**A1** LED on). “NIGHT XFER ON”  
Dial  to Disable. “NIGHT XFER OFF”
3. Dial  for configuration mode.

To change setting, repeat procedure and make opposite selection.

## Delay Ring in Night Mode

**Description:** This feature adds the option of programming delayed ringing in night mode (delayed ringing could previously only be assigned to day mode.) This feature affects station ringing assignments as well as system PA port ringing. At default, this feature does not allow delayed ringing during night mode.

### To Program:

#### Ringing Assignment,

1. Dial **54**. “STA/LINE CONFIG”
2. Dial **3**. “NITE DIRECT RING”
- OR—
- Dial **8**. “NITE DELAY RING”
  
3. Select line ports for delayed night ringing (LED On = Selected Ports)
  - Line port 1–14 = Dial **01-14** or press **A1–A14**.
  - Line port 15, 16 = Dial **15, 16** or press **B1, B2**.
  - Line port 17–24 = Dial **17-24** or press **HOLD** then press **A1–A8**.
4. Dial **#** when all line ports are selected.
5. Select station ports (LED On = Feature Assigned):
  - Station 10–57 = Dial **10-57** or press **C10–C57**.
6. Dial **\*** when all station ports are selected.
  - OR—
  - Dial **\*\*** for next station/line feature.
  - OR—
  - Dial **\*\*\*** for configuration mode.

To change setting, repeat procedure and make different selection.



**PA Port Ringing Type,**

1. Dial . *“PA OPTIONS”*
2. Dial . *“NITE DIRECT RING”*  
—OR—  
Dial . *“NITE DELAY RING”*
3. Select line ports (LED On = Line Selected).  
Line port 1–14 = Dial – or press **A1–A14**.  
Line port 15, 16 = Dial ,  or press **B1, B2**.  
Line port 17–24 = Dial – or press **HOLD** then press **A1–A8**.
4. Dial  for next PA option.  
—OR—  
Dial  for configuration mode.

## Delayed Ringing Times

**Description:** You assign delayed ringing to stations for specific lines, you can also set the time length of the delay.

### To Program:

1. Dial . “SYSTEM FEATURES”
2. Dial . “DELAY RING XX”
3. Select delay time (LED On = Selected Time):
 

Dial <input type="text" value="1"/> or press <b>A1</b> = 6 seconds.	“DELAY RING 6”
Dial <input type="text" value="2"/> or press <b>A2</b> = 12 seconds.	“DELAY RING 12”
Dial <input type="text" value="3"/> or press <b>A3</b> = 18 seconds.	“DELAY RING 18”
Dial <input type="text" value="4"/> or press <b>A4</b> = 24 seconds.	“DELAY RING 24”
Dial <input type="text" value="5"/> or press <b>A5</b> = 30 seconds.	“DELAY RING 30”
Dial <input type="text" value="6"/> or press <b>A8</b> = 36 seconds.	“DELAY RING 36”
Dial <input type="text" value="7"/> or press <b>A9</b> = 42 seconds.	“DELAY RING 42”
Dial <input type="text" value="8"/> or press <b>A10</b> = 48 seconds.	“DELAY RING 48”
Dial <input type="text" value="9"/> or press <b>A11</b> = 54 seconds.	“DELAY RING 54”
Dial <input type="text" value="0"/> or press <b>A12</b> = 60 seconds.	“DELAY RING 60”
4. Dial  for configuration mode.

—OR—

Press **SPEAKER** to end.

To clear current setting, repeat procedure and make different selection.

## Allow Ringer Off

**Description:** With the operating system parameters set to default, the rocker switch volume control on DigiTech, Impact, and Impression multiline telephones sets the ringer volume level between off and a maximum level.

You can disable the allow ringer off on a system-wide basis. When you do this, users can set the ringer volume of their telephones between a minimum and a maximum level, but cannot completely silence it.

### To Program:

1. Dial . *“SYSTEM FEATURES”*
2. Dial . *“RING OFF XXXXXX”*
3. Press **A1** to toggle between ringer off allow and not allow (LED On = Ringer Off Allowed).  
—OR—  
Dial  to allow ringer off. *“RINGER OFF ENABLE”*  
Dial  to not allow ringer off. *“RINGER OFF DISABLE”*
4. Dial  for configuration mode.  
—OR—  
Press **SPEAKER** to end.

## Flexible Station Numbering

**Description:** The system supports a flexible station numbering plan for calling individual stations and departments. You can program each station port to respond to the dialing of any available number between 10 and 7999; however, the system will not allow you to assign the same dialing code at both a station extension number and a department access code, nor will the system allow you to assign an extension number or access code conflict such as 15 and 1500.

### To Program:

1. Dial . "ACCESS CODE"
2. Dial . "ASSIGN EXT. NUM"
3. Select station port: "EXT. XXXX"  
Station 10-57 = Dial  or press **C10-C57**.
4. Dial new extension number. "EXT. XXXX YYYY"

**NOTE:** Extension number can be max. of four digits. If less than four digits, leading zeros must be dialed before number. (Example: for extension number 15, dial

,)

- 5.. Select next station number and assign extension number

—OR—

Dial  for configuration mode.

To change setting, repeat procedure and make a different selection.

## Group Call Pickup

**Description:** If a call rings to any station in a prearranged group, a user at another station in that group can dial a group pickup code and answer the call. Assign the stations to call pickup groups using this procedure.

### To Program:

1. Dial . “STATION FEATURES”
2. Dial . “GRP CALL PICKUP”
3. Dial  for no group.
- OR—
- Dial  for group 1-4. “GROUP X”
4. Select station ports (LED On = Feature Assigned):  
Station 10-57 = Dial  or press **C10-C57**.
5. Dial  for next group.
- OR—
- Dial  for next station feature.
- OR—
- Dial  for configuration mode.

To remove a station from call pickup group, assign it to group 0.

## Handset Volume Control on Telephones

**Description:** All Impact SCS telephones meet the FCC HAC requirements and have 8 handset volume levels. The maximum handset volume step. On Impact SCS phones, the loudest handset volume (level 8) is similar to that of an original Impact telephone at level 13. The Handset Volume feature limits the handset save capability to 5 if disabled or 8 if enabled. All telephones are backward compatible. Some of the new features require 6A software. See the chart below for details on volume levels for different models.

The Impact SCS 8201N and the 8212N models have a volume control for the handset. The Impact SCS 8212S speakerphone has:

Handset Volume Control				
Family	Model	Handset Volume Range (Maximum)	Max Handset Volume save level w/o COS change	Handset Volume Range
Impact	8024S	13	8	13
	8124S	13	8	N/A
	8012S			
	8112S			
Impression	2022S	13	8	N/A
	2122S			
	2122X			
Impact SCS	8201N	8	5	N/A
	8212N			
	8212S			
	8312S	8	8	N/A
	8324S			
	8324F			
8312SJ	8	5	8	
8324SJ				
8324FJ				

### To Program:

- Dial . "STATION FEATURES"
- Dial . "HANDSET VOLUME"
- Select station ports (LED On = Feature Assigned):  
Station 10-57 = Dial  or press C10-C57.
- Dial  for next station feature.  
—OR—  
Dial  for configuration mode.

To change setting, repeat procedure and dial the same extension to toggle feature or turn off the associated LED if console is installed.

## Programming the Headset Type

**Description:** You can program the system for a headset type when using an Impact SCS telephone. Headset types correspond to TX gain with each level increase representing a 1 dB increase. Use the default setting (0 = none) when using Comdial-branded headsets. However, for other headsets, the headset type may need to be set to another value for optimum performance. In those cases, check with the headset manufacturer to determine the correct headset type setting.

### To Program:

1. Dial . *“STATION FEATURES”*
2. Dial . *“HEADSET TYPE”*
3. Dial  to select type (0 = none). *“HEADSET TYPE XX”*  
 Select station ports (LED On = Type Assigned):  
 —Station ports 10–57: Dial  or press **C10–C57**.
4. Dial  for another headset type.  
 —OR—  
 Dial  for next station feature.  
 —OR—  
 Dial  for configuration mode.

## **Headset Interface**

You can program LCD speakerphones equipped with the optional headset jack to use a headset as well as the handset or speakerphone.

***NOTE:** The system delivers subdued off-hook voice announcements (SOHVA) to the headset. Because a headset exhibits a coupling effect between the earpiece and microphone, it may allow the outside party to hear a SOHVA message. You should inform the user of this possibility.*

### **Headset Operation as a Class of Service**

**Description:** When employing DigiTech speakerphones (models 7700S, Rev. H and earlier, and 7016S only) you must use this programming procedure to arrange for a station port to allow headset operation.

#### **To Program:**

1. Dial “STATION FEATURES”
  2. Dial “HEADSET MODE”
  3. Select station ports (LED On = Feature Assigned):  
Station 10-57 = Dial C10-C57.
  4. Dial  for next station feature.
- OR—
- Dial  for configuration mode.

To change setting, repeat procedure and make opposite selection.



## Headset Operation as a User Function

**Description:** To arrange for headset operation at a user's telephone (DigiTech models 7700S, Rev. I and later, Impact model 8024S, and Impression models 20nnn and 21nnn) you must program a headset button at the LCD speakerphone to activate the headset option.

### To Program:

1. Press **INTERCOM** at the user's telephone.
2. Dial .
3. Select button to be programmed:  
Press **A1–A14, B1–B10**.
4. Dial .
5. Press **SPEAKER** to end.

***NOTE:** On Impression telephones (models and 21nnn) you must disconnect the handset and plug the headset cord in its place.*

## Interactive Buttons

**Description:** The digital telephone system supports the operation of interactive buttons on all currently produced Comdial proprietary LCD speakerphones. Interactive buttons provide users with quick, easy access to system features and an expanded display that prompts them on feature operation and progress. DigiTech and Impact LCD speakerphones provide interactive buttons to the user at all time; however, the DigiTech LCD speakerphones (Revision H and earlier) do not provide interactive buttons at default and you must take this programming action to enable them.

### To Program:

1. Dial . *“STATION FEATURES”*
2. Dial . *“SOFT KEYS”*
3. Select station ports (LED On = Feature Assigned):  
Station 10–57 = Dial  or press **C10–C57**.
4. Dial  for next station/line feature.  
—OR—  
Dial  for configuration mode.  
—OR—  
Press **SPEAKER** to end.

## Idle Line Preference

**Description:** When you enable idle line preference, a station will automatically connect to any assigned and idle line that you have programmed for this purpose when the user takes the station off hook.

### To Program:

1. Dial . “*STA/LINE CONFIG*”
2. Dial . “*IDLE LINE PREF*”
3. Select line ports (LED On = Selected Port):
  - Line port 1–14 = Dial  or press **A1–A14**.
  - Line port 15, 16 = Dial ,  or press **B1, B2**.
  - Line port 17–24 = Dial  or press **HOLD** then press **A1–A8**.
4. Dial  when all line ports are selected.
5. Select station ports (LED On = Feature Assigned):
  - Station 10–57 = Dial  or press **C10–C57**.
6. Dial  when all station ports are selected.
  - OR—
  - Dial  for next station/line feature.
  - OR—
  - Dial  for configuration mode.

To clear current setting, repeat procedure.

## Personal Ringing Tones

**Description:** You can program stations to ring in one of six distinctive tones:

- 666/571 Hz @ 16 Hz warble
- 1000/800 Hz @ 16 Hz warble
- 666/571 Hz @ 23 Hz warble
- 1000/800 Hz @ 23 Hz warble
- 500/444 Hz @ 16 Hz warble
- 500/444 Hz @ 23 Hz warble

### To Program:

1. Dial . *“STATION FEATURES”*
2. Dial . *“RINGING TONE”*
3. Select ringing tone:
 

Dial <input type="text" value="1"/> for Tone 1.	<i>“RINGING TONE 1”</i>
Dial <input type="text" value="2"/> for Tone 2.	<i>“RINGING TONE 2”</i>
Dial <input type="text" value="3"/> for Tone 3.	<i>“RINGING TONE 3”</i>
Dial <input type="text" value="4"/> for Tone 4.	<i>“RINGING TONE 4”</i>
Dial <input type="text" value="5"/> for Tone 5.	<i>“RINGING TONE 5”</i>
Dial <input type="text" value="6"/> for Tone 6.	<i>“RINGING TONE 6”</i>
4. Select station ports (LED On = Feature Assigned):  
Station 10-57 = Dial  or press **C10-C57**.
5. Dial  for next ringing tone assignment.  
—OR—  
Dial  for next station feature.  
—OR—  
Dial  for configuration mode.

To change setting, repeat procedure and make different selection.

## Prime Line, Prime Group, and Prime Intercom

**Description:** If you assign a group of lines, and intercom line, or one individual line to a particular station for use as its prime line, the station automatically selects it for use when the user takes it off-hook.

### To Program:

1. Dial . “STATION FEATURES”
2. Dial . “PRIME LINE”
- 3a. Assign prime line “PRIME LINE XX”
  - Line port 1–14 = Dial  or press **A1–A14**.
  - Line port 15, 16 = Dial  or press **B1, B2**.
  - Line port 17–24 = Dial  or press **HOLD** then press **A1–A8**.
- 3b. Assign prime group, dial  for groups 1–4. “PRIME LINE GRP X”
- 3c. Assign prime intercom, dial  for intercom line. “PRIME INTERCOM”
4. Select station ports (LED On = Feature Assigned):
  - Station 10–57 = Dial  or press **C10–C57**.
5. Dial  for next prime line, group, or intercom assignment.
  - OR—
  - Dial  for next station feature.
  - OR—
  - Dial  for configuration mode.

To clear current setting, repeat procedure.

## Message Wait Originate

**Description:** Any station that you program with this feature can control the message waiting light at other stations in the system. When a station user observes the message waiting light turn on, he or she can press **INTERCOM** and then **HOLD** to call the station that controlled the light.

### To Program:

1. Dial . *“STATION FEATURES”*
2. Dial . *“MSG. WAIT ORIG”*
3. Select station ports (LED On = Feature Selected):  
Station 10-57 = Dial  or press **C10-C57**.
4. Dial  for next station feature.

—OR—

Dial  for configuration mode.

To clear current setting, repeat procedure.

## Ringling Line Preference

**Description:** When you assign this feature to a station, it will automatically answer a ringing line when its user takes it off-hook.

### To Program:

1. Dial . *“STATION FEATURES”*
2. Dial . *“RINGING LINE PREF”*
3. Select station ports (LED On = Feature Selected):  
Station 10-57 = Dial  or press **C10-C57**.
4. Dial  for next station feature.

—OR—

Dial  for configuration mode.

To clear current setting, repeat procedure.

## Subdued Off-Hook Voice Announcement (SOHVA) Features

With the Subdued Off-Hook Voice Announce feature, a user can make an announcement to another station that is busy with a call. The station receiving the SOHVA can hear the message, while the distant party cannot. A station using the speakerphone cannot receive a SOHVA.

### **SOHVA Disable**

**Description:** The SOHVA feature is standard for every station; however, you can disable it for selected stations with this programming selection.

#### **To Program:**

1. Dial “STATION FEATURES”
  2. Dial “SOHVA”
  3. Select station port (LED On = Feature Assigned):  
Station 10-57 = Dial C10-C57.
  4. Dial  for next station feature.
- OR—
- Dial  for configuration mode.

To clear current setting, repeat procedure.

### **SOHVA Groups**

**Description:** Use this procedure to arrange station ports to originate and/or receive SOHVA calls by assigning SOHVA calling groups to them. Also provide selective SOHVA calling to the system by arranging certain station ports together into groups for SOHVA calling between one another while excluding other station ports in the system. The system provides eight different fixed-configuration SOHVA groups.

#### **To Program:**

1. Dial “STATION FEATURES”
  2. Dial “SOHVA GROUP”
  3. Dial “SOHVA GROUP X”
  4. Select all station ports to receive SOHVA group (LED On = Feature Assigned):  
Station 10-57 = Dial C10-C57.
  5. Dial  and repeat steps 4 and 5 for additional SOHVA group/station assignments.
- OR—
- Dial  for next station feature.
- OR—
- Dial  for configuration mode.

To remove station from SOHVA group, assign it to group 0.

Fixed SOHVA Groups								
SOHVA Group	Group Configuration							
<b>Group 1</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>
Receive From	X							
Originate To	X	X	X	X				
<b>Group 2</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>
Receive From	X	X						
Originate To		X	X	X				
<b>Group 3</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>
Receive From	X	X	X					
Originate To			X	X				
<b>Group 4</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>
Receive From	X	X	X					
Originate To								
<b>Group 5</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>
Receive From					X			
Originate To					X			
<b>Group 6</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>
Receive From						X		
Originate To						X		
<b>Group 7</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>
Receive From							X	
Originate To							X	
<b>Group 8</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>
Receive From								X
Originate To								X

## SOHVA Tone Burst Quantities

**Description:** Use this procedure to set the number of SOHVA tone bursts that sounds at the system stations. You can choose from one to six tone bursts, and the choice that you make here affects all stations that receive SOHVA calls.

### To Program:

1. Dial . "SYSTEM FEATURES"
2. Dial . "SOHVA TONES n"
3. Select the quantity of tone bursts:  
Dial  or press **A1–A5, A8** (LED On = Enabled).
4. Dial  for configuration mode.

—OR—

Press **SPEAKER** to end.

To change setting, repeat procedure and make a different selection.

## Service Observing

You can give selected stations the capability to monitor, in an unannounced manner, an active call at another station.

### Assign Service Observing

**Description:** Select stations to have the service observe feature using this programming.

***NOTE:** Since this feature requires the executive override feature to function, the system automatically enables that feature for the station when you enable service observing. You can also arrange selected stations so that they cannot be observed.*

### To Program:

1. Dial . "STATION FEATURES"
2. Dial . "SERVICE OBSERVE"
3. Select station ports (LED ON = Feature Assigned):  
Station 10–57 = Dial  or press **C10–C57**.
4. Dial  for next station feature.

—OR—

Dial  for configuration mode.

To clear current setting, repeat procedure.



## ***Block Service Observing***

**Description:** You can block a user's capability to use service observing.

### **To Program:**

1. Dial . *"STATION FEATURES"*
  2. Dial . *"UNOBSERVABLE"*
  3. Select station ports (LED On = Feature Assigned):  
Station 10-57 = Dial  or press **C10-C57**.
  4. Dial  for next station feature.
- OR—
- Dial  for configuration mode.

To clear current setting, repeat procedure.

## ***Station Disable***

**Description:** You can disable station ports on a per-station basis.

### **To Program:**

1. Dial . *"DISABLE STATIONS"*
2. Select station ports to be disabled (LED On = Disabled):  
Station 10-57 = Dial  or press **C10-C57**.
3. Dial  for configuration mode.

To enable station, repeat procedure and make opposite selection.

## Station Name

**Description:** You can assign individual names or category names to stations. These names will then be displayed by LCD speakerphones when they are called by the named stations. Typical names could be TEC SER, MKT 1, J Smith. System attendants also have access to this station naming feature.

### To Program:

1. Dial  . "STATION NAMES"
2. Select station port (LED On = Selected): "XXXXXX"  
Station 10-57 = Dial   -   or press **C10-C57**.
3. Dial  to clear current station name.
4. Refer to character code table on page 191, and compose station name (7 digits maximum).
5. Dial two-digit codes to form station name. "XXXXXXXX YYYYYYY"
6. Dial  for next station and repeat steps 2-5.

—OR—

Dial   for configuration mode.

To change setting, repeat procedure and make different selection.

Character Code Table					
Character	Code	Character	Code	Character	Code
A	21	a	24	Space	12
B	22	b	25	-	15
C	23	c	26	;	17
D	31	d	34	/	18
E	32	e	35	“	19
F	33	f	36	.	27
G	41	g	44	,	28
H	42	h	45	:	29
I	43	i	46	1	01
J	51	j	54	2	02
K	52	k	55	3	03
L	53	l	56	4	04
M	61	m	64	5	05
N	62	n	65	6	06
O	63	o	66	7	07
P	71	p	74	8	08
Q	11	q	14	9	09
R	72	r	75	0	00
S	73	s	76		
T	81	t	84		
U	82	u	85		
V	83	v	86		
W	91	w	94		
X	92	x	95		
Y	93	y	96		
Z	13	z	16		

## Station to Station Port Reassignment

**Description:** Use this procedure to reassign the programming attributes for a station connected to a particular station port to a different station port (logical to physical reassignment). This feature allows you to automatically exchange all software attributes for a station (logical assignment) connected at one station port with those attributes assigned to another station at a different station port without physically relocating the stations (physical assignment) or reprogramming any of the attributes.

You can use this programming action to reassign the extension number and all other programmable attributes that you have assigned to one station port to a different port. This feature allows you to make adds, moves, and changes without relocating the station wiring.

***NOTE:** Do not confuse this feature with the automatic station relocation feature discussed in the system configuration portion of these programming procedures. Also note that the system will not allow you to reassign the station 10/station port 10 assignment.*

### **To Program:**

1. Dial  to reassign station to port.                   “ASSIGN STA/PORT”
2. Dial station extension number, -.   “PHYS PORT XX”
3. Dial physical port number -.                   “LOGICAL STA XX”
4. Dial  to make assignment.

—OR—

Dial  for configuration mode.

To change setting, repeat procedures and make different selection.

## System Alarm Report Stations

You can program the system to report any system alarms to designated stations.

### **Enable Alarm Reporting**

**Description:** If you arrange the system to report alarms, also use this programming feature to enable stations to display alarm reports after the station user takes appropriate action.

#### **To Program:**

1. Dial . “ALARM REPORTS”
2. Press **A1** to toggle between enable and disable (LED On = Enable).  
—OR—  
Dial  to Enable.  
Dial  to Disable.
3. Dial  for configuration mode.

To change setting, repeat procedure and make different selection.

### **Select Alarm Reporting Stations**

**Description:** After you turn on the alarm reporting feature, use this procedure to select the alarm reporting station.

#### **To Program:**

1. Dial . “STATION FEATURES”
2. Dial . “ALARM RECEIVE”
3. Select station ports (LED On = Selected):  
Station 10-57 = Dial  or press **C10-C57**.
4. Dial  for next station feature.  
—OR—  
Dial  for configuration mode.

To clear current setting, repeat procedure.

## **Voice Announce Blocking**

**Description:** This feature allows a station user to block voice-signaled intercom calls.

**To Program:**

1. Dial . "STATION FEATURES"
  2. Dial . "VOICE BLOCK"
  3. Select station ports (LED On = Selected):  
Station 10-57 = Dial  or press **C10-C57**.
  4. Dial  for next station feature.
- OR—
- Dial  for configuration mode.

To clear current setting, repeat procedure.

## **Block Programming**

**Description:** You can use this station configuration procedure to assign those features that you have assigned to any one station to any other station or to an entire block of stations. Block programming includes any mapped button attributes (see *Button Mapping the Stations* on page 196) that you have assigned to the model station port.

**To Program:**

1. Dial . "BLK PROGRAMMING"
  2. Select model station port (LED On = Selected): "MODEL STA XX"  
Station 10-57 = Dial  or press **C10-C57**.
  3. Dial first station port in block (dial code as above).
  4. Dial .
  5. Dial last station port in block (dial code as above).
  6. Dial .
  7. Dial  for further block programming.
- OR—
- Dial  for configuration mode.

**NOTE:** The first, last and all station ports in between will be block programmed like the model station port. To block program an individual station port, select the first and last port to be the same number. (For example: 25, 26# 26# programs station 26 exactly as 25.)

## Quick Transfer

**Description:** The Quick Transfer feature allows users to transfer line calls without having to press the **TRANSFER/CONFERENCE** key. When this feature is enabled, users can transfer calls by pressing the appropriate DSS key (or **INTERCOM** + extension number) and then hanging up. This feature is disabled at default.

### To Program:

1. Dial . “*STATION FEATURES*”
2. Dial . “*QUICK TRANSFER*”
3. Select station ports (LED On = Selected):  
Station 10-57 = Dial  or press **C10-C57**.
4. Dial  for next station feature.  
—OR—  
Dial  for configuration mode.

To change setting, repeat procedure and make different selection.

## Button Mapping the Stations (Non-Square System Configuration)

You can assign (map) every programmable button at each digital station to be line-select buttons so that they provide access to outside lines; to be direct station select (DSS) buttons so that they provide quick access to system stations; to be special-purpose buttons so that they provide telephone users with one-button access to features; or to be idle buttons so that they provide autodial locations for the station user.

Three idle (unmapped) buttons serve as dynamic line buttons. Dynamic line buttons provide a location for the system to temporarily assign a line appearance to a station that normally does not have that particular line assigned to it. While a line is in appearance there, the user can perform any normal call handling operations that he or she wishes to perform. The lines are identified as follows: B1, B2, and B3 on DigiTech telephones (product codes 7700S, 7714X, and 7114S), B1, B2, and B3 on Impression telephones (product codes 2022S, 2122X, and 2101N), or L1, L2, and L3 on Impact telephones (product codes 8012S, 8024S, 8112S, and 8124S.) Refer to *Recording the Station Configuration* on page 309 for button illustrations.

When you map a button at a station port, press the corresponding button on the programming station to select the button to be mapped. If you must map buttons at a station port while using a programming telephone that does not provide a full complement of buttons, you can dial a 3-digit code to select a button. The table below lists the 3-digit codes and their corresponding buttons.

<b>Button Codes for Impression, DigiTech, and Impact Telephones</b>			
<b>Code</b>	<b>Impression</b>	<b>DigiTech</b>	<b>Impact</b>
120	A1	A1	L1
118	A2	A2	L2
116	A3	A3	L3
114	A4	A4	L4
112	A5	A5	L5
110	A6	A6	L6
108	A7	A7	L7
121	A8	A8	L8
119	A9	A9	L9
117	A10	A10	L10
115	A11	A11	L11
113	A12	A12	L12
111	A13	A13	L13
109	A14	A14	L14
122	A15	B9	L15
123	A16	B10	L16
100	B1	B1	L17
101	B2	B2	L18
102	B3	B3	L19
103	B4	B4	L20
104	B5	B5	L21
105	B6	B6	L22
106		B7	L23
107		B8	L24



## Account Code Button

**Description:** Press the account code button and then dial an account code to record a call into a particular category without interrupting the call.

### To Program:

1. Dial . “*BUTTON MAPPING*”
2. Dial . “*ASSIGN ACCT KEY*”
3. Select button to be programmed:  
Press **A1–A14, B1–B10**.
4. Select station ports (LED On = Selected):  
Station 10–57 = Dial  or press **C10–C57**.
5. Dial  for further **ACCOUNT CODE** button assignment.  
—OR—  
Dial  for next button mapping feature.  
—OR—  
Dial  for next configuration mode.

To clear assignment, dial , press button, dial  select station, and dial .

## Automatic Call-Back Button

**Description:** When a user presses this button after they encounter a busy tone, the system will automatically ring both the called station and the user's station when the called station becomes idle.

### To Program:

1. Dial . “*BUTTON MAPPING*”
2. Dial . “*ASSIGN CALL BACK*”

3. Select button to be programmed:

Press **A1–A14, B1–B10**.

4. Select station ports (LED On = Selected):

Station 10–57 = Dial  or press **C10–C57**.

5. Dial  for next **AUTO CALL-BACK** button assignment.

—OR—

Dial  for next button mapping feature.

—OR—

Dial  for configuration mode.

To clear assignment, dial , press button, dial  select station, and dial .

## **Blank Buttons**

**Description:** Assign as “blank” those buttons that you want to be dynamic line buttons or autodial buttons.

***NOTE:** When blanking buttons, be sure a previously assigned button is idle (feature not selected by user) before you blank it.*

### **To Program:**

1. Dial  . “*BUTTON MAPPING*”
2. Dial  . “*BLANK/AUTODIAL*”
3. Select all buttons to be programmed.  
Press **A1–A14, B1–B10**.
4. Dial .
5. Select station ports (LED On = Selected):  
Station 10–57 = Dial   -   or press **C10–C57**.
6. Dial  for further **BLANK** button assignment.  
—OR—  
Dial   for further button mapping feature.  
—OR—  
Dial    for configuration mode.

## Call Forward Button

**Description:** This button provides one-button forwarding of all calls to another extension.

**To Program:**

1. Dial . “*BUTTON MAPPING*”

2. Dial . “*ASSIGN CALL FWD*”

3. Select button to be programmed.

Press **A1–A14, B1–B10**.

4. Select station ports (LED On = Selected):

Station 10–57 = Dial  or press **C10–C57**.

5. Dial  for next **CALL FORWARD** button assignment.

—OR—

Dial  for button mapping feature.

—OR—

Dial  for configuration mode.

To clear assignment, dial , press button, dial  select station, and dial .

## Call Park Orbit Button

**Description:** The **Call Park Orbit** button will automatically park an active call in orbit when the user presses it.

### To Program:

1. Dial “BUTTON MAPPING”
2. Dial “ASSIGN CALL PK”
3. Select button to be programmed:  
Press **A1–A14, B1–B10**.
4. Dial  for parking orbit 1–9. “ASSIGN CALL PK X”
5. Select station ports (LED On = Selected).  
Station 10–57 = Dial  or press **C10–C57**.
6. Dial  for next **CALL PARK ORBIT** button assignment.  
—OR—  
Dial  for next button mapping feature.  
—OR—  
Dial  for configuration mode.

To clear assignment, dial , press button, dial  select station, and dial .

## Do Not Disturb (DND) Button

**Description:** Pressing the DND button prevents other stations from calling the DND station.

### To Program:

1. Dial “*BUTTON MAPPING*”
2. Dial “*ASSIGN DND CODE*”
3. Select button to be programmed:  
Press **A1–A14, B1–B10**.
4. Select station ports (LED On = Selected):  
Station 10–57 = Dial C10–C57.
5. Dial  for further **DND** button assignment.  
—OR—  
Dial  for next button mapping feature.  
—OR—  
Dial  for configuration mode.

To clear assignment, dial , press button, dial  select station, and dial .

## DSS/BLF Button

**Description:** DSS/BLF buttons provide quick access to system stations and their lights and show the busy status of the monitored stations.

### To Program:

1. Dial . “*BUTTON MAPPING*”
2. Dial . “*ASSIGN DSS/BLF*”
3. Select button to be programmed.  
Press **A1–A14, B1–B10**.
- 4.. Select station port (LED On = Selected):  
Station 10–57 = Dial  or press **C10–C57**.
5. Repeat steps 3 and 4 until all ports are assigned.
6. Dial .
7. Select station ports (LED On = Selected).  
Station 10–57 = Dial  or press **C10–C57**.
8. Dial  for further **DSS/BLF** button assignment.  
—OR—  
Dial  for next button mapping feature.  
—OR—  
Dial  for configuration mode.

To clear assignment, dial , press button, dial , select station, and dial .

## Intercom Button Programming (SCS Phones)

On model 8324SJ, 8312SJ, and 8212S telephones, you can move the Intercom button from its default location at the lower right button to any programmable button. If you map a new location for the Intercom button, the system will restore it to the default location the next time that power turns off and back on at the telephone. Use the following button-mapping procedure to map the new Intercom button.

1. At the programming station, press the defaulted Intercom button and dial       to enter the programming mode.
2. Dial  . “BUTTON MAPPING”
3. Dial  . “ASSIGN ITCM”
4. Select button to be programmed:  
—Press **A1–A14, B1–B10**.
5. Select station ports (LED On = Selected):  
—Station 10–57 = Dial **10–57** or dial **C10–C57**.
6. Dial \* for further intercom button assignment, or dial    to return to the configuration mode.

**NOTE:** To clear a button assignment while in the configuration mode, dial

, press the button, dial , select the station, and dial   .

7. End the programming session by pressing the **Speaker** button.



## Line Button

**Description:** Line select buttons provide access to outside lines.

### To Program:

1. Dial . “*BUTTON MAPPING*”
2. Dial . “*ASSIGN LINE*”
3. Select button to be programmed.  
Press **A1–A14, B1–B10**.
4. Select line ports to be assigned:  
Line port 1–14 = Dial  or press **A1–A14**.  
Line port 15, 16 = Dial ,  or press **B1, B2**.  
Line port 17–24 = Dial  or press **HOLD** then press **A1–A8**.
5. Repeat steps 3 and 4 until all lines are assigned.
6. Dial  to finish button mapping.
7. Select station port (LED On = Selected):  
Station 10–57 = Dial  or press **C10–C57**.
8. Dial  for further **LINE/BUTTON** assignment.  
—OR—  
Dial  for next button mapping feature.  
—OR—  
Dial  for configuration mode.

To clear assignment, dial , press button, dial  select station, and dial .

## Line Group Button

**Description:** This button provides one-button access to a line group.

### To Program:

1. Dial  . “*BUTTON MAPPING*”
2. Dial  . “*ASSIGN LINE GRP*”
3. Select button to be programmed:  
Press **A1–A14, B1–B10**.
4. Dial   for parking orbit 1–4. “*ASSIGN LINE GRP X*”
5. Select station ports (LED On = Selected):  
Station 10–57 = Dial     or press **C10–C57**.
6. Dial  for next **LINE GROUP** button assignment.  
—OR—  
Dial   for next button mapping feature.  
—OR—  
Dial    for configuration mode.

To clear assignment, dial    , press button, dial , select station, and dial   .

## Line Group Queue Button

**Description:** A station user can queue for a busy line by pressing a line group queue button.

**To Program:**

1. Dial  . “*BUTTON MAPPING*”
2. Dial  . “*ASSIGN LINE GRP Q*”
3. Select button to be programmed:  
Press **A1–A14, B1–B10**.
4. Select station ports (LED On = Selected):  
Station 10–57 = Dial     or press **C10–C57**.
5. Dial  for further **LINE GROUP QUEUE** button assignment.  
—OR—  
Dial   for next button mapping feature.  
—OR—  
Dial    for configuration mode.

To clear assignment, dial    , press button, dial  select station, and dial   .

## Multiple Intercom Button

**Description:** You can assign a second intercom button to stations that may make many intercom calls.

### To Program:

1. Dial  . “*BUTTON MAPPING*”
2. Dial  . “*ASSIGN 2ND INTERCOM*”
3. Select button to be programmed:  
Press **A1–A14, B1–B10**.
4. Select station ports (LED On = Selected):  
Station 10–57 = Dial     or press **C10–C57**.
5. Dial  for further **MULTIPLE INTERCOM** button assignment.  
—OR—  
Dial   for next button mapping feature.  
—OR—  
Dial    for configuration mode.

To clear assignment, dial    , press button, dial  select station, and dial   .

## Privacy Button

**Description:** A user engaged in a private call can press the privacy button to change a current call into a non-private one.

### To Program:

1. Dial  . “*BUTTON MAPPING*”
2. Dial  . “*ASSIGN PRIVACY*”
3. Select button to be programmed:  
Press **A1–A14, B1–B10**.
4. Select station ports (LED On = Selected):  
Station 10–57 = Dial     or press **C10–C57**.
5. Dial  for further **PRIVACY** button assignment.  
—OR—  
Dial   for next button mapping feature.  
—OR—  
Dial    for configuration mode.

To clear assignment, dial    , press button, dial  select station, and dial   .

## Save Button

**Description:** A telephone user can press the **SAVE** button to store the last dialed number for later redial.

### To Program:

1. Dial . “*BUTTON MAPPING*”
2. Dial . “*ASSIGN SAVE*”
3. Select button to be programmed:  
Press **A1–A14, B1–B10**.
4. Select station ports (LED On = Selected).  
Station 10–57 = Dial  or press **C10–C57**.
5. Dial  for further **SAVE** button assignment.  
—OR—  
Dial  for next button mapping feature.  
—OR—  
Dial  for configuration mode.

To clear assignment, dial , press button, dial  select station, and dial .

## Voice Announce Block Button

**Description:** Telephone users can block voice announced intercom calls and station paging by pressing this button.

**To Program:**

1. Dial . “*BUTTON MAPPING*”
2. Dial . “*ASSIGN VAB*”
3. Select button to be programmed:  
Press **A1–A14, B1–B10**.
4. Select station ports (LED On = Selected):  
Station 10–57 = Dial  or press **C10–C57**.
5. Dial  for further **VOICE ANNOUNCE BLOCK** button assignment.  
—OR—  
Dial  for next button mapping feature.  
—OR—  
Dial  for configuration mode.

To clear assignment, dial , press button, dial  select station, and dial .

## Zone Page/All-Call Button

**Description:** This button will provide a station with one-button access to all-call and zone paging.

### To Program:

1. Dial  . “*BUTTON MAPPING*”
2. Dial  . “*ASSIGN ZONE*”
3. Select button to be programmed:  
Press **A1–A14, B1–B10**.
4. Dial   for zone 1–3. “*ASSIGN ZONE X*”  
—OR—  
Dial  for all-call. “*ASSIGN ALL CALL*”
4. Select station ports (LED On = Selected):  
Station 10–57 = Dial     or press **C10–C57**.
5. Dial  for further **PAGING** button assignment.  
—OR—  
Dial   for next button mapping feature.  
—OR—  
Dial    for configuration mode.

To clear assignment, dial    , press button, dial  select station, and dial   .



## Account Codes

The digital telephone system uses account codes to identify calls by category, or by any other desired grouping, so that it can record the cost of the calls by that category or grouping. The account code can be either verified or not verified by the system; plus, the system can either force the users to enter the account codes or make account code use optional. When you enable account verification, the system compares the account code entered by a station user with the account entries you have programmed. If the system does not find a match and the account code entry is optional, the system sounds an error tone through the telephone but does not prevent dialing; however, if forced entry is enabled, the system prevents further dialing until the user enters a matching account code.

You should make a record in Chapter 5 of all programming decisions that you make—it will help you keep track of what you have done and will help you troubleshoot problems.

***NOTE:** A lighted LED next to the programming button for the selection indicates the current configuration. When a single button provides a toggle (on/off) action, the lighted LED indicates the active feature.*

The first step in any programming sequence is to enter the base level. Once in this mode, you can dial the feature code for any desired configuration. Enter the base level with the following procedure: press **INTERCOM** then dial      . When you want to end the programming, press the **SPEAKER** button to return the system to normal operation.

## Account Code Length

### **Length for Verified Account Codes**

**Description:** This feature defines the number of digits that the system will verify before it accepts the account code as valid. Verified account code length also defines the number of valid account codes that the system will store (as shown in the following table.) *Be aware that when you change the verified account code length, the system empties the current list of valid account codes.*

<b>Account Code Lengths</b>	
<b>Digits Verified</b>	<b>Number of Codes</b>
3	1000
4	400
5, 6	266
7, 8	200
9, 10	160
11, 12	133
13, 14	114
15, 16	100

**To specify the number of verifiable account code digits,**

1. Dial  . *“SMDA PROGRAMMING”*
2. Dial  . *“DIGITS VALID X”*
3. Dial number of digits 3–16 to be verified.
4. Dial   for configuration mode.

To change setting, repeat procedure and make different selection.

## Length for Entered Account Codes

**Description:** This feature defines the number of account code digits that a user must enter before the system will accept the code. Account code length can range from 3 to 16 digits; however, its length must always be equal to or greater than the current verified account code length.

### To specify the number of entered account code digits,

1. Dial . *“SMDA PROGRAMMING”*
2. Dial . *“MAX ACCT CODE X”*
3. Dial number of digits (3–16) for account code length.

**NOTE:** The entered digits must be equal to or greater than the verifiable digits specified under Length of Verified Account Codes but cannot be greater than 16.

4. Dial  for configuration mode.

To change setting, repeat procedure and make different selection.

## Account Code List

**Description:** Use this programming feature to create the list of account codes for use.

### To Program:

1. Dial . *“SMDA PROGRAMMING”*
2. Dial . *“SET ACCT CODE”*
3. Dial account code digits. Maximum number of digits must be equal to number of account code digits specified under *Account Code Length*.
4. To enter another account code, dial , then dial its number.
5. Dial  for configuration mode.

### To remove account codes from list,

1. Dial . *“SMDA PROGRAMMING”*
2. Dial . *“CLEAR ACCT CODE”*
3. Dial account code to be removed.
4. To remove another account code, dial , then dial its number.
5. Dial  for configuration mode.

## Enabled or Disabled Account Codes

**Description:** Use this procedure to enable or disable the account code feature for the system.

### To Program:

1. Dial . “SMDA PROGRAMMING”
2. Dial . “XXXXXXXX ACCOUNT”
3. Press **A1** for forced account codes on all stations.
- OR—
- Dial  to Enable. “ENABLE ACCOUNT”
- Dial  to Disable. “DISABLE ACCOUNT”
4. Dial  for configuration mode.

To change setting, repeat procedure and make opposite selection.

## Forced or Optional Entry Account Codes

**Description:** Use this programming procedure to arrange for the system to either force users to enter account codes before they can make calls, or to make entering of account codes optional.

### To Program:

1. Dial . “STATION FEATURES”
2. Dial . “FORCE ACCT CODE”
3. Press **A1** for forced account codes on all stations.
- OR—
- Press **A2** for optional account codes on all stations.
4. Select station ports to be exempted (LED On = Forced, Off = Optional):  
Dial  or press **C10–C57**.
5. Dial  for configuration mode.

To change setting, repeat procedure and make opposite selection.

## ***Forced Account Code Emergency Numbers***

**Description:** Even if you arrange for the system to force account code entries, users can always dial emergency numbers without first entering an account code. Use this programming feature to enter up to 10 emergency numbers. Each number can be a minimum of one digit and a maximum of twelve digits.

### **To Program:**

1. Dial “SMDA PROGRAMMING”
2. Dial “SET EMER NUMBER”
3. Dial emergency number (up to 12 digits).
4. To enter another emergency number, dial , then dial number.
5. Dial  for configuration mode.

### **To clear emergency numbers,**

1. Dial “STATION FEATURES”
2. Dial “CLR EMER NUMBER”
3. Dial emergency number to be cleared (up to 12 digits).
4. To clear another number, dial , then dial number.
5. Dial  for configuration mode.

## **Message Display Time for Account Codes**

**Description:** When you enable the account code feature, LCD speakerphones prompt users to enter an account code with a displayed message that the system clears at the end of a programmable display time. Use this procedure to set the length of time for the display within the range of 1 to 20 seconds. (The default setting is 5 seconds.) If account codes are forced, the system drops the line if the user fails to enter a valid account code during the display period. You also can make this prompting message appear in the telephone display when the user answers an incoming call. This prompting feature will remind users to enter account codes for answered calls.

### **To Program:**

1. Dial “SMDA PROGRAMMING”
2. Dial “DISPLAY TIME X”
3. Dial  to select new display time (in seconds).
4. Dial  for configuration mode.

To change setting, repeat procedure and make different selection.

## ***Incoming and Outgoing Call Prompt for Account Code Entries***

**Description:** You must enable or disable the account code message display time for both incoming and outgoing calls.

### **To Program:**

1. Dial . *“SMDA PROGRAMMING”*
2. Dial . *“XXXXXXXX INCOMING”*
- OR—
- Dial . *“XXXXXXXX OUTGOING”*
3. Press **A1** to toggle feature on or off (LED On = Enabled).
- OR—
- Dial  to Enable. *“ENABLE INCOMING”*
- Dial  to Disable. *“DISABLE INCOMING”*
4. Dial  for configuration mode.

To change setting, repeat procedure and make opposite selection.

## **Verify Account Code Entry**

**Description:** Use this programming procedure to arrange for the system to either verify or not verify the account codes that users enter.

### **To Program:**

1. Dial . *“SMDA PROGRAMMING”*
2. Dial . *“VERIFICATION XXX”*
3. Press **A1** to toggle feature on or off (LED On = Verified).
- OR—
- Dial  to Enable. *“VERIFICATION ON”*
- Dial  to Disable. *“VERIFICATION OFF”*
4. Dial  for configuration mode.

To change setting, repeat procedure and make opposite selection.

## Secure Account Code Entry

**Description:** When system-wide account code entry is enabled, the system prompts users to enter an account code when they select an incoming or outgoing line. If the Secure Account Code entry feature is enabled, the digits will be displayed as "\*" characters in the LCD during account code entry. At default, this feature is disabled.

The Secure Account Code entry status is shown with the toll restriction COS printout.

### To Program:

1. Dial  . *"SMDA PROGRAMMING"*
2. Dial  . *"SECURE ACC XXX"*
3. Press **A1** to toggle between enable and disable (LED On = Enable).  
—OR—  
Dial  to Enable. *"SECURE ACC ON"*  
Dial  to Disable. *"SECURE ACC OFF"*
4. Dial   for configuration mode.

To change setting, repeat procedure and make opposite selection.

## Industry-Standard Telephone (IST) Interface

### The JM008 Expansion Module

The JM008 expansion module is an optional accessory cabinet that you mount on the DSU II's common equipment cabinet to provide the system with an interface for eight IST devices.

### The Analog Terminal Interface

The Analog Terminal Interface device (ATI-D) is a multipurpose *on-premise* accessory. It has dual circuits that allow the connection of two IST devices to the DSU II system.

**NOTE:** Connect the first port to an even station port. All ATI-D ports must be paired.

## Understanding the Programming Requirements for the IST Interface

The IST provides basic intercom service coupled with the ability to access outside lines. Through programming, the IST acts as either an intercom-only telephone or as a full-featured business telephone. You can program the station port through which the IST interfaces for either Prime Line Automatic and Idle Line Preference, or for Prime Intercom (default is for Prime Intercom). You can also program the station port to have distinctive ringing and to match the type of dialing used by the IST.

You should make a record in Chapter 5 of all programming decisions that you make—it will help you keep track of what you have done and will help you troubleshoot.

**NOTE:** A lighted LED next to the programming button for the selection indicates the current configuration. When a single button provides a toggle (on/off) action, the lighted LED indicates the active feature.

The first step in any programming sequence is to enter the base level. Once in this mode, you can dial the feature code for any desired configuration. Enter the base level by pressing

**INTERCOM**, then dialing      . Press the **SPEAKER** button to end the programming procedure and return the system to normal operation.



## IST Station Port Line Assignment

**Description:** If you program the port through which the IST is interfaced for Prime Intercom, the effect on the user is different depending on whether the system is operating as a key system or as a hybrid system.

- On key-configured systems, proprietary telephone users give the IST access to outside lines for call origination through the use of the call transfer feature. You can assign outside line ringing to the station port for IST call answering purposes by programming the station port for the ringing line preference feature and enable ringing for all desired lines.
- On hybrid-configured systems, the system gives the IST access to outside lines through line group access. With line group access, IST users dial the group access code over the intercom line to access an outside line for use. The common equipment then selects one of the grouped idle lines for use in the order from the highest numbered line to the lowest numbered line.

**If you program the port through which the IST is interfaced for Prime Line Automatic and Idle Line Preference**, program an outside line as a prime line at the station port, or program the station port for idle line preference and then program one of the assigned idle lines as a prime line. With both the prime line automatic and the idle line preference features, the IST has outside line dial tone when users lift the handset. You can assign outside line ringing to the station port for IST call answering purposes or you can enable the ringing line preference feature for the station port. The intercom line is available to an IST even though you have arranged it to have outside line access. After going off-hook, IST users obtain intercom dial tone by performing a hookflash. This action either drops the outside line (if no digits are dialed after lifting the handset) or places it on hold (if digits were dialed) and provides intercom dial tone.

### To Program:

1. Dial . “STATION FEATURES”
2. Dial . “PRIME LINE”
- 3a. Assign prime line: “PRIME LINE XX”
  - Line port 1–14 = Dial  or press **A1–A14**.
  - Line port 15, 16 = Dial  or press **B1, B2**.
  - Line port 17–24 = Dial  or press **HOLD** then press **A1–A8**.
- 3b. Assign prime group, dial  for groups 1–4. “PRIME LINE GRP X”
- 3c. Assign prime intercom, dial  for intercom line. “PRIME INTERCOM”
4. Select station ports (LED On = Feature Assigned):
  - Station 10–57 = Dial  or press **C10–C57**.
5. Dial  for next prime line, group, or intercom assignment:
  - OR—
  - Dial  for next station feature.
  - OR—
  - Dial  for configuration mode.

**To enable idle line preference,**

1. Dial **54**. *“STA/LINE CONFIG”*
2. Dial **7**. *“IDLE LINE PREF”*
3. Select line ports (LED On = Selected Port).  
Line port 1–14 = Dial **01-14** or press **A1–A14**.  
Line port 15, 16 = Dial **15, 16** or press **B1, B2**.  
Line port 17–24 = Dial **17-24** or press **HOLD** then press **A1–A8**.
4. Dial **#** when all line ports are selected.
5. Select station ports (LED On = Feature Assigned):  
Station 10–57 = Dial **10-57** or press **C10–C57**.
6. Dial **\*** when all station ports are selected.  
—OR—  
Dial **\*\*** for next station/line feature.  
—OR—  
Dial **\*\*\*** for configuration mode.

## IST Distinctive Ringing

**Description:** Intercom calls that ring at IST equipment have a different cadence than outside calls. For the JM008 interface, the intercom ring cadence is: 0.5 seconds on, .1 seconds off, 0.5 seconds on, 4 seconds off, and the outside call ring cadence is : 2 seconds on, 4 seconds off. For the ATI-D interface, the intercom ring cadence is 1 second on, .5 seconds off, 1 second on, 3.5 seconds off, and outside the call ring cadence is: 2 seconds on, 4 seconds off.

If needed, you can disable this distinctive ringing feature to make the intercom ring cadence the same as that for outside calls.

### To Program:

1. Dial  . “STATION FEATURES”
2. Dial  . “DIST RING XX”
3. Press **A1** to toggle between enable and disable (LED On = Enable).  
—OR—  
Dial  to Enable (**A1** LED = Enable). “DIST RING ON”  
Dial  to Disable. “DIST RING OFF”
4. Dial  for next feature.  
—OR—  
Dial   for configuration mode.

To change setting, repeat procedure and make opposite selection.

## IST through Dialing

**Description:** With this programming feature enabled, any DTMF signaling tones that are generated by the IST equipment pass through the JM008 or ATI-D, the common equipment, and any line connection into the switched network. The system automatically enables this feature when you connect the JM008 or ATI-D to the DSU II. Equipment such as the proprietary voice mail systems and the 2500 tone dial telephone require thru dialing; however, you should disable this feature for equipment such as model 500 rotary-dial telephones.

### To Program:

1. Dial  . “STATION FEATURES”
  2. Dial  . “ATI THRU DIALING”
  3. Select station ports (LED On = Selected):  
Station 10-57 = Dial   -   or press **C10-C57**.
  4. Dial  for next feature.
- OR—
- Dial   for configuration mode.

To clear setting, repeat procedure.

## Direct Department Calling

Direct department calling allows the system to assign lines to one of four different departments. Calls received on department lines and calls that are transferred to a department from within the system search for an idle station in that department.

The system distributes department calls evenly throughout the department stations. It does this by placing newly received calls, transferred calls, and held calls in a queue for servicing, assigning these calls a time stamp to ensure that they are serviced in the order of their arrival, and routing them to the department stations in an orderly manner.

The system allows you to create a maximum of four departments with a maximum of 16 stations and a minimum of 3 stations (plus one overflow station) in each department. Since you can assign a station to more than one department, you can add the attendant station to serve as the overflow station in every department. You can also assign separate access codes (extension numbers) to each department. The users can use these access codes for making intercom calls or doing call transfers to the department.

You must assign lines and stations to a department but you do not need to assign department lines to appear at line buttons on department stations. If a site requires that a particular department line appear at a particular department station, you can assign it; however, you must disable both direct and delayed ringing for that line at that station.

Always program the department stations to have a short RNA time to allow a call to search rapidly through a department for an answer. Further, map a Do Not Disturb (DND) button for each department station so that users can press it to place their stations in an off-duty condition.

Understand, that the departments that you form for use with this direct department calling feature are not the same departments that you form for SMDA reporting.

You should make a record in Chapter 5 of all programming decisions that you make—it will help you keep track of what you have done and will help you troubleshoot any problem that might arise later.

***NOTE:** A lighted LED next to the programming button for the selection indicated the current configuration. When a single button provides a toggle (on/off) action, the lighted LED indicates the active feature.*

The first step in any programming sequence is to enter the base level. Once in this mode, you can dial the feature code for any desired configuration. Enter the base level with the following procedure: press **INTERCOM** then dial      . When you want to end the programming, press the **SPEAKER** button to end the programming procedure and return the system to normal operation.

## Access Codes for Direct Department Calling

**Description:** You can program department access codes to be any number between 10 and 7999; however, the system will not allow you to assign the same dialing code as both a station extension number and a department access code; nor will the system allow an extension number conflict such as 15 and 1500. Further, with system defaulted extension numbers, the assigned department access codes must start at 0058 or larger.

### To Program:

1. Dial  . "ACCESS CODE"
2. Dial  to assign access codes to departments. "DEPT CALLING"
3. Dial - for department 1-4. "DEPT X YYYY"
4. Dial new access code. "DEPT X YYYY ZZZZ"

**NOTE:** New code can be maximum of four digits. If less than four digits, leading zeros must be dialed before the number. Code cannot conflict with station extension numbers.

5. Dial next department number and program access code.

—OR—

Dial  for next access code feature.

—OR—

Dial   for configuration mode.

## Line Ports for Direct Departmental Calling

**Description:** You can assign outside lines to one of four different departments if you wish. If you do this, calls received on a line that you have assigned to a department will hunt for any idle station in that department to ring.

### To Program:

1. Dial . “DEPT CALLING”
2. Select department:
  - Dial  for none. “NO DEPARTMENT”
  - Dial  for Department 1. “DEPARTMENT 1”
  - Dial  for Department 2. “DEPARTMENT 2”
  - Dial  for Department 3. “DEPARTMENT 3”
  - Dial  for Department 4. “DEPARTMENT 4”
3. Select line ports to be assigned (LED On = Assigned):
  - Line port 1–14 = Dial  or press **A1–A14**.
  - Line port 15, 16 = Dial ,  or press **B1, B2**.
  - Line port 17–24 = Dial  or press **HOLD** then press **A1–A8**.
4. Dial  for next department.
 

—OR—

  - Dial  for configuration mode.

## Station Ports for Direct Department Calling

**Description:** You can group stations by department to allow a call to search for an idle station within a department. This search occurs when a busy or RNA is encountered at a called department station. The system allows up to four departments with up to 16 stations and a minimum of three stations in each one. You can place one additional station in each department to serve as a termination station. Calls that roll to a termination station will follow a call forward if it is set at that station.

### To Program:

1. Dial . "STATION FEATURES"
  2. Dial . "DEPT CALLING"
  3. Dial  for department 1-4. "DEPARTMENT X"
  4. Select department stations:  
Station 10-57 = dial .
  5. Dial  to program next department.
  6. Dial  for termination station in department 1-4. "DEPARTMENT X"
  7. Select termination station:  
Station 10-57 = Dial .
  8. Dial  to program next department termination station.
- OR—
- Dial  for next station feature.
- OR—
- Dial  for configuration mode.



## Unanswered Call Transfer Recall Time for Direct Department Calling

**Description:** A transferred call that remains unanswered in a department after a programmed length of time will return to the transferring station for answering. Set the department transfer recall time with this programming procedure.

### To Program:

1. Dial . *“TRANSFER RECALL”*
  2. Dial . *“DEPT XFR RCL XXX”*
  3. Choose transfer time:
    - Dial  or press **A1**. *“DEPT XFR RCL 10”*
    - Dial  or press **A2**. *“DEPT XFR RCL 20”*
    - Dial  or press **A3**. *“DEPT XFR RCL 25”*
    - Dial  or press **A4**. *“DEPT XFR RCL 30”*
    - Dial  or press **A5**. *“DEPT XFR RCL 45”*
    - Dial  or press **A8**. *“DEPT XFR RCL 60”*
    - Dial  or press **A9**. *“DEPT XFR RCL 90”*
    - Dial  or press **A10**. *“DEPT XFR RCL 120”*
    - Dial  or press **A11**. *“DEPT XFR RCL 180”*
    - Dial  or press **A12**. *“DEPT XFR RCL 400”*
  4. Press  for next transfer recall feature.
- OR—
- Dial  for configuration mode.

To change setting, repeat procedure and make different selection.

## Call Forward on Ring—No Answer

The system can automatically forward ring—no answer (RNA) calls to a new station. The system sends these calls to any idle station associated by department with the called station. Use this feature to arrange for calls to cycle rapidly through such associated stations by testing each one in turn with several rings.

### **Call Forwarding of RNA Calls**

**Description:** Enable call forward of RNA calls for individual stations using this programming feature.

***NOTE:** If you enable this feature, also program the system intercom signaling as tone for the first choice.*

#### **To Program:**

1. Dial . “STATION FEATURES”
  2. Dial . “CALL FWD RNA”
  3. Dial  for 0–9 rings before forwarding. “RINGS = X”
  4. Select all station ports (LED On = Feature Assigned):  
Station 10–57 = Dial  or press **C10–C57**.
  5. Dial  for additional station ring assignments.
- OR—
- Dial  for next station feature.
- OR—
- Dial  for configuration mode.

To remove call forwarding from a station, assign 0 rings.

## Set Tone First Intercom Signaling

**Description:** You must set the first choice intercom signaling method to Tone First to ensure forwarding of calls that encounter a busy signal or ring with no answer.

### To Program:

1. Dial . “XXXXXX ANN FIRST”
2. Press **A1** to toggle from Voice to Tone (LED Off = Tone).  
—OR—  
Dial  for Tone First. “TONE ANN FIRST”
3. Dial  for Configuration mode.

To change setting, repeat procedure and make opposite selection.

## DCD Type Ring All Stations

**Description:** Enabling the system-wide ring all DCD feature causes a transferred call to ring at all idle stations in a department until it is answered. The answering station gets the call while the remaining stations retain their original status.

Default = Disabled

### To Program:

1. Press **ITCM**, dial . “CONFIG MODE”
2. Dial . “SYSTEM FEATURES”
3. Dial . “RING ALL XXX”
4. Press **A1** key to toggle between enable and disable (LED On = Enable).  
—OR—  
Dial  to Enable. “RING ALL ON”  
Dial  to Disable. “RING ALL OFF”
5. Dial  for system features.  
—OR—  
Dial  for configuration mode.

## DCD Type Longest Idle Distribution

**Description:** Enabling the system-wide longest idle DCD feature causes any call to a department to ring at the station that has been idle for the longest period of time. If the station is in DND mode, the call rings the next longest idle station.

Default = Disabled.

### To Program:

1. Press **ITCM**, dial      .      *“CONFIG MODE”*
2. Dial  .      *“SYSTEM FEATURES”*
3. Dial  .      *“LONGEST IDLE XXX”*
4. Press **A1** key to toggle between enable and disable (LED On = Enable).  
     —OR—  
     Dial  to Enable.      *“LONGEST IDLE ON”*  
     Dial  to Disable.      *“LONGEST IDLE OFF”*
5. Dial  for system features.  
     —OR—  
     Dial   for configuration mode.

## Direct Inward Station Dialing (DISD)

The DISD feature allows an external party to call an intercom station directly without assistance by the attendant. The system must receive the DISD call on a line that you have programmed to allow this feature. You can program any line to be a DISD line for both the normal mode of operation and the night transfer (of ringing) mode of operation.

You can program the number of rings that the system allows on a DISD line. If you set a large number of rings, stations that have a line appearance for the DISD line have time to handle the call in a regular manner before the system takes control of the call. If you wish to dedicate a line for DISD use, it is a good practice to set it for one ring so that the system can quickly take control of the call. By setting the number of rings to 0, you can disable the line for DISD use.

You can program the amount of time the system allows for a DISD caller to dial an extension number. You can also program the DISD assist station that will answer calls not completed during the dial time limit.

It is a good practice for you to connect a music source to the system to let callers know they have not been disconnected during a camp-on situation when the feature is controlling the call.

You should make a record in Chapter 5 of all programming decisions that you make—it will help you keep track of what you have done and will help you troubleshoot any problem that might arise later.

***NOTE:** A lighted LED next to the programming button for the selection indicates the current configuration. When a single button provides a toggle (on/off) action, the lighted LED indicates the active feature.*

The first step in any programming sequence is to enter the base level. Once in this mode, you can dial the feature code for any desired configuration. Enter the base level with the following

procedure: press **INTERCOM** then dial      . When you want to end the programming, press the **SPEAKER** button to end the programming procedure and return the system to normal operation.

## Dial Time Limit

**Description:** When a caller does not complete extension number dialing within the programmed dial time limit, the system routes a DISD call to the assist station if you have programmed one; otherwise, it drops the line.

### To Program:

1. Dial . *“DISD DIALTIME X”*
2. Press program button to select dial time limit (LED On = Enabled):
  - Dial  or press **A1** = 6 seconds. *“DISD DIALTIME 6”*
  - Dial  or press **A2** = 9 seconds. *“DISD DIALTIME 9”*
  - Dial  or press **A3** = 12 seconds. *“DISD DIALTIME 12”*
  - Dial  or press **A4** = 15 seconds. *“DISD DIALTIME 15”*
  - Dial  or press **A5** = 20 seconds. *“DISD DIALTIME 20”*
  - Dial  or press **A8** = 30 seconds. *“DISD DIALTIME 30”*
  - Dial  or press **A9** = 40 seconds. *“DISD DIALTIME 40”*
  - Dial  or press **A10** = 60 seconds. *“DISD DIALTIME 60”*
  - Dial  or press **A11** = 90 seconds. *“DISD DIALTIME 90”*
  - Dial  or press **A12** = 0 seconds. *“DISD DIALTIME 0”*
3. Dial  for configuration mode.

To change setting, repeat procedure and make different selection.

## Inhibiting DISD Digit Dialing

**Description:** You can prevent callers from dialing on the DISD line when the system is in the Night Transfer (of Ringing) mode.

**To Program:**

1. Dial  . *“SYSTEM FEATURES”*
2. Dial  . *“DISD DIALING XX”*
3. Press **A1** to toggle between enable and disable (LED On = Enable).  
—OR—  
Dial  to Enable (**A1** LED is on). *“DISD DIALING ON”*  
Dial  to disable. *“DISD DIALING OFF”*
4. Press   for configuration mode.

To change setting, repeat procedure and make different selection.

## DISD Assist Station

**Description:** When a caller does not complete extension number dialing within the programmed dial time limit, the system routes the call to the DISD assist station.

### To Program:

1. Dial . “DISD ASSIST”
  2. Choose operating mode to be programmed.
    - Dial **1** or press **A1** = Normal mode. “DISD ASSIST DAY X”
    - Dial **2** or press **A2** = Night Transfer (of Ringing) mode. “DISD ASSIST NITE”
  3. Select assist station:
    - Dial  for no DISD assist station (line drops after timeout).
    - Dial  or press **C10–C57** (LED On = Selected).
  4. Dial .
  5. Assign line ports to DISD assist station (LED On = Assigned):
    - Line port 1–14 = Dial  or press **A1–A14**.
    - Line port 15, 16 = Dial ,  or press **B1, B2**.
    - Line port 17–24 = Dial  or press **HOLD** then press **A1–A8**.
  6. Press  and repeat steps 2 and 3 for further assist station programming.
- OR—
- Press  for configuration mode.

To change setting, repeat procedure and make different selection.



## DISD Incoming Rings

**Description:** The number of rings that occur on a DISD line before it is answered is programmable. Setting a large number of rings allows time for a call to be serviced in a regular manner by stations that have line appearance for the DISD line if such action is desired.

### To Program:

1. Dial . “DISD RINGS”
  2. Press program button to choose operating mode:
    - Dial **1** or press **A1** = Normal Mode. “DISD RINGS DAY X”
    - Dial **2** or press **A2** = Night Transfer (of Ringing) Mode. “DISD RINGS NITE X”
  3. Select rings to occur before line is answered:
    - Dial  for no rings (disables DISD for the line).
    - Dial  = rings 1-9.
  4. Dial .
  5. Assign line ports to have designated ring (LED On = Assigned):
    - Line port 1-14 = Dial  or press **A1-A14**.
    - Line port 15, 16 = Dial ,  or press **B1, B2**.
    - Line port 17-24 = Dial  or press **HOLD** then press **A1-A8**.
  6. Press  and repeat steps 2 and 3 for further DISD ring assignment.
- OR—
- Press  for configuration mode.

To change setting, repeat procedure and make different selection.

## Enable/Disable Call Waiting Tone

**Description:** The call waiting tone sent to the called party can be enabled or disabled.

**To Program:**

1. Dial  for system features.                   “*SYSTEM FEATURES*”
2. Dial  for DISD call waiting tone.                   “*DISD CALL WAIT*”
3. Press **A1** key to toggle between enable and disable:  
—OR—  
Dial  to Enable.   “*CALL WAITING TONES ON*”  
Dial  to Disable.   “*CALL WAITING TONES OFF*”
4. Dial  for further system features.  
—OR—  
Dial  for configuration mode.

## Data Printer Service

When you connect a data printer to the system, the system automatically prints the Station Message Detail Record (SMDR) for the entire system without any programming or user intervention.

You can also command the data printer to print partial or complete printouts of the configuration data for the system. While you are using the printer to print the configuration data or SMDA information, the system temporarily halts the SMDR printout although it continues to collect the SMDR data. You should note, however, that if it logs more than two calls for any one line, call records may be lost.

***NOTE:** A lighted LED next to the programming button for the selection indicates the current configuration. When a single button provides a toggle (on/off) action, the lighted LED indicates the active feature.*

The first step in any programming sequence is to enter the base level. Once in this mode, you can dial the feature code for any desired configuration. Enter the base level with the following procedure: press **INTERCOM** then dial **\*#746\***. When you want to end the programming, press the **SPEAKER** button to end the programming procedure and return the system to normal operation.

### Enable Data Printer Operation

#### To Program:

1. Dial **91**. *“PRINT CONFIG”*
2. Choose configuration:
  - Dial **1** to print all configuration data. *“PRINT ALL”*
  - Dial **2** to print system data. *“PRINT SYSTEM”*
  - Dial **3** to print line data. *“PRINT LINES”*
  - Dial **4** to print data for all stations. *“PRINT STATIONS”*
  - Dial **5** to print data for selected station. *“PRINT STA”*

Select station to be printed:

  - Dial **10-57** for stations 10-57. *“PRINT STA XXX”*
  - Dial **6** to print toll restriction assignment. *“PRINT TOLL”*
  - Dial **7** to abort printing. *“ABORT PRINT”*
3. Dial **\*** for configuration mode.

## Voice Mail Interface

The digital telephone system supports the use of a voice mail system connected to the common equipment's station ports through the JM008 expansion module or the ATI-D analog terminal interface device. The JM008 is an industry standard telephone station module that supplies eight IST ports. The ATI-D is a multipurpose *on-premise* accessory that has dual circuits to allow a 2-port system to interface to two digital station ports. Two ATI-D devices are needed to interface 4-port systems.

In addition to the required programming task of identifying the station ports, there are several optional programming considerations associated with voice mail operation.

You should make a record in Chapter 5 of all programming decisions that you make—it will help you keep track of what you have done and will help you troubleshoot.

**NOTE:** A lighted LED next to the programming button for the selection indicates the current configuration. When a single button provides a toggle (on/off) action, the lighted LED indicates the active feature.

The first step in any programming sequence is to enter the base level. Once in this mode, you can dial the feature code for any desired configuration. Enter the base level with the following procedure: press **INTERCOM** then dial      . When you want to end the programming, press the **SPEAKER** button to end the programming procedure and return the system to normal operation.

**NOTE:** Some features only apply to specific Comdial voice mail systems (that is, ExecuMail or VVP). If you are using a different voice mail system, you may have to perform additional programming steps to make these features operational.

## Voice Mail Port

### **Assign the Voice Mail Port**

**Description:** When you connect the voice mail equipment to a common equipment station port either through an IST interface or directly to the port (depending upon the type of voice mail equipment you are using), you must use this *assign voice mail port* feature to enable the station port as a voice mail port. This feature only applies to voice mail systems supported by Comdial's proprietary DTMF integration. Once you perform this step, the station port will only emit DTMF tones (it will not emit INTERCOM tones or ring-back tones).

***NOTE:** When you are interfacing voice mail equipment through an ATI-D device and you later replace the ATI-D with a proprietary digital multiline telephone, the system automatically disables the port as a voice mail port; however, if you disconnect the voice mail equipment from the ATI-D and replace it with a model 2500 telephone, you must reprogram the station port so that it is no longer programmed as a voice mail port.*

#### **To Program:**

1. Dial  . "STATION FEATURES"
2. Dial  . "VOICE MAIL PORT"
3. Select all station ports (LED On = Selected):  
Station 10-57 = Dial   -   or press **C10-C57**.
4. Dial  for next feature.  
—OR—  
Dial   for configuration mode.

## Assign Ringing for Automatic Attendant Operation

**Description:** With its automatic attendant feature, the voice mail system automatically answers any line that is ringing at a voice mail port. As a default, the system automatically enables ringing line preference for any port that you have identified as a voice mail port. You must choose a ringing assignment for the lines that you have assigned to the voice mail ports before the voice mail system can provide the automatic attendant feature.

### To Program:

1. Dial **54**. *“LINE CONFIG”*
2. Dial **1**. *“DIRECT RING”*
- OR—
- Dial **2**. *“DELAY RING”*
- OR—
- Dial **3**. *“NIGHT RING”*
  
3. Select line ports for direct ringing:
  - Line port 1–14 = Dial **01-14** or press **A1–A14**.
  - Line port 15, 16 = Dial **15, 16** or press **B1, B2**.
  - Line port 17–24 = Dial **17-24** or press **HOLD** then press **A1–A8**.
4. Dial **#** when all line ports are selected.
5. Select voice mail ports to be programmed (LED On = Selected)
  - Station 12-57 = Dial **12-57** or press **C12–C57**.
6. Dial **\*** when all station ports are selected
- OR—
- Dial **\*\*** for configuration mode.

To change setting, repeat procedure and make different selection. To clear current setting, repeat procedure.

## Assign the Voice Mail Stations to Hunt Group

**Description:** You must assign all voice mail ports to a circular hunt group to take advantage of that feature's multiple-port interface capability. Make a circular hunt group by linking all voice mail ports to one another and then linking the last voice mail port in the hunt group with the first voice mail port in the hunt group. For example, with the voice mail system properly connected to station ports 014, 015, 016, and 017, place port 014 in a hunt group and link 015 in a hunt group and line 016 to it, then place 016 in a hunt group and link 017 to it, and finally place 017 in a hunt group and link 014 to it to complete the circle. With this arrangement, a call will first try to ring at port 014, then try port 015 and so forth until it tries all four voice mail ports.

To make this hunt group completely functional, you must also assign call forwarding for both ring—no answer and busy calls to the voice mail ports.

### To assign voice mail ports to a hunt group,

1. Dial . “STATION FEATURES”
2. Dial . “HUNT LINK”
3. Select first voice mail port:  
Station 12-57 = Dial  or press **C12-C57**.
4. Select second voice mail port:  
Station 12-57 = Dial  or press **C12-C57**.
5. Dial  for another link:  
(Example: 16 to 17, 17 to 18, and 18 to 16)  
—OR—  
Dial  for next station feature.  
—OR—  
Dial  for configuration mode.

Disable link by repeating procedure and linking station to itself.

**To enable call forward of RNA calls, busy calls, and to set tone first intercom signaling,**

1. Dial **53**. “STATION FEATURES”
2. Dial **21**. “CALL FWD RNA”
3. Dial **0-9** for 0-9 rings before forwarding. “RINGS = X”

To remove call forwarding from a station, assign 0 rings.

4. Select station ports (LED On = Feature Assigned):  
Station 12-57 = Dial **12-57** or press **C12-C57**.
5. Dial **\* \*** for station feature.
6. Dial **41**. “CALL FWD BUSY”
7. Select station ports (LED On = Feature Assigned):  
Station 12-57 = Dial **12-57** or press **C12-C57**.
8. Dial **\* \*** for configuration mode.

**Automatic Transfer of Voice Mail**

**Description:** Use this programming feature to arrange for an immediate connection of a transferred line from voice mail to a digital station port.

**To Program:**

1. Dial **25**. “V MAIL AUTO XFER”
2. Press **A1** key to toggle between enable and disable (LED On = Enable).  
—OR—  
Dial **1** to Enable (**A1** LED is on).  
Dial **2** to Disable.
4. Dial **\*** for configuration mode.

To change setting, repeat procedure and make different selection.

**NOTE:** Do not turn on this feature if you turn on the screen and/or confirm options provided by the voice mail system. These two options provide an immediate transfer that will prevent the voice mail system from providing any screen or confirm action.



## Voice Mail Line ID

**Description:** You can assign voice mail identification (ID) numbers to the voice mail lines. A voice mail ID number can contain a maximum of six digits. A voice mail ID number allows the voice mail equipment to identify which line it is answering and play the appropriate greeting. The ID numbers that you assign here must match the ID numbers that you assign when you program the voice mail equipment.

### To Program:

1. Dial . “VOICE MAIL LN ID”
  2. Select line port (LED On = Line Assigned):
    - Line port 1–14 = Dial  or press **A1–A14**.
    - Line port 15, 16 = Dial ,  or press **B1, B2**.
    - Line port 17–24 = Dial  or press **HOLD** then press **A1–A8**.
  3. Dial  to clear current ID.
  4. Dial ID number (6 digit maximum).
  5. Dial  for further ID assignment.
- OR—
- Dial  for configuration mode.

## Voice Mail Transfer on Busy

**Description:** Normally, the auto-attendant routes calls from a busy station to that station's voice mailbox. Alternately, you can arrange for the system to alert the busy station when the voice mail system is attempting to transfer a call. You may need to program the attendant station to have this option.

### To Program:

1. Dial . “STATION FEATURES”
  2. Dial . “VMail XFR ON BSY”
  3. Select station ports to be programmed (LED On = Selected):
    - Station 10–57 = Dial  or press **C10–C57**.
  4. Dial  for next feature.
- OR—
- Dial  for configuration mode.

To clear current setting, repeat procedure.

## Transferring Callers to Voice Mail

**Description:** You can program a **Transfer to Voice Mail** button to automate the process of transferring a caller to a voice mailbox. Use this button in conjunction with a DSS or a voice mailbox extension.

### To Program:

1. Press **INTERCOM**   .
2. Press the button to which you wish to assign this feature.
3. Press  followed by the first voice mail port station number.
4. Press **SPEAKER** to exit.

***NOTE:** The same button is used for both the **Transfer to Voice Mail** and **Voice Memo** features.*

## Send Message Direct to Voice Mail

**Description:** You can program a **Voice Memo** button for sending a message directly to a user's mailbox. Press this button and then a DSS button, or dial the user's extension to leave a voice message in the user's mailbox.

### To Program:

1. Press **INTERCOM**   .
2. Press the button to which you wish to assign this feature.
3. Dial .
4. Press **SPEAKER** to exit.

## Recording a Conversation in Progress

**Description:** A user can press the **Record** button to record a conversation while on a line call. This button has the same functionality as the interactive buttons offered on the LCD during a line call. The **Record** button is useful for ACD agents since their LCDs display ACD information when they are logged into an ACD group. Pressing the **Record** button starts and stops the record feature while on a call.

### To Program:

1. Press **INTERCOM**   .
2. Press the button to which you wish to assign the Record feature.
3. Dial  .
4. Press **SPEAKER** to exit.

## Positive Disconnect Supervision

**Description:** When a voice mail station is on line with an outside caller and the caller hangs up, the CO may send a positive disconnect signal to the DSU II. You can enable the positive disconnect supervision feature on a per-line basis. If you enable positive disconnect supervision, when the system receives the CO's positive disconnect signal the system tells the voice mail equipment to hang up.

### To Program:

1. Dial . “DIS SUPERVISION”
2. Select line ports for disconnect supervision (LED On = Lines selected to receive tables):  
Line port 1-14 = Dial  or press **A1-A14**.  
Line port 15, 16 = Dial ,  or press **B1, B2**.  
Line port 17-24 = Dial  or press **HOLD** then press **A1-A8**.
3. Dial  for configuration mode.

## Voice Mail Pause

**Description:** Some voice mail systems allow you to program a pause before they dial an extension number. You can program the digital telephone system to pause before receiving digits from a voice mail system. This capability allows the digital telephone system to match the voice mail system's pause. If the voice mail system does not pause before dialing an extension number, you must disable the fixed one second pause in the digital telephone system.

### To Program:

1. Press **ITCM** \*#746\*.  
"CONFIG MODE"
2. Dial 17.  
"SYSTEM FEATURES"
3. Dial 13.  
"VM PAUSE XXX"
4. Press **A1** to toggle between VM Pause On and VM Pause Off (LED On = Pause On).  
—OR—  
Dial **1**.  
"VM PAUSE ON"  
Dial **2**.  
"VM PAUSE OFF"
7. Dial \* for further system features.  
—OR—  
Dial \*\* for configuration mode.

## Versatile Voice Processing

The digital telephone system supports the Versatile Voice Processing (VVP) voice mail system. In addition to the programming requirements detailed in the *Voice Mail Interface* section beginning on page 240, the following sections detail specific procedures for programming the system to support the VVP voice processing system.

### Using the Tracker Paging System with VVP

**Description:** The Tracker is available for use with the DSU II digital telephone system. To make effective use of a Tracker paging system used in conjunction with the VVP voice mail system, program two mailboxes for each person using a Tracker. The second mailbox will be used to park the caller and track the called person. When a caller decides to *Press 3 for other options*, VVP will place the call in a Park Orbit while paging the called party.

**NOTE:** *If the VVP system includes the Visual Voice Mail option, you cannot use Tracker and VVM at the same time since they both use the COM 1 serial data port.*

### **Standard Mailbox**

#### **To Program:**

1. Leave the Pager Number field blank.
2. Set the Pager Type to Name.
3. In the *If caller chooses other options* field, select *Go to box*.
4. In the Box field enter a box number that is defined as a paging box.

### **Paging Mailbox**

#### **To Program:**

**Set the following parameters for the paging mailbox.**

1. Define this box number so that the system can link it to the person's regular mailbox but do not choose a number that is another extension or mailbox. For example, precede the mailbox number with a **7** for all pager boxes.
2. Select *Blind Transfer Type*.
3. Enter **\*01** plus the actual mailbox number for *Transfer To*.
4. Record a name for this box such as, *Tracker for Joe Smith* or *Paging Joe Smith*.

## Using Tracker for Message Notification

**Description:** You can program the Tracker to notify mailbox users when they have new messages.

**To Program:**

- In the *Message Delivery* field for all mailbox owners with a Tracker, enter the following code: **,\*01,X**.

## Transferring Callers to Voice Mail

**Description:** You can program a *Transfer to Voice Mail* button to automate the process of transferring a caller to a mailbox. Use this button in conjunction with a DSS or a mailbox extension number followed by a **2**.

**To Program:**

1. Press **INTERCOM**   .
2. Press the button to which you wish to assign this feature.
3. Press  followed by the first voice mail port station number.
4. Press **SPEAKER** to exit.

## Auto Station Logon

**Description:** You can program a button to automatically connect a mailbox owner to his or her mailbox.

**To Program:**

1. Press **INTERCOM**   .
2. Press the button to which you wish to assign this feature.
3. Press **INTERCOM**.
4. Press .
5. Enter the mailbox number.
6. Press **SPEAKER** to exit.

The Auto Station Logon button will take the mailbox owner to the mailbox password prompt. The following entries must be added to the TRANS.TXT file for this feature to work properly:

**9#XX=#,,,,,XX**

**#XX=#,,,,,XX**

## Visual Voice Mail Support

**Description:** Visual Voice Mail (VVM) support provides proprietary, two-line display LCD speakerphone stations with visual messages and interactive buttons. This message and button functionality enhances the station's use with VVP voice mail equipment.

**NOTE:** *If the VVP system includes the Visual Voice Mail option, you cannot use Tracker and VVM at the same time since they both use the COM 1 serial data port.*

### To Program:

1. Dial  . “SYSTEM FEATURES”
2. Dial  . “VVM XXXXXXXX”
3. Press **A1** key to toggle between enable and disable.
  - OR—
  - Dial  to Enable. “VVM ENABLED”
  - Dial  to Disable. “VVM DISABLED”
4. Dial  for system features.
  - OR—
  - Dial   for configuration mode.

## Integrated Call Costing

Call costing provides a means of establishing costing that the system can apply to outside calls made from system telephones. Call costing computes charges for a call after it is completed. It does not restrict dialing as toll restriction does. The system provides several ways of establishing call costing that are as follows:

- exception tables for local and long distance calls,
- office code band tables for local calls,
- zone call band tables for long distance calls,
- area code band tables for long distance calls,
- call rate tables for local and long distance calls.

With this range of costing methods, it is possible to apply reasonable rates for the entire country. The system applies call costing to a dialed number as described below. Refer to *Call Costing Flow Diagram Examples* on page 253.

You should make a record in Chapter 5 of all programming decisions that you make—it will help you keep track of what you have done and will help you troubleshoot any problem that might arise later.

**NOTE:** A lighted LED next to the programming button for the selection indicates the current configuration. When a single button provides a toggle (on/off) action, the lighted LED indicates the active feature.

The first step in any programming sequence is to enter the base level. Once in this mode, you can dial the feature code for any desired configuration. Enter the base level with the following procedure: press **INTERCOM** then dial      . When you are done, press the **SPEAKER** button to end the programming procedure and return the system to normal operation.



## **Call Costing Flow Diagram Examples**

### **Example A: Local Dialing Sequence (201-nnn)**

For this example, assume that you have installed the digital telephone system in a location where callers have an opportunity to dial number combinations that contain a common sequence in both the area and office code.

This illustrated sequence is a local (less than 10 digits) and 201 is the office code. Program call rate 18 to cost calls of this sequence. Also program the office code band table by assigning office code 201 into band one. Note that the band tables accept unlimited entries.

### **Example B: Long Distance with Office Code Dialing Sequence (1-201-201-nnnn)**

The illustrated sequence is a long distance call (more than 10 digits) with 201 as both the area code and the office code. Program call rate table 25 to cost calls of this sequence. Also, program the zone call band table by adding office code 201 to area code 201 in band one. Add any other office codes (for example 478) to area code 201 in band one as required.

### **Example C: Long Distance Dialing Sequence (1-201-nnn-nnnn)**

This illustrated sequence is a long distance call (more than 10 digits) with 201 as the area code. Program call rate table 11 to cost calls in this sequence. Also, program the area code band table by adding area code 201 to band one.

### **Example D: Exception Dialing Sequence (nnn-nnnn, 1-nnn-nnnn)**

Program call rate table one to cost calls that do not match any other programmed call rate table.

**Typical SMDR Call Report for the Call Costing Examples**

10	1	8/28/00	16:05	0.9	2014567	\$0.50	(See Note 1)
10	1	8/28/00	16:06	1.8	12017894567	\$1.35	(See Note 3)
10	1	8/28/00	16:08	1.5	12014785693	\$1.12	(See Note 3)
10	1	8/28/00	16:11	1.5	2012014563	\$2.50	(See Note 2)
10	1	8/28/00	16:12	0.5	5551212	\$1.00	(See Note 4)
10	1	8/28/00	16:13	1.1	2012013	\$0.50	(See Note 1)

Note 1: Costed by rate table 18

Note 2: Costed by rate table 25

Note 3: Costed by rate table 11

Note 4: Costed by rate table 1

**Typical SMDA Call Report for the Call Costing Examples**

Station Report for Extension - 10

Date : 8/28/00      Time : 16:15

Date	Time	Station	Account	Length	Cost	I/O	Ring	Line	Number
8/28	16:05	10		0.9	\$0.50	0		1	2014567
8/28	16:06	10		1.8	\$1.35	0		1	12017894567
8/28	16:08	10		1.5	\$1.12	0		1	12014785693
8/28	16:11	10		1.5	\$2.50	0		1	2012014563
8/28	16:12	10		0.5	\$1.00	0		1	5551212
8/28	16:13	10		1.1	\$0.50	0		1	2012013
<b>Totals:</b>				5.8	\$6.97			<b>Incoming</b>	<b>0</b>
<b>Averages:</b>				0.9	\$1.16			<b>Outgoing</b>	<b>6</b>
								<b>Total Calls</b>	<b>6</b>

## Exception Tables (Local Calls and Long Distance Calls)

**Description:** The system compares all calls to entries in four exception tables (one entry per table.) These tables provide the first priority level of costing. The system searches these tables on a first-match basis. This means that the first programmed entry that matches the call is the one that the system uses. It does not make a search for the best possible match. The system costs the matched calls using the rates that you program into the call rate tables that you assign to the exception tables. You can provide very specific exceptions to a bracket of calls, similar to the following example.

**Example:** With all calls to area code 804 costed at a particular rate, make an exception for 804-555-1212 by programming exception table 1 with that number. Since exception table entries are the highest priority, the values in the call rate table assigned to exception table 1 are applied to all calls made to the 804-555-1212 number.

### To Program:

1. Dial . “EXCEPTION TBL”
2. Dial  for entry 1-4. “ENTRY X”
3. Dial  to assign the call rate table. “CALL COST TBL XX”
4. Dial  for call rate table number.
5. Dial .
6. Dial  to assign matching digits. “XXXXXXXXXXXXXXXXXXXX”
7. Dial  to clear current entry.
8. Dial matching digits, 16 digits maximum.  
# = match anything. “XXXXXXXXXXXXXXXXXXXX”
9. Dial  for next entry, and repeat steps 2-9 until you have make all entries.

—OR—

Dial  for configuration mode.

To change setting, repeat procedure and make different selection.

## Office Code Band Tables (Local Calls)

**Description:** Use office code band tables to cost calls made to different prefixes within a single area code. The system measures the number of dialed digits in calls that do not match exception tables. It compares calls with numbers that have less than 10 digits (local calls) to entries that you have made in office code banding tables. Office code band tables are the second priority level of costing for local calls. They provide a means for you to assign local office codes into different bands and apply a separate call costing rate table to each band. Bands 1–7 are associated with call rate tables 18–24 respectively.

**Example:** A telephone company exchange consists of office codes 976, 977, and 978. Office code 976 is assigned to an outlying area while office codes 977 and 978 are assigned to the heart of the city. Assign 977 and 978 to one office code band table and 976 to another one. Program a special call costing rate for each banding table. Then, the system costs the calls that users make to 976-nnnn at a different rate than it costs the calls that users make to 977-nnnn or 978-nnnn.

### To Program:

1. Dial . “SMDA PROGRAMMING”
2. Dial . “COSTING BANDS”
3. Dial . “OFFICE CODE BANDS”
4. Dial . “NO BAND”
- OR—
- Dial  for bands 1–7. “BAND X”
5. Dial  to assign office code.
6. Dial  and repeat step 5 for additional codes.
7. Dial  and repeat steps 4–6 to program next band.
- OR—
- Dial  for next SMDA feature.
- OR—
- Dial  for configuration mode.

To change setting, repeat procedure and make different selection.

## Zone Call Band Tables (Long Distance Calls)

**Description:** In certain heavily populated geographic areas, different area codes exist within the same geographic distance (zone) from the calling location. In these cases, use zone call band tables to cost calls based upon the zone, or geographic distance, from the calling location.

The system measures all calls that do not match exception tables for the number of digits that the user dials. It then compares those calls with numbers that have 10 digits or more (long distance calls) to entries that you make in the zone call band tables. Zone call band tables are the second priority level of costing for long distance calls. They assign office codes and corresponding area code into different zones and apply a separate call costing rate table to each zone. Zone call band tables 1-4 are associated with call rate tables 25-28. A call must match both the office code and area code of an entry before the system costs it by a zone call band table.

**Example:** Zone 1 contains area code 203 with office codes 445 and 456. It also contains area code 412 with office code 508. Zone 2 contains area code 203 with office code 545. Zone 2 also contains area code 412 with office code 654. Zone 1 is costed at one rate and zone 2 is costed at another rate. A call made to 1-203-445-nnnn, 1-203-445-nnnn, or 1-412-508-nnnn is costed at a different rate than a call made to 1-203-545-nnnn or 1-412-654-nnnn.

### To Program:

1. Dial . “SMDA PROGRAMMING”
2. Dial . “COSTING BANDS”
3. Dial . “ZONE BANDS”
4. Dial . “NO ZONE”
- OR—
- Dial  for zones 1-4. “ZONE X”
5. Dial  to assign an area code.
6. Dial  and repeat step 5 for additional code.
7. Dial  to assign an office code.
8. Dial  and repeat step 7 for another office code.
9. Dial  and repeat steps 3-8 to add another area code to same zone or to program next zone.
- OR—
- Dial  for next SMDA feature.
- OR—
- Dial  for configuration mode.

To change setting, repeat procedure and make different selection.

## Area Code Band Table (Long Distance Calls)

**Description:** The system compares the long distance calls that do not match entries in zone call band tables to entries that you have made in area code band tables. Area code band tables are the third priority level of costing for long distance calls. Area code band tables 1–7 are associated with call rate costing tables 11–17. Use area code band tables to cost calls based upon the area code of the called number. Assign any or all area codes nnn (200–999) to one of seven different bands. Group area codes into bands based on frequently called areas, distance from the caller, or any other desired category.

**Example:** Assign area codes 703 and 804 to area code band table 1. Assign area code 415 to area code band table 7. Calls made to numbers such as 1-703-*nnn-nnnn* and 1-804-*nnn-nnnn* are costed with values assigned to call rate table 11. Calls made to numbers such as 1-415-*nnn-nnnn* are costed with values assigned to call rate table 17.

1. Dial . “SMDA PROGRAMMING”
  2. Dial . “COSTING BANDS”
  3. Dial . “AREA CODE BANDS”
  4. Dial . “NO BAND”
- OR—
- Dial  for bands 1–7. “BAND X”
5. Dial  to assign area code.
  6. Dial  and repeat step 5 for additional code.
  7. Dial  and repeat steps 3–6 to program next band.
- OR—
- Dial  for next SMDA feature.
- OR—
- Dial  for configuration mode.

To change setting, repeat procedure and make different selection.

## **Call Rate Tables (Local and Long Distance Calls)**

**Description:** The system compares local calls and long distance calls that do not match entries in any exception table, office code band table, zone call band table or area code band table with the entries that you have made in call rate tables 2-10 and 29-33. It then costs those calls with the rates assigned to the call rate tables with entries that match the dialed numbers.

Costing by call rate table is the third priority level of costing for local calls and the fourth priority level of costing for long distance calls. You can use the call rate tables to cost any calls that require special or extraordinary rates such as 1-800-555-1212 or 1-900-976-nnnn.

When you make entries to the call rate tables, enter digits that match digits in the numbers that users dial from their stations. You can program a maximum of 16 digits into each call rate table. Since a dialed number must match all of the digits that you have entered into a table before the system recognizes a match, you can program # characters into a table in place of specific digits to serve as "match anything" digits. This feature eliminates the need for entering every number as a series of numbers that you wish to cost at a special rate (for instance, 1900#####).

If the system cannot match a dialed number with entries that you have made in the call rate tables, it costs that call with the rate that you have assigned to call rate table 1 (the table of last resort for costing all calls).

- Office Code Band Tables = Call Rate Tables 18-24
- Zone Call Band Tables = Call Rate Tables 25-28
- Area Code Band Tables = Call Rate Tables 11-17

<b>Call Rate Table Programming Example</b>	
Program Step 2	Call Rate Table = 33
Program Step 5	Entry Number = 190097625255
Program Step 7	Tier 1 Time = 30 (30 minutes)
Program Step 9	Tier 1 Rate = 120 (\$1.20)
Program Step 11	Tier 2 Rate = 75 (\$.75)
Program Step 13	Surcharge = 50 (\$.50)

**To Program:**

1. Dial “CALL COST TBL”
2. Dial table number (). “CALL COST TBL XX”
3. Dial  to enter matching digits. “XXXXXXXX”

**NOTE:** Call Cost Table 1 will not accept matching digits.

4. Dial  to clear previous digits.
5. Dial matching digits for costed number.  
16 digits maximum, # = match anything. “XXXXXXXX”
6. Dial  to end matching digits.

**NOTE:** Dialing a  or a  as an entry in steps 7, 9, 11, and 13 will clear the current entry for those steps.

7. Dial  then dial  for Tier 1 “TIER 1 TIME XX”  
time in tenths of minutes.
8. Dial .
9. Dial  then dial  for Tier 1 “TIER 1 RATE XXX”  
rate in cents.
10. Dial .
11. Dial  then dial  for Tier 2 “TIER 2 RATE XXX”  
rate in cents.
12. Dial .
13. Dial  then dial  for surcharge “SURCHARGE XXX”  
rate in cents.
14. Dial  to program next call cost table and repeat steps 2–13 until all tables are entered.

—OR—

Dial  for configuration mode.

To change setting, repeat procedure and make different selection.



## Discard Digits

**Description:** When the digital telephone system is installed behind a host system such as a PBX or CENTREX, users must dial access codes before obtaining an outside line dial tone. To ensure that the system costs a call on just the actual telephone number that the user dials, you should arrange for the system to ignore these access codes. You can program up to six different access code entries with up to eight digits per entry.

**Example:** If the system is installed behind a PBX using a 9 as an outside line access code, program a 9 as the discard digit. When a number such as 9-555-1212 is dialed, the 9 is discarded and the call is costed based on 555-1212.

### To Program:

1. Dial  . “SMDA PROGRAMMING”
2. Dial  . “COSTING BANDS”
3. Dial . “DISCARD DIGITS”
4. Dial - to select entry 1-6. “ENTRY X”
5. Dial  for no discard digits.

—OR—

Dial up to eight discard digits and then dial . “XXXXXXXX ”

6. Dial  and repeat steps 4-5 to program next discard digit entry

—OR—

Dial   for next SMDA feature.

—OR—

Dial    for configuration mode.

To change setting, repeat procedure and make different selection.

## Dialing Time and Answer Time

### **Dial Time Limit**

**Description:** The system does not include dialing time when it records the time of a call for costing. You can program the amount of time that the system ignores for dialing purposes.

#### **To Program:**

1. Dial . “SMDA PROGRAMMING”
  2. Dial . “DIAL TIME XXX ”
  3. Dial time in tenths of a minute (  
or dial  to clear). “XXXX ”
  4. Dial  for next SMDA feature
- OR—
- Dial  for configuration mode.

To change setting, repeat procedure and make different selection.

### **Answer Time Limit**

**Description:** You can program the system to wait for a period of time before beginning to record costs for a call. This answer time allows a call to ring and be answered by the called party before the system costs it.

#### **To Program:**

1. Dial . “SMDA PROGRAMMING”
  2. Dial . “ANSWER TIME XXX ”
  3. Dial time in tenths of a minute (  
or dial  to clear). “XXX ”
  4. Dial  for next SMDA feature.
- OR—
- Dial  for configuration mode.

To change setting, repeat procedure and make different selection.

## LCD Speakerphone Display of Costed Calls

**Description:** When you arrange the digital telephone system to cost the calls, you should also arrange for the LCD speakerphones being employed with the system to display the cost of each call the user makes from that station.

**To Program:**

1. Dial . “STATION FEATURES”
2. Dial . “LCD CALL COST”
3. Select station ports for programming:  
Station 10-57 = Dial  or press **C10-C57**.
4. Dial  for next station feature.

—OR—

Dial  for configuration mode.

To clear current setting, repeat procedure.

## Specialized Route Access (SRA)

The SRA feature allows the system to select a line group based on the digits the user has dialed. By doing this, it matches calls with their ideal routes. The feature provides a table-driven routing scheme where the numbers the users dial cause the system to choose a line group after comparing the dialed number with entries in an office code table and area code table, or four special area code tables.

You should make a record in Chapter 5 of all programming decisions that you make—it will help you keep track of what you have done and will help you troubleshoot any problem that might arise later.

### **CAUTION**

*You can only program the SRA feature from the VDT and not from station 10.*

Line group dialing codes 81, 82, and 83 do not provide access to the SRA feature, but they could provide a means of bypassing SRA, allowing users access to line groups outside of the specialized routing process. To ensure that the system routes all calls through SRA, use the feature inhibit programming procedure described in *Voice Mail Interface* on page 240 to inhibit dialing codes 81, 82, and 83.

The first step in the VDT programming sequence is to enter password. Do this by typing **I\*746\***. Once in the programming mode, type a selection number from the main menu and follow the screen prompts to complete your programming requirements.

### Enable the SRA Feature

**Description:** When you enable the SRA feature, you must clear all assigned prime line, idle line preference, and direct line appearance to inhibit all direct-line access for the system stations, and you must assign lines to the line groups the system will use.

#### **To Program:**

1. Type **I\*746\*** and press **RETURN**.
2. From the main menu, type **1** and press **RETURN** for system COS menu.
3. From the system COS menu, type **16** for specialized access menu and press **RETURN**.
4. From specialized route access menu, type **1** for SRA feature and press **RETURN**.
5. Type **1** to enable or type **0** to disable SRA feature and press **RETURN**.
6. To return to the main menu, press and hold **CTRL** and type **C**.

## **Enable SRA Office Code and Area Code Tables**

**Description:** The office code table matches a dialed office code with one of the office codes that you have entered in the table, and routes the call over the line group that you have entered for that office code. The area code table matches a dialed area code with one of the area codes that you have entered in the table, and routes the call over the line group that you have entered for that area code.

***NOTE:** When programming the tables, note that all table entries are defaulted to line group 1; therefore, to minimize programming effort, assign area/office codes with the fewest entries to line groups 2 through 4. For example, if you are entering area codes 200 through 299 and codes 200 through 209 requires one line group while codes 210 through 299 require another line group, leave line group 1 assigned to the larger quantity of entries that require the most programming effort (210-299) and reprogram the line group for the smaller quantity of entries.*

### **Office Code Table**

#### **To Program:**

1. Type **I\*746\*** and press **RETURN**.
2. From the main menu, type **1** and press **RETURN** for system COS menu.
3. From the system COS menu, type **16** for specialized access menu and press **RETURN**.
4. From specialized route access menu, type **2** for office code table menu and press **RETURN**.
5. Type **1-4** for line group to match office codes and press **RETURN**.
6. Type office code(s) for routing over programmed group number and press **RETURN**.

(Type nnn or nnn.nnn.nnn.nnn for one code or several codes)

—OR—

Type **ALL** to assign every office code from 000 through 999.

7. To return to the main menu, press and hold **CTRL** and type **C**.

## Area Code Table

### To Program:

1. Type **I\*746\*** and press **RETURN**.
2. From the main menu, type **1** and press **RETURN** for system COS menu.
3. From the system COS menu, type **16** for specialized access menu and press **RETURN**.
4. From specialized route access menu, type **3** for area code table menu and press **RETURN**.
5. Type **1-4** for line group to match area codes and press **RETURN**.
6. Type area code(s) for routing over programmed group number and press **RETURN**.

(Type nnn or nnn.nnn.nnn.nnn for one code or several codes)

—OR—

Type **ALL** to assign every area code from 000 through 999.

7. To return to the main menu, press and hold **CTRL** and type **C**.

## Enable Special SRA Area Code Tables

**Description:** The four special area code tables must first match a dialed area code and then match the dialed office code with office code entries in the matched table. With a complete match found, the system routes the call over the line group that you have assigned to the matched office code in the matched special area code table.

***NOTE:** When programming the special area code tables, note that all office code entries are defaulted to line group 1; therefore, to minimize programming effort, assign those codes with the fewest entries to line groups 2 through 4. For example: if you are programming for code entries 200 through 299, and codes 200 through 209 require one line group while codes 210 through 299 require another line group, leave line group 1 assigned to the larger quantity of entries that require the most programming effort (210-299) and reprogram the line group for the smaller quantity of entries.*

## Assigning the Special Area Codes

### To Program:

1. Type **I\*746\*** and press **RETURN**.
2. From the main menu, type **1** and press **RETURN** for system COS menu.
3. From the system COS menu, type **16** for specialized access menu and press **RETURN**.
4. From specialized route access menu, type **6** to assign area code to special table and press **RETURN**.
5. Type **1-4** to choose special table 1-4 and press **RETURN**.
6. Type specific area code for table and press **RETURN**.
7. Repeat steps 4 and 5 for each remaining special table and press **RETURN**.
8. To clear the special area code tables, if needed:
  - Type **7** and press **RETURN**.
  - Type **1-4** for table 1-4.
  - Press **RETURN**, and repeat as necessary.
9. Return to the system COS menu.

## Assigning Line groups to the Special Office Code Entries

### To Program:

1. From the system COS menu, type **16** for specialized access menu and press **RETURN**.
2. From specialized route access menu, type **4** for special area code table menu and press **RETURN**.
3. Type **1-4** for special table 1-4 and press **RETURN**.
4. Type **1-4** to choose line group 1-4 and press **RETURN**.
5. Type all office code(s) that require call routing over line group that you set in step 4, and press **RETURN**.

(Type nnn or nnn.nnn.nnn.nnn for one code or several codes.)

—OR—

Type **ALL** to assign every office code from 000 through 999.

6. Type **4** and repeat steps 3 through 5 to add additional line groups to office codes in the same table or to program the next special area code table.
7. To return to the main menu, press and hold **CTRL** and type **C**.

## Insert Digits for SRA

**Description:** You may program the system, on a per-line group basis, to insert up to 8 digits before a dialed number. This feature is useful if the dialed number must match a specific format for the group being used. You may insert numbers **0–9**, **\***, **#**, or **P** for pause.

### **To Program:**

1. Type **I\*746\*** and press **RETURN**.
2. From the main menu, type **1** and press **RETURN** for system COS menu.
3. From the system COS menu, type **16** for specialized access menu and press **RETURN**.
4. Type **8** for Assign Insert Digit menu and press **RETURN**.
5. Type **1–4** for line group number and press **RETURN**.
6. Type SRA insert digits. (You may use a maximum of 8 digits. Digits may include **0–9**, **\***, **#**, and **P** for pause.) Press **RETURN**.
7. Repeat steps 4–6 to assign insert digits for each line group.
8. To clear the insert digits, if needed:
  - Type **9** and press **RETURN**.
  - Type **1–4** for line group number and press **RETURN**, and repeat as necessary.
9. To return to the main menu, press and hold **CTRL** and type **C**.

## SRA Overflow Line Group

**Description:** You can assign an overflow line group that the system can route calls over when no lines are free in the line group assigned to the matching entry; otherwise, the system will return busy tone to the caller when this condition exists.

***NOTE:** If you arrange for the system to insert digits on a particular line group, an overflow group will take on the characteristics of the line group that is rolling over to it, including the insert digits.*

### **To Program:**

1. Type **I\*746\*** and press **RETURN**.
2. From the main menu, type **1** and press **RETURN** for system COS menu.
3. From the system COS menu, type **16** for specialized access menu and press **RETURN**.
4. From specialized route access menu, type **5** for overflow line group and press **RETURN**.
5. Type **1–4** for line group 1–4 or **0** for no line group. Press **RETURN**.
6. To return to the main menu, press and hold **CTRL** and type **C**.



## SRA Wait Time

**Description:** Use this procedure to select the SRA wait time. Once a caller begins to dial digits, he or she has a certain period of time in which to dial each new digit. After the caller has stopped dialing digits and the end of the time-out period has occurred, the system analyzes the dialed digits and routes the call by following the table-driven routing scheme.

### **To Program:**

1. Type **I\*746\*** and press **RETURN**.
2. From the main menu, type **1** and press **RETURN** for system COS menu.
3. From the system COS menu, type **16** for specialized access menu and press **RETURN**.
4. Type **10** for assign SRA wait time and press **RETURN**.
5. Type **2, 3, or 4** for 2, 3, or 4 seconds and press **RETURN**.
6. To return to the main menu, press and hold **CTRL** and type **C**.

## SRA Alternate Line Groups

**Description:** The alternate line groups feature enables the system to try an alternate line group if no lines are available in the original group. Each line group can have one alternate line group. No alternate line groups are assigned by default. SRA alternate line groups are included in database printouts.

If digit insertion is programmed, it will be done for the actual line group the call is being routed over.

### **To Program:**

1. Type **I\*746\*** for Main menu.
2. Type **1** for system COS menu.
3. Type **16** for Specialized Route Access menu.
4. Type **11** for SRA Alternate line group.
5. Type **1-4** for the line group number.
6. Type **1-4** the alternate line group number.

## Station Message Detail Accounting/Reporting (SMDA/SMDR)

The system produces five different call cost reports for printing:

- Detailed Report of All Stations,
- Detailed Report of All Accounts,
- Trunk Summary Report,
- Department Summary Report,
- All Records.

The system generates reports automatically for printing whenever it detects that its records storage area is 95 percent full. You can use class of service programming to choose the reports that you want the system to generate. It generates the reports for printing in the order that you selected at a certain time each day. You can also take programming action that causes the system to delete all printed records except for those it collects during the printing operation. It stores these records for later printing.

You should make a record in Chapter 5 of all programming decisions that you make—it will help you keep track of what you have done and will help you troubleshoot any problem that might arise later.

***NOTE:** A lighted LED next to the programming button for the selection indicates the current configuration. When a single button provides a toggle (on/off) action, the lighted LED indicates the active feature.*

The first step in any programming sequence is to enter the base level. Once in this mode, you can dial the feature code for any desired configuration. Enter the base level with the following procedure: press **INTERCOM** then dial      . When you want to end the programming, press the **SPEAKER** button to end the programming procedure and return the system to normal operation.

## SMDA Department Numbers

**Description:** Use this programming feature to define different SMDA department numbers.

### To Program:

1. Dial . “SMDA PROGRAMMING”
2. Dial . “SMDA DEPARTMENTS”
3. Dial  for department 1–8. “DEPT X”
4. Dial  for department number. “DEPT X YYYY”
5. Dial  for next department, and repeat steps 3–4 until all departments are numbered.

—OR—

Dial  for next SMDA feature.

—OR—

Dial  for configuration mode.

To change setting, repeat procedure and make different selection.

## SMDA Station Assignment

**Description:** Assign stations to the departments so that SMDA call cost reports will only include information concerning that specific station arrangement.

### To Program:

1. Dial . “STATION FEATURES”
2. Dial . “SMDA DEPARTMENTS”
3. Dial . “DEPARTMENT 0”

—OR—

Dial  for department 1–8. “DEPARTMENT X”

5. Select stations for SMDA department (LED On = Selected):

Station 10–57 = Dial  or press C10–C57.

6. Dial  for additional department/station assignments.

—OR—

Dial  for next station feature.

—OR—

Dial  for configuration mode.

To change setting, repeat procedure and make different selection.

## SMDA Printout

### **Automatic SMDA Reports**

**Description:** Call cost reports, produced by the system for printing, are generated automatically whenever the system detects that the records storage area is 95 percent full. Program the system to automatically generate these reports for printing at a certain time each day if desired.

#### **To Program:**

1. Dial . *“SMDA PROGRAMMING”*
2. Dial . *“AUTO TIME XXXX”*

Dial new time in hours and minutes (HH MM in 24 hour time) or dial  to accept current time. To clear the time dial .

3. Dial . *“AUTO REPORT”*
4. Choose reports for printing
  - Dial . *“STATION REPORT”*
  - Dial . *“ACCOUNT REPORT”*
  - Dial . *“LINE REPORT”*
  - Dial . *“DEPT REPORT”*
  - Dial . *“PRINT RECORDS”*
  - Dial . *“DELETE RECORDS”*
  - Dial . *“DCD REPORT”*

5. Dial  for next SMDA feature.

—OR—

Dial  for configuration mode.

To change setting, repeat procedure and make different selection.

## SMDA Report Printout

**Description:** You can command the system to print several different types of SMDA reports and to delete all stored SMDA records.

***NOTE:** The departmental call distribution report reflects statistics based on current departmental station assignments. Before you use the previous programming feature to reassign stations to different departments, it is a good practice to: (1) print the departmental call report and any other desired SMDA reports, (2) make any desired reassignments, (3) delete all SMDA records.*

### To Program:

1. Dial  . "SMDA REPORTS"
2. Choose report for printout:
  - Dial   for all stations. "STATION REPORT"
  - Dial    -   ,  for one station. "STATION REPORT"
  - Dial   for all lines. "TRUNK REPORT"
  - Dial   for SMDA department. "DEPT REPORT"
  - Dial   for account code. "ACCOUNT REPORT"
  - Dial   for auto report. "AUTO REPORT"
  - Dial   for all records. "PRINT RECORDS"
  - Dial   to delete records. "DELETE RECORDS"
  - Dial   for DCD report. "DCD REPORT"
  - Dial  to obtain the number of free records remaining in system. "FREE RECS XXXXX"
  - Dial  to abort printout. "ABORT PRINT"
3. Dial  for configuration mode.

## SMDR Printout

### **SMDR Printout as System Collected**

**Description:** With this programming step, SMDR provides continuous printout of system-wide station call activity as it is collected by the system.

**To Program:**

1. Dial  . “SMDR PRINT”
2. Dial . “SMDR PRINT XXX”
3. Press **A1** to toggle between enable and disable (**A1** LED On = Enable).  
—OR—
- Dial  to Enable. “SMDR PRINT ON”
- Dial  to Disable. “SMDR PRINT OFF”
4. Dial  for configuration mode.

To change setting, repeat procedure and make opposite selection.

### **SMDR Cost Reporting**

**Description:** Programming action adds the cost of each reported call to the SMDR printout.

**To Program:**

1. Dial  . “SMDR PRINT”
2. Dial . “XXXXXXXX COSTING”
3. Press **A1** to toggle between enable and disable (**A1** LED On = Enable).  
—OR—
- Dial  to Enable. “WITH COSTING”
- Dial  to Disable. “WITHOUT COSTING”
4. Dial  for configuration mode.

To change setting, repeat procedure and make opposite selection.

## SMDA Records Deleted by the Attendant

**Description:** This programming step gives the attendant station the ability to delete SMDA records. During day-to-day system operation, when SMDA records exceed storage capacity, the attendant can delete current records to make room for additional ones if you perform this programming step. Typically the attendant would do this after he or she has requested the system to print an SMDA report. If you have set the system to delete the records after it has generated an automatic report, you usually do not need to give the attendant this manual deletion feature.

### To Program:

1. Dial  . *“ATTN DELETE XXX”*
2. Press **A1** to toggle between enable and disable (**A1** LED On = Enable).  
—OR—  
Dial  to Enable. *“ATTN DELETE ON”*  
Dial  to Disable. *“ATTN DELETE OFF”*
3. Dial  for configuration mode.

To change setting, repeat procedure and make opposite selection.

## Toll Restriction Tables

The toll restriction feature uses entries that you make in 16 different tables to prohibit some or all stations from calling a wide range of number combinations. In order for toll restriction to take effect, you must complete the following three-step process:

1. Program entries in one or more toll tables.
2. Assign toll tables to all appropriate lines.
3. Assign toll tables to all appropriate stations.

After you program the toll tables and assign them to both a line and the station that uses that line, the system activates the programmed toll restriction at the station.

You should make a record in Chapter 5 of all programming decisions that you make—it will help you keep track of what you have done and will help you troubleshoot any problem that might arise later.

***NOTE:** A lighted LED next to the programming button for the selection indicates the current configuration. When a single button provides a toggle (on/off) action, the lighted LED indicates the active feature.*

The first step in any programming sequence is to enter the base level. Once in this mode, you can dial the feature code for any desired configuration. Enter the base level with the following procedure: press **INTERCOM** then dial **\*#746\***. When you want to end the programming, press the **SPEAKER** button to end the programming procedure and return the system to normal operation.



## Assign Entries to Toll Restriction Tables


**Description:** Plan and execute system toll restriction in the sequence detailed in the following steps:

**To Program:**

1. Determine the types of dialing restrictions that you wish imposed on the system. Typically, this includes access codes which result in toll charges, and certain local numbers as desired.
2. If you wish the restricted dialing codes to be imposed consistently on most or all stations in the system, list them on one or two tables. If you must allow for a wide variation in the dialing restrictions, spread the listing out across several tables.
3. Strategically group the listings on the tables so that a list of restrictions can be applied to a particular station or group of stations.
4. Designate each table as a DENY table or as an ALLOW table. The system prevents the dialing of numbers entered in a DENY table. ALLOW tables take precedence over DENY tables. Therefore, an entry in an allow table will provide an explicit exception to an entry in a DENY table. Note that the system always permits the dialing of any number not explicitly denied. Also, note that the system will not toll restrict system speed dial numbers unless you specify them to be restricted with a separate programming step.

**Example A:** Provide a simple and broad toll restriction format by creating a DENY table with two entries: ENTRY (1) = 1; ENTRY (2) = 0. This format prevents all long distance and operator calls.

**Example B:** Prevent the dialing of all numbers within the (804) area code, while allowing the dialing of one specific number within that area code by entering 1804 in a DENY table and 18049782200 in an ALLOW table.

5. Press the  button in place of a particular digit to condense a range of numbers into one entry. The # character is a “match-anything” digit, and can be included in an entry in either a DENY table or an ALLOW table.

**Example A:** If 357, 377, 387, and 397 dialing is to be prohibited, list one entry of 3#7 on a DENY table to cover them all.

**Example B:** Since area codes typically have a 1 or a 0 as a middle digit, prevent long distance calls to those area codes by entering 1#1# and 1#0# in a DENY table.

6. Since it is important that emergency numbers never be restricted, always create an allow table with entries of 911 and 1911 to override any DENY tables that you have created.
7. If the system is installed behind a PBX, include an access code as part of every table entry.

*(continued on next page)*

8. The system defaults two toll restriction tables with programmed values and assigns them to the lines. You need only to assign them the stations to put them into effect. The preprogrammed values are as follows:

Default Toll Restriction	
Table 1 = DENY	Table 2 = ALLOW
Entry 1 = 1	Entry 1 = 1800
Entry 2 = 976	Entry 2 = 911
Entry 3 = 411	
Entry 4 = 0	

### Programming Toll Restriction Table Entries

#### To Program:

- Dial . "TOLL TABLE"
- Dial .  
—OR—  
Press **A1–A14**, **B1**, **B2** for toll table **1–16**. "XXXXXX TABLE Y"
- Establish an allow or a deny table (**A1** LED On = Allow, **A2** LED On = Deny):  
Dial  or press **A1** for allow. "ALLOW TABLE Y"  
Dial  or press **A2** for deny. "DENY TABLE Y"
- Dial  or press **A8–A11** for entry number 1–4. "XXXXXX"
- Dial  to clear current entry.
- Dial keypad digits (, ) to enter numbers. "XXXXXX..."
- Dial  for next entry and repeat steps 4–6 until all table restrictions are entered.  
—OR—  
Dial  for next table and repeat steps 2–7 until all tables are entered.  
—OR—  
Dial  for configuration mode.

To change setting, repeat procedure and make different selection.

## Assign Toll Restriction Tables to Lines

**Description:** Once you have created the toll restriction tables, assign them to lines.

**To Program:**

1. Dial . “ASSIGN TOLL-LINE”

2. Dial .

—OR—

Press **A1–A14**, **B1**, **B2** for toll table **1–16**.

3. Dial  to finish entry and display lines.

4. Select line ports (LED On = Lines selected to receive tables):

Line port 1–14 = Dial  or press **A1–A14**.

Line port 15, 16 = Dial ,  or press **B1**, **B2**.

Line port 17–24 = Dial  or press **HOLD** then press **A1–A8**.

5. Dial  and repeat steps 2–4 for next toll table to line assignment.

—OR—

Dial  for configuration mode.

To clear current setting, repeat procedure.

## Assign Toll Restriction Tables to Stations

**Description:** Once you have created the toll restriction tables, assign them to stations.

**To Program:**

1. Dial . "ASSIGN TOLL-STA"

2. Dial .

—OR—

Press **A1–A14, B1, B2** for toll table **1–16** (LED On = Selected Table).

3. Dial  to finish entry.

4. Select station ports (LED On = Station ports to receive tables):

Station 10–57 = Dial  or press **C10–C57**.

5. Dial  for next toll table to station assignment.

—OR—

Dial  for configuration mode.

To clear current setting, repeat procedure.

## Assign Toll Restriction Tables to Stations for Night Transfer (of ringing)

**Description:** Toll tables assigned with this feature have an effect only when the attendant places the telephone system in the night transfer (of ringing) mode of operation.

### To Program:

1. Dial . “ASSIGN TOLL-NITE”
2. Dial .
- OR—
- Press **A1–A14, B1, B2** for toll table **1–16** (LED On = Selected Table).
3. Dial  to finish entry.
4. Select station ports (LED On = Station ports to receive tables):  
Station 10–57 = Dial  or press **C10–C57**.
5. Dial  for next toll table to night answer assignment.
- OR—
- Dial  for configuration mode.

To clear current setting, repeat procedure.

## Assign Toll Restriction Tables to System Speed Dial Calls

**Description:** When you enable this feature, the system applies toll restriction tables that you have assigned to a station to the system speed dial calls made from that station.

### To Program:

1. Dial . “STATION FEATURES”
2. Dial . “SYS SPD TOLL RST”
3. Select station ports (LED On = Station ports assigned):  
Station 10–57 = Dial  or press **C10–C57**.
4. Dial  for next station feature.
- OR—
- Dial  for configuration mode.

To clear current setting, repeat procedure.

## Assign Toll Restriction Override (TRO) Code

**Description:** The TRO feature allows users to override the toll restriction that they encounter at other stations with their own station's toll restriction assignments. In programming for this feature, create a four-digit TRO code that users can dial to override the toll restrictions of any station that they happen to be using and replace it with a toll restriction that matches their home station.

***NOTE:** The system marks outgoing line calls that users make after entering a TRO code with a (T) in its SMDR/SMDA printouts. The station number that it prints is that of the overriding station and not the actual station that the call was made from.*

### To Program:

1. Dial  . "STATION FEATURES"
2. Dial  . "TOLL R OVERRIDE"

***NOTE:** If you are programming with a DSS/BLF console, notice that it's status LEDs turn on to indicate stations that have an assigned TRO code (C10-C57 = station ports 10-57).*

3. Select station port:  
Station 10-57 = Dial   -   or press C10-C57.  
(LED flashes = Selected station ports, display shows TRO if assigned).
4. Type four-digit TRO code. "NNNN"
5. Repeat steps 3 and 4 for next station port.
6. Dial  for configuration mode.

To remove a TRO code, repeat steps 1-3, select station port, press .

## Positive Disconnect Supervision

**Description:** When a station is on-line with an outside caller and the caller hangs up, the CO may send a positive disconnect signal to the DSU. You can enable the positive disconnect supervision feature on a per-line basis. If you enable positive disconnect supervision, when the system receives the CO's positive disconnect signal it tells the voice mail equipment to hang up.

### To Program:

1. Dial . “DIS SUPERVISION”
2. Select line ports for disconnect supervision (LED On = Lines selected to receive tables).  
Line port 1-14 = Dial  or press **A1-A14**.  
Line port 15, 16 = Dial ,  or press **B1, B2**.  
Line port 17-24 = Dial  or press **HOLD** then press **A1-A8**.
3. Dial  for configuration mode.

## The Tracker Paging System

The optional Tracker Paging System allows users to send alphanumeric or numeric-only messages to Tracker pagers assigned to station extension numbers. The type of message that the system delivers depends upon the model Tracker Pager being used.

You should make a record in Chapter 5 of all programming decisions that you make—it will help you keep track of what you have done and will help you troubleshoot.

**NOTE:** A lighted LED next to the programming button for the selection indicates the current configuration. When a single button provides a toggle (on/off) action, the lighted LED indicates the active feature.

The first step in any programming sequence is to enter the base level. Once in this mode, you can dial the feature code for any desired configuration. Enter the base level with the following procedure: press **INTERCOM** then dial      . When you want to end the programming, press the **SPEAKER** button to end the programming procedure and return the system to normal operation.

### Enabling the Tracker Paging System

**Description:** Use this procedure to enable the Tracker Paging System feature as a system-wide feature.

**To Program:**

1. Dial  . “SYSTEM FEATURES”
2. Dial  . “TRACKER XXXXXX”
3. Press **A1** to toggle between enable and disable (**A1** LED On = Enable).  
—OR—  
Dial  to Enable (**A1** LED On). “TRACKER ENABLED”  
Dial  to Disable. “TRACKER DISABLED”
4. Dial   for configuration mode.

To change setting, repeat procedure and make opposite selection.



## Enabling Tracker Pagers for Stations

**Description:** After you have enabled the Tracker Paging System as a system-wide feature, enable the Tracker pagers at individual stations. Station users can disable a Tracker Pager by pressing INTERCOM #06 or enable a pager by pressing INTERCOM \*06.

### To Program:

1. Dial 53. "STATION FEATURES"
2. Dial 37. "DISPLAY PAGER"
3. Enable Tracker pager operation:  
Station 10-57 = Dial 10-57 or press C10-C57 (LED On = Enabled).
4. Dial \* for configuration mode.

To clear current setting, repeat procedure.

**NOTE:** The Pager's ID must be programmed to correspond to a DSU station number. Pager programming must be done through the Tracker base station. Refer to the Program Mode section of Operating Instructions for the Tracker Paging System.

## Setting the Data Parameters

**Description:** You must set the data parameters of the data port where you connect Tracker to 9600 baud, eight (8) data bits, one (1) stop bit, and no handshaking to ensure proper Tracker operation.

**NOTE:** The Tracker base station must also be programmed for 9600 baud (the default setting) so that it matches the DSU setting.

### To Program:

1. Dial 15. "BAUD RATE"
2. Dial 1 for port A.
3. Dial 0811 for data parameters.
4. Dial \* for configuration mode.

## Digital Voice Announcing (DVA)

Digital voice announcing uses a hardware peripheral device (product code DVA01) connected to a digital station port to play recorded announcements and messages during an in-progress call. The DVA stores the prerecorded messages in its memory for recall when needed. While the DVA is not automatic, it enhances the following features by providing automated voice prompts and dialing instructions to callers; direct department call with Department Calling Distribution (DCD), Direct Inward Station Dialing (DISD), and Tracker Paging System. Before you can enhance the DCD or DISD features, you must completely program them using instructions earlier in this chapter. Refer to *Programming for DCD Operation*, below, for DCD programming information. Refer to *Programming for DISD Operation* on page 288 for DISD programming.

You should make a record in Chapter 5 of all programming decisions that you make—it will help you keep track of what you have done and will help you troubleshoot.

***NOTE:** A lighted LED next to the programming button for the selection indicates the current configuration. When a single button provides a toggle (on/off) action, the lighted LED indicates the active feature.*

The first step in any programming sequence is to enter the base level. Once in this mode, you can dial the feature code for any desired configuration. Enter the base level with the following procedure: press **INTERCOM** then dial      . When you want to end the programming, press the **SPEAKER** button to end the programming procedure and return the system to normal operation.

### Programming for DCD Operation

**Description:** When you plan to enhance DCD operation with the DVA, you must first completely program the system for DCD operation.

**To Program:**

**To enable the system for DCD operation, refer to the instructions in Direct Department Calling on page 224 and complete the following steps:**

1. Assign direct department dialing access code (often referred to as a department pilot number.)
2. Assign direct department calling line ports.
3. Assign direct department calling station ports.
4. Refer to the instructions in *Call Forward on Busy/Ring No-Answer* on page 162, and program the department stations to have Ring—No Answer call forwarding.
5. Use the procedure described immediately below, and program the department transfers before disconnect.

## DCD Department Transfers before Disconnect

**Description:** Because the system will continue transferring a call back to a department after a recall to DVA time-out has occurred, you can set the number of transfer times that occur before the system drops the call.

### To Program:

1. Dial . “SYSTEM FEATURES”
2. Dial . “DEPT XFR X”
3. Choose 1–9 transfer times or set system to always transfer:
 

Dial <input type="text" value="1"/> or press <b>A1</b> .	“DEPT XFR 1”
Dial <input type="text" value="2"/> or press <b>A2</b> .	“DEPT XFR 2”
Dial <input type="text" value="3"/> or press <b>A3</b> .	“DEPT XFR 3”
Dial <input type="text" value="4"/> or press <b>A4</b> .	“DEPT XFR 4”
Dial <input type="text" value="5"/> or press <b>A5</b> .	“DEPT XFR 5”
Dial <input type="text" value="6"/> or press <b>A8</b> .	“DEPT XFR 6”
Dial <input type="text" value="7"/> or press <b>A9</b> .	“DEPT XFR 7”
Dial <input type="text" value="8"/> or press <b>A10</b> .	“DEPT XFR 8”
Dial <input type="text" value="9"/> or press <b>A11</b> .	“DEPT XFR 9”
Dial <input type="text" value="0"/> or press <b>A12</b> .	“NEVER DISCONNECT”
4. Dial  for configuration mode.

To change setting, repeat procedure and make different selection.

## Programming for DISD Operation

**Description:** When you plan to enhance DISD operation with the DVA, you must first completely program the system for DISD operation.

**NOTE:** You should set a DISD dial time that is as long as the maximum time needed to complete the longest DVA message. For example, if the longest DVA message is 60 seconds, set the DISD dial time to 60 seconds. If the DISD dial time is longer than the DVA message, the message will repeat itself. If the DISD dial time is shorter than the DVA message, the message will not finish.

### **To Program:**

**To enable the system for DISD operation, refer to Direct Inward Station Dialing Configuration on page 232, and complete the following steps:**

1. Program the dial time limit.
2. Assign a DISD assist station.
3. Program the DISD incoming rings.
4. Program inhibit DISD digit dialing.

## Enabling/Disabling Digital Voice Announcing (DVA)

**Description:** You can enable DVA support for both DISD and DCD operation.

### **To Program:**

**To assign DVA support for DISD operation,**

1. Dial . “SYSTEM FEATURES”
  2. Dial . “DISD DVA XXXXXXX”
  3. Press **A1** to toggle between enable and disable (LED On = Enable).
- OR—
- Dial  to Enable (**A1** LED On). “DISD DVA ENABLE”
  - Dial  to Disable. “DISD DVA DISABLE”
4. Dial  for configuration mode.

To change setting, repeat procedure and make opposite selection.

**To assign DVA support for DCD operation,**

1. Dial . “SYSTEM FEATURES”
2. Dial . “DCD DVA XXXXXXX”
3. Press **A1** to toggle between enable and disable (LED On = Enable).  
—OR—
- Dial  to Enable (**A1** LED On). “DCD DVA ENABLE”
- Dial  to Disable. “DCD DVA DISABLE”
4. Dial  for configuration mode.

To change setting, repeat procedure and make opposite selection.

**Programming the DVA Messages**

**Description:** You or the system attendant can store the customized messages in the DVA device in one of two ways: by delivering them from the telephone handset at station 10 or 12 or by playing the contents of a professional recording into the DVA memory. The DVA provides up to four unique messages. The total available message time is two minutes for one message if needed. Because of the time constraints, it is a good practice to script your messages ahead of time so that you can read them aloud in a clear and concise manner as you store them in the DVA memory.

The voice prompt messages fall into four categories:

**Day Answer Messages**

*For Callers*—“Welcome to Acme’s sales department, all of our agents are busy. Please stay on the line and an agent will answer you call as soon as possible.”

*For DISD Callers*—“Welcome to Acme’s Company. If you know your party’s extension, dial it now; otherwise, stay on the line and an attendant will answer your call.”

**Night Answer Messages**

*For Callers*—“Welcome to Acme’s sales department. Our hours are eight to four-thirty. Please call tomorrow during those hours.”

*For DISD Callers*—“Welcome to Acme Company. Our hours are eight to four-thirty. Please call tomorrow during those hours.”

**Recall Messages**

*For Callers*—“Please hold. An agent will be with you as soon as possible.”

*For DISD Callers to systems that have the Tracker Paging System installed*—“The party you have called is not available. Please dial a new extension number or dial  plus your call-back number followed by another  to page your party.”

**Drop Message**

“Thanks for calling Acme, good bye.”

**To Program:**

1. Dial . "DVA TABLE NUM"
2. Choose the message style:
  - Dial  for DISD message style. "PORT NUMBER"
  - Dial  for DCD message style. "PORT NUMBER"
3. Select DVA station ports:
  - Station 10-57 = Dial  or press **C10-C57** (LED On = Selected).
4. Press  to end DVA station port entry. "DVA MESSAGES"
5. Press  to erase all four messages.
6. Dial code for message type you wish to record.
  - Dial  to record day answer message.
  - Dial  to record night answer message.
  - Dial  to record recall message.
  - Dial  to record drop message.
  - Dial  to stop recording.
7. Record the messages using either step **a** or step **b**, described below. Note the length of time for the message. Remember, the maximum allowed time for messages is two minutes.
  - a. Read the message aloud into the telephone handset mouthpiece.
  - OR—
  - b. Start audio tape recorder and play the recorded message.
8. Press  and repeat steps 6-7 for each message.
9. Dial code to listen to your recorded messages:
  - Dial  to play day answer message.
  - Dial  to play night answer message.
  - Dial  to play recall message.
  - Dial  to play drop message.
  - Dial  to stop playback.
10. To record or play messages for another DVA, press  and repeat steps 2-8.
11. When finished, press **SPEAKER** to end.

**NOTE:** You should set a DISD dial time that is as long as the maximum time needed to complete the longest DVA message. For example, if the longest DVA message is 60 seconds, set the DISD dial time to 60 seconds. If the DISD dial time is longer than the DVA message, the message will repeat itself. If the DISD dial time is shorter than the DVA message, the message will not finish.

## The Data Interface Unit

The Data Interface Unit (DIU) is a device connected to a digital station port. The DIU provides connection for a digital multiline telephone and another device such as an Industry Standard Telephone (IST), FAX, or modem. The DIU switches the voice path from the DSU to either the digital telephone or the IST when the user presses a button on the digital telephone.

When the DIU is in the digital mode, the digital telephone will function fully and the IST telephone will not function at all. When the DIU is in the IST mode, the IST functions fully and the digital telephone will not have a voice path; however, the digital telephone will continue to receive LED and LCD messages and send certain button messages.

The first step in any programming sequence is to enter the base level. Once in this mode, you can dial the feature code for any desired configuration. Enter the base level with the following procedure: press **INTERCOM** then dial      . When you want to end the programming, press the **SPEAKER** button to return the system to normal operation.

### Programming Data Buttons

**Description:** After you install a data interface unit, you must program a data button on the multiline telephone connected to the DIU.

**To Program:**

1. Dial  . *“BUTTON MAPPING”*
2. Dial  . *“ASSIGN DATA”*
3. Select button to be programmed with data button:  
Press **A1–A14, B1–B10**.
4. Select station ports to be programmed:  
Station 10–57, Dial     or press **C10–C57**.
5. Dial  for next data button assignment.  
—OR—  
Dial   for next button mapping feature.  
—OR—  
Dial    for configuration mode.

## Remote Data Station

**Description:** Use this procedure to program the system to allow remote control of a DIU from one or more multiline digital telephones assigned to other station ports. Remote commands are blocked when the station is busy with a call.

### To Program:

1. Dial “*STA FEATURES*”
  2. Dial “*DATA STATION*”
  3. Enter data station number.
  4. Select station ports to be programmed:  
Station 10-57, Dial C10-C57.
  5. Dial  for next station feature.
- OR—
- Dial  for configuration mode.

## Creating Data Security Groups

**Description:** When using several DIUs, you can create up to three data security groups. Use a security group to prevent callers outside your group from accessing IST devices—such as personal computers—within your group. Any number of stations can be put into one group. Station-to-station calls can still be made. By default, all stations are assigned to data security group 0 (no security group).

### To Program:

1. Dial “*STATION FEATURES*”
  2. Dial “*DATA GROUP*”
  3. Dial   - 4. Select station ports to be programmed:  
Station 10-57, Dial C10-C57.
  - 5. Dial  for next data group assignment.
- OR—
- Dial  for next station feature.
- OR—
- Dial  for configuration mode.



## Caller ID Service Support

When you subscribe to Caller ID service, the CO sends Caller ID data over the lines. After the Caller ID device deciphers the data, it is displayed on a system LCD speakerphone. You must program lines and stations for Caller ID service.

***NOTE:** A lighted LED next to the programming button for the selection indicates the current configuration. When a single button provides a toggle (on/off) action, the lighted LED indicates the active feature.*

Since the station receives Caller ID data between the first and second rings, you can arrange for the first ring on Caller ID lines to be either audible or silent. Selecting the silent option ensures that the Caller ID data is displayed prior to ringing, eliminating the loss of Caller ID data to premature answering.

A station user may automatically retrieve and dial the last Caller ID number displayed at his or her station by using a "SAVE" button assigned to the station.

### **CAUTION**

*Seven-, eight-, and 11-digit numbers are always dialed while 10-digit numbers must be translated by the system before they are dialed. To arrange for the system to translate a 10-digit number into dial format you must use the VDT programming method to program the local area code and 6-digit area/office codes into the system's memory. You cannot do this from station 10 or 12.*

All Caller ID features require that the customer-supplied Caller ID interface (product code CID08) deliver its data to the system's RS232 data port B. You must configure this port to match the output of the decoder device. The recommended configuration is 9600 baud, with eight (8) data bits and one (1) stop bit.

The system provides Caller ID information as part of the SMDR printout. An example of this appears below.

Caller ID Information on SMDR Printout								
Call #	Station #	Line #	Date	Time	Call Length	Answer Time	Called or Calling #	Call Cost
1	1000	12	10/15/92	04:38	0.1		123456789 0123456	\$0.51
2	12	3	10/15/92	00:56	0.2		5551212	
3		1	10/15/92	00:56	NOA NS	.2	/5551234	
4	10	1	10/15/92	00:56	0.1	.1	/5551234	
5		4	10/15/92	01:00	NOA NS	.2		
6	10	4	10/15/92	01:00	0.1	.0		
7	10	1(D)	10/15/92	04:23	0.2	.1	/5556789	\$0.00
8	10	1(D)	10/15/92	04:19	0.2	.1		\$0.00
(1) outgoing call (2) outgoing call (3) unanswered incoming call, with Caller ID (4) answered incoming call, with Caller ID					(5) unanswered incoming call, without Caller ID (6) answered incoming call, without Caller ID (7) answered incoming DISD call, with Caller ID (8) unanswered incoming DISD call without Caller ID			

If SMDR printout is not already turned on (default), turn it on as follows,

1. Press **ITCM** and dial      .
2. Dial   . “SMDR PRINT XXX”
3. Dial  to enable printout. “SMDR PRINT ON”
4. Dial   for configuration mode.

—OR—

Press **SPEAKER** to quit.

As an option, you can arrange for the system to provide Caller ID data distribution through the RS232 data port B to a personal computer (PC) just as it supplies SMDA data to a data printer. This data consists of four special-purpose messages and is in the ASCII format suitable for use with PC-based application programs. The messages are as follows:

<b>Typical Message 1</b> (sent out as soon as Caller ID data arrives from the CO)			
<b>Message ID &amp; Identifier</b> (3 bytes)	<b>Line No.</b> (2 bytes)	<b>Caller ID Data</b> (15 bytes)	<b>End of Message</b> (2 bytes)
3E 3C 31	30 35	31 2D 38 30 34 2D 39 37 38 2D 32 32 30 30 20	0D 0A
> < 1	0 1	1 — 8 0 4 — 9 7 8 — 2 2 0 0	CR LF

<b>Typical Message 2</b> (sent when a ringing line with CID is answered or retrieved from hold)			
<b>Message ID &amp; Identifier</b> (3 bytes)	<b>Line No.</b> (2 bytes)	<b>Station No.</b> (15 bytes)	<b>End of Message</b> (2 bytes)
3E 3C 32	31 32	31 30	0D 0A
> < 2	1 2	1 0	CR LF

<b>Typical Message 3</b> (sent when CID data is not received from answered line or when a line is taken off-hook)			
<b>Message ID &amp; Identifier</b> (3 bytes)	<b>Line No.</b> (2 bytes)	<b>Station No.</b> (15 bytes)	<b>End of Message</b> (2 bytes)
3E 3C 33	31 35	31 32	0D 0A
> < 3	1 5	1 2	CR LF

<b>Typical Message 4</b> (sent when line is made idle)		
<b>Message ID &amp; Identifier</b> (3 bytes)	<b>Line No.</b> (2 bytes)	<b>End of Message</b> (2 bytes)
3E 3C 34	30 35	0D 0A
> < 4	0 5	CR LF

## **Assigning Caller ID Lines (required programming)**

**Description:** Programs lines to receive Caller ID service.

### **To Program:**

1. Dial . “CALLER ID LINES”
2. Select line ports (LED On = Selected):
  - Line port 1–14 = Dial  or press **A1–A14**
  - Line port 15, 16 = Dial ,  or press **B1, B2**
  - Line port 17–24 = Dial  or press **HOLD** then press **A1–A8**.
3. Dial  for configuration mode.

## **Assigning Caller ID Stations (required programming)**

**Description:** Programs stations to receive Caller ID information.

### **To Program:**

1. Dial . “STATION FEATURES”
2. Dial . “CALLER ID STA”
3. Select station ports (LED On = Selected):
  - Station 10–57, Dial  or press **C10–C57**.
4. Dial  for configuration mode.

## Configuring COM 2 Serial Data Port (required programming)

**Description:** If the COM 2 serial data port is not currently set at its default values (9600 baud, 3 data bits, and 1 stop bit) program that port to have those values so that it will receive Caller ID data.

### To Program:

1. Dial . “BAUD RATE”
2. Dial  for COM 2.
3. Press **A10** for 9600 baud. “W nD nS 9600 ”
4. Dial  or press **A14** for 8 data bits and 1 stop bit. “W 8D IS ZZZZZ ”
5. Dial  for configuration mode.

## Setting the Audible First Ring Feature (optional programming)

**Description:** Turns on the Audible First Ring feature for the system.

### To Program:

1. Dial . “SYSTEM FEATURES”
2. Dial . “CID FIRST RING”
3. Dial  to enable the audible first ring (LED On).
- OR—
- Dial  to silence the first ring on Caller ID lines.
4. Dial  for configuration mode.

## Setting the Caller ID Distribution (optional programming)

**Description:** Sends Caller ID information to data port B for access by a PC.

### To Program:

1. Dial . “SYSTEM FEATURES”
2. Dial . “CID DISTRIBUTION”
3. Dial  to enable Caller ID distribution (LED On).
- OR—
- Dial  to disable Caller ID distribution.
4. Dial  for configuration mode.

## **Assigning a “SAVE” Button (optional programming)**

**Description:** Selects a “SAVE” button to display and redial the most recent caller ID number received at a station.

**To Program:**

1. Dial  . “*BUTTON MAPPING*”
2. Dial  . “*ASSIGN SAVE*”
3. Select button to be programmed:  
Press **A1–A14, B1–B10**.
4. Select station ports to have SAVE button (LED On = Assigned):  
Station 10–57, Dial     or press **C10–C57**.
5. Dial    for configuration mode.

# 5

## System Records

### Programming Password Records

Password Description	Default Password	Customized Password					
VDT Installer	I*746*						
VDT Administrator	I*236*						
Station 10 Installer	INTERCOM *#746*						
Station 10 Administrator	INTERCOM *#236*						

### System Configuration Records

Automatic Station Relocation	
Enable	Disable
Default = Disable	

Do Not Disturb Inhibit System-wide	
Enable	Disable
Do Not Disturb Override Stations (10-57)	
DND Button (A1-A14, B1-B10)	
Default = Inhibit enabled, no override assigned, no DND button	

Exclusive Hold	
Enable	Disable
Default = Enabled	

<b>Data Baud Rate</b>	
110 Baud	
150 Baud	
300 Baud	
600 Baud	
1200 Baud	
2400 Baud	
4800 Baud	
9600 Baud	
19200 Baud	
7 Data/2 Stop Bits	
8 Data/1 Stop Bits	
Default = 9600 Baud, 8 Data Bits, 1 Stop Bit	

<b>Extended DTMF Tones for Automatic Dialing</b>	
60 msec	
80 msec	
100 msec	
120 msec	
160 msec	
240 msec	
320 msec	
400 msec	
480 msec	
560 msec	
720 msec	
880 msec	
1040 msec	
Default = 80 msec	

<b>System Alarm Reporting</b>	
Enable	Disable
Default = Disable	

<b>Station Monitoring</b>		
Visual Ring Indication	Enable	Disable
Audible Ring Indication Stations (10-57)		
Default = Visual Indication Disabled, No Audible Indication Assigned		



<b>Tandem Attendant</b>	
Enable	Disable
Default = Disable	

<b>Tone or Voice Signaling</b>	
Voice	Tone
Default = Tone	

<b>SOHVA Tone Bursts</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>
Default = 6						

<b>PA Options</b>				
Direct Ringing Lines (1-24)				
Delayed Ringing Lines (1-24)				
Night Ringing Lines(1-24)				
Zone Paging Enabled	Zone 1	Zone 2	Zone 3	All-Call
Relay Port Relay Tracking	Station 17		Paging Port	
PA Port Signal Tone	Intercom		DTMF	
Default = No Ringing Lines, All-Call Paging, Station 17 Ringing, and Intercom Tone				

<b>Allow Ringer Off Option</b>	
Enabled	Disabled
Default = Enabled	

<b>Call Forward Outside System</b>	
Enabled	Disabled
Default = Disabled	

LCD Messages										
Msg. No.	Location									
	1	2	3	4	5	6	7	8	9	10
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
Default = Back At , 2 = Call										

<b>System Speed Dial Record</b> (Be sure to record a line group number with each speed dial number.)											
Loc	No.	Name	Loc	No.	Name	Loc	No.	Name	Loc	No.	Name
01			26			51			76		
02			27			52			77		
03			28			53			78		
04			29			54			79		
05			30			55			80		
06			31			56			81		
07			32			57			82		
08			33			58			83		
09			34			59			84		
10			35			60			85		
11			36			61			86		
12			37			62			87		
13			38			63			88		
14			39			64			89		
15			40			65			90		
16			41			66			91		
17			42			67			92		
18			43			68			93		
19			44			69			94		
20			45			70			95		
21			46			71			96		
22			47			72			97		
23			48			73			98		
24			49			74			99		
25			50			75					

<b>Call Park Recall Time</b>	
1 min	5 min
2 min	6 min
3 min	7 min
4 min	8 min
Default = 2 minutes	

<b>Pause Time</b>	
.5 sec	5.0 sec
1.0 sec	7.5 sec
1.5 sec	10 sec
2.0 sec	15 sec
3.0 sec	20 sec
Default = 1 second	

<b>Recall/Flash Time</b>	
.08 sec	.88 sec
.30 sec	1.0 sec
.50 sec	1.5 sec
.60 sec	2.0 sec
.75 sec	3.0 sec
Default = 2 seconds	

<b>Timed Hold Recall Time</b>	
30 sec	240 sec
60 sec	300 sec
90 sec	360 sec
120 sec	420 sec
180 sec	Never
Default = 60 seconds	

<b>Unanswered Call Transfer Recall Time</b>	
10 sec	60 sec
20 sec	90 sec
25 sec	120 sec
30 sec	180 sec
45 sec	240 sec
Default = 20 seconds	For Stations

<b>Unanswered Call Transfer Recall Time</b>	
10 sec	60 sec
20 sec	90 sec
25 sec	120 sec
30 sec	180 sec
45 sec	240 sec
Default = 20 seconds For Departments	

<b>Delayed Ringing Delay Time</b>	
6 sec	36 sec
12 sec	42 sec
18 sec	48 sec
24 sec	54 sec
30 sec	60 sec
Default = 18 seconds	

<b>Feature Inhibit</b>		
<b>Feature</b>	<b>Disabled</b>	<b>Enabled</b>
Line Group 1		
Line Group 2		
Line Group 3		
Line Group 4		
Zone 1 Paging		
Zone 2 Paging		
Zone 3 Paging		
All Call		
Meet Me Page		
Night Transfer		
Background Music		
Voice Announce Block		
Message Waiting		
Call Pickup		
Call Forward		
Automatic Call Back		
Station-to-Station Msg.		
Line Group Queue		
Directed Station Hold		
Call Park Orbit 1		
Call Park Orbit 2		
Call Park Orbit 3		
Call Park Orbit 4		
Call Park Orbit 5		
Call Park Orbit 6		
Call Park Orbit 7		
Call Park Orbit 8		
Call Park Orbit 9		
Call Waiting		
LCD Messaging		
Executive Override/Service Observing		
Account Code		
Personal Call Forward		
Enable All Features		
Default = All Features Enabled		

## Recording the Line Configurations

Feature	Line Port (Write Number, Name, Group, or other data)							
	1	2	3	4	5	6	7	8
Abandoned Hold Release (50/350 msec)								
Automatic Privacy (On/Off)								
Privacy Release Stations (10-57)								
Line Port Disable (On/Off)								
Line Groups (0, 1-4)								
Line Name (5 characters)								
Line Port Function (AUX/CO)								
Line to Line Port Reassignment (1/1, etc.)								
Pulse/Tone Switchable (pulse/tone)								
Voice Mail ID (6 digits max)								
Default = 50 msec hold release, privacy on all with no station released, no disabled lines, no groups assigned, no names assigned, all ports co., same line/port, all tone dialing, no VM ID.								

Feature	Line Port (Write Number, Name, Group, or other data)							
	9	10	11	12	13	14	15	16
Abandoned Hold Release (50/350 msec)								
Automatic Privacy (On/Off)								
Privacy Release Stations (10-57)								
Line Port Disable (On/Off)								
Line Groups (0, 1-4)								
Line Name (5 characters)								
Line Port Function (AUX/CO)								
Line to Line Port Reassignment (1/1, etc.)								
Pulse/Tone Switchable (pulse/tone)								
Voice Mail ID (6 digits max)								
Default = 50 msec hold release, privacy on all with no station released, no disabled lines, no groups assigned, no names assigned, all ports co., same line/port, all tone dialing, no VM ID.								

Feature	Line Port (Write Number, Name, Group, or other data)							
	17	18	19	20	21	22	23	24
Abandoned Hold Release (50/350 msec)								
Automatic Privacy (On/Off)								
Privacy Release Stations (10-57)								
Line Port Disable (On/Off)								
Line Groups (0, 1-4)								
Line Name (5 characters)								
Line Port Function (AUX/CO)								
Line to Line Port Reassignment (1/1, etc.)								
Pulse/Tone Switchable (pulse/tone)								
Voice Mail ID (6 digits max)								
Default = 50 msec hold release, privacy on all with no station released, no disabled lines, no groups assigned, no names assigned, all ports co., same line/port, all tone dialing, no VM ID.								

Block Programming		
Model Line Port	Start Line Port	End Line Port



## Recording the Station Configurations

Use this sheet as an individual station record or as a record for a block of similarly programmed stations. You can make copies of this blank sheet as needed to meet the system capacity.

Feature		Choice	Default	Enter Station Port Numbers									
Access Denied		Lines 1-24	None										
All-Call & Zone Paging Receive		All/1-3	All										
Originate		All/1-3	All										
Audible Monitoring		None/Dir/Delay	None										
Automatic Hold		Yes/No	No										
Automatic Hold—Intercom		Yes/No	No										
Automatic Privacy Privacy Release		None/1-24	None										
Call Forward on Ring No-Answer		No/1-9 Rings	No										
Call Forward on Busy		Yes/No	No										
Call Forward Outside System		Yes/No	No										
Call Origination Denied		No/1-24	No										
Central Message Deck		Yes/No	No										
Data Security Port		Yes/No	No										
Do Not Disturb Override		Yes/No	No										
Dual Console Feature		No/10-57	No										
Executive Override		Yes/No	No										
Flexible Ringing	Direct	1-24	All (Sta 10, 17)										
	Delayed	1-24	None										
Night Transfer (of ringing)		1-24	All (Sta 10, 17)										
Flexible Station Numbering		10-7999	Ext = Port										
Group Call Pickup		1-4	1										
Headset Interface		Yes/No	No										
High Volume Setting		Yes/No	No										
Idle Line Preference		No/1-24	No										
Intercom Hunt Group		10-57	None										
Personal Ring Tones		1-6	1										
Prime	Line	1-24	None										
	Group	1-4	None										
	Intercom	Itcm.	None										
Message Waiting Originate		Yes/No	Yes										
Ringing Line Preference		Yes/No	No										
SOHVA Disable		Yes/No	No										
SOHVA Groups		None/1-8	None										
Service Observing		Yes/No	No										
Station Disable		Yes/No	No										

Station-to-Station Port Reassignment	10/57	Sta = Port										
System Alarm Report	Yes/No	No										
Voice Announce Block	Yes/No	No										

<b>Block Programming</b>					
Model Station Port					
First Station Port					
Last Station Port					

### Button Mapping The DigiTech Telephones (Rev. I and later)

Complete one record sheet for each station.  
Copy this blank record sheet as required for additional stations.

BUTTON	DESCRIPTION
BLK	Blank
Lnn	Lines 1 - 24
Snn	Stations 10 - 57
DND	Do Not Disturb
PRI	Privacy
IC2	Second Intercom
ACC	Account Code
SAV	Save
ZPn	Zone Page 1 - 3
AC	All-Call Page
ACB	Automatic Call Back
CF	Call Forward
CPn	Call Park Orbit 1 - 9
TGn	Line Group 1 - 4
VAB	Voice Announce Block
TGQ	Line Group Queue

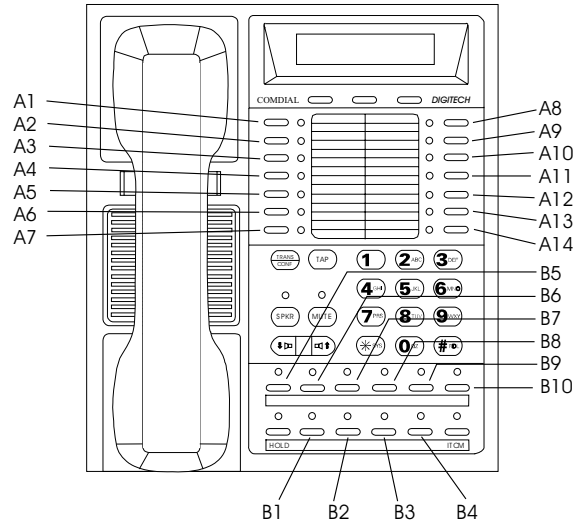
BUTTON ASSIGNMENT CHART	
A1	
A2	
A3	
A4	
A5	
A6	
A7	
A8	
A9	
A10	
A11	
A12	
A13	
A14	
B1	
B2	
B3	
B4	
B5	
B6	
B7	
B8	
B9	
B10	

CAJS020

PORT NUMBER		
INTERCOM NUMBER		
STATION NAME		
STATION LOCATION		
TELEPHONE	TYPE	
	MODEL	

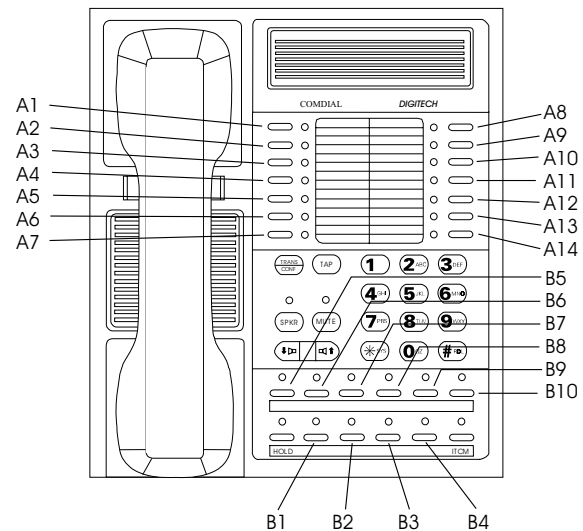
DEFAULT SETTINGS: B1-B10 = Line 1 - Line 10, and A1 = 23, A2 = 21, A3 = 19, A4 = 17, A5 = 15, A6 = 13, A7 = 11, A8 = 24, A9 = 22, A10 = 20, A11 = 18, A12 = 16, A13 = 14, A14 = 12

7700S LCD Speakerphone



7714S Speakerphone

7714X Monitor Telephone



### Button Mapping The DigiTech Telephones (Rev. A-H)

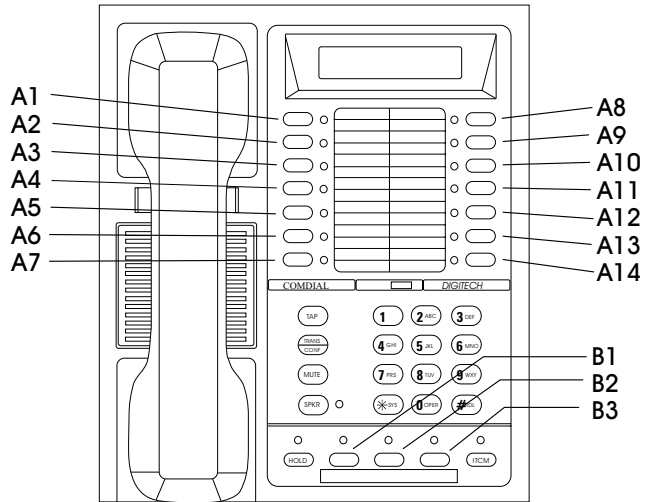
Complete one record sheet for each station.  
Copy this blank record sheet as required for additional stations.

BUTTON	DESCRIPTION
BLK . . . .	Blank
Lnn . . . .	Lines 1 - 24
Snn . . . .	Stations 10 - 57
DND . . . .	Do Not Disturb
PRI . . . .	Privacy
IC2 . . . .	Second Intercom
ACC . . . .	Account Code
SAV . . . .	Save
ZPn . . . .	Zone Page 1 - 3
AC . . . .	All-Call Page
ACB . . . .	Automatic Call Back
CF . . . .	Call Forward
CPn . . . .	Call Park Orbit 1 - 9
TGn . . . .	Line Group 1 - 4
VAB . . . .	Voice Announce Block
TGQ . . . .	Line Group Queue

BUTTON ASSIGNMENT CHART	
A1	
A2	
A3	
A4	
A5	
A6	
A7	
A8	
A9	
A10	
A11	
A12	
A13	
A14	
B1	
B2	
B3	
B4	
B5	
B6	
B7	
B8	

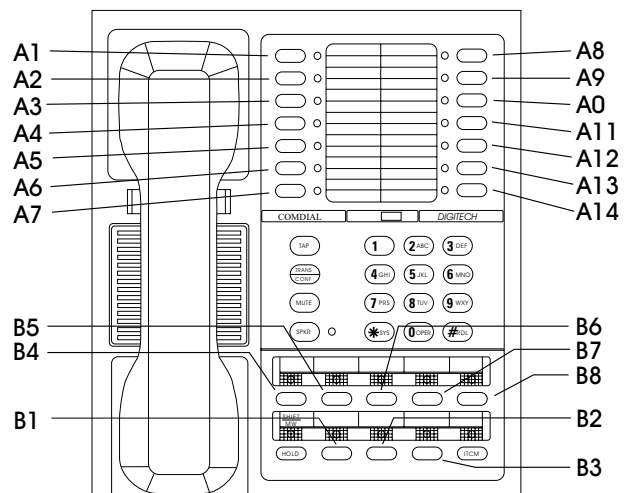
PORT NUMBER		
INTERCOM NUMBER		
STATION NAME		
STATION LOCATION		
TELEPHONE	TYPE	
	MODEL	

7700S LCD Speakerphone



7714S Speakerphone

7714X Monitor Telephone



CAJS021

DEFAULT SETTINGS: B1-B8 = Line 1 - Line 8, and A1 = 21, A2 = 19, A3 = 17, A4 = 15, A5 = 13, A6 = 11, A7 = 9, A8 = 22, A9 = 20, A10 = 18, A11 = 16, A12 = 14, A13 = 12, A14 = 10

### Button Mapping The Impact Telephones

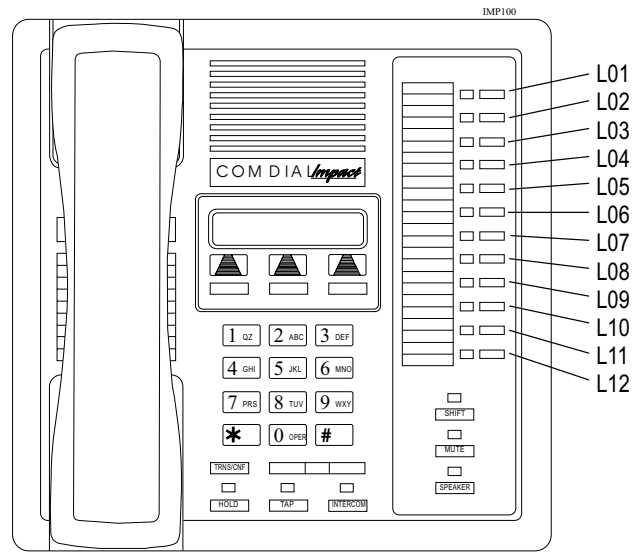
Complete one record sheet for each station.  
Copy this blank record sheet as required for additional stations.

BUTTON	DESCRIPTION
BLK . . . .	Blank
Lnn . . . .	Lines 1 - 24
Snn . . . .	Stations 10 - 57
DND . . . .	Do Not Disturb
PRI . . . .	Privacy
IC2 . . . .	Second Intercom
ACC . . . .	Account Code
SAV . . . .	Save
ZPn . . . .	Zone Page 1 - 3
AC . . . .	All-Call Page
ACB . . . .	Automatic Call Back
CF . . . .	Call Forward
CPn . . . .	Call Park Orbit 1 - 9
TGn . . . .	Line Group 1 - 4
VAB . . . .	Voice Announce Block
TGQ . . . .	Line Group Queue

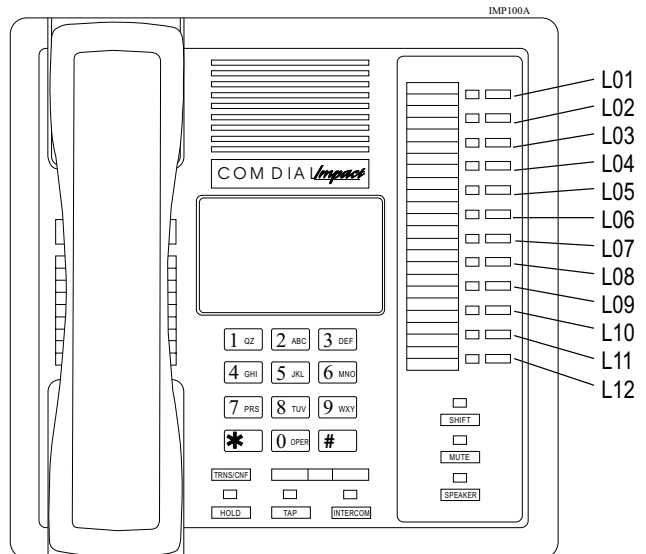
BUTTON ASSIGNMENT CHART		
DigiTech EQUIV.	IMPACT BUTTON*	PROGRAMMED ASSIGNMENT
A1	L01	
A2	L02	
A3	L03	
A4	L04	
A5	L05	
A6	L06	
A7	L07	
A8	L08	
A9	L09	
A10	L10	
A11	L11	
A12	L12	
*DEFAULT: L1-L12 = LINE 1 - LINE 12		

PORT NUMBER		
INTERCOM NUMBER		
STATION NAME		
STATION LOCATION		
TELEPHONE	TYPE	
	MODEL	

8012S 12-Line LCD Speakerphone



8112S 12-Line Speakerphone



CAJS019

### Button Mapping The Impact Telephones

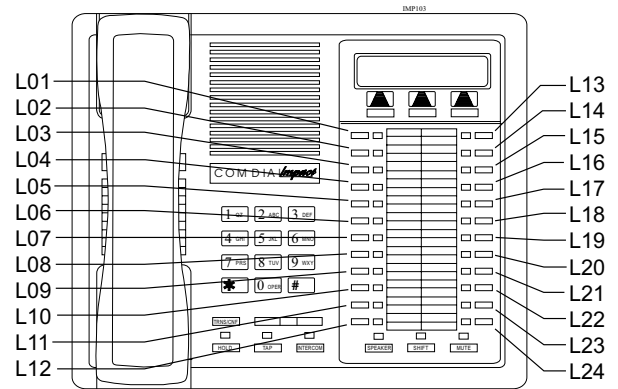
Complete one record sheet for each station.  
Copy this blank record sheet as required for additional stations.

BUTTON	DESCRIPTION
BLK . . . .	Blank
Lnn . . . .	Lines 1 - 24
Snn . . . .	Stations 10 - 57
DND . . . .	Do Not Disturb
PRI . . . .	Privacy
IC2 . . . .	Second Intercom
ACC . . . .	Account Code
SAV . . . .	Save
ZPn . . . .	Zone Page 1 - 3
AC . . . .	All-Call Page
ACB . . . .	Automatic Call Back
CF . . . .	Call Forward
CPn . . . .	Call Park Orbit 1 - 9
TGn . . . .	Line Group 1 - 4
VAB . . . .	Voice Announce Block
TGQ . . . .	Line Group Queue

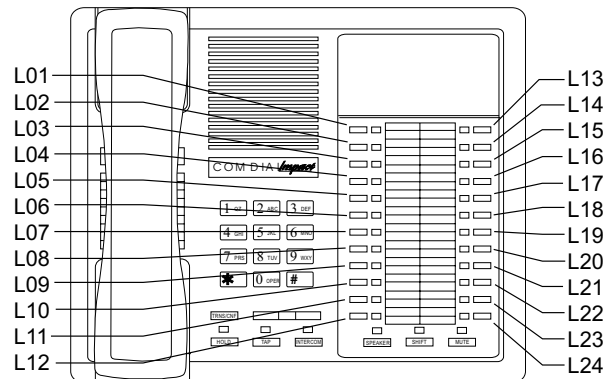
BUTTON ASSIGNMENT CHART		
DigiTech EQUIV.	IMPACT BUTTON*	PROGRAMMED ASSIGNMENT
A1	L01	
A2	L02	
A3	L03	
A4	L04	
A5	L05	
A6	L06	
A7	L07	
A8	L08	
A9	L09	
A10	L10	
A11	L11	
A12	L12	
A13	L13	
A14	L14	
B9	L15	
B10	L16	
B1	L17	
B2	L18	
B3	L19	
B4	L20	
B5	L21	
B6	L22	
B7	L23	
B8	L24	
*DEFAULT: L1-L24 = LINE 1 - LINE 24		

PORT NUMBER		
INTERCOM NUMBER		
STATION NAME		
STATION LOCATION		
TELEPHONE	TYPE	
	MODEL	

8024S 24-Line LCD Speakerphone



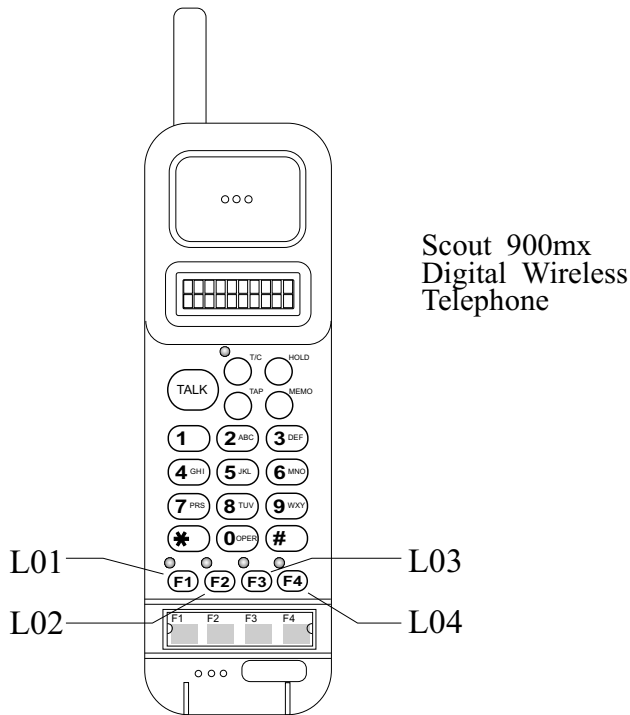
8124S 24-Line Speakerphone



CAJS016

## Button Mapping The Scout 900MX Digital Wireless Telephone

Complete one record sheet for each station.  
Copy this blank record sheet as required for additional stations.



BUTTON ASSIGNMENT CHART	
L01	
L02	
L03	
L04	
<i>Default:</i> L01 = Line 1 L02 = Line 2 L03 = Line 3 L04 = Intercom	

PORT NUMBER	
INTERCOM NUMBER	
STATION NAME	
STATION LOCATION	
TELEPHONE	TYPE
	MODEL

cajs068y.cdr

BUTTON	DESCRIPTION
BLK . . . .	Blank
Lnn . . . .	Lines 1 - 24
Snn . . . .	Stations 10 - 57
DND . . . .	Do Not Disturb
PRI . . . .	Privacy
IC2 . . . .	Second Intercom
ACC . . . .	Account Code
SAV . . . .	Save
ZPn . . . .	Zone Page 1 - 3
AC . . . .	All-Call Page
ACB . . . .	Automatic Call Back
CF . . . .	Call Forward
CPn . . . .	Call Park Orbit 1 - 9
TGn . . . .	Line Group 1 - 4
VAB . . . .	Voice Announce Block
TGQ . . . .	Line Group Queue

### Button Mapping The Impression Telephones

Complete one record sheet for each station.  
Copy this blank record sheet as required for additional stations.

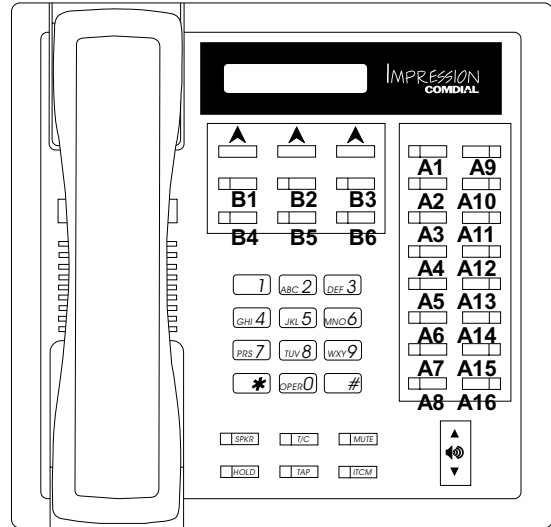
BUTTON	DESCRIPTION
BLK	Blank
Lnn	Lines 1 - 24
Snn	Stations 10 - 57
DND	Do Not Disturb
PRI	Privacy
IC2	Second Intercom
ACC	Account Code
SAV	Save
ZPn	Zone Page 1 - 3
AC	All-Call Page
ACB	Automatic Call Back
CF	Call Forward
CPn	Call Park Orbit 1 - 9
TGn	Line Group 1 - 4
VAB	Voice Announce Block
TGQ	Line Group Queue

BUTTON ASSIGNMENT CHART	
A1	
A2	
A3	
A4	
A5	
A6	
A7	
A8	
A9	
A10	
A11	
A12	
A13	
A14	
A15	
A16	
B1	
B2	
B3	
B4	
B5	
B6	

CAJS108

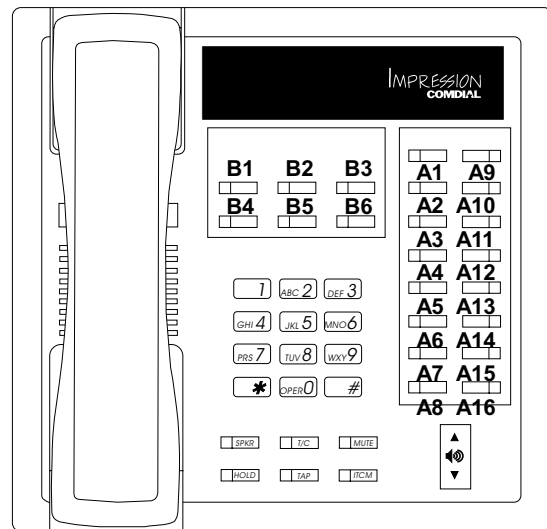
PORT NUMBER	
INTERCOM NUMBER	
STATION NAME	
STATION LOCATION	
TELEPHONE	TYPE
	MODEL

2022S LCD Speakerphone



2122S Speakerphone

2122X Monitor Telephone



DEFAULT SETTINGS: B1-B6 = Line 1 - Line 6, and A1 = 7, A2 = 9, A3 = 11, A4 = 13, A5 = 15, A6 = 17, A7 = 19, A8 = 21, A9 = 8, A10 = 10, A11 = 12, A12 = 14, A13 = 16, A14 = 18, A15 = 20, A16 = 22





Account Code Usage	Enabled	Displayed	
Verification	On	Off	
Usage Status	Forced	Optional	
Station Exceptions			
Verified Digits			
Account Code Length			
Emergency Number 1			
Emergency Number 1			
Emergency Number 1			
Emergency Number 1			
Emergency Number 1			
Emergency Number 1			
Emergency Number 1			
Emergency Number 1			
Emergency Number 1			
Emergency Number 1			
Emergency Number 1			
LCD Display Time			
Display on Incoming	Yes	No	
Default = Account Code Usage: Disabled Verified Status: On Usage Status: Forced Exceptions: None Verified Digits: Three Account Code Digits: 3 Display Time: 5 seconds Incoming Display: On			

## Recording the Industry-Standard Telephone Configurations

<b>Distinctive Ringing</b>	
Enabled	
Disabled	
Default = Enabled	

<b>Thru Dialing Port</b>					
10		26		42	
11		27		43	
12		28		44	
13		29		45	
14		30		46	
15		31		47	
16		32		48	
17		33		49	
18		34		50	
19		35		51	
20		36		52	
21		37		53	
22		38		54	
23		39		55	
24		40		56	
25		41		57	
Default = Not Enabled					

## Direct Department Calling Records

<b>Enable/Disable DCD Type Ring All Stations</b>	
Enabled	Disabled

<b>Enable/Disable DCD Type Longest Idle Distribution</b>	
Enabled	Disabled

<b>Department 1</b>	
Access Code 10-7999	
Line Ports 1-24	
Station Ports 10-57	

<b>Department 2</b>	
Access Code 10-7999	
Line Ports 1-24	
Station Ports 10-57	

<b>Department 3</b>	
Access Code 10-7999	
Line Ports 1-24	
Station Ports 10-57	

<b>Department 4</b>	
Access Code 10-7999	
Line Ports 1-24	
Station Ports 10-57	

Default = No access code assigned, no line assigned, and no stations assigned.

## Direct Inward Station Dialing (DISD) Records

<b>Dial Time Limit</b>	<b>6 sec</b>	<b>9 sec</b>	<b>12 sec</b>	<b>15 sec</b>	<b>20 sec</b>	<b>30 sec</b>	<b>40 sec</b>	<b>60 sec</b>	<b>90 sec</b>	<b>0 sec</b>
Default = 12 seconds										

<b>Assist Station</b>	
Station Assigned	Lines Assigned
Day Station	
Night Station	
Default = Station 10 Day and Night	

<b>Incoming Ring</b>	<b>Line Port Assigned</b>
0	
1	
2	
3	
4	
5	
6	
7	
8	
9	
Default = 0 Rings	

## Recording the Voice Mail Interface Configurations

Voice Mail Station Port					
10		26		42	
11		27		43	
12		28		44	
13		29		45	
14		30		46	
15		31		47	
16		32		48	
17		33		49	
18		34		50	
19		35		51	
20		36		52	
21		37		53	
22		38		54	
23		39		55	
24		40		56	
25		41		57	
Default = Not Enabled					

Automatic Attendant Ringing Lines (1-24)							
Station	Direct	Delay	Night	Station	Direct	Delay	Night
10				34			
11				35			
12				36			
13				37			
14				38			
15				39			
16				40			
17				41			
18				42			
19				43			
20				44			
21				45			
22				46			
23				47			
24				48			
25				49			
26				50			
27				51			
28				52			
29				53			
30				54			
31				55			
32				56			
33				57			
Default = Not Assigned							

Automatic Transfer Of Voice Mail	
Enable	
Disable	
<i>Default = Disabled</i>	



<b>Voice Mail Line Port Identification</b>					
1		9		17	
2		10		18	
3		11		19	
4		12		20	
5		13		21	
6		14		22	
7		15		23	
8		16		24	
Default = No ID Assigned					

<b>Voice Mail Transfer on Busy Station Port</b>					
10		26		42	
11		27		43	
12		28		44	
13		29		45	
14		30		46	
15		31		47	
16		32		48	
17		33		49	
18		34		50	
19		35		51	
20		36		52	
21		37		53	
22		38		54	
23		39		55	
24		40		56	
25		41		57	
Default = Not Enabled					

## Recording the Integrated Call Costing Configurations

Exception Tables																	
Exception Table	Digits																Cost Table
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
1																	
2																	
3																	
4																	
Default = None Assigned																	

Office Code Band Tables	
Band	Office Code Prefix
1	
2	
3	
4	
5	
6	
7	
Default = None Assigned	

Zone Call Band Tables	
Band	
1	
2	
3	
4	
Default = None Assigned	

Area Code Band Tables	
Band	
1	
2	
3	
4	
5	
6	
7	
Default = None Assigned	

Discard Digits								
Entry	Digits							
	1	2	3	4	5	6	7	8
1								
2								
3								
4								
5								
6								
Default = No Discard Digits Assigned								

Dial Time Limit	
01-999 seconds	
Default = 0 Seconds	

Answer Time Limit	
01-999 seconds	
Default = 0 Seconds	

Call Rate Table 1	
Tier 1 Time	
Tier 1 Rate	
Tier 2 Rate	
Surcharge	

Call Rate Table 7	
Number	
Tier 1 Time	
Tier 1 Rate	
Tier 2 Rate	
Surcharge	

Call Rate Table 2	
Number	
Tier 1 Time	
Tier 1 Rate	
Tier 2 Rate	
Surcharge	

Call Rate Table 8	
Number	
Tier 1 Time	
Tier 1 Rate	
Tier 2 Rate	
Surcharge	

Call Rate Table 3	
Number	
Tier 1 Time	
Tier 1 Rate	
Tier 2 Rate	
Surcharge	

Call Rate Table 9	
Number	
Tier 1 Time	
Tier 1 Rate	
Tier 2 Rate	
Surcharge	

Call Rate Table 4	
Number	
Tier 1 Time	
Tier 1 Rate	
Tier 2 Rate	
Surcharge	

Call Rate Table 10	
Number	
Tier 1 Time	
Tier 1 Rate	
Tier 2 Rate	
Surcharge	

Call Rate Table 5	
Number	
Tier 1 Time	
Tier 1 Rate	
Tier 2 Rate	
Surcharge	

Call Rate Table 11	
Number	
Tier 1 Time	
Tier 1 Rate	
Tier 2 Rate	
Surcharge	

Call Rate Table 6	
Number	
Tier 1 Time	
Tier 1 Rate	
Tier 2 Rate	
Surcharge	

Call Rate Table 12	
Number	
Tier 1 Time	
Tier 1 Rate	
Tier 2 Rate	
Surcharge	

Call Rate Table 13	
Number	
Tier 1 Time	
Tier 1 Rate	
Tier 2 Rate	
Surcharge	

Call Rate Table 19	
Number	
Tier 1 Time	
Tier 1 Rate	
Tier 2 Rate	
Surcharge	

Call Rate Table 14	
Number	
Tier 1 Time	
Tier 1 Rate	
Tier 2 Rate	
Surcharge	

Call Rate Table 20	
Number	
Tier 1 Time	
Tier 1 Rate	
Tier 2 Rate	
Surcharge	

Call Rate Table 15	
Number	
Tier 1 Time	
Tier 1 Rate	
Tier 2 Rate	
Surcharge	

Call Rate Table 21	
Number	
Tier 1 Time	
Tier 1 Rate	
Tier 2 Rate	
Surcharge	

Call Rate Table 16	
Number	
Tier 1 Time	
Tier 1 Rate	
Tier 2 Rate	
Surcharge	

Call Rate Table 22	
Number	
Tier 1 Time	
Tier 1 Rate	
Tier 2 Rate	
Surcharge	

Call Rate Table 17	
Number	
Tier 1 Time	
Tier 1 Rate	
Tier 2 Rate	
Surcharge	

Call Rate Table 23	
Number	
Tier 1 Time	
Tier 1 Rate	
Tier 2 Rate	
Surcharge	

Call Rate Table 18	
Number	
Tier 1 Time	
Tier 1 Rate	
Tier 2 Rate	
Surcharge	

Call Rate Table 24	
Number	
Tier 1 Time	
Tier 1 Rate	
Tier 2 Rate	
Surcharge	

Call Rate Table 25	
Number	
Tier 1 Time	
Tier 1 Rate	
Tier 2 Rate	
Surcharge	

Call Rate Table 31	
Number	
Tier 1 Time	
Tier 1 Rate	
Tier 2 Rate	
Surcharge	

Call Rate Table 26	
Number	
Tier 1 Time	
Tier 1 Rate	
Tier 2 Rate	
Surcharge	

Call Rate Table 32	
Number	
Tier 1 Time	
Tier 1 Rate	
Tier 2 Rate	
Surcharge	

Call Rate Table 27	
Number	
Tier 1 Time	
Tier 1 Rate	
Tier 2 Rate	
Surcharge	

Call Rate Table 33	
Number	
Tier 1 Time	
Tier 1 Rate	
Tier 2 Rate	
Surcharge	

Call Rate Table 28	
Number	
Tier 1 Time	
Tier 1 Rate	
Tier 2 Rate	
Surcharge	

Call Rate Table 29	
Number	
Tier 1 Time	
Tier 1 Rate	
Tier 2 Rate	
Surcharge	

Call Rate Table 30	
Number	
Tier 1 Time	
Tier 1 Rate	
Tier 2 Rate	
Surcharge	

## Station Message Detail Accounting/Reporting Records

Department	Department Number	Department Station
1		
2		
3		
4		
5		
6		
7		
8		
Default = None Assigned		

Automatic Report Time	
Hours	
Minutes	
Selected Records	
All Stations	
One Station	
Account Report	
Line Report	
Department Report	
Print All Records	
Delete Records	
DCD Report	
Default = None Assigned	

<b>SMDR Cost Reporting</b>	Enabled	Disabled
<b>SMDR Printout</b>	Enabled	Disabled
Default = No Cost Reported, Printout Enabled		











<b>Overflow Line Group</b>	
Default = None	

Line Group	Alternate Line Group
1	
2	
3	
4	
Default = None	

<b>SRA Wait Time</b>	2 seconds	3 seconds	4 seconds
Default = 4 Seconds			

Line Group	Insert Digits							
	1	2	3	4	5	6	7	8
1								
2								
3								
4								
Default = None								



<b>Toll Restriction Table 4</b>																
<b>Table Type: Allow ____ Deny ____</b>																
<b>Entry</b>	<b>Entry Number (16 Digits Max)</b>															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1																
2																
3																
4																
Lines _____ Table Assignment: _____ Stations: _____																

<b>Toll Restriction Table 5</b>																
<b>Table Type: Allow ____ Deny ____</b>																
<b>Entry</b>	<b>Entry Number (16 Digits Max)</b>															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1																
2																
3																
4																
Lines _____ Table Assignment: _____ Stations: _____																

<b>Toll Restriction Table 6</b>																
<b>Table Type: Allow ____ Deny ____</b>																
<b>Entry</b>	<b>Entry Number (16 Digits Max)</b>															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1																
2																
3																
4																
Lines _____ Table Assignment: _____ Stations: _____																

<b>Toll Restriction Table 7</b>																
<b>Table Type: Allow ____ Deny ____</b>																
<b>Entry</b>	<b>Entry Number (16 Digits Max)</b>															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1																
2																
3																
4																
Lines _____ Table Assignment: _____ Stations: _____																

<b>Toll Restriction Table 8</b>																
<b>Table Type: Allow ____ Deny ____</b>																
<b>Entry</b>	<b>Entry Number (16 Digits Max)</b>															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1																
2																
3																
4																
Lines _____ Table Assignment: _____ Stations: _____																

<b>Toll Restriction Table 9</b>																
<b>Table Type: Allow ____ Deny ____</b>																
<b>Entry</b>	<b>Entry Number (16 Digits Max)</b>															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1																
2																
3																
4																
Lines _____ Table Assignment: _____ Stations: _____																

<b>Toll Restriction Table 10</b>																
<b>Table Type: Allow ____ Deny ____</b>																
<b>Entry</b>	<b>Entry Number (16 Digits Max)</b>															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1																
2																
3																
4																
Lines _____ Table Assignment: _____ Stations: _____																

<b>Toll Restriction Table 11</b>																
<b>Table Type: Allow ____ Deny ____</b>																
<b>Entry</b>	<b>Entry Number (16 Digits Max)</b>															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1																
2																
3																
4																
Lines _____ Table Assignment: _____ Stations: _____																

<b>Toll Restriction Table 12</b>																
<b>Table Type: Allow ____ Deny ____</b>																
<b>Entry</b>	<b>Entry Number (16 Digits Max)</b>															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1																
2																
3																
4																
Lines _____ Table Assignment: _____ Stations: _____																



<b>Toll Restriction Table 13</b>																
<b>Table Type: Allow ____ Deny ____</b>																
<b>Entry</b>	<b>Entry Number (16 Digits Max)</b>															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1																
2																
3																
4																
Lines _____ Table Assignment: _____ Stations: _____																

<b>Toll Restriction Table 14</b>																
<b>Table Type: Allow ____ Deny ____</b>																
<b>Entry</b>	<b>Entry Number (16 Digits Max)</b>															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1																
2																
3																
4																
Lines _____ Table Assignment: _____ Stations: _____																

<b>Toll Restriction Table 15</b>																
<b>Table Type: Allow ____ Deny ____</b>																
<b>Entry</b>	<b>Entry Number (16 Digits Max)</b>															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1																
2																
3																
4																
Lines _____ Table Assignment: _____ Stations: _____																

Toll Restriction Table 16																
Table Type: Allow ____ Deny ____																
Entry	Entry Number (16 Digits Max)															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1																
2																
3																
4																
Lines <span style="float: right;">Table Assignment: Stations:</span>																

**Toll Restriction Tables—Line Assignments**

Assign Toll Restriction Tables to Lines			
Port	Tables	Port	Tables
1		13	
2		14	
3		15	
4		16	
5		17	
6		18	
7		19	
8		20	
9		21	
10		22	
11		23	
12		24	
Default = All Tables Assigned to All Ports			

### Toll Restriction Assignments

Station Port	Toll Table Assignments			
	Normal Calls	Night Transfer Calls	Speed Dial Calls	Override Code
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				
31				
32				
33				
34				
35				
36				
37				
38				
39				
40				
41				
42				
43				
44				
45				
46				
47				

Station Port	Toll Table Assignments			
	Normal Calls	Night Transfer Calls	Speed Dial Calls	Override Code
48				
49				
50				
51				
52				
53				
54				
55				
56				
57				
Default = None Assigned				

# Caller ID Service Support Configuration Chart

Caller ID Lines (List 1-24 for lines)	
Default = None Assigned	

Caller ID Stations (List 10-57 for stations)	
Default = None Assigned	

Audible First Ring	Enable	Disable	
Default = Disabled			

SAVE Button Stations (List 10-57 for stations)	
Default = None Assigned	

Caller ID Distribution to COM 2	Enable	Disable	
Default = Disabled			

COM 2 Configuration			
<b>Baud Rate</b>	9600	Other (See System Configuration Record)	
<b>Data Bits</b>	8 Data/1 Stop	7 Data/2 Stop	
Default = 9600 Baud, 8 Data Bits, 1 Stop Bit			

## Tracker Paging System Records

Tracker Paging System			
Enabled		Disabled	
Default = Disabled			

Tracker Pager Station Assignments					
Station Port	Enabled	Station Port	Enabled	Station Port	Enabled
10		26		42	
11		27		43	
12		28		44	
13		29		45	
14		30		46	
15		31		47	
16		32		48	
17		33		49	
18		34		50	
19		35		51	
20		36		52	
21		37		53	
22		38		54	
23		39		55	
24		40		56	
25		41		57	
Default = Disabled					

# Digital Voice Announcing Records

Enable/Disable DVA Operation		
Feature	Enabled	Disabled
DVA Support for DCD		
DVA Support for DISD		
Default = Disabled		

DCD Department Transfers before Disconnect										
DCD Department Transfers before Disconnect	1	2	3	4	5	6	7	8	9	Never Disconnect
Default = Never Disconnect										

Inhibit DISD Digit Dialing—During Night Transfer (of Ringing) Operation		
DISD Digit Dialing during Night Transfer (of Ringing) Operation	Enabled (Dialing On)	Disabled (Dialing Off)
Default = Enabled		

DISD Dial Time Limit										
DISD Dial Time Limit	6 sec	9 sec	12 sec	15 sec	20 sec	30 sec	40 sec	60 sec	90 sec	0 sec
Default = 12 sec.										

DVA Messages (Copy this blank sheet for a record of each DVA)		
Message Type	DCD Message	DISD Message
Day Answer Message (Message 1)		
Night Answer Message (Message 2)		
Recall Message (Message 3)		
Drop Message (Message 4)		

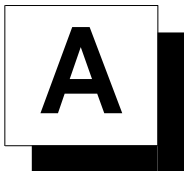
<b>DVA Station Ports</b>			
<b>Station Port</b>	<b>DVA Assigned</b>	<b>Station Port</b>	<b>DVA Assigned</b>
10		34	
11		35	
12		36	
13		37	
14		38	
15		39	
16		40	
17		41	
18		42	
19		43	
20		44	
21		45	
22		46	
23		47	
24		48	
25		49	
26		50	
27		51	
28		52	
29		53	
30		54	
31		55	
32		56	
33		57	
Default = None Assigned			



## Data Interface Unit Records

Station	DIU Location	Security Group	Station	DIU Location	Security Group
10			34		
11			35		
12			36		
13			37		
14			38		
15			39		
16			40		
17			41		
18			42		
19			43		
20			44		
21			45		
22			46		
23			47		
24			48		
25			49		
26			50		
27			51		
28			52		
29			53		
30			54		
31			55		
32			56		
33			57		
Defaults = No DIUs assigned. Security Groups = 0 (no assignments.)					
Example: The following entries show that station 12 has been programmed so that the data button (labeled "DATA") on the digital telephone at station 12 will activate the DIU connected at station 29. Also, this example shows that station 29 is assigned to security group 2.					
12	29	—			
29	29	2			

## **Notes**



## **Describing the System Features**

### **A**

#### **Abandoned Hold Release**

If an on-hold party hangs up at the CO/PBX end of a connection, causing an interruption in the line current, the system will drop the line from the hold condition and return it to service. The time interval between hang-up and line-drop is programmable in line class of service programming with choices of either 50 msec or 350 msec. This feature is usually dependent upon special arrangements that must be made at the CO end of the connection. The line select indicator will turn off to indicate an idle line after a call on that line has been abandoned.

See also, *Hold*.

#### **Access Denied**

The system programmer can deny access to particular lines at certain stations in the system. A station user cannot select a denied line for use. This feature is programmable on a per line/per station basis in station class of service programming.

See also, *Line Features*.

#### **Account Codes (with Forced Positive Verification)**

System users can employ account codes to identify calls by category or by any other desired grouping so that the system can print reports. The account code entry can be voluntary or the programmer can arrange the system so that the users are forced to enter an account code before they can make an outgoing call. The system compares the account code entered by a station user with a list of programmed account entries.

The programmer must program the system so that it verifies an entered account code as valid. If he or she enables verification and the system cannot match an account code that a user has dialed with the programmed account code entries, the system will sound an error tone if account code entry is voluntary, or it will prevent the user from further dialing until he or she enters a matching account code if account code entry is forced.

A user must enter an account code either before dialing an outgoing call or after the distant party on an incoming call has hung up. Additionally, users may enter an account code before they select a line for an outgoing call if they wish. When they enter an account code without a line selection, the code will apply to any line they subsequently select at that station. On incoming and outgoing calls, the user who enters the account code is associated with the call record except when the call is transferred. On transferred calls, the transferee is associated with the call record.

As a feature to LCD speakerphone users, the programmer can arrange for a message to appear in the telephone's display to prompt the user to enter an account code during incoming or before outgoing calls. He or she can also assign the length of time that the display appears. The user must enter account code digits after the message appears. If the programmer has set the system to verify code entry, it then makes a verification attempt. If the system cannot verify the account code it causes the display to show an error message. The user may then re-enter the account code at this point. If the verification attempt is successful (or if the system does not require that the code be verified), the display will return to its normal date and time message. If the account codes are forced and the call is outgoing, then the line is dropped at the end of the display time if the user has not entered a valid account code. The programmable range for the display time is 1 to 20 seconds. When the feature is not enabled, the system inhibits the display prompt.

When a station user activates the last number redial or automatic redial features for outgoing calls, the system will automatically re-use the last account code the user entered at that station unless he or she enters a new one before activating the redial feature.

In addition to turning on the account code feature, enabling its verification, and making it either voluntary or forced, the programmer must set the account code length, specify the number of digits that the system will verify, and make up the entire list of account codes that the users will use. Account code length defines the number of digits that a user must enter before the system will accept the code. The length can range from three to 16 digits but cannot be lower than the verified account code length. The verified account code length defines the number of digits that the system will verify before it accepts an account code as valid. As well, verified account code length defines the number of valid account codes that a programmer can store (as shown in the following table). A programmer should be aware that when he or she changes the verified account code length, the system automatically empties the list of valid account codes.

<b>Account Code Length and Valid Account Codes</b>	
<b>Digits Verified</b>	<b>Number of Valid Account Codes</b>
3	1000
4	400
5, 6	266
7, 8	200
9, 10	160
11, 12	133
13, 14	114
15, 16	100

Even though a programmer has arranged a system to force users to enter account codes before making calls, they can always dial certain programmer-defined emergency numbers without an accompanying account code entry. The system allows a maximum of 10 programmable emergency numbers. The minimum length of an emergency number is 1 digit and the maximum length is 12 digits. Users may dial emergency numbers manually, through system speed dial, personal speed dial, last-number redial, or automatic redial—with or without account code entry.

### **Forced Account Code Entry for CENTREX Users**

The programmer may set the TAP time so that CENTREX users *do not* have to re-enter an account code after pressing the TAP button. The programmer may also set the system so that non-CENTREX users *do* have to enter an account code after pressing TAP.

- If the TAP time is set for 1 second or less (the hookflash time), the system will not clear an account code after a TAP entry. This enables CENTREX users to do host system transfers without entering an account code a second time.
- If the programmer sets the TAP time for 1.5 seconds or more (the recall time), the system clears the account code after TAP entry. This forces non-CENTREX users to re-enter an account code if they press TAP to recall a new dial tone.

### **Account Code Button**

A programmer can use station class of service programming to assign an account code button to any programmable button location at a station as part of the button mapping procedure. With this account code button available, the user can press it and then dial an account code without interrupting the call. Only the user of the Account Code button will hear the DTMF tones when he or she dials the code. The distant on-line party will not hear the DTMF tones, and the system will not place the line on hold. The user can hear the distant on-line party while he or she is dialing an account code. If the telephone does not provide an account code button, the user must dial an intercom code before he or she dials the account code digits.

### **All-Call Paging**

All-call paging allows all stations to receive announcements through the station speaker at once. The system can also send all-call paging to the paging port where it applies it to the input of an external paging amplifier. Origination of announcements must be via the station handset. A programmer can arrange each station to receive and/or originate all-call page. He or she enables the ability to receive and originate all-call paging at a station through station class of service programming.

See also, *Paging*.

### **Analog Terminal Interface Support**

The digital telephone system supports the operation of the Analog Terminal Interface (ATI-D). The ATI-D is a multipurpose on-premise accessory with dual circuits that provide an industry-standard telephone interface. This feature adapts most industry-standard (IST) devices and voice processing systems to the digital telephone system. The ATI-D accepts both tone and pulse (rotary) dialing from these devices. Each ATI-D circuit will drive a load with a maximum ringer equivalence number (REN) of 2.0 thus allowing more than one IST connection at each ATI-D circuit input. The ATI-D supports a wide variety of IST equipment such as model 500 and 2500 telephones, cordless telephones, answering machines, and FAX machines. The ATI-D is housed in a metal enclosure and is powered by the telephone system through the station port connections. It contains a ringing generator to generate a ringing signal for the IST devices.

### **Area Paging Interface**

Any station user can dial a special code number in response to an all-call or zone page and be connected to the paging party in a private conversation. All-call or zone paging is provided to the stations through the station class of service programming.

See also, *Paging*.

## **Assist Button**

This feature allows a station user to program a button to be used for sending a message to an LCD speakerphone. Once programmed, the station user can press the ASSIST button at anytime to sound a tone burst at the called station and present a preprogrammed message in the station display. The user can send a message while on a call without alerting the distant party. This feature is useful for requesting assistance while engaging on a call. For example, a customer service representative could request assistance from a supervisor while talking to a problem caller. The supervisor, upon receiving the tone and noting the display message, could perform an executive override or service observing action to join the call or monitor it.

See also, *Messaging*.

## **Automatic Callback**

If a telephone user encounters a busy tone or a ring no-answer after calling an intercom station, She or he can dial a special code number that will cause the system to automatically ring both the user's telephone and the one that he or she was calling. This automatic callback occurs after the busy station becomes idle or after the user at the ring no-answer station takes some action at it that indicates to the system that it is available to be answered. No class of service programming is required to enable this feature.

See also, *Intercom*.

## **Automatic Configuration with Voicemail Systems**

The DSU II system automatically configures itself for integration with a Voice Processing (VP) system. In taking this action, the DSU II automatically arranges station ports that are connected to the VP system to be voice mail ports. Automatic configuration requires the proper software match detailed in the following chart.

<b>Component</b>	<b>Required Software Level</b>
Microsoft Windows NT- or 2000-based VP System	VP revision 10.3
Microsoft DOS-based VP system	VP revision 8.5
DSU II Communications System	Revision 7A

There are no new Station 10 or VDT programming steps associated with the feature and it does not generate any new printouts.

To start the automatic configuration process, installers connect the station port wiring between the DSU II and the VP system, and turn on the AC power to both systems.

### **CAUTION**

*Installers must not connect the serial data connection between the DSU II and the VP system until after the automatic configuration completes its process.*

**Automatic configuration occurs in the following order:**

1. Each voice mail port goes off hook and identifies its port number to the DSU II. The DSU II then identifies an extension number for each voicemail port.
2. The DSU II takes the following actions:
  - marks each identifying port as a voice mail port,
  - hunt links the voice mail ports together,
  - enables the Call Forward Busy feature for the voice mail ports,
  - enables the Call Forward Ring No Answer feature for the voice mail ports,
  - sets Ring—No Answer to one ring for voice mail ports.
3. The DSU II then identifies any extension that has no hunt link, links those extensions to a voice mail port, enables the Call Forward Busy and Call Forward Ring—No Answer features at those extensions, and sets the RNA at those extensions to three rings.

Once automatic configuration finishes, installers must configure prototype mailbox 9994 on the VP system (using the instructions found in Section 5 of the *VP System Installation and Maintenance Manual* for details). After programming the prototype mailbox, installers make the serial cable connection between the DSU II and the VP system. With the serial connection completed, the DSU II and the VP system establish a serial communications link between themselves that allows the VP system to create mailboxes for every DSU II station port extension number.

During every startup the VP system identifies itself to the DSU II. If voice mail ports are already in the correct location, no automatic configuration action occurs.

## **Automatic Dialing of Stored Numbers**

### ***Automatic Dialing***

The system supports up to 24 automatic dial (auto dial) numbers per station. auto dial buttons can store up to 16 digits plus an intercom or line selection. Stored digits include 0–9, \*, and #. The system stores a pause at any point where the HOLD button is pressed, and stores a hookflash at any point where the TAP button is pressed. Automatic dialing provides a way to obtain one-button access to frequently used system features. This feature does not require any class of service to enable it.

### ***Programmable DSS/BLF***

A station user can store one-button, direct station selection (DSS) at any memory button location to create a DSS memory 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. No class of service is required.

### ***Station Speed Dial***

Each station provides 10 speed dial number locations at the keypad buttons. Station speed dial numbers can be up to 16 digits in length and can include line or intercom selection, numbers, #, \*, pauses, and hookflash signals. A user can store a pause by pressing the **HOLD** button and store a hookflash signal by pressing the **TAP** button.

### ***System Speed Dial***

The system provides 99 system-wide speed dial numbers. The system speed dial numbers can be up to thirty-two digits in length, and can include numbers, #, \*, pauses, and hookflash signals. The attendant programs the system speed dial numbers and names at station 10 or 12 for use at every station in the system. No class of service programming is required.

### **Automatic Hold for Intercom**

If a user selects the second intercom line while a call is active on the first intercom line, this automatic hold feature lets the system automatically place the first intercom call on hold. Use station class of service programming to enable this feature.

See also, *Hold*.

### **Automatic Hold—Transfer to Line**

A programmer can use class of service programming to make this system feature available to selected stations. When enabled, a user can press any line button and cause an active line to automatically go on hold. This feature allows a user to move from line to line without having to press the HOLD button to place any current calls on hold. Use station class of service programming to enable this feature at the desired stations.

See also, *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 for at least two seconds. The system inserts the automatic pause in the stored number sequence at the point where the manual pause in dialing occurred. The length of the automatic pause is programmable.

See also, *Automatic Dialing of Stored Numbers* and *Redialing*.

### **Automatic Redial (of Busy Number or Unanswered Call)**

A user can automatically redial a busy number or unanswered call by activating this feature. Once the user activates automatic redial, the station will select the line, automatically dial the number, and wait for a response. It will do this twice unless the user deactivates the feature by pressing that button or another button or by lifting the handset. The feature cycle is timed and does not have busy detection circuitry. Because of this, if the user is operating hands-free when the called party answers, she or he must lift the handset to prevent the caller from being cut off by the timing cycle. The automatic redial button is a designated programmable button position and the user must program its location to make it active.

See also, *Redialing*.



## **Automatic Station Relocation**

With this feature, the system will automatically recognize a particular station should that station be relocated to a new station port. When someone places a telephone at a new port location, it will continue to provide the same class of service parameters and respond to the same extension numbers as it did at the original station port. A programmer must enable this system feature using system class of service programming. As an added feature when someone plugs an LCD speakerphone in a new station port, the system will prompt the user on the display to verify the relocation of features.

## **Auxiliary Equipment Interface**

An installer can use the auxiliary equipment interface to connect a telephone device or a data device to an outside line ahead of the common equipment. The system can detect an off-hook condition in a device that an installer has connected to the auxiliary equipment interface, and turn on the status light for that line at telephones that have that line appearance. It does this to indicate that the line is busy and not available for station use. Auxiliary equipment interface connections provide connections to lines 2 and 4. A user cannot interrupt an external device by pressing the line button unless the line has been programmed to be non-private.

## **Auxiliary Ringer Interface**

The auxiliary ringer interface provides “dry-contact” relay closures which track the ringing pattern whenever the system sends ringing to a programmable destination. Programmers can program relay control to be activated when the system sends ringing to station port 17 or to the paging port.

When programmed for station port 17 ringing, an installer often uses an external device to provide loud ringing. When programmed for paging port ringing, an installer often installs an external paging amplifier to sound the rings. The system supplies ringing tones to the paging port along with the relay closures. It can send the ringing tones to the input of an external paging amplifier and the installer can arrange the wiring so that the relay closures energize the paging amplifier while it is receiving the ringing tone. Use system class of service programming to choose either the paging port or station port 17 for the ringing port relay control. Also use system class of service to determine the type of ringing sent to the paging port. Use station class of service programming to determine the type of ringing that the system sends to station port 17.

Programmers can arrange for the system to send ringing tones for particular lines through the PA port. They can choose between intercom tone and DTMF signaling tone for the PA port ringing. They should choose the intercom tone if they desire a soft tone and the DTMF tone if they desire a loud tone.

See also, *Ringling*.

## **B**

### **Background Music**

If the installer connects a customer-provided external music source to the system, the music from that source will sound through the station loudspeakers after the users turn it on at their stations. They can adjust the loudness of this background music with the loudspeaker volume control. The system automatically turns the background music off during calls. This feature requires no class of service programming.

See also, *Music Features*.

## **Basic Key Service (1A2) Emulation**

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. No special class of service programming is required.

## **Battery Backup**

### ***Battery Backup (Chassis, Cable, and Batteries)***

The manufacturer offers battery backup assemblies including chassis, cable, fuses, and batteries as optional kits available through normal distribution channels. The assemblies are designed so that installers can connect them directly to the uninterruptable power source (UPS) interface located on the common equipment chassis. The system does not require any action from the telephone user to make it operate on battery power nor does it require any class of service programming action on the programmer's part.

### ***Battery Backup Interface***

The common equipment cabinet provides an interface for an optional battery backup kit to give full uninterrupted system power in case of an AC power loss. The switching and charge circuitry are in the common equipment, while the 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. 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.

## **Block Programming**

A programmer can assign a particular line or station's class of service to an entire block of lines or stations with one programming action. This feature eliminates the need for him or her to individually program stations and lines with the same class of service. A programmer can perform a block programming class of service after he or she has programmed a station class of service or line class of service for a particular station or line.

See also, *Class Of Service*.

## **Boot Loader**

Information used by Windows NT during startup to configure the operating system.

## **C**

### **Call Announce With Handsfree Answer Back**

The internal loudspeaker at each station provides call-announce capability over the intercom link. A user can make a hands-free response to a call-announce call without lifting the handset.

The user can use the MUTE button to block all hands-free answer back response. This arrangement will prevent a station user from monitoring another station site using the monitoring ability of the voice announce feature. When a user presses the MUTE button, all handsfree answerback is disabled, inhibiting any off-site monitoring. The MUTE light turns on to indicate that this feature is active.

See also, *Intercom*.

### **Call Costing and Station Message Detail Accounting Reports**

The system provides built-in, estimated costing of all outside calls. It also provides station message detail accounting (SMDA) printout reports of all costed calls and displays call costs on LCD speakerphones.

Call costing, in general, provides a means of establishing costs to be applied to outside calls made from system telephones. Call costing computes charges for a call after it is completed. It does not restrict dialing as toll restriction does. Call costs are based on a two-tier time rate and includes a line surcharge cost. A programmer can program allowances for call set-up and minimum call duration. The system provides several ways of determining call costing, making it possible to apply reasonable rates for the entire country.

The system will automatically provide a report whenever the costed call storage reaches 95 percent of capacity. Additionally, the programmer can arrange for these reports to be printed automatically at a specific time of day.

The system can produce five different SMDA records:

- Detailed report sorted by stations,
- Detailed report sorted by account codes,
- Line summary report,
- Department summary report,
- Department Call Distribution (),
- A general output of all records.

Upon completion of report printing, the telephone attendant can delete all records the system used for the reports. The system will not delete any call records created between the time the report printout was started and completed. If the attendant does not delete the reports after they are printed, a later command to delete records will delete all records at that point and not just the ones that were printed in the previously generated reports. The programmer can take programming action to always delete the records after they have been printed. The attendant has the ability to request particular reports to be printed at any time they are required.

The programmer can establish account codes to allow system users to identify calls by category or by any other desired grouping so that the system can report costing by that category or grouping. Further, the programmer can define department numbers and assign stations to different departments so that the system can produce call cost reports on a department-by-department basis.

Programmers must use call costing and SMDA reporting class of service programming to set the costing features, and assign stations to specific SMDA departments using the station class of service programming. He or she can also enable the LCD speakerphone display of costed calls through station class of service programming.

### ***SMDA Reporting Through VDT Programming and Per-Station SMDA***

The programmer can use the VDT programming option to request that the system send SMDA reports to either data port A or data port B for printout. It is also possible to use this feature remotely through a data communications arrangement to capture SMDA reports. In addition, the system provides SMDA station reports for individual stations when the attendant requests them by dialing certain code numbers at station 10 or 12. Note, however, that the system can provide only one station report at a time.

### ***Station Message Detail Recording (SMDR)***

The SMDR feature generates a call record for printing as soon as the system collects the record. It presents the call record at an RS-232 level as ASCII transmit data in an 80-column format at the data port available for that purpose.

## **Call Forwarding**

### ***Call Forwarding on All Calls***

This feature allows a station user to designate another station or the attendant station as the recipient of all calls normally directed to ring at his or her station. If the user has call forwarding enabled when the attendant activates night transfer of ringing, the system forwards the night ringing assignment of the user's station. Calls that the system forwards to a recipient station can be forwarded again by that station user to another station. Thus, two levels of call forwarding on all calls can occur, first, from station A to station B and then, from station B to station C. As a reminder that call forwarding is enabled, a short tone burst will occur at the user's station for each intercom call that it receives while its calls are forwarded.

When the programmer has assigned a call forward button to a station, its associated LED will turn on to indicate that the feature is enabled when the user presses it; however, if the call forward button is programmed as a second level to a DSS/BLF button, the system reserves the LED indication for BLF indication. On LCD speakerphones that are recipients of call forwarding, the display will indicate the extension number or station name for the station from which an intercom call was forwarded.

### ***Call Forwarding—Personal***

Call forwarding of personal calls allows a station user to designate another station number (or the attendant station number) to be the recipient of intercom and prime line calls normally directed to that user's station. For each intercom call received while call forward is enabled, a ring reminder (short tone burst) will be sounded at the forwarding station to remind the user that his or her calls are being forwarded. On LCD speakerphones that are recipients of call forwarding, the display will indicate the extension number or station name for the station from which an intercom call was forwarded.

### ***Call Forwarding of Ring No-Answer (RNA) and/or Busy Calls***

With this call forwarding enhancement, the can forward both the RNA and the busy calls that a station receives or forward just the RNA or just the busy calls that the station receives. Being able to separate these call forwarding schemes allows users to have forwarding just for the calls that ring their stations when they are away from their telephones but not burden their hunt-linked fellows with calls they receive while they are busy on existing calls.

A RNA call first rings for a programmed number of times at the receiving station then start ringing at the station that is hunt-linked to the receiving station. If that hunt-linked station is also hunt-linked to another station, the call will follow that link. A call to a busy station will immediately start ringing at the station that is hunt-linked to the busy station. If that hunt-linked station is also hunt-linked to another station, the call will follow that link.

To enable this feature enhancement, programmers must first enable tone first signaling and arrange an intercom hunt group. Then, they can individually enable call forwarding for RNA calls and call forwarding for busy calls. They can turn on either call forwarding scheme alone or turn on both schemes as the site demands dictate.

### ***Ring—No Answer Forwarding of Transferred Calls***

This feature enhances the existing automatic RNA call forwarding feature to include forwarding of transferred lines to individual stations. When a telephone user transfers a line to a station, the call will ring at the station receiving the transfer for the programmed number of rings. After that, the call will start ringing at the station that is hunt-linked to the station first receiving the transfer. If that station is also hunt-linked to another station, the call will follow that link. When the transfer recall time expires, the call will recall back to the station that initiated the transfer. The hunt link can be a circular one. The transferred line will circle the hunt link until it recalls. Alternately, the station can be hunt-linked to voice mail so that a transferred call will forward to the station's voice mailbox if it is unanswered. For this feature to work properly, the following details must be considered:

- you must hunt-link the station receiving a transfer to another station;
- you must program the number of rings to occur before forwarding;
- you must insure that the transfer recall time is larger than the total time of RNA to all hunt linked stations (if it is not, the transferred call will recall before the call gets to the end of the hunt link).

For an example of this last consideration, assume station 12 is hunt-linked to station 13 which is also hunt-linked to station 14. Further assume that station 12 and 13 have their RNA's set to two rings. A call that is transferred to station 12 will ring there twice, then it will ring at station 13 twice, then it will ring station 14 until transfer recall time expires. Each transfer ring cycle is approximately four seconds; therefore, the line will ring the station for approximately eight seconds before it moves to the next station. Since there are three stations linked together, this event will require 24 seconds. This means that you should set the transfer recall time for 25 seconds or higher.

You can use this formula to determine minimum transfer recall time:

If:

4 = transfer ring cycle time in seconds

R = how many RNA rings assigned per station

S = how many stations are in hunt list

Then:

$4 \times R \times S = \text{minimum transfer recall time}$

### **Call Forward Outside System**

The Call Forward Outside System (CFOS) feature allows the system to forward incoming or transferred line calls to telephone numbers outside the system. The CFOS feature forwards calls over any available outbound lines or line groups. Since CFOS involves outbound calls, those calls are subject to all line access, toll restriction, and specialized route access restrictions normally imposed on the users. Any calls that CFOS cannot service (no outbound line available, toll restricted, and so forth), ring the system as normal calls. The CFOS feature is useful for after-hours forwarding of business calls to alternate sites such as home or cellular telephone. To help system managers keep account of CFOS activity, the system marks CFOS call with a *F* in the SMDA records printout.

Users activate or deactivate CFOS by dialing a feature code or pressing a preprogrammed button. Once users activate CFOS, they select the outbound line or line group in any of the normal line selections methods available to them. They also designate the forward destination by dialing the number or pressing a speed dial button. (If users do not make a line and destination choice, the system uses the most recently used selections.) Once a user activates CFOS, it remains active and neither system resets nor power outages will deactivate it. After activation, incoming or transferred calls to an idle CFOS-enabled station forward outside the system to the CFOS destination over the selected outbound line or line group.

CFOS remains in effect in the event of loss of power or a system reset. Lines used for CFOS must have their abandon hold release time set to match the central office. Because CFOS is a powerful feature with the potential for abuse, several safety features have been added. Programming safeguards include the ability to enable the feature only on selected stations and master control ability for enabling and disabling the feature system-wide. Ultimate responsibility for system integrity, however, lies with the system administrator.

Comdial has taken reasonable steps in the design of all product features, including CFOS, which protect against unauthorized or fraudulent access to, or use of, a system, or which protect against unauthorized, fraudulent or unaccounted-for access to, or use of, long distance lines. However, no system is entirely invulnerable or immune from unauthorized or fraudulent access or use, or unaccounted-for access or use, and therefore Comdial disclaims any and all liability, and makes no warranty, express or implied, relating to unauthorized or fraudulent access or use, or unaccounted -for access or use.

**NOTES:**

*(1) CFOS will not work unless the abandon hold release time on all lines used for CFOS matches the CO abandon hold release time.*

*(2) Calls forwarded through CFOS may experience lower audio levels due to the normal line resistance of CO lines. Low audio level is usually only noticeable on long line loops. If signal loss is a problem at a particular site, the installer may need to add a line amplifier (repeater) in the lines.*

## **Call Park**

The call park feature is similar to a manual hold condition. A user can park a call a particular station and retrieve it at any station in the system by dialing the appropriate access code.

**NOTE:** *The retrieving station must have access to the line on which the call appears.*

Calls are parked and retrieved within the system through the use of dialing codes. The system provides nine parking circuits (orbits). Call park, when used with the paging features, allows a system attendant to direct calls to roving personnel. A call that is left in a parking orbit for preprogrammed length of time automatically returns to a timed hold recall condition at the station where the user originally parked the call.

See also, *Hold*.

## **Call Pickup**

### ***Directed Call Pickup***

A station user can dial a code, followed by the extension number of a ringing station, to answer the ringing call.

## ***Group Call Pickup***

If a call rings to any station in a group and another user in the group wishes to answer the call, that user may dial the group pickup code and answer the call. Four different groups can exist with any number of stations in a group. Overlap is provided by allowing stations to be in more than one group thus enabling those stations to pick up for stations in more than one group. The programmer must place the system stations in logical answering groups by group them together using the station class of service programming.

## **Call Transfer**

### ***Screened Call Transfer***

Screened call transfer allows station users to transfer outside calls from one station to another, via the intercom link, in one of two ways. If both stations have access to the line, a user effects a common line pickup transfer. If the other station does not have access to the incoming line, the user uses the transfer/conference button to effect the transfer. For a screened transfer, the transferring user precedes the transfer with an announcement to the party that is to receive the transferred call.

### ***Unanswered Call Transfer Recall Timing***

A transferred call that is unanswered after a programmed length of time will return to the station that transferred it. The system will return the call to both attendant stations when the tandem attendant feature is enabled. When LCD speakerphones are employed, the display will show the station number or name as well as the line number that is being re-called. The system class of service programming determines the recall time for an unanswered call transfer.

### ***Unscreened Call Transfer***

A user can transfer a call to another station without first announcing it. The transferred call will camp-on to the other station where it will ring and await an answer. The call will automatically ring back to the transferring station after a programmable recall period. There is no limit as to how many calls users can camp-on to another station. A transferred call will only ring if the station is idle. If the station is busy, the call will wait until it is idle before it rings. The programmer can use the system class of service programming to set the recall time for an unanswered transferred call.

## **Call Waiting Tone**

A telephone user can signal a busy station with the call waiting tone to indicate that he or she wishes to contact them. Users dial a special code to activate the call waiting tone.

## **Caller ID**

The central office sends Caller ID data along lines assigned to the Caller ID service. Caller ID information is displayed at a system LCD speakerphone only if the programmer assigns that telephone to the Caller ID service, and then only for those Caller ID lines that are assigned to that station and arranged to perform as follows:

- ring audibly
- can be answered by user pressing button for the ringing line
- are transferred to the station.

The station receives Caller ID data between the first and second rings. A programmer can enable the first ring for a line assigned to Caller ID to be either audible or silent. Selecting the “silent” option ensures that the Caller ID data is displayed prior to ringing, nearly eliminating the loss of Caller ID data.

Station users may automatically retrieve and dial the last Caller ID number displayed at a station by using a preprogrammed SAVE recovery button. Because the programmer can store the local area code and up to 100 6-digit area code and local office codes, ten-digit Caller ID numbers can automatically be transformed into a format that can be dialed. (seven-, eight-, and eleven-digit Caller ID numbers are already in a format that can be dialed and do not need to be transformed.)

The system will dial those numbers that are present in the 6-digit table as local calls even if they are in different area codes.

All Caller ID features require that the Caller ID decoder device (product code CID08) deliver Caller ID data to the system’s RS-232 data port B. The programmer must configure this port to match the output of the Caller ID decoder device. The recommended configuration is 9600 baud, with eight data bits and one stop bit. The programmer must use VDT programming to do this.

Caller ID distribution is in the form of messages which specify the Caller ID data for lines with incoming calls, and identify the stations answering such lines. The data is in the ASCII format and is suitable for use with PC-based application programs.

## **Calling Station Identification on BLF**

If a user has stored the station number of a calling station into the direct station select/busy lamp field (DSS/BLF) of his or her station, the flashing of the corresponding BLF light will identify the caller. The BLF lights also indicate the status of the DSS telephone using the department pilot number.

## **Class of Service**

### ***Block Programming***

A programmer can assign a particular line or station’s class of service to an entire block of lines or stations with one programming action. This feature eliminates the need for him or her to individually program stations and lines with the same class of service. A programmer can perform a block programming class of service after he or she has programmed a station class of service or line class of service for a particular station or line.

### ***Class of Service Programming (From Main Station)***

Class of service (COS) programming is used by the installer/programmer to configure and assign all system, line, station, and special purpose operating features. The installer/programmer enters COS programming by dialing an access code over the intercom line. System administrators can enter COS programming with another code to reprogram any system, station, or special purpose operating feature that may require change at a later date. Line reprogramming ability is not available through system administration programming. The system attendant can reprogram certain system-wide features that require periodic change by entering COS programming with another code provided for this purpose. The station user can program individual stations for speed dial, auto dial and direct station selection (DSS) by entering COS with a code provided for that purpose. Thus, COS programming is arranged with a hierarchical order from the highest (the installer/programmer) to the lowest (the station user) level with a higher level programmer having the ability to do anything a lower level programmer can do without exiting a current programming mode. However, only the station user can program the speed dial and auto dial locations at a telephone.



All class of service (COS) programming is performed from station 10 or 12. Any station and console combination will function in this mode and provide visual feedback with the LED associated with the programming button. By employing an LCD speakerphone, however, the programmer will have the benefit of display prompts and verifications to simplify and clarify the programming procedures.

### ***Flexible Station and Line Class of Service Control***

The extension number of a station and all other programmable attributes that are initially assigned to a particular station port and the line, along with all programmable line attributes that are initially connected to a particular line port can be re-assigned to a different port through programming action. This feature allows adds, moves, and changes without re-locating the station and line wiring. A programmer can use line and station class of service programming are used to reassign stations and lines.

### ***Class of Service Programming (From Video Display Terminal)***

A programmer can use an asynchronous, serial data terminal with an RS-232 interface to effect class of service programming through menu-driven procedures. For more information on VDT programming, refer to IMI66-094, *Video Display Terminal Programming*.

### ***Class of Service Program Printout***

The common equipment provides serial data ports that the installer can use to interface an RS-232 compatible, asynchronous serial data printer to the system. The connected printer will provide a printout of class of service and toll restriction records. The programmer can use the data printer service class of service programming procedure to specify the nature and extent of each requested printout. He or she can use the system class of service programming to specify the bit-length and baud rate of the data.

### ***Default Functional Program***

At initial power-up, the system sets the operating features to a specific group of operating conditions (default conditions). The default conditions provide a complete operating system for normal use. The installer can leave the system defaulted or reprogram as desired. After a programmer has reprogrammed a system, he or she can re-default it by using the system, line, and station class of service programming or use a master clear to default the entire system and erase all stored programmable button information.

### ***Remote Programming and Administration***

Both remote class of service programming and the transmission of SMDR data for printing are available through serial data ports. The system supports X-on X-off terminal control codes as well as a DTR signal for handshaking. The system data communications operates per the popular XMODEM protocol. The database can be uploaded or downloaded, error free, from or to a remote computer that is running software that supports the XMODEM protocol. The two serial data ports allow VDT programming (either local or remote) to be conducted through one port at the same time that the other port is being used to send SMDR data for printing. VDT programming of the system is menu driven.

### ***Common Audible Ringer Interface***

Connections are available at the common equipment that provides “dry-contact” relay closures whenever an incoming line rings. These contact closures track the ringing pattern and can be used to control an external signaling device.

See also, *Ringling*.

## **Conferencing**

### ***Add-on Conferencing***

With this feature, a user at a station that is operating in a private mode can add up to three other stations to an outside call.

### ***Multiline Conferencing***

This feature will allow one station to access up to four outside lines at the same time resulting in a conference arrangement. The user employs the transfer/conference button to effect the conference.

### ***Unsupervised Conferencing***

After a user has established a conference between an internal party and a maximum of two external parties, this feature allows the internal party to drop out of the conference by dialing a special code. The conference between the two outside parties continues in an unsupervised condition.

## **Console Support**

The digital telephone system supports the installation and use of a DSS/BLF console at any available station port. The number of installed consoles is limited only by port availability; however, since a console complements a companion telephone located in an adjacent station port, the installer can use up to one-half of the available station ports for consoles. In addition with the dual console feature (discussed later), a full two-thirds of the total station port capacity is available for console use.

The installer can assign two consoles (usually two 32-button consoles) to one telephone using one station port each. This feature is especially useful when used with a system that has one or two GM408 expansion modules included with it. The installer can place the first console at the station port that is logic-paired with the station that he or she wishes to complement. The installer can put the second console at any station port except 10 or 11 and use class of service programming to assign it to the station port that is logic-paired with the first console.

The installer can put a console at any station port and assign it to a station without first installing a console at the station's logic-paired port. This configuration is convenient for adding a console to an existing telephone installation that already has its logic-paired port occupied; however, one must not use this configuration for assigning a console to station ports 10 and 12 because the console buttons will not be usable for programming.

As discussed above, this feature is also useful for adding a second console to a station that already has a paired console installed with it.

The digital telephone system automatically recognizes a console when it is connected to a station port and automatically assigns station intercom numbers to the console buttons for direct station selection (DSS) purposes with associated busy lamp field (BLF) status lights. However, the console buttons are fully programmable and the station user can customize them as he or she sees fit by programming them as DSS buttons or as automatic dialing (auto dial) buttons. When the user programs the buttons for DSS use, auto dial capability is also available at a secondary level at each DSS button. The first 48 buttons on a 64-button console are programmable for DSS and/or auto dial use.

While the first console (the one installed at the logic-paired port) extends the autodial buttons of the paired telephone by 48 and provides DSS/BLF coverage for station ports 10 through 57, the second console (the one installed at the programmed station port) provides DSS/BLF coverage as follows:

- On a 32-station system with two 8-station expansion modules, the first 16 buttons are automatically assigned (defaulted) to station ports 42 through 57 for DSS purposes.
- On a 32-station system with one 8-station expansion module, the first 8 buttons are automatically assigned (defaulted) to station ports 42 through 49 for DSS purposes.
- On any other smaller station capacity system, all buttons are unassigned.

When an installer installs a console and programs it to complement a telephone without first having a console installed at a port that is logic-paired to that telephone, its button assignment is automatically defaulted, as described above, but the user can reprogram it as required. It is important to remember that when a programmer programs for a second console, the system sets the console button mapping to that which is described above. When a programmer clear the assignment, the system resets the button mapping to match a logic-paired console. This means that when the second console feature is cleared, the console installed at that port complements the telephone that is installed at its logic-paired port instead of the telephone that is located at the program designated port, and its buttons are automatically reassigned to stations 10 through 57.

## D

### Data Interface Unit

The Data Interface Unit ( ) is a device that provides the capability to plug an Industry Standard Telephone (IST) or another device (such as a FAX machine or modem) into the digital station port of a Digital Service Unit (DSU).

The DIU functions as a switch that connects the DSU station voice channel to either the digital proprietary phone port (connector labeled "PHONE") or the IST port (connector labeled "FAX/MODEM"). The IST port can be used to provide a data connection for a FAX or modem. It can also be used for virtually any IST device such as a cordless telephone or answering machine.

In addition to the power connector, the DIU has a connector for a digital multiline telephone (*Impact* or *DigiTech*), and another connector that you can use for any one of the following on-premise devices:

- Industry Standard Telephone (IST)
- facsimile machine (FAX), or
- modem.

The user controls the by pressing a preprogrammed DATA button on his/her digital telephone. The installer can also program a DATA button on a remote telephone that can control the DIU as well. The DATA LED on the digital telephone provides the user with visual feedback on DIU status.

The system administrator can program up to three security groups and assign them to work groups. This safeguards stored data on IST devices such as personal computers by denying access to users from outside the group. For example, if a caller in security group 1 calls a station in security group 2, and the IST device on the at the called station is selected, the caller will hear a busy tone. When the multiline telephone on the DIU is selected instead, the caller can make a station to station call in the normal manner.

The will operate reliably at baud rates up to 9600 (outside calls) and 14400 (intercom calls).

## **Data Security**

This data security feature will prevent any type of tone (, camp-on, barge-in, etc.) from interrupting a call that is active on a port programmed with the feature. This prevents interference to non-voice communications from occurring when the port is being used as a data port (when operating a modem through an ATI-D port for, example). The programmer can use station class of service programming to enable a data security port.

## **Default Functional Program**

At initial power-up, the system sets the operating features to a specific group of operating conditions (default conditions). The default conditions provide a complete operating system for normal use. The installer can leave the system defaulted or reprogram as desired. After a programmer has reprogrammed a system, he or she can re-default it by using the system, line, and station class of service programming or use a master clear to default the entire system and erase all stored programmable button information.

See also, *Class Of Service*.

## **Default Toll Restriction**

The system defaults two toll restriction tables with values assigned to all lines. The programmer needs only to assign these tables to the stations to put them into effect. He or she can use the toll restriction table configuration class of service programming to reprogram the defaulted tables with different information as needed.

See also, *Toll Restriction*.

## **Delayed Ringing**

Ring assignments are programmable. A station can be programmed to provide delayed ringing on some lines while providing immediate ringing on other lines. Delayed ringing is assigned to certain lines at each station through station class of service programming. When a programmer assigns delayed ringing to a station for certain lines, he or she can also assign the time length of the delay.

See also, *Ringling*.

## **Departmental Call Distribution**

Software 3A contains the following enhancement to the DCD feature:

### ***Ring All on Transferred Line Call***

By enabling the system-wide ring all DCD feature, a transferred line call ringing to a department will ring all idle stations in the department until the call is answered. The answering station gets the call and remaining stations retain their original status.

The Ring All on Transferred Line Call feature is disabled by default.

### ***Ring Longest Idle Station***

The Ring Longest Idle Station feature causes a direct-ringing line call, a transferred line call, or an intercom call to ring at the longest-idle station in a department. If the longest-idle station is in Do Not Disturb or Ring No Answer mode, the system routes the call to the next available station in the group.

## **Designated Programmable Buttons**

Designated programmable buttons are those that the programmer assigns to a station using the button mapping procedures that are a part of station class of service programming. These buttons provide one-button access to a broad range of features. While the programmer must assign most designated buttons, the station users can assign the auto redial button and the response message button themselves.

## **Dial 0 for System Attendant**

The system attendant station (station 10) is signaled whenever anyone dials the digit 0 on the intercom line.

## **Dial by Name**

The Dial By Name feature allows users to employ any two-line display, LCD speakerphone to search through an index of names and automatically call the located name.

By pressing the **option** button, users enter the Dial By Name menu. From that menu, they either press the **int** button for intercom calling or the **ext** button for speed dial calling, and then dial three digits for the first three letters of the name they want to locate. The system displays the first match to the dialed digits that it finds. The user can then either press the **dial** button to make the call to the displayed location or press the **next** button to display the next name in the index.

The Dial By Name feature uses the seven-character station names associated with the station ports for searching through the list of stations for intercom calling. 16-character names are used for searching through the list of system speed dial entries.

When users make a sequential search through the stored index of names, the system searches the list as it was entered. Programmers or system must arrange the list in the desired sequence as they store the entries.

## **Digital Voice Announcing**

Digital voice announcing uses a hardware peripheral device (product code ) connected to a digital station port to play recorded messages during an in-progress call. The DVA stores the messages in its memory for recall when needed. The system attendant stores messages in the DVA device by delivering them from the telephone handset of station 10 or 12 or by playing the contents of a professionally-supplied tape recording into the DVA memory. When enabled by the DSU II, the DVA provides up to four messages. The total available message time is two minutes. With each DVA servicing one outside line, the system installer can add several DVAs to enable the digital telephone system to answer several lines with digital voice announcing.

While the DVA is not an automatic attendant, it enhances the following features: direct department calling with departmental calling distribution, direct inward station dialing (DISD), and Tracker Paging System. DVA enhances these features by providing automated voice prompts and dialing instruction to callers. In general, the voice prompt messages of four categories illustrated in the following examples:

### ***Day Answer Messages***

For callers—*“Welcome to Acme’s sales department, all of our agents are busy. Please stay on the line and an agent will answer your call as soon as possible.”*

For DISD callers—*“Welcome to Acme Company. If you know your party’s extension, dial it now; otherwise, stay on the line and an attendant will answer your call.”*

### **Night Answer Messages**

For DCD callers—*“Welcome to Acme’s sales department. Our hours are eight to four-thirty. Please call tomorrow during those hours.”*

For DISD callers—*“Welcome to Acme Company. Our hours are eight to four-thirty. Please call tomorrow during those hours.”*

### **Recall Messages**

For DCD callers—*“Please hold. An agent will be with you as soon as possible.”*

For DISD callers—*“The party you have called is not available. Please dial a new extension number.”*

For callers in systems that have the Tracker Paging System installed—*“The party you have called is not available. Please dial a new extension number or dial # plus your call-back number followed by another # to page your party.”*

### **Drop Message**

—*“Thanks for calling Acme, good-bye.”*

Typically, the DVA services a call in the following manner:

1. A caller rings a department line.
2. If all department stations are busy, the DSU answers the call and triggers the DVA to play the day or night answer message. The DSU transfers the line to the department if the system is in the day mode or drops the line if it is in the night mode.
3. A transferred line recalls to the DSU after a transfer recall time, and the DVA plays a recall message to the caller. The DSU transfers the call once more to the department. This action repeats for a programmed number of times.
4. After the last recall, the DVA plays the drop message and the DSU drops the line.

Typically, the DVA services a call in the following manner:

1. A caller rings a DISD line.
2. After a programmed number of rings, the DSU answers the call and triggers the DVA to play the day or night answer message.
3. The DSU decodes the digits that the caller dials and rings the station or department dialed by the caller. Should the caller dial an incorrect extension, the DSU sends an error tone and asks the caller to dial the code again.
4. A line recalls to the DSU after a transfer recall time, and the DVA plays a recall message to the caller. The DSU transfers the call once more to the same or different stations. This action repeats three times.
5. After the last recall, the DVA plays the drop message and the DSU drops the line.

The installer can connect DVA devices to any available digital station ports. The availability of station ports limits the number of DVA devices that can be connected to the system. The system programmer arranges the DSU class of service programming to customize the DVA operation for specific applications.

See also, *Digital Voice Announcing*

## **Direct Department Calling with Departmental Call Distribution**

The system enhances direct department calling with departmental call distribution () and provides a means by which outside lines can be assigned to one of four different departments. Calls received on department lines and calls that are transferred to a department from within the system search for an idle station in that department. The system distributes department calls evenly throughout the department stations for answering with individual stations having the ability to be taken out of service as necessary. The system places calls received on department lines and calls that are transferred to a department from within the system in a queue for servicing. It assigns new calls, transferred calls, and held calls a time stamp so that they will be serviced in the order of their arrival.

The system allows up to four departments and allows up to 16 stations and a minimum of 3 stations (plus one overflow station) in each one. The programmer can assign a station to more than one department, if desired. Since the programmer can assign a station to more than one department, she or he can add the attendant station to serve as the overflow station for all departments if desired. The programmer can assign separate pilot numbers (extension numbers) to each department that the users can use for making intercom calls or doing call transfers to the department.

The direct department calling feature requires that the programmer assign lines and stations to a department. It does not require that he or she assign department lines to appear at buttons on department stations. If a site requires that a particular department line must appear at a particular department station, the programmer can assign it; however, the programmer must ensure that neither direct nor delayed ringing is enabled for that line at that station.

An incoming call searches for the first station available to answer a call. If all stations in a department are busy or ring with no answer (RNA call), the call will go to the overflow station in that department (if one has been programmed). If there is no overflow station programmed, the call continues to try the department stations until it is answered or dropped by the caller. The caller continues to receive ringback tone until the call is answered. The overflow station can service the call or transfer it back to the department using the department pilot number. When the call is transferred back to the department by an overflow station, it will not return to the overflow station until that station is idle and has no ringing calls either new or transferred. Instead, the call will camp-on at the department and wait for a station to become idle. The caller will receive music while on hold if the system is so equipped. To provide reassurance to the caller during ringing it is recommended that a music source be connected to the system. The call will remain in a held state until it is answered or until the department transfer recall timeout period has ended.

When the recall timeout period has ended, the call will return to the transferring station.

Intercom calls that are made to the department will test the department stations for busy or a RNA. If all stations are busy, a busy tone is returned to the caller. Intercom calls will not camp-on at the department but will go to the overflow station. Further, the system camp-on feature cannot be used to camp-on to a department.

Subsequent calls to a department on a particular line always try the next station in the department from whichever station serviced the last call on that line.

To understand this, assume a department with stations 15, 16, and 12 assigned as department members 1, 2, and 3. Further assume lines 1, 2, and 3 are programmed to ring in this department. To create a randomizing effect, the system tracks for each line which department member (1, 2, or 3) serviced it last. When the next call arrives on line 1, for instance, the system makes a search for the next idle department member after the last one that serviced a call on line 1. Since there are several lines assigned to the department and conversation times and wrap-up times vary, a natural random distribution of calls on lines 1, 2, and 3 at stations 15, 16, and 12 will occur. Further, since the system is keeping track on a per line basis of the servicing stations as department members instead of station numbers, the programmer could rearrange the department list without having any effect on call distribution. As the programmer adds more stations to a department, the randomizing effect improves.

Since the RNA time of a station is a programmable feature, department stations can be set to have a short RNA time to allow a call to search rapidly through a department for an answer.

When an outside or transferred call is ringing at a department station, the station user can press the **Do Not Disturb** (DND) button to place the station in an off-duty condition. While off-duty, all outside and transferred calls skip to the next department station. This off-duty condition remains set until the DND button is pressed again to place the station back in service. When the overflow station is set to DND, all incoming and transferred calls will return to the department queue.

A department station can also be taken out of service and placed in a wrap-up mode to provide the user time for doing such things as follow-up paperwork. While a station is in a wrap-up mode, all outside and transferred calls skip to the next department station. The station user sets the wrap-up mode by pressing Hold DND and presses these buttons again to clear the wrap-up mode.

It should be noted that the departments formed for use with this direct department calling feature are different from those departments used in SMDA reporting. Assign department transfer recall time (unanswered call transfer recall time feature) using the system class of service programming. Assign lines for direct department calling using the line class of service programming. Assign department stations access codes to departments (Flexible Numbering feature), and busy/RNA timeout (Call Forward—Busy feature) using the station class of service programming.

### ***Departmental Calling Distribution (DCD) Report***

The attendant station can request a Departmental Calling Distribution () report that provides a compilation of department call activity. The statistics that are reported are based on the department assignments that are active at the time of the report and are extracted from the SMDR records collected by the system. For a report to be generated, a department must exist. All calls that are included in the DCD report, must meet the following conditions before they are reported as department calls:

- They must be incoming calls. Outgoing calls are not reported in the DCD report.
- The port number of the line which received the call must be one that is assigned to a department.
- The port number of the station which answered the call must be assigned to a department.

A report consists of the following columns of information:

**Station Number:** The station name or extension number of the station being reported.

**Idle Time:** The amount of time that the station is on-hook and available to answer a call.

**Dept. Calls:** The amount of time spent on incoming calls that rang into the department and calls that were transferred to the department.

**Hold Time:** The amount of time that department calls spent in an on-hold state at a particular station.

**Avg. Dept. Calls:** The average time per call (including on-hold time) that a station spent on a call.

**Wrap-Up Time:** The time that a station spent in a wrap-up mode doing such things as follow-up paperwork. While a station is in a wrap-up mode, it does not receive department calls. The station user sets a wrap-up mode by pressing **Hold** and **DND** and repeats the procedure to clear the wrap-up mode.

**Missed Calls:** The total number of calls that are not answered at a station and that are cycled by the system to another station for answering.

**Other Calls:** This is a summation of the time spent on outgoing call activity, incoming call activity on non-department lines, plus all intercom call activity.

**On-Duty Time:** The on-duty time includes a summation of idle time, department call time, wrap-up time, and other call time.



**Off-Duty Time:** The time that a station spent in a do not disturb mode. While in a do-not-disturb condition, a station is not available to receive calls. The station user sets a do-not-disturb mode by pressing DND and repeats the procedure to clear the do not disturb mode.

**Unanswered Calls:** Total number of calls that went unanswered at a department.

**Calls Answered After 36 Seconds:** Total number of calls that waited at least 36 seconds (approximately six rings from the CO) before being answered.

**Calls Handled by Overflow Station:** Total number of calls that were answered and transferred by the overflow station and then answered and serviced by another station.

**Calls Terminated at Overflow Station:** Total number of calls that were received by the overflow station and were either answered but not transferred or were dropped by the caller before being answered.

If you wish, you can enhance the feature with digital voice announcing.

See also, *Digital Voice Announcing*.

## **Direct Inward Station Dialing (DISD)**

The DISD feature allows an external party to call an intercom station directly without assistance by the attendant. The DISD call must be received on a line which has been specially programmed to allow this feature. Any line can be programmed to be a DISD line for both the normal mode of operation and the night transfer (of ringing) mode of operation.

The number of rings which occurs on a line before it is answered is programmable. By setting a large number of rings, time is allowed for a call to be serviced in a regular manner by stations that have a line appearance for the DISD line. Setting the number of rings to 0 disables the line for DISD use. If a line is to be dedicated for DISD use, it is a good practice to set it for one ring. The amount of time allowed for an extension number to be dialed is programmable and a DISD assist station can be programmed to answer calls that are not completed during this dial time limit.

When a line is called, it rings for a programmed number of rings. If the call is not answered in a normal manner by a station with the line appearance during this time, the system answers it and, if the programmer has chosen this feature, presents a DISD dial tone to the caller. The system then waits for an extension number to be dialed from the calling telephone. Only one DISD line is serviced at a time; therefore, an incoming call could ring for more than the programmed number of rings if a DISD call is being serviced when a second DISD call is received.

When a valid extension number is dialed, a confirmation tone is sounded, the system attempts a transfer, and the called station rings if it is idle. If a called station does not answer within the transfer recall timeout period, the call is returned to dial tone. If the called station has the call forward feature set, the forwarded station rings. If a called station is busy, the call is placed on hold and camped-on at the busy station. The system will send a call waiting tone to the busy party if the programmer has enabled the call waiting tone feature. If the camp-on is not answered within the transfer recall timeout period, a busy tone is given followed by DISD dial tone. The system will return the caller to DISD dial tone two additional times and then drop the line (a total of three attempts are made).

**NOTE:** *The system routes calls made to busy and ring—no answer stations to an idle station in the hunt group. If no idle stations are available, the call is camped-on at the dialed station.*

If an invalid extension number is dialed, an error tone is sounded before the DISD dial tone is returned. If a mistake in dialing is made, the caller can dial a \* for a new DISD dial tone. The system will return the caller to DISD dial tone two additional times and then drop the line. If extension number dialing is not completed within the programmed dial time limit, the call is routed to the DISD assist station if one is programmed; otherwise, the line is dropped. The programmer may select a DISD dial time limit of 0 seconds, allowing callers to obtain a transfer to the assist station without having to dial any digits. If the assist station is busy (call will camp-on at the assist station) or if the assist station does not answer before the transfer recall timeout period, the system will return the caller to DISD dial tone. If extension number dialing is not completed within the dial time limit this time, the line is dropped.

The installer should connect a music source to the system so the music can provide a reassurance to the caller during a camp-on situation when the DISD feature is being used.

See also, *Digital Voice Announcing*

### **Direct Station Call Hold (Station Park)**

This feature allows a station user to park a call at a specific station where it will be held without ringing. A feature code plus a station extension number can be dialed over the intercom line to park the call or a programmable button can be programmed to provide a “directed hold” to a specific station. The parked call is picked up by directed station by dialing a feature code. It can be picked up at any station through the use of the call pickup feature. No class of service is required.

See also, *Call Pick-Up—Directed and Call Park*.

### **Direct Station Selection (DSS) Programmable**

A station user can store one-button, direct station selection (DSS) at any memory button location to create a DSS memory 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. A DSS number can also be programmed as a secondary function at every DSS/BLF memory location. No class of service is required.

See also, *Automatic Dialing*.

### **Disconnect Notification**

Use the disconnect notification feature to reduce delays resulting from disconnects. These delays occur when using the CT Voice application.

When you enable this feature, it causes the system to send a DTMF “A” digit to IST station ports whenever the distant party (internal or external) hangs up. The system also sends a disconnect digit when an IST telephone signals a hookflash to retrieve a line from hold that has been dropped through abandon hold release.

Installers must enable line disconnect supervision for this feature to function on outside calls. This feature is disabled at default.

During station class of service data printout, the disconnect notification status is included on the printout.

## **Distinctive Ringing**

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

See also, *Ringling*.

## **Do Not Disturb**

Any station can be set to a do-not-disturb mode (DND) using the designated DND programmable button and associated indicator (indicator will light when DND is active). While in the DND 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 unless the override feature is enabled. The DND feature is used with the departmental calling feature to provide a station wrap-up mode and a station off-duty mode.

### ***Do Not Disturb Inhibit***

The system can be programmed to inhibit any station from entering the DND mode. System class of service programming is used to program this feature.

### ***Do Not Disturb Override***

Stations can be provided with DND override capability which will allow them to call a station that is set in the DND mode. The Executive/Attendant Override feature must also be active for DND override feature to function. Station class of service programming is used to assign this feature.

## **Dual Intercom**

This feature provides for two separate intercom lines at the same station. One intercom line is fixed and is accessed with the Intercom button. The other intercom line is programmable and is accessed by a programmable button selected for that purpose by class of service programming. Calls are handled on the intercom lines in much the same manner as outside calls are handled using the line buttons.

Special considerations are as follows:

- Distant party hang-up causes intercom link to drop.
- Intercom call to station already busy on intercom rings in subdued fashion and flashes indicator associated with other intercom button.
- With both intercom lines busy, a third intercom call results in a subdued off-hook voice announce (if enabled) at busy station.
- Pressing a DSS button while on an active intercom call will drop the distant party unless the automatic hold feature is enabled for the intercom line through class of service programming.  
The Hold button can be used, however, to place an intercom call on hold before selecting the other intercom line for use.
- Any action taken on the intercom by a station being observed via the service observing feature will cause the observing station to return to an idle state.

The station class of service button mapping procedure assigns a programmable button to serve as the second intercom button.

See also, *Intercom*.

## **Dynamic Line Buttons**

Through class of service programming, the programmer can arrange certain idle line buttons to serve as dynamic line buttons. This feature allows the system to temporarily assign a line to a station that normally does not have the line assigned to it, and have that line appear on a dynamic line button. While the call is appearing on the dynamic line button (LED on), any normal call handling operations can be performed. Station class of service programming allows certain buttons to be programmed as dynamic line buttons

## **E**

### **End-to-End Signaling**

#### ***End-To-End Signaling on Intercom***

After an intercom call has been established with an analog telephony device that is connected to the system through the JM008 expansion module or ATI-D analog terminal interface device, the system can continue to send dialing signals (DTMF tones) through the intercom path. This feature can be performed from every station in the system, and is used by peripherals such as voice mail equipment.

#### ***End-to-End Signaling 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 telephone, etc.). This conventional, off-hook dialing feature can be performed from every station in the system.

### **Exclusive Hold**

Exclusive hold prohibits a held call from being retrieved by any other station. The exclusive hold condition also links a call on hold to the timed hold recall timeout feature. After timeout, the system causes audible and visual signaling to occur and reverts the exclusive hold condition to a normal line hold condition.

See also, *Hold*.

### **Exclusive Hold System-Wide Enable/Disable**

This feature allows programmers to use system class of service programming to enable or disable exclusive hold capability on a system-wide basis.

See also, *Hold*.

### **Executive/Attendant Override**

This feature allows the user of a station, upon encountering a busy signal at another station, to dial a code that will override the busy signal of a call, sound a warning tone, and allow access to the existing conversation. This feature is enabled through station class of service programming.

## **External Paging Interface**

A dedicated paging port or a spare line port can be interfaced with an external paging amplifier. The paging amplifier can then be dial-accessed by stations in the system. DTMF tones can be dialed through the line port to provide zone selection if provided by the external paging amplifier. The dedicated paging port does not support any “talk-back” capability even if such a feature is provided by the external equipment. The line class of service programming arranges a line port for external paging interface. The system precedes an announcement through the paging port with an alerting tone. Programmers can choose between an intercom tone or a DTMF signaling tone for this paging alert tone. They should choose the intercom tone for a soft alert and choose the DTMF tone for a loud alert.

See also, *Paging*.

## **F**

### **Feature Inhibit**

A large array of individual features can be disabled system-wide to provide a basic telephone system. A basic telephone system is useful for installation environments where a large proportion of the stations are accessible to unauthorized users or for environments where station users must be limited as to the variety of features allowed to them. Features are disabled by system class of service. Once disabled, they can be enabled by turning on all features at once using the system default programming.

### **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. Delayed ringing is assigned to certain lines at each station through station class of service programming.

See also, *Ringing*.

### **Flexible Ringing Assignments of PA Port**

The PA port can be programmed for flexible ringing assignments and zone pages. Any desired lines can be programmed for direct ring, delay ring, or night transfer (of ringing) at this port. Paging can be programmed zone or to all-call. A speaker can be connected to the PA port to sound the ringing that is generated by the system and sent to this port and paging announcements when they are sent to the programmed zone. Using such an arrangement, it is possible for a user to determine that certain lines are ringing, such as in a night transfer (of ringing) mode, and go to the nearest telephone and answer the call. The most common use for this arrangement is as a night bell eliminating the need for external equipment as required with the common ringer and auxiliary ringer interface. The speaker cannot be used for voice response as the path is one-way only. Use system class of service programming to assign ringing and paging to a PA port.

See also, *Ringing*.

## **Flexible Station and Line Class of Service Control**

The extension number of a station and all other programmable attributes that are initially assigned to a particular station port and the line, along with all programmable line attributes that are initially connected to a particular line port can be reassigned to a different port through programming action. This feature allows adds, moves, and changes without relocating the station and line wiring. A programmer can use line and station class of service programming to reassign stations and lines.

See also, *Class Of Service*.

## **Flexible Station Numbering Plan**

The system supports a flexible station numbering plan for individual stations. Each station can be programmed to respond to the dialing of any available number between 10 and 7999. This feature may be used to match the calling number of a station located in a pre-numbered area to that area number. A combination of two-, three-, or four-digit extension numbers can be assigned as long as they do not conflict. For example: If 21 is assigned as an extension number, there cannot be any other extension number assigned that begins with a 21. The system class of service programming is used to assign extension numbers to individual station ports.

See also, *Square/Non-Square Configuration*.

## **Full Button Programmability of Features**

A programmer, or in many cases the users themselves, can make most system features available at programmable buttons merely by storing the specific access codes necessary for dialing the features. Storable features include those that can utilize lamp (on/off) supervision (e.g., call park orbits). The system will store all feature access codes except for those requiring **Transfer/Conference** button action. It will store continuous strings of digits (including presses of the intercom button) up to the maximum amount of storable digits (16) allowed in an autodial entry.

See also, *Programmable Buttons*.

# **H**

## **Hands-Free Answer Inhibit**

The user can use the MUTE button to block all hands-free answer back response. This arrangement will prevent a station user from monitoring another station site using the monitoring ability of the voice announce feature. When a user presses the MUTE button, all hands-free answer back is disabled thus inhibiting any off-site monitoring. The MUTE light turns on steady to indicate that this feature is active.

See also, *Mute*.

## **Headset Capability**

Certain proprietary LCD speakerphones include an auxiliary jack that provides an interface for a headset. To use a headset, the user merely plugs it into the telephone auxiliary jack and presses the appropriate button on his or her telephone to enable the headset mode. (In the case of Impression LCD speakerphones, users disconnect the handset and connect a headset in its place.) The telephone transfers its speakerphone function to the headset. To enhance the headset usefulness, the system delivers subdued off-hook voice announce (SOHVA) messages to the headset when it is in use.

To increase the usefulness of the headset when used with the 8312SJ, 8324SJ, and 8324FJ telephones, a headset type feature is provided. There are 38 headset type settings (representing FX gain levels) that can be programmed for optimum headset operation. Each level increase represents an increase of 1 dB in the transmitted audio. This arrangement allows a large number of different headset models to work on Comdial systems.

As a general rule, the receive characteristics of the majority of headsets targeted for business telephone use are very similar (i.e., the headset loudness is nearly the same at any given volume setting). Any difference in the receive loudness can be accommodated by using the telephone's headset volume control; however, the transmit characteristics (or microphone sensitivity) of these headsets can vary by more than 20dB from model to model or manufacturer to manufacturer. The headset type selection provides accommodation for this large variation in microphone sensitivity.

The default setting for the headset type feature matches Comdial headsets. When using another type of headset, check with the manufacturer to determine the correct setting.

## **Hold**

### ***Abandoned Hold Release***

If an on-hold party hangs up at the CO/PBX end of a connection, causing an interruption in the line current, the system will drop the line from the hold condition and return it to service. The time interval between hang-up and line-drop is programmable in line class of service programming with choices of either 50 msec or 350 msec. This feature is usually dependent upon special arrangements that must be made at the CO end of the connection. The line select indicator will turn off to indicate an idle line after a call on that line has been abandoned.

### ***Automatic Hold for Intercom***

If a user selects the second intercom line while a call is active on the first intercom line, this automatic hold feature lets the system automatically place the first intercom call on hold. Use station class of service programming to enable this feature.

### ***Automatic Hold—Transfer to Intercom (Answer Hold)***

If a user selects the intercom line while an outside line call is active, this system feature causes the system to automatically place the outside call on hold. This feature does not require class of service programming to enable it.

### ***Automatic Hold—Transfer to Line***

A programmer can use class of service programming to make this system feature available to selected stations. When enabled, a user can press any line button and cause an active line to automatically go on hold. This feature allows a user to move from line to line without having to press the HOLD button to place any current calls on hold. Use station class of service programming to enable this feature at the desired stations.

### ***Call Park***

The call park feature is similar to a manual hold condition. A user can park a call at one station and retrieve it at any station in the system by dialing the appropriate access code.

***NOTE:*** *The retrieving station must have access to the line on which the call appears.*

Calls are parked and retrieved within the system through the use of dialing codes. The system provides nine parking circuits (orbits). Call park, when used with the paging features, allows a system attendant to direct calls to roving personnel. A call that is left in a parking orbit for preprogrammed length of time automatically returns to a timed hold recall condition at the station where the user originally parked the call.

### ***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, the system causes audible and visual signaling to occur reverts the exclusive hold condition to a normal line hold condition.

### ***Exclusive Hold System-Wide Enable/Disable***

This feature allows programmers to use system class of service programming to enable or disable exclusive hold capability on a system-wide basis.

### ***Manual Hold***

A button activated feature at each station will place an outside line on hold. When a user presses the HOLD button while on a call, the system places the call on hold, provides a distinctive flash rate of the line button indicator, and allows the user to access other station features. A user at the holding station or at any other station that has access to the line can retrieve the held call.

### ***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 programmer sets the timed hold recall time period using system class of service 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 color than the indication provided at the other stations in the system. No class of service programming is required.

### ***Idle Line Preference***

When a station is programmed for idle line preference, it will automatically be connected to the first assigned idle line. 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. If this feature is used in conjunction with prime line automatic, the user will be given prime line first when going off-hook. An idle line will be given if the prime line is in use. The station class of service programming enables this feature on a per station/per line basis.

See also, *Line Features*.



## **Impression Telephone Support**

The digital telephone system supports the use of Comdial Impression digital telephones. This new proprietary digital telephone style is available in the following models:

2022S	LCD Speakerphone
2122S	Non-LCD Speakerphone
2122X	Non-LCD Monitor Telephone
2101N	Single Line Proprietary Telephone
DU32X	32-Button DSS/BLF Console

Impression telephones are completely compatible with all of the features provided by the digital telephone system and require no unique programming.

## **Industry-Standard Telephone Support**

The digital telephone system supports the use of an industry-standard telephone (IST) such as a model 2500. It does this through an the JM008 expansion module or ATI-D analog terminal interface.

An IST provides a full range of system features to the system telephone users and operates in one of two different modes as determined by the system installer. He or she may program the telephone to provide an intercom dial tone when a user lifts the handset. This arrangement is known as “prime intercom.” Alternately, the installer may program the telephone to provide outside line dial tone instead. This arrangement is known as “prime line automatic” or “idle line preference.” With prime intercom, users can dial the system feature codes as soon as they lift the IST’s handset. With prime line automatic or idle line preference, users must obtain intercom dial tone before dialing the various feature codes. They do this by pressing and releasing the hookswitch after they hear the outside line dial tone. This action either drops the outside line (if no digits are dialed after the handset is lifted) or places the outside line on hold (if digits are dialed) and causes intercom dial tone to return to the IST.

Pressing and releasing the hookswitch is commonly known as flashing the hookswitch or performing a FLASH. Some ISTs are equipped with a TAP button. Users can press the TAP button to cause the same effect as performing a FLASH.

The system provides a feature that allows IST users to FLASH an outside line for some purpose (for example, to access a host system feature). Since flashing the IST while on an outside line accesses the intercom dial tone, users must dial a code to actually generate the FLASH signal over the outside line.

## **Intercom Features**

### ***Automatic Callback***

If a telephone user encounters a busy tone or a ring no-answer after calling an intercom station, She or he can dial a special code number that will cause the system to automatically ring both the user’s telephone and the one that he or she was calling. This automatic callback occurs after the busy station becomes idle or after the user at the ring no-answer station takes some action at it that indicates to the system that it is available to be answered. No class of service programming is required to enable this feature.

### ***Call Announce with Hands-Free Answer Back***

The internal loudspeaker at each station provides call-announce capability over the intercom link. A user can make a hands-free response to a call-announce call without lifting the handset.

The user can use the MUTE button to block all hands-free answer back response. This arrangement will prevent a station user from monitoring another station site using the monitoring ability of the voice announce feature. When a user presses the MUTE button, all hands-free answer back is disabled thus inhibiting any off-site monitoring. The MUTE light turns on steady to indicate that this feature is active.

### **Dual Intercom**

This feature provides for two separate intercom lines at the same station. One intercom line is fixed and is accessed with the Intercom button. The other intercom line is programmable and is accessed by a programmable button selected for that purpose by class of service programming. Calls are handled on the intercom lines in much the same manner as outside calls are handled using the line buttons.

Special considerations are as follows:

- Distant party hang-up causes intercom link to drop.
- Intercom call to station already busy on intercom rings in subdued fashion and flashes indicator associated with other intercom button.
- With both intercom lines busy, a third intercom call results in a subdued off-hook voice announce (if enabled) at busy station.
- Pressing a DSS button while on an active intercom call will drop the distant party unless the automatic hold feature is enabled for the intercom line through class of service programming.  
The hold button can be used, however, to place an intercom call on hold before selecting the other intercom line for use.
- Any action taken on the intercom by a station being observed via the service observing feature will cause the observing station to return to an idle state.

The station class of service button mapping procedure assigns a programmable button to serve as the second intercom button.

### **Intercom Call Progress Tones**

Intercom call progress is marked by special tones. A steady tone is provided for dial tone. Ring-back tone is one second on and three seconds off. For tone-sigaled 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 sigaled intercom call, a single tone burst is sounded at a called station. When a called station is busy, a busy signal of one-half second on and one-half second off is received at the calling station. The system supplies a fast busy tone when the called station is in the do not disturb mode. Analog terminal interface ports are only supplied with the regular busy tone since fast busy tones could interfere with the operation of some accessories that can be connected to this port.

For more information, see *System Ringing Patterns* on page 25.

### **Intercom Hunt Group**

Station ports can be assigned to intercom hunt groups. When a station that is assigned to a hunt group is busy or is a ring—no answer (RNA), a call to it will ring at the next idle station in the group. A hunt group can be terminal or circular. A call will route down a terminal group from the called station until it finds an idle station or reaches the end of the group. A call will search around a circular group until it encounters an idle station or until all stations in the circular group are searched. The ringing time at any one station is programmable. Hunt groups are created through station class of service programming.

### ***Intercom Line Timeout***

Should the intercom line be selected with no dialing or other action taking place, the intercom will timeout after 15 seconds, and return to an idle state.

### ***Tone or Voice Signaling***

The system allows intercom calls to be tone signaled or voice signaled as the users desire; however, the programmer uses system class of service programming procedures to determine which signaling method the system will employ as the primary method. Regardless of the programmer's arrangement, telephone users can take action to use the alternate method when they need it. See the paragraph titled *Intercom Call Progress Tones* for a discussion of the intercom signaling tones.

### ***Voice Announce Blocking***

This feature allows station users to block voice announced intercom signaling by dialing a code or pressing a programmable button programmed for that purpose. The programmable button used to block voice signaling is enabled by station class of service programming.

## **K**

### **Key System/Hybrid Configuration**

The system can operate as either a key system (KF designation) or as a hybrid system (MF designation). In the past, this digital telephone system provided a hardware strap that installers could move to distinguish between hybrid system and key system operation; however, recent rulings by the FCC have eliminated the need for the hardware strap. Therefore, whenever the programmer assigns lines to line groups, the system automatically assumes the hybrid mode.

The KF and MF designations are equipment type categories as stipulated in FCC rules and regulations, Part 68, and appear as part of the FCC Registration Number on the equipment label. The installer must report the appropriate registration number to the telephone company at the time of connection along with other FCC mandated information. Operationally, the hybrid configuration allows dial access to (automatic selection of) outgoing lines. The specific system feature that is enabled by the multifunction (hybrid) configuration is *Line Group (Including Dial Access)*. Since this is a PBX type feature, it may incur a higher monthly tariff to the telephone company.

## **L**

### **Last Number Redial**

Each station is provided with a last number redial feature. This feature will save 32 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 choose the last line used at the station. If it is busy, no further choice is made. No class of service is required.

See also, *Redialing*.

## **LCD Messaging**

Standard and system-supplied custom display messages can be set by dialing a specific code at any station. Such messages are to be received and displayed by any LCD speakerphone that calls the station which set the message. When a message is set, the intercom light at the setting station will flash to indicate that the feature is active.

See also, *Messaging*.

## **LCD Support**

The system supports the use of digital telephones having a Liquid Crystal Display (LCD). The display is capable of providing the station user with a visual presentation of: call cost, call duration, number dialed, name of called station, name of active feature, date and time, and programming prompts.

### ***Interactive Button Support***

The LCD speakerphone provides the user with three interactive buttons and expanded LCD displays as a standard feature. The interactive buttons provide the user with quick, easy access to system features and straightforward button programming without dialing codes. The expanded displays prompt the telephone user on the operation and progress of many of the telephone features and provides designations for the interactive buttons. Since the interactive buttons provide many user features, their immediate functions vary with the feature. The button functions change to match the feature that the user is currently operating. At any given time, the current button designations show in the display window.

### ***Button Query***

Station users who have LCD speakerphones can use their interactive buttons to access the button query feature. With this feature, the station user can cause his or her LCD speakerphone to show the function of each of its buttons on its display.

## **Line Features**

### ***Access Denied, Line Access Restriction***

The system programmer can deny access to particular lines at certain stations in the system. A station user cannot select a denied line for use. This feature is programmable on a per line/per station basis in station class of service programming.

### ***Line Answer from any Station (Night Mode)***

When the attendant programs the system for nighttime operation using the night transfer of ringing feature, the line answer from any station feature is made active. With this feature, a user can dial an access code over the intercom line to allow him to answer any ringing outside line. The line need not be ringing at the user's station for this feature to be used.

### ***Idle Line Preference***

When a station is programmed for idle line preference, it will automatically be connected to the first assigned idle line. 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. If this feature is used in conjunction with prime line automatic, the user will be given prime line first when going off-hook. An idle line will be given if the prime line is in use. The station class of service programming enables this feature on a per station/per line basis.

### ***Line Groups***

Outside lines can be grouped together in up to four different groups. Users can program an auto dial button to select a line group or manually enter a dialing code for access to a line. Grouping can reserve certain lines for certain clusters of stations as in a tenant-service arrangement. The assignment of line groups frees station buttons normally used for line selection thus making these buttons available for use with a feature such as personal DSS/BLF with station-to-station messaging. Lines are placed in line groups with the line class of service programming.

### ***Line Preselection***

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

### ***Line and Line Group Queuing***

With the line queuing feature, the station user can take action that will place a station in a queue where it awaits the availability of a line or line group. The station is automatically signaled with five-ring bursts when the line is available to it for use. Each station can queue one line at a time.

### ***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 station class of service programming.

### ***Prime Line Automatic***

If the programmer uses station class of service programming to enable prime line automatic at a station, the system will automatically select the designated outside line, intercom line or line group when the user lifts the handset. A user can pre-empt prime line pickup by preselecting another line before lifting the handset. If the prime line is ringing, it is automatically answered when the user lifts the handset.

### ***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 the station. When ringing line preference is enabled at a station, taking the handset off-hook automatically connects the station to any outside line that is ringing at it. A line button will not have to be pressed. With ringing line preference enabled, the telephones denote a ringing line with an orange colored status light. If a station also has prime line assigned, the prime line will always be answered first even though it may be the second line to ring. The ability of a particular station to answer a ringing line without line selection is enabled by the station class of service programming.

## **M**

### **Manual Hold**

A button activated feature at each station will place an outside line on hold. When a user presses the HOLD button while on a call, the system places the call on hold, provides a distinctive flash rate of the line button indicator, and allows the user to access other station features. A user at the holding station or at any other station that has access to the line can retrieve the held call.

See also, *Hold*.

### **Meet-Me Answer Page**

Any station user can dial a special code number in response to an all-call or zone page and be connected to the paging party in a private conversation. All-call or zone paging is provided to the stations through the station class of service programming.

See also, *Paging*.

### **Memory Retention without Batteries**

The system memory is electronically protected during AC power failures by an electronic device sometimes known as a “super cap.” The stored program data will remain in memory for a minimum of 60 hours provided that the system has been powered continuously for at least 30 minutes prior to the power failure or disconnection. Also, the system clock will continue to run and keep time for at least 30 minutes after an AC power failure or disconnection.

## **Messaging**

### ***Assist Button***

This feature allows a station user to program a button to be used for sending a message to an LCD speakerphone. Once programmed, the station user can press the ASSIST button at anytime to ring the called station and present a preprogrammed message in the station display. The user can send a message while on a call without alerting the distant party. This feature is useful for requesting assistance while engaging on a call. For example, a customer service representative could request assistance from a supervisor while talking to a problem caller. The supervisor, upon receiving the tone and noting the display message, could perform an executive override or service observing action to join the call or monitor it.

### ***LCD Messaging***

Standard and system-supplied custom display messages can be set by dialing a specific code at any station. Such messages are to be received and displayed by any LCD speakerphone that calls the station which set the message. When a message is set, the intercom light at the setting station will flash to indicate that the feature is active.

### ***Message Waiting***

Special feature access 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 automatically placed to the station that turned it on.

Alternately, one station can be designated by COS programming as the central message desk and can be arranged for exclusive message waiting control. The central message desk can be used to control message waiting lights and deliver messages to and from all other stations in the system. The ability of a station to originate a message waiting signal is enabled by programming action. Station class of service programming provides a station with the ability to originate a message waiting signal and is used to create a central message desk. The system defaults the message wait originate feature as enabled.

### ***Response Messaging***

This feature allows a user to reply in a non-verbal manner to a voice announce or tone-sigaled intercom call or to a subdued off-hook voice announce call if the intercom caller is using an LCD speakerphone. A station user can press a programmable button in response to an intercom call and send a message to be shown on the display of the calling station. Response messages are programmed by the attendant and later stored by station users at programmable buttons on their stations.

### ***Station-to-Station Messaging***

If a station has a DSS/BLF appearance at another station, a callback message indication can be left at that station with the DSS/BLF appearance. The user can dial a special code to turn on the BLF light at the called station that is assigned to the calling station. This light indicates that a callback is requested. The light is automatically turned off if a successful callback is made.

If a station number is not programmed for a DSS/BLF appearance at another station, attempting to place a call back message will cause the central message desk station to ring. If there is no central message desk assigned, no action will occur.

## **Modular Wiring and Jacks 2- or 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 number 22 or 24 gauge, 2-conductor, twisted-pair cable throughout the system. If the installer uses 4-conductor twisted-pair cable, it provides a spare pair for a separate wiring purpose when needed.

## **Music Features**

### ***Background Music***

If the installer connects a customer-provided external music source to the system, the music from that source will sound through the station loudspeakers after the users turn it on at their stations. They can adjust the loudness of this background music with the loudspeaker volume control. The system automatically turns the background music off during calls. This feature requires no class of service programming.

### ***Music Interface***

The common equipment cabinet includes an input jack where the installer can connect a customer-provided music source.

### ***Music-On-Hold***

When an installer connects a customer-provided music source to the system through the music interface jack, the system supplies that music to the outside lines that users place on hold.

## ***Music-on-Hold System-Wide Enable/Disable***

After the installer has arranged for the system to supply customer-provided music to calls that users place on hold, the attendant can disable the feature on a system-wide basis.

## **Mute**

Every monitor telephone and speakerphone 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 MUTE light turns on steady to indicate a muted condition. The MUTE button provides push-on/push-off operation on speakerphones. No class of service is required.

## ***Hands-Free Answer Inhibit***

The user can use the MUTE button to block all hands-free answer back response. This arrangement will prevent a station user from monitoring another station site using the monitoring ability of the voice announce feature. When a user presses the MUTE button, all hands-free answer back is disabled thus inhibiting any off-site monitoring. The MUTE light turns on steady to indicate that this feature is active.

## **N**

### ***Night Transfer (Of Ringing)***

Night transfer (of ringing) is an attendant-controlled feature that transfers the day ringing program of all incoming calls to a particular station or stations for off-hour or special purpose answering. The night transfer mode can only be activated from station 10 or 12. The individual lines at each station that are to be transferred with this feature are selected by station class of service programming.

See also, *Ringling*.

## **O**

### ***On-Hook Dialing***

Every monitor and speakerphone provides manual and/or automatic dialing while the station handset is on-hook. The telephone loudspeaker monitors call progress for completion. (The handset must be taken off-hook to provide the voice link on non-speakerphone stations.)

### ***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 station class of service programming.

See also, *Line Features*.



# **P**

## **Paging**

### ***All-Call Paging***

All-call paging allows all stations to receive announcements through the station speaker at once. The system can also send all-call paging to the paging port where it applies it to the input of an external paging amplifier. Origination of announcements must be via the station handset. A programmer can arrange each station to receive and/or originate all-call page. He or she enables the ability to receive and originate all-call paging at a station through station class of service programming.

### ***External Paging Interface***

A dedicated paging port or a spare line port can be interfaced with an external paging amplifier. The paging amplifier can then be dial-accessed by stations in the system. DTMF tones can be dialed through the line port to provide zone selection if provided by the external paging amplifier. The dedicated paging port does not support any "talk back" capability even if such a feature is provided by the external equipment. The line class of service programming arranges a line port for external paging interface. The system precedes an announcement through the paging port with an alerting tone. Programmers can choose between an intercom tone or a DTMF signaling tone for this paging alert tone. They should choose the intercom tone for a soft alert and choose the DTMF tone for a loud alert.

### ***Meet-Me Answer Page***

Any station user can dial a special code number in response to an all-call or zone page and be connected to the paging party in a private conversation. All-call or zone paging is provided to the stations through the station class of service programming.

### ***Zone Paging***

Zone paging allows groups of stations to receive announcements through the station speakers. The programming can enable zone paging in up to four different zones. Zone paging can also be received at the paging port where it can be connected to the input of an external paging amplifier. The ability of each station to originate and/or receive a page and the arrangement of the paging into different zones are controlled by station class of service programming. Zone paging through the paging port is enabled by system class of service programming.

## **PBX/CENTREX/CO 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.

## **Personal Computer Interface Unit (PCIU)**

The Personal Computer Interface Unit (PCIU) is a device that you can connect between a digital station port and its proprietary telephone. The PCIU allows telephone users to initiate telephone and voice mail related functions from their personal computer (PC).

The PCIU includes Service Provider Interface (SPI) software on computer diskettes. With this software installed on the user's PC, the PC users can employ their Telephony Applications Programming Interface (TAPI), third-party Microsoft\* Windows applications programs to control many useful telephone functions.

When the Voice Processing (VP) Visual Call Manager (VCM) software option is available, the voice mail system can use the serial data path to the PCIU to send messages to the telephone's display and to the SPI on the PC.

\*Microsoft is a registered trademark of Microsoft Corporation, Redmond, Washington

## **Personalized Ringing Tone**

The system provides a group of distinctive tones for station ringing. A station user can choose a tone from this group to provide a distinctive ring at his or her telephone. Often, when several telephones are located close to each other, each user chooses a different personal ring tone. The system provides six distinctive tones for users to choose from.

See also, *Ringling*.

## **Pooled Line Access (Line Group Access)**

Outside lines can be grouped together in up to four different groups. Users can program an auto dial button to select a line group or manually enter a dialing code for access to a line. Grouping can reserve certain lines for certain clusters of stations as in a tenant-service arrangement. The assignment of line groups frees station buttons normally used for line selection thus making these buttons available for use with a feature such as personal DSS/BLF with station-to-station messaging. Lines are placed in line groups with the line class of service programming.

See *Line Features*.

## **Power Failure Transfer**

An installer can connect an industry-standard telephone such as the model 2500 to a special connection to serve as a power-fail telephone. If an AC power failure occurs, the system automatically connects the power-fail telephone directly to an outside line. Users can make normal origination and reception of calls on a power-fail telephone during an AC power failure. The system will automatically disconnect the power-fail telephone from the outside line as soon as AC power returns.

## **Prime Line Automatic**

If the programmer uses station class of service programming to enable prime line automatic at a station, the system will automatically select the designated outside line, intercom line or line group when the user lifts the handset. A user can pre-empt prime line pickup by preselecting another line before lifting the handset. If the prime line is ringing, it is automatically answered when the user lifts the handset.

See also, *Line Features*.

## **Privacy**

### ***Automatic Privacy***

A programmer can make a line private or non-private through programming. In the private mode, a station has exclusive use of the line during a call. No other station can access that line unless the user of the private line adds another station through the use of the add-on conference feature. In the non-private mode, another station 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 the line class of service programming. Through station class of service programming, a programmer can make a line non-private at a particular station.

See also, *Conferencing*.

### ***Privacy—Designated Programmable Button***

The programmer can arrange for stations to provide a privacy button. If a line is private, a user can press the privacy button to change it into a non-private one. If the line is non-private, pressing the button will have no effect. Station class of service programming is used to program the programmable button function at the stations.

### ***Privacy Release/Brokerage Service***

See the previous paragraph titled *Privacy—Designated Programmable Button*

## **Private Lines (Access Denied)**

The system programmer can deny access to particular lines at certain stations in the system. A station user cannot select a denied line for use. This feature is programmable on a per line/per station basis in station class of service programming.

See also, *Line Features*.

## **Programmable DSS/BLF**

A station user can store one-button, direct station selection (DSS) at any memory button location to create a DSS memory 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. No class of service is required.

See also, *Automatic Dialing*.

## **Programmable Buttons**

A programmer, or in many cases the users themselves, can make most system features available at programmable buttons merely by storing the specific access codes necessary for dialing the features. Storable features include those that can utilize lamp (on/off) supervision (e.g., call park orbits). The system will store all feature access codes except for those requiring Transfer/Conference button action. It will store continuous strings of digits (including presses of the intercom button) up to the maximum amount of storable digits (16) allowed in an auto dial entry.

## **Programming Password Protection**

No one can enter a programming mode to reprogram the system without first entering a password. The system provides two different entry levels for programming and allows for a different password for each entry. The two programming entry levels are the installer level and the administrator level. Programmers can enter the installer level, using the installer password, to perform all programming functions including major changes such as master clearing and line type programming. They can enter the administrator level, using the administrator password, to perform most programming functions except those major changes just mentioned. Programmers can use the VDT programming method to change the passwords from their default values as needed to provide security against unauthorized program entries. They can do this when the system is initially installed and programmed, or at any later time as needed. Additionally, programmers can construct a password that will prevent all COS programming entry from station 10.

Customized passwords can be alpha-numeric or numeric only (no spaces allowed) and must contain six characters. To retain the ability to enter programming from station 10, programmers must maintain the In\*nnn\* format in the VDT password and enter only numbers in the nnn entry; however, they must not enter a zero for the leading n. Once customized, a password remains customized. Neither default nor master clear will erase it. Programmers must use the new password to gain entry into the system for future programming tasks. It is very important that someone keep a hard copy of the customized password since it provides the only entry to system COS programming through either the VDT or station 10. If no one can remember the customized password, the manufacturer can provide emergency entry but there is a charge for this service. Otherwise, the installer must disconnect all AC power and any battery back up equipment, wait at for an extended period of time (up to several weeks) for the internal memory protection to completely discharge, and reprogram the system using the default password to gain entry.

## **Pulse/Tone Switchable**

The programmer can program the system on a per line basis using the line class of service programming to allow the stations to switch from pulse to DTMF type dialing as needed. Alternately, she or he can program the system to only allow tone dialing.

## **R**

### **Redialing**

#### ***Automatic Redial (of Busy Number or Unanswered Call)***

A user can automatically redial a busy number or unanswered call by activating this feature. Once the user activates automatic redial, the station will select the line, automatically dial the number, and wait for a response. It will do this twice unless the user deactivates the feature by pressing that button or another button or by lifting the handset. The feature cycle is timed and does not have busy detection circuitry. Because of this, if the user is operating hands-free when the called party answers, she or he must lift the handset to prevent the caller from being cut off by the timing cycle. The automatic redial button is a designated programmable button position and the user must program its location to make it active.

#### ***Automatic Pause Insertion***

When the system stores a dialed number for later redial, it automatically stores a pause whenever the user waits between digits for at least two seconds. The system inserts the automatic pause in the stored number sequence at the point where the manual pause in dialing occurred. The length of the automatic pause is programmable.

### ***Last Number Redial***

Each station is provided with a last number redial feature. This feature will save 32 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 choose the last line used at the station. If it is busy, no further choice is made. No class of service is required.

### ***Saved Number Redial***

This feature enables a button action to save the first 16 digits of the last number manually dialed from the keypad. The saved number can be redialed at a later time. The saved number is permanently available for later use until it is replaced with a new number.

When the caller identification feature is active, this saved number redial feature will save the Caller ID number for redial.

## **Response Messaging**

This feature allows a user to reply in a non-verbal manner to a voice announce or tone-sigaled intercom call or to a subdued off-hook voice announce call if the intercom caller is using an LCD speakerphone. A station user can press a programmable button in response to an intercom call and send a message to be shown on the display of the calling station. Response messages are programmed by the attendant and later stored by station users at programmable buttons on their stations.

See also, *Messaging*.

## **Remote Programming and Administration**

Both remote class of service programming and the transmission of SMDR data for printing are available through serial data ports. The system supports X-on X-off terminal control codes as well as a DTR signal for handshaking. The system data communications operates per the popular XMODEM protocol. The database can be uploaded or downloaded, error free, from or to a remote computer that is running software that supports the XMODEM protocol. The two serial data ports allow VDT programming (either local or remote) to be conducted through one port at the same time that the other port is being used to send SMDR data for printing. VDT programming of the system is menu driven.

See also, *Class Of Service*.

## **Ringer Volume Control**

DigiTech, *Impact*, and *Impression* telephones have a ringer volume control that telephone users can operate to adjust the loudness of the ringer at his or her station.

## **Ringling**

### ***Auxiliary Ringer Interface***

The auxiliary ringer interface provides “dry-contact” relay closures which track the ringing pattern whenever the system sends ringing to a programmable destination. Programmers can program relay control to be activated when the system sends ringing to station port 17 or to the paging port.

When programmed for station port 17 ringing, an installer often uses an external device to provide loud ringing. When programmed for paging port ringing, an installer often installs an external paging amplifier to sound the rings. The system supplies ringing tones to the paging port along with the relay closures. It can send the ringing tones to the input of an external paging amplifier and the installer can arrange the wiring so that the relay closures energize the paging amplifier while it is receiving the ringing tone. Use system class of service programming to choose either the paging port, or station port 17 for the ringing port relay control. Also use system class of service to determine the type of ringing sent to the paging port. Use station class of service programming to determine the type of ringing that the system sends to station port 17.

Programmers can arrange for the system to send ringing tones for particular lines through the PA port. They can choose between intercom tone and DTMF signaling tone for the PA port ringing. They should choose the intercom tone if they desire a soft tone and the DTMF tone if they desire a loud tone.

### ***Common Audible Ringer Interface***

Connections are available at the common equipment that provides “dry-contact” relay closures whenever an incoming line rings. These contact closures track the ringing pattern and can be used to control an external signaling device.

### ***Delayed Ringing***

Ringing assignments are programmable. A station can be programmed to provide delayed ringing on some lines while providing immediate ringing on other lines. Delayed ringing is assigned to certain lines at each station through station class of service programming. When a programmer assigns delayed ringing to a station for certain lines, he or she can also assign the time length of the delay.

### ***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 four seconds.

### ***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. Delayed ringing is assigned to certain lines at each station through station class of service programming.

### ***Flexible Ringing Assignments of PA Port***

The PA port can be programmed for flexible ringing assignments and zone pages. Any desired lines can be programmed for direct ring, delay ring, or night transfer (of ringing) at this port. Paging can be to programmed zone or to all-call. A speaker can be connected to the PA port to sound the ringing that is generated by the system and sent to this port and paging announcements when they are sent to the programmed zone. Using such an arrangement, it is possible for a user to determine that certain lines are ringing, such as in a night transfer (of ringing) mode, and go to the nearest telephone and answer the call. The most common use for this arrangement is as a night bell eliminating the need for external equipment as required with the common ringer and auxiliary ringer interface. The speaker cannot be used for voice response as the path is one-way only. Use system class of service programming to assign ringing and paging to a PA port.

### ***Night Transfer (of Ringing)***

Night transfer (of ringing) is an attendant-controlled feature that transfers the day ringing program of all incoming calls to a particular station or stations for off-hour or special purpose answering. The night transfer mode can only be activated from station 10 or 12. The individual lines at each station that are to be transferred with this feature are selected by station class of service programming.

### ***Night Transfer (of Ringing) Button***

A night transfer of ringing, or night mode, button is available at attendant stations. The night mode button gives attendants at stations 10 and 12 the ability to place the system into the night transfer of ringing mode of operation by simply pressing one button instead of entering the multiple keystroke sequence previously required. The night mode button toggles the feature on and off with one keystroke and the light located above the Intercom button on attendant telephones flutters to indicate when the night transfer or ringing is active.

### ***Personalized Ringing Tone***

The system provides a group of distinctive tones for station ringing. A station user can choose a tone from this group to provide a distinctive ring at his or her telephone. Often, when several telephones are located close to each other, each user chooses a different personal ring tone. The system provides six distinctive tones for users to choose from.

### ***Subdued Ringing***

When a station is busy on a call and another call comes to the same station, the system will automatically subdue the ringing of the second call to a lower volume.

## **Ringling Line Preference**

The system can be programmed on a per station basis to provide ringing line preference on all lines programmed for ringing at the station. When ringing line preference is enabled at a station, taking the handset off-hook automatically connects the station to any outside line that is ringing at it. A line button will not have to be pressed. With ringing line preference enabled, the telephones denote a ringing line with an orange colored status light. If a station also has prime line assigned, the prime line will always be answered first even though it may be the second line to ring. The ability of a particular station to answer a ringing line without line selection is enabled by the station class of service programming.

See also, *Line Features*.

## **S**

### **Saved Number Redial**

This feature enables a button action to save the first 16 digits of the last number manually dialed from the keypad. The saved number can be redialed at a later time. The saved number is permanently available for later use until it is replaced with a new number.

When the caller identification feature is active, this saved number redial feature will save the identified number for redial.

See also, *Redial*.

## **Scout Digital Wireless Telephone**

The DSU II supports the Scout 900MX Digital Wireless Telephone. The Scout telephone is a 900 megahertz, spread-spectrum, wireless telephone. While the Scout operates much like an *Impact* telephone, you should note that a few operational differences do exist. The “Call Announce Receive” and “All Call Receive” features require that you install and enable a headset. The Scout does not support the “Autoreodial” or “voice response to SOHVA.” It is a good idea to program any Scout telephone station port with “Delayed Ringing” to an ExecuMail port or attendant station in case the user is out of range when he or she receives a call.

The Scout does have a range test that the installer or user can perform. Comdial highly recommends that the installer perform a preliminary on-site range test to make sure the Scout meets the customer’s needs (for more information on how to use the range-test feature, see GCA70-308).

There is no limit to the number of Scout telephones that you can install on a system. However, because of channel restrictions, only nine Scouts can be in use at one time within the same general area. If all nine channels are in use and a tenth Scout telephone tries to place a call, the LCD will indicate “System Busy” and deny the call. If you do install more than one Scout wireless telephone, Comdial recommends that you leave at least 10 feet between adjacent base units. The range of each Scout telephone is affected by the layout and location of the base unit, so it is a good idea to install the base unit in an unimpeded area and at desk-level or higher.

The Scout handset has three programmable buttons and one intercom button that give you access to the telephone system’s features. Depending on the feature, either the end-user or the system programmer can set these buttons. Scout does not require any additional programming.

## **Self Diagnostics**

Each station can execute a self test when so enabled by anyone who wishes to do so. This test verifies processor, indicator, and tone functions.

## **Service Observing**

Service observing allows a third party to enter an in-progress call in an unannounced muted mode to monitor the conversation. The system does not send any warning tones when the call entry is made. This feature is useful in allowing a supervisor to monitor the performance of an employee during a phone conversation with a client. For a station to provide the service observing feature, it must also have the executive override feature enabled. When the programmer enables the service observing feature, the system automatically enables the executive override feature as well. A programmer can enable or block service observing (and executive override) at each desired station using station class of service programming procedures.

## **Speakerphone Support**

The digital telephone system’s speakerphone support enables a speakerphone’s ability to originate hands-free operation for voice-signaled intercom calls in addition to all of the other features that it normally provides.

## **Specialized Route Access**

The digital telephone system provides a specialized route access feature that, when enabled, allows the system to select a line group based on the digits the user has dialed. By doing this, it matches calls with their best suited routes. The feature provides a table-driven routing scheme where the numbers that users dial cause the system to choose a line group after comparing the dialed number with entries that are contained in an office code table, an area code table, and four special area code look-up tables.



The specialized route access operates in the following manner: When the caller presses INTERCOM and dials 9 or presses a preprogrammed button, the system returns a special dial tone. The caller then has 10 seconds in which to dial some digits; otherwise, the telephone will return to its idle state. Once a caller begins to dial digits, he or she has a certain period of time in which to dial each new digit. The system programmer selects this time-out period through programming. After the caller has stopped dialing digits and the end of the time-out period has occurred, the system analyzes the dialed digits and routes the call by following the table-driven routing scheme depending upon how the programmer has arranged the system.

The system routes calls based on comparison matches between the dialed number and the entries that it finds in either an office code table, an area code table, or four special tables for selected area codes. These tables contain 1000 entries from 000 to 999 and the programmer can assign one line group to each entry; therefore, a routing match is always possible.

The system matches dialed digits with table entries in the following manner:

- If the first digit that the caller dials is not a 1 or a 0, and if he or she dials less than 10 digits (such as : nnn-nnnn), the system evaluates the first three digits as an office code, searches for the office code in the office code table, and finds a line group.
- If the first digit is either a 1 or a 0 (such as: n-*nnn*-*nnnn*), the system ignores the first digit and evaluates the next three digits as an office code, searches for the office code in the office code table, and finds a line group,
- If the first digit that the caller dials is neither a 1 nor a 0, and if he or she dials 10 digits or more (such as *nnn*-*nnn*-*nnnn*), the system evaluates the first three digits as an area code and the following three digits as an office code.
- If the first digit that the caller dials is either a 1 or a 0 (such as *n*-*nnn*-*nnn*-*nnnn*), the system ignores the first digit, evaluates the next three digits as an area code, and evaluates the following three digits as an office code.
- After digit evaluation the system routes the call as per the following discussion: If there is a special table that matches the dialed area code, the system searches that table for the dialed office code and finds a line group. If there is not a special table for that area code, the system just searches the area code table for it and finds a line group.

The following information illustrates the digit evaluation scheme.

<b>Digit Evaluation</b>		
<b>Quantity of Digits Dialed</b>	<b>Actual Dialed Digits</b>	<b>Digits Evaluated by System to Find Line Group</b>
2	67	067
3	118	118
4	5123	512
7	9782200	978
8	19782200	978
10	8049782200	804, 978
11	18049782200	804, 978

The example below shows how calls to area code 202 are routed using line group 2, calls to office code 202 are routed using line group 1, calls to office code 973 in area code 716 are routed using line group 4, and all other calls are routed using line group 1.

Routing Calls Through Different Line Groups						
			Special Table for Selected Area Codes (Each table is for office code entries in a specific area code)			
Entries 000-999	Office Code Table	Area Code Table	Area Code 1 (716)	Area Code 2 ( )	Area Code 3 ( )	Area Code 4 ( )
000	1		1			
001	1		1			
002	1		1			
202	1	2	1			
212	1	1	1			
973	1		4			
997	1		1			
998	1		1			
999	1		1			

The programmer can arrange for the system to insert up to eight digits (including \* and # as well as 0-9) ahead of a dialed number for a selected line group. Further, the programmer can enter a pause of system-determined length as a character in the digit string.

To help understand this digit insertion, review this typical arrangement for transparent CENTREX operation (this example assumes that the CENTREX extensions do not conflict with the office codes): With the digital telephone system installed behind a CENTREX system, callers can make outgoing calls without having to dial 9. Assume that the CENTREX extensions are 3300-3399. Take programming action to assign line group 2 to entries 330-339 in the office code table. This means that calls on CENTREX extensions will use line group 2 and all other calls will default to use line group 1. Program the 9 digit as the insertion digit for line group 1. With this set up, when a caller dials a number other than a CENTREX extension, the system automatically inserts a 9 ahead of the dialed digits and routes the call over line group 1.

If no lines are free in a selected line group, the system will route the call to an overflow line group if the programmer has assigned one; otherwise, the system will return busy tone to the caller.

**NOTE:** *If the programmer has arranged for the system to insert digits on a particular line group, he or she should consider arranging for the system to insert digits in the overflow line group as well. This consideration is necessary only if it is important for the call to route through the same common carrier as was the original line group.*

While line group dialing codes 81, 82, and 83 do not provide access to the SRA feature, they could provide a means of bypassing SRA by allowing users access to line groups outside of the SRA process. To insure that the system routes all calls through SRA, programmers should use the feature inhibit programming procedure to inhibit dialing codes 81, 82, and 83.

## ***Using Specialized Route Access for Simplified Toll Restriction***

In anticipation of the implementation of the revised North American dialing plan, the feature provides the system with the ability to deny calling to designated area or office codes. The programmer merely assigns a line group that contains no assigned lines to the designated office or area code. This prevents the system from routing calls for dialed numbers containing those particular area or office codes since there is no line available. This action will work only for manually dialed numbers because automatically dialed numbers, with no line preselect, employ the last used line and therefore cannot be restricted.

## **Specialized Route Access Enhancements**

Software 3A contains the following enhancements to the SRA feature:

- The system routes speed dial calls through SRA similarly to the way manually dialed calls are routed. The speed dial location must not have a preselect and must contain at least one digit. No programming is required to enable this feature.
- The system now routes calls through an alternate line group if no lines are available in the original line group. If no lines are available in the alternate line group, the system searches the overflow line group for an available line. Each line group has one alternate line group; the system will not assign alternate line groups by default.

## **Square/Non-Square Configuration**

A programmer can arrange for a system to be square or non-square as desired. In a square system, the line 1 buttons of all telephone stations select line 1, the line 2 buttons select line 2, etc. In a non-square system, each line select button at every station may be assigned individually to select any line. A programmer can perform unique button mapping for line appearance on each station using the station class of service programming.

## ***Flexible Station Numbering Plan***

The system supports a flexible station numbering plan for individual stations. Each station can be programmed to respond to the dialing of any available number between 10 and 7999. This feature may be used to match the calling number of a station located in a pre-numbered area to that area number. A combination of two, three, or four digit extension numbers can be assigned as long as they do not conflict. For example: If 21 is assigned as an extension number, there cannot be any other extension number assigned that begins with a 21. The system class of service programming is used to assign extension numbers to individual station ports.

## ***Tenant Service***

A system programmer can arrange for one telephone system to be used for multiple tenants at a site location by employing flexible line appearance at each station. The programmer can perform button mapping for line appearance on each station in the system using the station class of service programming.

## **Station Monitoring with DSS Call Pickup**

The busy lamp field (BLF) of a station can provide visual indication of the idle, busy, and ringing status of monitored stations. This monitoring station can also provide audible indication of any direct and delayed ringing that occurs at the monitored station if the programmer has enabled the visual ring indication feature. A user at the monitoring station can make a one-button pickup of a ringing call at a monitored station by pressing the direct station selection (DSS) button associated with the ringing station.

The programmer can enable or disable the flashing BLF lights associated with visual ring indication on a system-wide basis. When the programmer enables the flashing lights, he or she can then enable the audible indication of ringing on a station-by-station basis.

## **Station Speed Dial**

Each station provides 10 speed dial number locations at the keypad buttons. Station speed dial numbers can be up to 16 digits in length and can include line or intercom selection, numbers, #, \*, pauses, and hookflash signals. A user can store a pause by pressing the HOLD button and store a hookflash signal by pressing the TAP button.

See also, *Automatic Dialing*.

## **Station-to-Station Messaging**

If a station has a DSS/BLF appearance at another station, a callback message indication can be left at that station with the DSS/BLF appearance. The user can dial a special code to turn on the BLF light at the called station that is assigned to the calling station. This light indicates that a callback is requested. The light is automatically turned off if a successful callback is made.

If a station number is not programmed for a DSS/BLF appearance at another station, attempting to place a call back message will cause the central message desk station to ring. If there is no central message desk assigned, no action will occur.

See also, *Messaging*.

## **Subdued Off-Hook Voice Announce**

With the subdued off-hook voice announce (SOHVA) feature, a user can make a voice announcement from one station to another station that is off-hook and busy on a call. A station being operated in a hands-free mode cannot receive a SOHVA. With SOHVA, the caller delivers the call and the user receiving the call responds to it in a secure manner that prevents the distant party from hearing either the announcement or the response. The system precedes the announcement with a tone alert that it delivers to the handset receiver of the called telephone. It also supplies a tone to the announcing caller to alert them that they are making a SOHVA call. A programmer can set the quantity of tone bursts from one to six. A user can respond to the SOHVA announcement either verbally or non-verbally. He or she either effects a verbal response by pressing and holding the **MUTE** button and speaking into the handset or effects a non-verbal response by pressing a programmed button to send a message to be shown on the display of the announcing station (if it is an LCD speakerphone). The system automatically disconnects the announcing station after it delivers the response message. Stations that have the voice announce block feature turned on cannot receive a SOHVA. A programmer can use station class of service programming to disable the SOHVA feature at a station port.

### **Subdued Off-Hook Voice Announce Originate Button**

This feature allows a telephone user to program a button at his or her station that she or he must press before delivering a SOHVA call. This SOHVA enabled button allows a caller, after hearing a busy signal, to decide whether to interrupt the called party in a SOHVA manner. If the caller decides that the called should be interrupted, the caller can press the button and complete the SOHVA call. This button, along with SOHVA groups, allows system users greater control of the callers that are allowed to make SOHVA calls and of the situations in which they are allowed to make them.

### Subdued Off-Hook Voice Announce (SOHVA) Groups

The programmer can program the ability of station ports to originate and/or receive SOHVA calls by assigning SOHVA calling groups to station ports. This means that he or she can arrange certain station ports together for SOHVA calling between one another while excluding other station ports in the system from this group.

The system provides eight different SOHVA groups that are fixed into a variety of SOHVA receive/originate configurations. A programmer can assign one SOHVA group to each station port to allow or to deny SOHVA receive and/or originate capability to it. By properly assigning SOHVA groups to station ports, the programmer can open or block SOHVA paths between stations.

The system is defaulted with no SOHVA groups assigned. When a station port does not have a SOHVA group assigned to it, it's user can originate SOHVA calls to any station port and receive SOHVA calls from any station port.

SOHVA groups are *fixed* by the system into the following configurations:

SOHVA Groups and their Configurations								
SOHVA Group	Group Configurations							
Group 1	1	2	3	4	5	6	7	8
Receive from	X							
Originate to	X	X	X	X				
Group 2	1	2	3	4	5	6	7	8
Receive from	X	X						
Originate to		X	X	X				
Group 3	1	2	3	4	5	6	7	8
Receive from		X	X					
Originate to			X	X				
Group 4	1	2	3	4	5	6	7	8
Receive from	X	X	X					
Originate to								
Group 5	1	2	3	4	5	6	7	8
Receive from					X			
Originate to					X			
Group 6	1	2	3	4	5	6	7	8
Receive from						X		
Originate to						X		
Group 7	1	2	3	4	5	6	7	8
Receive from							X	
Originate to							X	
Group 8	1	2	3	4	5	6	7	8
Receive from								X
Originate to								X

**Example 1:** Allow station port 10 to originate SOHVA messages to all stations in the system and allow those stations the ability to originate SOHVA messages to each other but not to station port 10. Assign group 1 to station port 10 and assign group 2 to all other station ports.

**Example 2:** Allow station ports 14 and 15 to receive and originate SOHVA calls between each other but deny both receive and originate capability from any other system stations. Assign group 8 to both station port 14 and station port 15. Do not assign group 8 to any other station port **but be sure that all station ports have a group assigned to them.**

The programmer assigns SOHVA groups using the station class of service programming procedure.

## **Subdued Ringing**

When a station is busy on a call and another call comes to the same station, the system will automatically subdue the ringing of the second call to a lower volume.

See also, *Ringling*.

## **System Alarm Reports**

The programmer can arrange the system to report alarm and status conditions to a particular station or stations that he or she has enabled to receive them. The alarm receiving station must be an LCD speakerphone. When a station is enabled to receive alarms, its user can take appropriate action to cause the alarm codes to be presented on the LCD display. A programmer must use both system and station class of service programming to enable this feature.

## **System Speed Dial**

The system provides 99 system-wide speed dial numbers. The system speed dial numbers can be up to thirty-two digits in length, and can include numbers, #, \*, pauses, and hookflash signals. The attendant programs the system speed dial numbers and names at station 10 or 12 for use at every station in the system. No class of service programming is required.

See also, *Automatic Dialing*.

# **T**

## **Tandem Attendant**

When the programmer uses system class of service programming to enable the tandem attendant feature, a recall from an unanswered call transfer or a timed hold recall will ring at the normal attendant station (station 10) that set the transfer or hold condition, and also ring at the tandem attendant station (station 12).

## **TAP (Flash/Recall)**

If the host system provides custom calling features via a hookflash signal, the programmer should program the system so that the TAP button will generate a “flash” signal when a user presses it. If custom calling features are not available to digital telephone system users, the programmer should program the TAP button to function as a positive disconnect, dial tone recall button. The flash and recall features are mutually exclusive. The programmer uses the system class of service programming procedures to set the flash or recall TAP time.

## **Tenant Service**

A system programmer can arrange for one telephone system to be used for multiple tenants at a site location by employing flexible line appearance at each station. The programmer can perform button mapping for line appearance on each station in the system using the station class of service programming.

See also, *Square/Non-Square Configuration*.

## **Timed Hold Recall**

After a call has been on hold for a programmed length of time the system will re-call the station that placed the call on hold. The programmer sets the timed hold recall time period using system class of service programming.

See also, *Hold*.

## **Toll Restriction**

### ***Default Toll Restriction***

The system defaults two toll restriction tables with preprogrammed values assigned to all lines. The programmer needs only to assign these tables to the stations to put them into effect. He or she can use the toll restriction table configuration class of service programming to reprogram the defaulted tables with different information as needed.

### ***Flexible Toll Restriction***

A system programmer can configure system toll call restriction to prohibit some or all stations from calling a wide range of number combinations. The restricted numbers are specified on up to 16 tables. The system assigns several broad-range values to two of these tables, and assigns the tables to all lines as a default condition. The programmer needs only to enable the default tables on a per station basis to activate the default toll restriction.

In general, toll restriction works as follows:

The programmable tables of restricted numbers can contain up to four entries and each entry can contain up to 16 digits.

A programmer programs each table of restricted numbers to be an “allow” table or a “deny” table with entries in an “allow” table overriding entries in a “deny” table. This arrangement allows the programmer to enable exceptions to toll restriction. For example, he or she can arrange the table entries so that the system allows the dialing of 1-800-xxx-xxxx numbers even though it denies the dialing of all 1-xxx-xxx-xxxx numbers. A programmer can store a “match anything” symbol (#) to represent any digit from 0 to 9 in the individual entries thus providing him or her with a broad range of number combinations to choose from.

The programmer can individually assign the programmed toll restriction tables to each appropriate station and line. Therefore, when an outside call is dialed, the system examines the dialed number and makes a comparison between it and the toll restriction tables. Any tables that the programmer assigned to BOTH the station being used and the selected line determine the restrictions to be imposed. It should be noted that the system will automatically disconnect a line from a station if its user dials a restricted number on a restricted line from a restricted station.

### **Night Mode Toll Restriction**

A programmer can assign toll restriction tables to any or all stations in the system that will only take effect when the system is in the night transfer (of ringing) mode. These toll tables replace any that he or she may have assigned to the station for normal, or day mode, operation. For example: a programmer can arrange for a station that has no other toll restriction table assignment to receive a toll restriction table which will restrict everything but local calls and will only take effect when the system is placed in the night transfer (of ringing) mode. Therefore, even though users can make toll calls from this station during daytime operation, they can make no toll calls from it when the attendant programs the system for nighttime operation using the night transfer of ringing feature.

*NOTE: Do not confuse this night mode toll restriction table assignment with the night transfer (of ringing) feature.*

### **Toll Restriction Override**

The toll restriction override (TRO) feature allows users to override the toll restriction that they encounter at other stations with their own station's toll restriction assignments. In programming for this feature, the programmer creates a four-digit TRO code that users can dial to override the toll restrictions of any station that they happen to be using and replace it with a toll restriction that matches their home station. After entering a TRO code, a user gets his or her own prime line or idle line preference and its accompanying toll restriction assignment. They then have 15 seconds to dial an outgoing call. Once they hang up from a call, they have 15 seconds to make another call without having to re-enter their TRO code. The system marks outgoing line calls that users make after entering a TRO code with a (T) in its SMDR/SMDA printouts. The station number that it prints is that of the overriding station and not the actual station that the call was made from. If a user transfers a TRO call or places it on hold and picks it up at another station, the call belongs to the new station.

### **Positive Disconnect Supervision**

When a station is on line with an outside caller and the caller hangs up, the CO may send a positive disconnect signal to the telephone system. A programmer can enable a positive disconnect supervision feature on a per line basis. With this feature enabled when the telephone system detects the CO's positive disconnect signal, the system resets the toll restriction, releases the current call record, and creates a new call record in its place.

### **Tone or Voice Signaling (Intercom)**

The system allows intercom calls to be tone signaled or voice signaled as the users desire; however, the programmer uses system class of service programming procedures to determine which signaling method the system will employ as the primary method. Regardless of the programmer's arrangement, telephone users can take action to use the alternate method when they need it. See the paragraph titled *Intercom Call Progress Tones* for a discussion of the intercom signaling tones.

See also, *Intercom*.



## **Tracker Paging System**

The optional Tracker Paging System is a wireless paging system that uses an external base station connected to the common equipment cabinet and individual portable pagers assigned to the system station extension numbering plan. The Tracker Paging System allows telephone users to send alpha/numeric or numeric-only messages to Tracker pagers assigned to station extension numbers. The type of message that the system delivers is dependent on the model Tracker pager being used. The Tracker base station requires only one connection to the digital telephone system; however, the installer will need to take several programming steps to make it operational.

## **Transferring Calls**

See *Call Transfer*.

## **Transfer/Conference Button**

The telephones provide this fixed button that gives quick, easy transferring and conferencing.

## **U**

### **Unanswered Call Transfer Recall Timing**

A transferred call that is unanswered after a programmed length of time will return to the station that transferred it. The system will return the call to both attendant stations when the tandem attendant feature is enabled. When LCD speakerphones are employed, the display will show the station number or name as well as the line number that is being re-called. The system class of service programming determines the recall time for an unanswered call transfer.

See also, *Call Transfer*.

### **Unscreened Call Transfer**

A user can transfer a call to another station without first announcing it. The transferred call will camp-on to the other station where it will ring and await an answer. The call will automatically ring back to the transferring station after a programmable recall period. There is no limit as to how many calls users can camp-on to another station. A transferred call will only ring if the station is idle. If the station is busy, the call will wait until it is idle before it rings. The programmer can use the system class of service programming to set the recall time for an unanswered transferred call.

See also, *Call Transfer*.

## **V**

### **Visual Voice Mail**

Visual Voice Mail (VVM) support provides proprietary, two-line display LCD speakerphone stations with visual messages and interactive buttons. This message and button functionality enhances the stations with visual messages and interactive buttons. This message and button functionality enhances the station's use with Comdial Versatile Voice Processing (VVP) voice mail equipment. To implement VVM support, the system programmer must enable it with class of service programming action.

**NOTE:** On the J0408, VVM requires the same serial data connection to the common equipment cabinet as does the Tracker Paging System, the Tracker Paging System is unavailable while VVM is operational.

When enabled, VVM causes the speakerphone to display a **VMAIL** button that users press to call the voice mail system. After they press this button, the system prompts them to enter a password. (This password is one that the programmer assigns to the stations.) Once users enter the password, the speakerphone's display shows the VVP's main menu. From there, users can select the operation they wish to pursue.

When there is a message waiting, the display shows the message quantity in place of the button (for example, **5 MSG**). Users press the **MSG** button to play the stored messages. The system prompts the user to enter a password (if programmed to require one) before it plays the new messages.

### **Voice Announce Blocking**

This feature allows station users to block voice announced intercom signaling by dialing a code or pressing a programmable button programmed for that purpose. The programmable button used to block voice signaling is enabled by station class of service programming.

See *Intercom*.

### **Voice Mail Support**

The digital telephone system supports the use of voice processing equipment connected to the system's station ports through the ATI-D analog terminal interface. The ATI-D is a multipurpose *on-premise* accessory for the digital telephone system. It has dual circuits that allow the voice mail equipment to interface to two station ports. In addition to the required programming task of identifying the station ports as voice mail ports, there are several other programming considerations associated with voice mail operation that the programmer can make whenever their options are wanted. These options include the following features:

#### ***ACD Functionality Access from LCD***

When a user is logged into an ACD group, the voice mail system will control the LCD on the telephone. During that period, the telephone system will only update the LCD with messages from the voice mail system. When the user logs out of the ACD group, the voice mail system returns control of the LCD to the telephone system and normal operation resumes.

#### ***Automatic Attendant***

With the automatic attendant feature, the voice mail system automatically answers any line that is ringing at a voice mail port. As a default, the system automatically enables ringing line preference for any port the programmer identifies as voice mail ports. The programmer must choose a ringing assignment for the lines assigned to the voice mail port before the voice mail system can provide the automatic attendant feature.

#### ***Automatic Transfer of Voice Mail***

The programmer can choose the immediate transfer mode for voice mail transfers. However, if he turns on the screen and/or confirm options provided by the voice mail system, he must not choose the immediate transfer mode because it allows the system to transfer a call as soon as it answers it precluding any screen and confirm action that the voice mail equipment can provide.

### ***Busy Lamp Field (BLF) Information Supplied to Voice Mail***

This feature gives voice mail the capability to monitor the state of an extension. When an extension changes state from idle to busy or busy to idle, the digital telephone system notifies the voice mail system of the change. The system uses this feature when users log into the ACD voice mail. The programmer should turn on station monitoring to allow voice mail to better interpret the station status.

### ***Calling Party Digit Collection***

When the VP system collects digits from the caller, these digits are passed from the voice mail to the digital telephone system. This number is treated like the Caller ID information and is displayed on the telephone's LCD. The Caller ID feature must be enabled for the feature even though a Caller ID device may not be physically present.

### ***Database Supplied to Voice Mail System***

When voice mail requests the name of an extension from the digital telephone system, the system replies with the extension number, extension name, and the extension state (idle or busy). This information is supplied by the digital telephone system to voice mail each time an extension number changes or whenever voice mail requests the information.

### ***Hunt Groups***

When a station port that has been assigned to an intercom hunt group is busy, a call to it will ring at the next idle station port in the group. A call will try to ring every port in a hunt group and if all are busy, the telephone system will return a busy tone to the caller. A programmer can assign all voice mail ports to a circular hunt group to take advantage of its multiple-port interface capability. With this arrangement, a call will first try to ring at the first port, then try the next one and so forth until it tries all four ports.

### ***New Incoming Call Message***

The new incoming call message includes three elements:

- Personal Greeting Enhancements
- Calling Party ID on incoming calls
- External Caller ID passed to voice mail

When voice mail answers a call, the digital telephone system sends a message to the voice mail, including the calling party's internal extension or external caller ID, if available, and the extension number of the called station and the reason code. (The system plays different greetings based upon the reason code.) This sent message replaces the in-band DTMF signaling.

### ***Positive Disconnect Supervision***

When a station is on line with an outside caller and the caller hangs up, the CO may send a positive disconnect signal to the digital telephone system. The system passes this signal to the voice mail equipment thus signaling it also to hang up.

### ***Record Button***

This feature allows a user to record a conversation already in process by pressing a programmable **Record** button. This is a very convenient feature in ACD applications because the agent's LCD will contain ACD information instead of the usual line call information. In non-ACD applications, the LCD displays **RECORD** above the appropriate interactive button.

### **Transfer a Line Call to Voice Mail**

When a station is on-line with an outside caller, and the user presses the **Transfer to Voice Mail** button, the line is put on hold and an intercom tone will be heard. At that time, the user can press a DSS button or dial the desired extension. As soon as this is done, the station will go idle and the line on hold will be transferred to voice mail and routed to the mailbox entered by the user.

***NOTE:** The **Transfer to Voice Mail** button is a dual-purpose button—it is also used for **Voice Memo**.*

### **Voice Mail Line ID**

The programmer can program the voice mail lines with identification (ID) numbers that allow the voice mail equipment to identify which line it is answering. The ID numbers that the programmer assigns here must match the ID numbers that are selected as part of voice mail system programming.

### **Voice Mail Pause**

Some voice mail systems allow you to program a pause before they dial an extension number. You can program the digital telephone system to pause before receiving digits from a voice mail system. This capability allows the digital telephone system to match the voice mail system's pause. If the voice mail system does not pause before dialing an extension number, you must disable the fixed one second pause in the digital telephone system.

### **Voice Mail Transfer On Busy**

The programmer can arrange the telephone system to alert a busy telephone that the voice mail equipment is attempting to transfer a call to it. Without this programming, the voice mail equipment will automatically route the call to a voice mailbox when it encounters a busy signal. With this option, when the voice mail equipment tries to transfer a call to a station that is busy on a call (outside or intercom call) and the station has an available intercom line (stations can be programmed to have a second intercom), the intercom will ring subdued. The user can answer the call by pressing the button of the ringing intercom line. In general, attendants will probably desire this feature so they can handle multiple calls, while other station users may prefer to have a message taken when they are already busy on a call.

### **Voice Memo Feature**

This feature allows a user to deposit a voice mail message directly in another user's mailbox. A user presses the **Voice Memo** button and then selects the extension for the mailbox where they want to deposit the message. The digital telephone system then calls the voice mail, and the call is routed to the selected mailbox. If there is no mailbox number then the voice mail system prompts the user to enter one.

***NOTE:** The **Voice Memo** button is a dual-purpose button—it is also used for **Transfer to Voice Mail**.*

## **Volume Control**

Every Impact, Impression, DigiTech, and Scout telephone has a multipurpose volume control for adjusting the loudness of the ringer, the speaker, the handset, the headset, and the group listening mode. LCD speakerphones display the new volume setting whenever the user presses the rocker switch volume control located on the telephone's faceplate.

There are four ringer levels (Scout has two plus off). At default system settings, users can set the ringer loudness at their stations from completely off to maximum. System programmers may disable the ringer-off feature on a system-wide basis. When programmers take this option, users can set the ringer volume to a low level but cannot completely silence it.

The number of handset loudness levels is different for each telephone model. DigiTech telephones have 8 handset volume settings. At default, Impact and Impression telephones have 8 handset volume settings, but the installer may increase the number of volume settings on individual stations to 13. The maximum volume range for listening is always available to the user, even when this feature is disabled. Users working in noisy environments and users with hearing impairments may find the increased number of volume settings useful. Impact SCS telephones have 8 handset volume settings, providing a range in volume that is similar to Impact models using 13 steps. The Scout has 2 handset volume levels.

There are 8 headset volume levels on DigiTech telephones, 13 on Impact and Impression telephones, and 2 on Scout telephones. Impact, Impression, and DigiTech telephones have 8 speaker volume levels. DigiTech telephones have 7 group listening volume levels, Impact and Impression telephones have 8. Impact SCS telephones have 8 volume levels each for headset, speaker, and group listening.

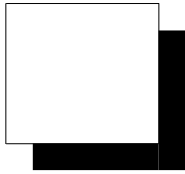
## **Z**

### **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 four different zones. Zone paging can also be received at the paging port where it can be connected to the input of an external paging amplifier. The ability of each station to originate and/or receive a page and the arrangement of the paging into different zones are controlled by station class of service programming. Zone paging through the paging port is enabled by system class of service programming.

See also, *Paging*.

## **Notes**



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## **Notes**

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