COMDIAL

ExecuTech

Model 2264X and 2296X Hybrid Systems

- Installation
- Programming
- Maintenance

This publication is applicable to the following common equipment :
- Model K2264 Mfg. Code 8xxH or later
- Model K2296 Mfg. Code 8xxH or later

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TABLE OF CONTENTS

CHAPTER 1 INTRODUCTION 1-1

MANUAL SCOPE 1-1
RELATED PUBLICATIONS 1-1
GENERAL INFORMATION 1-2
INSTALLER/USER INFORMATION
REGARDING FCC RULES AND REGULATIONS 1-2
RINGER EQUIVALENCE NUMBER 1-4

CHAPTER 2 **INSTALLATION** 2-1

MOUNTING CONSIDERATIONS 2-1
MOUNTING PROCEDURE 2-2
SYSTEM WIRING 2-4
SYSTEM CHECKOUT 2-29

CHAPTER 3 SYSTEM PROGRAMMING 3-1

GENERAL INFORMATION 3-1
SPECIAL PROGRAMMING REQUIREMENTS FOR SINGLE-LINE KEYSETS 3-2
BASE LEVEL PROGRAM ENTRY MODE 3-3
CLASS OF SERVICE DEFAULT 3-4
PROGAMMING OVERLAYS 3-4
SYSTEM COS PROGRAMMING PROCEDURE 3-6
TOLL RESTRICTION PROGRAMMING 3-10
LINE COS PROGRAMMING 3-12
STATION COS PROGRAMMING 3-14
BLOCK PROGRAMMING OF STATION COS 3-19
HUNT GROUP PROGRAMMING 3-19
COS AND SMDR PRINTOUT 3-22
CASSETTE TAPE RECORD OF COS VALUES 3-24
SYSTEM CLOCK INFORMATION 3-27
SYSTEM SPEED DIAL PROGRAMMING 3-28
SYSTEM COS PROGRAMMING REFERENCE TABLE 3-31
TOLL RESTRICTION REFERENCE TABLES 3-33
LINE COS PROGRAMMING REFERENCE TABLE 3-36
STATION COS PROGRAMMING REFERENCE TABLE 3-37

CHAPTER 4 MAINTENANCE 4-1

TECHNICAL ASSISTANCE AND REPAIR SERVICE 4-1
FUSE LOCATION 4-1
FAILURE ISOLATION 4-2
DESK/WALL REVERSAL AND WALL MOUNTING 4-7

GLOSSARY OF TERMS G-1

PUBLICATION INDEX I-1

Table Of Contents - continued

LIST OF ILLUSTRATIONS

Figure 2-l. KSU Mounting Dimensions 2-2
Figure 2-2. 32-Button Adjunct Feature Module Wiring.....2-2 3
Figure 2-3. Common Audible/Auxiliary Station Interface.....2-2 4
Figure 2-4. PA Connections 2-24
Figure 2-5a. Common Equipment Connections.....2-2 5
Figure 2-5b. Auxiliary Equipment Interconnection.....2-2 6
Figure 2-5c. Station Equipment Interconnection.....2-2 7
Figure 2-6. Typical 6-Wire, Auxiliary-Pair Wiring.....2-2 8

Figure 3-l. Programming Overlay Details.....3- 4
Figure 3-2. SMDR Printout Details 3-23
Figure 3-3. Programming Reference Charts.....3-29, 3-30
Figure 4-1. Fuse Location And Value and Power Supply Output Values 4-2
Figure 4-2. Failure Analysis Flow Chart.....4- 6
Figure 4-3. Station Wall Mounting Details.....4- 8

LIST OF TABLES

Table 2-1. Wiring For Station Connector Block J-1.....2-12
Table 2-2. Wiring For Station Connector Block J-2.....2-13
Table 2-3. Wiring For Station Connector Block J-3.....2-14
Table 2-4. Wiring For Auxiliary Connector Block J-4.....2-15
Table 2-5. Wiring For CO/PBX Connector Block J-5.....2-16
Table 2-6. Wiring For Station Connector Block J-6.....2-17
Table 2-7. Wiring For Station Connector Block J-7.....2-18
Table 2-8. Wiring For Station Connector Block J-8.....2-19
Table 2-9. Wiring For Station Connector Block J-9.....2-20
Table 2-10. Wiring For Station Connector Block J-10.....2-2 1
Table 2-11. Wiring For Station Connector Block J-11.....2-2 2

Table 3-1. Program Keys For Line And Group Choices.....3-16

CHAPTER 1
INTRODUCTION

MANUAL SCOPE

This publication contains installation, programming, and maintenance information for the Model K2264 and K2296 hybrid systems and the associated equipment.

This manual is applicable to systems marked with a manufacturing code of 8xxH and later.

The system is fully protected, and therefore the installation does not require the services of an authorized agent. However, the installation procedures detailed in this manual should only be performed by individuals familiar with general telephone installation procedures.

The end user may perform routine maintenance procedures, such as the following listed ones, but all other servicing must be performed by factory authorized personnel.

- Place or replace any designation strips on the face of the telephone stations.
- Replace the line cord or handset coiled cord.
- Replace complete stations and station handsets. The handset is a special Comdial type. Other handset types will not work properly.
- Relocate the station when it is plugged into the proper system jacks.

RELATED PUBLICATIONS

IMI 01-001, Compliance Requirements To FCC Rules and Regulations Part 68 and 15
IMI 01-005, Handling Of Electrostatically Sensitive Components
GCA 40-028, General Information, Executech Hybrid/Key System
GCA 70-078, User's Guide for Executech II Multiline Telephone
GCA 70-079, User's Guide for Executech Single-Line Keyset
GCA 70-088, User's Guide for Executech LCD Speakerphone
GCA 70-066, Attendant Guide
GCA 70-096, User's Guide for 32-Key Adjunct Feature Module with Call Announce and Handsfree Answerback
GCA 70-097, User's Guide for 32-Key Adjunct Feature Module without Call Announce and Handsfree Answerback
IMI 66-046, Video Display Terminal Programming Instructions

INSTALLER/USER INFORMATION REGARDING FCC RULES AND REGULATIONS

This electronic key system complies with Federal Communications Commission (FCC) Rules, Part 68.

The FCC registration label on the KSU contains the FCC registration number, the ringer equivalence number, the model number, and the serial number or production date of the system.

Notification To Telephone Company

Unless a telephone operating company provides and installs the system, the telephone operating company which provides the lines must be notified before a connection is made to them. The lines (telephone numbers) involved, the FCC registration number, and the ringer equivalence number must be provided to the telephone company. The FCC registration number and the ringer equivalence number of this equipment are provided on the label attached to the KSU.

The user/installer is required to notify the telephone company when final disconnection of this equipment from the telephone company line occurs.

Dual Registration Notification

This equipment can be hardware configured by the installer/dealer as either a key system or as a multifunction (hybrid) system. Configuration procedures can be found in the installation section of this publication. Because of this versatility, the FCC has granted a *dual* registration *to* the system. The installer/dealer must notify the telephone operating company of the new or changed registration number that reflects the configuration that this equipment is currently arranged to provide. The installer/dealer may be required to certify in writing to the telephone operating-company how the system is configured. The telephone operating company may conduct an on-site inspection to verify the system configuration.

Compatibility With Telephone Network

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

. Installation Requirements

Connection of the electronic 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 a type RJ21X.

·Party Lines And Coin Lines

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

Troubleshooting

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

Repair Authorization

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

Radio Frequency Interference

The electronic 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 KSU, the individual telephone stations, and the radio or TV with respect to each other.

If necessary, the user should consult the manufacturer or an experienced radio/television technician for additional suggestions. The user may find the following booklet prepared by the Federal Communications Commission helpful: "How to Identify and Resolve Radio-TV Interference Problems." This booklet is available from the Government Printing Office, Washington D.C. 20402. Stock No. 004-000-00345-4.

Ringer **Equivalence Number**

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

CHAPTER 2
INSTALLATION

MOUNTING CONSIDERATIONS

. The common equipment and power supply cabinets should be attached vertically to any sturdy, flat, surface. They may be vertically rack mounted if desired.

. The power supply cabinet can be mounted so that the power connector and fuses are facing either toward the right side or toward the left side of the mounting Location.

. The power interconnection cable is four feet in length. Locate the cabinets with respect to each other so that this cable will reach between the cabinet connectors. Do not locate the cabinets closer than within six inches of each other.

. The power supply cabinet must be located within six (6) feet of a proper electrical outlet. The system requires a dedicated 117VAC 15 AMP circuit, with a third-wire ground, supplied to a standard electrical outlet (NEMA 5-15R).

. The distance between the common equipment and the TELCO/PBX jacks must be 25 feet or less as per FCC requirements. A nominal distance of 7 feet is recommended.

. The mounting location must be secure and dry and have adequate ventilation. The temperature range of the location must be within 32-122 degrees F (O-50 degrees C), and the relative humidity must be less than 90 percent non-condensing.

. If the mounting surface is damp or if it is concrete or masonry material, a backboard must be attached to the mounting surface to be used for common equipment mounting. Suitable mounting backboards are available commercially or can be constructed out of 1/2-inch plywood cut to size.

. Tools and hardware required for mounting the common equipment cabinet include:
  . Fasteners - wood screws (1/4 x l-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

. MOUNTING PROCEDURE

1. Unpack, and carefully inspect the common equipment, power supply and stations for shipping damage. Notify the shipper immediately of' any damages found. Verify that the packages contain all parts and accessories needed for proper installation and operation.

2. If a backboard is required at the mounting location, attach it securely to provide a stable mounting surface for the equipment.

3. A full scale mounting template is supplied. Hold or tape it to the mounting surface, and mark the location of the mounting holes on the mounting surface as they are located on the template. The mounting dimensions and general equipment locations are shown on Figure 2-l.

4. Drill holes in the mounting surface of a proper size to accommodate the hardware being used. If necessary, prepare these hole8 with inserts, anchors or other attachment devices as dictated by the type of mounting surface.

5. Attach the common equipment and power supply cabinet6 to the mounting surface with four (4) screws installed through the common equipment mounting flange and into the mounting surface holes.

NOTE: The flange hole8 are elongated with an enlargement at one end. This feature allows the mounting screws to be partially installed in the mounting surface before the cabinet6 are hung on them. The flange holes on the power supply cabinet have an enlargement at the center of the elongated holes to allow the cabinet to be mounted with the power connector and fuses facing either toward the right side or toward the left side of the mounting location.

6. Place the individual telephone stations as desired and in keeping with accepted industry and office standards. A telephone station can be wall mounted if necessary as they are desk/wall reversible. Refer to Chapter 4, Maintenance, for instructions in preparing a desk/wall reversible station for wall mounting.

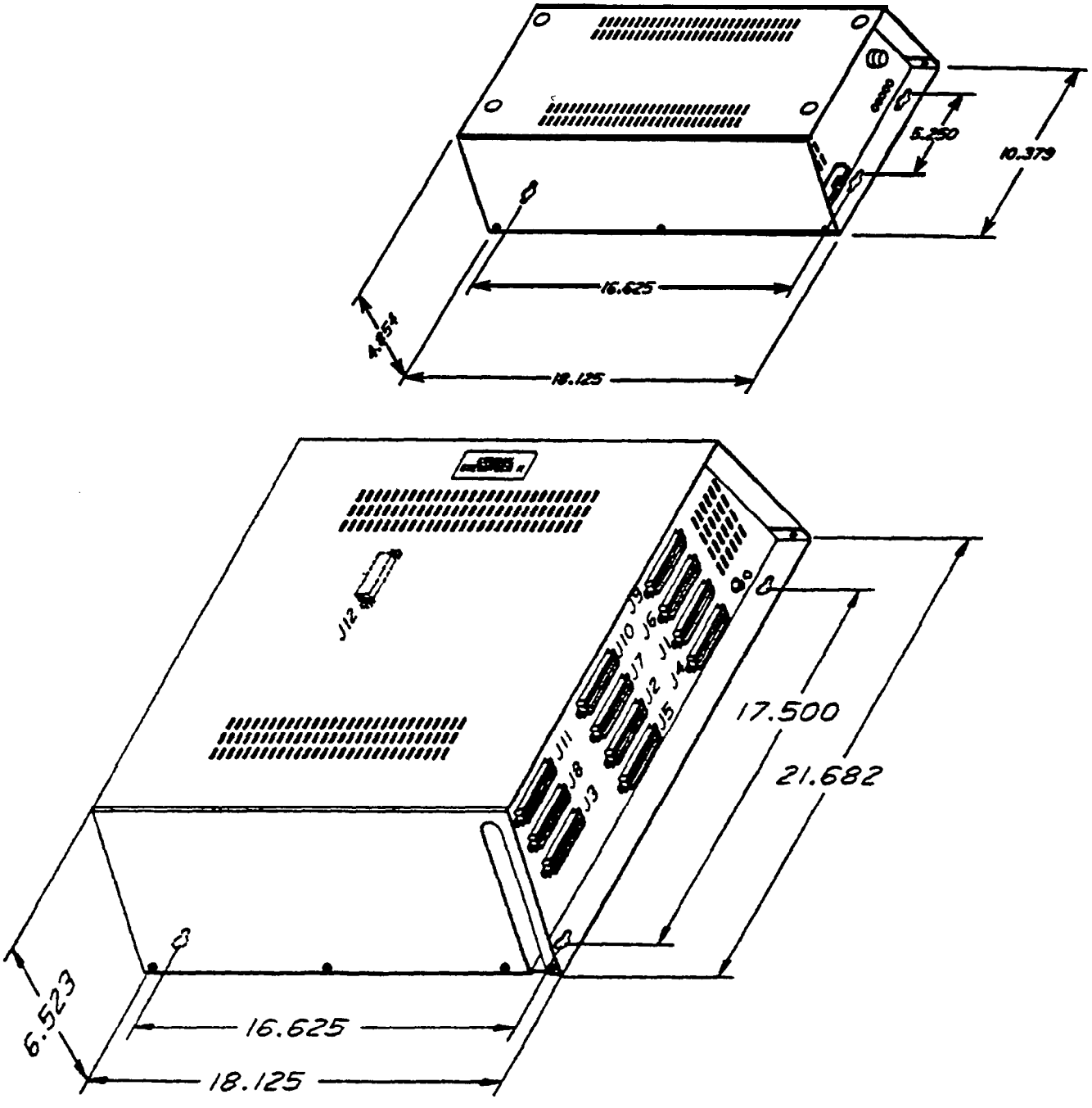


Figure 2-l. Mounting Dimensions

SYSTEM WIRING

System cabling may be routed concealed or visible as the installation location requires. Good engineering practices must be observed and all applicable building codes must be adhered to. Tables 2-1 through 2-5 and Figures 2-2 through 2-6 illustrate the system wiring.

AC Power Connection

To apply AC power to the power supply, connect the AC power cord to the electrical outlet which supplies the dedicated 117VAC @ 15 AMP electrical power.

CAUTIONS:

- Employ a dedicated 117VAC 15 AMP circuit, with a third-wire ground, supplied to a standard electrical outlet (NEMA 5-15R) for the AC power connection.
- A plug-in power line surge protector should be installed between the power cord and the AC outlet.
- Do not connect the AC power cord until the installation has been checked per the SYSTEM CHECKOUT instructions given at the end of this chapter.

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 un-snap it before the connectors can be separated.

Line Connections

The common equipment interface connection for the outside lines is a 50-pin, male connector. A 25-pair cable, properly terminated, must be connected from the common equipment connector to the demarcation point connector (typically a 66M-xx connector).

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

Station Connections

The system supports the operation of the following stations:

- Executech II Multiline Telephone
- LCD Speakerphone
- Single-line Keyset
- Reused 3/8 Line Keyset
- 32-Button Adjunct Feature Module
- 40-Key DSS/BLF Console
- 70-Key DSS/BLF Console

Connections between the common equipment and the stations are typically via type 66M-xx connector blocks which are cable connected to the common equipment SO-pin male connector. The maximum distance allowed from the common equipment to the station when using #24 gauge, twisted-pair cable is:

. 1500 feet for multlllne keysets
. 3000 feet for single-line keysets

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

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

IMPORTANT NOTE: Station ports are programmed for the type of equipment that is to be connected to them. Since an Executech II multiline telephone is required for Class Of Service Programming, this type of equipment. must be installed at station port 10 and/or 11 for programming purposes.

DSS/BLF Console Connections

A large number of consoles can be installed with a system by employing all unused companion station ports and eight dedicated console ports.

. Model K2264 = forty (40) consoles
. Model K2296 = fifty-six (56) consoles

The eight dedicated console ports are as follows:

CONSOLE PORT	STATION PORT	CONSOLE PORT	STATION PORT
10a and 10b	10	42a and 42b	42
11a and llb	11	43a and 43b	43

NOTE: In order to support a fully equipped system, two 70-key consoles or one 70-key console and one 40-key console are required for each attendant.

Executive Consoles

The 32-Button Adjunct Feature Module can also be installed as a companion to any station in the system. As such, it is connected into the port that is data-paired with the companion station.

NOTE: Port pairing for the system is discussed Chapter 4.

Two different wiring methods can be employed.

1. As illustrated in Figure 2-2a, both the station and the data-paired console can be connected separately to the station connector block.

2. As illustrated in Figure 2-2b, common wiring for both the console and the companion station can be employed to effect a wire-savings. When employed, the following conditions must be considered.

. If common wiring is employed for the entire distance between the station and the KSU, the maximum wire length using 824 AWG, twisted-pair wire is limited to 1000 feet as opposed to the normal 1500 feet limitation for station-wiring . However, if only 10 feet or less of common wiring is employed between the station and a wall jack, the normal 1500 feet limitation applies.

. The auxiliary jack of the data-paired station cannot be used for any custom-wired purpose.

Power Failure Station Connections

The system provides four tip and ring pairs connected to lines 1, 2, 3, and 4 as emergency, power failure circuits. These power failure pairs are located as detailed on Table 2-4 and Figure 2-5. A power failure pair is only active during a commercial AC power failure. An industry standard, single-line telephone, such as a Comdial model 2500-xx, can be connected to a power failure pair and used to provide communications capability until the AC power to the system is restored.

Station Auxiliary Jack Connections

For those stations equipped with an auxiliary jack, pins 3 and 4 (tip and ring leads) of this jack are connected to pins 1 and 6 of the station line jack. A 6-conductor station line cord is used, and the third pair is designated as the auxiliary-pair.

Refer to Figure 2-6 for an illustration of a typical auxiliary-pair wiring connection, and note the following wiring considerations:

- Wire a type 625A2-6 modular jack to be used as the station wall jack.
- Connect 3-pair cable between the station wall jack and an auxiliary 66M-xx connector block.
- Connect the voice-pair and data-pair from the auxiliary connector block to the station connector block.
- Connect the auxiliary-pair from the auxiliary connector block to the desired termination.
- Connect an appropriate line cord between the auxiliary jack and the auxiliary source equipment.

A-Lead Control **Device Connections**

The common equipment can detect an A-lead (A and Al) control signal when it is applied to lines 13 - 16. An A-lead control device can be bridge-connected to these lines via terminal clips on the J-4 station connector block. Refer to Table 2-4 and Figure 2-5 for connection details.

Data- Device Connections

When a serial data printer is used for SMDR and COS printout, or a video display terminal (VDT) is used to perform class of service programming, connect the data device to terminal clips on the J-4 station connector block.

The distance between the device and the common equipment can be up to 500 feet in a quiet electrical environment. Shielded cable may be required at some sites for long runs. For longer distances, a limited distance modem must be used to relay the data communications between the common equipment and the data device. Refer to Table 2-4 for connection details.

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 line (data from printer to common equipment) to the device TD (transmit data) output pin.
- Wire the common equipment TD (data to device from common equipment) pin to the device RD (receive data) pin.
- Wire' the common equipment SG (signal ground) pin to the device SG (signal ground) pin.
- Wire the common equipment CTS (clear-to-send status from device to common equipment) pin to the device RTS (request-to-send) output pin.

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

- If required, wire the common equipment RTS (request-to-send status signal from the common equipment to the device) pin to the device DSR (data-set-ready) input pin.
- If required, wire the common equipment PG (protective ground) line(s) to the device protective ground pin(s).

Data Format

Configure the data device to match the following data format and to receive data at the baud rate that is set by COS programming.

- 7-bit data with no parity - fixed
- Baud rate of 1200 baud (default) - can be changed through class of service programming.

System Grounding

Executech common equipment has internal secondary surge protection on all line ports. In order for this protection to be effective, the common equipment cabinet and the power supply MUST be connected to a reliable earth ground such as a metal cold water pipe or a building frame ground. The grounding wire must be of 610 or #12 insulated, solid copper and separate from the three-wire AC line cord. A ground stud is located on the common equipment cabinet and the power supply cabinet for this purpose.

Common Audible and Auxiliary Station Interface

Two sets of relay closure dry-contact points are available at the J-l and J-2 station connector blocks.

- One set (J-l connections) provides a dry-contact closure whenever any of the TELCO/PBX lines, connected to the common equipment, rin
- The other set (J-2 connections) provides a dry-contact closure whenever system station 17 rings.

These contact closures track the ringing pattern in both cases. The contacts are closed during the ringing period and are open during the silent period.

A typical connection is illustrated in Figure 2-3. Refer to the paragraph headed Area Paging Interface for a discussion for using these terminals in this alternate paging function.

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

Area Paging Interface - Station PA Port

A station port can be configured by class of service programming to be a PA port. As a PA port, it can be used to couple a station voice path to an external device (see Chapter 3 for programmingdetails).

- The audio input of an external paging amplifier can be connected to the audio pair of the station port as illustrated in Figure2-4.
- The audio input connection must be isolated with a 600 ohm to 600

ohm audio matching transformer. Terminate the audio input of the paging amplifier with a 620 ohm (nominal value) resistor.

. If station port 39 is programmed as a PA port, the Common Audible contact points are automatically reconfigured as PA enable terminals. The contact closure now occurs when PA station 39 is dialed. The normal common audible function, as discussed previously, is disabled as long as station 39 is a PA station.

. If station port 41 is programmed as a PA port, the Auxiliary Station Interface (station 17 audible) contact points are automatically reconfigured as PA enable terminals. The contact closure now occurs when PA station 41 is dialed. The normal auxiliary station interface function, as discussed previously, is disabled as long as station 41 is a PA station.

Area Paging Interface - Line Port

A line port can be configured by class of service programming to be an AUXILIARY port. As an AUXILIARY port, it can be used to couple a station voice path to an external device. This is done from any station with that line presence pressing the proper line key to select the AUXILIARY port. DTMF tones or dial pulses can be dialed through the AUXILIARY port as needed.

- The audio input of an external paging amplifier can be connected to the tip and ring leads of the line port.

- The audio input connection must be isolated with a 600 ohm to 600 ohm audio matching transformer. Terminate the audio input of the paging amplifier with a 620 ohm (nominal value) resistor.

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

Hybrid/Key System Configuration

The system can be configured to-operate as either a hybrid system or as a key system.

. The common equipment is shipped from the factory as a key system (KF).

. Configuration is by way of a wire strap placed between clip terminals 27 and 28 of station connector block J-4. To convert to a hybrid (MF) system, add the strap.

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 appropriate registration number must be reported to the telephone company at the time of connection along with other FCC mandated information. (Refer to Installer/User Information Regarding FCC Rules and Regulations found in Chapter 1 of this manual.)

The hybrid configuration enables a PBX feature which may incur a higher monthly tariff to the telephone company. This feature allows dial access to (automatic selection of) outgoing lines. The specific Executech feature that is enabled by the hybrid configuration is:

• Line Group (Including Dial Access)

Music Interface

If music is to be part of the system, connect a KX registered music source to the common equipment input jack (phono jack) provided for this purpose. The impedance of this input is approximately 500 ohms. Level adjustment of the music source may be necessary. This may be done during system checkout.

Cassette Tape Recorder Interface

A customer provided, audio cassette, tape recorder can be connected to the music interface jack. Class of service programming can be both stored and loaded via the recorder through this interface. This action is controlled from station 10 or 11 as detailed in Chapter 3, System Programming.

Table 2-1. Wiring For Station Connector Block J-l

SYSTEM INTERCONNECTION FOR KSU J1							
KSU INTERFACE CONNECTOR WIRING			CONNECTION BLOCK WIRING				
25-PAIR CABLE CONNECTIONS			ASSIGNMENT (DEFAULT EXTENSION SHOWN)			4-WIRE CABLE CONNECTIONS	
WIRE COLOR	PAIR	PIN NO				COLOR	CLIP TERM.
WHITE-BLUE	1	26	STATION PORT 10 EXT. 110		VOICE PAIR	GREEN	1
BLUE-WHITE		1				RED	2
WHITE-ORANGE	2	27			DATA PAIR	YELLOW	3
ORANGE-WHITE		2				BLACK	4
WHITE-GREEN	3	28	CONSOLE PORT 10a		POWER PAIR	GREEN	5
GREEN-WHITE		3				RED	6
WHITE-BROWN	4	29			DATA PAIR	YELLOW	7
BROWN-WHITE		4				BLACK	8
WHITE-SLATE	5	30	STATION PORT 11 EXT. 111		VOICE PAIR	GREEN	9
SLATE-WHITE		5				RED	10
RED-BLUE	6	31			DATA PAIR	YELLOW	11
BLUE-RED		6				BLACK	12
RED-ORANGE	7	32	CONSOLE PORT 10b		POWER PAIR	GREEN	13
ORANGE-RED		7				RED	14
RED-GREEN	8	33			DATA PAIR	YELLOW	15
GREEN-RED		8				BLACK	16
RED-BROWN	9	34	STATION PORT 12 EXT. 112		VOICE PAIR	GREEN	17
BROWN-RED		35				RED	18
RED-SLATE	10	35			DATA PAIR	YELLOW	19
SLATE-RED		10				BLACK	20
BLACK-BLUE	11	36	CONSOLE PORT 11a		POWER PAIR	GREEN	21
BLUE-BLACK		11				RED	22
BLACK-ORANGE	12	37			DATA PAIR	YELLOW	23
ORANGE-BLACK		12				BLACK	24
BLACK-GREEN	13	38	STATION PORT 13 EXT. 113		VOICE PAIR	GREEN	25
GREEN-BLACK		13				RED	26
BLACK-BROWN	14	39			DATA PAIR	YELLOW	7
BROWN-BLACK		14				BLACK	28
BLACK-SLATE	15	40	CONSOLE PORT 11b		POWER PAIR	GREEN	29
SLATE-BLACK		15				RED	30
YELLOW-BLUE	16	41			DATA PAIR	YELLOW	31
BLUE-YELLOW		16				BLACK	32
YELLOW-ORANGE	17	42	STATION PORT 14 EXT. 114		VOICE PAIR	GREEN	33
ORANGE-YELLOW		17				RED	34
YELOW-GREEN	18	43			DATA PAIR	YELLOW	35
GREEN-YELLOW		18				BLACK	36
YELLOW-BROWN	19	44	STATION PORT 15 EXT. 115		VOICE PAIR	GREEN	37
BROWN-YELLOW		19				RED	38
YELLOW-SLATE	20	45			DATA PAIR	YELLOW	39
SLATE-YELLOW		20				BLACK	40
VIOLET-BLUE	21	46	STATION PORT 16 EXT. 116		VOICE PAIR	GREEN	41
BLUE-VIOLET		21				RED	42
VIOLET-ORANGE	22	47			DATA PAIR	YELLOW	43
ORANGE-VIOLET		22				BLACK	44
VIOLET-GREEN	23	48	STATION PORT 17 EXT. 117		VOICE PAIR	GREEN	45
GREEN-VIOLET		23				RED	46
VIOLET-BROWN	24	49			DATA PAIR	YELLOW	47
BROWN-VIOLET		24				BLACK	48
VIOLET-SLATE	25	50	COMMON AUDIBLE			GREEN	49
SLATE-VIOLET		25				RED	50

Table 2-2. Wiring For Station Connector Block J-2

SYSTEM INTERCONNECTION FOR KSU J2						
KSU INTERFACE CONNECTOR WIRING			CONNECTION BLOCK WIRING			
25-PAIR CABLE CONNECTIONS			ASSIGNMENT (DEFAULT EXTENSION SHOWN)		4-WIRE CABLE CONNECTIONS	
WIRE COLOR	PAIR	PIN NO.			COLOR	CLIP TERM.
WHITE-BLUE	1	26	STATION PORT 18 EXT. 118	VOICE PAIR	GREEN	1
BLUE-WHITE		1			RED	2
WHITE-ORANGE	2	27		DATA PAIR	YELLOW	3
ORANGE-WHITE		2			BLACK	4
WHITE-GREEN	3	28	STATION PORT 19 EXT. 119	VOICE PAIR	GREEN	5
GREEN-WHITE		3			RED	6
WHITE-BROWN	4	29		DATA PAIR	YELLOW	7
BROWN-WHITE		4			BLACK	8
WHITE-SLATE	5	30	STATION PORT 20 EXT. 120	VOICE PAIR	GREEN	9
SLATE-WHITE		5			RED	10
RED-BLUE	6	31		DATA PAIR	YELLOW	11
BLUE-RED		6			BLACK	12
RED-ORANGE	7	32	STATION PORT 21 EXT. 121	VOICE PAIR	GREEN	13
ORANGE-RED		7			RED	14
RED-GREEN	8	33		DATA PAIR	YELLOW	15
GREEN-RED		8			BLACK	16
RED-BROWN	9	34	STATION PORT 22 MT. 122	VOICE PAIR	GREEN	17
BROWN-RED		9			RED	18
RED-SLATE	10	35		DATA PAIR	YELLOW	19
SLATE-RED		10			BLACK	20
BLACK-BLUE	11	36	STATION PORT 23 EXT. 123	VOICE PAIR	GREEN	21
BLUE-BLACK		11			RED	22
BLACK-ORANGE	12	37		DATA PAIR	YELLOW	23
ORANGE-BLACK		12			BLACK	24
BLACK-GREEN	13	38	STATION PORT 24 EXT. 124	VOICE PAIR	GREEN	25
GREEN-BLACK		13			RED	26
BLACK-BROWN	14	39		DATA PAIR	YELLOW	27
BROWN-BLACK		14			BLACK	28
BLACK-SLATE	15	40	STATION PORT 25 EXT. 125	VOICE PAIR	GREEN	29
SLATE-BLACK		15			RED	30
YELLOW-BLUE	16	41		DATA PAIR	YELLOW	31
BLUE-YELLOW		16			BLACK	32
YELLOW-ORANGE	17	42	STATION PORT 26 EXT. 126	VOICE PAIR	GREEN	33
ORANGE-YELLOW		17			RED	34
YELLOW-GREEN	18	43		DATA PAIR	YELLOW	35
GREEN-YELLOW		18			BLACK	36
YELLOW-BROWN	19	44	STATION PORT 27 EXT. 127	VOICE PAIR	GREEN	37
BROWN-YELLOW		19			RED	38
YELLOW-SLATE	20	45		DATA PAIR	YELLOW	39
SLATE-YELLOW		20			BLACK	40
VIOLET-BLUE	21	46	STATION PORT 28 EXT. 128	VOICE PAIR	GREEN	41
BLUE-VIOLET		21			RED	42
VIOLET-ORANGE	22	47		DATA PAIR	YELLOW	43
ORANGE-VIOLET		22			BLACK	44
VIOLET-GREEN	23	48	STATION PORT 29 EXT. 129	VOICE PAIR	GREEN	45
GREEN-VIOLET		23			RED	46
VIOLET-BROWN	24	49		DATA PAIR	YELLOW	47
BROWN-VIOLET		24			BLACK	48
VIOLET-SLATE	25	50	STATION 17 AUXILIARY INTERFACE		GREEN	49
SLATE-VIOLET		25			RED	50

Table 2-3. Wiring For Station Connector Block J-3

SYSTEM INTERCONNECTION FOR KSU J3						
KSU INTERFACE CONNECTOR WIRING			CONNECTION BLOCK WIRING			
25-PAIR CABLE CONNECTIONS			ASSIGNMENT (DEFAULT EXTENSION SHOWN)		4-WIRE CABLE CONNECTIONS	
WIRE COLOR	PAIR	PIN NO			COLOR	CLIP TERM.
WHITE-BLUE	1	26	STATION PORT 30 EXT. 130	VOICE PAIR	GREEN	1
BLUE-WHITE		1			RED	2
WHITE-ORANGE	2	27		DATA PAIR	YELLOW	3
ORANGE-WHITE		2			BLACK	4
WHITE-GREEN	3	28	STATION PORT 31 EXT. 131	VOICE PAIR	GREEN	5
GREEN-WHITE		3			RED	6
WHITE-BROWN	4	29		DATA PAIR	YELLOW	7
BROWN-WHITE		4			BLACK	8
WHITE-SLATE	5	30	STATION PORT 32 EXT. 132	VOICE PAIR	GREEN	9
SLATE-WHITE		5			RED	10
RED-BLUE	6	31		DATA PAIR	YELLOW	11
BLUE-RED		6			BLACK	12
RED-ORANGE	7	32	STATION PORT 33 EXT. 133	VOICE PAIR	GREEN	13
ORANGE-RED		7			RED	14
RED-GREEN	8	33		DATA PAIR	YELLOW	15
GREEN-RED		8			BLACK	16
RED-BROWN	9	34	STATION PORT 34 EXT. 134	VOICE PAIR	GREEN	17
BROWN-RED		9			RED	18
RED-SLATE	10	35		DATA PAIR	YELLOW	19
SLATE-RED		10			BLACK	20
BLACK-BLUE	11	36	STATION PORT 35 EXT. 135	VOICE PAIR	GREEN	21
BLUE-BLACK		11			RED	22
BLACK-ORANGE	12	37		DATA PAIR	YELLOW	23
ORANGE-BLACK		12			BLACK	24
BLACK-GREEN	13	38	STATION PORT 36 EXT. 136	VOICE PAIR	GREEN	25
GREEN-BLACK		13			RED	26
BLACK-BROWN	14	39		DATA PAIR	YELLOW	27
BROWN-BLACK		14			BLACK	28
BLACK-SLATE	15	40	STATION PORT 37 EXT. 137	VOICE PAIR	GREEN	29
SLATE-BLACK		15			RED	30
YELLOW-BLUE	16	41		DATA PAIR	YELLOW	31
BLUE-YELLOW		16			BLACK	32
YELLOW-ORANGE	17	42	STATION PORT 38 EXT. 138	VOICE PAIR	GREEN	33
ORANGE-YELLOW		17			RED	34
YELLOW-GREEN	18	43		DATA PAIR	YELLOW	35
GREEN-YELLOW		18			BLACK	36
YELLOW-BROWN	19	44	STATION PORT 39 EXT. 139	VOICE PAIR	GREEN	37
BROWN-YELLOW		19			RED	38
YELLOW-SLATE	20	45		DATA PAIR	YELLOW	39
SLATE-YELLOW		20			BLACK	40
VIOLET-BLUE	21	46	STATION PORT 40 EXT. 140	VOICE PAIR	GREEN	41
BLUE-VIOLET		21			RED	42
VIOLET-ORANGE	22	47		DATA PAIR	YELLOW	43
ORANGE-VIOLET		22			BLACK	44
VIOLET-GREEN	23	48	STATION PORT 41 EXT. 141	VOICE PAIR	GREEN	45
GREEN-VIOLET		23			RED	46
VIOLET-BROWN	24	49		DATA PAIR	YELLOW	47
BROWN-VIOLET		24			BLACK	48
VIOLET-SLATE	25	50	SPARE		GREEN	49
SLATE-VIOLET		25			RED	50

Table 2-4. Wiring For Auxiliary Connector Block J-4

SYSTEM INTERCONNECTION FOR KSU J4						
KSU INTERFACE CONNECTOR WIRING			CONNECTION BLOCK WIRING			
25-PAIR CABLE CONNECTIONS			ASSIGNMENT (DEFAULT EXTENSION SHOWN)		4-WIRE CABLE CONNECTIONS	
WIRE COLOR	PAIR	PIN NO.			COLOR	CLIP TERM.
WHITE-BLUE	1	26	POWER FAIL	TIP		1
BLUE-WHITE		1	STA. 1	RING		2
WHITE-ORANGE	2	27	POWER FAIL	TIP		3
ORANGE-WHITE		2	STA. 2	RING		4
WHITE-GREEN	3	28	POWER FAIL	TIP		5
GREEN-WHITE		3	STA. 3	RING		6
WHITE-BROWN	4	29	POWER FAIL	TIP		7
BROWN-WHITE		4	STA. 4	RING		8
WHITE-SLATE	5	30	AUX. EQUIP.	TIP	GREEN	9
SLATE-WHITE		5	INTERFACE	RING	RED	10
RED-BLUE	6	31	TO	A	YELLOW	11
BLUE-RED		6	COLINE13	A1	BLACK	12
RED-ORANGE	7	32	AUX. EQUIP.	TIP	GREEN	13
ORANGE-RED		7	INTERFACE	RING	RED	14
RED-GREEN	8	33	TO	A	YELLOW	15
GREEN-RED		8	CO LINE 14	A1	BLACK	16
RED-BROWN	9	34	AUX. EQUIP.	TIP	GREEN	17
BROWN-RED		9	INTERFACE	RING	RED	18
RED-SLATE	10	35	T O	A	YELLOW	19
SLATE-RED		10	CO LINE 15	A1	BLACK	20
BLACK-BLUE	11	36	AUX. EQUIP.	TIP	GREEN	21
BLUE-BLACK		11	INTERFACE	RING	RED	22
BLACK-ORANGE	12	37	TO	A	YELLOW	23
ORANGE-BLACK		12	CO LINE 16	A1	BLACK	24
BLACK-GREEN	13	38	SPARE			25
GREEN-BLACK		13				26
BLACK-BROWN	14	39	KEY/MULTIFUNCTION			27
BROWN-BLACK		14	STRAP (OUT FOR KEY)			28
BLACK-SLATE	15	40	SPARE			29
SLATE-BLACK		15				30
YELLOW-BLUE	16	41	RESERVED			31
BLUE-YELLOW		16				32
YELLOW-ORANGE	17	42	RESERVED			33
ORANGE-YELLOW		17				34
YELLOW-GREEN	18	43	RESERVED			35
GREEN-YELLOW		18				36
YELLOW-BROWN	19	44	SPARE			37
BROWN-YELLOW		19				38
YELLOW-SLATE	20	45	SMDR PRINTER INTERFACE	RD		39
SLATE-YELLOW		20		SPARE		40
VIOLET-BLUE	21	46		TD		41
BLUE-VIOLET		21		SG		42
VIOLET-ORANGE	22	47		RTS		43
ORANGE-VIOLET		22		CTS		44
VIOLET-GREEN	23	48		RG		45
GREEN-VIOLET		23		PG		46
VIOLET-BROWN	24	49	SPARE			47
BROWN-VIOLET		24				48
VIOLET-SLATE	25	50	SPARE			49
SLATE-VIOLET		25				50

Table 2-5. Wiring For CO/PBX Connector Block J-5

SYSTEM INTERCONNECTION FOR KSU J5						
KSU INTERFACE CONNECTOR WIRING			CONNECTION BLOCK WIRING			
25-PAIR CABLE CONNECTIONS			ASSIGNMENT (DEFAULT EXTENSION SHOWN)		4-WIRE CABLE CONNECTIONS	
WIRE COLOR	PAIR	PIN NO.			COLOR	CLIP TERM.
WHITE-BLUE	1	26	CO LINE 1	TIP		1
BLUE-WHITE		1		RING		2
WHITE-ORANGE	2	27	CO LINE 2	TIP		3
ORANGE-WHITE		2		RING		4
WHITE-GREEN	3	28	CO LINE 3	TIP		5
GREEN-WHITE		3		RING		6
WHITE-BROWN	4	29	CO LINE 4	TIP		7
BROWN-WHITE		4		RING		8
WHITE-SLATE	5	30	CO LINE 5	TIP		9
SLATE-WHITE		5		RING		10
RED-BLUE	6	31	CO LINE 6	TIP		11
BLUE-RED		6		RING		12
RED-ORANGE	7	32	CO LINE 7	TIP		13
ORANGE-RED		7		RING		14
RED-GREEN	8	33	CO LINE 8	TIP		15
GREEN-RED		8		RING		16
RED-BROWN	9	34	CO LINE 9	TIP		17
BROWN-RED		9		RING		18
RED-SLATE	10	35	CO LINE 10	TIP		19
SLATE-RED		10		RING		20
BLACK-BLUE	11	36	CO LINE11	TIP		21
BLUE-BLACK		11		RING		22
BLACK-ORANGE	12	37	CO LINE 12	TIP		23
ORANGE-BLACK		12		RING		24
BLACK-GREEN	13	38	CO LINE 13	TIP		25
GREEN-BLACK		13		RING		26
BLACK-BROWN	14	39	CO LINE 14	TIP		27
BROWN-BLACK		14		RING		28
BLACK-SLATE	15	40	CO LINE 15	TIP		29
SLATE-BLACK		15		RING		30
YELLOW-BLUE	16	41	CO LINE 16	TIP		31
BLUE-YELLOW		16		RING		32
YELLOW-ORANGE	17	42	COLINE17	TIP		33
ORANGE-YELLOW		17		RING		34
YELLOW-GREEN	18	43	COLINE18	TIP		35
GREEN-YELLOW		18		RING		36
YELLOW-BROWN	19	44	CO LINE 19	TIP		37
BROWN-YELLOW		19		RING		38
YELLOW-SLATE	20	45	CO LINE20	TIP		39
SLATE-YELLOW		20		RING		40
VIOLET-BLUE	21	48	CO LINE21	TIP		41
BLUE-VIOLET		21		RING		42
VIOLET-ORANGE	22	47	CO LINE 22	TIP		43
ORANGE-VIOLET		22		RING		44
VIOLET-GREEN	23	48	SPARE			45
GREEN-VIOLET		23				46
VIOLET-BROWN	24	49	SPARE			47
BROWN-VIOLET		24				48
VIOLET-SLATE	25	50	SPARE			49
SLATE-VIOLET		25				50

Table 2-6. Wiring For Station Connector Block J-6

SYSTEM INTERCONNECTION FOR KSU J6						
KSU INTERFACE CONNECTOR WIRING			CONNECTION BLOCK WIRING			
25-PAIR CABLE CONNECTIONS			ASSIGNMENT (DEFAULT EXTENSION SHOWN)		4-WIRE CABLE CONNECTIONS	
WIRE COLOR	PAIR	PIN NO.			COLOR	CLIP TERM.
WHITE-BLUE	1	26	STATION PORT 42 EXT. 142	VOICE PAIR	GREEN	1
BLUE-WHITE		1			RED	2
WHITE-ORANGE	2	27		DATA PAIR	YELLOW	3
ORANGE-WHITE		2			BLACK	4
WHITE-GREEN	3	28	CONSOLE PORT 42a	POWER PAIR	GREEN	5
GREEN-WHITE		3			RED	6
WHITE-BROWN	4	29		DATA PAIR	YELLOW	7
BROWN-WHITE		4			BLACK	8
WHITE-SLATE	5	30	STATION PORT 43 EXT. 143	VOICE PAIR	GREEN	9
SLATE-WHITE		5			RED	10
RED-BLUE	6	31		DATA PAIR	YELLOW	11
BLUE-RED		6			BLACK	12
RED-ORANGE	7	32	CONSOLE PORT 42b	POWER PAIR	GREEN	13
ORANGE-RED		7			RED	14
RED-GREEN	8	33		DATA PAIR	YELLOW	15
GREEN-RED		8			BLACK	16
RED-BROWN	9	34	STATION PORT 44 EXT. 144	VOICE PAIR	GREEN	17
BROWN-RED		9			RED	18
RED-SLATE	10	35		DATA PAIR	YELLOW	19
SLATE-RED		10			BLACK	20
BLACK-BLUE	11	36	CONSOLE PORT 43a	POWER PAIR	GREEN	21
BLUE-BLACK		11			RED	22
BLACK-ORANGE	12	37		DATA PAIR	YELLOW	23
ORANGE-BLACK		12			BLACK	24
BLACK-GREEN	13	38	STATION PORT 45 EXT. 146	VOICE PAIR	GREEN	25
GREEN-BLACK		13			RED	26
BLACK-BROWN	14	39		DATA PAIR	YELLOW	27
BROWN-BLACK		14			BLACK	28
BLACK-SLATE	15	40	CONSOLE PORT 43b	POWER PAIR	GREEN	29
SLATE-BLACK		15			RED	30
YELLOW-BLUE	16	41		DATA PAIR	YELLOW	31
BLUE-YELLOW		16			BLACK	32
YELLOW-ORANGE	17	42	STATION PORT 46 EXT. 146	VOICE PAIR	GREEN	33
ORANGE-YELLOW		17			RED	34
YELOW-GREEN	18	43		DATA PAIR	YELLOW	35
GREEN-YELLOW		18			BLACK	36
YELLOW-BROWN	19	44	STATION PORT 47 EXT. 147	VOICE PAIR	GREEN	37
BROWN-YELLOW		19			RED	38
YELLOW-SLATE	20	45		DATA PAIR	YELLOW	39
SLATE-YELLOW		20			BLACK	40
VIOLET-BLUE	21	46	STATION PORT 48 EXT. 148	VOICE PAIR	GREEN	41
BLUE-VIOLET		21			RED	42
VIOLET-ORANGE	22	47		DATA PAIR	YELLOW	43
ORANGE-VIOLET		22			BLACK	44
VIOLET-GREEN	23	48	STATION PORT 49 EXT. 149	VOICE PAIR	GREEN	45
GREEN-VIOLET		23			RED	46
VIOLET-BROWN	24	49		DATA PAIR	YELLOW	47
BROWN-VIOLET		24			BLACK	48
VIOLET-SLATE	25	50	SPARE		GREEN	49
SLATE-VIOLET		25			RED	50

Table 2-7. Wiring For Station Connector Block J-7

SYSTEM INTERCONNECTION FOR KSU J7						
KSU INTERFACE CONNECTOR WIRING			CONNECTION BLOCK WIRING			
25-PAIR CABLE CONNECTIONS			ASSIGNMENT (DEFAULT EXTENSION SHOWN)		4-WIRE CABLE CONNECTIONS	
WIRE COLOR	PAIR	PIN NO.			COLOR	CLIP TERM.
WHITE-BLUE	1	26	STATION	VOICE	GREEN	1
BLUE-WHITE		1	PORT	PAIR	RED	2
WHITE-ORANGE	2	27	50 EXT.	DATA	YELLOW	3
ORANGE-WHITE		2	150	PAIR	BLACK	4
WHITE-GREEN	3	28	STATION	VOICE	GREEN	5
GREEN-WHITE		3	PORT	PAIR	RED	6
WHITE-BROWN	4	29	51 EXT.	DATA	YELLOW	7
BROWN-WHITE		4	151	PAIR	BLACK	8
WHITE-SLAT&	5	30	STATION	VOICE	GREEN	9
SLATE-WHITE		5	PORT	PAIR	RED	10
RED-BLUE	6	31	52 EXT.	DATA	YELLOW	11
BLUE-RED		6	152	PAIR	BLACK	12
RED-ORANGE	7	32	STATION	VOICE	GREEN	13
ORANGE-RED		7	PORT	PAIR	RED	14
RED-GREEN	8	33	53 EXT.	DATA	YELLOW	15
GREEN-RED		8	153	PAIR	BLACK	16
RED-BROWN	9	34	STATION	VOICE	GREEN	17
BROWN-RED		9	PORT	PAIR	RED	18
RED-SLATE	10	35	54 EXT.	DATA	YELLOW	19
SLATE-RED		10	154	PAIR	BLACK	20
BLACK-BLUE	11	36	STATION	VOICE	GREEN	21
BLUE-BLACK		11	PORT	PAIR	RED	22
BLACK-ORANGE	12	37	55 EXT.	DATA	YELLOW	23
ORANGE-BLACK		12	155	PAIR	BLACK	24
BLACK-GREEN	13	38	STATION	VOICE	GREEN	25
GREEN-BLACK		13	PORT	PAIR	RED	26
BLACK-BROWN	14	39	56 EXT.	DATA	YELLOW	27
BROWN-BLACK		14	156	PAIR	BLACK	28
BLACK-SLATE	15	40	STATION	VOICE	GREEN	29
SLATE-BLACK		15	PORT	PAIR	RED	30
YELLOW-BLUE	16	41	57 EXT.	DATA	YELLOW	31
BLUE-YELLOW		16	157	PAIR	BLACK	32
YELLOW-ORANGE	17	42	(STATION	VOICE	GREEN	33
ORANGE-YELLOW		17	PORT	PAIR	RED	34
YELLOW-GREEN	18	43	58 EXT.	DATA	YELLOW	35
GREEN-YELLOW		18	158	PAIR	BLACK	36
YELLOW-BROWN	19	44	STATION	VOICE	GREEN	37
BROWN-YELLOW		19	PORT	PAIR	RED	38
YELLOW-SLATE	20	45	59 EXT.	DATA	YELLOW	39
SLATE-YELLOW		20	159	PAIR	BLACK	40
VIOLET-BLUE	21	46	STATION	VOICE	GREEN	41
BLUE-VIOLET		21	PORT	PAIR	RED	42
VIOLET-ORANGE	22	47	60 EXT.	DATA	YELLOW	43
ORANGE-VIOLET		22	160	PAIR	BLACK	44
VIOLET-GREEN	23	48	STATION	VOICE	GREEN	45
GREEN-VIOLET		23	PORT	PAIR	RED	46
VIOLET-BROWN	24	49	61 EXT.	DATA	YELLOW	47
BROWN-VIOLET		24	161	PAIR	BLACK	48
VIOLET-SLATE	25	50	SPARE		GREEN	49
SLATE-VIOLET		25			RED	50

Table 2-8. Wiring For Station Connector Block J-8

SYSTEM INTERCONNECTION FOR KSU J8						
KSU INTERFACE CONNECTOR WIRING			CONNECTION BLOCK WIRING			
25-PAIR CABLE CONNECTIONS			ASSIGNMENT (DEFAULT EXTENSION SHOWN)		4-WIRE CABLE CONNECTIONS	
WIRE COLOR	PAIR	PIN NO			COLOR	CLIP TERM.
WHITE-BLUE	1	26	STATION PORT 62 EXT. 162	VOICE PAIR	GREEN	1
BLUE-WHITE		1			RED	2
WHITE-ORANGE	2	27		DATA PAIR	YELLOW	3
ORANGE-WHITE		2			BLACK	4
WHITE-GREEN	3	28	STATION PORT 63 EXT. 163	VOICE PAIR	GREEN	5
GREEN-WHITE		3			RED	6
WHITE-BROWN	4	29		DATA PAIR	YELLOW	7
BROWN-WHITE		4			BLACK	8
WHITE-SLATE	5	30	STATION PORT 64 EXT. 164	VOICE PAIR	GREEN	9
SLATE-WHITE		5			RED	10
RED-BLUE	6	31		DATA PAIR	YELLOW	11
BLUE-RED		6			BLACK	12
RED-ORANGE	7	32	STATION PORT 65 EXT. 165	VOICE PAIR	GREEN	13
ORANGE-RED		7			RED	14
RED-GREEN	8	33		DATA PAIR	YELLOW	15
GREEN-RED		8			BLACK	16
RED-BROWN	9	34	STATION PORT 66 EXT. 166	VOICE PAIR	GREEN	17
BROWN-RED		9			RED	18
RED-SLATE	10	35		DATA PAIR	YELLOW	19
SLATE-RED		10			BLACK	20
BLACK-BLUE	11	36	STATION PORT 67 EXT. 167	VOICE PAIR	GREEN	21
BLUE-BLACK		11			RED	22
BLACK-ORANGE	12	37		DATA PAIR	YELLOW	23
ORANGE-BLACK		12			BLACK	24
BLACK-GREEN	13	38	STATION PORT 68 EXT. 168	VOICE PAIR	GREEN	25
GREEN-BLACK		13			RED	26
BLACK-BROWN	14	39		DATA PAIR	YELLOW	27
BROWN-BLACK		14			BLACK	28
BLACK-SLATE	15	40	STATION PORT 69 EXT. 169	VOICE PAIR	GREEN	29
SLATE-BLACK		15			RED	30
YELLOW-BLUE	16	41		DATA PAIR	YELLOW	31
BLUE-YELLOW		16			BLACK	32
YELLOW-ORANGE	17	42	STATION PORT 70 EXT. 170	VOICE PAIR	GREEN	33
ORANGE-YELLOW		17			RED	34
YELLOW-GREEN	18	43		DATA PAIR	YELLOW	35
GREEN-YELLOW		18			BLACK	36
YELLOW-BROWN	19	44	STATION PORT 71 EXT. 171	VOICE PAIR	GREEN	37
BROWN-YELLOW		19			RED	38
YELLOW-SLATE	20	45		DATA PAIR	YELLOW	39
SLATE-YELLOW		20			BLACK	40
VIOLET-BLUE	21	46	STATION PORT 72 EXT. 172	VOICE PAIR	GREEN	41
BLUE-VIOLET		21			RED	42
VIOLET-ORANGE	22	47		DATA PAIR	YELLOW	43
ORANGE-VIOLET		22			BLACK	44
VIOLET-GREEN	23	48	STATION PORT 73 EXT. 173	VOICE PAIR	GREEN	45
GREEN-VIOLET		23			RED	46
VIOLET-BROWN	24	49		DATA PAIR	YELLOW	47
BROWN-VIOLET		24			BLACK	48
VIOLET-SLATE	25	50	SPARE		GREEN	49
SLATE-VIOLET		25			RED	50

Table 2-9. Wiring For Station Connector Block J-9 (Not Used On Model K2264)

SYSTEM INTERCONNECTION FOR KSU J9						
KSU INTERFACE CONNECTOR WIRING			CONNECTION BLOCK WIRING			
25-PAIR CABLE CONNECTIONS			ASSIGNMENT (DEFAULT EXTENSION SHOWN)		4-WIRE CABLE CONNECTIONS	
WIRE COLOR	PAIR	PIN NO.			COLOR	CLIP TERM.
WHITE-BLUE	1	26	STATION PORT 74 EXT. 174	VOICE PAIR	GREEN	1
BLUE		1			RED	2
WHITE-ORANGE	2	27		DATA PAIR	YELLOW	3
ORANGE-WHITE		2			BLACK	4
WHITE-GREEN	3	28	SPARE		GREEN	5
GREEN-WHITE		3			RED	6
WHITE-BROWN	4	29			YELLOW	7
BROWN-WHITE		4			BLACK	8
WHITE-SLATE	5	30	STATION PORT 75 EXT. 175	VOICE PAIR	GREEN	9
SLATE-WHITE		5			RED	10
RED-BLUE	6	31		DATA PAIR	YELLOW	11
BLUE-RED		6			BLACK	12
RED-ORANGE	7	32	SPARE		GREEN	13
ORANGE-RED		7			RED	14
RED-GREEN	8	33			YELLOW	15
GREEN-RED		8			BLACK	16
RED-BROWN	9	34	STATION PORT 76 EXT. 176	VOICE PAIR	GREEN	17
BROWN-RED		9			RED	18
RED-SLATE	10	35		DATA PAIR	YELLOW	19
SLATE-RED		10			BLACK	20
BLACK-BLUE	11	36	SPARE		GREEN	21
BLUE-BLACK		11			RED	22
BLACK-ORANGE	12	37			YELLOW	23
ORANGE-BLACK		12			BLACK	24
BLACK-GREEN	13	38	STATION PORT 77 EXT. 177	VOICE PAIR	GREEN	25
GREEN-BLACK		13			RED	26
BLACK-BROWN	14	39		DATA PAIR	YELLOW	27
BROWN-BLACK		14			BLACK	28
BLACK-SLATE	15	40	SPARE		GREEN	29
SLATE-BLACK		15			RED	30
YELLOW-BLUE	16	41			YELLOW	31
BLUE-YELLOW		16			BLACK	32
YELLOW-ORANGE	17	42	STATION PORT 78 EXT. 178	VOICE PAIR	GREEN	33
ORANGE-YELLOW		17				
YELOW-GREEN	18	43			YELLOW RED	34
GREEN-YELLOW		18			BLACK	36
YELLOW-BROWN	19	44	STATION PORT 79 EXT. 179	VOICE PAIR	GREEN	37
BROWN-YELLOW		19			RED	38
YELLOW-SLATE	20	45		DATA PAIR	YELLOW	39
SLATE-YELLOW		20			BLACK	40
VIOLET-BLUE	21	46	STATION PORT 80 EXT. 180	VOICE PAIR	GREEN	41
BLUE-VIOLET		21			RED	42
VIOLET-ORANGE	22	47		DATA PAIR	YELLOW	43
ORANGE-VIOLET		22			BLACK	44
VIOLET-GREEN	23	48	STATION PORT 81 EXT. 181	VOICE PAIR	GREEN	45
GREEN-VIOLET		23			RED	46
VIOLET-BROWN	24	49		DATA PAIR	YELLOW	47
BROWN-VIOLET		24			BLACK	48
VIOLET-SLATE	25	50	SPARE		GREEN	49
SLATE-VIOLET		25			RED	50

Table 2-10. Wiring For Station Connector Block J-10 (Not-Used On Model K2264)

SYSTEM INTERCONNECTION FOR KSU J10						
KSU INTERFACE CONNECTOR WIRING			CONNECTION BLOCK WIRING			
25-PAIR CABLE CONNECTIONS			ASSIGNMENT (DEFAULT EXTENSION SHOWN)		4-WIRE CABLE CONNECTIONS	
WIRE COLOR	PAIR	PIN NO.			COLOR	CLIP TERM.
WHITE-BLUE	1	26	STATION PORT 82 EXT. 182	VOICE PAIR	GREEN	1
BLUE-WHITE		1			RED	2
WHITE-ORANGE	2	27		DATA PAIR	YELLOW	3
ORANGE-WHITE		2			BLACK	4
WHITE-GREEN	3	28	STATION PORT 83 EXT. 183	VOICE PAIR	GREEN	5
GREEN-WHITE		3			RED	6
WHITE-BROWN	4	29		DATA PAIR	YELLOW	7
BROWN-WHITE		4			BLACK	8
WHITE-SLATE	5	30	STATION PORT 84 EXT. 184	VOICE PAIR	GREEN	9
SLATE-WHITE		5			RED	10
RED-BLUE	6	31		DATA PAIR	YELLOW	11
BLUE-RED		6			BLACK	12
RED-ORANGE	7	32	STATION PORT 85 EXT. 185	VOICE PAIR	GREEN	13
ORANGE-RED		7			RED	14
RED-GREEN	8	33		DATA PAIR	YELLOW	15
GREEN-RED		8			BLACK	16
RED-BROWN	9	34	STATION PORT 86 EXT. 186	VOICE PAIR	GREEN	17
BROWN-RED		9			RED	18
RED-SLATE	10	35		DATA PAIR	YELLOW	19
SLATE-RED		10			BLACK	20
BLACK-BLUE	11	36	STATION PORT 87 EXT. 187	VOICE PAIR	GREEN	21
BLUE-BLACK		11			RED	22
BLACK-ORANGE	12	37		DATA PAIR	YELLOW	23
ORANGE-BLACK		12			BLACK	24
BLACK-GREEN	13	38	STATION PORT 88 EXT. 188	VOICE PAIR	GREEN	25
GREEN-BLACK		13			RED	26
BLACK-BROWN	14	39		DATA PAIR	YELLOW	27
BROWN-BLACK		14			BLACK	28
BLACK-SLATE	15	40	STATION PORT 89 EXT. 189	VOICE PAIR	GREEN	29
SLATE-BLACK		15			RED	30
YELLOW-BLUE	16	41		DATA PAIR	YELLOW	31
BLUE-YELLOW		16			BLACK	32
YELLOW-ORANGE	17	42	STATION PORT 90 EXT. 190	VOICE PAIR	GREEN	33
ORANGE-YELLOW		17			RED	34
YELLOW-GREEN	18	43		DATA PAIR	YELLOW	35
GREEN-YELLOW		18			BLACK	36
YELLOW-BROWN	19	44	STATION PORT 91 EXT. 191	VOICE PAIR	GREEN	37
BROWN-YELLOW		19			RED	38
YELLOW-SLATE	20	45		DATA PAIR	YELLOW	39
SLATE-YELLOW		20			BLACK	40
VIOLET-BLUE	21	46	STATION PORT 92 EXT. 192	VOICE PAIR	GREEN	41
BLUE-VIOLET		21			RED	42
VIOLET-ORANGE	22	47		DATA PAIR	YELLOW	43
ORANGE-VIOLET		22			BLACK	44
VIOLET-GREEN	23	48	STATION PORT 93 EXT. 193	VOICE PAIR	GREEN	45
GREEN-VIOLET		23			RED	46
VIOLET-BROWN	24	49		DATA PAIR	YELLOW	47
BROWN-VIOLET		24			BLACK	48
VIOLET-SLATE	25	50	SPARE		GREEN	49
SLATE-VIOLET		25			RED	50

Table 2-11. Wiring For Station Connector Block J-11 (Not Used On Model K2264)

SYSTEM INTERCONNECTION FOR KSU J11						
KSU INTERFACE CONNECTOR WIRING			CONNECTION BLOCK WIRING			
25-PAIR CABLE CONNECTIONS			ASSIGNMENT (DEFAULT EXTENSION SHOWN)		4-WIRE CABLE CONNECTIONS	
WIRE COLOR	PAIR	PIN NO.			COLOR	CLIP TERM.
WHITE-BLUE	1	26	STATION PORT	VOICE PAIR	GREEN	1
BLUE-WHITE		1			RED	2
WHITE-ORANGE	2	27	94 EXT. 194	DATA PAIR	YELLOW	3
ORANGE-WHITE		2			BLACK	4
WHITE-GREEN	3	28	STATION PORT	VOICE PAIR	GREEN	5
GREEN-WHITE		3			RED	6
WHITE-BROWN	4	29	95 EXT. 195	DATA PAIR	YELLOW	7
BROWN-WHITE		4			BLACK	8
WHITE-SLATE	5	30	STATION PORT	VOICE PAIR	GREEN	9
SLATE-WHITE		5			RED	10
RED-BLUE	6	31	96 EXT. 196	DATA PAIR	YELLOW	11
BLUE-RED		6			BLACK	12
RED-ORANGE	7	32	STATION PORT	VOICE PAIR	GREEN	13
ORANGE-RED		7			RED	14
RED-GREEN	8	33	97 EXT. 197	DATA PAIR	YELLOW	15
GREEN-RED		8			BLACK	16
RED-BROWN	9	34	STATION PORT	VOICE PAIR	GREEN	17
BROWN-RED		9			RED	18
RED-SLATE	10	35	98 EXT. 198	DATA PAIR	YELLOW	19
SLATE-RED		10			BLACK	20
BLACK-BLUE	11	36	STATION PORT	VOICE PAIR	GREEN	21
BLUE-BLACK		11			RED	22
BLACK-ORANGE	12	37	99 EXT. 199	DATA PAIR	YELLOW	23
ORANGE-BLACK		12			BLACK	24
BLACK-GREEN	13	38	STATION PORT	VOICE PAIR	GREEN	25
GREEN-BLACK		13			RED	26
BLACK-BROWN	14	39	100 EXT. 200	DATA PAIR	YELLOW	27
BROWN-BLACK		14			BLACK	28
BLACK-SLATE	15	40	STATION PORT	VOICE PAIR	GREEN	29
SLATE-BLACK		15			RED	30
YELLOW-BLUE	16	41	101 EXT. 201	DATA PAIR	YELLOW	31
BLUE-YELLOW		16			BLACK	32
YELLOW-ORANGE	17	42	STATION PORT	VOICE PAIR	GREEN	33
ORANGE-YELLOW		17			RED	34
YELLOW-GREEN	18	43	102 EXT. 202	DATA PAIR	Y&W	35
GREEN-YELLOW		18			BLACK	36
YELLOW-BROWN	19	44	STATION PORT	VOICE PAIR	GREEN	37
BROWN-YELLOW		19			RED	38
YELLOW-SLATE	20	45	103 EXT. 203	DATA PAIR	YELLOW	39
SLATE-YELLOW		20			BLACK	40
VIOLET-BLUE	21	46	STATION PORT	VOICE PAIR	GREEN	41
BLUE-VIOLET		21			RED	42
VIOLET-ORANGE	22	47	104 EXT. 204	DATA PAIR	YELLOW	43
ORANGE-VIOLET		22			BLACK	44
VIOLET-GREEN	23	48	STATION PORT	VOICE PAIR	GREEN	45
GREEN-VIOLET		23			RED	46
VIOLET-BROWN	24	49	105 EXT. 205	DATA PAIR	YELLOW	47
BROWN-VIOLET		24			BLACK	48
VIOLET-SLATE	25	50	SPARE		GREEN	49
SLATE-VIOLET		25			RED	50

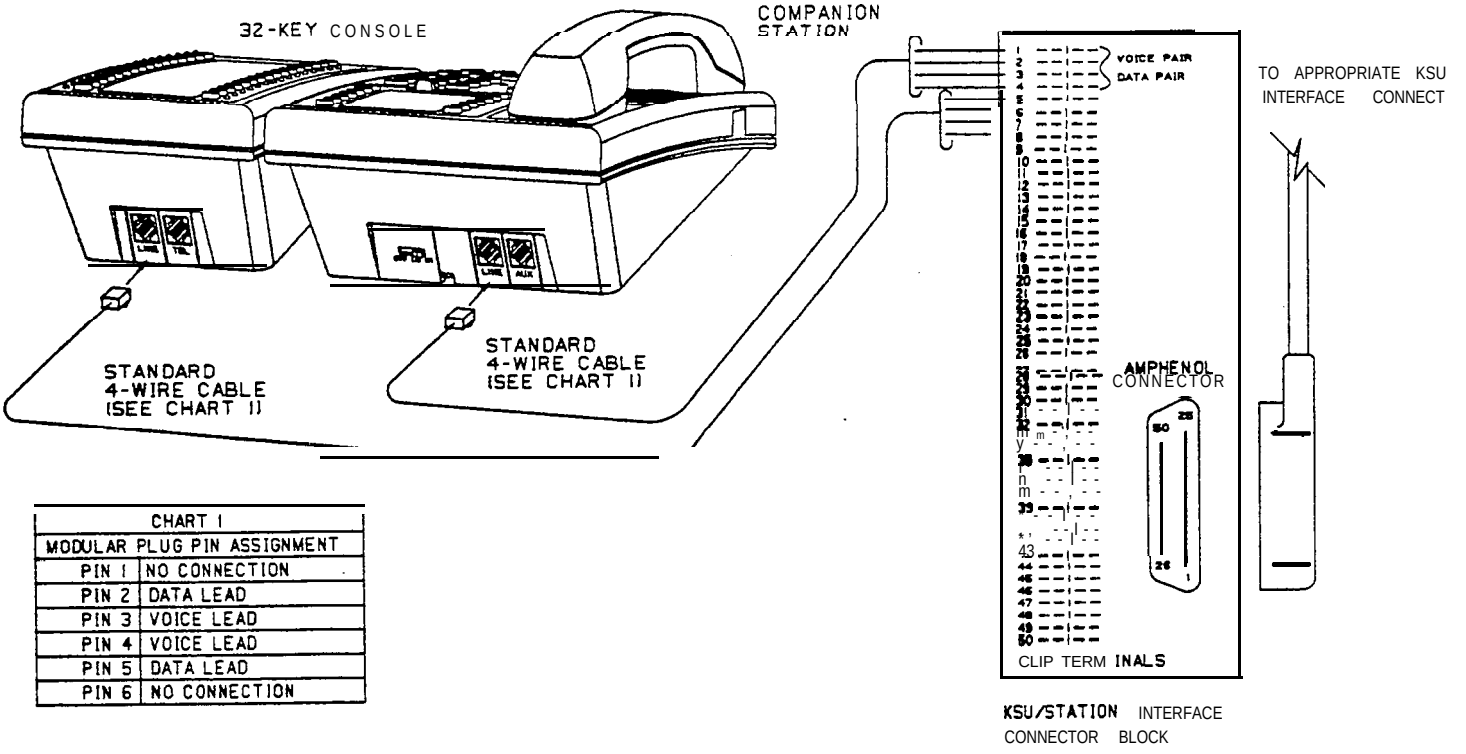


CHART I	
MODULAR PLUG PIN ASSIGNMENT	
PIN 1	NO CONNECTION
PIN 2	DATA LEAD
PIN 3	VOICE LEAD
PIN 4	VOICE LEAD
PIN 5	DATA LEAD
PIN 6	NO CONNECTION

Figure 2-2a. 32-Button Adjunct Feature Module - Separate Wiring Method

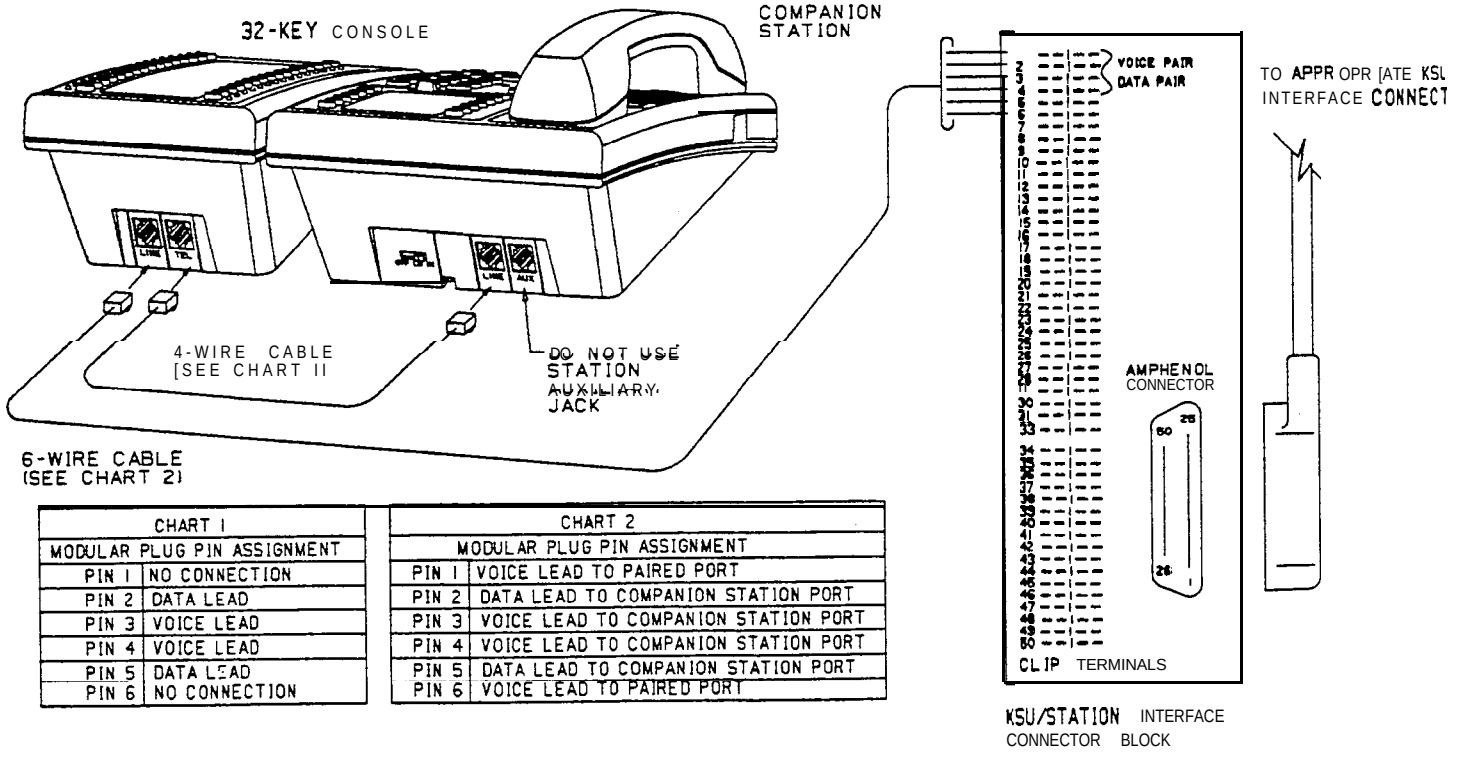
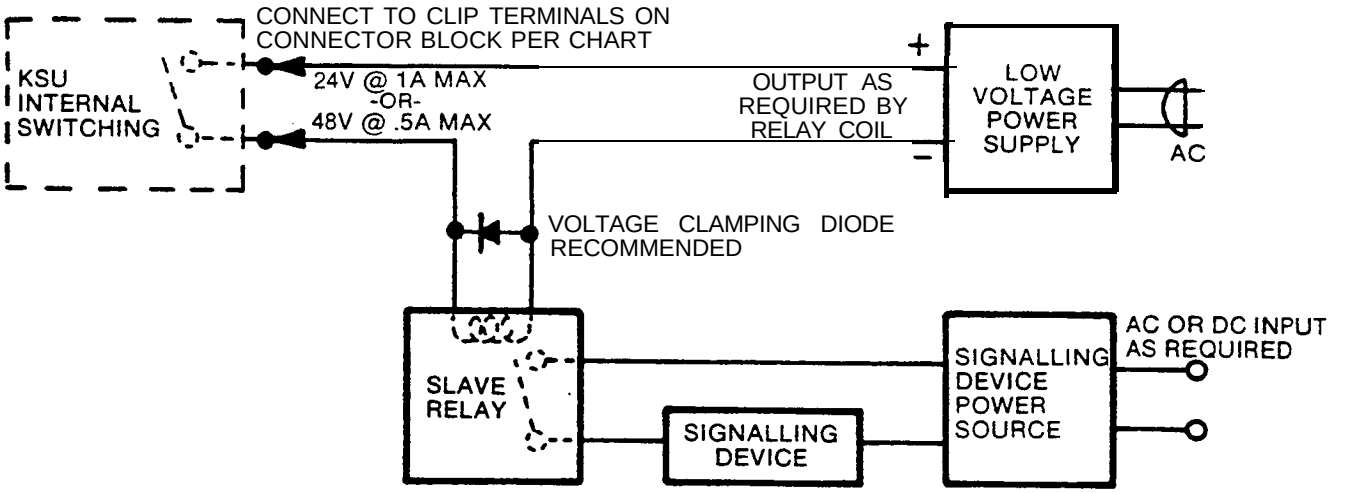


CHART I	
MODULAR PLUG PIN ASSIGNMENT	
PIN 1	NO CONNECTION
PIN 2	DATA LEAD
PIN 3	VOICE LEAD
PIN 4	VOICE LEAD
PIN 5	DATA LEAD
PIN 6	NO CONNECTION

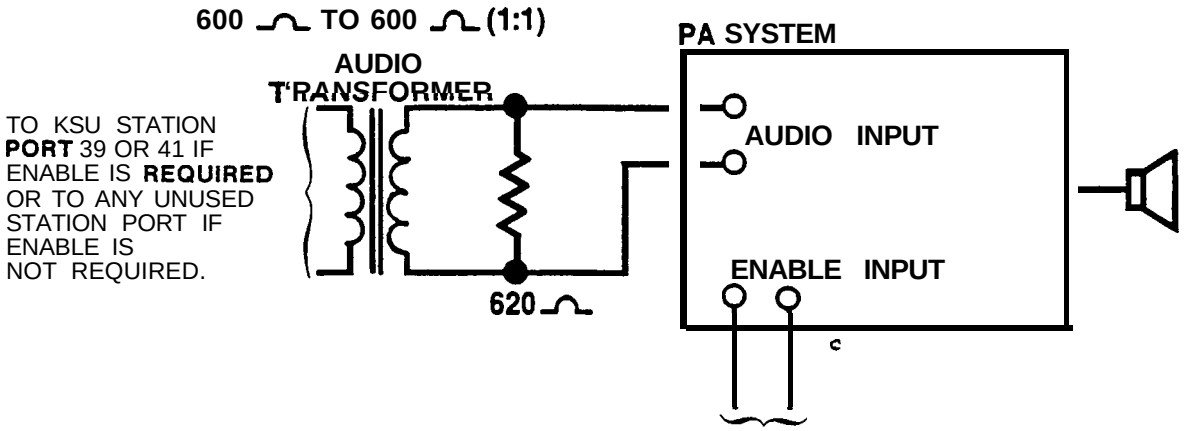
CHART 2	
MODULAR PLUG PIN ASSIGNMENT	
PIN 1	VOICE LEAD TO PAIRED PORT
PIN 2	DATA LEAD TO COMPANION STATION PORT
PIN 3	VOICE LEAD TO COMPANION STATION PORT
PIN 4	VOICE LEAD TO COMPANION STATION PORT
PIN 5	DATA LEAD TO COMPANION STATION PORT
PIN 6	VOICE LEAD TO PAIRED PORT

Figure 2-2b. 32-Button Adjunct Feature Module - Common Wiring Method



FUNCTION	CONNECTIONS
COMMON AUDIBLE	J-I CLIPS 49, 50
STATION 17 RINGING	J-2 CLIPS 49, 50

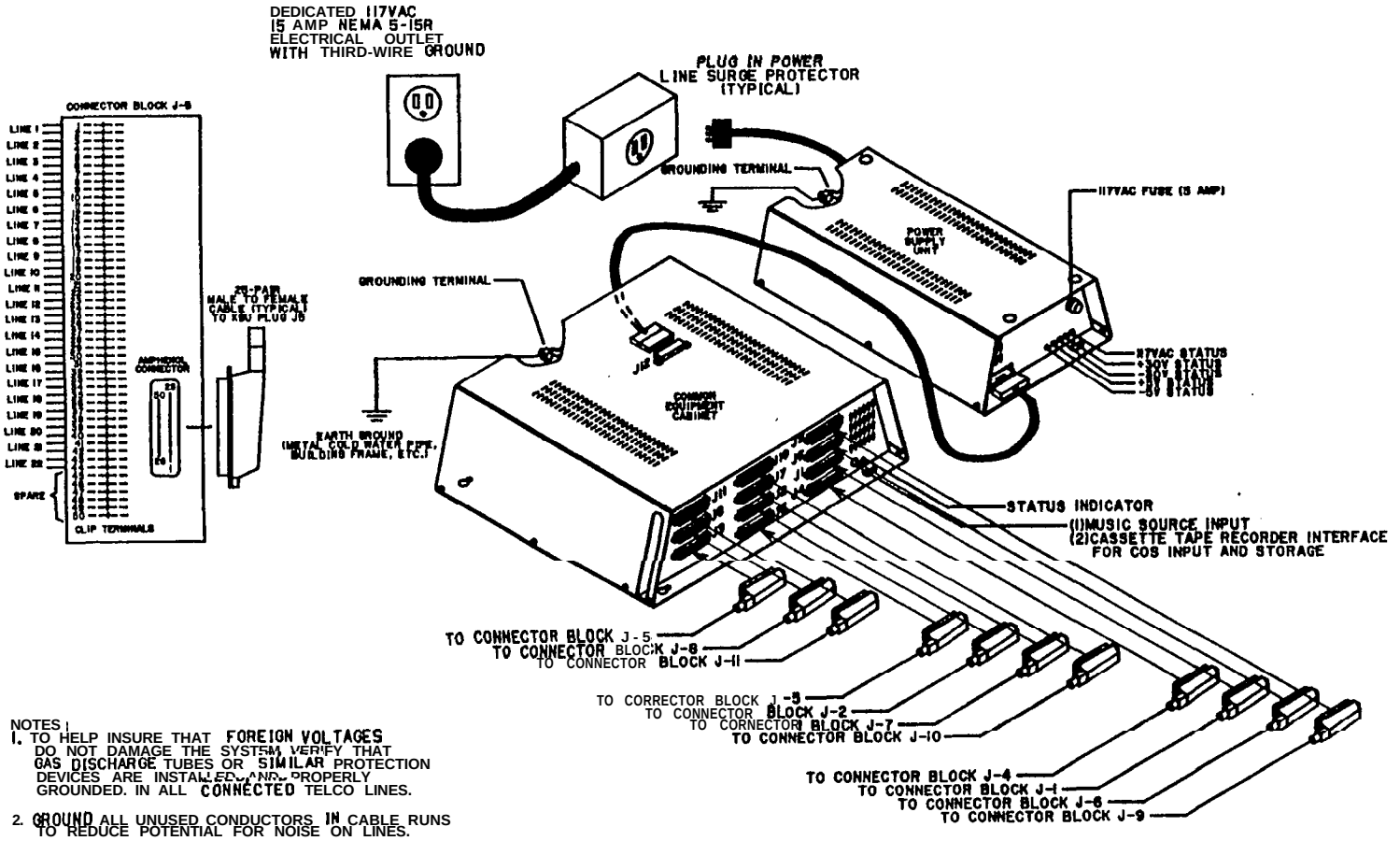
Figure 2-3. Common Audible/Auxiliary Station Interface Wiring (Typical Connection)



FOR PA ENABLING, CONNECTTO CLIPTERMINALS ON CONNECTOR BLOCK

- BLOCK J-I CLIPS 49 & 50 FOR STATION PORT 39 PA ENABLE
- BLOCK J-2 CLIPS 49 & 50 FOR STATION PORT 41 PA ENABLE

Figure 2-4. PA Connections



NOTES:
1. TO HELP INSURE THAT FOREIGN VOLTAGES DO NOT DAMAGE THE SYSTEM VERIFY THAT GAS DISCHARGE TUBES OR SIMILAR PROTECTION DEVICES ARE INSTALLED AND PROPERLY GROUNDED. IN ALL CONNECTED TELCO LINES.
2. GROUND ALL UNUSED CONDUCTORS IN CABLE RUNS TO REDUCE POTENTIAL FOR NOISE ON LINES.

Figure 2-5a. Common Equipment Connections (Typical - K2296 Shown, K2264 Same Except Three Less Station Connectors)

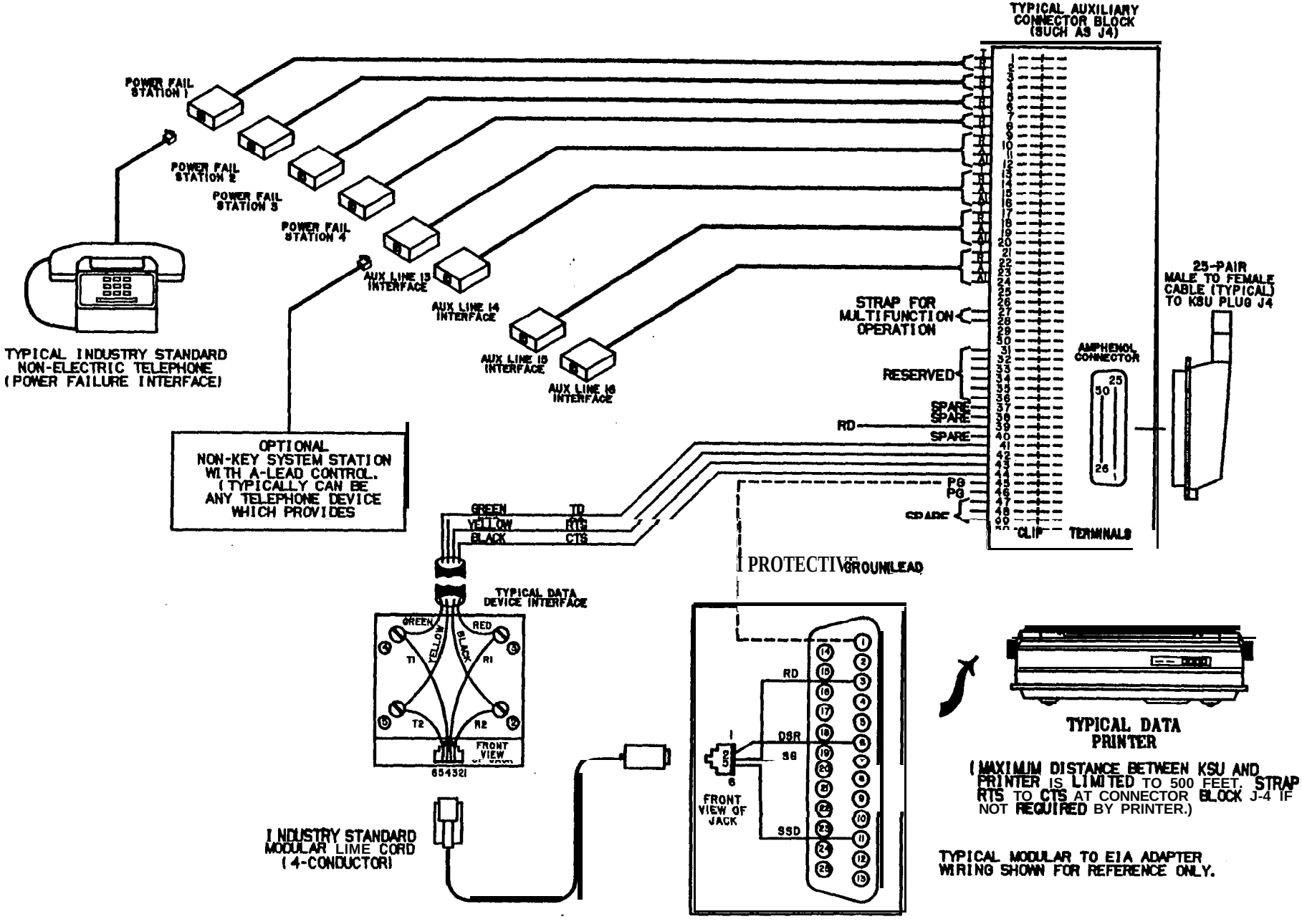
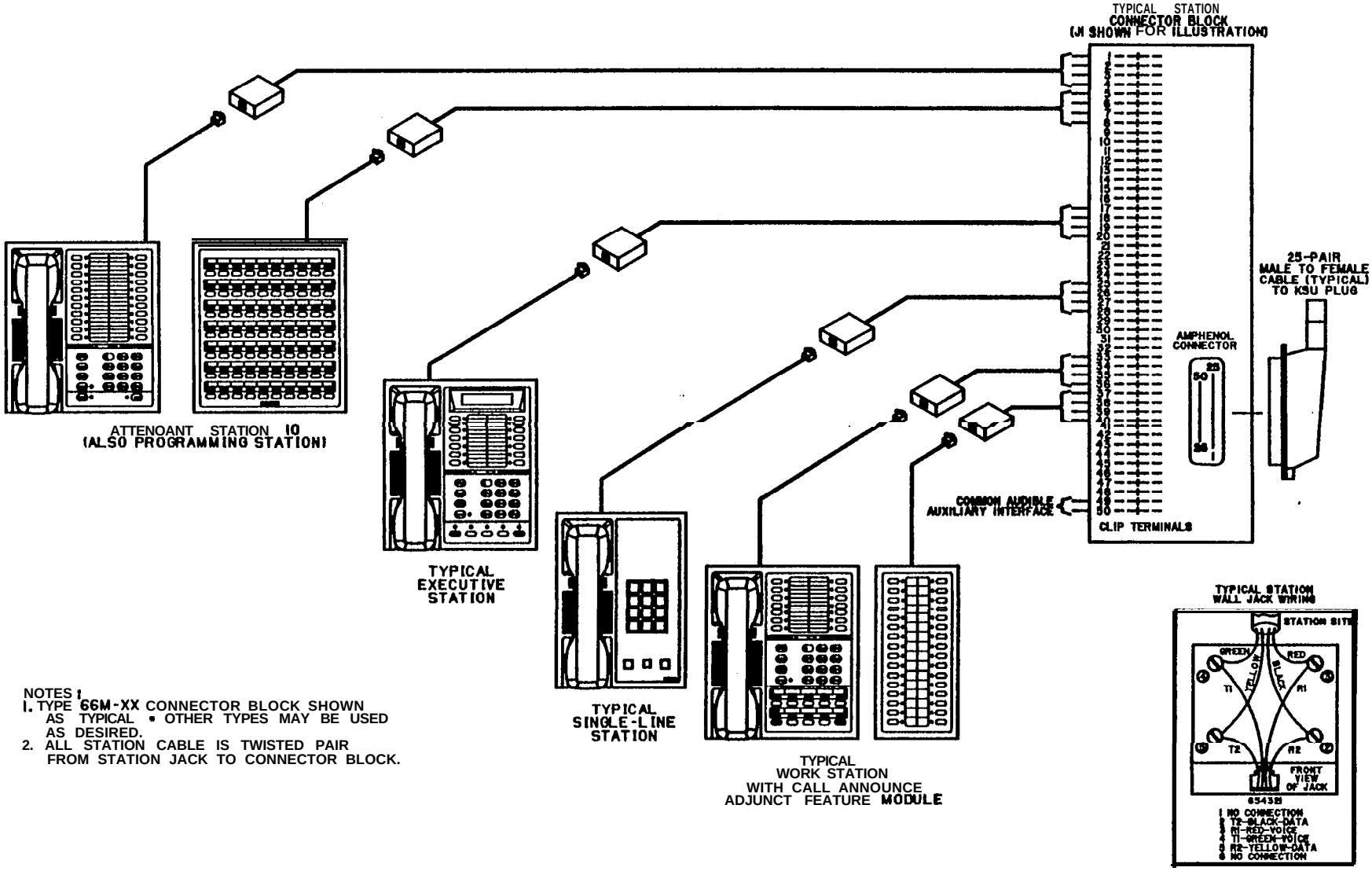


Figure 2-5b. **Auxiliary Equipment Interconnection - Typical** Connections



NOTES:
1. TYPE 66M-XX CONNECTOR BLOCK SHOWN AS TYPICAL - OTHER TYPES MAY BE USED AS DESIRED.
2. ALL STATION CABLE IS TWISTED PAIR FROM STATION JACK TO CONNECTOR BLOCK.

Figure 2-5c. Station Equipment Interconnection - Typical Connections

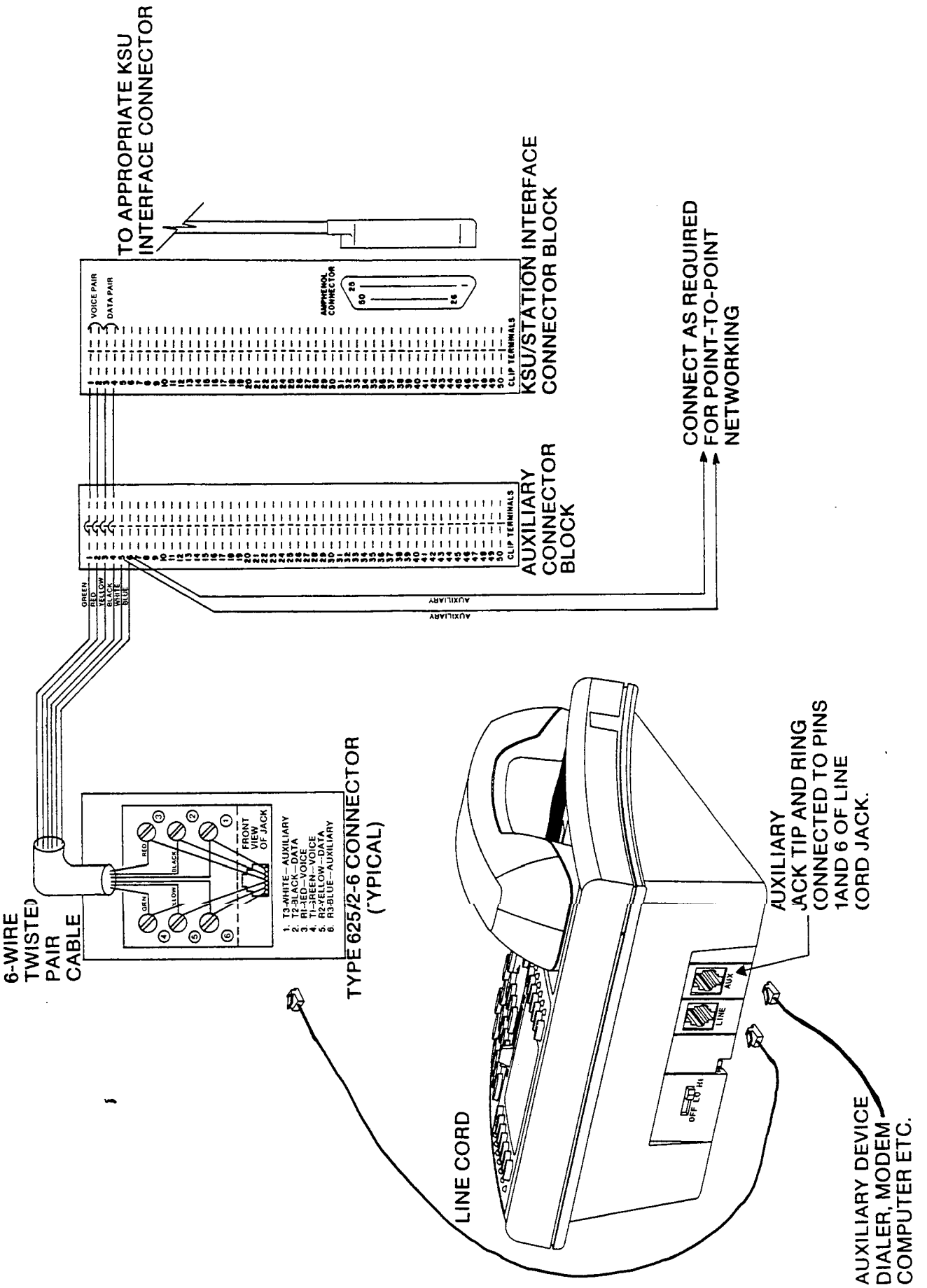


Figure 2-6. Typical 6-Wire, Auxiliary-Pair Wiring

SYSTEM CHECKOUT

Initial Condition

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 the system should be initially checked out with the default conditions in place. At anytime while the system is operating, default conditions can be reset from station port 10 or 11 per the instructions provided in Chapter 3.

Check Out

Check the common equipment and telephone installation for proper operation by performing the following resistance and voltage measurements.

Resistance Check

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

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

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

MEASURED PAIR	MEASURED STATION RESISTANCE IN OHMS			
	MULTILINE KEYSET	3 AND 8 LINE	SINGLE LINE	DSS/BLF CONSOLE
VOICE PAIR	40 - 150	40 - 150	40 - 150	0.3 - 100
DATA PAIR	0.3 - 100	40 - 150	0.3 - 100	0.3 - 100
AUX PAIR	OPEN	OPEN	N/A	N/A

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

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

Voltage Check

Make the following voltage measurements at the station connector blocks under the following conditions:

. Bridging clips installed

. AC power connected to the common equipment

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

UNIT UNDER TEST	66M-xx BLOCK CONNECTION	METER LEAD POLARITY	MEASURED VOLTAGE
TYPICAL EVEN STATION (Repeat for each even sta.)	Voice 1 Data 3	(+) (-)	+33 +/- 5 VDC
	Voice 2 Data 4	(+) (-)	+33 +/- 5 VDC
TYPICAL ODD STATION (Repeat for each odd sta.)	Voice 5 Data 7	(+) (-)	-33 +/- 5 VDC
	Voice 6 Data 8	(+) (-)	-33 +/- 5 VDC

Variant readings can indicate a possible wiring, station, or common equipment problem.

General Check

1. Check the red light emitting diode (LED) system status indicator. Be sure that it is on steady. If it is off or flashing, disconnect. and reconnect the AC power plug. If the indicator is still not on steady, refer to the Failure Analysis Flow Chart found in Chapter 4.

2. Refer to the station User's Guide for operating information. Perform a general operational test of the system by exercising the system features from station port 10 or 11. Operational parameters are per the system default conditions as detailed in Chapter 3 until Class Of Service COS programming is performed.

3. Once the basic system is verified as operational, perform the COS programming.

CHAPTER 3
SYSTEM PROGRAHNING

GENERAL INFORMATION

Class Of Service (COS) programming consists of the following major categories:

. General System COS
. Toll Table Entry
. Line COS
. Station COS

- COS programming is performed from the attendant station
  - Executech II multiline telephone installed at station port 10 or 11 and a companion DSS/BLF Console or Adjunct Feature Module installed at console port 10 or 11 respectively. No other type of Executech keyset can be used for programming nor will any COS programming commands be accepted from any other station port.
- COS programming can also be performed from any customer-provided Video Display Terminal (VDT) which has an RS-232 compatible, serial interface. VDT programming is completely menu driven and easy to follow.
- Programming overlays are included with each system for use in identifing the keys required for COS programming. One overlay fits over the keys of the station and designates the A-field and B-field keys. The other overlay fits over the keys of the console and designates the C-field keys.
- System and Line COS programming do not require that a sequential . process be followed except where noted herein. Station COS programming follows a sequential process.
- Prior to taking any programming action, determine the desired system parameters and all toll restriction requirements. Record this data on the programming reference tables located at the end of the chapter.
- Block programming can be performed after a class of service has been programmed for a particular station. Block programming will program a group of stations to have the same class of service as the programmed station. This feature eliminates the need to individually program stations requiring the same class of service.
- A set of COS values can be recorded on cassette tape from a programmed system.. This data can later be re-loaded into the same system or into another system of the same model number. This method of programming can be employed in lieu of using the step-by-step programming sequence.

IMPORTANT NOTE: The COS values that are recorded from an an older model K2264 revision A through H cannot be re-loaded into any model K2264 with a later revision or manufacturing code. Doing so, will cause the newer model K2264 common equipment to enter a lock-out condition which will prevent any further manual COS programming of it and which can only be cleared by disconnecting AC power from the equipment for a period of at least 48 hours. Access to COS programming via a VDT Terminal connected to the data port is usually still possible however.

Whenever down-loading COS data to a cassette tape, it is a good practice to carefully record on the cassette tape label the model number and manufacturing code of the common equipment cabinet.

SPECIAL PROGRAMMING REQUIREMENTS FOR SINGLE-LINE KEYSETS

Several COS programming details must be observed for proper operation of a Single-line keyset.

Key System Configuration

The Single-line keyset can be programmed either for prime intercom or for prime line automatic. Default is prime intercom.

Prime Intercom

When programmed for prime intercom, outside calls and outside line access for call origination are extended to the Single-line keyset by the attendant station or another multiline station through the use of the call transfer feature. Outside lines can be programmed to ring at a Single-line keyset through the use of the ringing line preference feature with ringing enabled for all desired lines.

Prime Line Automatic

When programmed for prime line automatic, and with an outside line assigned to the port, the Single-line keyset, can originate outside calls on the prime line. However, intercom call origination is not available (intercom calls can be answered). Because of the unavailability of intercom call origination, those system features requiring access through intercom dialing codes are unavailable. Plus, no station speed dial numbers can be stored at that Single-line keyset.

Hybrid Configuration

The Single-line keyset is a prime intercom station, however; access to outside lines is made available through COS programming.

To receive outside calls on a Single-line keyset,

. The call must be answered at a multiline station and extended to the Single-line keyset through the use of the call transfer feature.

. Alternately, the Single-Line keyset station port can be programmed to have the ringing line preference feature, and to have ringing enabled on all desired lines.

. Or the port can be programmed to have the prime line automatic feature and to have ringing enabled at the prime line.

To originate outside calls with a Single-line keyset,

. One or more lines must first be assigned to a line group and the group assigned to the station by class of service programming. With a line group available, dialing the group access code over the intercom line will access the outside line group for use.

BASE LEVEL PBOGBAH ENTRY HODE

The first step in any COS programming sequence is to enter the base level programming mode from station port 10 or 11. Once in this mode, COS can be set as desired.

To enter base level:

1. Press the ITCM key. The dial tone will sound.

2. Press the following keys in sequence: * 7 4 6. Note that the dial tone stops and a tone burst sounds to indicate that the base level programming mode is entered.

3. Press the * key. The dial tone will return as a confirmation that the base level mode is active.

CLASS OF SERVICE DEFAULT

The system can be defaulted to a standard class of service per the following procedure. The default conditions are listed at the beginning of each COS programming procedure and shaded on the programming reference charts.

1. Press ITCH • 7 4 6 • 

2. Press program key C38.

3. Press keypad key(s) to choose default settings.

1	System COS and CENTREX COS default
2	Line COS default
3	Station COS default
4	Pulse dialing - all lines
5	Tone dialing - all lines
6	Flexible key/function default
#	One 80 column SMDR line
8	Two 40 column SMDR lines
RECALL	Tape baud rate of 100
SAVE	Tape baud rate of 50
7051684	Master default

CAUTION: Master default resets all values and clears all stored memory - Do not perform while system is in use.

4. Press * MONITOR.

PROGAMMING OVERLAYS

Several different telephone and console overlays are packed with-the system. The overlay to be used is dependent upon the particular models of equipment connected to the programming station port (10 or 11) and the respective console port (10 or 11). The programming overlays are illustrated in Figure 3-l. Full-scale copies of the overlays are also included at the end of this chapter. These full-scale copies can be removed and prepared for use if needed.

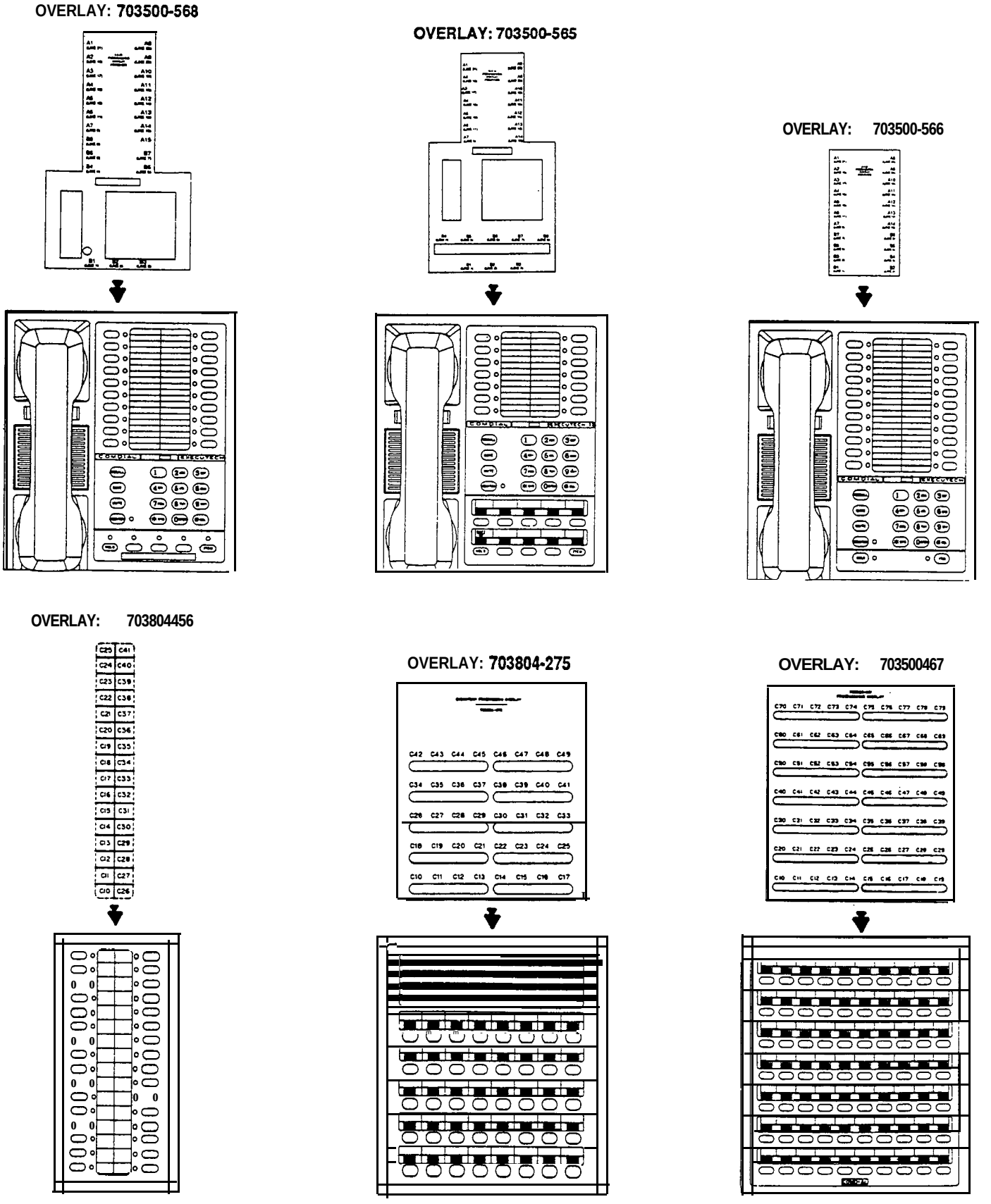


Figure 3-1. Programming Overlay Identification

SYSTEM COS PROGRAMMING PROCEDURE

SYSTEM DEFAULTS

- Recall/flash time = 2 seconds
- Pause time = 1 second.
- Timed Hold recall time = 60 seconds
- Printer baud rate = 1200 baud, 7-bit data
- Intercom first choice signalling = voice first
- Printout line length = 80 Columns
- Central message desk = not assigned
- Unanswered call transfer = 20 seconds
- Port Assignments: Station 10 = LCD Speakerphone
  All other station ports = Executech II multiline telephone
  Console port 10a and 10b = 70-Key and 32-Key consoles
  All other console ports = 40-Key consoles
- Tape baud rate = 100

PROGRAMMING

NOTE: Before performing this procedure, turn to the System COS Programming Reference Chart located at the end of the chapter, and enter all system requirements on the charts for reference.

1. Press ITCH • 7 4 6 • (base level entry if not active)

2. Set recall/flash time.
   - Press program key **C34.**
   - Press keypad key for time.

1 = 80 MSEC.		6 = 875 MSEC.	
2 = 300 MSEC.		7 = 1.0 SEC.	
3 = 500 MSEC.		8 = 1.5 SEC.	
4 = 600 MSEC.		9 = 2.0 SEC.	
5 = 750 MSEC.		0 = 3.0 SEC.	

   - Press *.

3. Set pause time.
   - Press program key **C35.**
   - Press keypad key for time.

1 = .5 SEC.		6 = 5.0 SEC.	
2 = 1.0 SEC.		7 = 7.5 SEC.	
3 = 1.5 SEC.		8 = 10.0 SEC.	
4 = 2.0 SEC.		9 = 15.0 SEC.	
5 = 3.0 SEC.		0 = 20.0 SEC.	

   - Press #.

4. Set **tired hold recall** time.
   . Press program key C36.
   . Press keypad key for time.
   1 = 30 SEC. 6 = 240 SEC.
   2 = 60 SEC. 7 = 300 SEC.
   3 = 90 SEC. 8 = 360 SEC.
   4 = 120 SEC. 9 = 420 SEC.
   5 = 180 SEC. 0 = DISABLED
   . Press # .

5a. Set the baud rate of data printout.
   . Press program key C39 (or dial 6 from keypad)
   . Set baud rate with keypad.
   1 = 110 BAUD, 7 BITS
   2 = 150 BAUD, 7 BITS
   3 = 300 BAUD, 7 BITS
   4 = 600 BAUD, 7 BITS
   5 = 1200 BAUD, 7 BITS
   6 = 2400 BAUD, 7 BITS
   7 = 3600 BAUD, 7 BITS
   8 = 4800 BAUD. 7 BITS
   9 = 9600 BAUD, 7 BITS
   0 = 19200 BAUD, 7 BITS
   . Press *.

5b. Set line length of data printout.
   . Press program key **C38.**
   . Set line length with keypad.
   # = One 80 column line
   8 = Two 40 column lines
   . Press *.

6. Choose intercom first choice signalling.
   . Press RECALL for voice.
   . press SAVE for tone.
   . Press # .

7. Specify **central message desk** (one per system allowed).
   . Press #.
   . Dial port number from keypad.
   . Press *.

8. Set **unanswered call transfer recall** time.
   . Press program key C33.
   . Press keypad keys for time.
   1 =
   2 = 1 20SEC. 10 SEC. 7 = 90 SEC. SEC.
   3 = 25 SEC. 8 = 120 SEC.
   4 = 30 SEC. 9 = 180 SEC.
   5 = 45 SEC. 0 = 240 SEC.

9. Specify **station type** for each station port.
   . Dial port number of station from keypad beginning at any desired active port.
   . Dial 010 - 073 for model K2264
   . Dial 010 - 105 for model K2296
   . Press console key to specify station type.
   C18 = 32-Key Console without call announce
   C19 = 32-Key Console with call announce
   C20 = LCD Speakerphone
   C22 = Single-line **keyset** (hotel phone)
   C23 = 3 and 8 Line **Keyset**
   C24 = Executech II multiline telephone
   C25 = Single-line **keyset** (administrative phone)
   C25 = Port to be used for connecting OPX accessory unit
   . Press * and repeat steps for each remaining active station port.

NOTE: This step 9 action sets the identified port to the default conditions for that specified station type. Also, station port 010 can only be changed to an Executech II multiline telephone from the default assignment as an LCD Speakerphone.

10. Specify **console type** for each console port pair.
   . Press program key C10 to enable port pair selection.
   . Press program key to specify console port pair.
   . **C10** = 10a and 10b
   . **C11** = 11a and 11b
   . **C12** = 42a and 42
   . **C13** = 43a and 43

   • Press program key to specify console types.
   . **C10** a port = 70-Key console; b port = 32-Key console
   . **C11** a port = 70-Key console; b port = 40-Key console
   . **C12** a port = 70-Key console; b port = 70-Key console
   . **C13** a port = 40-Key console; b port = 32-Key console
   . **C14** a port = 40-Key console; b port = 40-Key console
   . **C15** a port = 32-Key console; b port = 32-Key console

   • Repeat port and console selection **steps** for **all** required ports.

11. Select **baud rate of tape data** if tape storage of COS data is planned.
    . Press program key C38.
    . Press **RECALL** for 100 baud.
    -OR-
    . Press **SAVE** for 50 baud.

12. Press ● .

13. Press **MONITOR** to exit or proceed to next COS requirement.

TOLL RESTRICTION PROGRAMMING

SYSTEM DEFAULTS

Toll restriction tables 1 and 2 have entries defaulted in them. These tables are assigned to all lines. They can be unassigned by line COS programming or reprogrammed with different entries per the following procedure.

TABLE 1 Deny	TABLE 2 Allow
1 1	1 1800
2 976	2 911
3 411	3
4 0	4

In order for toll restriction to take effect, the following three-fold process must occur.

- One or more toll tables must be entered
- Toll tables must be assigned to all appropriate lines.
- Toll tables must be assigned to all appropriate stations.

Only the toll tables(s) which are entered and assigned to both a line and a station using that line will invoke any toll restriction.

PROGRAMMING

NOTE: Before performing this procedure, turn to the Toll Restriction Programming Reference Tables located at the end of this chapter, refer to the chart entry instructions included there, and enter all toll restriction requirements on the charts for reference.

1. Press ITCM * 7 4 6 * (base level entry if not active).

2. Press program key C37 (enter toll program mode).

3. Select table number from chart with program key.

TABLE NUMBER	1	2	3	4	5	6	7	8
PROGRAM KEY	C10	C11	C12	C13	C14	C15	C16	C17
TABLE NUMBER	9	10	11	12	13	14	15	16
PROGRAM KEY	C18	C19	C20	C21	C22	C23	C24	C25

4. Select table type with program key.
   Deny table = C38
   Allow table = C39

5. Select **table entry** from chart with program key.

TABLE ENTRY	1	2	3	4
PROGRAM KEY	A1	A2	A3	A4

6. Dial **number to be restricted (16** digits maximum). Press **#** for "match anything" digit.

7. Repeat steps 5 and 6 until **all** numbers are programmed in table.

8. Repeat steps **3** through 7 until all tables are programmed.

9. Press **•** .

10. Press **MONITOR** to exit or proceed to next COS programming step.

LINE COS PROGRAMMING

LINE DEFAULTS

. Line type = TELCO
. Line groups = none assigned
. Dial Mode = DTMF
. Privacy status = private
. Toll Tables = 1 and 2 assigned
. Abandoned Hold Timeout = 50 msec.

PROGRAMMING

NOTE: Before performing this procedure, turn to the Line COS Programming Reference Chart located at the end of this chapter, and enter the line requirements for each line to be programmed.

1. Press **ITCM** * 7 4 6 ***** (base level entry if not now active)

2. Select line to be programmed.

LINE	KEY	LINE	KEY	LINE	KEY
1	**B1**	9	**A7**	17	**A3**
2	**B2**	10	**A14**	18	**A10**
3	**B3**	11	**A6**	19	**A2**
4	**B4**	12	**A13**	20	**A9**
5	**B5**	13	**A5**	21	**A1**
6	**B6**	14	**A12**	22	**A8**
7	**B7**	15	**A4**		
8	**B8**	16	**A11**		

3. Select line type.
   . Disabled = C38
   . Auxiliary = C39
   . CO/PBX = C40

4. Select line group (multifunction configurations only).
   . No group assigned = C41
   . Group 1 = C34
   . Group 2 = C35
   . Group 3 = C36
   . Group 4 = C37

5. Select dialing mode.
   . Pulse/tone = C26
   . Tone only = C27

6. Select **privacy rode.**
   . Private = **C28**
   . Non-private = C29

7 . Assign **toll tables.**

TABLE	KEY	TABLE	KEY
1	C10	9	C18
2	C11	10	C19
3	C12	11	C20
4	C13	12	C21
5	C14	13	
6	C15	14	C22 C23
7	C16	15	C24.
8	C17	16	C25
Clear all tables = C33			

8. Set **abandoned hold timeout** period.
   . 300 milliseconds = **C30**
   . 50 milliseconds = C31

9. Repeat steps 2 - 8 for each line.

10. Press • .

11. Press **MONITOR** to exit or proceed to next COS programming requirement.

STATION COS PROGRAMMING

STATION DEFAULTS

. PA port = disabled
. Voice announce block = disabled
. Executive override = disabled
. System speed dial toll restriction = disabled
. Personal ringing tone = tone 1
. OPX through-dialing = disabled
. Automatic hold = disabled
. Message wait originate = disabled
. **Prime** line/group = none
. Ringing line preference = disabled
. Direct ringing = all lines ring on stations **10, 17, 39,** and 41
. Delayed ringing = none
. Night transfer (of ringing) = all lines ring on stations 10, 17, 39 and 41
. Privacy status = private
. Line access denied = none
. Call origination denied = none
. Idle line preference = none
. Toll tables = none assigned
. Reserved intercom link = none
. All-call receive = enabled
. All-call originate = enabled
. Zone page receive = disabled
. Zone page originate = disabled
. Hunt group = disabled
. Line/key assignment 3 and 8 Line **Keyset:**
  . **B=Field** keys (B1=B8) = lines 1=8
. Line/key assignment Executech II multiline telephone:

KEYS:	A1	A2	A3	A4	A5	A6	A7	B7	B5	B3	B1
LINES:	21	19	17	15	13	11	9	7	5	3	1
KEYS:	A8	A9	A10	A11	A12	A13	A14	B8	B6	B4	B2
LINES:	22	20	18	16	14	12	10	8	6	4	2

. Single Line **Keyset** accesses intercom line only

PROGRAMMING

NOTE: Before performing this procedure, turn to the Station COS Programming Reference **Chart** located at the end of this chapter, and enter the station requirements for each station to be programmed.

. Perform all steps in sequence.
. Skip those steps not required.

1. Press **ITCM • 7 4 6** * (base level entry).

2 PressprogramC41 (programentry).

3. Dial port number of station port to be programmed.

4. **To default** the following features, if desired, press **SAVE.**
   . PA port disabled
   . Prime line not assigned
   . Voice blocking disabled
   . Executive override disabled
   . Message wait-originate disabled
   . Automatic hold disabled
   . System speed dial toll restriction disabled
   . Ringing line preference disabled
   . Hunt groups disabled

5. Enable **PA port.** No further programming at this port number is required if a PA port is enabled.
   . Press program key **C10.**
   . Return to step 2.

6. Block **voice announced intercom** calls.
   . Press **C11.**

7. Enable **executive override.**
   . Press **C12.**

8. Enable **toll table restriction** on **system speed** dial numbers.
   . Press program key C13.

9. Choose **personal ringing tones** (Executech II multiline telephones).
   . TONE 1 (509/610 Hz @ 10 Hz warble) = **C14**
   . TONE 2 (763/1016 Hz @ 10 Hz warble) = Cl5
   . TONE 3 (509/610 Hz @ 19 Hz warble) = Cl6
   . TONE 4 (763/1016 Hz @ 19 Hz warble) = Cl7

10. Program port for **OPX through-dialing** (only if port is programmed for Single-line keyset-administrative phone)
    . Press C28 to enable.
    . Press C29 to disable.

11. Set **automatic hold.**
    . Press C26.

12. Enable **message wait originate.**
    . Press C27.

13. Select **prime line** or **prime group.**
    . Press **ITCM** to choose-intercom line.
    -OR-
    . Press program key per Table 3-l to choose prime line or group.

Table 3-1. Program Keys For Line And Group Choices

LINE	KEY	LINE	KEY	LINE	KEY	GROUP	KEY
1	**B1**	9	**A7**	17	**A3**	1	**C34**
2	**B2**	10	**A14**	18	**A10**	2	**C35**
3	**B3**	11	**A6**	19	**A2**	3	**C36**
4	**B4**	12	**A13**	20	**A9**	4	**C37**
5	**B5**	13	**A5**	21	**A1**		
6	B6	14	**A12**	22	**A8**		
7	**B7**	15	**A4**				
8	**B8**	16	**A11**				

14. Enable **ringing line preference.**
    . Press **C40.**

15. Select **ringing assignments** for lines active at station.
    RINGING
    . Press Cl8 (clears previous settings).
    . Press program key(s) per Table 3-1 to choose lines.
    DELAYED RINGING
    . Press **Cl9** (clears previous settings).
    . Press program key(s) per Table 3-1 to choose lines.

16. Select **night transfer** (of ringing) for certain lines.
    . Press **C20** (clears previous settings).
    . Press program key(s) per Table 3-1 to choose lines.

17. Select **automatic privacy release** for certain lines.
    . Press C21 (clears previous settings).
    . Press program key(s) per Table 3-1 to choose lines.

18. Select **access denied** for certain lines.
    . Press C22 (clears previous settings)
    . Press program key(s) per Table 3-1 to choose lines.

19. Select **call origination denied** for certain lines.
    . Press C23 (clears previous settings).
    . Press program key(s) per Table 3-1 to choose lines.

20. Select **idle line preference** for certain lines.
    . Press C24 (clears previous settings).
    . Press program key(s) per Table 3-1 to choose lines.

21. Assign toll tables to station.
    - Press C25 to clear all toll tables assigned (if desired)..
    - Specify toll tables with program keys as follows:

PROGRAM KEY	Cl0	Cl1	Cl2	Cl3	Cl4	Cl5	Cl6	Cl7
TOLL TABLE	1	2	3	4	5	6	7	8
PROGRAM KEY	Cl8	Cl9	C20	C21	C22	C23	C24	C25
TOLL TABLE	9	10	11	12	13	14	15	16

22. Reserve an intercom link.
    - Press RECALL.
    - Press keypad key l-7 to reserve link l-7.

    -OR-

    - Press 0 key for no reserved link.

23. Select all-call and/or zone paging configurations.
    - Press #.
    - Disable all paging assignments (if desired).
      - Press RECALL.
    - Select all-call paging assignments:
      - All-call originate = A4
      - All-call receive = A8
      - All-call originate and receive = A4, A8
    - Select zone paging assignments:

	PAGE ORIGINATE ONLY			PAGE RECEIVE ONLY			PAGE ORIGINATE AND RECEIVE		
Zone	A	B	C	A	B	C	A	B	C
Key	A1	A2	A3	A5	A6	A7	A1, A5	A2, A6	A3, A7

    - Press Cl8 to continue with next program step

24. Specify flexible key assignment (non-square configuration), if desired.

    FOR 3 AND 8 LINE KEYSET:
    - Press C39.
    - Press C34 - C41 to choose line key 1 - 8. Fast tone bursts will sound.
    - Press program key per Table 3-l to choose line.

    -OR-

    - Press RECALL key to disable line appearance. Tone bursts stop.
    - Repeat for each line assigned

FOR Executech II multiline telephone:
- Press **C39.**

To **assign line appearance** to keys,
- Press key to be assigned (A or B field). Fast tone bursts sound.
- Press program key per Table 3-l to choose **line.** Tone bursts stop.
- **Repeat** for all keys requiring line appearance.

To **disable line appearance** at keys (clears any prior assignment),
- Press key to be denied appearance. Fast tone bursts sound.
- Press **RECALL** key. Tone bursts stop.
- Repeat procedure for all required key locations.

To assign DSS to keys,
- Press key to be assigned (A or B field). Fast tone bursts sound.
- Dial station port number (from keypad) to identify station to be assigned to key. Tone bursts stop.
- Repeat procedure for all keys requiring DSS assignment.

To **assign autodial** to keys *(clears* any prior assignment),
- Press key to be assigned (A or B field). Fast tone bursts sound.
- Press **RECALL** key. Tone bursts stop
- Repeat procedure for **all** keys assigned for **autodial use.**

To assign **dynamic line** keys (clears any prior assignment),
- Press key **B1,** B2, or **B3.** Fast tone bursts sound.
- Press **RECALL** key. Tone bursts stop.
- Repeat for B2 and B3 if required.

25. Press ***.**

26. Choose next station port for programming
    - Press **C41**
    - Dial station port number (from keypad) to identify next port for programming.

27. Repeat steps 5 through 24 for each station port in system.

28. Press • **MONITOR** to exit programming.

BLOCK PROGRAMMING OF STATION COS

Block program a group of stations with a previously programmed class of service.

1. Enter base level : ITCH • 7 4 6 *.
2. Press HOLD.
3. Dial station port number (from keypad) to identify model station.
4. Dial station port number (from keypad) to specify first station in block.
5. Dial station port number (from keypad) to specify last station in block.
6. Press * MONITOR to exit programming.

NOTE: Flexible key/function assignments for station port 010 or 011 cannot be changed by block programming.

HUNT GROUP PROGRAMMING

Station ports can be assigned to intercom hunt groups. When a station assigned to a hunt group is busy, a call to it will ring at the next idle station in the group. Typical hunt groups operate as follows:

TERMINAL HUNTING

Assume that a terminal hunt group is formed as follows:
- Station port 013 is linked to station port 014
- Station port 014 is linked to station port 015
- Station port 015 is linked to station port 016.

If station port 013 and 014 are busy when an intercom call is directed to station port 013, that call will ring at station port 015 because it is the first idle port in the group. If port 015 is also busy, the call will ring at station port 016. If port 016 is also busy, the call will sound a busy tone at the calling station.

In the above example, the group is open-ended or terminal. A call will be routed down the group from the busy station port. If it reaches the end of the group without encountering an idle station, it will stop.

A particular station can be linked at the end of more than one hunt group so long as the sixteen station ports per group are not exceeded. For instance, a second terminal hunt group could be formed along with the example shown above:

. Station port 020 is linked to station port 021
. Station port 021 is linked to station port 022
. Station port 022 is linked to station port 016.

Thus, station port 016 would serve in both terminal hunt groups although the groups are independent otherwise. Other terminal hunt groups could also be formed with station port 016 as the last station in the group.

CIRCULAR HUNTING

A hunt group can be made circular by linking the last port in the group with the first port in the group. From the first example given above, a circular hunt group could be formed as follows:

. Station port 013 is linked to station port 014
. Station port 014 is linked to station port 015
. Station port 015 is linked to station port 016.
. Station port 016 is linked to station port 013.

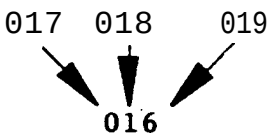
In a circular hunt group, a call will search around the group until it encounters an idle station port or until all stations in the group, up to a maximum of sixteen, are searched.

HUNT GROUP GUIDE LINES

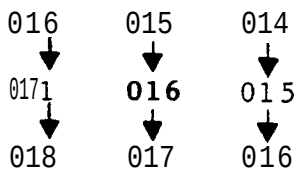
In forming intercom hunt groups, the following guide lines apply:

. A minimum of two stations ports can form one hunt group.
. A maximum of sixteen station ports can be placed in one hunt group.
. Multiple hunt groups can be formed.
. The call forwarding feature is disabled for all but the last station port assigned to a hunt group.
. The maximum number of hunt groups that can be formed is determined by the number of stations available and the sixteen station per group limitation.
. A station port can have only one other station port added to it but it can be added to the end of any number of station ports. In this case, it adds to the count in each hunt group that it is added to. See example 1.
. A station port can be the first or intermediate port in only one hunt group. See examples 2 and 3.

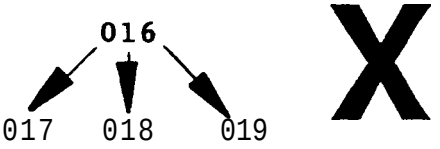
EXAMPLE 1 (proper link)



EXAMPLE 2 (proper links)



EXAMPLE 3 (improper link)



HUNT GROUP PROGRAMMING

To program two station ports into a hunt group,
. Press ITCM • 7 4 6 * (enter base level programming mode).
. Enter station COS programming:
  . Press C41.
. Choose first station in link:
  . Dial station port number (010-105).
. Enter linking mode:
  . Press C30.
. Choose second station in link:
  . Dial station port number (010-105).
. Establish link:
  . Automatic linking occurs - no action required.
. Press * (return to base level).

To add additional station ports to a hunt group (16 maximum) or link the last station to the first to form a circular group,
. Re-enter station COS programming:
  . Press C41.
. Re-enter port number of last station port in link:
  . Dial station port number (010-105).
. Re-enter linking mode:
  . Press C30.
. Enter port number of next desired station port (or first station port to form a circular group):
  . Dial station port number (010-105).
. Establish link:
  . Automatic linking occurs - no action required.
. Press • (return to base level).
. Repeat procedure until all required station ports are linked one after the other (and last to first if forming circular link).

To clear a hunt group link,
. Enter station COS programming:
  . Press C41.
. Dial port number of station to be un-linked.
. Press C31.
. Press * (return to base level).

To end programming,
. Press * MONITOR.

COS AND SMDR PRINTOUT

COS PRINTOUT

When a data printer is connected to the system, it can be commanded, from station port 10 or 11, to print the class of service (COS) programming configuration. Partial or complete printouts can be obtained. When the printer is being used to obtain a COS printout, the Station Message Detail Recording (SMDR) function is temporarily halted. SMDR data collection is continued by the system during a COS printout operation; however, if more than two calls are logged for any one line, call records may be lost.

1. Press **ITCM** * 7 4 6 * (base level entry if not active).

2. Press C39.

3. Choose desired printout.
   All COS = c37
   System COS = C38
   Line COS = c39
   Toll Tables = **C40**
   All station COS = C41
   One Station COS = C34 plus dial station port number from keypad

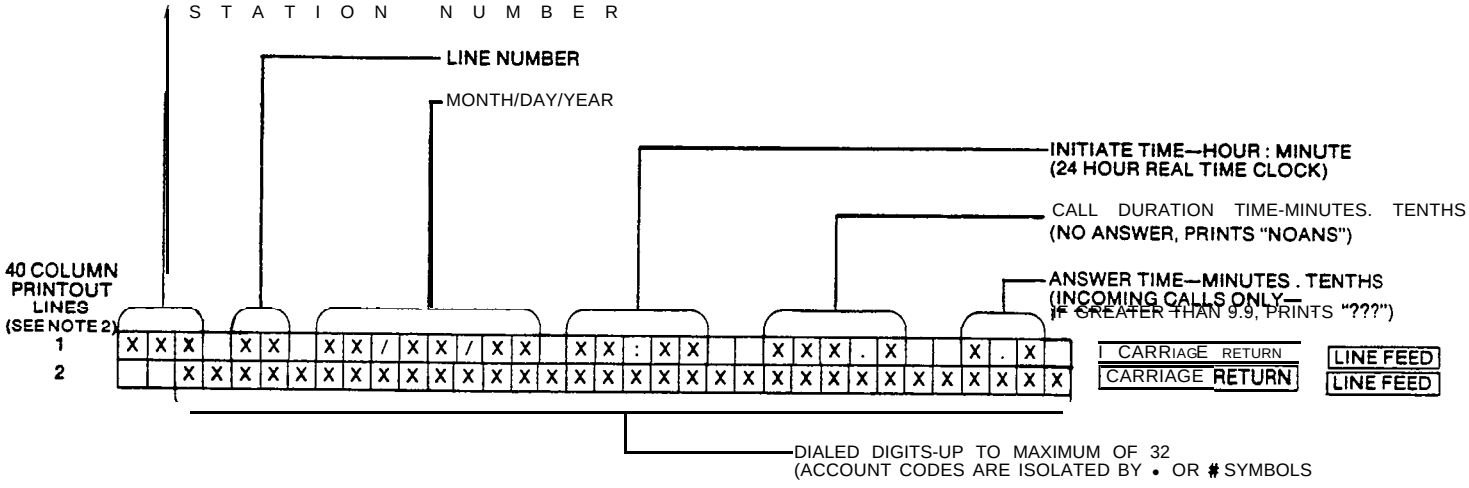
4. COS printout begins immediately.
   . To abort printout, press **C40.**

5. Press * MONITOR (ends procedure).

SMDR PRINTOUT

The SMDR printout data is provided automatically as it is generated. No intervention is required to obtain the printout. The data is formatted as shown in Figure 3-2. Either an 80-column or a 40-column printout line can be selected through the SYSTEM COS programming.

The SMDR printout data is up-dated on transferred calls to report the data for the last station that was connected to the call.



NOTES

1. CARRIAGE RETURN AND LINE FEED IMMEDIATELY FOLLOW LAST PRINTED CHARACTER ON EACH LINE. ALSO SEE NOTE 2.
2. ILLUSTRATED PRINTOUT IS 40 COLUMN, TWO-LINE FORMAT. FOR 80 COLUMN ONE-LINE PRINTOUT FORMAT, CARRIAGE RETURN AND LINE FEED CHARACTERS AT END OF LINE 1 ARE REPLACED BY TWO SPACES FOLLOWED BY ENTIRE CONTENTS OF LINE 2.
3. OUTGOING CALL MUST BE OFF HOOK FOR 20 SECONDS MINIMUM OR NO RECORDING OCCURS.

PRINTOUT	EXAMPLES
UNANSWERED INCOMING CALL	1 12/05/86 16:51 N O A N S 0.6
ANSWERED INCOMING CALL	16 1 12/05/86 16:52 1.6 0.2
ANSWERED INCOMING CALL (WITH CALLER ID ADDED BY STATION DURING CALL)	24 1 12/05/86 16:53 1.2 0.2 "1234
OUTGOING CALL (LOCAL)	16 2 12/05/86 16:58 2 . 0 9782200
OUTGOING CALL (WITH ACCOUNT CODES)	2 2 12/05/86 17:01 .5 11233456789*0#*7412580#9631*#
AC POWER FAILURE AND RESTORATION	OFF TIME ** 12/05/86 17:03 ** 12/05/86 17:08

Figure 3-2. SMDR Printout Details

CASSETTE TAPE RECORD OF COS VALUES

GENERAL INFORMATION

- Connect the audio cassette tape recorder microphone connector to the music interface jack on the side of the KSU.
- Do not perform any other programming action while the tape system is active.
- Program the baud rate of the tape data to be either 100 or 50 baud as desired. (See System COS for programming details.)
- If the system includes a data printer, appropriate response and error messages will be printed during the recording and loading of COS data.
- When COS data is sent from the KSU to an audio cassette tape recorder for recording, a lead-in tone is sent prior to the data. During play-back, this lead-in tone alerts the system to receive the class of service data.
- When playing back the stored class of service data, the tape must be started during the lead-in tone. If it is not, the system will reject the recorded class of service data.

To insure a successful load, comparison, or verification of recorded class of service data, always start the tape during the lead-in tone. The following precautions will insure that this is done.

- Before playing back pre-recorded class of service data,
  - Rewind the tape to the beginning.
  - Disconnect the cable connecting the recorder and the KSU.
  - Set the play-back volume for approximately one-half of maximum.
  - Play the tape and listen to the lead-in tone. Verify that it is not distorted.
  - Rewind the tape to the point where the lead-in tone begins.
  - Connect the cable between the KSU and the tape recorder.
  - Program the system to accept pre-recorded class of service data.
  - Start the tape (from the point where the lead-in tone was first heard).
- If the load is unsuccessful,
  - Repeat the load procedure with the play-back volume set for approximately two-thirds of maximum.

IMPORTANT NOTE: The COS values that are recorded from an an older model K2264 revision A through H cannot be re-loaded into any model K2264 with a later revision or manufacturing code. Doing so, will cause the newer model K2264 common equipment to enter a lock-out condition which will prevent any further manual COS programming of it and which can only be cleared by disconnecting AC power from the equipment for a period of at least **48** hours. Access to COS programming via a VDT Terminal connected to the data port is usually still possible however.

RECORDING COS DATA TO TAPE

To record currently stored COS program values on cassette tape for later use, proceed as follows:

1. Install blank cassette tape; and prepare recorder for recording.

2. Cause recorder to begin recording blank cassette tape from beginning.

3. Press **ITCM • 7 4 6 * ITCM.**

4. Press appropriate program key to start recording process.
   - **C37 =** All COS data
   - **C34 =** All speed dials
   - **C35 =** Autodials (Station ports 010 **- 057)**
   - **C36 =** Autodials (Station ports 058 **-** 105)

5. To abort procedure (if required),
   - Press **ITCM * 7 4 6 * ITCM.**
   - Press program key C41.

COS recording requires approximately 12 minutes. Station port 10 or 11 will ring when recording is complete.

COMPARING RECORDED DATA (Requires Data Printer)

To compare recorded values with system values,
- Rewind cassette tape, and prepare recorder for playback.
- Press ITCM * 7 4 6 *** ITCM.**
- Press program key C38.
- Start tape playback.
- Printer will print status as follows:
  COMPARE TAPE TO COS DATA
  COMPARE TAPE COMPLETE
  COMPARE TAPE DATA ERROR

VEBIFIBG TAPE DATA (Requires Data Printer)

To verify previously recorded cassette tape,
. Rewind pre-recorded cassette tape, and prepare recorder. for play-back.
. Press **ITCM * 7 4 6 * ITCH.**
. Start tape playback.
. Press program key C39.
. Printer will print status as follows:
VERIFY COS DATA TAPE
VERIFY TAPE DATA COMPLETE
VERIFY TAPE DATA ERROR

LOADING COS DATA FROM TAPE

To load previously recorded COS program values into system to replace current program values, proceed as follows:

1. Install pre-recorded cassette tape, and prepare recorder for playback.

2. Press **ITCM * 7 4 6 * ITCM.**

3. To load COS features,
. Press HOLD.
-OR-
To load memory dialing numbers,
. Press RECALL.

4. Start tape playback.

5. To abort the procedure (if required),
. Press **ITCM • 7 4 6 * ITCM.**
. Press program key C41.

COS loading requires approximately 10 minutes. Station port 10 or 11 will ring when loading is complete.

SYSTEM CLOCK INFORMATION

All clock setting and adjustment must be performed from station port 10 or 11.

SETTING THE CLOCK

1. Press **ITCM**, then dial *** #.**

2. Dial the clock date with the key pad keys.

YEAR	MONTH	DAY	HOUR	MINUTE
XX	XX	XX	XX	XX

NOTE: Values less than 10 must be dialed as OX, and hours must be expressed in the 24-hour format.

3. If the SMDR printer is installed and operating, the clock date will be printed as follows.

.* 01/08/86 16:00 (Example)

4. Reset the minutes setting, if necessary, as follows:

a. Repeat step 1.
b. Dial the new minutes digits, and press the **#** key.
c. A new clock date printing will occur.

5. To obtain a printing of the current clock date, press **ITCM** * **# #.**

Printing will occur automatically once each 24-hour period.

****** MO/DY/YR 00:00 (current date and 00:00 hours)

POWER INTERRUPTION

The system clock will continue to run for at least 30 minutes after AC power has been removed from the system. If power is restored within the 30-minute backup period, the following printing sequence will occur:

LAST VALID CLOCK = MO/DY/YR HR:MN (time of power outage)
MO/DY/YR HR:MN (time of power return)

If power is not restored within the backup period, the following printing sequence will occur when the power is restored.

CLOCK NOT VALID
12/01/86 00:00 (default clock date)

The clock will begin running from the default date. It must be reset to the current date per the instructions above.

SYSTEM SPEED DIAL PROGRAMMING

Fifty (50) system speed dial numbers can be stored from station port 10 or 11 for use at all stations in the system. System speed dial numbers will not be toll restricted unless specified by station COS programming.

To store speed dial numbers,
. Press ITCM • .
. Perform the following steps:
  . Press SAVE.
  . Dial storage location (10 - 59) from keypad.
  . Choose line or group preselection (multifunction (hybrid) system only by dialing 1 - 4 from keypad to identify group.
  -OR-
  . Press a line key to identify a line to be preselected during operation.
  -OR-
  . Dial 0 for no group or line preselection

NOTE: Key-to-line assignment is per station COS programming arrangement. Refer to station COS programming reference chart for station port 10 key-to-line assignments when identifying a line for preselection.

  . Dial speed dial number from keypad (up to 32 digits).
    . Dial 1 - 0, #, and * as required.
    . Press HOLD to store pause if required.
    . Press RECALL to store flash if required.

  . Repeat the preceeding steps for each number to be stored.

. Press MONITOR to end procedure.

SYSTEM SPEED DIAL INDEX (enter programmed numbers)

*10	*27	*45
*11	*28	*46
*12	*29	*47
*13	*30	*48
*14	*31	*49
*15	*32	*50
*16	*33	*51
*17	*34	*52
*18	*35	*53
*19	*36	*54
*20	*37	*55
*21	*38	*56
*22	*39	*57
*23	*40	*58
*24	*41	*59
*25	*43	
*26	*44	

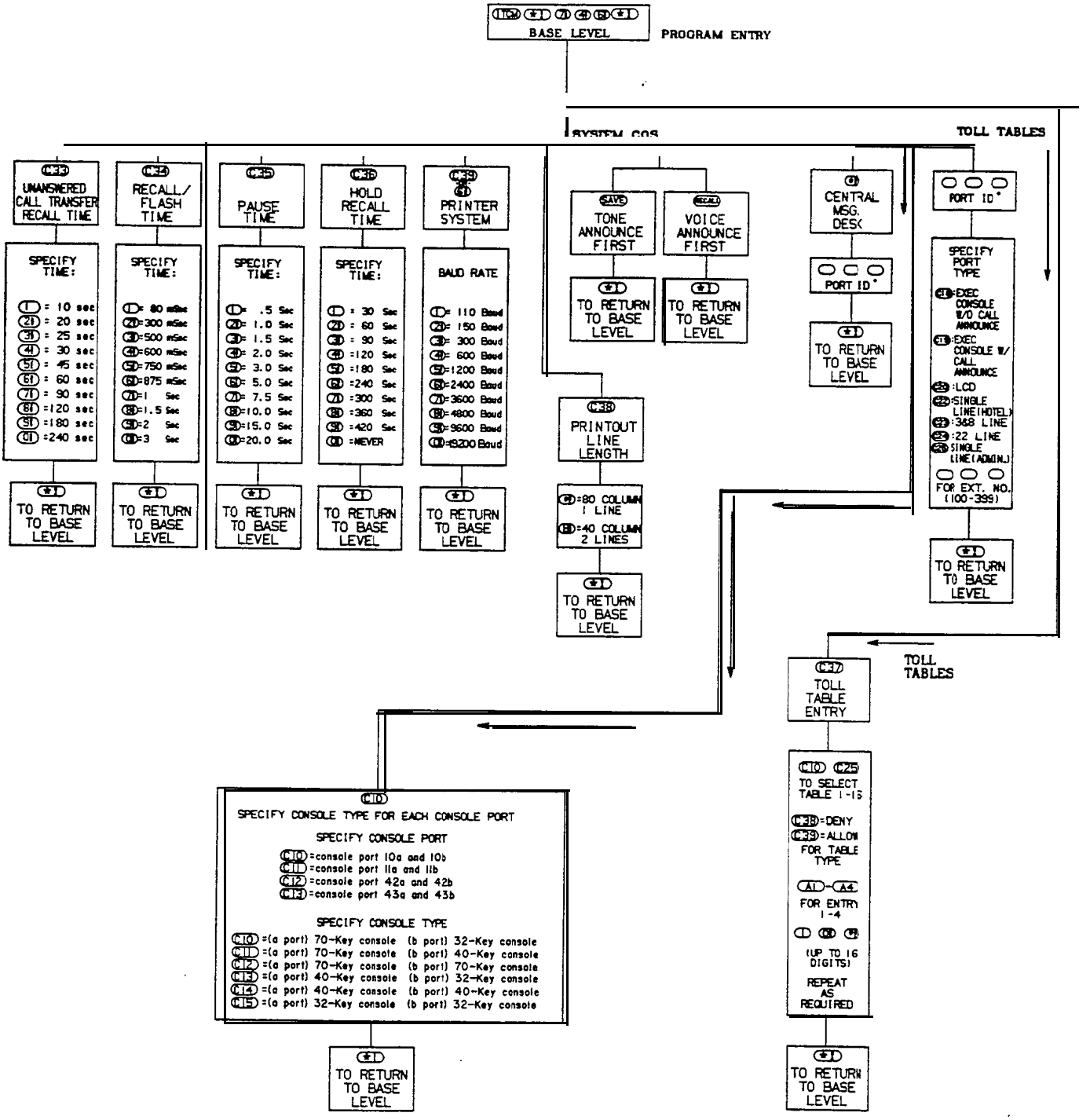


Figure 3-3a. Programming Reference Chart

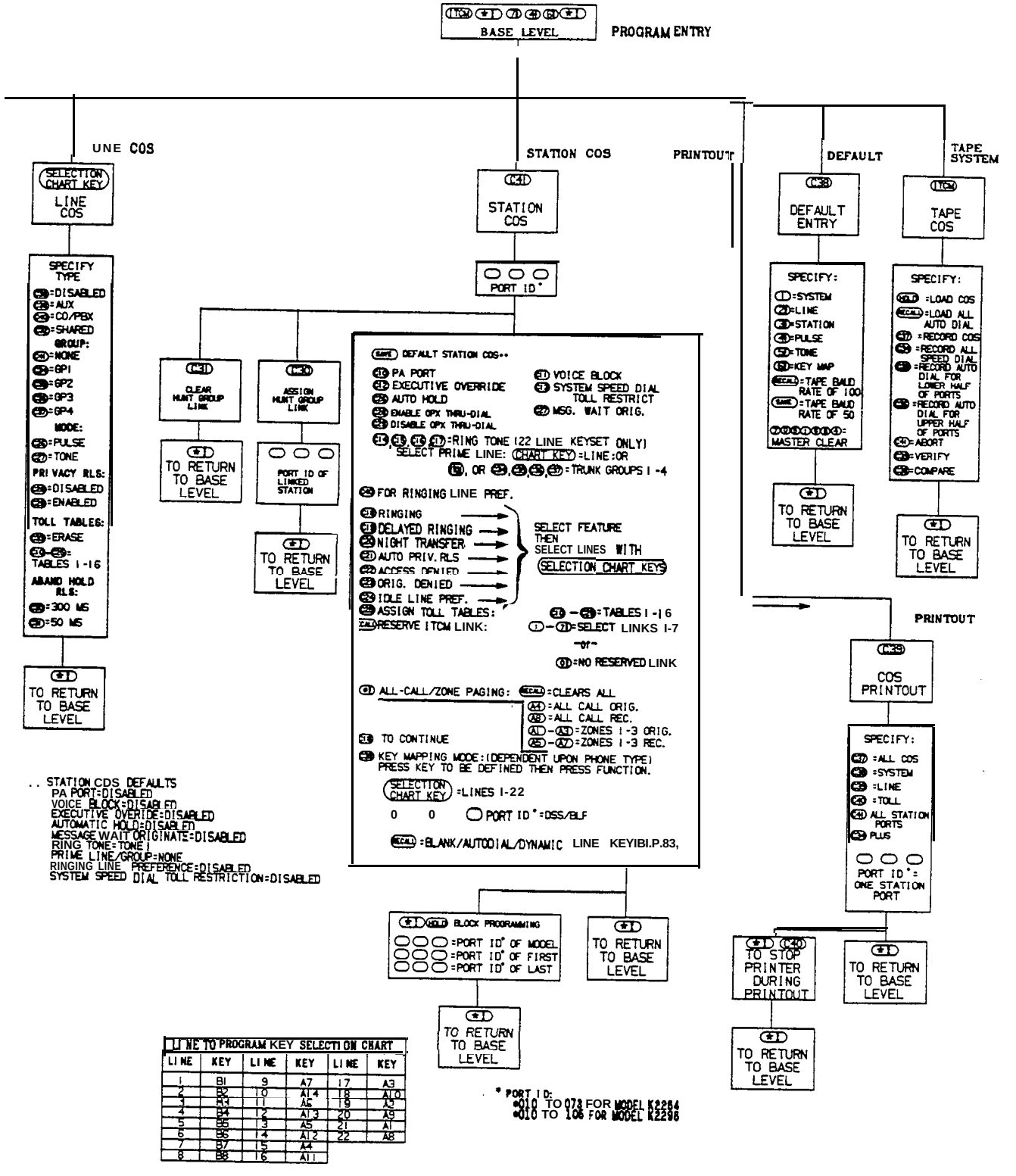


Figure 3-3b. Programming Reference Chart

SYSTEM COS PROGRAMMING REFERENCE TABLE

. Shading denotes system default conditions.
. Check off the values chosen for the system being programmed.

To enter base level: ITCH * 7 4 6 *

2

C34 RECALL/FLASH TIME		
KEY	TIME	ENTRY
1	80 MSEC.	
2	300 MSEC.	
3	500 MSEC	
4	600 MSEC.	
5	750 MSEC.	
6	875 MSEC.	
7	1.0 SEC.	
8	1.5 SEC.	
9	2.0 SEC.	
0	3.0 SEC.	

3

C35 PAUSE TIME		
KEY	TIME	ENTRY
1	5 SEC.	
2	1.0 SEC.	
3	1.5 SEC.	
4	2.0 SEC.	
5	3.0 SEC.	
8	5.0 SEC.	
7	7.5 SEC.	
8	10.0 SEC.	
9	15.0 SEC.	
0	20.0 SEC.	

4

C36 HOLD RECALL TIME		
KEY	TIME	ENTRY
1	30 SEC.	
2	60 SEC.	
3	90 SEC.	
4	120 SEC.	
5	180 SEC.	
6	240 SEC.	
7	300 SEC.	
8	360 SEC.	
9	420 SEC.	
0	DISABLED	

Note: A 0 program selection (disabled) makes it possible for an exclusive hold condition, when set at a station, to place a line in a hold state that cannot be released at any other station.

5a

C39 BAUD RATE FOR COS AND SMDR DATA		
KEY	DATA SPEED	ENTRY
1	110 BAUD, 7 BITS	
2	150 BAUD, 7 BITS	
3	300 BAUD, 7 BITS	
4	600 BAUD, 7 BITS	
5	1200 BAUD, 7 BITS	
6	2400 BAUD, 7 BITS	
7	3600 BAUD, 7 BITS	
8	4800 BAUD, 7 BITS	
9	9600 BAUD, 7 BITS	
0	19200 BAUD, 7 BITS	

5b

C38 PRINTOUT LINE LENGTH		
KEY	LINE LENGTH	ENTRY
#	80 COLUMN, 1 LINE	
8	40 COLUMN, 2 LINES	

6

INTERCOM FIRST CHOICE SIGNALLING		
KEY	SIGNALLING	ENTRY
RECALL	VOICE	
SAVE	TONE	

7

# CENTRAL MESSAGE DESK	
KEY	ASSIGNED STATION
(010-105)	
*	NONE ASSIGNED

8

C33 RECALL TIME FOR UNANSWERED CALL TRANSFER		
KEY	TIME	ENTRY
1	10 SEC.	
2	20 SEC.	
3	25 SEC.	
4	30 SEC.	
5	45 SEC.	
6	60 SEC.	
7	90 SEC.	
8	120 SEC.	
9	180 SEC.	
0	240 SEC.	

9

ASSIGNMENT OF STATION TYPES	
STATION TYPE	
C18	32-KEY CONSOLE WITHOUT CALL ANNOUNCE
C19	32-KEY CONSOLE WITH CALL ANNOUNCE
C20	LCD TELEPHONE
C22	SINGLE LINE/HOTEL
C23	3/8 LINE KEYSET
C24	EXECUTECH II MULTILINE TELEPHONE
C25	SINGLE LINE/ADMINISTRATION

PORT ID	STATION TYPE ASSIGNED	DIALING EXTENSION	LOCATION OF STATION
010		110	
011		111	
012		112	
013		113	
014		114	
015		115	
016		116	
017		117	
018		118	
019		119	
020		120	
021		121	
022		122	
023		123	
024		124	
025		125	
026		126	
027		127	
028		128	
029		129	
030		130	
031		131	
032		132	
033		133	
034		134	
035		135	
036		136	
037		137	
038		138	
039		139	
040		140	
041		141	
042		142	
043		143	
044		144	
045		145	
046		146	
047		147	
048		148	
049		149	
050		150	
051		151	
052		152	
053		153	
054		154	
055		155	
056		156	
057		157	
058		158	
059		159	
060		160	
061		161	
062		162	
064		164	
065		165	
066		166	
067		167	
068		168	
069		169	

FOR 2296X SYSTEM ONLY

ASSIGNMENT OF STATION TYPES	
STATION TYPE	
C18	32-KEY CONSOLE WITHOUT CALL ANNOUNCE
C19	32-KEY CONSOLE WITH CALL ANNOUNCE
C20	LCD TELEPHONE
C22	SINGLE LINE/HOTEL
C23	3/8 LINE KEYSET
C24	EXECUTECH II MULTILINE TELEPHONE
C25	SINGLE LINE/ADMINISTRATION

PORT ID	STATION TYPE ASSIGNED	DIALING EXTENSION	LOCATION OF STATION
070		170	
071		171	
072		172	
073		173	
074		174	
075		175	
076		176	
077		177	
078		178	
079		179	
080		180	
081		181	
082		182	
083		183	
084		184	
085		185	
086		186	
087		187	
088		188	
089		189	
090		190	
091		191	
092		192	
093		193	
094		194	
095		195	
096		196	
097		197	
098		198	
099		199	
100		200	
101		201	
102		202	
103		203	
104		204	
105		205	

10 CI 0 ASSIGN CONSOLE PAIRS TO CONSOLE PORT PAIRS

PORT/KEY				A	B	KEY
10/C10	11/C11	42/C12	43/C13			
				70 KEY	32 KEY	C10
				70 KEY	40 KEY	C11
				70 KEY	70 KEY	C12
				40 KEY	32 KEY	C13
				40 KEY	40 KEY	C14
				32 KEY	32 KEY	C15

11

C38 BAUD RATE OF TAPE DATA		
KEY	BAUD RATE	ENTRY
RECALL	100	
SAVE	50	

TOLL RESTRICTION PROGRAMMING REFERENCE TABLES

TABLE ENTRY PROCEDURE

1. Determine the types of dialing restrictions which must be imposed on the system. Typically, this includes access codes which result in toll charges, and certain local numbers as desired.
2. If the restricted dialing codes will be imposed consistently on most or all stations in the system, list them on one or two tables. If wide variation in the dialing restrictions is planned, 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 numbers entered in the DENY table are prevented from being dialed. 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, system speed dial numbers will not be toll restricted unless specified by station COS programming.

   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. Enter the # character 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 an 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 have been created.
7. If the system is installed behind a PBX, include an access code as part of every table entry.
8. Once these tables are completely filled out, enter the restriction planning tables on the fine, and station programming reference charts to record the planned toll restrictions for the system.

TOLL RESTRICTION PROGRAMMING REFERENCE TABLES

. Tables 1 and 2 defaulted as shown.

TOLL RESTRICTION TABLE 1
TYPE: ALLOW DENY X
ENTRY ENTRY NUMBER (16 MAXIMUM)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	1															
2	9	7	6													
3	4	1	1													
4																

TABLE ASSIGNMENT: LINES ALL STATIONS

TOLL RESTRICTION TABLE 5
TYPE: ALLOW DENY
ENTRY ENTRY NUMBER (16 MAXIMUM)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1																
2																
3																
4																

TABLE ASSIGNMENT: LINES STATIONS

TOLL RESTRICTION TABLE 2
TYPE: ALLOW X DENY
ENTRY ENTRY NUMBER (16 MAXIMUM)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	1	8	0	0												
2	9	1	1													
3																
4																

TABLE ASSIGNMENT: LINES ALL STATIONS

TOLL RESTRICTION TABLE 6
TYPE: ALLOW DENY
ENTRY ENTRY NUMBER (16 MAXIMUM)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1																
2																
3																
4																

TABLE ASSIGNMENT: LINES STATIONS

TOLL RESTRICTION TABLE 3
TYPE: ALLOW DENY
ENTRY ENTRY NUMBER (16 MAXIMUM)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1																
2																
3																
4																

TABLE ASSIGNMENT: LINES STATIONS

TOLL RESTRICTION TABLE 7
TYPE: ALLOW DENY
ENTRY ENTRY NUMBER (16 MAXIMUM)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1																
2																
3																
4																

TAKE ASSIGNMENT: LINES STATIONS

TOLL RESTRICTION TABLE 4
TYPE: ALLOW DENY
ENTRY ENTRY NUMBER (16 MAXIMUM)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1																
2																
3																
4																

TABLE ASSIGNMENT: LINES STATIONS

TOLL RESTRICTION TABLE 8
TYPE: ALLOW DENY
ENTRY ENTRY NUMBER (16 MAXIMUM)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1																
2																
3																
4																

TABLE ASSIGNMENT: LINES STATIONS

TOLL TABLES - CONT.

TOLL RESTRICTION TABLE 9
TYPE: ALLOW DENY
ENTRY ENTRY NUMBER 116 MAXIMUM1

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1																
2																
3																
4																

TABLE ASSIGNMENT: LINES STATIONS

TOLL RESTRICTION TABLE 13
TYPE: ALLOW DENY
ENTRY ENTRY NUMBER (16 MAXIMUM)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1																
2																
3																
4																

TABLE ASSIGNMENT: LINES STATIONS

TOLL RESTRICTION TABLE 10
TYPE: ALLOW DENY
ENTRY ENTRY NUMBER (16 MAXIMUM)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1																
2																
3																
4																

TABLE ASSIGNMENT: LINES STATIONS

TOLL RESTRICTION TABLE 14
TYPE: ALLOW DENY
ENTRY ENTRY NUMBER (16 MAXIMUM)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1																
2																
3																
4																

TABLE ASSIGNMENT: LINES STATIONS

TOLL RESTRICTION TABLE 11
TYPE: ALLOW DENY
ENTRY ENTRY NUMBER (16 MAXIMUM)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1																
2																
3																
4																

TABLE ASSIGNMENT: LINES STATIONS

TOLL RESTRICTION TABLE 15
TYPE: ALLOW DENY
ENTRY ENTRY NUMBER (16 MAXIMUM)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1																
2																
3																
4																

TABLE ASSIGNMENT: LINES STATIONS

TOLL RESTRICTION TABLE 12
TYPE: ALLOW DENY
ENTRY ENTRY NUMBER (16 MAXIMUM)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1																
2																
3																
4																

TABLE ASSIGNMENT: LINES STATIONS

TOLL RESTRICTION TABLE 16
TYPE: ALLOW DENY
ENTRY ENTRY NUMBER (16 MAXIMUM)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1																
2																
3																
4																

TABLE ASSIGNMENT: LINES STATIONS

LINE COS PROGRAMMING REFERENCE TABLE

. Shading denotes system default conditions.
. Check off the values chosen for the system being programmed.

To enter base level: ITCM • 7 4 6 *

SELECTED FEATURE — LINE ASSIGNMENT (SEE NOTES)

			B1 1	B2 2	B3 3	B4 4	B5 5	B6 6	B7 7	B8 8	A7 9	A14 10	A6 11	A13 12	A5 13 **	A12 14 **	A4 15 **	A11 16 **	A3 17	A10 18	A2 19	A9 20	A1 21	A6 22
	SELECT	C38 DISABLED																						
3	LINE TYPE	C39 AUXILIARY																						
		C40 CO/PBX																						
	LINE GROUPS	C34 GROUP 1																						
4		C35 GROUP 2																						
		C36 GROUP 3																						
		C37 GROUP 4																						
		C41 NONE																						
5	DIAL MODE	C26 PULSE/TONE																						
		C27 TONE ONLY																						
6	PRIVACY MODE	C29 NON-PRIVATE																						
		C28 PRIVATE																						
7	TOLL RESTRICTION TABLE ASSIGMENT	C10 1																						
		C11 2																						
		C12 3																						
		C13 4																						
		C14 5																						
		C15 6																						
		C16 7																						
		C17 8																						
		C18 9																						
		C19 10																						
		C20 11																						
		C21 12																						
		C22 13																						
		C23 14																						
		C24 15																						
		C25 16																						
		C33 NONE																						
8	ABANDON HOLD TIMEOUT	C30 300 MSEC.																						
		C31 50 MSEC.																						

CO/PBX NUMBERS AND STATION ASSIGNMENTS

NOTES

1. Power Fail Lines 1, 2, 3, 4

STATION COS PROGRAMMING REFERENCE TABLE
(Copy This Table To Provide Additional Reference Sheets)

. Shading denotes system default.
. Check off the values chosen for the line being programmed.

To enter base level: **ITCM** * 7 4 6 • .
To enter station programming: C41.
Enter station port number.

To default: Dial port number; press **SAVE.**

STATION IDENTIFICATION FROM SYSTEM COS TABLE	
PORT NUMBER	
STATION TYPE	
EXTENSION NUMBER	
LOCATION	

		DISABLED	ENABLE	KEY
5	PA PORT			C10
6	VOICE BLOCK			C11
7	EXECUTIVE OVERRIDE			C12
8	SYSTEM SPEED DIAL TOLL RESTRICTION			C13
11	AUTOMATIC HOLD			C26
12	MESSAGE WAIT ORIGINATE			C27

9	PERSONAL RINGING TONE	
	1	C14
	2	C15
	3	C16
	4	C17

STATION COS - CONT.

OPX THROUGH-DIALING	
C28	ENABLE
C29	DISABLE

13

PRIME INTERCOM/LINE/GROUP AUTOMATIC																					
NONE																					
INTERCOM	ITCM																				
LINE	1 B1	2 B2	3 B3	4 B4	5 B5	6 B6	7 B7	8 B8	9 A7	10 A14	11 A6	12 A13	13 A5	14 A12	15 A4	16 A11	17 A3	18 A10	19 A2	20 A9	21 A1	22 A8
GROUP	1 C34	2 C35	3 C36	4 C37																	

14

RINGING LINE PREFERENCE		
DISABLED	ENABLE	C40

15,16

RINGING ASSIGNMENT FOR LINES	1 B1	2 B2	3 B3	4 B4	5 B5	6 B6	7 B7	8 B8	9 A7	10 A14	11 A6	12 A13	13 A5	14 A12	15 A4	16 A11	17 A3	18 A10	19 A2	20 A9	21 A1	22 A8
C18 RINGING																						
C19 DELAYED RINGING																						
C20 NIGHT RINGING																						
DEFAULTS TO RINGING ON ALL LINES FOR STATIONS 10, 17, 39, AND 41.																						

17-20

FEATURE ASSIGNMENT FOR STATION LINES	1 B1	2 B2	3 B3	4 B4	5 B5	6 B6	7 B7	8 B8	9 A7	10 A14	11 A6	12 A13	13 A5	14 A12	15 A4	16 A11	17 A3	18 A10	19 A2	20 A9	21 A1	22 A8
C21 AUTO PRIVACY RELEASE																						
C22 ACCESS DENIED																						
C23 CALL ORIG. DENIED																						
C24 IDLE LINE PREFERENCE																						
DEFAULTS TO NO FEATURE ASSIGNED																						

21

C25 TOLL TABLE ASSIGNMENT																
NONE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	C10	CI1	CI2	CI3	CI4	CI5	CI6	CI7	CI8	CI9	C20	C21	C22	C23	C24	C25

22

# RESERVE INTERCOM LINK							
NONE	1	2	3	4	5	6	7
0	1	2	3	4	5	6	7
PRESS KEY C18 TO CONTINUE PROGRAMMING FROM THIS POINT							

STATION COS - CONT.

23

#ALL-CALL AND ZONE PAGING				
	ZONE A	ZONE B	ZONE C	ALL-CALL
RECEIVE	A5	A6	A7	A8
ORIGINATE	A1	A12	A3	A4
CLEAR RECALL				
PRESS KEY C18 TO CONTINUE PROGRAMMING FROM THIS POINT				

24

KEY MAPPING - 3 and 8 Line Keysets

STATION KEY	B1	B2	B3	B4	B5	B6	B7	B8
DEFAULTLINE	1	2	3	4	5	6	7	6
ASSIGNED LINE								
BLANK OR AUTO DIAL								

CHOOSE BLANK OR AUTO DIAL WITH RECALL

LINE	KEY	LINE	KEY	LINE	KEY
1	B1	9	A7	17	A3
2	B2	10	A14	18	A10
3	B3	11	A6	19	A2
4	B4	12	A13	20	A9
5	B5	13	A5	21	A1
6	B6	14	A12	22	A8
7	B7	15	A4		
8	B8	16	A11		

24

KEY MAPPING Executech II Multiline Telephone

STATION KEY	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12	A13	A14	B1	B2	B3	B4	B5	B6	B7	B8
DEFAULT LINE	21	19	17	15	13	11	9	22	20	18	16	14	12	11	1	2	3	4	5	6	7	8
ASSIGN LINE																						
BLANK OR AUTO DIAL																						
DYNAMIC LINE KEY																						

CHOOSE LINES WITH KEYS FROM CHART

CHOOSE BLANK, AUTO DIAL, OR DYNAMIC LINE KEY WITH RECALL

LINE	KEY	LINE	KEY	LINE	KEY
1	B1	9	A7	17	A3
2	B2	10	A14	18	A10
3	B3	11	A6	19	A2
4	B4	12	A13	20	A9
5	B5	13	A5	21	A1
6	B6	14	A12	22	A8
7	B7	15	A4		
8	B8	16	A11		

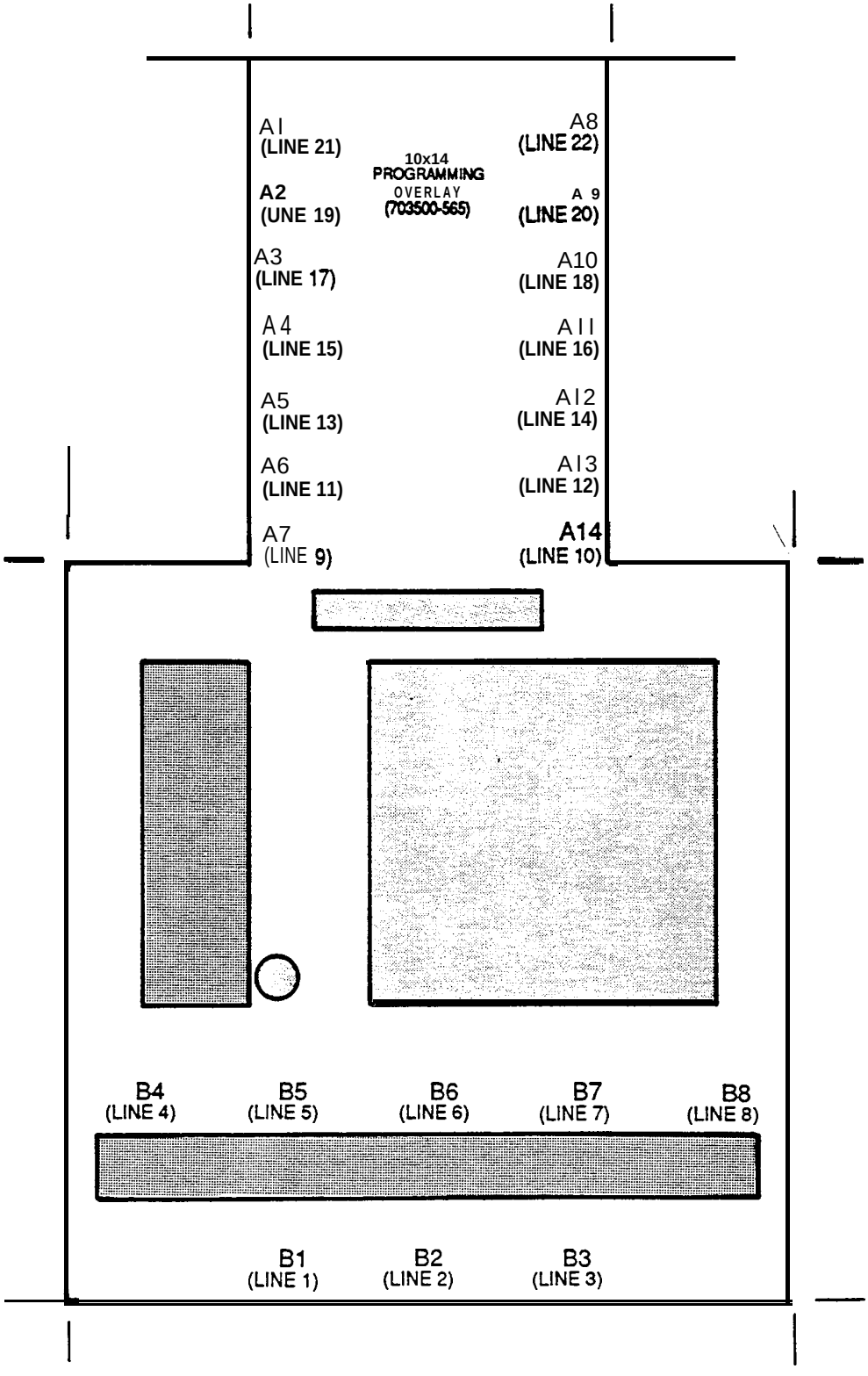
* HOLD BLOCK PROGRAMMING	
MODEL PORT	010-105
FIRST PORT IN BLOCK	010-105
LAST PORT IN BLOCK	010-105

C31 HUNT GROUPS

	PORT 010-105															
GROUP	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1																
2																
3																
4																
5																
X																
X																
X																
X																
X																
NONE																

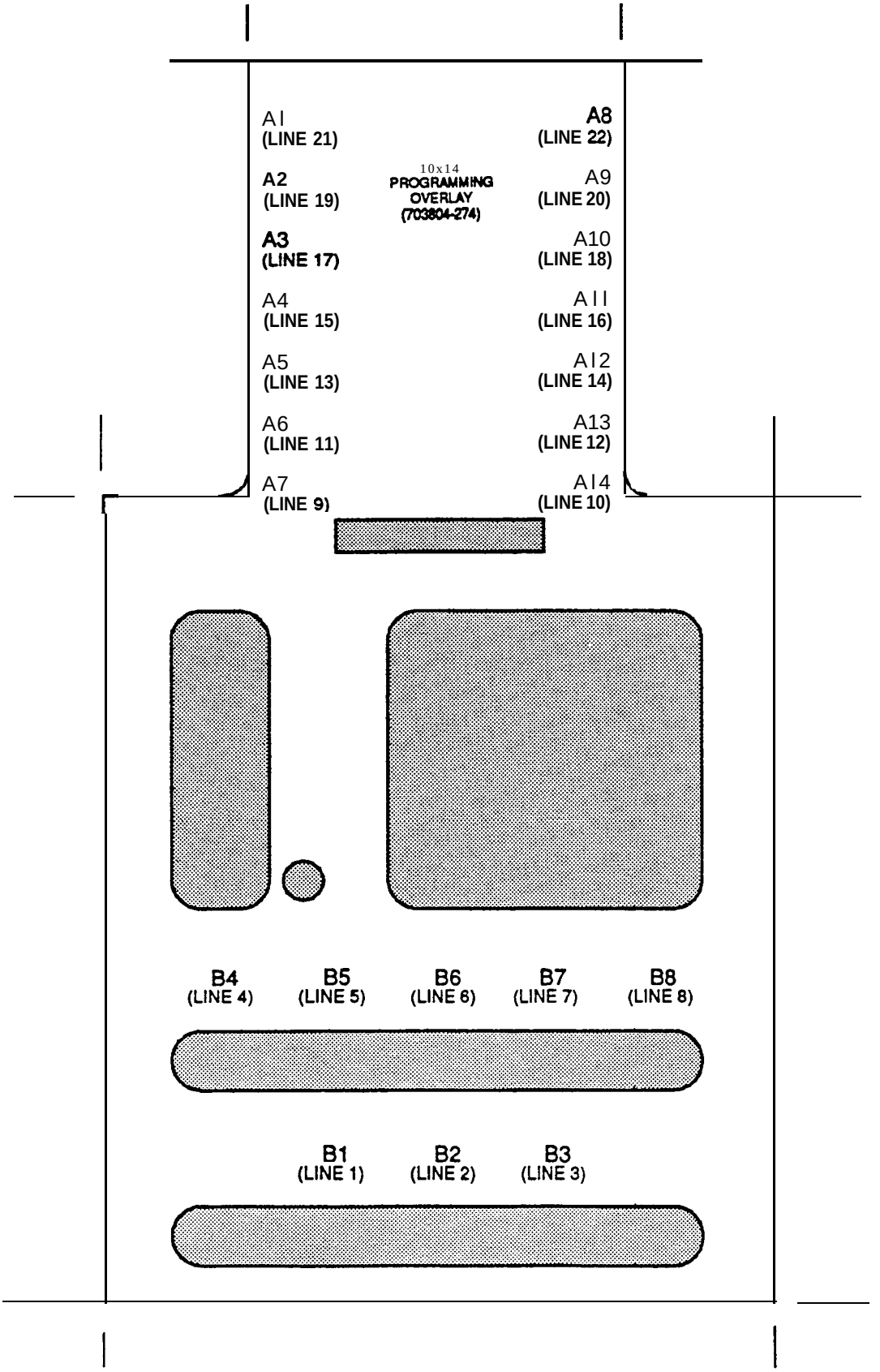
STATION 10 - PROGRAMMING OVERLAY

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



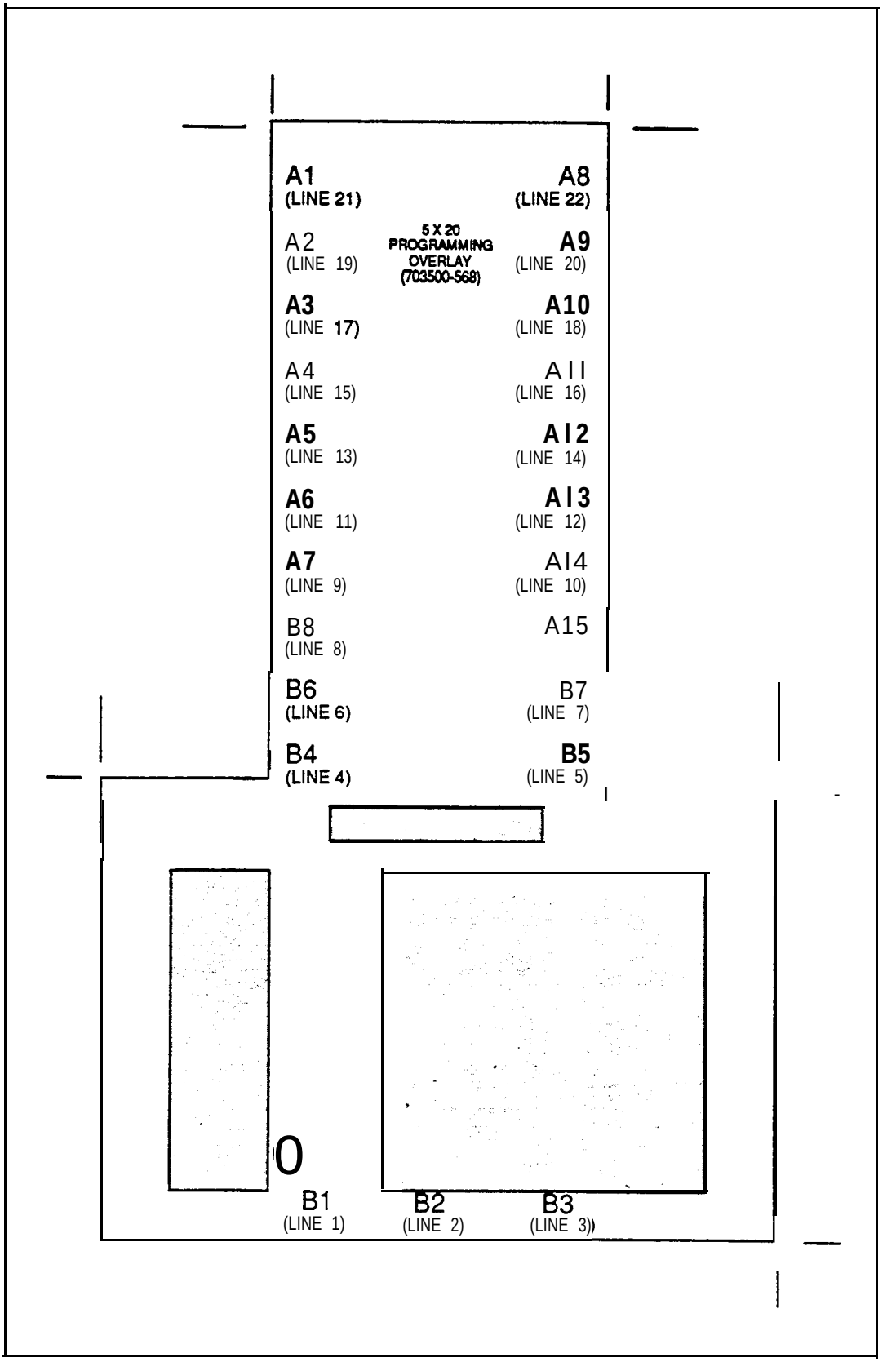
STATION 10 - PROGRAMMING OVERLAY

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



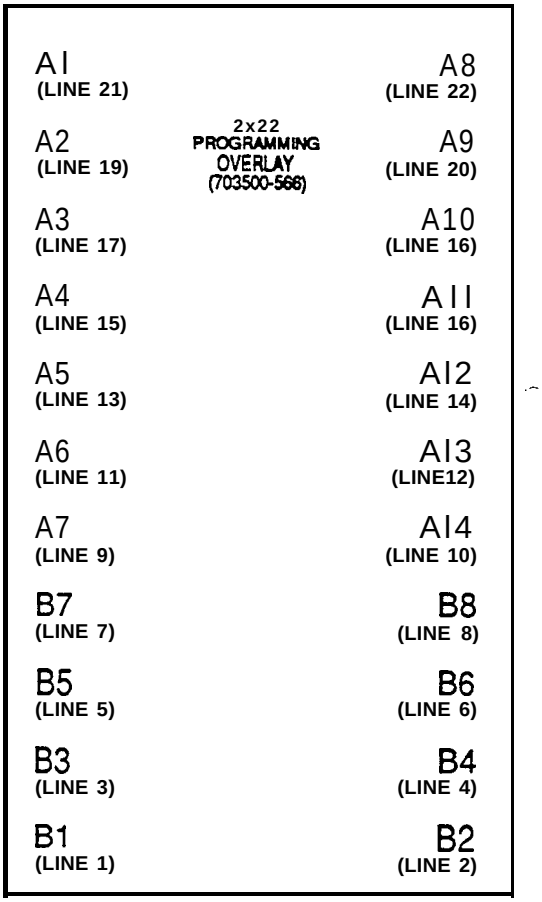
STATION 10 - PROGRAMMING OVERLAY

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



STATION 10 - PROGRAMMING OVERLAY

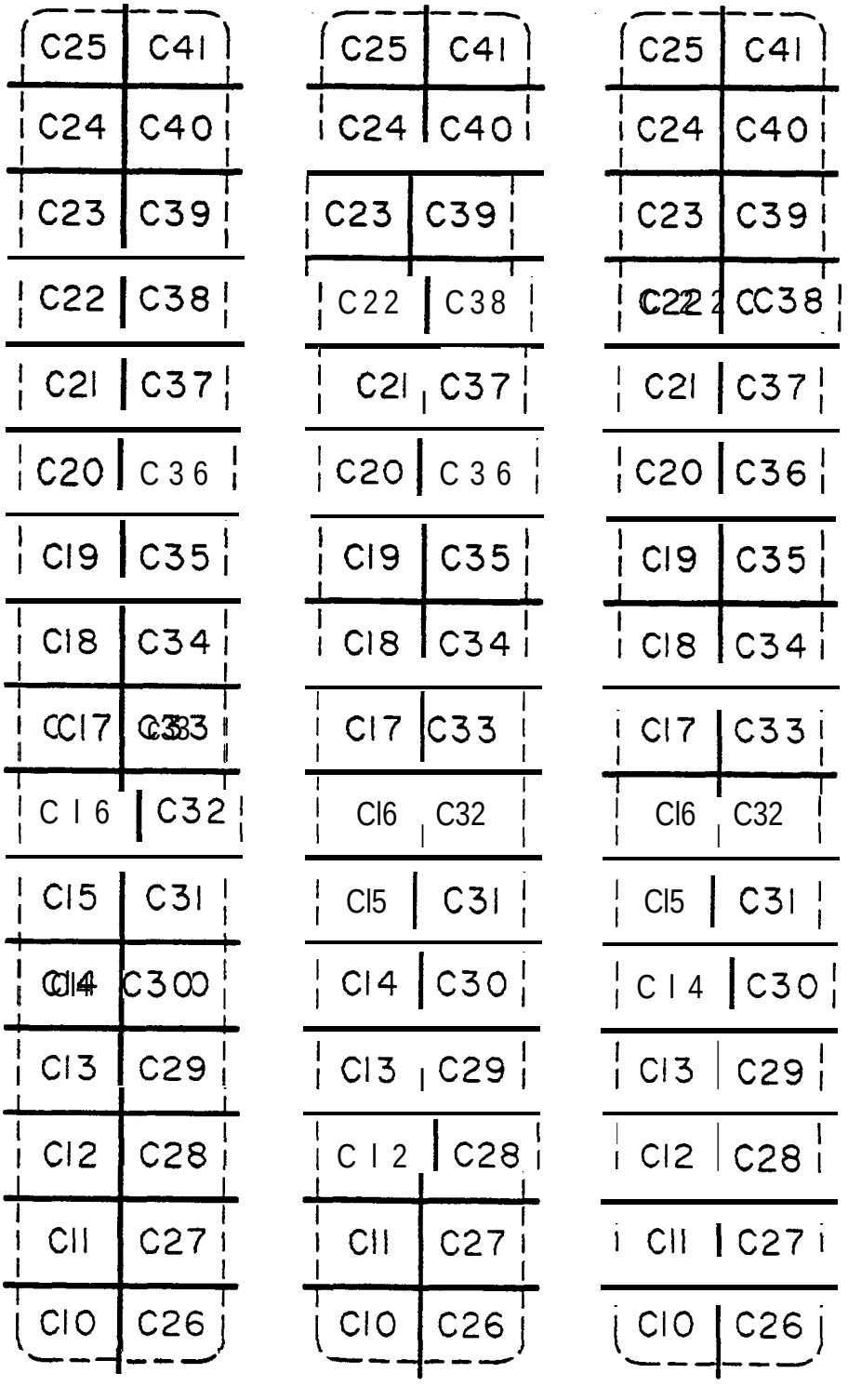
- Cut out along border.
- Cut out shaded openings.
- Fit over station faceplate.



STATION 10 - PROGRAMMING OVERLAY

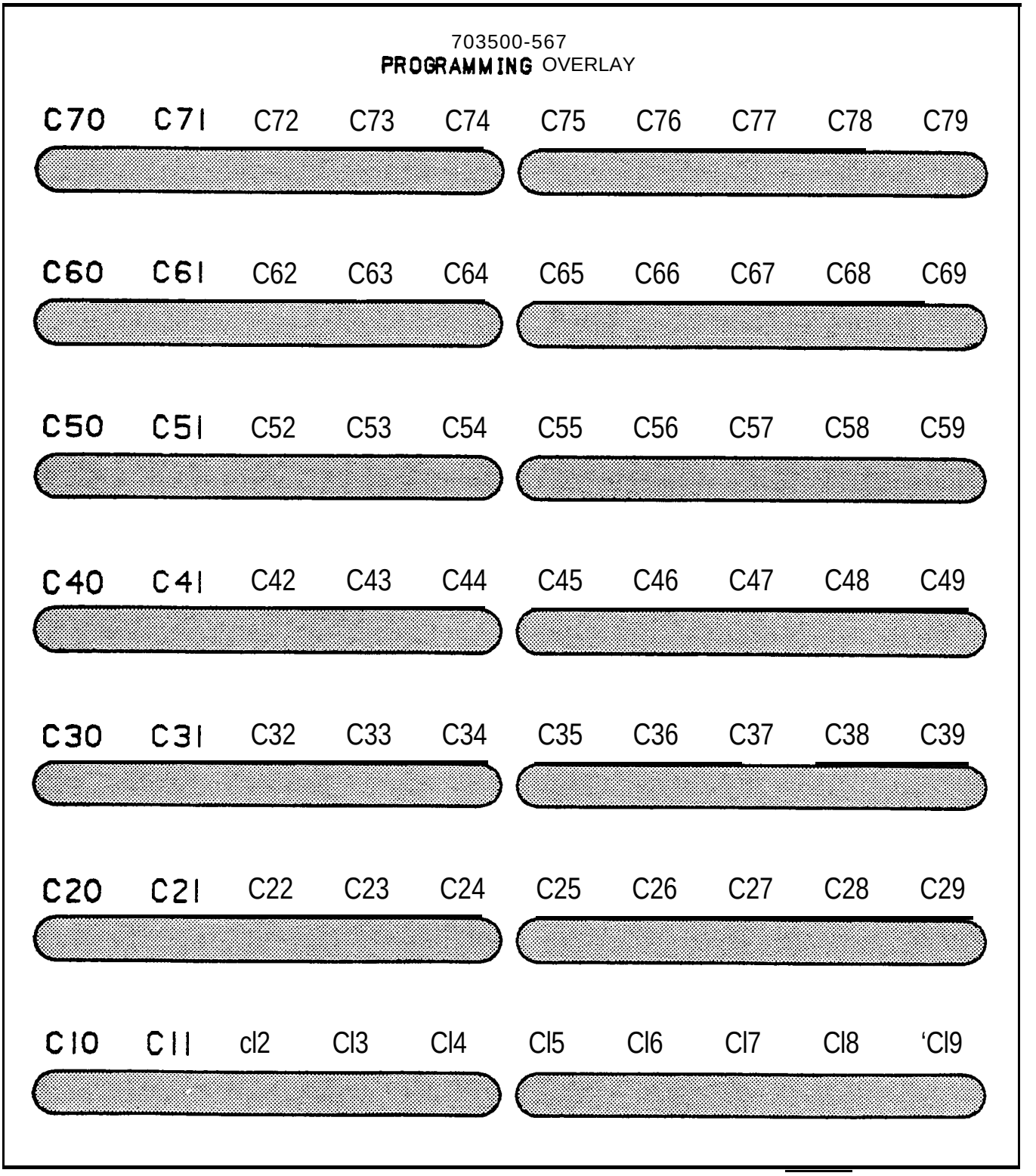
- Cut out along border.
- Cut out shaded openings.
- Fit over station faceplate.

PROGRAMMING OVERLAY. 32 BUTTON DSS/BLF
703804-456



CONSOLE - PROGRAMMING OVERLAY

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



CHAPTER 4
HAINTEBANCE

TECHNICAL ASSISTANCE AND REPAIR SERVICE

Technical Assistance

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

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

Repair Service

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

Comdial
P.O. Box 7266
Charlottesville, VA 22906
Attention: Repair Department
Telephone: (804) 978-2400
l-800-877-4448

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

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

FUSE LOCATION

The system is protected against short circuit damage by fuses located on the power supply chassis. Fuse location and value and the output voltages of the power supply are shown in Figure 4-l. Always replace a fuse with one of the same value and type, otherwise, equipment damage could result.

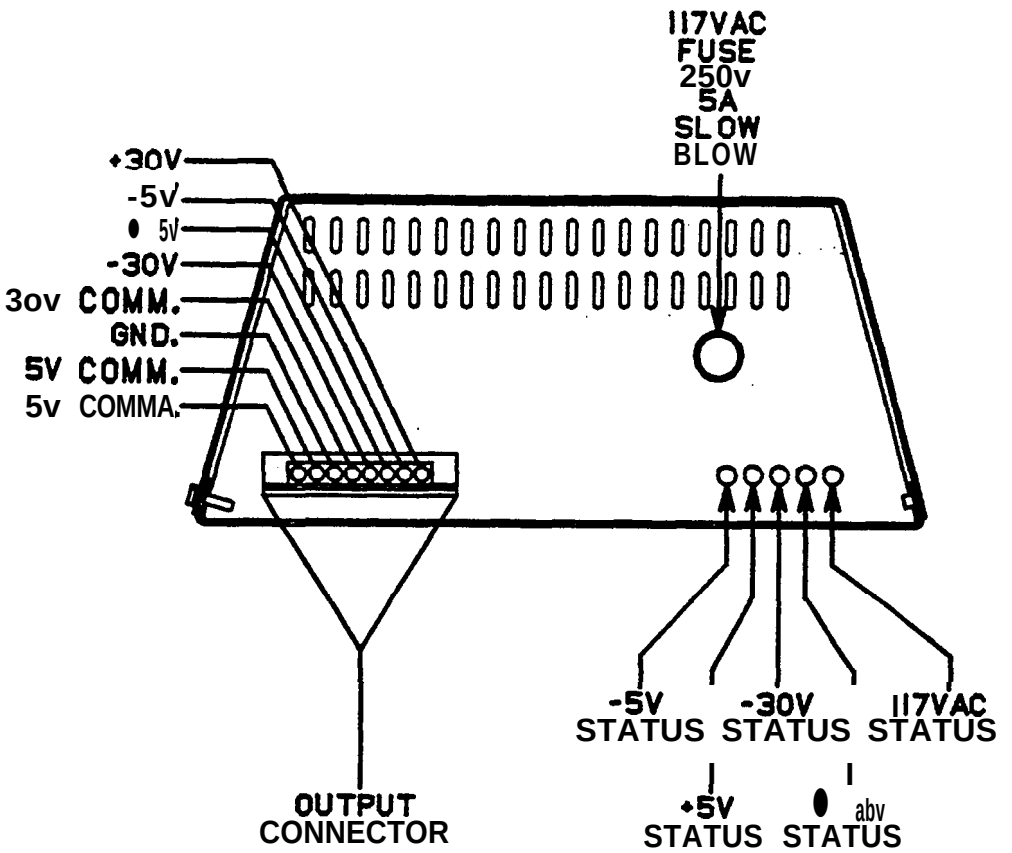


Figure 4-1. Fuse Location And Value and Power Supply Output Values

FAILURE ISOLATION

Wiring

Refer to the installation check out procedure for instructions for testing the system wiring for possible failure.

System Status Indicator

The power supply contains five red LED indicators. When these LEDs are on, they indicate that their corresponding power supply voltages are operational.
A red LED located on the commom equipment cabinet near the cassette/music port is the system status indicator. This indicator is turned on steady when power is applied to the system. If the indicator flashes after power up, it could be indicating a processor failure. Unplug and reconnect the AC power to the power supply and observe the LED indication. If it still shows a flashing indication, refer to Figure 4-2.

. Station Self Test

The multiline stations can be self tested for proper operation per the following instructions.

1. Disconnect the line cord at the station base.

IMPORTANT NOTE THE ADJACENT ODD OR EVEN STATION WILL BE DISABLED DURING THE TIME THAT THE STATION LINE CORD IS BEING DISCONNECTED OR RECONNECTED.

2. Press and hold the MUTE key, and reconnect the line cord to the station connector. The station will automatically perform a self test routine. Release the MUTE key as soon as the test begins. The sequence of the test is as follows:

3 AND 8 LINE KEYSET	
SEQUENCE	INDICATION
1	B-Field indicators light in turn and stay on
2	ITCM indicator lights
3	MONITOR indicator lights
4	All indicators extinguish in same order as lighted
5	Ringer sounds (be sure volume is set to med. or high)
EXECUTECH II MULTILINE TELEPHONE	
SEQUENCE	INDICATION
1	MONITOR indicator lights
2	B-Field indicators light in turn and stay on
3	HOLD indicator lights
4	ITCM indicator lights
5	A-Field indicators light in turn and stay on
6	All indicators extinguish
7	Ringer sounds (be sure volume is set to med. or high)

3. Replace any station that does not pass the self test.

DSS/BLF Console Self Test

Test the DSS/BLF Console for proper lamp operation per the following procedure.

1. Disconnect the console line cord plug from the line.

2. Press and hold console key Cl0 while reconnecting the line cord plug to the line.

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

3.. Release console key C10, and note that the BLF indicators will each turn on in sequence beginning with the station 10 indicator. The indicators will then turn off and the console will become operational.

Paired Stations

Station ports 10 through 41 are paired for data and for overload protection as shown below. Console ports are not paired with any other port.

DATA PAIRING	OVERLOAD PAIRING		
10 - 11	52 - 53	10 - 12	58 - 60
CON 10a - 10b	54 - 55	11 - 13	59 - 61
12 - 13	56 - 57	14 - 16	62 - 64
CON 11a - 11b	58 - 59	15 - 17	63 - 65
14 - 15	60 - 61	18 - 20	66 - 68
16 - 17	62 - 63	19 - 21	67 - 69
18 - 19	64 - 65	22 - 24	70 - 72
20 - 21	66 - 67	23 - 25	71 - 73
22 - 23	68 - 69	26 - 28	74 - 76
24 - 25	70 - 71	27 - 29	75 - 77
26 - 27	72 - 73	30 - 32	78 - 80
28 - 29	74 - 75	31 - 33	79 - 81
30 - 31	76 - 77	34 - 36	82 - 84
32 - 33	78 - 79	35 - 37	83 - 85
34 - 35	80 - 81	38 - 40	86 - 88
36 - 37	82 - 83	39 - 41	87 - 89
38 - 39	84 - 85	42 - 44	90 - 92
40 - 41	86 - 87	43 - 45	91 - 93
42 - 43	88 - 89	46 - 48	94 - 96
CON 42a - 42b	90 - 91	47 - 49	95 - 97
44 - 45	92 - 93	50 - 52	98 - 100
CON 43a - 43b	94 - 95	51 - 53	99 - 101
46 - 47	96 - 97	54 - 56	102 - 104
48 - 49	98 - 99	55 - 57	103 - 105
50 - 51	100 - 101	CONSOLE PORTS ARE NOT	
	102 - 103	OVERLOAD PAIRED	
	104 - 105		

If erratic light indications or ring signals occur at a paired station, an open data pair at either station may be the fault. A station with an open data line may work properly on a short loop but fail on a'long loop. Test the wiring of stations showing this symptom per the checkout procedure given in Chapter 2.

If a fault occurs which.causes more than 300 ma. of current to be drawn, the overload paired stations are disabled by circuit action. Disconnect the disabled stations and reconnect them one at a time to isolate the faulty one.

Failure Analysis Common Equipment And Station

Figure 4-2 details a failure analysis flow chart to assist a service technician in isolating a failure in a defective system. One way to isolate a failure is to substitute a known good assembly for a suspected one. This is the recommended failure isolation method to use with the system.

Connecting and disconnecting stations to the system does not affect the stored station auto/speed dial memory data. This data is stored in the KSU memory and not at the individual stations. Replacing the KSU, however, causes all stored memory to be lost. This includes all memory dialing numbers as well as all COS programming data.

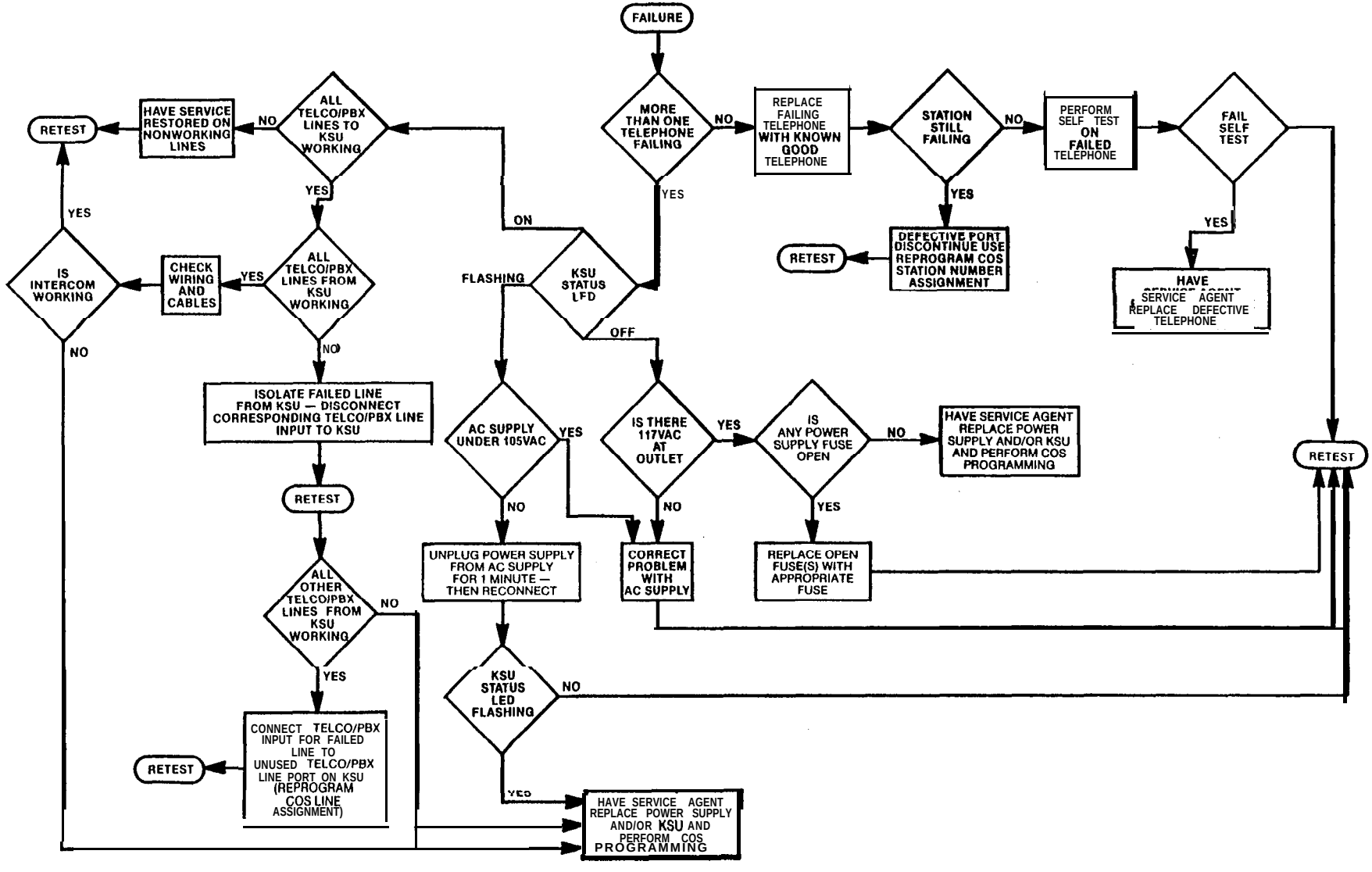


Figure 4-2. Failure Analysis Flow Chart

DESK/WALL REVERSAL AND WALL MOUNTING
(Executech II Multiline Telephone and Single-Line Keyset, Only)

Conversion

To convert a station from a standard desk model to one which can be hung on the wall, follow the procedure outlined below.

1. Remove and discard the pull out directory (Executech II Multiline Keyset, only).

2. Remove the lower housing of the station; and rotate it 180 degrees.

CAUTION: The PWB contains circuitry which is sensitive to static electricity discharge. Be sure that your body and the workplace are properly grounded to avoid any static electricity discharge while performing the desk/wall reversal.

3. Remove the knockouts from the desired mounting holes as illustrated in Figure 4-3.

4. Replace the lower housing. Make sure that all wires are clear.

Wall Mounting

Mount the station directly on the wall using two, #10, panhead screws (obtained locally), or mount it on a wall jack cover plate.

1. Thread the #10 screws into the wall within 1/8-inch of the surface. Refer to Figure 4-3 for the spacing dimensions.

2. Insure that the housing is converted properly for a wall mounting installation (see above instructions).

3. Pull out the latching lever.

NOTE: The latching lever is not present on all Executech telephone models.

4. Position the keyhole shaped holes in the bottom of the station over the #10 screws or the cover plate studs. Slide the station down until a slight click is felt.

5. Push the latching lever in to lock the station in place.

6. To remove the station, pull out the latching lever, lift to unsnap both screws or studs from the bottom housing, and lift the station away from the wall.

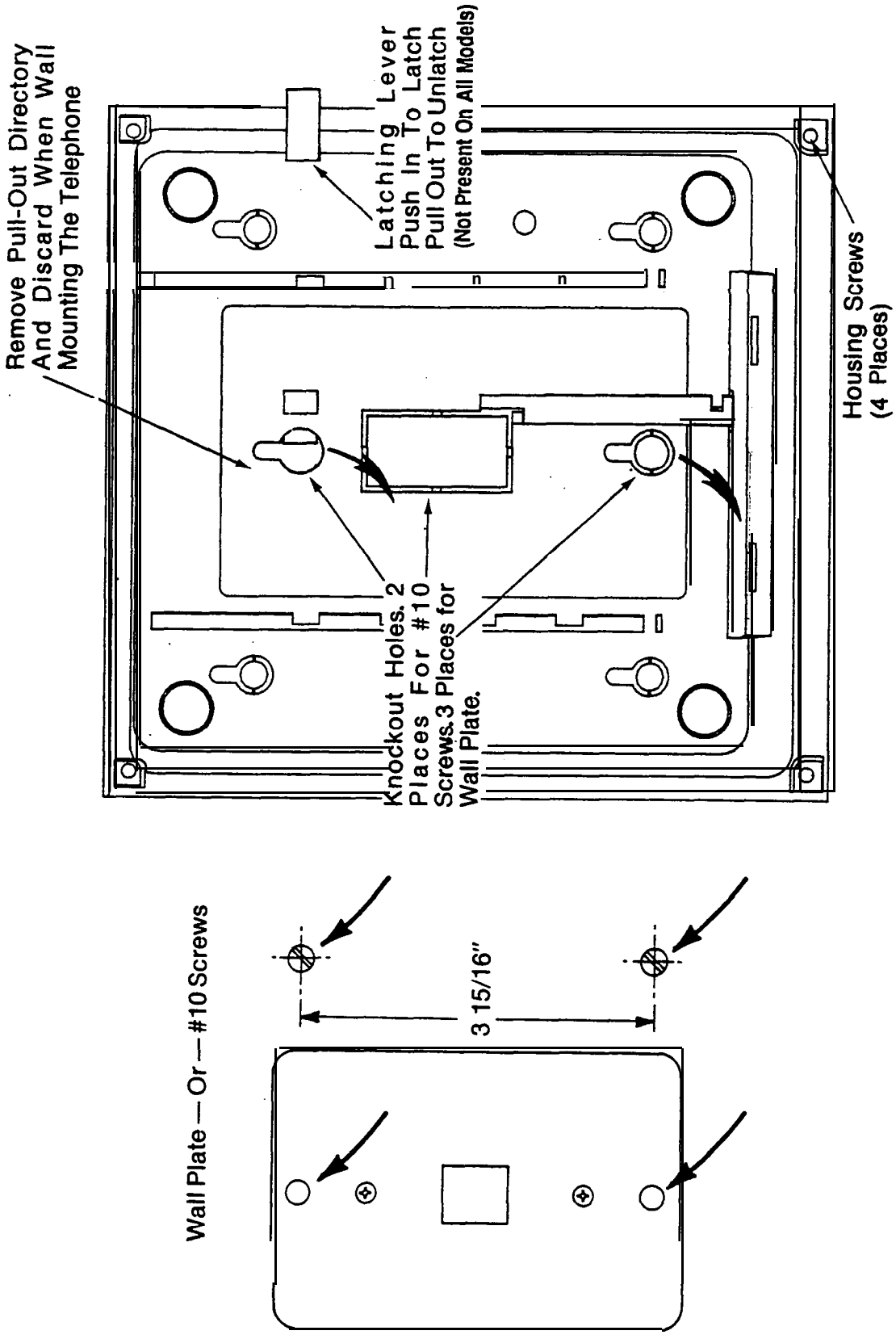


Figure 4-3. Station Wall Mounting Details
(Note: Executech II Multiline Telephone shown - Single-Line [at similar)

GLOSSARY OF TERMS

Abandoned hold timeout: The length of time between when a distant party abandons a hold condition and when the line returns to an idle state is programmable.

Access denied: Access to particular lines can be denied at certain stations by class of service.

All-call and zone paging: Multiline station can receive voice announcements through the telephone speaker.

Area paging: Dialing an access code or pressing dedicated line key can provide access to an external paging amplifier.

Automatic call-back: System will ring a calling telephone when a busy called telephone becomes idle.

Automatic dialing: Memory keys can be programmed to store numbers for automatic dialing purposes.

Automatic hold: Automatically holds line calls when moving from line to line without pressing hold key.

Automatic pause insertion: When the system stores a dialed number for later redial, it automatically stores a pause whenever the user waits at least two seconds between digits. Pressing the HOLD key during dialing also causes a pause to be stored. The length of the pause is programmable.

Automatic privacy: A line can be made private or non-private by class of service. Another station cannot join a call on a private line unless privacy is released.

Automatic redial: The last number previously dialed can be automatically redialed by the telephone. Redial occurs once a minute for ten minutes or until answered.

Automatic wake-up service: Attendant can enter the time of day that a given station should be automatically dialed for a wake-up call. The dialed station will ring in a unique manner for a certain period of time when called.

Background music: System provided background music can be turned on and off at individual multiline telephones.

Call forward: User can designate another telephone to receive intercom calls normally directed to the user's telephone.

Call messaging display: Standard and special purpose messages can be set for display on a calling LCD Speakerphone.

Call messaging light: The busy lamp field light for a calling telephone can be turned on at a called telephone to serve as a call-back signal.

Call origination denied: The ability to originate calls can be denied at certain stations.

Call park: An active call at a particular telephone can be placed in system storage and retrieved by any telephone.

Call pickup: A call can be answered at one telephone when it is ringing at another telephone.

Call waiting tones: A signal can be sent to a busy telephone indicating that a call is waiting.

Central message desk: One station can be arranged for exclusive messaging waiting control. This station can control message waiting lights and deliver messages to and from all other stations in the systm.

Direct telephone selection/busy lamp field: One-key intercom calling with visual indication of telephone status.

Do not distarb: Incoming call ringing and intercom calling are disabled.

Dynamic line key: System temporarily assigns a normally unassigned line to an idle line key for certain call handling operations.

Exclusive hold: Only the telephone placing call on hold can retrieve it.

Executive override: A calling telephone can break into a conversation at a busy called telephone.

Flexible key assignment: Class of service determines key functions of multiline telephones.

Hunt group: Station ports can be linked together into a single group for call answering purposes. When an intercom call is made to a busy station in a group, the call will ring at the next idle extension in the group.

Idle line preference: With this feature, going off-hook automatically selects an idle line for use.

Last number redial: The last number previously dialed can be automatically redialed.

Line groups: System arrangement which groups certain lines together in up to four different groups. This feature allows lines to be accessed by dialing line group codes.

Line monitoring: Monitoring of dialing and call progress with the handset on-hook.

Line queuing: A telephone can be placed in a condition where it awaits the availability of a line or line group.

Message waiting: A light can be activated at a telephone by a central message desk telephone to indicate that a message awaits pick-up.

Mute: A user's voice can be blocked to the distant party during a call.

Bight transfer (of ringing): The day ringing of all incoming calls can be transferred to a particular station or stations for off-hour or special purpose answering.

OPX through dialing: The system DTMF generator is either inhibited from sending or enabled to send tones on the line. Th choice is determined by whether the device attached to the OPX accessory unit can provide address signalling on it's own or is not capable of this function.

Personal ringing tones: A multiline station can be arranged to ring in one of four distinctive tones.

Prime line or group: A line or group designated to a particular telephone and automatically selected when that telephone is taken off-hook.

Privacy release: A line can be made non-private at a particular station and remain private at all other stations.

Pulse/Tone switching: A switch between pulse (rotary dial signals) and tone (dual tone multiple frequency signals) signalling can be effected.

Recall/flash: Either a recall (line disconnect or hang-up) or flash (PBX feature select signal) can be generated.

Reserved intercom link: An intercom link can be reserved for exclusive use at a particular station.

Ringing line preference: A ringing line will automatically be answered when a station is taken is taken off-hook.

Saved Number Redial: The last number previously dialed can be saved and automatically redialed later.

Screened transfer: Transferred call is identified before transfer is made.

Station speed dialing: A personal list of numbers can be programmed for automatic dialing by a user.

System speed dialing: A special system-wide list of numbers are available for automatic dialing by all users.

Timed hold recall: After a call has been on hold longer than a programmed length of time, the system will signal the station that placed the call on hold.

Tone or voice signalling: Intercom calls can be tone signalled or voice signalled. The first choice in signalling is programmable.

Unanswered call transfer recall: A transferred call that is unanswered will return to the transferring station after a programmed length of time.

Unscreened transfer: Call is transferred to another telephone without first being identified to it.

Voice signal blocking: A multiline station can be set to block voice calls sent to it over the speaker.

PUBLICATION INDEX

A-Lead Control Device Connections 2-7
Abandoned Hold Timeout ..... G-l, 3-13
AC Power Connection 2-4
Access Denied ..... G-l, 3-16
All-Call and Zone Paging ..... G-l, 3-17
Area Paging Interface - Line Port 2-9
Area Paging Interface - Station PA Port 2-8
Area Paging, PA Port ..... G-l, 3-15
Automatic Call-Back ..... G-l
Automatic Dialing ..... G-l
Automatic Hold ..... G-l, 3-15
Automatic Pause Insertion ..... G-l
Automatic Privacy Release ..... G-l, 3-16
Automatic Redial ..... G-l
Automatic Wake-Up Service ..... G-l
Auxiliary Equipment Interconnection 2-26
Background Music ..... G-l
Base Level Program Entry Mode 3-3
Baud Rate Of Data 3-7
Baud Rate Of Tape Data 3-9
Block Programming 3-19
Block Voice Announced Intercom, Voice Signal Blocking.....G-4. 3-15
Cable Clips 2-4
Call Forward ..... G-l
Call Messaging Display ..... G-l
Call Messaging Light G-2
Call Origination Denied G-2, 3-16
Call Park G-2
Call Pickup G-2
Call Waiting Tones G-2
Cassette Tape Record Of COS Values 3-24
Cassette Tape Recorder Interface 2-10
Central Message Desk G-2, 3-7
Check Out 2-29
Class Of Service Default 3-4
Common Audible and Auxiliary Station Interface.....2-8, 2-24
Common Equipment Connections 2-25
Connection, A-Lead Control Device 2-7
Connection, AC Power 2-4
Connection, Data Device 2-7
Connection, DSS/BLF Console 2-5
Connection, Executive Console 2-5
Connection, Line 2-4
Connection, Power Fail Stations 2-5
Connection, Station Auxiliary Jack 2-6
Connection, Station 2-4
Console Self Test 4-3
Console Type 3-8
COS and SMDR Printout 3-22
Data Device Connections 2-7
Default, Class Of Service 3-4
Defaults, Line COS 3-12

Index - continued

Defaults, Station COS 3-14
Defaults, System COS 3-6
Defaults, Toll Restriction. 3-10
Desk/Wall Reversal And Wall Mounting 4-7
Dialing Mode 3-12
Direct Telephone Selection/Busy Lamp Field.....G- 2
Do Not Disturb G-2
DSS/BLF Console Connections 2-5
Dynamic Line Key G-2, 3-18
Exclusive Hold G-2
Executive Consoles 2-5
Executive Override G-2, 3-15
Failure Analysis Flow Chart 4-6
Failure Analysis 4-5
Failure Isolation 4-2
FCC Rules and Regulations l-2
Flexible Key Assignment G-2, 3-17
Fuse Location And Value and Power Supply Output Values.....4- 2
Fuse Location 4-l
General Check 2-30
General Information, System Programming 3-1
General Information 1-2
Glossary Of Terms ..... G-l
Grounding, System 2-8
Hunt Group Programming 3-19, 3-21
Hunt Group G-2
Hybrid System Configuration 3-3
Hybrid/Key System Configuration 2-10
Idle Line Preference G-2, 3-16
Initial Condition 2-29
Installation 2-1
Interace, Common Audible and Auxiliary Station.....2- 8
Intercom First Choice Signalling, Tone or Voice Signalling....G-4, 3-7
Interface, Area Paging 2-8, 2-9
Interface, Cassette Tape Recorder 2-10
Interface, Music 2-10
Introduction ..... l-l
Key System Configuration 3-2
KSU Mounting Dimensions 2-2
Last Number Redial G-2
Line Connections 2-4
Line COS Programming Reference Table 3-
Line COS Programming. 3-12
Line Group G-2, 3-12
Line Length Of Data 3-7
Line Monitoring G-3
Line Queuing G-3
Line Type 3-12
Maintenance 4-1
Manual Scope 1-1
Message Wait Originate 3-15
Message Waiting G-3

Index – continued

Mounting Considerations 2-1
Mounting Procedure 2-2
Music Interface 2-10
Mute G-3
Night Transfer (of ringing) G-3, 3-16
OPX Through Dialing G-3, 3-15
Outgoing Call Control G-3
Overlays 3-4
PA Connections 2-24
PA Port, Area Paging ..... G-l, 3-15
Paired Stations 4-4
Pause Time 3-6
Personal Ringing Tones G-3
Power Failure Station Connections 2-6
Prime Line or Group G-3, 3-15
Printout, COS and SMDR 3-22
Privacy Mode, Privacy Release G-3, 3-13
Privacy Release, Privacy Mode G-3, 3-13
Program Keys For Line And Group Choices 3-16
Programming Overlay Details 3-4
Programming Overlays 3-4
Programming Procedure, Block 3-19
Programming Procedure, Hunt Groups 3-19, 3-21
Programming Procedure, Line COS 3-12
Programming Procedure, Station COS 3-14
Programming Procedure, System COS 3-6
Programming Procedure, System Speed Dial 3-28
Programming Procedure, Toll Restriction 3-10
Programming Reference Charts 3-29, 3-30
Programming Reference Table, Station COS 3-37
Programming Reference Table, Line COS 3-36
Programming Reference Table, Toll Restriction 3-3 3
Programming Reference Table, System COS 3-31
Pulse/Tone Switching G-3
Recall/Flash G-3
Related Publications ..... l-l
Reserved Intercom Link G-3, 3-17
Resistance Check 2-29
Ringer Equivalence Number. l-4
Ringing Line Preference G-3, 3-16
Saved Number Redial G-4
Screened Transfer G-4
Self Test, Console. 4-3
Self Test, Station 4-2
SMDR Printout Details 3-23
Special Programming Requirements For Single-line Keysets 3-2
Station Auxiliary Jack Connections 2-6
Station Connections 2-4
Station COS Programming Reference Table 3-37
Station COS Programming 3-14
Station Equipment Interconnection 2-27

Index - continued

Station Self Test 4-2
Station Speed Dialing G-4
Station Type 3-8
Station Wall Mounting Details 4-8
Status Indicator 4-2
System Checkout 2-29
System Clock Information 3-27
System COS Programming Procedure 3-6
System COS Programming Reference Table 3-31
System Grounding 2-8
System Programming 3-l
System Speed Dial Programming 3-28
System Speed Dialing G-4
System Wiring 2-4
Technical Assistance And Repair Service 4-l
Timed Hold Recall G-4, 3-7
Toll Restriction Programming. 3-10
Toll Restriction Reference Tables 3-33
Toll Table Restriction - System Speed Dial..... 3-15
Tone or Voice Signalling, Intercom First Choice Signalling...G-4, 3-17
Typical 6-Wire, Auxiliary-Pair Wiring 2-28
Unanswered Call Transfer Recall G-4, 3-8
Unscreened Transfer G-4
Voice Signal Blocking, Block Voice Announce Intercom.....G-4, 3-15
Voltage Check 2-30
Wiring For Auxiliary Connector Block J-4 2-15
Wiring For CO/PBX Connector Block J-5 2-16
Wiring For Station Connector Block J-8 2-19
Wiring For Station Connector Block J-11 2-22
Wiring For Station Connector Block J-3 2-14
Wiring For Station Connector Block J-2 2-13
Wiring For Station Connector Block J-l 2-12
Wiring For Station Connector Block J-6 2-17
Wiring For Station Connector Block J-7 2-18
Wiring For Station Connector Block J-9 2-20
Wiring For Station Connector Block J-10 2-21
Wiring, System 2-4
Wiring, 32-Button Adjunct Feature Module Wiring.....2-2 3
32-Button Adjunct Feature Module Wiring 2-23

LIMITED WARRANTY

Comdial Corporation (Comdial) warrants that under normal operating conditions, this Equipment (except for fuses, lamps, and other consumables) will be free from defects in material and workmanship for a period of twenty-four (24) months from the manufacturing date stamped on the Equipment. Comdial's sole obligation under this warranty or under any other legal obligation with respect to the Equipment is to repair or replace, at its option, the Equipment if it is deemed defective by Comdial during the warranty period free of charge with new or refurbished equipment or parts, at Comdial's option, when the Equipment is returned to Comdial, freight or postage prepaid, during the warranty period. This warranty does not apply if, in the sole judgement of Comdial, the Equipment has been installed or used in combination or in assembly with products not supplied by Comdial and which are not compatible or inferior quality, design or performance, or the Equipment has been otherwise misused, abused, accidentally damaged, or damaged or malfunctions or fails to function as a result of acts of God such as fire, flood, or lightning or other incidence of excessive or insufficent voltage or failure to follow instructions. Repair or alteration of this Equipment other then as specifically authorized by Comdial or its authorized repair agent is prohibited and will void this warranty. This warranty does not cover costs associated with installation, removal, or reinstallation of the Equipment. Comdial does not warrant that the Equipment is compatible with all telephone or switching systems. THIS WARRANTY IS EXCLUSIVE, BEING IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. WITHOUT EXPANDING UPON THE FOREGOING WARRANTY, THE MAXIMUM LIABILITY OF COMDIAL UNDER ANY WARRANTY, STATUTORY, EXPRESS OR IMPLIED, IS LIMITED TO THE PURCHASE PRICE OF THE EQUIPMENT. COMDIAL SHALL HAVE NO RESPONSIBILITY FOR DAMAGE TO PROPERTY OR ANY OTHER LOSS OR INJURY, INCLUDING CONSEQUENTIAL AND/OR INCIDENTAL DAMAGES, RESULTING FROM THE POSSESSION, OPERATION OR USE OF THE EQUIPMENT, ALL SUCH CLAIMS BEING HEREBY EXPRESSLY WAIVED. THE PURCHASER'S EXCLUSIVE WARRANTY AND REMEDY SHALL BE ONLY AS STATED HEREIN.

This warranty gives you specific legal rights and you may also have other rights which may vary from state to state. Some states do not allow limitations on how long an implied warranty lasts or the exclusion or limitation of incidental or consequential damages, so the above limitations may not apply to you.