WALKER POETS-PLUS™
INSTALLATION AND MAINTENANCE MANUAL

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AFTER HOURS
(BEEPER SERVICE)
EMERGENCY # (516) 351-7627
FOR POETS-PLUS™

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INTRODUCTION

GENERAL

This manual contains installation, operation, programming, and servicing instructions for the POETS-PLUS ^{tm} (from this point on, POETS ^{tm} will be referred to as "POETS-PLUS") Electronic Key Telephone System.

POETS-PLUS is a stored program microprocessor controlled space division switching system that can be installed on Rotary or Dual Tone Multi Frequency "DTMF" dialing lines, or a combination of the two. POETS-PLUS has many features, most of which are program controlled. The system is delivered with a permanent factory program that may be modified at the time of installation to suit customer requirements. Program changes are performed from the station connected to port 1 of the Basic Service Unit (BSU-P) (Extension 10).

The POETS-PLUS Basic Service Unit "BSU-P" is equipped with printed wiring boards to support a maximum of six Central Office "CO" lines, 12 stations, and two intercom "ICM" paths. (See figure 1-1.)

In addition, two optional Line Expansion Units "LEUs" may be added to expand the POETS-PLUS to 30 CO lines, 60 stations, and 10 intercom paths. Each LEU is capable of supporting 12 CO lines, 24 stations, and four intercom paths. Adding the first LEU allows the POETS-PLUS to grow to 18 CO lines, 36 stations, and six intercom paths. Adding the second LEU allows the POETS-PLUS to grow to 30 CO lines, 60 stations, and 10 intercom paths. (See figure 1-2.)

The POETS-PLUS supports 6 CO button, 18 CO button, and 30 CO button and 18 CO button executive telephones. Each telephone, except the executive telephone, can be equipped with an optional speakerphone module. The executive telephone is equipped with a speakerphone as standard equipment.

The BSU-P can support a maximum of one set of Direct Station Select "DSS" consoles (one for the first 30 stations and one for the second 30 stations). Each LEU can support 2 sets of DSS consoles in the same configuration as the BSU. Total sets of DSS consoles are five.

IMPORTANT PRELIMINARY CONSIDERATIONS

The following paragraphs describe equipment and regulations regarding the Federal Communications Commissions "FCC" and local telephone company that must be considered before installation:

FCC REQUIREMENTS

The FCC has established rules which permit the Electronic Key Telephone System to be connected directly to the telephone network. The jack for connection is provided by the telephone company.

TELEPHONE COMPANY IDENTIFICATION

Before installing the device to the telephone network, the telephone company must be provided with the following:

o Your customer's telephone number;

o The FCC registration number – BAQ9IT-15578-KF-E;

o The ringer equivalence number – 1.0B; and

o The USOC jack required – RJ-11C (one per CO trunk)

WARNING: This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual, may cause interference to radio communications. It 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, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference, in which case the user (at his own expense) will be required to take whatever measure may be required to correct the interference.

To CO/PBX
Line

EXT. NO. 10-21

Basic
Service
Unit

Telephone

Power Supply
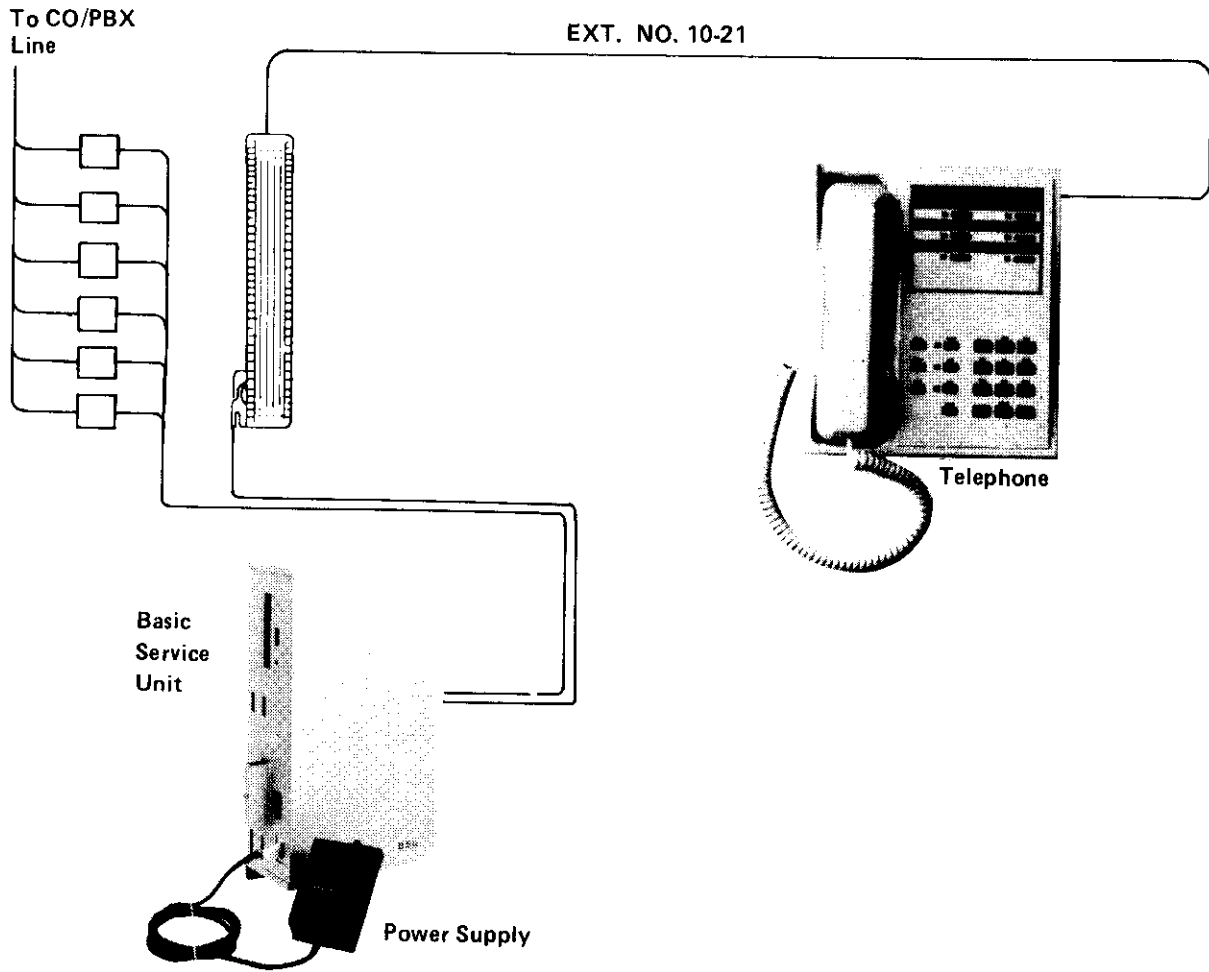
Figure 1-1. POETS-PLUS Electronic Key Telephone System (BSU)

To CO/PBX

CO1-30

EXT. 10-69

LC1-LC5

ATTENDANT
(BLF/DSS)

EXECUTIVE

PS10A-BB
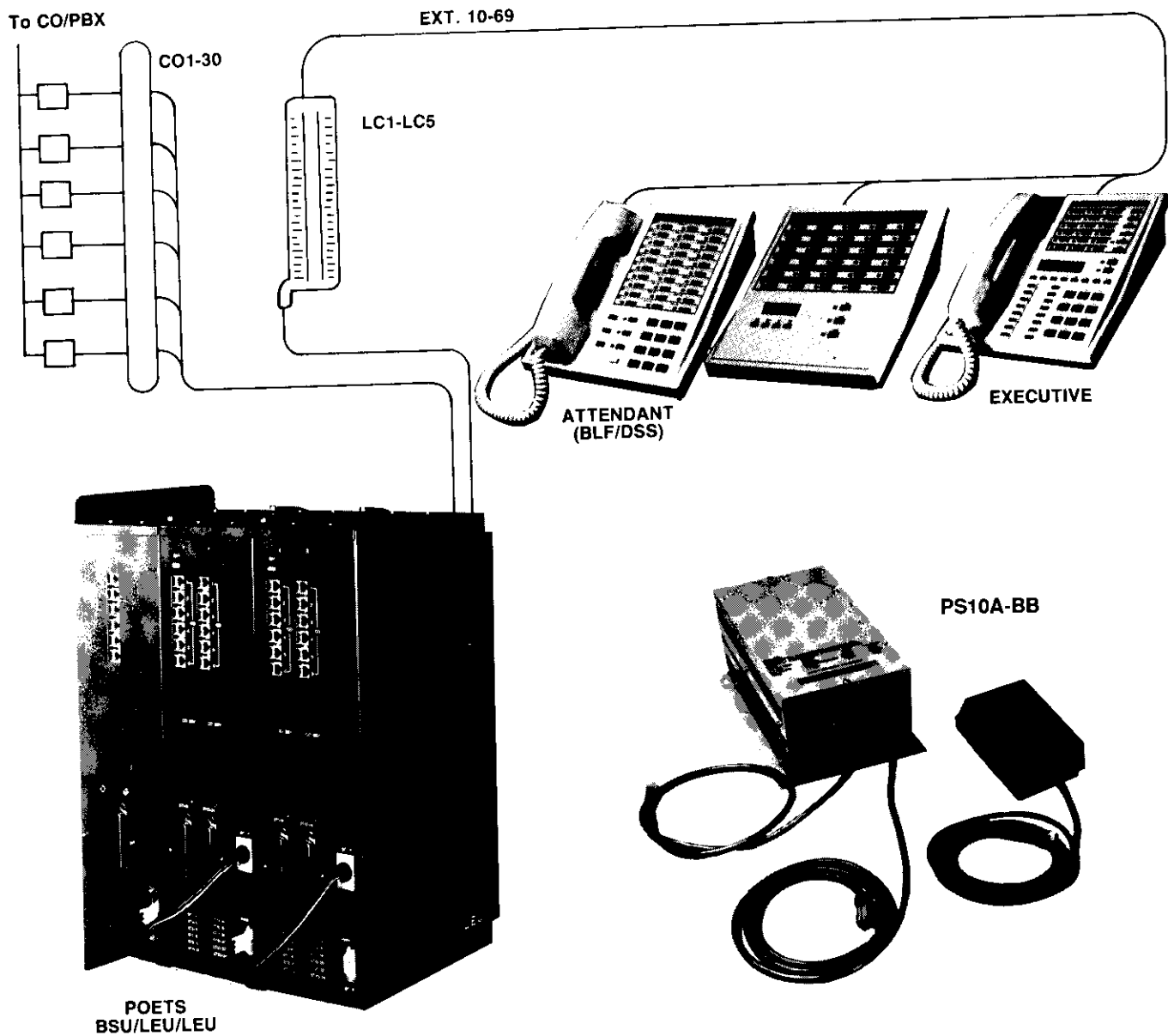
POETS
BSU/LEU/LEU

Figure 1-2. POETS-PLUS Electronic Key Telephone System. (BSU/LEU/LEU)

If POETS-PLUS develops a malfunction, it could damage the telephone network. The system must be disconnected until the source of the problem can be determined and the necessary repair made. NOTE: If the malfunction causing interference is not corrected, the telephone company may temporarily disconnect service. The telephone company can change its technical operations and procedures. If these changes affect the compatability or use of the device, the telephone company must provide adequate notice of the changes.

SERVICE REQUIREMENTS

On-site trouble shooting may be performed by the installing company (refer to page 2-59 for Trouble Shooting Guide) with corrective action being limited to replacement of printed circuit boards, power supplies, cable, or telephones only. For all integral repairs required to the above-mentioned parts, these parts must be returned to the manufacturer for service.

ENVIRONMENTAL SPECIFICATIONS

This section defines environmental considerations for POETS-PLUS.

1. Temperature

    Continuous operating temperature: $32^{\circ}-104^{\circ}F$ ($0^{\circ}-40^{\circ}C$)

    Storage Temperature: $0^{\circ}-150^{\circ}F$ ($-17.8^{\circ}-65^{\circ}C$)

2. Relative Humidity

    Continuous operating relative humidity: 10%-90% (non-condensating)

3. Heat Dissipation

6 x 12 (BSU only): 31 BTUs Max

30 x 60: 133 BTUs Max

PS2A Power Supply: 41 BTUs Max @ Rated Power

PS10A BB Power Supply: 355 BTUs Max @ Rated Power

TELEPHONE DIMENSIONS

The telephone is 7.93 inches (201.5mm) wide by 9.13 inches (233mm) long by 2.58 inches (65.5mm) high when the handset is not in the cradle. (All telephones and the DSS console have the same dimensions.)

TECHNICAL SPECIFICATIONS

See Table 1-1 which defines technical and operational parameters for the POETS-PLUS system.

SYSTEM SPECIFICATIONS

See Table 1-2 which defines the System specifications.

BSU AND LEU DIMENSIONS AND SPECIFICATIONS

Length: 18.5 inches

Width: 9.5 inches

Depth: 4.75 inches

See Table 1-3 which defines the BSU specifications.

See Table 1-4 which defines the LEU specifications.

Table 1-1

TECHNICAL SPECIFICATIONS

Type of Equipment
Control: POETS-PLUS Electronic Key Telephone Systems
Switching: Stored Program, Microprocessor Control
Transmission: Space Division Digital
                            Analog

Electrical Characteristics

Input Power: 117 VAC, 60Hz + or - 10%
Output Power: 24 VDC + or - 10%

Central Office Interface Characteristics

AC Impedance at CO
  Interface: 600 ohms
DC Resistance at CO
  Interface: 300 ohms

   Key service Unit must be within 25 feet of CO interface.

Connection and Cable Requirements

Telephone Company
  Connections: FCC approved RJ-11C(USOC) connectors,
                            provided by the Telephone Company 1 per
                            CO trunk

Connecting Blocks: Standard type 66 M1-50

Cable Requirements: One 25-pair minimum per (STU) station
                            line card (from STU to 66 MI-50)
                            One 2-pair (Quad J-K or equivalent) from
                            the 66 M1-50 to each station
                            One 2-pair flat ribbon cable per CO line

Telephone Station
  Connections: Type 625 modular jack (2 pair)
(including DSS/BLF)

Maximum Station Cable
  Length: 6-button telephone = 2000 ft
(No. 24 AWG x 2 pair)   18-button telephone = 1500 ft
                            30-button telephone = 1000 ft
                            DSS/BLF = 1000 ft
                            Executive = 1000 ft

   *NOTE: Maximum Station Cable Length may vary depending on
           environmental conditions.

Table 1-2

SYSTEM SPECIFICATIONS

Specification		Description
Max. CO/PBX Lines	30	for tone and/or outpulsing 6 circuits per one (COU) CO card
Max. Intercom Links	10	2 ICM paths are standard with the BSU. 2 additional ICM paths are provided with each (STU) station card. 5 (STU) station cards may be used per system for a total of 10 ICM paths.
Max. Station Codes	60	12 station codes per (STU) station card. 5 (STU) station cards per system totaling 60 station codes (8 Executive telephones per STU total 40)
Max. DSS/BLF Console	5-pair	2 DSS/BLF ports per station (STU) Card. 5 sets of 2 DSS consoles each. Each console supports 30 stations and each pair supports 60 stations. Reduces station capacity on one-for-one basis. Also reduces Executive station capacity on one-for-one basis.
Executive Telephone	40	8 per STU (first 8 ports of each STU only).
Control	Decentralized Microprocessor Common Control from BSU	
Switching	Space Division C-MOS Analog	

Table 1-3

BSU SPECIFICATIONS

Specification		Description
Max. CO/PBX Lines	6	for tone and/or outpulsing, 6 circuits per 1 (COU) CO card
Max. Intercom Links	2	2 ICM paths are standard with the BSU
Max. Station Codes	12	12 stations per 1 card – 8 stations may be Executive telephones
Max. DSS/BLF Console	1 pair	reduces station capacity on one-for-one basis. Each DSS/BLF provides access to 30 stations. Also reduces executive station capacity on one-for-one basis.
Max. Executive Telephones	8	first 8 ports

Table 1-4

LEU SPECIFICATIONS

Specification		Description
Max. CO/PBX Lines	12	for tone and/or outpulsing 6 circuits per (COU) CO card.
Max. Intercom Links	4	2 ICM paths are standard with the BSU. 2 additional ICM paths are provided with each (STU) station card. 5 (STU) station cards may be used per system for a total of 10 ICM paths.
Max. Station Codes	60	12 station codes per (STU) station card. 5 (STU) station cards per system totaling 60 station codes (8 Executive telephones per STU total 40)
Max. DSS/BLF Console	2-pair per LEU	2 DSS/BLF ports are standard with the BSU. 2 additional DSS/BLF ports are provided with each station card. 5 (STU) station cards per system totaling 5 sets of 2 DSS consoles each. Each console supports 30 stations and each pair supports 60 stations. Reduces station capacity on one-for-one basis.
Executive Telephone	16	8 per STU (first 8 ports of each STU)

Customer Data
L⅄J Interface
Factory Data
COU Interface
Operating Indicators (LEDs)
Operating Software

Trouble Indicators (LEDs)

Transmitters
Receivers
Station Terminal
Controls
LEDs (LCDs)

Protection
Ring Detection
CO Interface
Processing

COU's Interface
STU's Interface

Battery

STATION

STATION

COU

COU

ECU #1

EMC

MAIN CPU

STU

STU

STU

COU

Data Paths
Speech Paths
ECU Interfaces

CPU Interface
ECU #2 Interface
Memory
Speech Paths

Short Circuit Indicators
OPX Interface
Processing
ECU Interface
LED/BLF Control
Speech Paths
Door Phone Interface

Protection
Ring Detection
CO Interface
Processing
CO Busy Indicators

Additional Memory
SMDR Interface
Battery
STU Interface
MOH Interface
IPL Switches
Audibles
Internal System Diagnostics
Short Circuit Indicators
OPX Interface
Processing
CPU Interface
LED/BLF Control
Speech Paths
Door Phone Interface

Figure 1-3. Basic System Electronic Architecture.

POETS-PLUS CONFIGURATOR

The information provided in Table 1-5 is designed to assist you in configuring a system. Upon initial inspection, and before installation, compare your inventory with the table below in order to determine the necessary electronics for this installation.

Table 1-5

POETS PLUS CONFIGURATOR

CO Lines	COU	BSU	LEU	EMC
6	1	1	0	0
12	2	1	1	0
18	3	1	1	0
24	4	1	2	1-2nd LEU
30	5	1	2	1-2nd LEU
Stations	STU	BSU	LEU	EMC
12	1	1	0	0
24	2	1	1	0
36	3	1	1	0
48	4	1	2	1-1st LEU
60	5	1	2	1-1st LEU

NOTES:

o   PS2A is required for a 6 x 12.

o   The PS2A must be replaced with a PS10A-BB for systems with one or more LEUs or when battery-backed system operation is required.

o   Each LEU is shipped from the factory equipped with one ECU circuit.

SECTION 2

INSTALLATION

GENERAL

This section provides installation instructions for the POETS-PLUS Electronic Key Telephone System. The contents of the section are arranged in the recommended order of installation.

UNPACKING

Remove all equipment from the cartons as follows:

1. Carefully open all cartons. (It is highly recommended that you affix a grounding strap to your wrist or arm before unpackaging electronic circuit cards.)

2. Remove packing material and shipping receipts.

3. Check equipment for damage:

   a. Inspect circuit cards for cracks and/or damage.

   b. Inspect housings and cabinets for any damage which may have been incurred during shipping.

   c. Inspect station terminals for external damage.

CAUTION--All circuit cards are static sensitive. Before handling any circuit card, perform one of the following two precautions:

   o Discharge the static electricity from your body by touching metal that is earth grounded.

   o Attach a grounding strap (wire) to your wrist which is secured to an earth ground such as a cold water pipe.

LOCATION SELECTION

Consider the following when selecting a location for POETS-PLUS:

1. Availability of a 117 VAC, 60-Hz single-phase dedicated power outlet capable of safely delivering 12 Amps. (An isolated outlet is recommended.)

2. It is also highly recommended that a high quality surge protector be used on the power line to protect the system against damage from lightning surges on the power line. In addition, precautions should be taken in accordance with local practices.

3. The location of the Central Office/Private Branch Exchange "CO/PBX" line terminations must be within 25 feet of the Central Office interface. The system uses a single two-pair cable per CO line for connecting to the telephone company lines. These cables plug into FCC approved RJ-11C (USOC code) connectors provided by the telephone company, and the modular jacks at the BSU.

4. Ventilation and temperature: the equipment is designed to operate within $32^{\circ} - 104^{\circ}F$ ($0^{\circ} - 40^{\circ}C$).

5. The key service unit must not be placed near a strong magnetic field such as a heavy motor or generator, copying machine, high power cable, etc.

6. The system must not be placed in an environment where a high concentration of radio frequency energy is present, due to the possibility of interference with the equipment.

7. The equipment must not be exposed to hazards such as flammable materials, caustic fluids, possible flooding, etc.

8. Provide adequate lighting and space for operation and maintenance.

EQUIPMENT ARRANGEMENT

See Table 2-1 which describes the equipment arrangement for the POETS-PLUS system.

Table 2-1

EQUIPMENT ARRANGEMENT

UNIT DESIGNATION	DESCRIPTION	MAXIMUM QUANTITY	BASIC OR OPTIONAL
POETS PLUS BSU	Basic Service Unit	1	Basic
POETS PLUS LEU	Line Expansion Unit	2	As Required "A/R"
POETS-PLUS 6-TEL	6 CO Key Telephone	60	Basic A/R
POETS-PLUS 18-TEL	18 CO Key Telephone	60	A/R
POETS-PLUS 30-TEL	30 CO Key Telephone	60	A/R
POETS-PLUS EXEC	18 CO Executive Key Telephone	40	A/R
POETS DSS/BLF	30 Button Direct Station Select/Busy Lamp Field	5 sets of 2 each	A/R (one set per STU)
STU-X	12 Circuit Station Line Card	5	Basic A/R
COU	6 Circuit CO/PBX Line Card for DTMF or Dialpulse Dialing	5	Basic A/R
PS2A	24 Volt Power Supply	1	Basic
PS10A-BB	24 Volt Power Supply with Battery Back-up Switch Circuit	1	Option*

*Required for LEU or Battery-Backed system power. It is necessary to use only the PS10-A-BB (omit PS2A) for systems equipped with LEU.
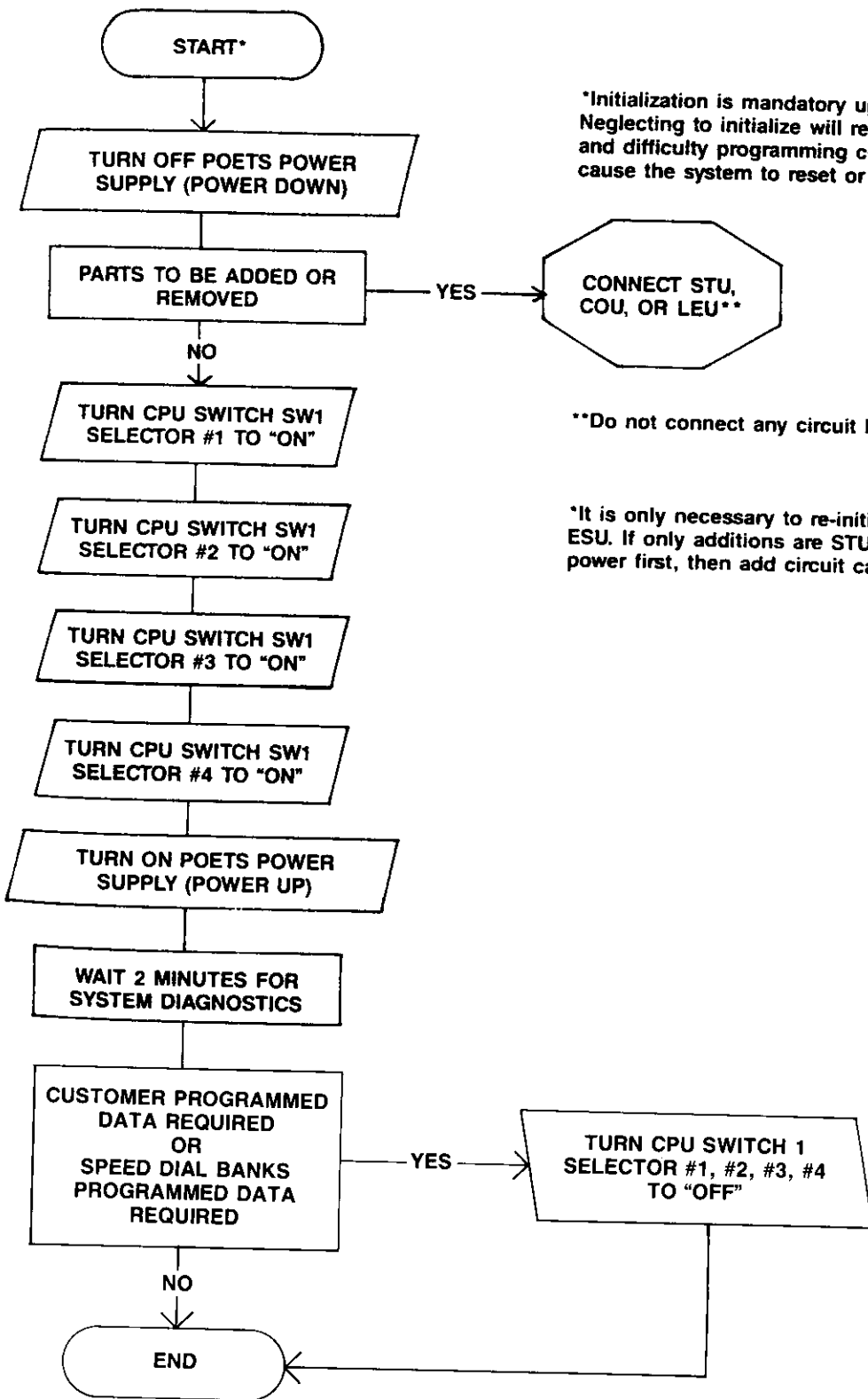
START*

TURN OFF POETS POWER
SUPPLY (POWER DOWN)

PARTS TO BE ADDED OR
REMOVED

— YES →

CONNECT STU,
COU, OR LEU**

NO

TURN CPU SWITCH SW1
SELECTOR #1 TO "ON"

TURN CPU SWITCH SW1
SELECTOR #2 TO "ON"

TURN CPU SWITCH SW1
SELECTOR #3 TO "ON"

TURN CPU SWITCH SW1
SELECTOR #4 TO "ON"

TURN ON POETS POWER
SUPPLY (POWER UP)

WAIT 2 MINUTES FOR
SYSTEM DIAGNOSTICS

CUSTOMER PROGRAMMED
DATA REQUIRED
OR
SPEED DIAL BANKS
PROGRAMMED DATA
REQUIRED

— YES —→

TURN CPU SWITCH 1
SELECTOR #1, #2, #3, #4
TO "OFF"

NO

END

*Initialization is mandatory upon initial installation. Neglecting to initialize will result in erratic operation and difficulty programming customer data, and may cause the system to reset or crash unexpectedly.

**Do not connect any circuit board with power on.

*It is only necessary to re-initialize when adding an ESU. If only additions are STUs or COUs, disconnect power first, then add circuit cards and power-on.

FIGURE 2-1
SYSTEM INITIALIZING FLOW CHART

BASIC SERVICE UNIT MOUNTING

The BSU is designed for wall mounting and may not be floor mounted. Figure 2-1 shows the mounting hold spacing dimensions for wall mounting the key service unit. Use appropriate fasteners that can safely sustain the weight of a fully loaded (with two LEU's piggybacked) 40 pound unit.

CAUTION:

1. Ensure that the BSU cabinet is connected to a good earth ground, and that the LEUs are grounded (wired) to the BSU using the appropriate grounding screws. The LEUs must be grounded to the BSU; otherwise a problem may occur due to varying ground potentials.

2. Make sure to leave adequate room (12") on each side of BSU from any obstructions for ease of removing PC boards and interface.
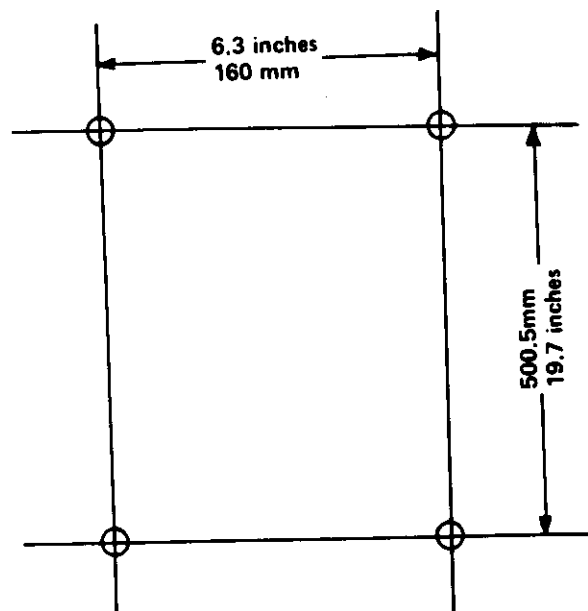
Figure 2-1. KSU Mounting Holes

GROUNDING THE SYSTEM

The BSU and power supply must be properly grounded to an earth ground. A screw on the left side of BSU must be connected to a good earth ground such as a metallic cold-water pipe using AWG 14 or larger. Do not use the ground (green) wire of the AC cord for BSU earth ground. A screw on the left side of the LEU should be bridged to the BSU grounding screw with a jumper wire. If two LEUs are required, a second jumper should be used between the LEUs to completely ground all three cabinets as shown below. In addition, star washers are provided with the LEU mounting screws to insure grounding continuity between cabinets.

BSU

METALLIC COLD
WATER PIPE

LEU
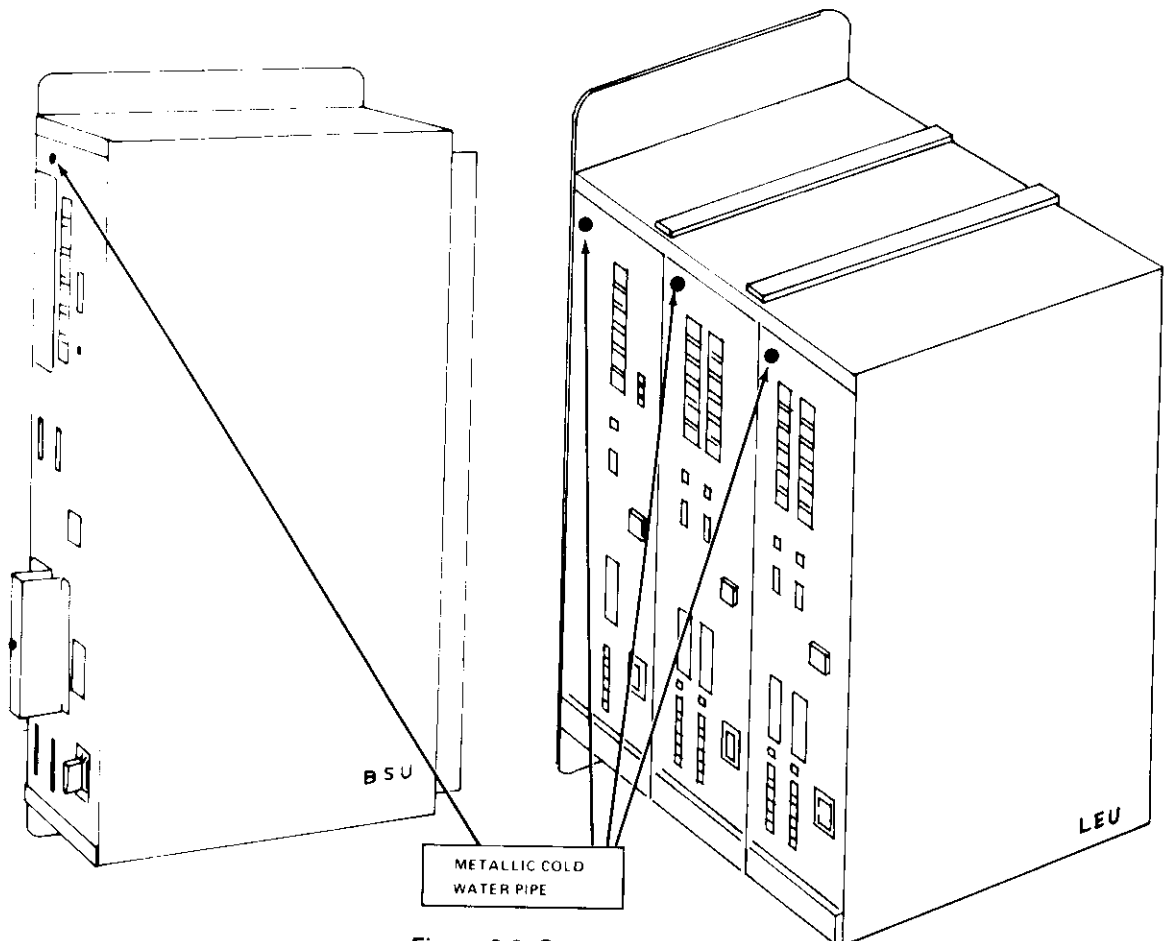
Figure 2-2. System Grounding.

CABLE INSTALLATION

Table 2-2 lists the cables required to install POETS PLUS. The cables are interconnected as shown in Figure 2-4 for a BSU and Figure 2-5 for BSU plus LEU. One 25-pair cable is connected between the BSU/LEU connecting blocks and the BSU/LEU 25-pair connectors. The male connector of this cable mates with the female connectors of the BSU/LEU. The BSU/LEU 25-pair connectors are located on the left side of each BSU and LEU (1 per STU card). The other end of these cables have individual wires which are terminated at the station blocks (66M1-50). Up to six two-pair modular cables are connected between the BSU and CO/PBX interface. Up to 12 two-pair modular cables are connected between each LEU and the CO/PBX interface. Figure 2-6 shows the BSU connector locations, and Figure 2-7 shows the BSU/LEU connector locations.

Table 2-2

CABLE REQUIREMENTS

Quantity	Cable Type	From	To
Per number of COs (30 maximum)	2-Pair modular (25 ft maximum)	Co/PBX (RJ 11C) 6 per COU	BSU/LEU connectors (COU)
Per number of STU (5 maximum)	25-Pair A25B or equivalent	Connecting Block 66M1-50 1 per STU	BSU/LEU connectors (STU)
Per number of stations (60 maximum)	2-Pair per telephone station	Connecting Block 66M1-50	Telephone stations type 625A modular jacks

LINE EXPANSION UNIT (LEU) MOUNTING

The LEUs are designed for piggyback mounting and may not be individually located or floor mounted. Figure 2-3 shows the mounting arrangement. Use the bolts provided as fasteners in the designated locations so as to insure secure mounting when the system is fully loaded (weight approximately 40 lbs). Four bolts are provided with each LEU (taped to the power cord). The two cylindrical studs are to be used at the top end of the LEU and the two remaining screws (standard phillips) on the bottom side.
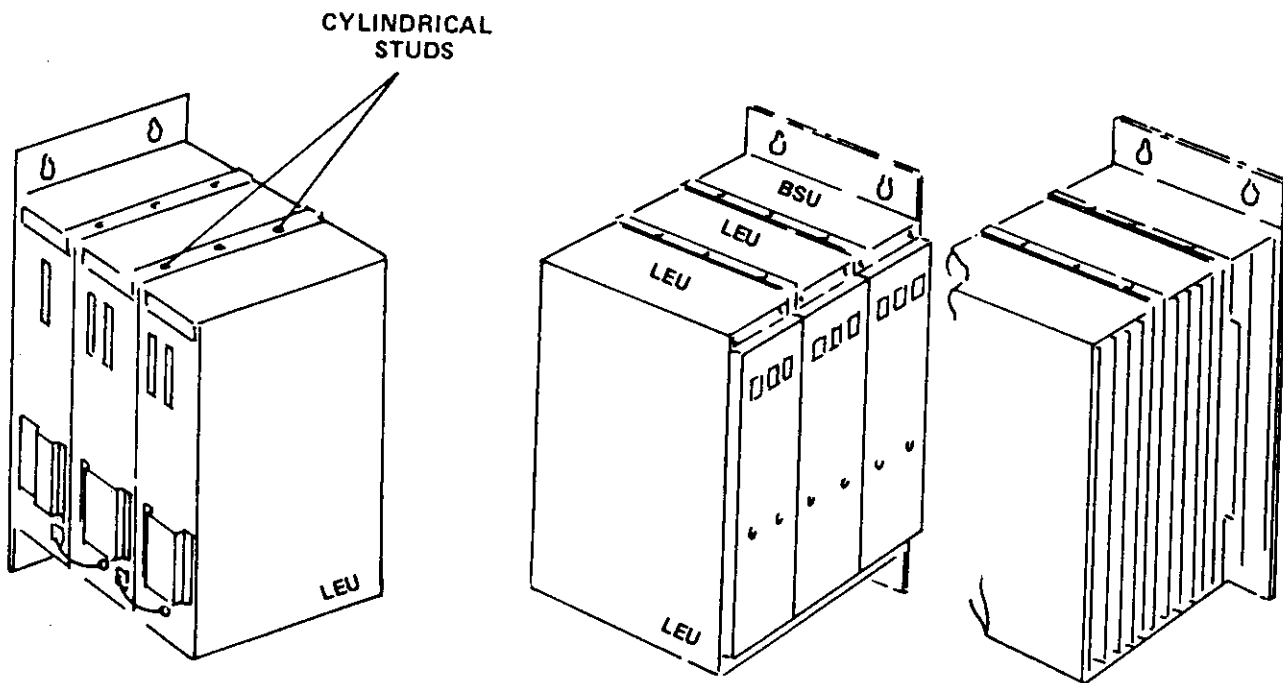
Figure 2-3. LEU Mounting Arrangement.
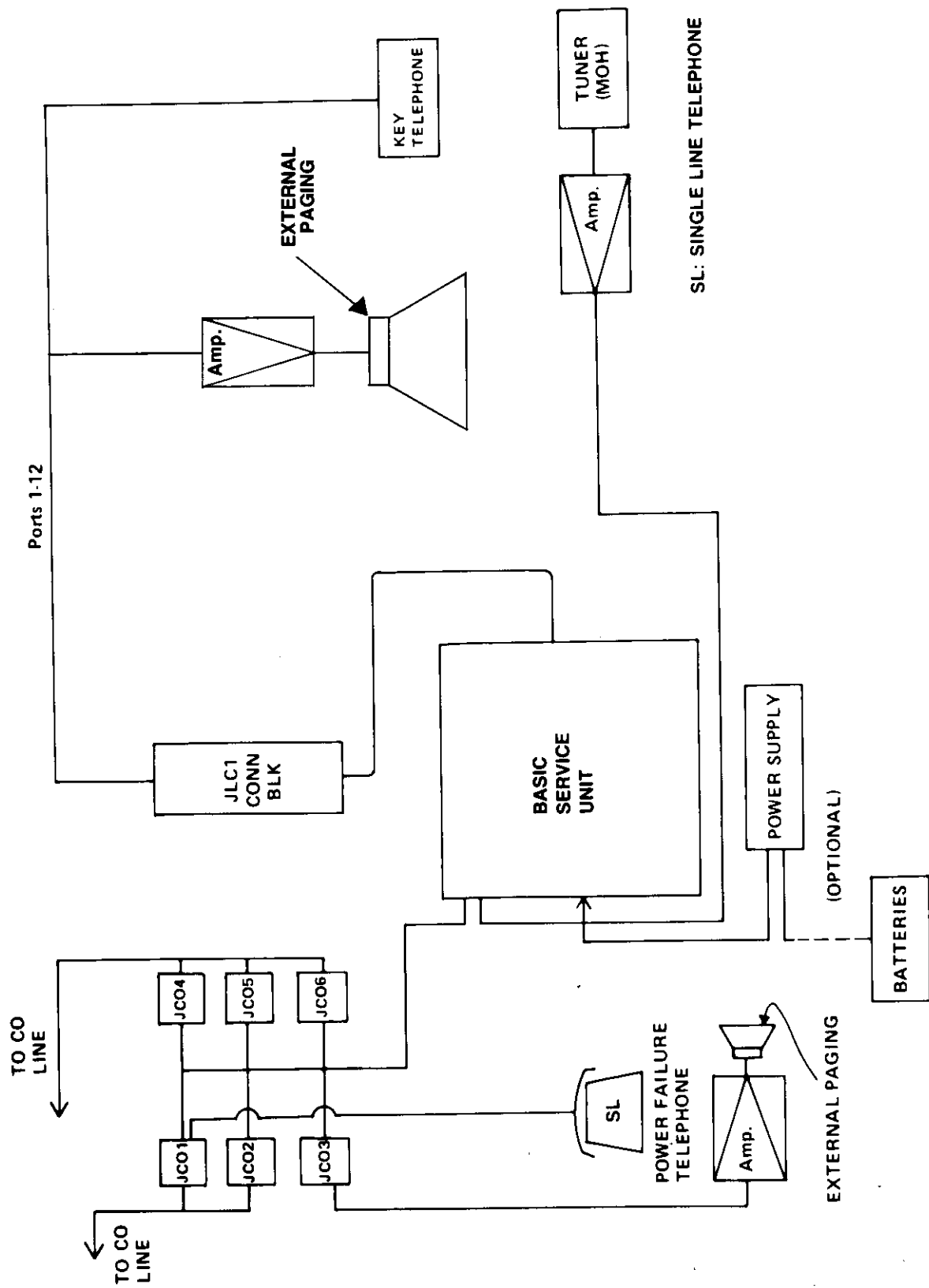
Figure 2-4. POETS-PLUS BSU Interconnection Diagram.
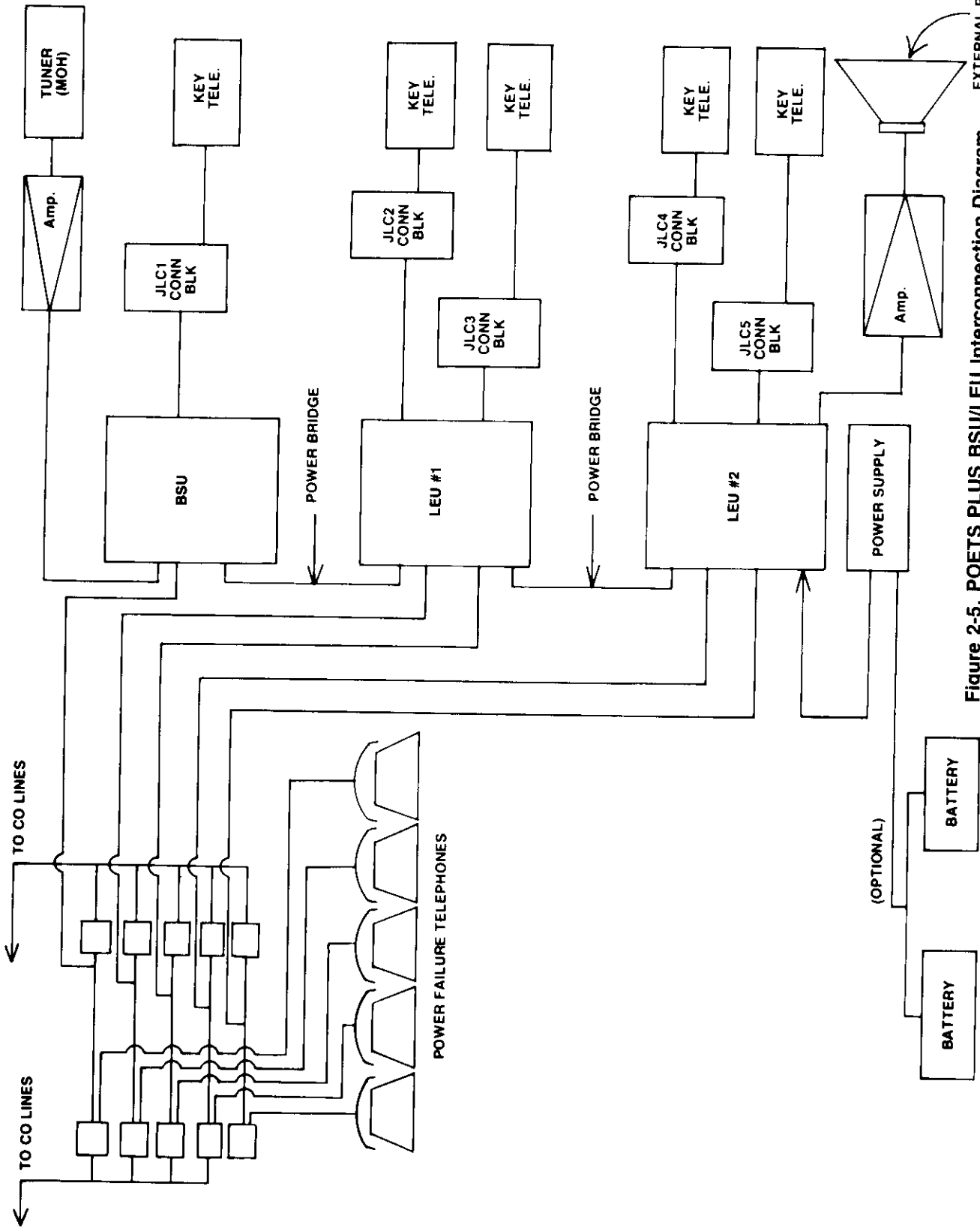
Figure 2-5. POETS PLUS BSU/LEU Interconnection Diagram.

Grounding
Screw

CO/PBX
Connectors

MOH
Connector

Station Connector

B S U

Power Connector
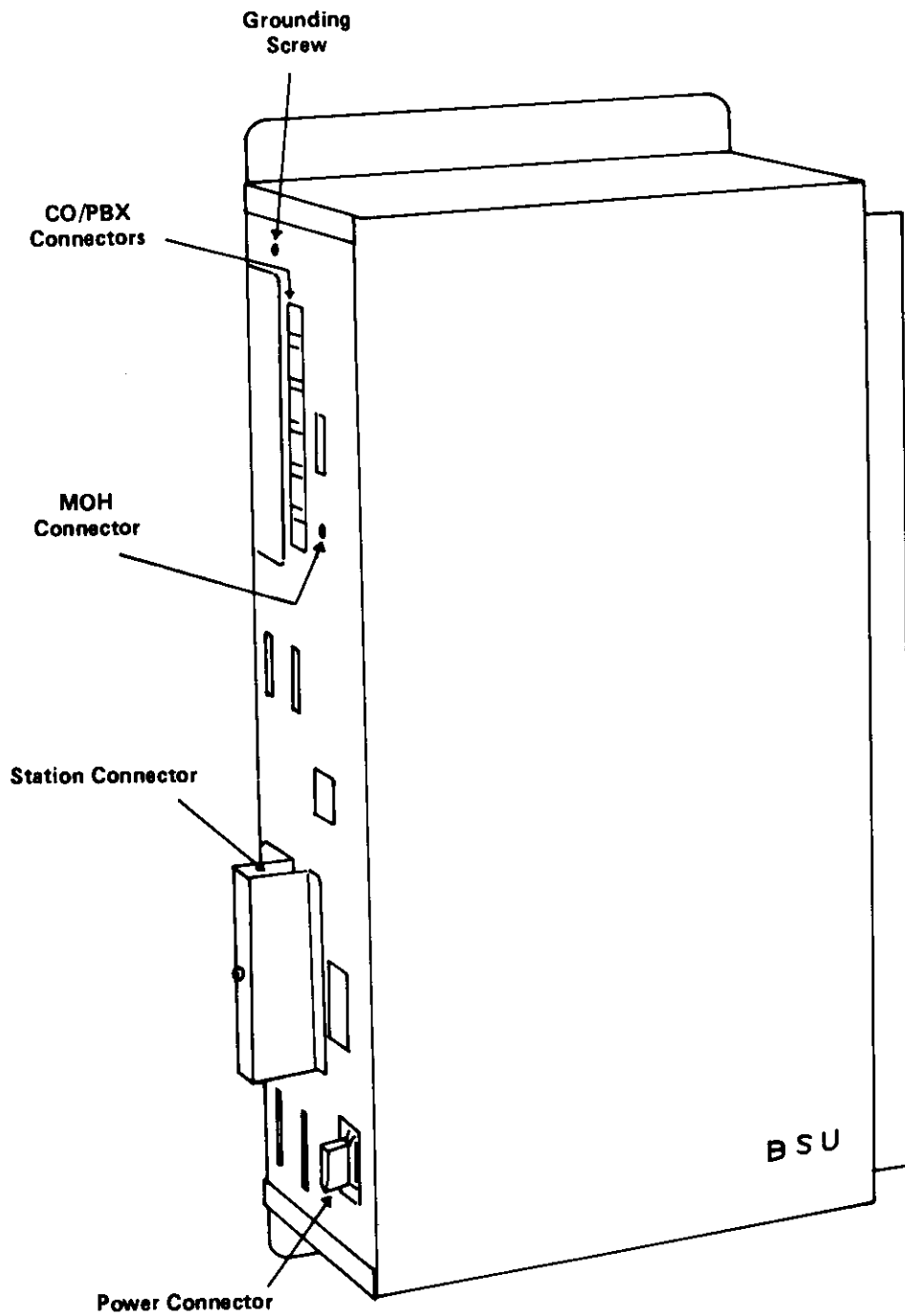
Figure 2-6. BSU Layout and Connector Location.
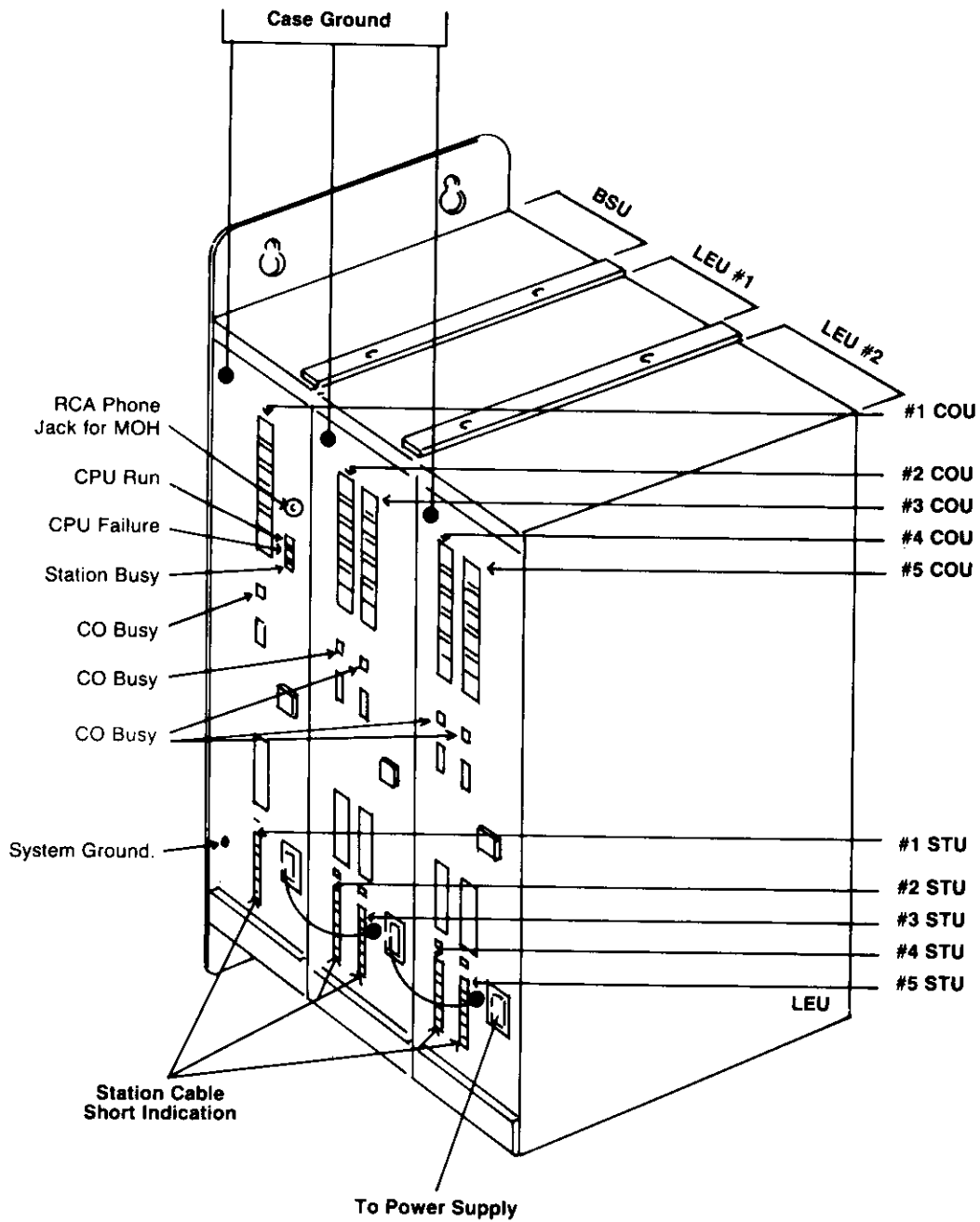
Figure 2-7. BSU/LEU/LEU Layout and Connector Location.

Case Ground

BSU

LEU #1

LEU #2

RCA Phone
Jack for MOH

CPU Run

CPU Failure

Station Busy

CO Busy

CO Busy

CO Busy

System Ground.

#1 COU

#2 COU

#3 COU

#4 COU

#5 COU

#1 STU

#2 STU

#3 STU

#4 STU

#5 STU

LEU

Station Cable
Short Indication

To Power Supply

CONNECTING BLOCKS

Standard type 66M1-50 connecting blocks provide the tie points between each BSU and LEU and the station equipment (Figure 2-8 and 2-9). Standard type RJ-11C modular connectors provide the tie points between the BSU/LEUs and the CO interface (See Figure 2-8 and 2-9).

CABLING BETWEEN THE LC CONNECTING BLOCKS AND THE BSU/LEUs

The 25-pair cable mates with the associated connectors on the side of each BSU and LEU. The other end of the cable has individual wires which are connected to each connecting block. One cable and one connecting block are required for each 50 pin connector. Table 2-3 lists all cabling connections between the LC connecting blocks and each BSU/LEU. Figure 2-10 illustrates station line connections.
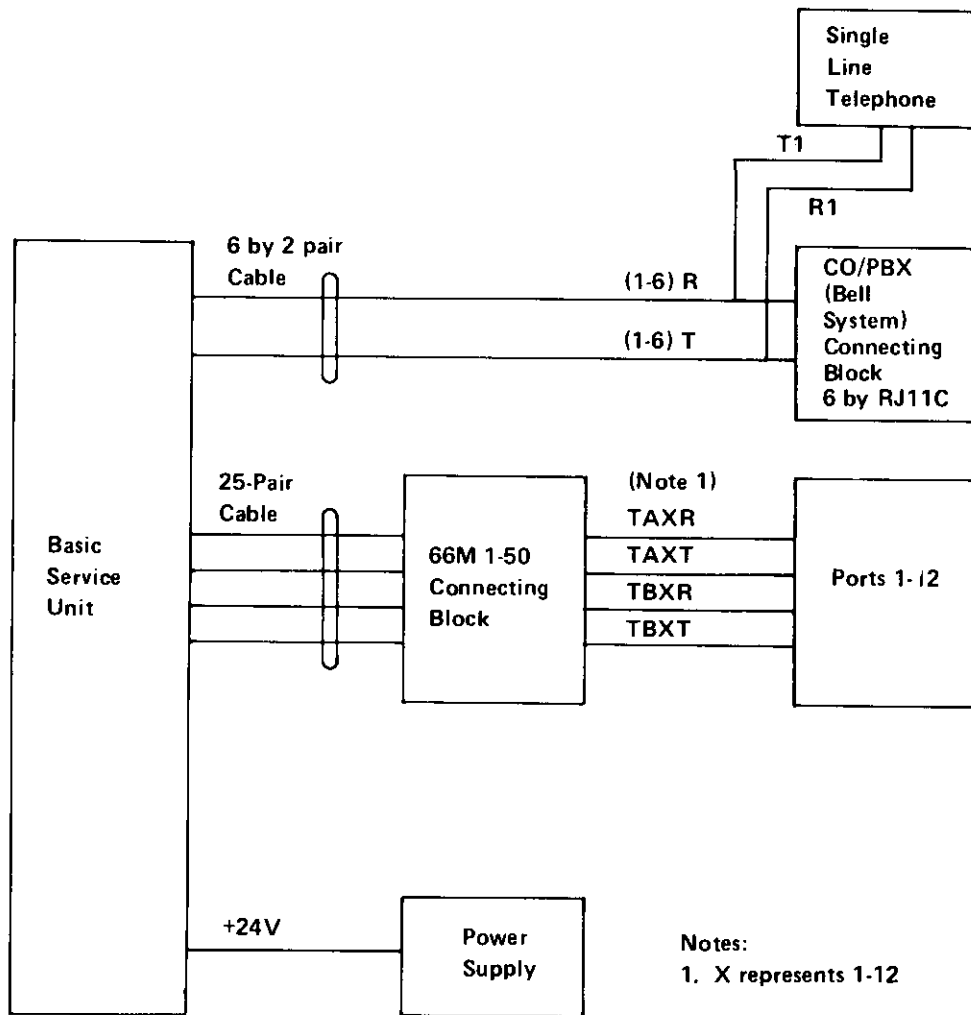
Figure 2-8. Cable Connections from Connecting Block to Equipment (BSU).
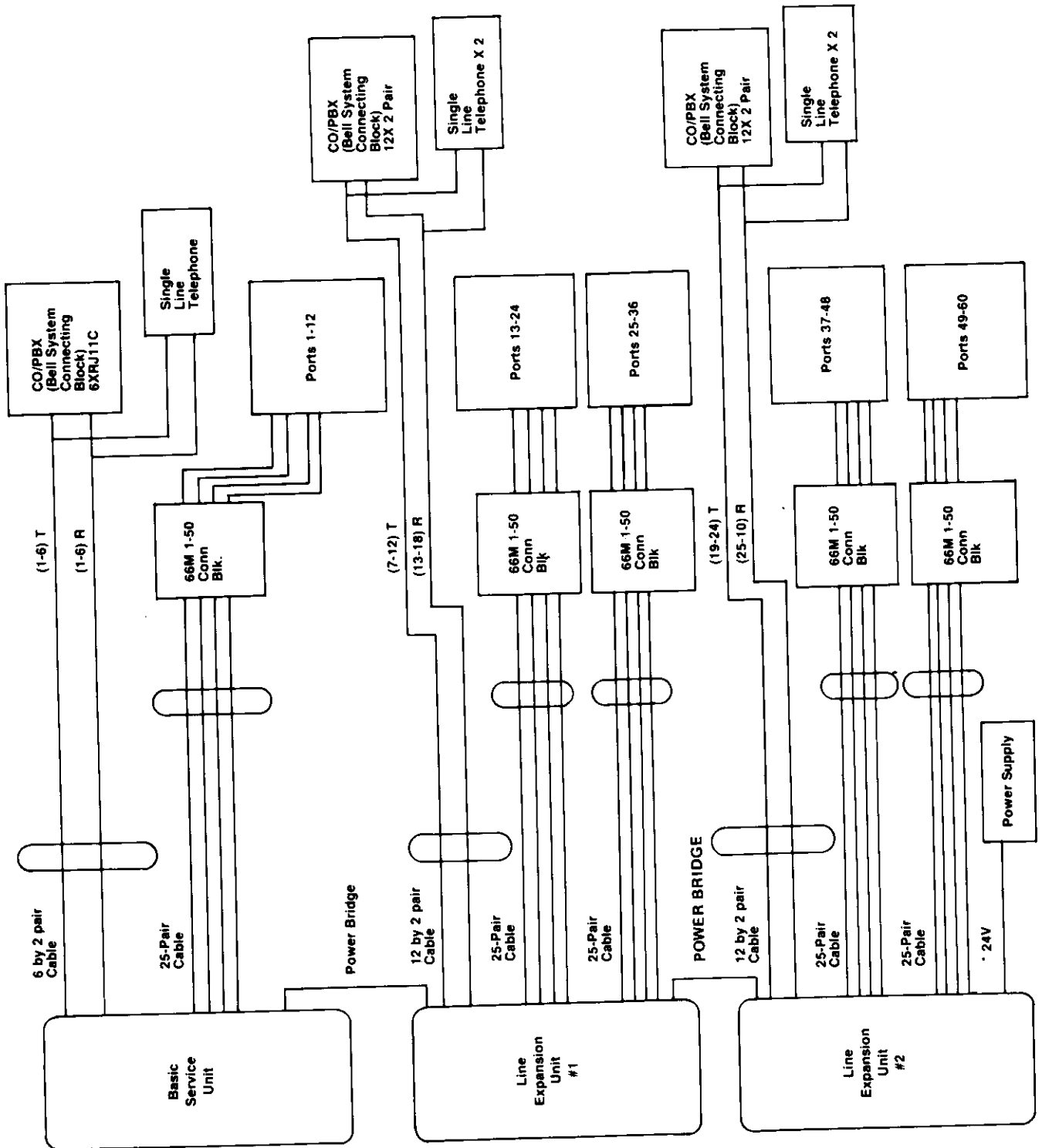
Figure 2-9. Cable Connections From Connecting Block to Equipment. (LEU)

TABLE 2-3 STATION BLOCK CONNECTIONS

STU #1

PORT NUMBER	TELEPHONE EXT. NUMBER	LEAD DESIG.	JACK J1 CONN PIN NO.	B25B CONN CABLE COLOR	CONN BLK ROW NO.	P-6, 18 OR 30 TEL ANY PORT	EXEC TELS PORT 1-8	DSS CONSOLES PORT 2&3
1	(10)	VT1	26	W-BL	1			
		VR1	1	BL-W	2			
		DTA1	27	W-O	3			
		DTB1	2	O-W	4			
2	DSS #1 (11)	VT2	28	W-G	5			BLF FOR STA. 10-39
		VR2	3	G-W	6			
		DTA2	29	W-BR	7			
		DTB2	4	BR-W	8			
3	DSS #2 (12)	VT3	30	W-S	9			BLF FOR STA. 40-69
		VR3	5	S-W	10			
		DTA3	31	R-BL	11			
		DTB3	6	BL-R	12			
4	(13)	VT4	32	R-O	13			
		VR4	7	O-R	14			
		DTA4	33	R-G	15			
		DTB4	8	G-R	16			
5	(14)	VT5	34	R-BR	17			
		VR5	9	BR-R	18			
		DTA5	35	R-S	19			
		DTB5	10	S-R	20			
6	(15)	VT6	36	BK-BL	21			
		VR6	11	BL-BK	22			
		DTA6	37	BK-O	23			
		DTB6	12	O-BK	24			
7	(16)	VT7	38	BK-G	25			
		VR7	13	G-BK	26			
		DTA7	39	BK-BR	27			
		DTB7	14	BR-BK	28			
8	(17)	VT8	40	BK-S	29			
		VR8	15	S-BK	30			
		DTA8	41	Y-BL	31			
		DTB8	16	BL-Y	32			
9	(18)	VT9	42	Y-O	33			
		VR9	17	O-Y	34			
		DTA9	43	Y-G	35			
		DTB9	18	G-Y	36			
10	(19)	VT10	44	Y-BR	37			
		VR10	19	BR-Y	38			
		DTA10	45	Y-S	39			
		DTB10	20	S-Y	40			
11	(20)	VT11	46	V-BL	41			
		VR11	21	BL-V	42			
		DTA11	47	V-O	43			
		DTB11	22	O-V	44			
12	(21)	VT12	48	V-G	45			
		VR12	23	G-V	46			
		DTA12	49	V-BR	47			
		DTB12	24	BR-V	48			
SPARE			50	V-S	49			
			25	S-V	50			

TABLE 2-3 STATION BLOCK CONNECTIONS (CON'T)

STU #2

PORT NUMBER	TELE-PHONE EXT. NUMBER	LEAD DESIG.	JACK J1 CONN PIN NO.	B25B CONN CABLE COLOR	CONN BLK ROW NO.	P-6, 18 OR 30 TEL ANY PORT	EXEC TELS PORT 1-8	DSS CONSOLES PORT 2&3
13	(22)	VT1	26	W-BL	1			
		VR1	1	BL-W	2			
		DTA1	27	W-O	3			
		DTB1	2	O-W	4			
14	DSS #3 (23)	VT2	28	W-G	5			BLF FOR STA. 10-39
		VR2	3	G-W	6			
		DTA2	29	W-BR	7			
		DTB2	4	BR-W	8			
15	DSS #4 (24)	VT3	30	W-S	9			BLF FOR STA. 40-69
		VR3	5	S-W	10			
		DTA3	31	R-BL	11			
		DTB3	6	BL-R	12			
16	(25)	VT4	32	R-O	13			
		VR4	7	O-R	14			
		DTA4	33	R-G	15			
		DTB4	8	G-R	16			
17	(26)	VT5	34	R-BR	17			
		VR5	9	BR-R	18			
		DTA5	35	R-S	19			
		DTB5	10	S-R	20			
18	(27)	VT6	36	BK-BL	21			
		VR6	11	BL-BK	22			
		DTA6	37	BK-O	23			
		DTB6	12	O-BK	24			
19	(28)	VT7	38	BK-G	25			
		VR7	13	G-BK	26			
		DTA7	39	BK-BR	27			
		DTB7	14	BR-BK	28			
20	(29)	VT8	40	BK-S	29			
		VR8	15	S-BK	30			
		DTA8	41	Y-BL	31			
		DTB8	16	BL-Y	32			
21	(30)	VT9	42	Y-O	33			
		VR9	17	O-Y	34			
		DTA9	43	Y-G	35			
		DTB9	18	G-Y	36			
22	(31)	VT10	44	Y-BR	37			
		VR10	19	BR-Y	38			
		DTA10	45	Y-S	39			
		DTB10	20	S-Y	40			
23	(32)	VT11	46	V-BL	41			
		VR11	21	BL-V	42			
		DTA11	47	V-O	43			
		DTB11	22	O-V	44			
24	(33)	VT12	48	V-G	45			
		VR12	23	G-V	46			
		DTA12	49	V-BR	47			
		DTB12	24	BR-V	48			
SPARE			50	V-S	49			
			25	S-V	50			

TABLE 2-3 STATION BLOCK CONNECTIONS (CON'T)

STU #3

PORT NUMBER	TELE-PHONE EXT. NUMBER	LEAD DESIG.	JACK J1 CONN PIN NO.	B25B CONN CABLE COLOR	CONN BLK ROW NO.	P-6, 18 OR 30 TEL ANY PORT	EXEC TELS PORT 1-8	DSS CONSOLES PORT 2&3
25		VT1	26	W-BL	1			
		VR1	1	BL-W	2			
	(34)	DTA1	27	W-O	3			
		DTB1	2	O-W	4			
26	DSS #5 (35)	VT2	28	W-G	5			BLF FOR STA. 10-39
		VR2	3	G-W	6			
		DTA2	29	W-BR	7			
		DTB2	4	BR-W	8			
27	DSS #6 (36)	VT3	30	W-S	9			BLF FOR STA. 40-69
		VR3	5	S-W	10			
		DTA3	31	R-BL	11			
		DTB3	6	BL-R	12			
28		VT4	32	R-O	13			
		VR4	7	O-R	14			
	(37)	DTA4	33	R-G	15			
		DTB4	8	G-R	16			
29		VT5	34	R-BR	17			
		VR5	9	BR-R	18			
	(38)	DTA5	35	R-S	19			
		DTB5	10	S-R	20			
30		VT6	36	BK-BL	21			
		VR6	11	BL-BK	22			
	(39)	DTA6	37	BK-O	23			
		DTB6	12	O-BK	24			
31		VT7	38	BK-G	25			
		VR7	13	G-BK	26			
	(40)	DTA7	39	BK-BR	27			
		DTB7	14	BR-BK	28			
32		VT8	40	BK-S	29			
		VR8	15	S-BK	30			
	(41)	DTA8	41	Y-BL	31			
		DTB8	16	BL-Y	32			
33		VT9	42	Y-O	33			
		VR9	17	O-Y	34			
	(42)	DTA9	43	Y-G	35			
		DTB9	18	G-Y	36			
34		VT10	44	Y-BR	37			
		VR10	19	BR-Y	38			
	(43)	DTA10	45	Y-S	39			
		DTB10	20	S-Y	40			
35		VT11	46	V-BL	41			
		VR11	21	BL-V	42			
	(44)	DTA11	47	V-O	43			
		DTB11	22	O-V	44			
36		VT12	48	V-G	45			
		VR12	23	G-V	46			
	(45)	DTA12	49	V-BR	47			
		DTB12	24	BR-V	48			
SPARE			50	V-S	49			
			25	S-V	50			

2–18

TABLE 2-3 STATION BLOCK CONNECTIONS (CON'T)

STU #4

PORT NUMBER	TELE-PHONE EXT. NUMBER	LEAD DESIG.	JACK J1 CONN PIN NO.	B25B CONN CABLE COLOR	CONN BLK FOW NO.	P-6, 18 OR 30 TEL ANY PORT	EXEC TELS PORT 1-8	DSS CONSOLES PORT 2&3
37	(46)	VT1	26	W-BL	1			
		VR1	1	BL-W	2			
		DTA1	27	W-O	3			
		DTB1	2	O-W	4			
38	DSS #7 (47)	VT2	28	W-G	5			BLF FOR STA. 10-39
		VR2	3	G-W	6			
		DTA2	29	W-BR	7			
		DTB2	4	BR-W	8			
39	DSS #8 (48)	VT3	30	W-S	9			BLF FOR STA. 40-69
		VR3	5	S-W	10			
		DTA3	31	R-BL	11			
		DTB3	6	BL-R	12			
40	(49)	VT4	32	R-O	13			
		VR4	7	O-R	14			
		DTA4	33	R-G	15			
		DTB4	8	G-R	16			
41	(50)	VT5	34	R-BR	17			
		VR5	9	BR-R	18			
		DTA5	35	R-S	19			
		DTB5	10	S-R	20			
42	(51)	VT6	36	BK-BL	21			
		VR6	11	BL-BK	22			
		DTA6	37	BK-O	23			
		DTB6	12	O-BK	24			
43	(52)	VT7	38	BK-G	25			
		VR7	13	G-BK	26			
		DTA7	39	BK-BR	27			
		DTB7	14	BR-BK	28			
44	(53)	VT8	40	BK-S	29			
		VR8	15	S-BK	30			
		DTA8	41	Y-BL	31			
		DTB8	16	BL-Y	32			
45	(54)	VT9	42	Y-O	33			
		VR9	17	O-Y	34			
		DTA9	43	Y-G	35			
		DTB9	18	G-Y	36			
46	(55)	VT10	44	Y-BR	37			
		VR10	19	BR-Y	38			
		DTA10	45	Y-S	39			
		DTB10	20	S-Y	40			
47	(56)	VT11	46	V-BL	41			
		VR11	21	BL-V	42			
		DTA11	47	V-O	43			
		DTB11	22	O-V	44			
48	(57)	VT12	48	V-G	45			
		VR12	23	G-V	46			
		DTA12	49	V-BR	47			
		DTB12	24	BR-V	48			
SPARE			50	V-S	49			
			25	S-V	50			

TABLE 2-3 STATION BLOCK CONNECTIONS (CON'T)

STU #5

PORT NUMBER	TELE-PHONE EXT. NUMBER	LEAD DESIG.	JACK J1 CONN PIN NO.	B25B CONN CABLE COLOR	CONN BLK ROW NO.	P-6, 18 OR 30 TEL ANY PORT	EXEC TELS PORT 1-8	DSS CONSOLES PORT 2&3
49	(58)	VT1	26	W-BL	1			
		VR1	1	BL-W	2			
		DTA1	27	W-O	3			
		DTB1	2	O-W	4			
50	DSS #9 (59)	VT2	28	W-G	5			BLF FOR STA. 10-39
		VR2	3	G-W	6			
		DTA2	29	W-BR	7			
		DTB2	4	BR-W	8			
51	DSS #10 (60)	VT3	30	W-S	9			BLF FOR STA. 40-69
		VR3	5	S-W	10			
		DTA3	31	R-BL	11			
		DTB3	6	BL-R	12			
52	(61)	VT4	32	R-O	13			
		VR4	7	O-R	14			
		DTA4	33	R-G	15			
		DTB4	8	G-R	16			
53	(62)	VT5	34	R-BR	17			
		VR5	9	BR-R	18			
		DTA5	35	R-S	19			
		DTB5	10	S-R	20			
54	(63)	VT6	36	BK-BL	21			
		VR6	11	BL-BK	22			
		DTA6	37	BK-O	23			
		DTB6	12	O-BK	24			
55	(64)	VT7	38	BK-G	25			
		VR7	13	G-BK	26			
		DTA7	39	BK-BR	27			
		DTB7	14	BR-BK	28			
56	(65)	VT8	40	BK-S	29			
		VR8	15	S-BK	30			
		DTA8	41	Y-BL	31			
		DTB8	16	BL-Y	32			
57	(66)	VT9	42	Y-O	33			
		VR9	17	O-Y	34			
		DTA9	43	Y-G	35			
		DTB9	18	G-Y	36			
58	(67)	VT10	44	Y-BR	37			
		VR10	19	BR-Y	38			
		DTA10	45	Y-S	39			
		DTB10	20	S-Y	40			
59	(68)	VT11	46	V-BL	41			
		VR11	21	BL-V	42			
		DTA11	47	V-O	43			
		DTB11	22	O-V	44			
60	(69)	VT12	48	V-G	45			
		VR12	23	G-V	46			
		DTA12	49	V-BR	47			
		DTB12	24	BR-V	48			
SPARE			50	V-S	49			
			25	S-V	50			

STATION AND MODULAR JACK CONNECTIONS

A two-pair cable is required between the connecting block and the type 625A modular jack of each telephone station port. A modular line cord is connected between the type 625A modular jack and the telephone set. Figure 2-10 illustrates the station line connections. Table 2-4 lists the station modular jack connections.

Table 2-4

STATION MODULAR JACK CONNECTIONS

Modular Jack Color	Two-Pair Cable Color	Connecting Block Terminal Designation
Bk (Black)	Black	DTA 2-12
R (Red)	Red	VR 1-12
G (Green)	Green	VT 1-12
Y (Yellow)	Yellow	DTB 1-12

CABLING BETWEEN THE CO CONNECTING BLOCKS AND THE BSU

Up to six two-pair modular cables are required for connection to the telephone company provided connector(s) RJ-11C jack(s) in accordance with FCC rules, part 68. Figure 2-11 illustrates the CO/PBX line connections, and Table 2-5 lists all cabling connections between the BSU/LEUs and the CO/PBX interface.

2-21
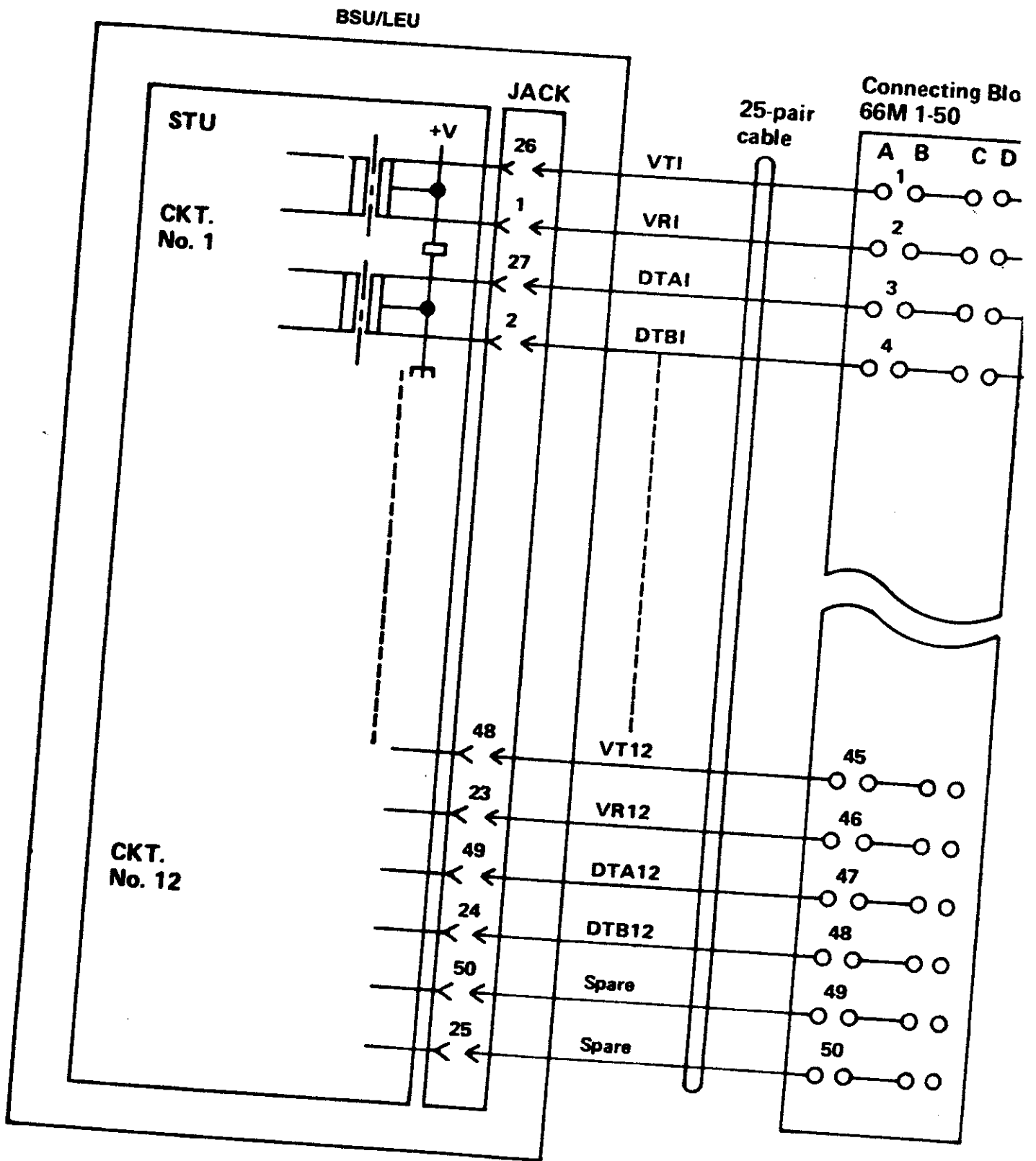
Figure 2-10. Station Interconnect Diagram.

2-Pair Cable

625 Modular Jack

Modular Line Cord

Telephone

Green

Red

Black

Yellow

Red

Green

Yellow

Black

Voltage Regulator

Modular Jack

Yellow

Green

Red
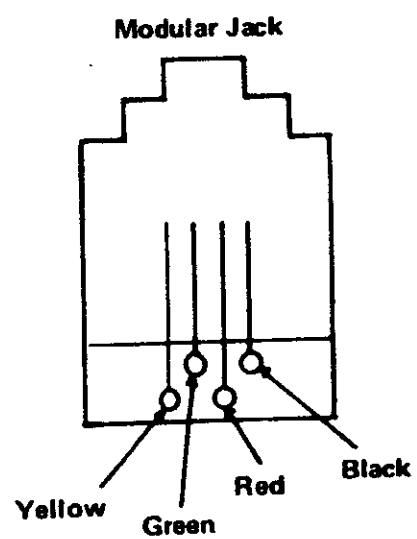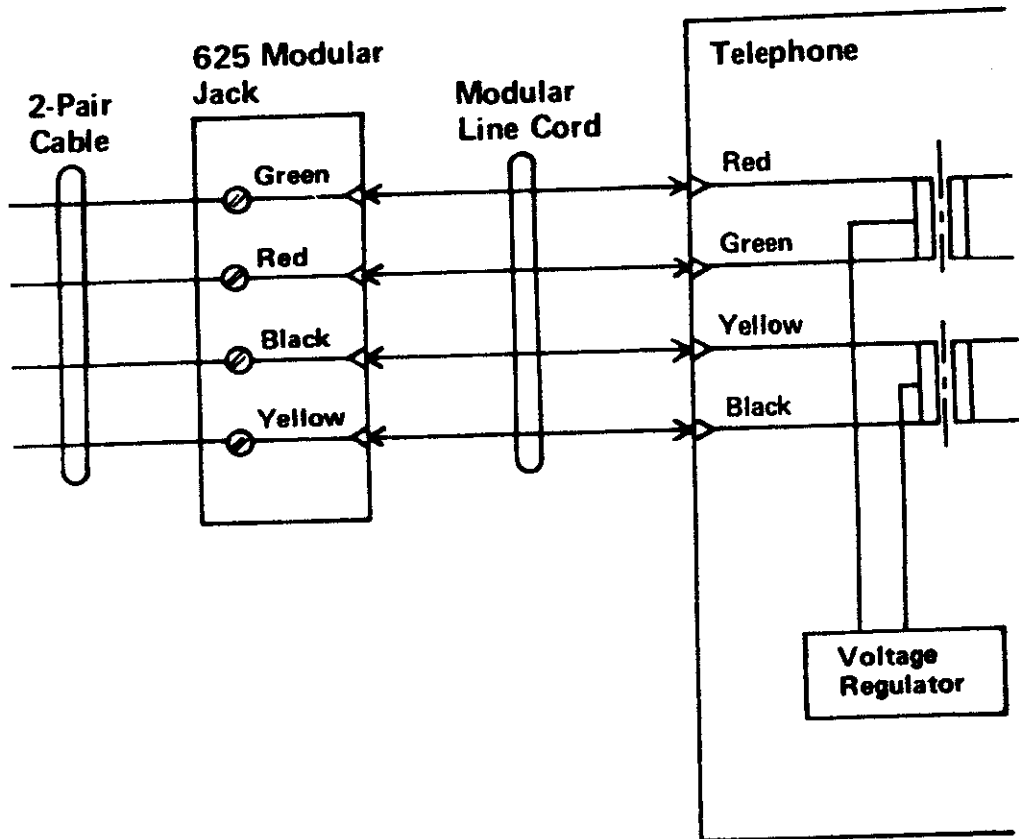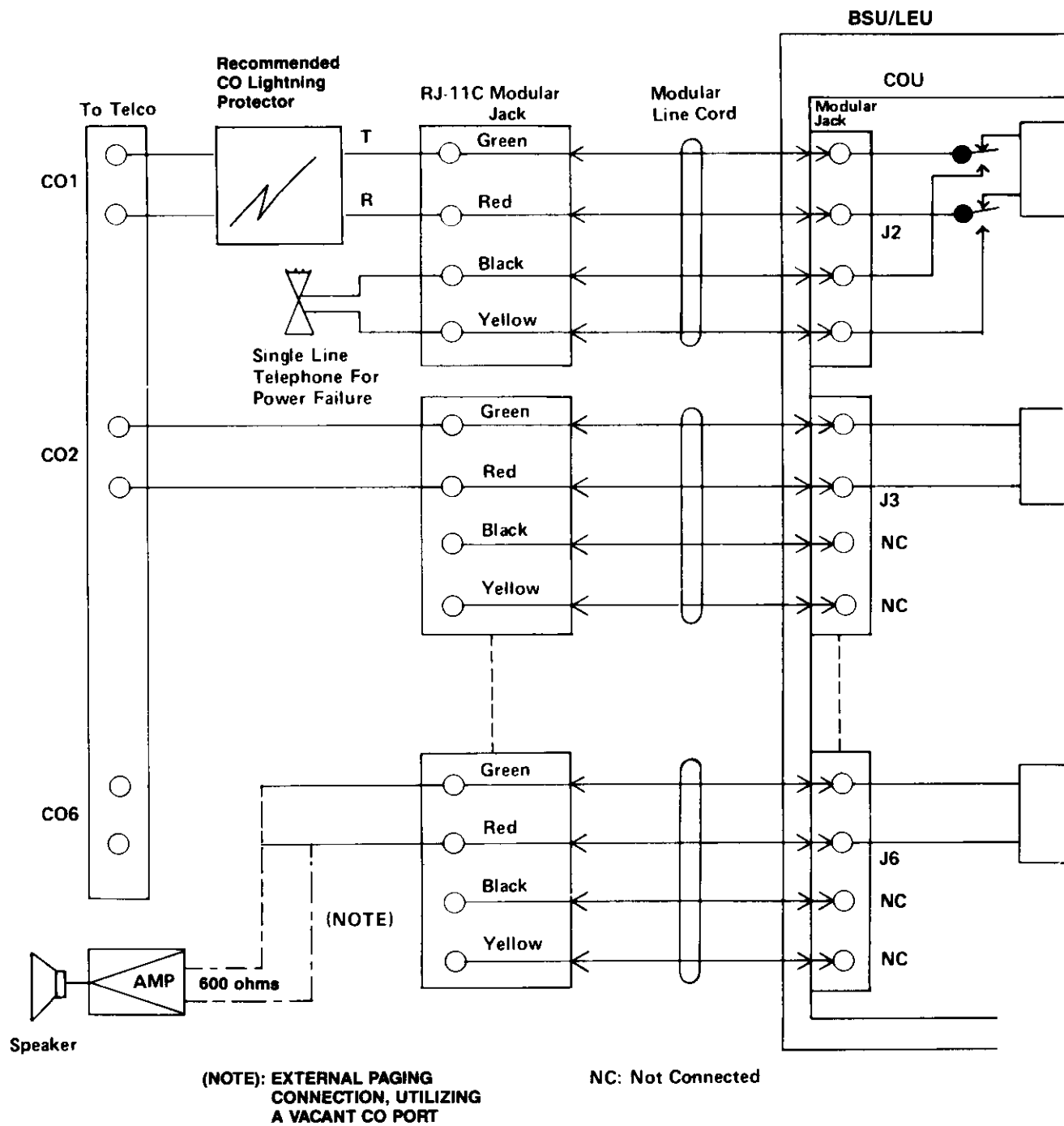
Black

Figure 2-11. CO/PBX Line Connections.

2–25

TABLE 2-5
CONNECTIONS FOR CO/PBX LINE

KSU

			TRUNK NO.	LEAD DESIG.	MODULAR LINE CORD
POWER FAILURE	1PF	YELLOW	1	1T	GREEN
TRUNK	2PF	BLACK		1R	RED
			2	2T	GREEN
				2R	RED
			3	3T	GREEN
		COU #1		3R	RED
			4	4T	GREEN
				4R	RED
			5	5T	GREEN
				5R	RED
			6	6T	GREEN
ESU #1				6R	RED
POWER FAILURE	1PF	YELLOW	7	7T	GREEN
TRUNK	2PF	BLACK		7R	RED
			8	8T	GREEN
				8R	RED
			9	9T	GREEN
		COU #2		9R	RED
			10	10T	GREEN
				10R	RED
			11	11T	GREEN
				11R	RED
			12	12T	GREEN
				12R	RED
POWER FAILURE	1PF	YELLOW	13	13T	GREEN
TRUNK	2PF	BLACK		13R	RED
			14	14T	GREEN
				14R	RED
			15	15T	GREEN
		COU #3		15R	RED
			16	16T	GREEN
				16R	RED
			17	17T	GREEN
				17R	RED
			18	18T	GREEN
ESU #2				18R	RED
POWER FAILURE	1PF	YELLOW	19	19T	GREEN
TRUNK	2PF	BLACK		19R	RED
			20	20T	GREEN
				20R	RED
			21	21T	GREEN
		COU #4		21R	RED
			22	22T	GREEN
				22R	RED
			23	23T	GREEN
				23R	RED
			24	24T	GREEN
				24R	RED

TABLE 2-5
CONNECTORS FOR CO/PBX LINE (cont.)

LEU #2

POWER FAILURE 1PF YELLOW
TRUNK 2PF BLACK

COU #5

TRUNK NO.	LEAD DESIG.	MODULAR LINE CORD
25	25T	GREEN
	25R	RED
26	26T	GREEN
	26R	RED
27	27T	GREEN
	27R	RED
28	28T	GREEN
	28R	RED
29	29T	GREEN
	29R	RED
30	30T	GREEN
	30R	RED

TELEPHONE INSTALLATION

To install the telephone, connect the four-conductor line cord provided with the telephone between the telephone and the modular jack, as shown in Figure 2-12. If speakerphone is required, see Appendix B for installation instructions. If wall mount is required, see Appendix C.
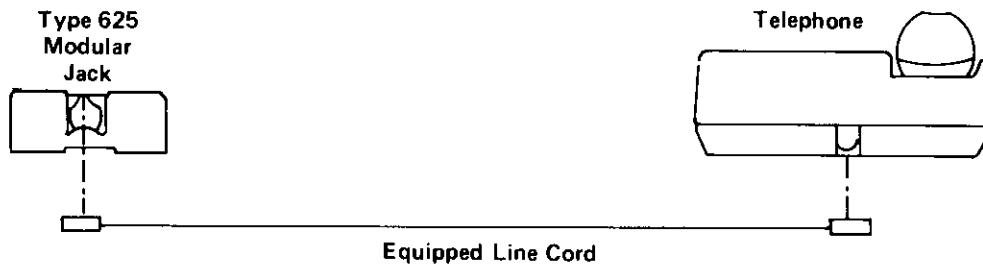
Figure 2-12. Station Connection.
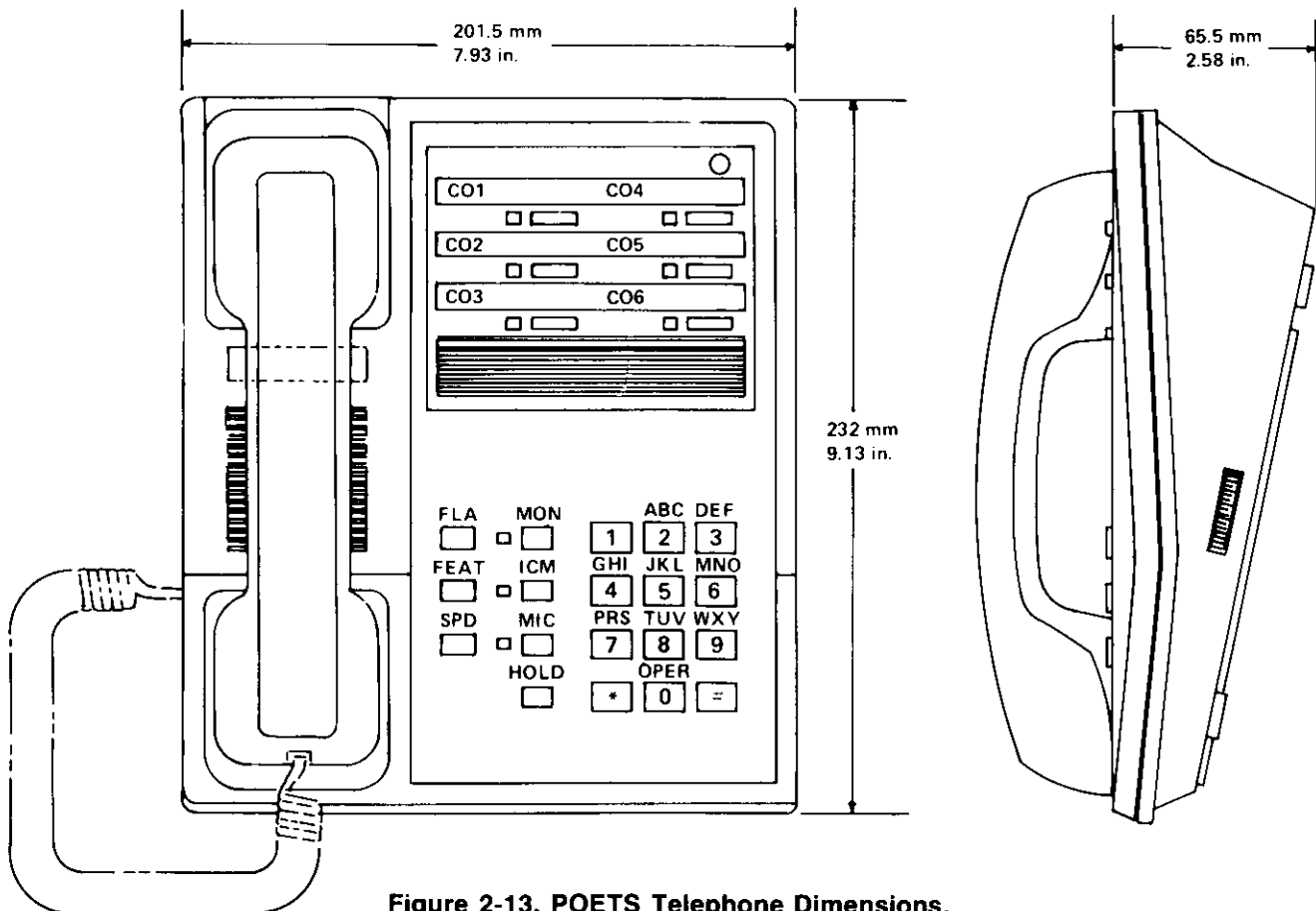
Figure 2-13. POETS Telephone Dimensions.

POWER SUPPLY CONNECTIONS

As the power supply is equipped with a connector-ended cable, this cable must be connected to the three-conductor connector provided on the BSU. The three-conductor power connector is located on the left side of the BSU. The power supply connects directly to the BSU connector. (A PS2A may be used except when Battery Backed System operation is required, or when an LEU is added. See Figure 2-14 for power connection required for LEU operation--PS10A-BB must be used in this case.)

BATTERY BACKED SYSTEM OPERATION

This type of power backup allows full system operation. The power supply has two terminals, one positive (+) and one negative (-). These terminals are the connections for the batteries to be terminated. The system requires two 12 VDC, 40 amp-hour wet cell or two 80 amp-hour gel cell type batteries. Wire the negative from the first battery to the positive of the second battery. Now take the positive from the first battery and connect to the power supply positive terminal and wire negative from the second battery to the negative terminal of power supply. At this point, you will have 24 VDC that will provide approximately four hours of system operation if A/C power is lost. A PS10A-BB power supply must be used for this type operation. See Figure 2-15.
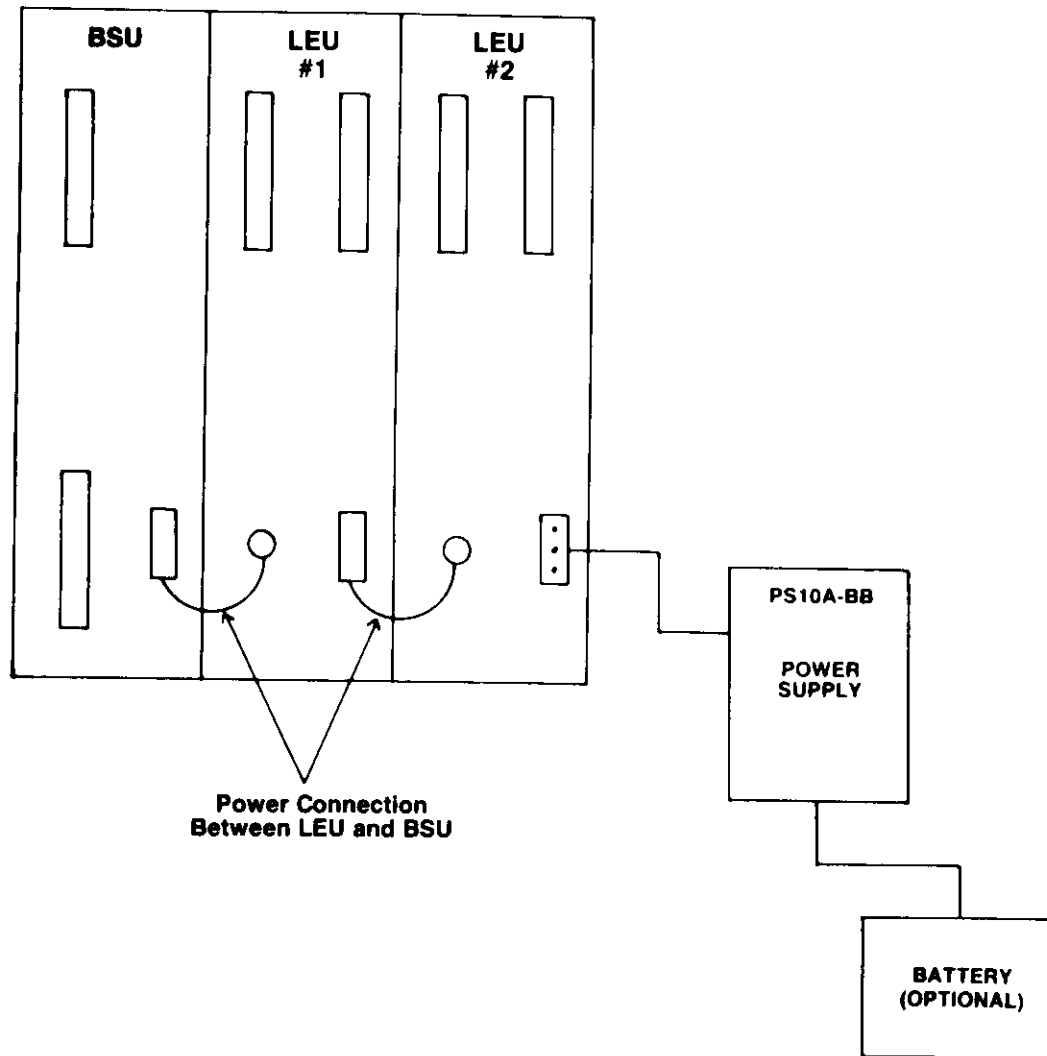
Figure 2-14. Power Supply Connections.
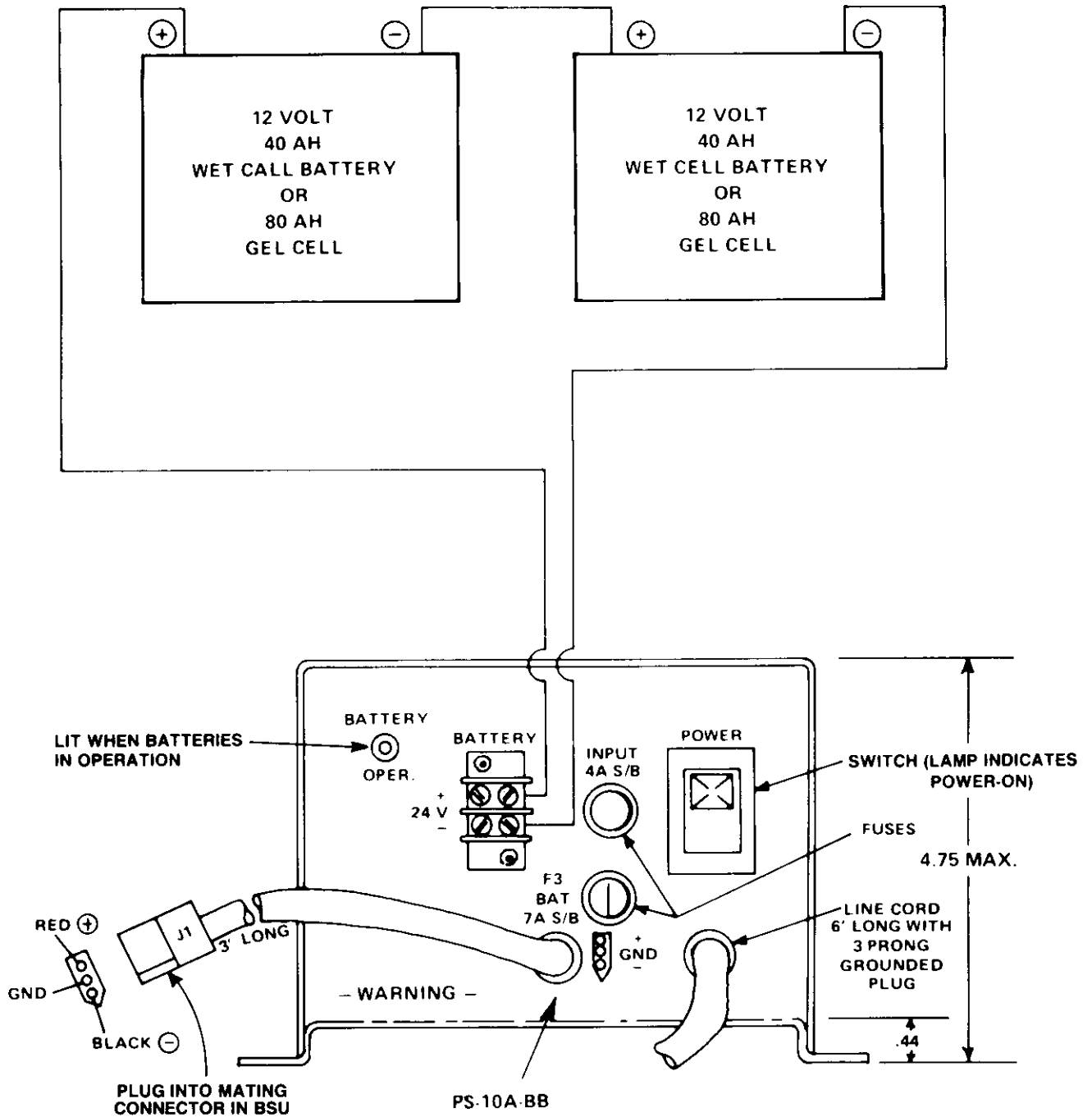
Figure 2-15. Wiring For Battery Back-Up Utilizing PS-10A-BB Power Supply.
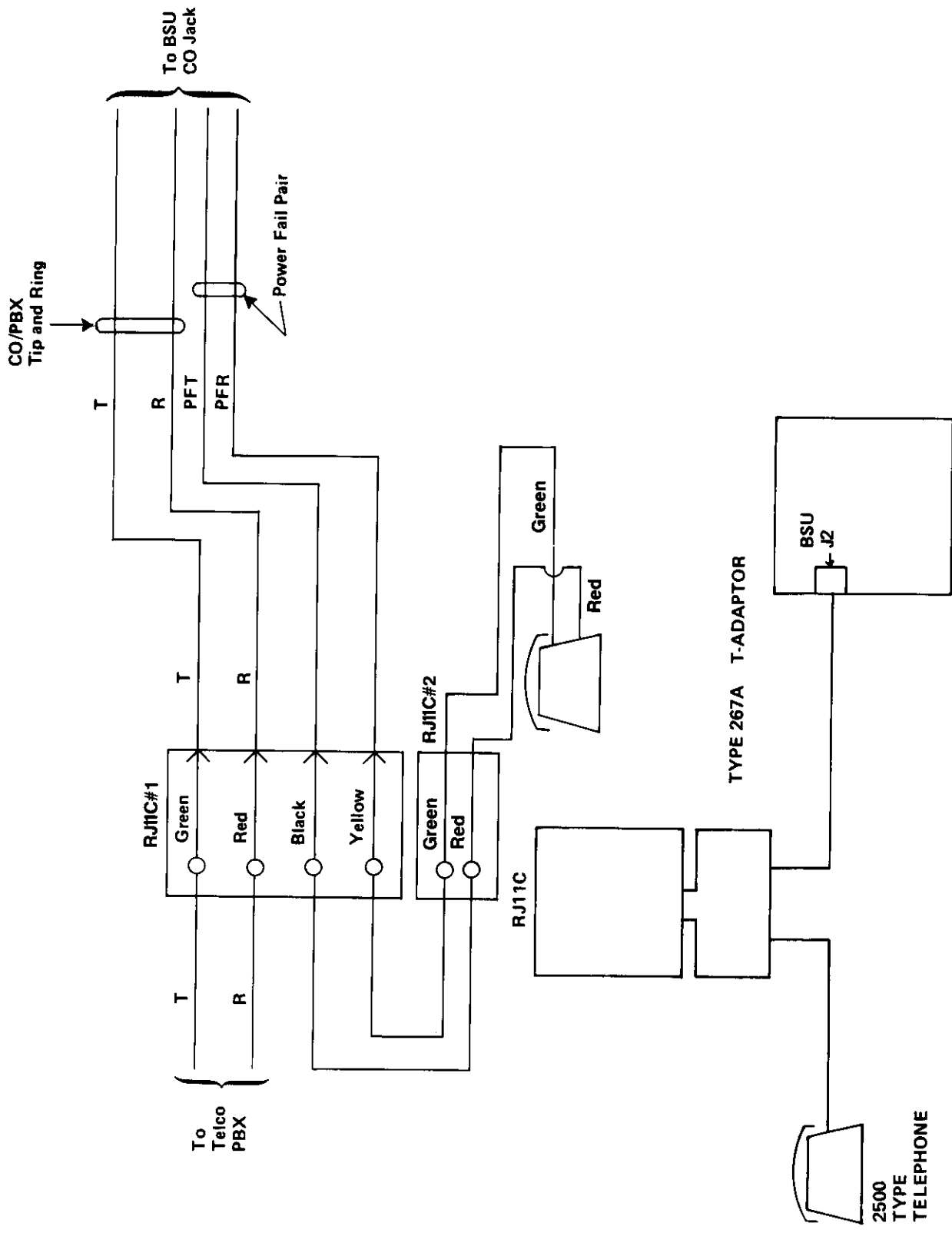
Figure 2-16. CO Line Wiring For Power Failure.

POWER FAILURE CONNECTIONS

The first line of the COU is equipped for power failure connection to a standard single line telephone. In the event of a power failure, Tip and Ring of the first line of each COU will automatically be transferred from the inside conductors of the RJ-11C to the outside conductors for connection to a single line telephone. To provide power failure connection to a single-line instrument, connect the black and yellow leads of RJ-11C jack #1 to the Red and Green Leads of RJ-11C jack #2, as shown in Figure 2-16. Plug a standard 2500 set into RJ-11C Jack #2.

MUSIC-ON-HOLD CONNECTIONS

The CPU card is equipped with Music-on-Hold interface circuitry. When Music-on-Hold is required, connect the RCA jack marked MOH on the BSU to the customer provided music source output terminals. One-pair shielded cable is recommended for connections. The recommended output for the MOH source is 8 ohms, amplified. When a radio is used as a music source, the radio must be located a minimum of ten feet from the main service unit, since the radio receivers generate radio frequencies which may cause interference to the system.
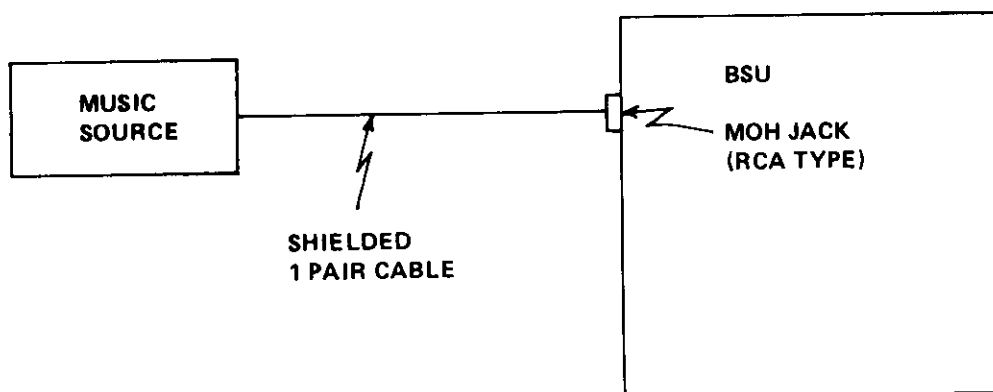
Figure 2-18. Music-On-Hold Connections.

EXTERNAL PAGING CONNECTIONS

A spare CO port is required for external paging. When external paging is required, connect the paging equipment to the modular jack associated with the spare CO output. There is no "ON/OFF" control for external paging amplifiers. One-pair shielded cable is recommended for paging amplifier connections.

(NOTE): EXTERNAL PAGING CONNECTION, UTILIZING CO LINE MODULAR JACK. THERE IS NO ON/OFF CONTROL FOR THE AMPLIFIER.

NC: Not Connected
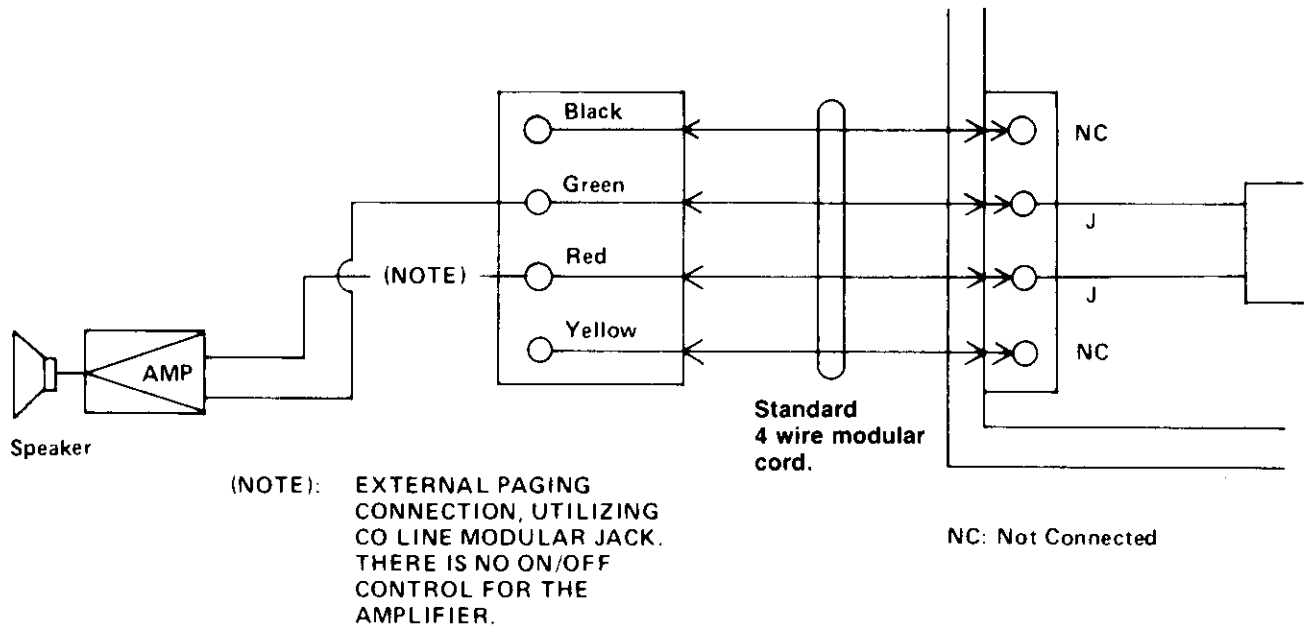
Figure 2-19. External Page Connections.

CIRCUIT CARD INSTALLATION (BSU-P)

The following paragraphs provide a brief description and installation instructions for each basic and optional circuit card for connection to the BSU. The Central Processing Unit "CPU" card has DIP switches which may be set before the card is installed. The options and associated switch settings are described on the following pages. The circuit cards are listed below and Figure 2-20 indicates the location of the cards in the basic service unit.

CIRCUIT CARDS FOR BSU

P-CPU-E	Central Processing Unit
COU-	Central Office Unit (6 CO Lines Max.)
P-STU-X	Station Unit (Line Card for 12 Stations)
SMU*-	Station Message Detail Recording Unit
	*(optional/1 per system)

CAUTIONS

1. **REMOVE ALL POWER BEFORE INSTALLING THE CIRCUIT CARDS.**

2. **ALL CIRCUIT CARDS ARE STATIC SENSITIVE.** Before handling any circuit card, perform one of the following two precautions:

   o Discharge the static electricity from your body by touching a metal that is earth grounded.

   o Attach a wire from an earth grounded metal to your wrist which is secured by tape or a clip.

3. **WHEN INSTALLING THE CIRCUIT CARDS, CHECK THAT THE CARDS ARE PROPERLY POSITIONED IN THE CARD FILE TRACKS.** Ensure that all cables are properly connected before fully inserting the cards into the cabinet. Inserting a card that is not positioned correctly or connected correctly will damage the card. See Figure 2-21 for proper card positioning.
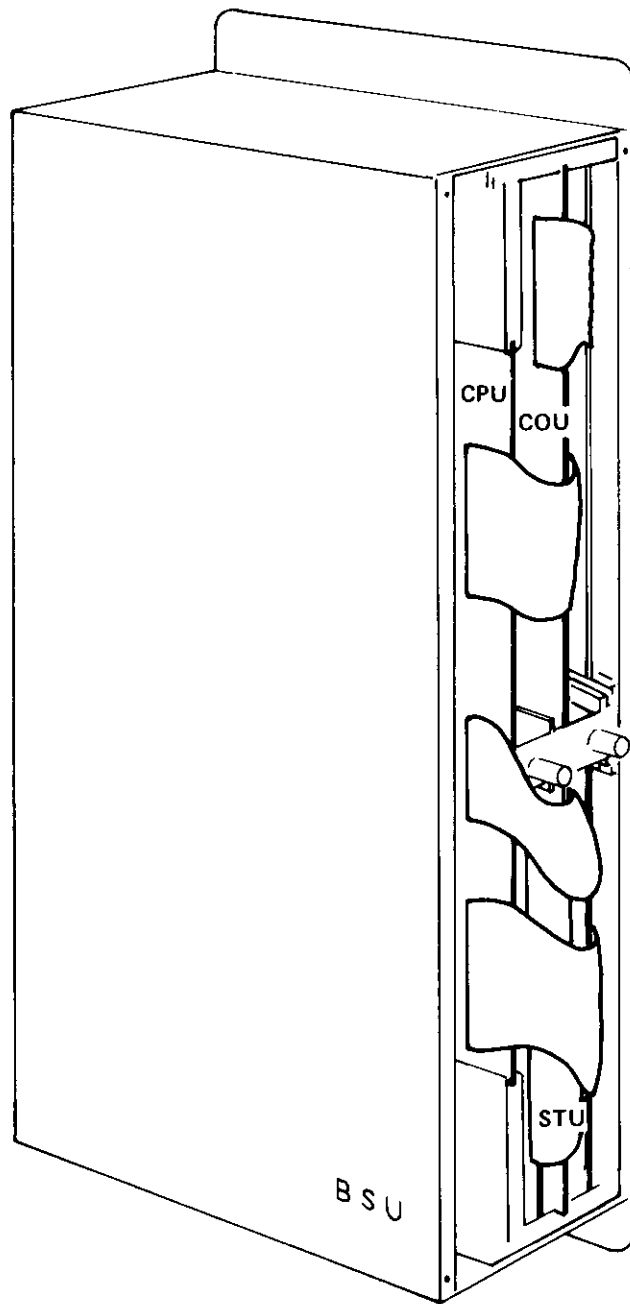
Figure 2-20. POETS-PLUS Basic Service Unit Internal Construction
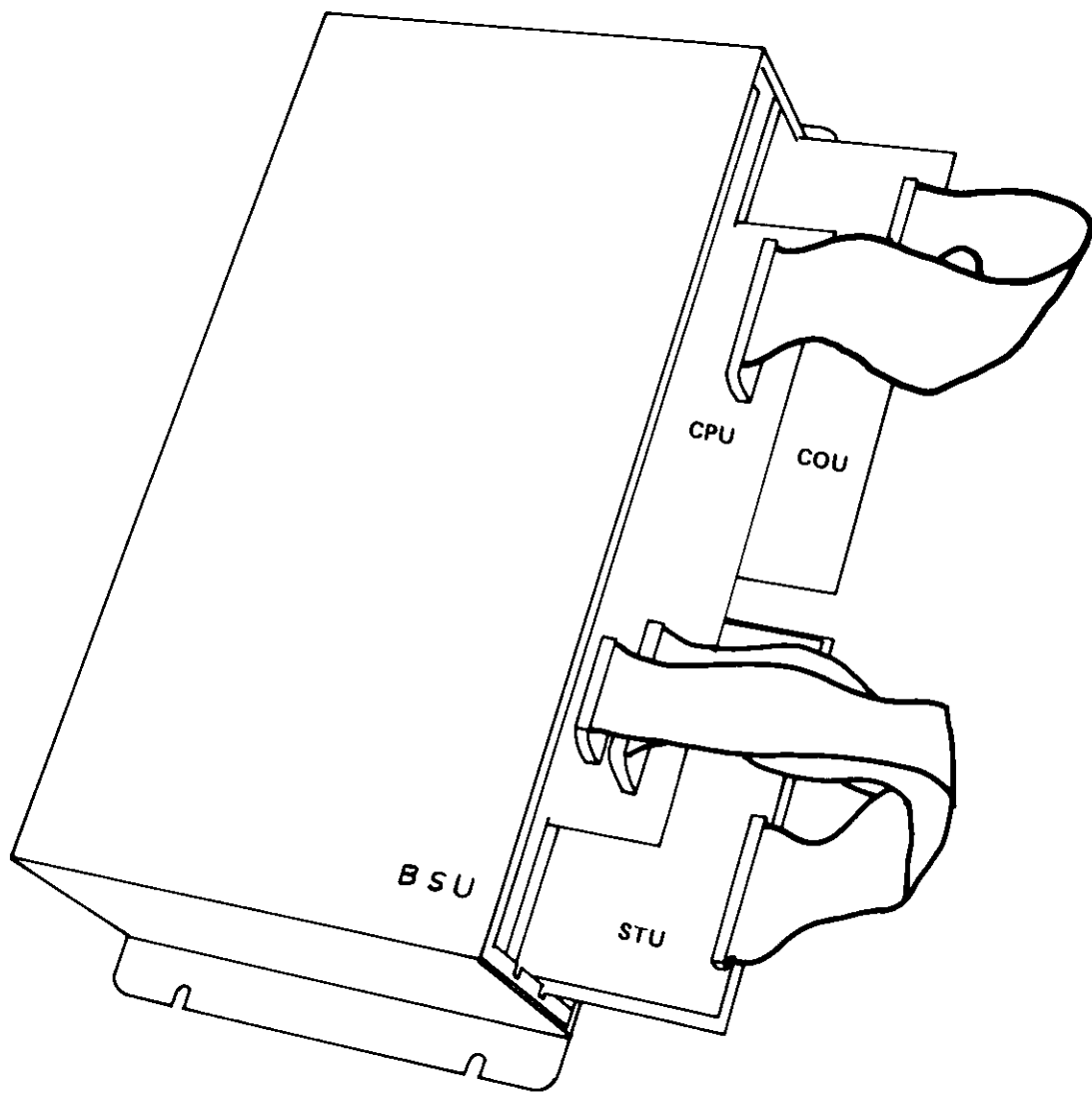
Figure 2-21. Circuit Card Positioning (BSU).

CPU-E CARD

This circuit card is the central processing and control unit. One CPU Card (See Figure 2-22) is required in any system regardless of its configuration. The primary function of the CPU card is to supervise and maintain control of the system. The CPU accomplishes this by processing and communicating stored data, or stored programs, which it accesses from Eprom.

The main data base contains the system's operational and factory data, which is used for basic system operations. The main data base is permanently stored in integrated circuits (Eprom Chips) located on a 2 x 5 inch printed circuit board which is retrofitted (mounted) face down in a piggyback fashion onto the main CPU's circuit board. The factory data must be transferred (loaded) into the CPU main memory (RAM) upon power-up and before normal operation of the system can take place. This transfer or Initial Program Load "IPL" is performed upon initial power-up with the use of a 4 Bit Switch "SW1" located on the CPU board. ("SW3" for LEU#1 and "SW4" for LEU#2).

A customer data base is determined by the end user when modifications are made to the factory (default) data. Subsequently, the customer data may be a combination of unmodified factory (default) data and customer data and is stored in Random Access Memory (RAM).

Upon initialization "Booting up the System" (by way of SW1—see Table 2-6 which outlines the Switch SW1 Functions), the factory data base is loaded into system Random memory (RAM) located on the main CPU board and the ECU boards. If the system

is not initialized properly (see Initialization Flow Chart), erratic operation will occur. Once the factory data base is loaded into system RAM, then modification (programming) of the customer data base may occur.

The secondary function of the CPU is to provide common audibles (tone signals) to the integral parts of the system (except DTMF), and to serve as a voice and data communications network to the various intercom paths, internal paging links, ECUs, STUs, COUs, and SMU. Some of the integral parts of the main CPU are described as follows:

1.   CPU

8 bit microprocessor and control logic.

2.   Random Access Memory

Used for storing operational software and customer or factory data bases.

3.   DIP Switches

SW1 Bits 1-4--Used for system initialization and speed dial (system and station except for Executive) clearing. Also controls system use of factory data or both customer and factory data by allowing or disallowing customer programming mode.
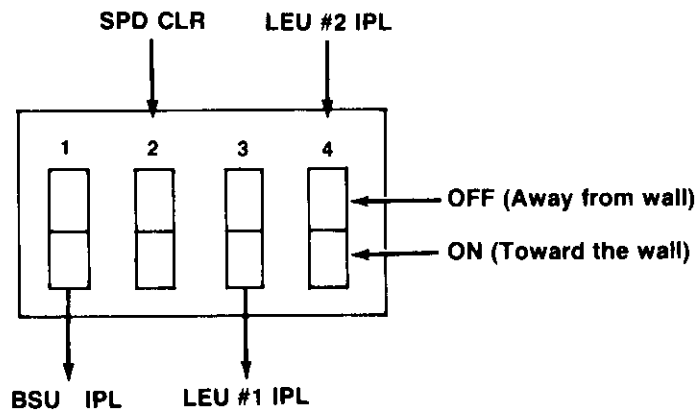
Table 2-6

SWITCH SW1 FUNCTIONS

| SELECTOR # | Switch SW1 State | |
	OFF	ON
1	CPU run by Customer program entered	CPU run by Factory program (Initial BSU program load)
1+2	System/Station and Station/Station SPD Banks program	BSU System/Station and Station/Station SPD banks clear
*3	LEU #1 Run by Customer data	LEU #1 Run by Factory Data (Initial LEU #1 program load)
*4	LEU #2 Run by Customer data	LEU #2 Run by Factory Data (Initial LEU #2 program load)
2+3	LEU #1 Station/Station SPD Banks program	LEU #1 Run by Factory Data and LEU #1 Station/Station SPD banks clear
2+4	LEU #2 Station/Station SPD Banks program	LEU #2 Run by Factory Data and LEU #2 Station/Station SPD banks clear

CPU FRONT VIEW

SYSTEM STATION SPD CLEAR ——

BSU IPL ——

—— LEU #1 IPL

—— LEU #2 IPL

1 2 3 4   ON

OFF

MOH

LED #1
CPU RUN

LED #2
COU TRBL-FAIL

LED #3
STATION BUSY

IPL SWITCH

POWER CONNECTOR

COU INT

ST. INT.

LEU

LEU

STANDOFF

SYSTEM
SOFTWARE
PCB

30 PIN
NON KEYED
CONNECTOR

COU-TRBL FAIL

1 2 3

1 2 3 4

LEU #1 IPL

LEU #2 IPL

LITHIUM BATTERY
FOR MEMORY
RETENTION

STA. BUSY

BSU

MOH-JACK

CPU RUN

IPL SWITCH

ON: INITIAL PROGRAM LOAD
OFF: PROGRAM SAVED-CUSTOMER PROGRAM MODE

Figure 2-22. POETS-PLUS CPU Card.

5. <u>Connectors</u> <u>(Interfaces)</u>

CNA--60 pin connector for connection to CN0 of #1 ECU Board
or SMU.

CNB--40 pin connector for connection to CN1 of #1 ECU Board

CNC--50 pin connector for connection to J1 of #1 STU Board

CND--34 pin connector for connection to J2 of #1 STU Board

CNE--50 pin connector for connection to J1 of #1 COU Board

6. <u>Power</u> <u>Interface</u>

Connects power jack from inside BSU cabinet to main power

converter located on P.C. board.

Figure 2-23 Internal Power Interface

Internal Power Supply Cable

BSU/LEU
Card File Cabinet
(Rear View)

Insert
Connector
Key Here

Black

Red

CNP   +

Power Connector
(Side View)

CPU or ECU
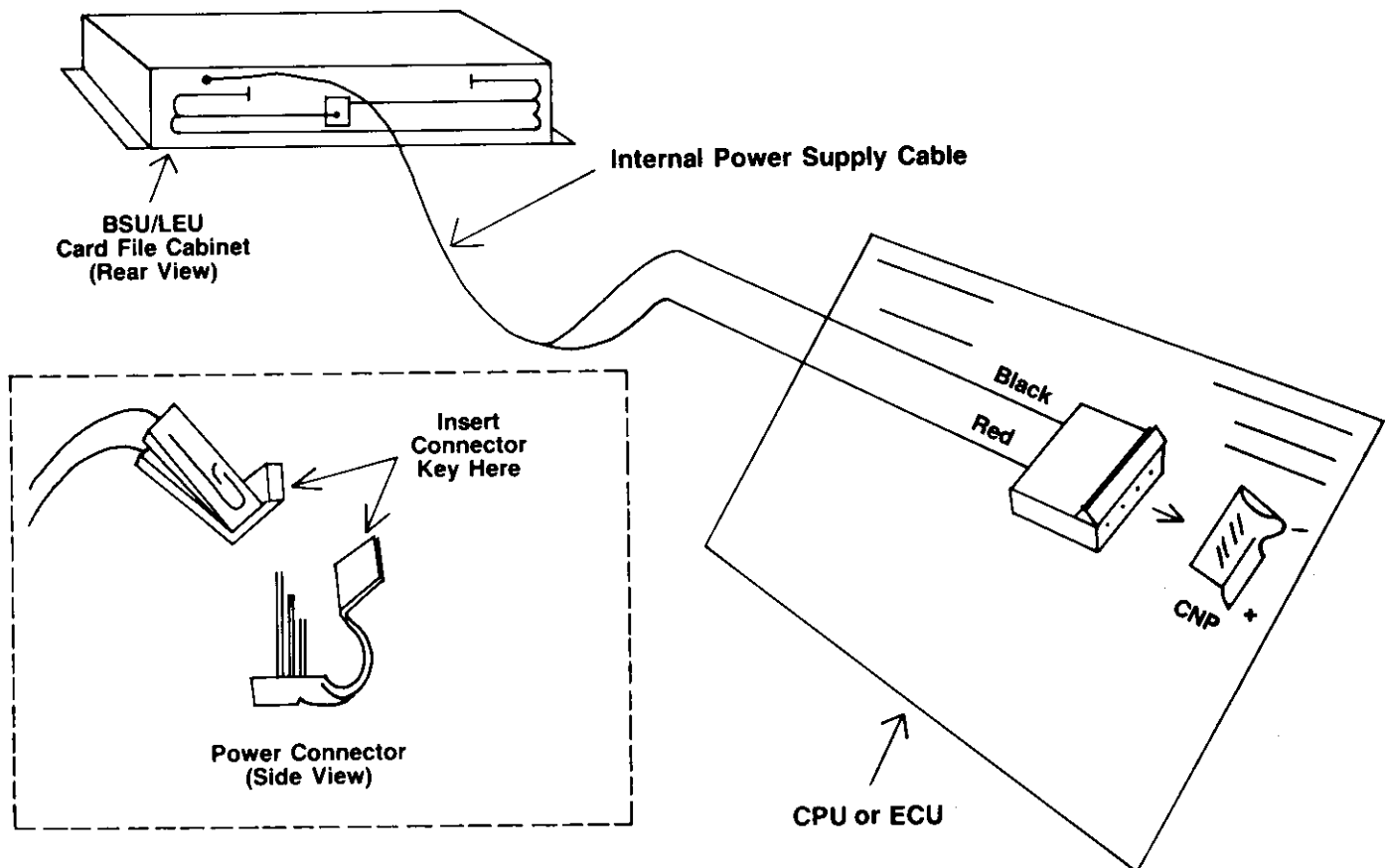
7. MOH Jack

Female RCA type jack which interfaces once CPU is mounted into BSU card file to music on hold amplified source (radio, etc.)

8. Light Emitting Diodes (LEDs)

There are three LEDs associated with the CPU as follows:

o #1 LED-CPU Run Indicator: Lights steady to show CPU normal operation. Will flash upon system reset or power failure.

o #2 LED-COU Fault Indicator: Will flash to indicate COU trouble due to software programming efforts, or malfunctioning COU computer.

o #3 LED--Lights solid to indicate system is busy. Flashes to indicate STU trouble due to software programming errors or STU computer failure.

9. Battery

A 3-volt lithium battery is supplied for maintaining CPU random memory during storage and/or power failure. The battery will provide power to the CPU memory continuously for up to one year. Under normal system operation the lithium battery will last approximately 5 years.

COU CARD

The COU card provides control for six CO lines. All modular jacks (USOC code RJ 11C) and connections for six CO/PBX interfaces are found on the COU Card. The first of six CO/PBX jacks is a power failure port which facilitates the use of the

outside pair of conductors for direct connection to the CO/PBX line in the case of a power failure. This card can be programmed by system option for either dial pulse output signaling and/or DTMF output signaling (it is factory programmed for DTMF). An associated LED indicates a busy condition on any one of the CO/PBX lines on the COU card. See Figure 2-24. The BSU comes equipped with one COU. (None are provided with LEU.)

STU-X CARD

The STU-X card provides control for up to 12 stations. A RJ21X type connector is provided for station interface. The BSU-P comes equipped with one STU-X. (None are provided with the LEU). See Figure 2-25.

LEDs ST 1-2 -- ST 11-12

These LEDs are provided on the STU card and indicate a short circuit condition on the power and transmission path for each key telephone. One LED incorporates two stations for trouble indicating either one or both stations associated with each LED as shown on Table 2-7. If an LED is lit, a short is present and must be found and corrected. (It is highly recommended that both stations associated with the trouble LED be disconnected immediately.) After the short has been cleared, both stations associated with the trouble LED must be disconnected to extinguish the LED. There is no need to replace fuses since positive temperature coefficient varistors "PTC's" are used for faster response time and higher reliability.

Table 2-7

STATION LINE SHORT-CIRCUIT

LED Lamp	Short-Circuited Station
ST 1-2	Station 1, 2
ST 3-4	Station 3, 4
ST 5-6	Station 5, 6
ST 7-8	Station 7, 8
ST 9-10	Station 9, 10
ST 11-12	Station 11, 12

STATION MESSAGE UNIT (SMU)

This is an optional Station Message Detail Recording "SMDR" card. It will provide an output, to a printer or call accounting system, of complete call records for both incoming and outgoing calls. The CPU must have Version 3 or later version software in order to operate the SMU. See installation instructions provided with the card.

In addition, it is possible to get a hard copy dump of the system customer data through the SMU port by executing Program # _____.

BL (BUSY LAMP)

CO CONNECTOR

6   5   4   3   2   1

LED

J7 J6 J5 J4 J3 J2

RIBBON
CONNECTOR
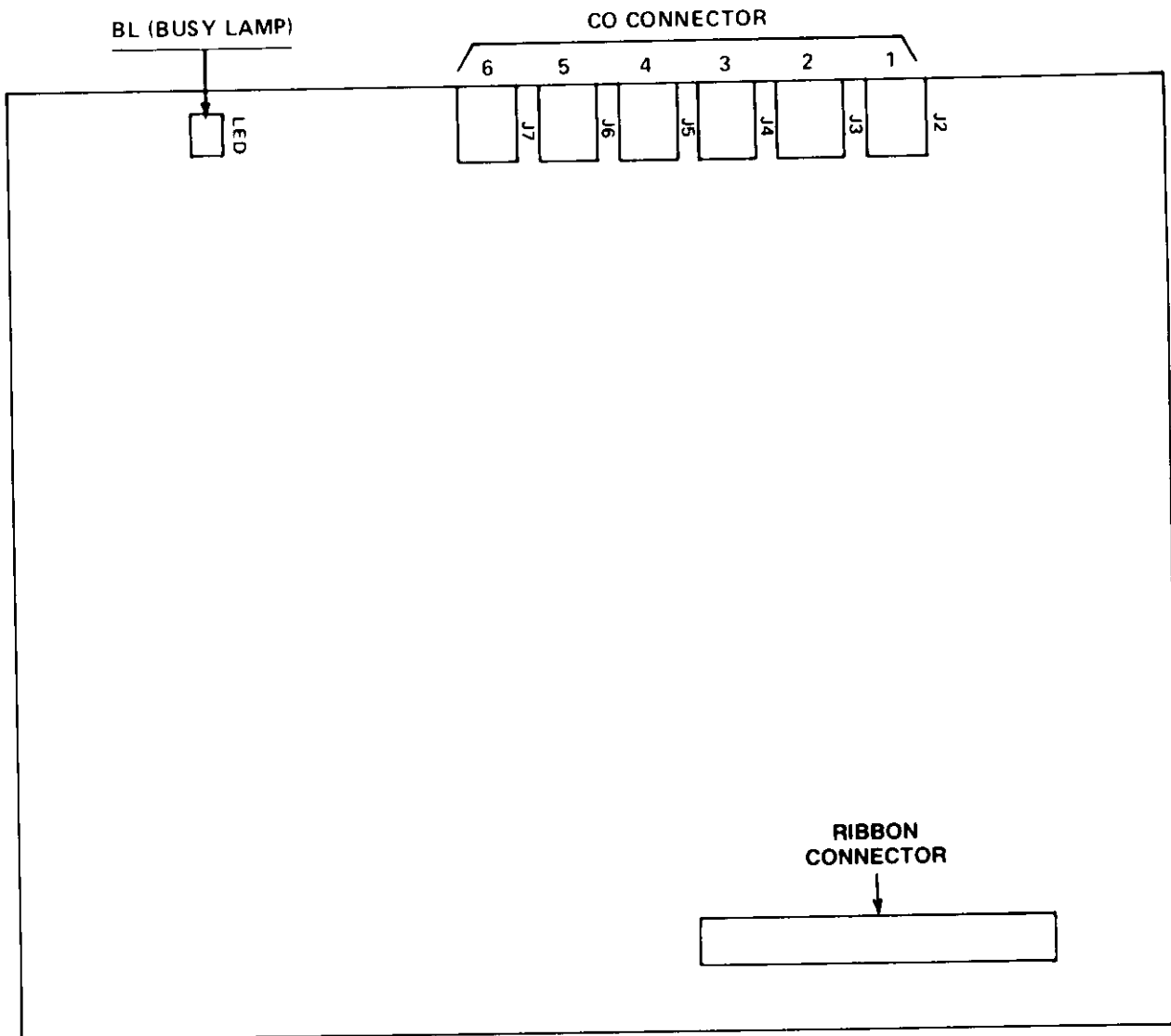
Figure 2-24. POETS-PLUS COU Card.

RIBBON CONNECTOR

ST 11, 12

ST 9, 10

PTC
MONITOR
(LED)

ST 7, 8

ST 5, 6

ST 3, 4

ST 1, 2

STATION SHORT INDICATORS

FEMALE AMPHENOL STATION CONNECTOR
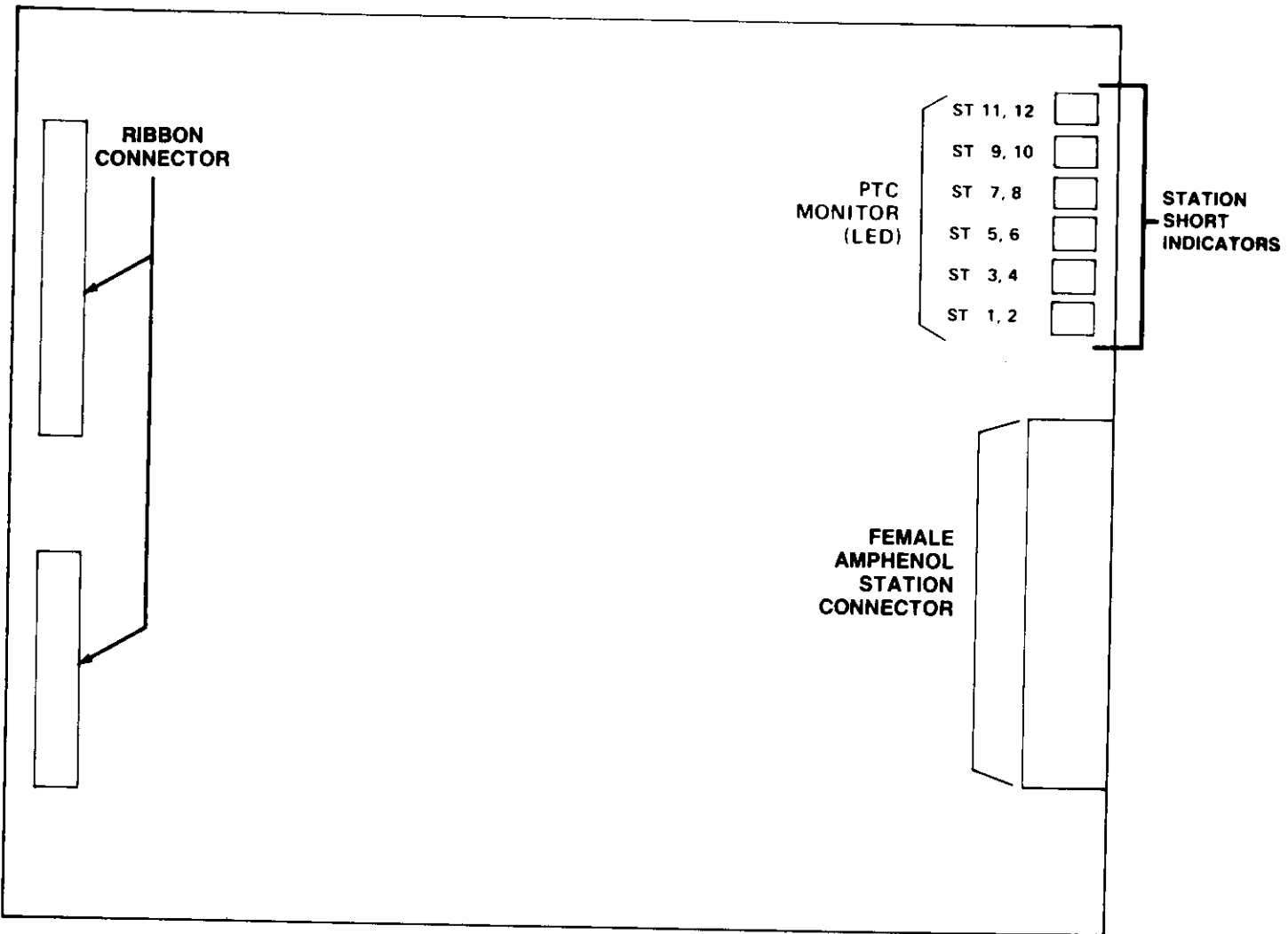
Figure 2-25. POETS-PLUS STU Card.

CIRCUIT CARD INSTALLATION (LEU)

The following paragraphs provide a brief description of and installation instructions for the basic and optional cards in the LEU and how they interface with the BSU. The LEU cabinet is a card file type cabinet with an internal/external power supply interface. The circuit cards associated with the LEU are to be inserted in the appropriate place as indicated on the LEU card file tracks. Hence, the circuit cards are interfaced with ribbon cables. (The ribbon cables take the place of a main distribution frame "MDF".) Table 208 lists the circuit cards in the LEU and the cable designations and interface. Figure 2-26 illustrates the internal construction of the LEU. Figure 2-27 shows the positioning of the cards. Figure 2-28 shows the proper cable connections between each LEU and the BSU.

CAUTIONS

1. **REMOVE ALL POWER BEFORE INSTALLING THE CIRCUIT CARDS.**

2. **ALL CIRCUIT CARDS ARE STATIC SENSITIVE.** Before handling any circuit card, perform one of the following two precautions:

   o Discharge the static electricity from your body by touching a metal that is earth grounded.

   o Affix a grounding strap (wire) from an earth grounded metal to your wrist.

3. **WHEN INSTALLING THE CIRCUIT CARDS, CHECK THAT THE CARDS ARE PROPERLY POSITIONED IN THE CARD FILE TRACKS.** Ensure that all cables are properly connected before fully inserting the cards into the cabinet. Inserting a card that is not positioned or connected correctly will damage the card. Secure all cards with the card file sliding bracket. See Figure 2-24 for proper card positioning.

Table 2-8*

LIST OF CABLE DESIGNATIONS AND INTERFACE

Circuit Card	Card File	Connector Designation (From)	Connector Designation (To)	Interface to Circuit (Card Designation)	Cabinet (Card File)
CPU	BSU	CNA	CN0	ECU #1	LEU #1
		CNB	CN1	ECU #1	LEU #1
		CNC	J1	STU #1	BSU
		CND	J2	STU #1	BSU
		CNE	J1	COU #1	BSU
STU-X #1		J1	CNC	CPU	BSU
		J2	CND	CPU	BSU
COU #1		J1	CNE	CPU	BSU
ECU #1	LEU #1	CN0	CNA	CPU	BSU
		CN1	CNB	CPU	BSU
		CN2	CN0	ECU #2	LEU #2
		CN3	CN1	ECU #2	LEU #2
		CN4	J1	STU #3	LEU #1
		CN5	J2	STU #3	LEU #1
		CN6	J1	STU #2	LEU #1
		CN7	J2	STU #2	LEU #1
		CN8	J1	COU #3	LEU #1
		CN9	J1	COU #2	LEU #1
		CN10	CN11	ECU #2	LEU #2
		CN11	CN10	ECU #2	LEU #2
EMC #1	LEU #1	N/A	CN12	ECU #1	LEU #1
		N/A	CN13	ECU #1	LEU #1
STU-X #2	LEU #1	J1	CN6	ECU #1	LEU #1
		J2	CN7	ECU #1	LEU #1

Table 2-8* (continued)

LIST OF CABLE DESIGNATIONS AND INTERFACE

Circuit Card	Card File	Connector Designation (From)	Connector Designation (To)	Interface to Circuit (Card Designation)	Cabinet (Card File)
COU #2	LEU #1	J1	CN9	ECU #1	LEU #1
STU-X #3	LEU #1	J1	CN4	ECU #1	LEU #1
		J2	CN5	ECU #1	LEU #1
COU #3	LEU #1	J1	CN8	ECU #1	LEU #1
ECU #2	LEU #2	CN0	CN2	ECU #1	LEU #1
		CN1	CN3	ECU #1	LEU #1
		CN2	Empty		
		CN3	Empty		
		CN4	J1	STU #5	LEU #2
		CN5	J2	STU #5	LEU #2
		CN6	J1	STU #4	LEU #2
		CN7	J2	STU #4	LEU #2
		CN8	J1	COU #5	LEU #2
		CN9	J1	COU #4	LEU #2
		CN10	CN11	ECU #1	LEU #1
		CN11	CN10	ECU #1	LEU #1
EMU #2	LEU #2	XXX	CN12	ECU #2	LEU #2
		XXX	CN13	ECU #2	LEU #2
STU-X #4	LEU #2	J1	CN6	ECU #2	LEU #2
		J2	CN7	ECU #2	LEU #2
STU-X #5	LEU #2	J1	CN4	ECU #2	LEU #2
		J2	CN5	ECU #2	LEU #2
COU #4	LEU #2	J1	CN9	ECU #2	LEU #2
COU #5	LEU #2	J1	CN8	ECU #2	LEU #2

* Also See Figure 2-28
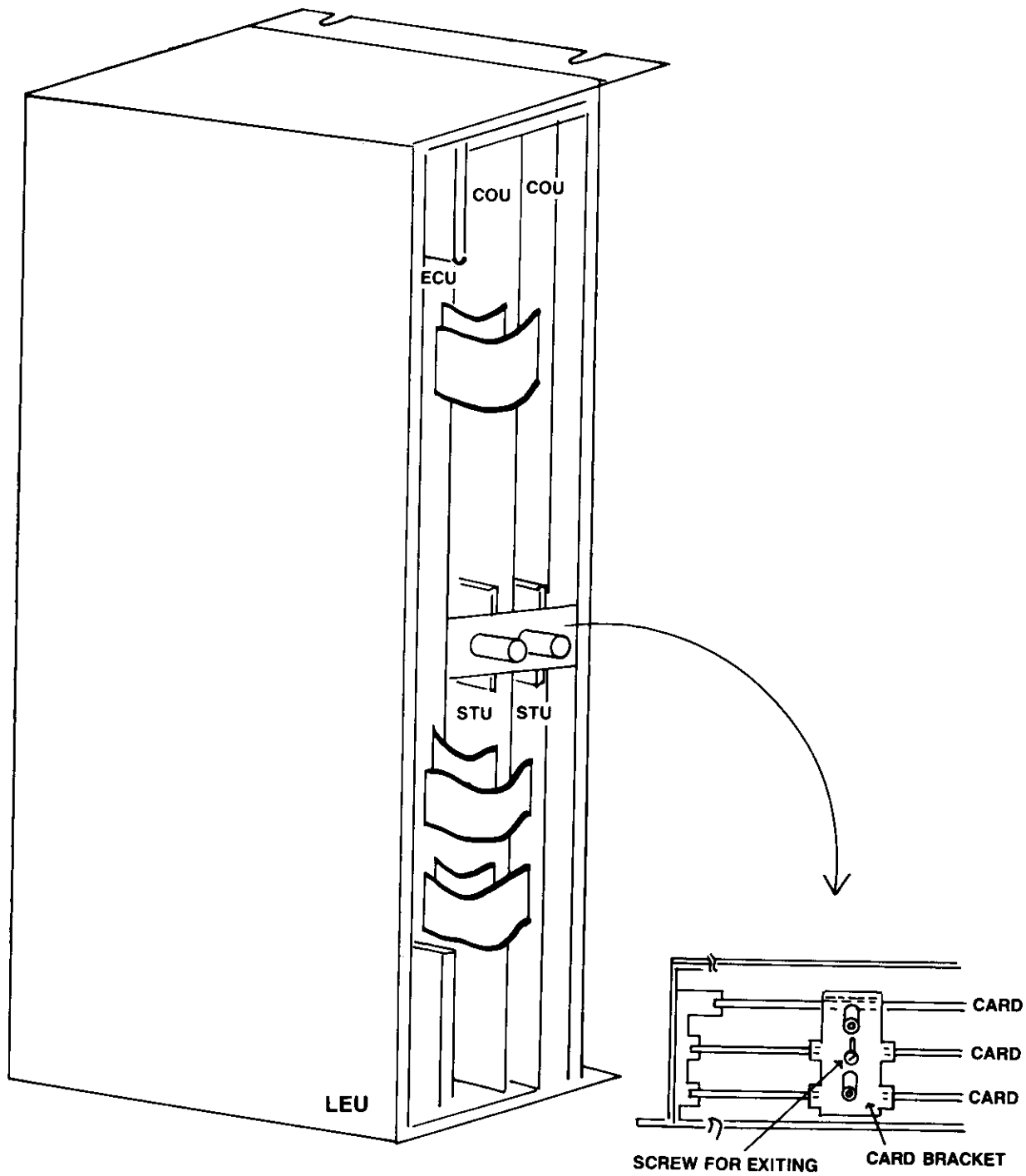
Figure 2-26. LEU Internal Construction.
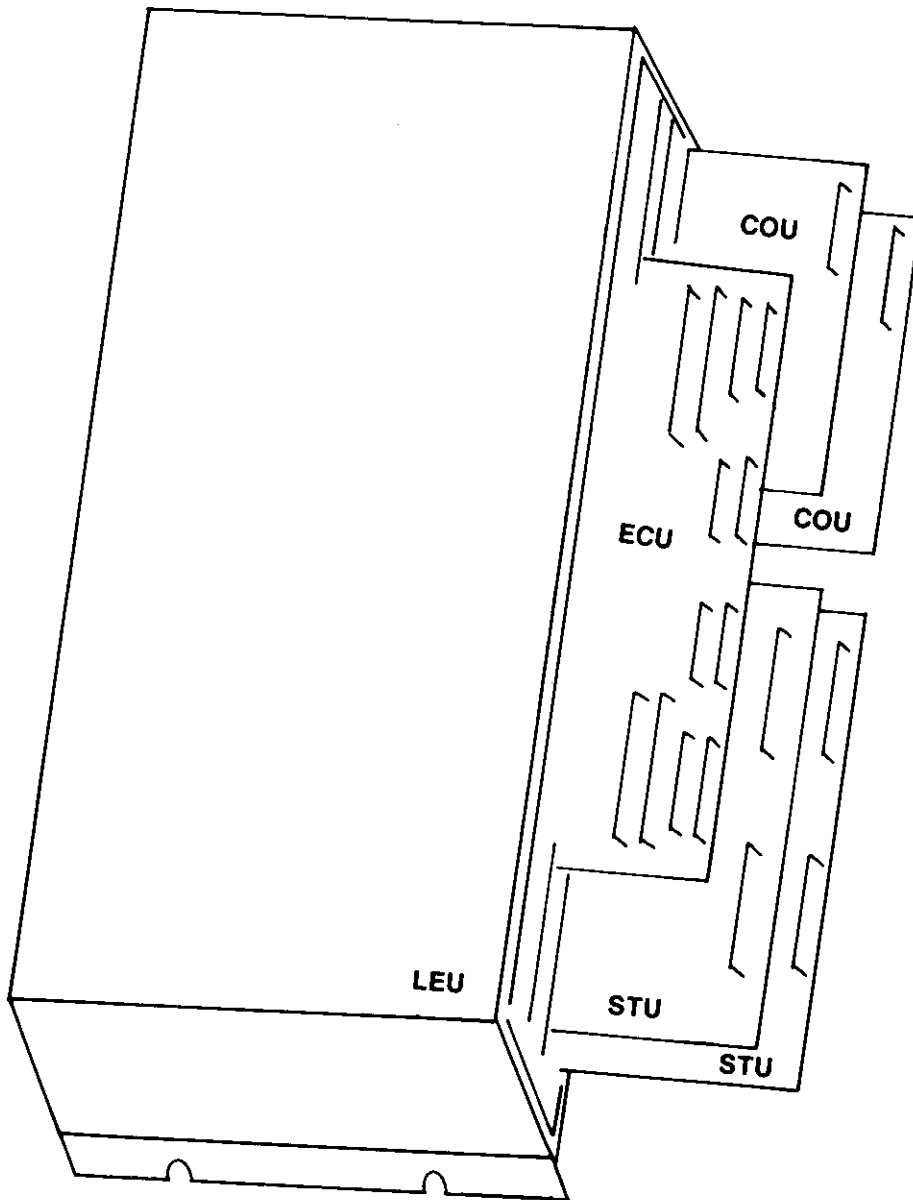
Figure 2-27. Circuit Card Positioning. (LEU)
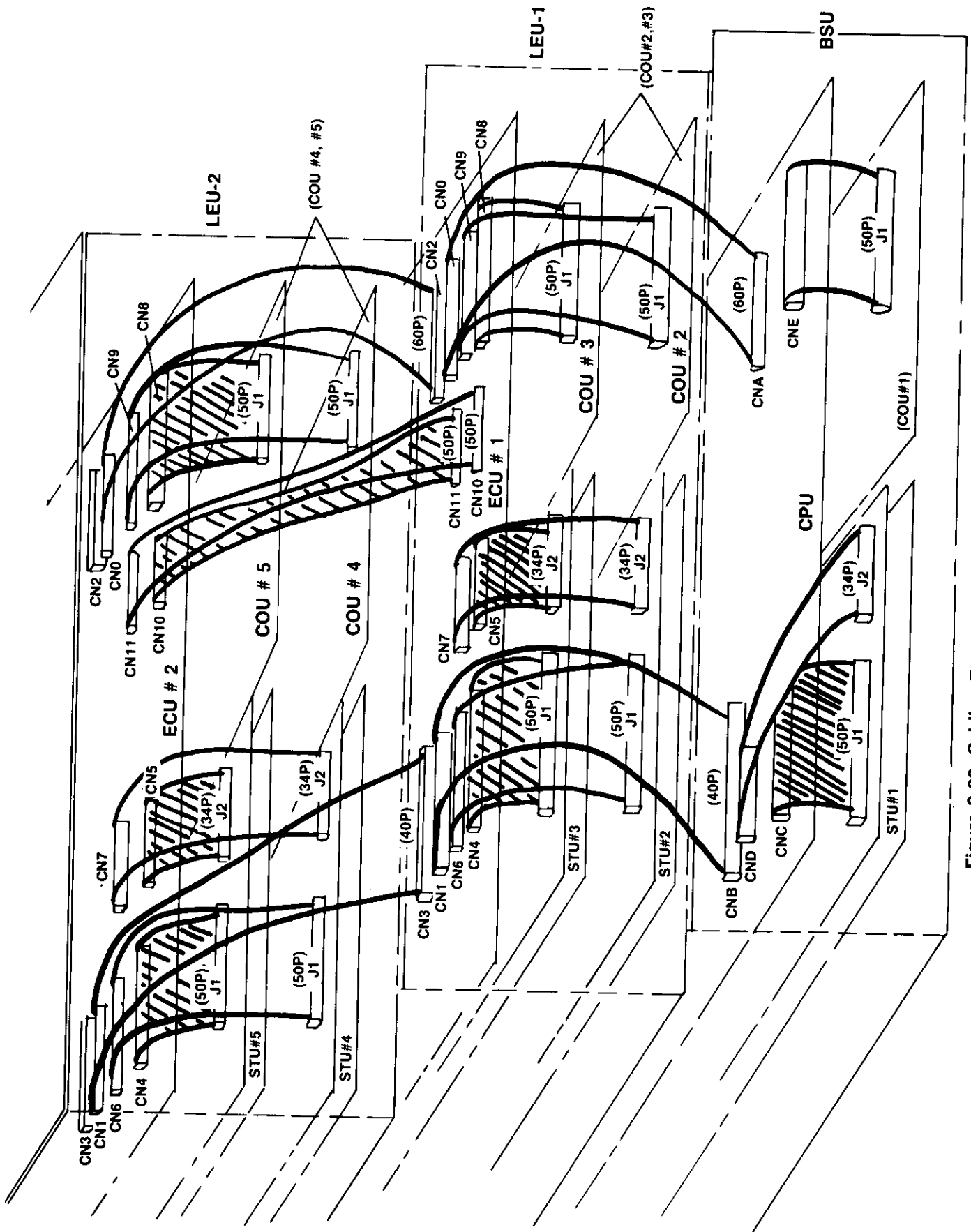
Figure 2-28. Cabling Between the LEU/LEU and BSU.

EXPANSION CONTROL UNIT (ECU)

This card is the decentralizing control unit for the LEU. Its primary function is to communicate with the CPU card in the BSU as it maintains control of the COU cards and STU cards in the LEU. It also provides expansion matrices for station additions. Figure 2-29 shows the basic construction of the ECU. It will be necessary to interface the power cable provided inside the LEU with the power connector on the ECU card while installing the ECU into the card file. Note the standoffs provided on the ECU card. These standoffs will be used for interface with the EMC described in the following paragraph. Table 2-8 lists the cable interfaces for installation of the ECU.

EXPANSION MATRIX CARD (EMC)

The EMC provides additional crosspoint matrices which are only necessary when additional CO lines and/or additional stations are utilized in a system. In the case where four or more STUs are present in the system, one EMC is required to be installed in the #1 LEU. In the case where four or more COUs are present in the system, one EMC is required to be installed in the #2 LEU. Table 2-8 lists the cable interfaces for the EMC. Figure 2-30 shows the layout of the EMC. The EMC is to be installed in a piggyback configuration onto the ECU. (See Figure 2-31 utilizing the snap-on type standoffs provided on the ECU).

COU CARD

See Figure 2-24. Each LEU can be equipped with up to two COU cards. Refer to Table 2-8 for cable interfacing designations.

STU-X CARD

See Figure 2-25. Each LEU can be equipped with up to two STU-X cards. Refer to Table 2-8 for cable interfacing designations.

*Three cables are provided with each LEU. When installing one LEU, a spare 50 pin cable and connectors will remain unused. Save this cable as it will be required when expanding with LEU #2 takes place.
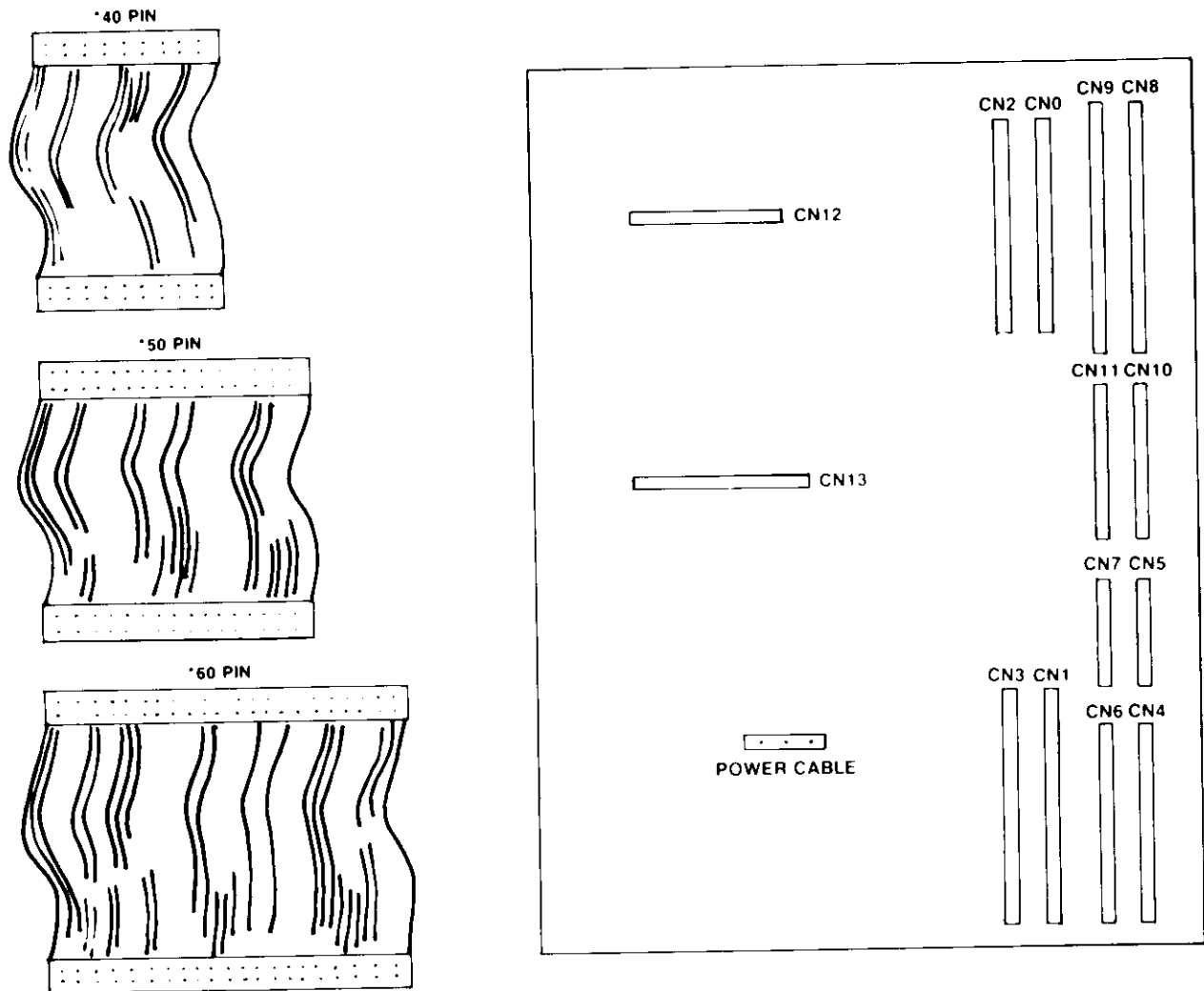
Figure 2-29. Expansion Control Unit.

TO CN12 OF ECU
↓

INSERT
STAND OFFS
HERE

TO CN13 OF ECU
↑
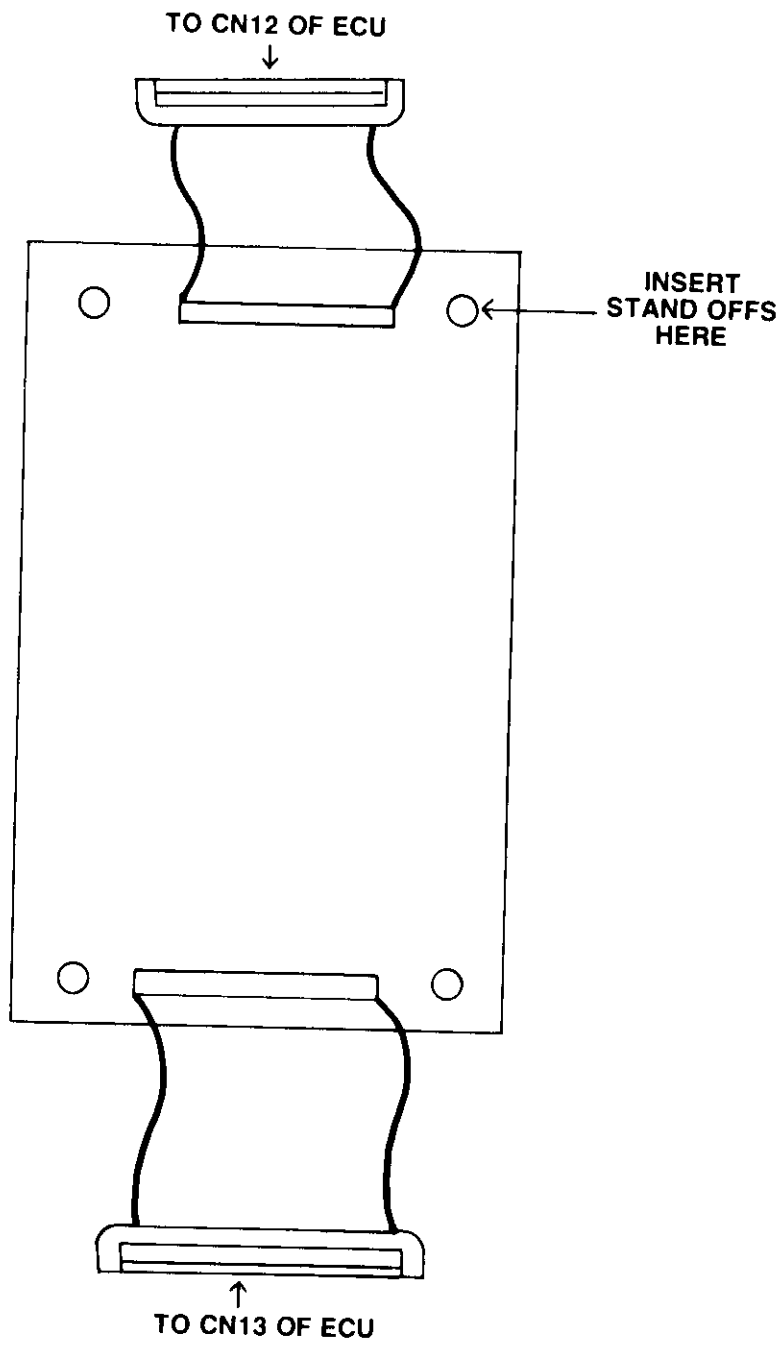
Figure 2-30. Expansion Matrix Unit.

CAUTION: Be careful when reinstalling ECU as
EMU cabling may interfere with cabinet. Take
the precaution to install the EMU cables as
close to the ECU as possible.

CN12

EMU

ECU

CN13
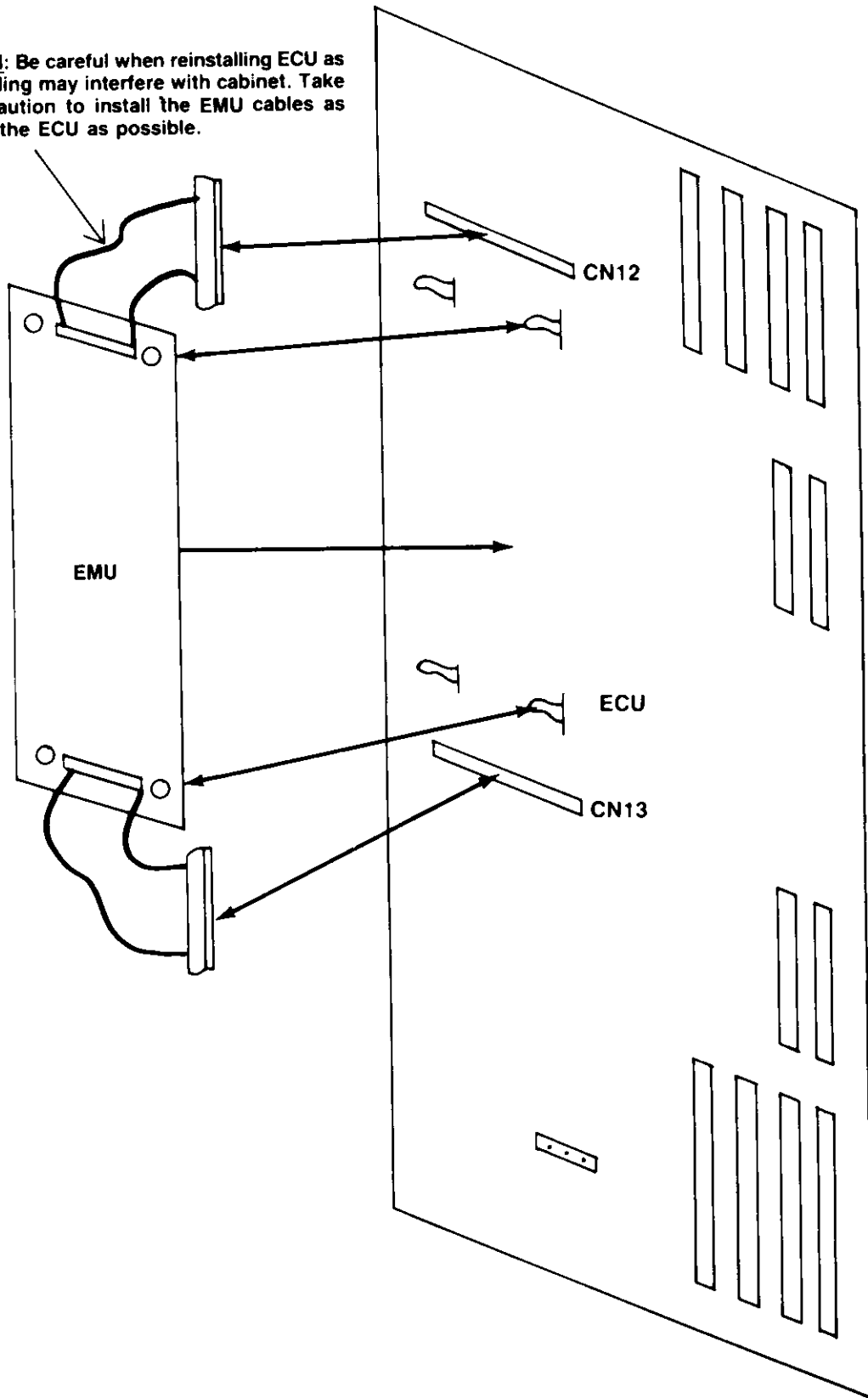
Figure 2-31. Installation of the EMU.

TROUBLESHOOTING GUIDE

Symptom	Possible Cause	Possible Solution
1. Erratic operation EXAMPLES: DSS operation same as if 30 button button telephone (DSS buttons) operate as CO line keys or DSS LEDs erratic.	1. System not initialized 2. DSS connected to wrong port i.e. can only be connected to port #2 and #3 of each STU	1. Re-initialize in accordance with installation manual 2. Re-connect DSS to port #2 & 3
2. CPU run light/COU busy light flashing together. Station in continuous reset condition.	1. Defective power supply i.e. incorrect voltage or fluctuating voltage 2. Low AC voltage	1. Connect line monitor to AC input to verify clean input 2. Measure DC output voltage of power supply 3. Verify input voltage to power supply
3. CPU run light off. steady	1. Operational software (E-Proms U3-U6) not installed properly 2. Bad DC/DC converter 3. Damaged CPU i.e. cards plugged in with power on or cabling is short or wrong	1. Check installation of Eproms and PC Board 2. Change CPU card to verify defective parts 3. Same as #2 4. Re-connect internal power interface

#	Problem	Possible Cause	Correction
		4. Power connector on CPU board is backwards	
		5. Power supply not connected to LEU #1, LEU #2, or internal power interface not connected to ECU	5. Re-confirm proper connect of all power interfaces
4.	COU failure/TRBL light steady or flashing	1. COU malfunction	1. Swap-out COU for verification of malfunction
		2. COU communication error between CPU and COU	2. Same as #1
		3. System initialization required	3. Re-initialize system in accordance with installation manual
5.	Lost Data--system assumed operation on factory data for specific programming originally thought to be programmed by the user	1. Programming on-line while stations are in use (off-hook) requires you to re-enter data. See "Programming Tips". There is no indication on DSS when customer data is not accepted, only multiple beep-tones when pressing (#).	1. Review data for ring assignment program #27 & #28
6.	System Reset frequently/infrequently	1. Power fluctuation	1. Install 150 transformer or regulator. Relocate to dedicated power source
		2. Defective power supply	2. Replace power supply
		3. AC line noise	3. AC line filter
		4. Power surges	4. Surge protector
		5. Lightning	

	Cause		Corrective Action
6.	Electrical or mechanical interference	5.	Same as #4
7.	Radio frequency interference	6.	Consult Walker technical service department
8.	System ground	7.	Install RFI filter
		8.	Check star washer and ground
7.	Erratic operation—system reset/stations randomly accessing CO lines		
	1. Corrupted data in system RAM (Random Accessed Memory) due to system not initialized or initialized properly	1.	Re-initialize system (See page 3-1)
	2. Soft data due to defective software	2.	Replace software
	3. Defective CPU RAM or ECU RAM/Defective CPU battery or ECU battery	3.	Consult Walker technical service department
8.	1KHZ (1000 cycle) continuous tone and all LEDs lit steadily on telephone station terminal (for P-6, P-18, & P-30)		
	1. Key short (out of box failure)	1.	Consult Walker technical service department for return and repair procedure
	2. Keys depressed simultaneously while connecting the station line cord	2.	Reset station by un-plugging and replugging line cord
	3. Faulty station electronics		

#	Symptom	Probable Cause	Corrective Action
9.	Cyclic repetition of station diagnostic sequence (resetting) LEDs sequencing, 2 beep tones after each cycle. LCD on Execs not functioning properly, i.e. all 88888888 displayed.	1. Key short (out of box failure) 2. Keys depressed simultaneously while connecting the station line cord 3. Proper initialization procedure not followed 4. ECU cabling to CPU improper or STU plugged in with power ON 5. Bad STU hardware 6. Mis-communication between STU and CPU possibly due to defective STU processor 7. Low DC Voltage at power input to BSU (from power supply)	1. Consult Walker technical service department for return and repair procedure 2. Reset station by unplugging and replugging line cord 3. Refer to installation manual for proper initialization procedure 4. Refer to installation manual for proper cabling procedure 5. Swap-out STU with spare to verify this, then return to Walker for repair 6. Same as #5 7. Measure output voltage (DC) of power supply-voltage s/b approx. 29 volts unloaded
10.	Station completes diagnostics and LEDs remain steady after two beep tones.	1. Data pair reversed polarity 2. STU lock up because of communication errors. STU unable to rectify problem internally	1. Correct data pair polarity 2. Swap out STU with spare to verify this, then consult Walker for advice on return and/or repair
11.	Executive station has no function	1. Data pair reversed polarity 2. Data pair open (no connection)	1. Correct data pair polarity 2. Reconnect data pair
12.	P-6, P-18, P-30 Tel, Exec and DSS are nonfunctioning	1. Data pair short circuit	1. Eliminate shorting cable and/or interface

No.	Problem	Probable Cause	Corrective Action
13.	No voice communica-tion	1. Tip and Ring short	1. Check for short location. Eliminate shorting cable and/or interface
		2. EMC not installed or installed incorrectly	2. Consult installation manual for correct in-stallation and proper location of EMC cards
14.	Station non-functional station trouble LED lights steady	1. DTA to T or R short	1. Locate short
			2. Eliminate short from cabling and/or interface
15.	Same as #7	1. DTB to T or R short	1. Same as #7
			2. Same as #7
16.	One way communication to calling station from called station-low receive level	1. Tip or Ring disconnect at called station	1. Check cable for continuity
		2. Cable capacitance problem	2. Consult Walker technical service department
		3. Bad transmitter or defective receiver or STU	3. Swap-out faulty (sus-pected) part to verify defective operation
17.	No LEDs flashing to indicate internal remote diagnostics	1. Station clock malfunction	1. Swap-out station to confirm this malfunction, then consult Walker technical service for return/repair

18.	Station busy light on	1. Steady-a station is busy	1. This is normal
		2. FLASHING-"STU TRBL", "Communication Error", "STU CPU Failure", "STU Hardware Failure", "Station or Terminal Communication Malfunction", "No STU Communication between CPU"	2. Check STU cabling, then change STU to verify malfunctioning part
19.	Station TRBL light on	1. Cable short circuit	1. Verify proper cable connect
		2. Cross connection	2. Check for cable continuity
			3. Two stations must be unplugged to reset LED
20.	BLF/Station CO LED's on steady	1. Damaged ECU card	1. Check ECU cabling for verification with installation manual
		2. ECU cabling incorrect	2. Re-initialize system in accordance with installation
		3. System not re-initialized upon adding LEU	3. Swap-out ECU to verify part is malfunctioning
21.	Improper or no access to COs	1. Line Key disabled	1. Re-program Line Key
		2. No COU card interfaced (In this case, busy tone heard)	2. Connect COU card
		3. COU incorrectly connected to ECU	3. Re-connect COU according to installation manual cabling diagram
		4. No EMC Card installed in LEU #2 (In this case, busy tone heard)	4. Install EMC in LEU #2

2-65

No.	Symptom		Cause		Remedy
22.	Misdialing	1.	Defective dial oscillator i.e. COU basis	1.	Replace COU
		2.	Defective dialpad	2.	Replace station terminal
		3.	DTMF tone burst duration too short	3.	Consult Walker technical staff for service in-formation
23.	No transmission on ICM card or one way transmission	1.	No EMC	1.	Add EMC card to proper ECU in LEU #1
		2.	EMC plugged into incorrect ECU board	2.	Unplug EMC and replug into proper ECU board
24.	No LCD display (DSS/BLF)	1.	Display control button off	1.	Depress DISP CONT
25.	No ring at attendant station	1.	NA button on	1.	Depress NA button
		2.	CO not programmed to ring	2.	Re-program ring assignment
		3.	NA mode activated by primary station-message light will be lit	3.	Go off-hook & depress "O"

26.	Phantom Ringing	1.	Station queued on and forgotten	1.	Pick up hand set and make connection, then hang up
		2.	High off-hook voltage on trunks and voltage supervised lines	2.	Consult Walker technical staff for advice on how to verify this with local operating company
		3.	Ring timeout program for too long a period of time	3.	Shorten Ring-timeout period—consult programming manual
		4.	RFI-Radio Frequency Interference	4.	Consult Walker technical staff for information on FCC requirements
		5.	Electro Magnetic Interference due to electric motors, etc.	5.	Consult Walker technical staff for solution
		6.	Peripheral equipment interfaced with trunks causing induced noise and false ringing due to surges (i.e. call diverters, call sequencers, call routers, speed dialers, etc.)	6.	Consult Walker technical staff for information on equipment compatibility
27.	Cannot activate MSG waiting function	1.	No station connected to port-MSG LED extinguished	1.	Connect station terminal
		2.	When activating MSG, must depress station DSS within 5 seconds of MSG button	2.	Depress MSG and try again
		3.	Each MSG button associated with own DSS only. i.e. must use 2 MSG buttons for 60 stations—not true of NA and CBU	3.	Depress correct MSG button associated with that DSS only

No.	Symptom	Probable Cause	Corrective Action
28.	Erratic ringing	1. Primary station accidentally put in night mode (even when DSS used)	1. Go off-hook on Ext #10, then dial "0"
		2. Programming performed with stations in use without using proper procedure	2. Review and correct programmed data/Re-enter program data
		3. Step by step Central Offices	3. Consult Walker technical service department
29.	Executive Telephone LCD "FFFF"	1. Executive	1. Executive must be connected to Port 1 through 8 only of each STA

SECTION 3

FEATURE DESCRIPTION AND OPERATION

SYSTEM INITIALIZATION

When installation is completed, the system must be initialized before operation. POETS-PLUS is delivered with a permanent factory program, which is stored in a read only memory "ROM" in the form of a retrofittable circuit board which is mounted on the main CPU board. When the system is initialized, the contents of the ROM are transferred to a random access memory "RAM", which controls the operation of the system. The contents of the RAM can be modified as indicated in Section 4, "Programming". Any part of the RAM may be modified without causing a change in the remaining factory provided data. However, even after the contents of the RAM are modified, the original permanent factory program can be reinserted in place of the modified program by performing the following initialization procedure. If the system is not initialized properly (see Figure 3-1-System Initialization Flow Chart), erratic operation will result, possibly causing the system to reset and/or crash.

METHOD OF VALIDATING PROGRAM AND DEFAULT (FACTORY) CONFIGURATION

Upon power-up, the system CPU checks the status of the Initial Program Load "IPL" switch-SWI Selector #1. (See Figure 3-2-Initialization Chart.) If the IPL switch is not set to the "ON" position, the system will assume the configuration dictated

by the RAM (customer data or random data). If the IPL switch is set to the "ON" position, then the system will assume a basic configuration as follows:

a. Auto H-Flash Timing = 3 Seconds

b. Ring Timeout = 8 Seconds

c. Dial Pulse Break Ratio = 60%

d. Intercom Priority = Voice

e. 1st Depression of Hold = System Hold

f. Dial Pulse Speed = 10 pps

g. Hold Recall = No Timeout

h. CO Type Dial = DTMF

i. Trunk Group Assignment = All COs to #1 Group

j. Station Class of Service = COS #1 (all Stations)
    No restrictions on dialing

k. Forbidden Speaker Page = "0" or "NO"

l. Default Ring Assignment = Station #10, 21, 22, 34, 46
    and 58

m. Night Answer = Station #10 and 21 on all COs.

n. Toll Restriction Type per Trunk Group = #13 (non restricted)

o. CO Line Assignment to Station = Squared Operation
    CO Line Keys (non squared) operation--(Button 1 =
    Line 1, Button 2 = Line 2, etc.) All telephones
    have access to all lines appearing at the telephone.

Initial system power-up must be done with the IPL switch in the "on" position. When adding parts such as LEU and EMC, the IPL procedure must be performed for the LEU (SW1 bits 3 and 4) and if custom programming is required, the system must be programmed. If the system is not initialized, additions will not be recognized correctly by the main CPU.
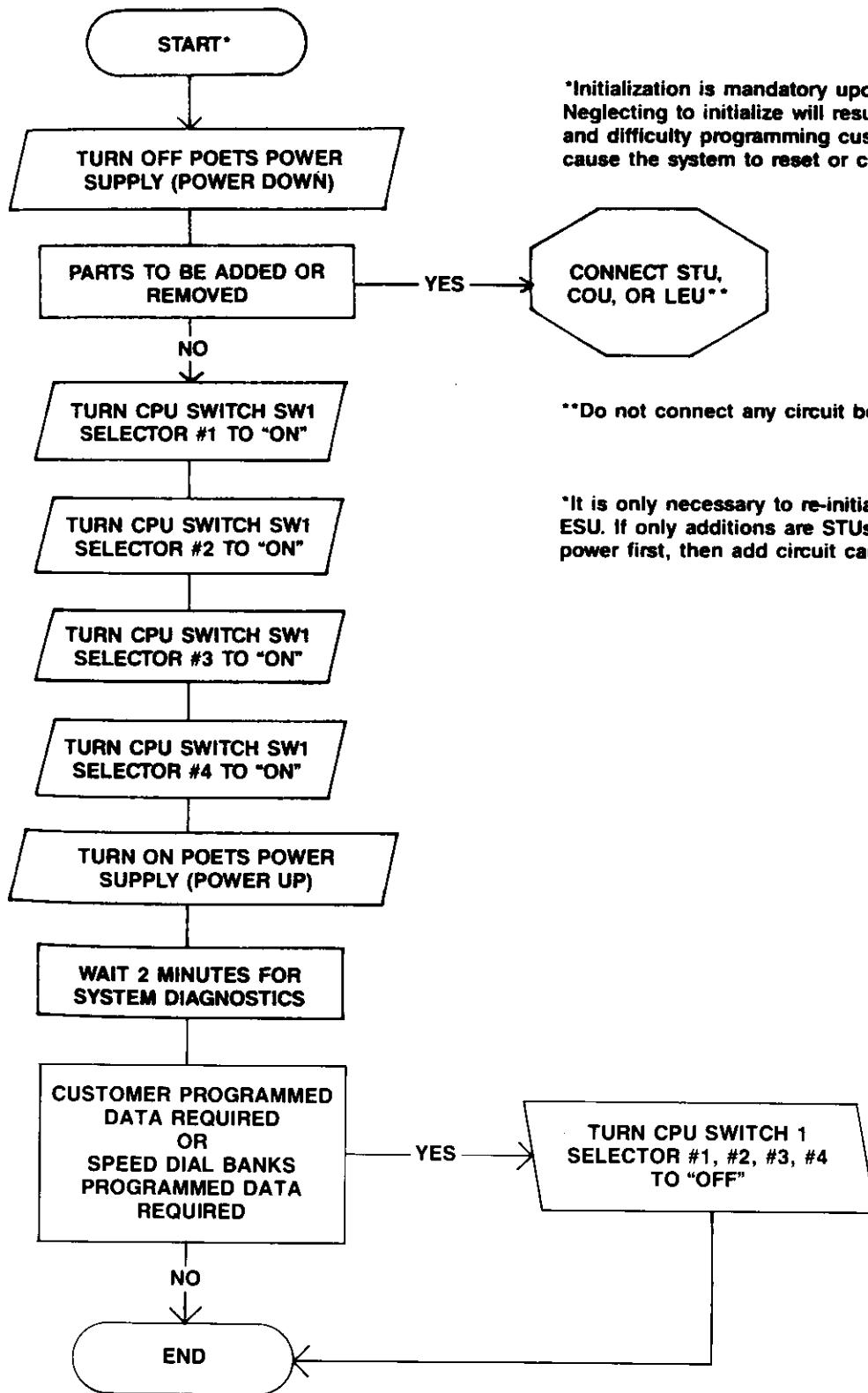
FIGURE 3-1
SYSTEM INITIALIZING FLOW CHART

The flow chart contains the following elements:

START*

TURN OFF POETS POWER SUPPLY (POWER DOWN)

PARTS TO BE ADDED OR REMOVED — YES → CONNECT STU, COU, OR LEU**

NO

TURN CPU SWITCH SW1 SELECTOR #1 TO "ON"

TURN CPU SWITCH SW1 SELECTOR #2 TO "ON"

TURN CPU SWITCH SW1 SELECTOR #3 TO "ON"

TURN CPU SWITCH SW1 SELECTOR #4 TO "ON"

TURN ON POETS POWER SUPPLY (POWER UP)

WAIT 2 MINUTES FOR SYSTEM DIAGNOSTICS

CUSTOMER PROGRAMMED DATA REQUIRED OR SPEED DIAL BANKS PROGRAMMED DATA REQUIRED — YES → TURN CPU SWITCH 1 SELECTOR #1, #2, #3, #4 TO "OFF"

NO

END

*Initialization is mandatory upon initial installation. Neglecting to initialize will result in erratic operation and difficulty programming customer data, and may cause the system to reset or crash unexpectedly.

**Do not connect any circuit board with power on.

*It is only necessary to re-initialize when adding an ESU. If only additions are STUs or COUs, disconnect power first, then add circuit cards and power-on.

3-3

SW "SW1" OF CPU CARD

```
┌───┬───┬───┬───┐
│ 1 │ 2 │ 3 │ 4 │
└───┴───┴───┴───┘
```

WHEN BSU IS POWERED-ON, INITIALIZATION WILL BE CONTROLLED BY "SW1" ON THE CPU CARD.

Switch #1

ON   (toward wall) All BSU factory data will be initialized by factory program. With this condition, system data cannot be programmed. Therefore, when programming is required, this selector must be turned to "OFF" position.

OFF   System data can now be programmed.

Switch #2

ON   (toward wall) SPD memory will be cleared.

OFF   SPD memory will be retained.

Switch #3

ON   Factory data load for LEU #1. (#2 + #3 for SPD clear LEU #1)

OFF   System programming can now take place.

Switch #4

ON   Factory data load for LEU #2. (#2 + #4 for SPD clear LEU #2)

OFF   System programming can now be programmed.

Figure 3-2. Initialization Chart.

ON-LINE PROGRAMMING FOR SYSTEM DATA

In the case where programming operation is performed while the system is call processing:

o   Call processing before system data is changed will be performed based upon old system data.

o   Call processing after system data is changed will be performed upon new system data.

FEATURES OPERATION

The Operating Procedures for 60 Features and their capabilities are described in the following pages.

Notes:

1.   Systems are supplied with a digital key pad. The following operating procedures use the term "dial" to indicate a number or entering the number by pressing the digital keys.

2.   An idle CO line whose indicator is not lighted.

The Features and their associated page numbers are:

AUTOMATIC HOLD OF CO CALL

This feature allows any station user to automatically place a CO call on hold by pressing the ICM line button while on a CO line. When Prime Line Outgoing is assigned, the feature is disabled prior to digit dialing after going off-hook.

AUTOMATIC PRIVACY OF CO/PBX CALL

This feature protects the busy station from an accidental or intentional interruption of a telephone call. The station user is completely assured of privacy on all types of outside calls. This feature is especially useful in a shared tenant environment.

AUTOMATIC PRIVACY OF INTERCOM CALL

This feature protects the busy station from accidental or intentional interruption of an intercom call. The station user on an intercom call is completely guaranteed of the privacy of the call.

AUTOMATIC TIMED RECALL OF HELD CALL (FIRST RECALL)

A held call which has remained unanswered for a specified time is automatically recalled to the initiating station. The unanswered or recall time period can be set at 30 second intervals from 30 seconds to 9.5 minutes. The system may also be programmed to eliminate (no) recall entirely. Note that this timer is now separate from the second hold recall timer. The second hold recall time out period recalls the attendant and is set separately from the first hold recall.

BROKERAGE SERVICE (NON-PRIVATE OPERATION)

This feature must be system programmed on a per station basis by the installing company. This feature allows up to four users to barge in on a CO line already in progress. By depressing the "FEAT" (feature) key and the appropriate CO line button, (which has an in-use indication), up to 4 additional users may join in the same conversation in a 5-way communications path. A barge-in tone will be heard at the station originating the CO call when another station user joins the conversation.

When Brokerage Service is enabled at a station, it is also possible for a station user to insure privacy (disable Brokerage Service) at his or her station (on a per call basis) by depressing the "FEAT" (feature) key and the CO line key during the call. You may then wish to release privacy (return to Brokerage Service enabling) by depressing the CO line key any time during the call. Privacy will only remain for the duration of the CO call. (Refer to Program No. 35.)

BUILT-IN SPEAKERPHONE (OPTIONAL)

A "built-in" speakerphone is available as an optional printed circuit board and can be installed in 6, 18, and 30 button sets (Executive phones are factory equipped with speakerphones) to allow fully switched handsfree operation and two-way communication on CO Lines.

CALL BACKUP

The Call Backup feature allows an attendant to activate all CO incoming (ringing) calls to a specified backup station. Since there are five possible attendant positions available in the system, programming for five call backup stations is provided.

To activate the Call Backup feature, depress the CBU button located on the DSS/BLF. Any or all attendants may activate a backup station (assigned by system programming) to answer calls in their absence. An LED associated with the CBU button will light indicating that incoming calls assigned to ring at the DSS/BLF will also ring at the backup station. The DSS station will continue to receive ringing or call waiting signals.

CALL FORWARDING

This feature allows a station user to forward (divert) ICM calls and ring assigned CO lines to any of 60 stations by the following procedure:

To forward incoming ICM and Ring Assigned CO lines calls to another station, press the MON button, then press (#) and dial "1" on the dialpad. Dial the station number you wish to have your calls forwarded to. The Executive stations will display "CF" on the LCD. The message lamp will flash indicating an active call forwarding has been initiated. Press the MON button to activate the call forward. To cancel the forwarding, press MON and dial (#) then "0" on the dialpad and press the MON button. The call forwarded station is also indicated by a flashing LED on the DSS/BLF at the forwarded stations' location. Note that any forwarded CO Lines being forwarded must appear on the P-Key or direct line button at the forwarded-to station.

CALL SPLIT

A station user may choose to answer a station camp-on while on a CO call. Putting the CO on hold automatically connects the user to the camped-on station. If the originating ICM station is transferring a call, the CO call will automatically be connected when the originating station disconnects from the call. (The previously held call will remain on hold.) For example:

To split from a CO call to a camped-on call, press HOLD to place the CO call on hold and be automatically connected to the originating station. The camped-on station will automatically be connected to a transferred call when the calling station disconnects from the call. The previously held call will remain on hold. To reconnect to the previously held call, press the CO button associated with the held call.

CO LINE KEYS

Any station user may originate or receive a call to or from the CO or ICM path by pressing the line button associated with the CO or ICM line. The line button may be pressed before or after the handset is lifted. If the CO button is depressed before picking up the handset, the CO line will automatically be seized and the station will be in the monitor mode.

CONFERENCING--EXTERNAL

To establish a conference call with two COs and one station, first establish a CO call, then press HOLD to place the first CO on hold. Select an idle CO and place your second call. In order to connect the COS in a conference, you must press the FEAT button and then the HOLD button and a three-way conference call will be established.

To release either CO from the conference at any time, press the button associated with the CO to be released.

To establish a conference call with one CO and two stations, first establish an outside call, then press the ICM to automatically place the CO on hold and connect to ICM dialtone. Dial the EXT Code (two digits). When the called station answers, instruct the user of your intention to conference. Press the FEAT button and the the HOLD button, and a three-way conference is now established. If you wish to release the conference, press ICM or CO depending upon which one is to be released.

CONFERENCING--INTERNAL

To establish a conference call with three internal stations, first initiate an ICM call. Then press "FEAT" + "HOLD" to put the called station on hold temporarily. Press the ICM key and dial the second station ICM number. Finally, press FEAT and then HOLD and a three-way internal conference will be established.

DIAL "976" RESTRICTION CONTROL

Disallowing dial access to 976 such as "weather and time" is a function of system programming and is accomplished on a system-wide basis, according to station class of service.

This feature when enabled in system programming will prevent a station user, who has been assigned any of the toll restriction classes of service, from being able to dial local and extended area, 976 service calls. (Refer to Program No. 39.)

DIAL CALL PICKUP

To use the dial call pickup function to access a call, press the (*) key, then dial the two-digit station code number of the station where the call is on exclusive hold, unscreened transfer ringing or incoming CO ringing. (This is also the preferred method to answer an unscreened transfer.)

DSS/BLF FEATURES ON SPARE CO LINE KEYS

This feature allows the station user the ability to use unassigned CO line buttons to directly select and show off-hook status of a desired station. Pressing the designated CO line button will automatically place the two digit intercom call. The designated CO lamp will be lit when the assigned station is busy or off-hook.

This feature must be system programmed by the installing company, on a per station basis, or at each station.

In addition, calls may be transferred by directly selecting a DSS/BLF (CO line buttons position programmed as DSS key) in the normal way. (Refer to Program No. 32 for system programming.) If the CO button is disabled, programming can be accomplished at the station as follows:

```
MON + FEAT + 2 + CO LINE BUTTON + 2 DIGIT STATION NUMBER
                + MON (00 = RESET)
```

ENHANCED TOLL RESTRICTION

An enhanced toll restriction package is provided which incorporates 19 types of toll restrictions, 32 classes of service, two 4-digit/40 entry semi-restrict allow tables, and two 4-digit/40 entry semi-restrict disallow tables. Toll restrictions are configured on a per-trunk group class of service, per-station basis. 5-digit, 7-digit, 8-digit forced OCC, 0, 1411, 411, non-restrict, and outgoing restrictions are also provided.

EXECUTIVE SPEED DIALING

Executive telephones are provided with 16 auto soft keys which allow the user one touch dialing on outgoing CO calls and DSS for ICM calls. If a station user selects a CO, the auto buttons will automatically access the speed dial banks. When a station user chooses to place an ICM call, the auto keys automatically revert to DSS. A total of 27 station speed banks are also provided for dial-up speed dialing. These banks are 20 digits and designation 10-36. Along with the 16 available system speed call banks (00-15), the executive stations and 16 systems have 75 provided station effective speed dial banks and 16 DSS buttons.

EXTERNAL PAGING CONNECTIONS

External all-call paging with meet-me feature is provided with the Poets-Plus. External paging equipment interfacing is achieved through direct connection to the tip and ring of pre-assigned vacant station ports.

Vacant station ports may be assigned in programming to accommodate external paging equipment on a per port/per zone basis. A total of three station ports may be assigned each with one of three dial-up codes 86-88 corresponding to the paging equipment which is interfaced at each port. The corresponding paging equipment will automatically be connected upon a station user dialing 86, 87, 88 or 89 for all zones simultaneously.

The vacant station port interface is a standard 600 OHM audio type interface (see figure 3-6, page 3-26 for wiring details).

FIGURE 3-3. External Page Connections
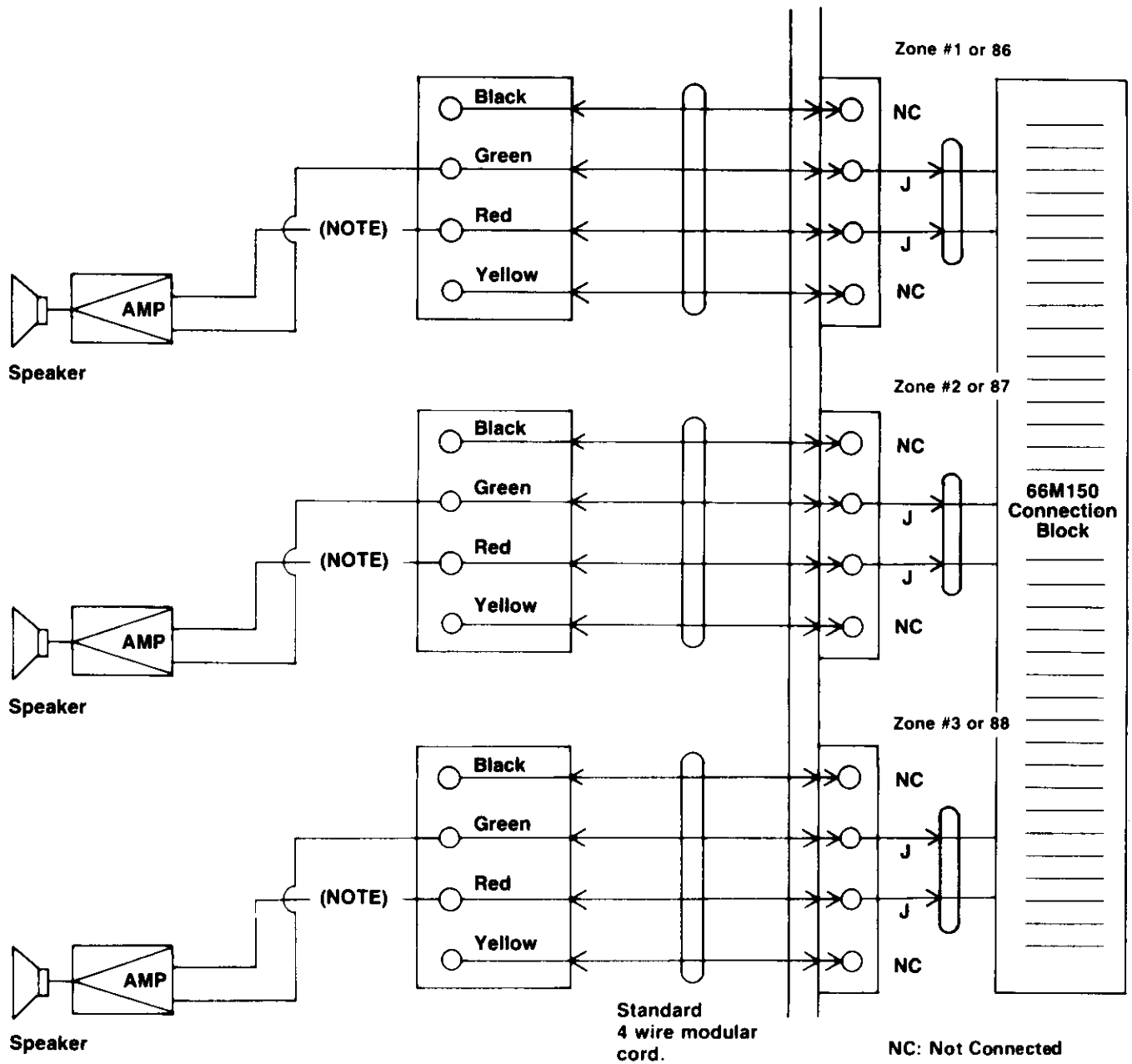
NOTE: EXTERNAL PAGING CONNECTION, UTILIZING STATION MODULAR JACK

Standard 4 wire modular cord.

NC: Not Connected

EXTERNAL PAGING WITH MEET ME AND CO TRANSFER

External paging ports can be assigned to a maximum of 3 spare station ports. This will allow up to 3 zones plus all page. (See Program #38.)

To transfer a CO call through external paging: (a) while on a CO call press ICM. (b) dial 8 then 6, 7, 8 for the desired zone or 9 for all page as required.

NOTE: Do no go on-hook until the meet-me has been completed.

To answer an external page with a CO transfer: Press the * button, then dial 8. You will automatically be connected to the paging party.

NOTE: The paging party must go on-hook to complete the transfer and the CO line being transferred must be programmed to appear as a single line or in a pool at the station to receive the transfer.

FLEXIBLE STATION RINGING ASSIGNMENT

This feature allows any station, including the primary station, to receive incoming ringing assignments. CO ringing is assignable on a per line, per station basis, with a maximum of six stations per CO line. (See System Programming, Program #27.)

FORBIDDEN INTERNAL ALL OR ZONE PAGE

By system option, a station may be programmed to accept and not accept an internal page through the station speaker. (See System Program #25.)

FORBIDDEN OFF-HOOK SIGNALING (Available with Version 3 Software)

Off-hook signaling for incoming CO calls may be allowed or disallowed on a per station basis.

To disallow off-hook signaling at a station, lift handset, press the "*" key, then dial "04" on the dialpad.

To allow off-hook signaling at a station, lift handset, press the "*" key, then dial "05" on the dialpad.

FORBIDDEN SPEAKER PAGE (Disallow ICM Voice Call)

An incoming ICM call may be controlled to ring at all times as an alternative to the voice (HF answerback) announced call (which is programmed on a system wide basis for either voice or tone at all stations).

To disallow voice call at a station, lift handset, press the "*" button, then dial "0" button and the "3" button.

To allow voice call at a station, lift handset, press the "*" button, then dial the "0" button and the "2" button.

NOTE: This procedure does not affect internal paging which is allowed or disallowed on a per station basis by system programming (see Program #25).

INTERCOM CALL

To call another station, lift the handset and press the ICM button. Listen for ICM dial tone, then dial the two-digit station number. When a splash tone is heard, the calling station may make an announcement and the called station may respond hands free. (The calling station <u>must</u> lift the handset to place an ICM handsfree answerback call.) The called station may also lift the handset to initiate handset conversation. If the calling station dials any additional digit after the station number, the handsfree operation is disabled and tone signals are sent to the called station. To respond to this type of intercom call, the called station must lift the handset to speak.

A station user on an outside line can receive an intercom call but cannot respond hands free. Instead, the user will receive an intercom call-waiting tone through the station speaker. The user may split to the intercom call by depressing the Hold button. The called station is then automatically connected to the calling party.

A station user not wishing to respond hands free on an intercom call may turn off the microphone. The microphone off is indicated by the microphone LED "ON" or lighted, or disallow a voice call. (See Forbidden Speaker Page.)

INTERCOM & CO CALL FORWARDING

This feature allows a station user to re-route an incoming ICM call and ring assigned CO calls to any desired station. A distinctive LED flash rate (approximately 100 flashes per minute) on the DSS indicates that the station is in the "call forwarding" mode.

A station can be put into the Call Forward mode by going off-hook and depressing (#), "1" then the ICM code associated with the forwarded-to station. CO calls transferred to a station in call forward mode will be forwarded providing the CO line is assigned to the forwarded-to station.

INTERCOM HOLD

To place an intercom on hold, press the HOLD button.

INTERNAL PAGING

Any station user may make a paging announcement to all idle stations simultaneously (via a dedicated paging path to the speakers built into the telephone) by lifting the handset and dialing the proper code number.

All Page -- To page all stations simultaneously, dial "80". This initiates one-way internal paging to all idle stations allowed to receive an internal speaker page.

Zone Page — To page one of five fixed zones, dial "81–85". The second number dialed (1–5) indicates which zone is being paged. Zones are set up by station port assignment:

DIAL	ZONE	STATION NUMBERS
80	All	STA–10 to STA–69
81	1	STA–10 to STA–21
82	2	STA–22 to STA–33
83	3	STA–34 to STA–45
84	4	STA–46 to STA–57
85	5	STA–58 to STA–69

Meet-Me Answer — To answer a page, pick up the handset, press the "*" button, then dial "8". You will then be automatically connected to the paging path. The paging party may then transfer the call by going on-hook. (Note that the station answering the page must have the CO line appearing at the station for successful transfer to take place.

LED INDICATORS

All lamp indicators on the face of the telephone are long lasting, light-emitting diodes, and provide system feature distinctive indications. (See System Distinctive Signaling.)

LINE KEYS

Any station user may originate or receive a call to or from the CO or ICM path by pressing the line key associated with the CO or ICM line. The line key may be pressed before or after the handset is lifted. If the CO button is depressed before picking up the handset, the CO line will automatically be seized and the station will be in the monitor mode.

MANUAL EXCLUSIVE OR NON-EXCLUSIVE HOLD OF CO/PBX AND ICM CALL

Any station can place either an incoming or an outgoing CO call on hold by pressing the HOLD key. Depending on system programming, either one or two pushes of the HOLD button will allow for system or exclusive hold. (Factory program is one push for system hold.)

MESSAGE WAITING

All telephones are equipped with a message lamp which may be activated by the attendant at any time to indicate that there is a message waiting at the attendant console. The message LED will flash at a rate of approximately 60 indications per minute.

To activate the message waiting feature from the attendant position, depress the MSG key on the DSS/BLF and the DSS key associated with the Message Waiting Station. A message lamp is provided at each station except for the Executive telephones. The Executive telephone will display "CALL OP" on the LCD. The station receiving the message waiting indication (indicated by a flashing message light at the top of the station) calls the operator (attendant) by going off-hook and dialing "0" (or ext. 10, 22, 34, 46, 58). At this point, the LCD on the DSS/BLF will display the number of the station calling. To cancel the message waiting, the attendant presses the message key and the DSS button associated with the message waiting. MSG can be activated from all (5) DSS/Attendant locations.

To activate station-to-station message waiting, press ICM, dial the two-digit station number and then dial "0". To answer a message waiting, press ICM and dial "0".

MICROPHONE MUTE

The station user may disable the built in answer back microphone by pressing the MIC off key. The station will then receive an ICM voice announcement, but the user must lift the handset or turn on the microphone to reply. The microphone LED will light to indicate that the microphone has been muted (off).

MULTI-LINK/SINGLE-BUTTON INTERCOM

A single ICM key is provided on all station instruments to allow access to all stations via multiple intercom links. **Any station may call another station by** pressing the ICM key and dialing a two-digit code (i.e. 10-69).

MUSIC-ON-HOLD INTERFACE

The system provides terminals (RCA type jack) for connection to a 600 ohm (amplified) external music source, allowing an outside party placed on hold by an station user to hear music.

NEXT LINE OUTGOING BETWEEN MUSIC-ON-HOLD AND NIGHT ANSWER

This program allows multiple line keys to be programmed as Outgoing CO prime lines at the station. When the station user goes off-hook the station will automatically be connected to the next available Outgoing CO line.

NIGHT ANSWER

This feature allows a flexible night ringing mode which can be programmed to distribute incoming ring signals to any or all of a combination of 60 stations. Each CO/PBX line can be assigned a maximum of five night answer stations.

To activate the Night Answer Feature, press the NA button on the DSS/BLF. The associated LED will light, and incoming calls will be diverted to ring at the stations programmed for night ringing (by system program option). The night answer mode may be initiated by the DSS NA control or by the #10 extension. In the case where a DSS/BLF is not configured in the system, night ringing may be activated from the Port #1 (ICM #10 only) station by going off-hook and pressing "0" on the dialpad (Do not use MON). The message lamp will light steady to indicate "NA" mode. To deactivate the night answer, go off-hook and press "0". The message lamp will be extinguished.

NON-LOCKING BUTTONS

All buttons on the face are non-locking with long life LED lamps.

NON-SQUARED OPERATION

This feature allows flexible CO/PBX line key assignment. Any CO/PBX line may be assigned to appear and operate at any station on any CO button and in any order.

OFF-HOOK CO RINGING

Each ring assigned station has off-hook ringing. This is accomplished by a call waiting tone received through the station speaker.

If the station is assigned for incoming CO calls and is off-hook, then the station will receive a call waiting tone to indicate an incoming CO call. If the station is not in forbidden off-hook ringing mode, the LED associated with the incoming call will flash at the normal rate.

OFF-HOOK SIGNALING

This feature allows a called station, when off-hook, to receive an audible signal through the station speaker indicating a waiting CO or ICM call.

OFF PREMISE EXTENSION (OPX) (Available with Version 3 software and OPX hardware option)

Standard 2500 type telephones may be connected to the system as an OPX by the use of optional hardware. These single-line instruments may initiate and receive CO calls and ICM calls.

ON-HOOK DIALING

By pressing any CO line button, a station user automatically enters the monitor condition and accesses a CO dial tone. A CO number can then be dialed with the handset on-hook.

To preselect a line for a CO or ICM call, press either a CO key or the ICM key, depending on whether a CO or an ICM call is being made. When the key is pressed, the station is automatically connected to the CO or ICM line.

If the optional speakerphone board is installed in the station, performing the hands free dialing function allows two-way conversation without lifting the handset. The MIC/ON button can be used for transmit muting. When the "MIC" LED is on, the microphone is muted.

ON-HOOK MONITOR

A station user can monitor a call in progress by pressing the monitor button and placing the handset on-hook. **To engage the monitor function,** press the MON button and place the handset in the cradle. The monitor function enables listening to the called station through the built-in speaker. To speak to the called station, the handset must be lifted. If the station user lifts the handset while the MON button is engaged, the monitor speaker is turned off automatically. Note that if the station is equipped with a speakerphone, the microphone is active unless the MIC/ON LED is lighted.

OUTSIDE CALLS

To place an outside call, lift the handset and press an idle CO line button. When the dial tone is heard, dial the desired outside number.

To answer an incoming call, lift the handset and press the flashing outside CO line button. The LED associated with the incoming call will flash at a rate of 60 indications per minute.

To transfer a call while on an outside line, press the ICM button to automatically place the call on hold. Listen for ICM dial tone, then dial the desired station number. When the called station answers, announce the call. You may wait for the called party to answer by picking up the handset, or you may hang up. The called station will automatically be connected to the outside line if the called station answers the calling station by going off-hook (screened transfer) before the calling station hangs up. If the calling station goes on-hook before the called station

lifts the handset (unscreened transfer) the called station may have access to the transferred call by dialing (*) and its own ICM (EXT) Code (i.e. 10-69) or, the called station may directly select the call by depressing the associated CO line key. The LED associated with a transferred call flashes at a rate of 100 indications per minute. The called station will automatically be connected to the outside line if the called station goes off-hook with the handset before the calling party goes on-hook.

PAUSE AND WAIT

A one second pause may be programmed into a station or system speed dial bank by pressing the FLA key while programming a speed bank. To increase the duration of the pause, program multiple pauses (each pause = one digit in length). A wait may also be programmed into speed banks by depressing HOLD while programming the speed bank. The wait may be disabled during speed dialing by depressing (#). (More than one pause can be programmed into the speed call location. However, each pause reduces speedcall digits by one.)

POOLED LINE ACCESS (P-KEY) OPERATION (Enhanced)

This feature provides incoming and outgoing access to multiple trunks (pooled trunk keys) assigned on a trunk group basis to a CO line key on a telephone instrument. A maximum of 9 trunk groups may be assigned in the system. Each trunk group can be assigned to one CO line key on any telephone allowing a maximum of 9 pooled line keys on any telephone. Each trunk group can have 1 to 30 trunks assigned. Each trunk can be assigned to one trunk group only. (Refer to Program No. 32.)

To dial out on a pool key: Select a CO line key designated as a pool key, dial telephone number (the station user will automatically be connected to the highest available line first).

If CO lines in the pool key have not been programmed to ring at the station, the incoming calls must be answered at other stations provided with ring assignment on the pool key or direct CO access and then transferred to the stations with the pool key.

To answer an incoming call ring assigned to the P-Key, lift the handset and press the P-Key. You will automatically be connected with the incoming CO. (The P-Key LED will flash at the incoming CO rate--approximately 60 flashes per minute--and the station will ring.) If your station is equipped with a speakerphone, you may perform this function while on-hook by pressing the P-Key.

To transfer a CO call assigned to a P-Key, refer to Outside Call transfer procedure. If a call has been transferred under a P-Key, the called station may put the call on hold and regain access to the held call by direct selection of the P-Key. Calls may not be "stacked" for future or sequential access under the P-Key.

POWER FAILURE TRANSFER

The first trunk on each COU card has been designed as a power failure line. This line provides for direct connection to 500/2500 type telephones if a power failure condition exists (see Section 2 "Installation").

PRIME LINE INCOMING

Allows the station user to be automatically connected on incoming ring assigned calls to any CO, PBX or Centrex lines of their choice, by simply going off-hook when the line rings in. The feature is system programmable on a per station, per CO line basis. This is similar to button down operation of a 1A2 instrument. (Refer to Program No. 36.) Prime Line Incoming may be programmed at the station by the following:

To assign CO number three as Prime Line Incoming:

FLA	FEAT	1	X1	1	MON

CO No. 3

To return CO number three to factory default (no Prime Line Incoming):

FLA	FEAT	1	X1	0	MON

CO NO. 3

For system Prime Line Programming, see Program No. 36.

NOTE: When Prime Line Incoming is assigned, a station user that desires to make an ICM call must press the ICM button before lifting the handset.

PRIME LINE OUTGOING

Allows the station user to be automatically connected on outgoing calls to any CO, PBX or Centrex lines of their choice by simply going off-hook. There is no need to press a CO line button. The feature is system and station programmable on a per station, per CO line basis. This is similar to button down operation of a 1A2 instrument. (Refer to Program No. 36.) Prime Line Outgoing may be programmed at the station by the following:

To assign CO number three as Prime Line Outgoing:

FLA   FEAT   0   X1   1   MON

                          CO No. 3

To return CO number three to factory default (no Prime Line Outgoing):

FLA   FEAT   0   X1   0   MON

                          CO No. 3

For system prime line programming, see Program No. 26.

NOTE: When Prime Line Outgoing on CO lines is assigned a station user that desires to make an ICM call must press the ICM button before lifting the handset. For access to paging, press FLA followed by normal sequence for paging.

PROGRAM SELECTION USING DSS/BLF CONSOLE KEYS

This feature allows the programmer to directly select access to the desired program data via the DSS/BLF console keys. It is not absolutely necessary to have a DSS/BLF console present in the system to access program data, however, a DSS/BLF console will enhance the programming procedure.

PROGRAMMABLE RECALL/HOOK FLASH

This feature allows you the option of programming the "Flash" key on a system basis for any timeout required. This becomes necessary when working in conjunction with CO/PBX and Centrex lines which may require a specific hook-flash timing.

Recall/Hook Flash is activated by the station user by depressing the FLA key. In a stand-alone key system, this button is used to re-access the dial tone on the CO line button controlled by the user station. Behind a PBX, this button will automatically provide hook switch flash timing, regardless of the amount of time the FLASH button is depressed.

Hook Flash timing is factory programmed for three seconds and may be programmed (Program #16) by system option for several different timing options at the time of installation. 700 ms to 1 second is typically used where modern central office equipment and/or PBX equipment is used.

REMOTE CALL PICKUP

The station user may pick up a call on exclusive hold, a transferred call or an incoming call to the user's phone from another phone by pressing the (*) button and dialing the proper ICM number.

RINGING PREFERENCE

This program allows multiple line keys to be prorammed as Incoming CO prime lines at the station. This will allow the station user to be automatically connected to the next Incoming ringing CO line. CO lines must be ring assigned for automatic pick-up function.

SCREEN TRANSFER CO CALLS

If there is voice contact between a station transferring a CO call and the station receiving the call (cannot be handsfree; handset must be used), the call is automatically transferred, without having to press the CO line key to the receiving station. A call may be transferred by depressing the "ICM" key and dialing the two digit station code or be depressing the DSS key associated with the called station. The call will then be put on temporary hold until the called station accepts the call. If the called station does not wish to accept the call, the calling station may retrieve the call be depressing the associated CO key or be dialing "*" and the calling station's two digit "ICM" code.

SECOND RECALL OF HELD CALL

If the initiating station does not answer a recall of a held call, the recall will go to the attendant (as well as to the initiating station) at the end of the second recall time. If there is a DSS/BLF available in the system, the LCD will display (flash) the CO and originating Station number. If there is more than one CO on second Hold Recall, the CO and Station number will appear in sequential order on the DSS/LCD. In the transition from the first Hold Recall period to the second Hold Recall period, a CO originally on exclusive hold or transfer hold at a station will automatically be put on system hold. In addition, the Executive station will display (flash on LCD) the CO Key # on second Hold Recall. The second Hold Recall timer is a separate rate from the first Hold Recall timer and may be set by program #34.

SPARE CO BUTTONS USED AS PROGRAMMABLE AUTODIAL BUTTONS

Up to ten spare CO line buttons may be programmed on a per station basis to allow for one touch autodialing. Spare CO line buttons may be programmed with telephone numbers up to 20 digits each including pause and wait. CO line buttons must be cleared via Program #32 before using as feature access buttons.

To designate a CO line button as an autodial button: While on-hook, press FEAT, press SPD, press CO line button to be used as an autodial button, dial telephone number to be stored, press SPD, press MON. (To store a one second pause, press ** or to store a wait, press ##.) To store system hook flash timing as one of the digits, press FLA in the desired sequence.

To place a call using an access button: Press any idle CO line button, press the CO line button designated as an access button.

SPEAKERPHONE

All telephones in the system have hands free answerback capability. An optional speakerphone module is available for full speakerphone capability on outside calls. The Executive telephone comes factory-equipped with full speakerphone capability.

SPECIAL SPEED BANKS

System and Station "Special Speed Banks" are provided for OCC access. In the case where a station is assigned one of the following types of dial restrictions, access to "Special Speed Banks" is allowed in order to force usage of OCC's and to override dial restrictions.

1 – SR7	4 – SR10	7 – NR
2 – SR8	5 – SR11	8 – OCC8
3 – SR9	6 – SR12	9 – OCC7

Once a station user has accessed a "Special Speed Bank" (14 and 15/system), (30 and 31/station), depending on the restriction type, he or she may be allowed to continue dialing any number of digits, specific digits, or chain dial speed banks according to the following specifications:

1 – User must use "Special Speed Banks" first (before dialing any other digits).

2 – Restriction types SR7 – SR12 restrict outward dialing and allow access to "Special Speed Banks", providing the programmed digits in the "Special Speed Banks" appear in the allow (or disallow) tables. Once access to "Special Speed Banks" has been completed, dialing thereafter will be allowed (or disallowed) by table.

3 – Any "Special" bank may be repeated at least once during one call.

4 – Restriction types OCC7 and OCC8 allow non-restricted dialing once a "Special Speed Bank" has been accessed.

SPEED DIALING – STATION

All individual station users may store up to 20 frequently called number of up to 20 digits each. Each stored CO telephone number is identified by a two-digit code. If the system is used behind a PBX, a wait or a one second pause may be stored between the PBX access code number and the CO telephone number. The wait state must be manually released from the dial pad. The station user may piggyback two speed-dial telephone numbers over the same CO line for convenient use of authorized common carrier codes. Two additional speed dial banks are reserved for seven digit OCC access.

To program a station speed call number, press the FEAT key followed by the SPD key. (The MON light will come on.) Then dial the two-digit storage location code (60-78) and dial the

phone number (up to 20 digits, including pauses and waits. (Pause = one digit, Wait = one digit) Finally, press the SPD and MON key. Locations 88 and 89 are provided for Station OCC access codes and are twenty digits in length. (See Special Speed Banks.)

To program a pause, press the FLASH button. The duration of the pause is one second. To extend the overall pause time, program multiple pauses.

To program a wait, press the HOLD button. For dialpulse systems, an automatic switch to DTMF occurs upon release of the wait. To release wait, push the (#) on the dialpad. An automatic switch back to dialpulse will occur by going back on-hook.

To dial out (the stored number), press an idle CO line button followed by the SPD button and the two-digit storage location code.

SPEED DIALING – SYSTEM

A total of 50 system speed dial locations of 20 digits each are available. The system location numbers are 00-49. The system speed dial numbers must be programmed from Station 10 (port 1). The station user may piggyback system and individual station speed dial numbers.

To program system speed dial location 00-49, follow the procedure for station speed call programming by using the port 1 station. Any station allowed by class of service may access

system speed dial by the same procedure as station speed dialing. Location 50-56 are provided for System OCC access codes and are 20 digits in length. (See Special Speed Banks).

SQUARE OPERATION

The POETS system is factory programmed for square operation. Upon power-up, and original initialization of the system, every CO line appears in the same location on every station. For example, CO line 1 appears on the first line key of every station.

STATION CAMP-ON

A calling station, upon placing an intercom call to a station that is off-hook, will receive a busy tone and may be camped onto the busy station. If the calling station goes on-hook, the camp-on will automatically be canceled. The called station will receive a camp-on tone to indicate another incoming call. The calling station, after camping onto a busy station, will automatically call that station when it becomes free.

To camp onto a station which is busy on a CO call, press ICM and dial the station number by the normal procedure. A busytone will be returned. Press (#) on the dialpad to activate the camp-on function. The busytone will then be removed if the camp-on is accepted. The called station will then hear the camp-on tone through the station speaker, and may answer the camp-on by the "Call-Split" procedure. Going to the on-hook condition by the calling station cancels the camp-on function.

STATION DISTINCTIVE SIGNALING

Differences in LED appearance, flash rates, and audible signals allow the station user to distinguish between incoming CO, intercom, call-waiting or call-announce calls. See Table 3-1 which describes the Station Signaling characteristics.

STATION QUEUING

This feature allows a station to queue onto another station which is busy on a CO line or ICM call. Once the dialed station resumes an idle condition, the calling station receives a ring tone. The calling station then lifts the handset and is automatically connected to the called station.

To queue onto a station, dial a station on ICM by the normal procedure. If the called station is busy, a busytone will be returned. Press (*) and the busytone will be removed if the queue is accepted. Go on-hook. When the busy station becomes idle, the queuing station will receive a ringback tone. Lift the handset and without taking any other action, a warning tone will be heard after which a call announce can be made and you may begin speaking.

TONE-PULSE SWITCHABLE DIALING

The system is programmable on a system basis per CO line to outpulse DTMF or dialpulse (loop disconnect pulsing). The default mode is DTMF. When the system is in the "dialpulse" mode, it reverts to DTMF on a per line basis by dialing the (#) button on the dialpad. The line remains in the DTMF mode until the station connected to the CO line either goes into an idle state or reseizes another CO line.

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To switch a CO line which is programmed for dialpulse to **DTMF,** press the (#) button. The (#) may be used to switch to DTMF for computer access, OCC access or any service requiring DTMF signaling. The CO line reverts back to dialpulse when the station goes on-hook.

TRUNK GROUP QUEUING

This feature allows a station user to queue onto a trunk group if all trunks in that group are busy. As soon as a trunk becomes available, the queued on station will receive a ringing tone at which time the user may lift the handset or press the MON key to be connected to the available trunk.

When a station presses a trunk key in a busy trunk group, it can queue onto that trunk group by pressing the (*) button on the dialpad. When any trunk in that group becomes available, the station will receive a ringing tone, and upon lifting the handset, will receive CO dial tone.

To queue onto a trunk group, press any busy CO button associated with the trunk group to be queued onto (indicated by a solidly lit lamp). Then listen for the busytone and press (*) on the dialpad. If the queue is allowed, the busytone will be removed. You may then go on-hook. The first idle trunk will be indicated by a flashing LED (60 flashes per minute) and the station will receive a special ringing signal. If your station becomes busy, you will not receive a queue signal when the trunk becomes available. To answer the queue, lift the handset or press the MON. You will then receive a dialtone. The queue will timeout and be removed within ten seconds.

UNSCREEN TRANSFER CO CALLS

If there is no voice contact between a station transferring a CO call and the station receiving the call, the receiving station is alerted to the call by a ring and a distinctive lamp indication on a key telephone, after the calling station goes on-hook. On a single-line telephone, the call is automatically transferred to the receiving station. A handsfree answerback is not considered voice contact and is therefore an unscreened transfer.

UN STATION (UNANSWERED STATION)

Any station may be assigned to ring on any incoming CO call when a CO call has been unanswered and continues to ring at a particular answering position (extensions with ring assigned CO lines) for longer than the designated period of time.

This feature is completely automatic and is a function of the system software on a per CO line basis. If a UN station is assigned in the system ringing program to a particular CO line and the UN station timer is programmed for a designated period of time, the UN feature is then activated. (Refer to Program No. 23.)

The UN feature may also be deactivated by entering "00" into the system UN station timer. This will deactivate all "UN" stations.

Table 3-1
STATION DISTINCTIVE SIGNALLING

LED FLASH INTERVALS

P-6, 18 30, EXEC	ORIGINATING STATION					ALL OTHER STATIONS					ORIGINATING STATION VISUAL
	*ON	OFF	ON	OFF	IPM**	ON	OFF	ON	OFF	IPM**	CO (LED)
I-Use	840	120	120		50					Steady	XXXXXXXX XX XXXXXXXXX
Busy (In Use)					Steady					Steady	XXXXXXXXXXXXXXXXXXXXXXX
Line Hold Recall	120	480	120	480	10					Steady	XXXX XXXX XXXX XXXX
Transferred Call	120	480	120	480	10					Steady	XX XX XX
Exclusive Hold	120	120	120	120	250					Steady	XX XX XX XX XX
I-Hold	480	120	480	120	100	120	120	120	120	250	XXXXX XXXX XXXXX
Incoming Call	480	480	480	480	62.5	480	480	480	480	62.5	XXXX XXXX
System Hold	120	120	120	120	250	120	120	120	120	250	XX XX XX XX XX
CO Group Que											
Call Back	840	120	120		50					Steady	XXXXXXXXX XX XXXXXXXXX
											ICM (LED)
I-Hold	480	120	480	120	100					None	XXXXX XXXX XXXX
I-Use	840	120	120		50					None	XXXXXXXXX XX XXXXXXXXX
Incoming Call	480	480	480	480	62.5					None	XXXX XXXX
All Paths Busy					Steady					Steady	XXXXXXXXXXXXXXXXXXXXXXX
Station Que											
Call Back	840	120	120		50					Steady	XXXXXXXXX XX XXXXXXXXX

System Clock Start ▲

DSS/BLF										STATIONS BLF/LCD
				LCD FLASH IN ORDER OF RECALL						CO/STATION
Busy (In Use)							N/A		▼	XXXXXXXXXXXXXXXXXXXXXXXXXXX
Line Hold Recall				Steady						XXXX XXXX
MSG Waiting	480	480					62.5	N/A		XXXX
ICM Call Forwarded	120	480	120	480			100	N/A		XX XX XX
NA								Steady		XXXXXXXXXXXXXXXXXXXXXXX
Incoming Call								N/A		XXXXXXXXXXXXXXXXXXXXXXX
Call Backup								Steady	Steady	XXXXXXXXXXXXXXXXXXXXXXX
EXECUTIVE										LCD DISPLAY
Incoming ICM Call									▼	"Incoming Extension No."
Call Forward								N/A		CF
Message Waiting								N/A		CALL OP
OTHERS										MESSAGE LAMP
Message Waiting	480	480					62.5	N/A	▼	XXXX XXXX
ICM Call Forward	120	480	120	480			100	N/A		XX XX XX
Night Answer				Steady				Primary Station Only		XXXXXXXXXXXXXXXXXXXXXXXXXXXXX

* Milliseconds

** Indications Per Minute

TELEPHONE OPERATING CONTROLS

All telephone operating controls, with the exception of the Hook-Switch and volume control, are constructed of a very durable and flexible conductive material. Unlike mechanical type controls, the POETS-PLUS telephone operating controls have no moving parts; therefore defects due to mechanical failures are non-existent. In addition, the controls have been proven to have a usable operating life of more than ten million cycles (ten million depressions). The controls also feature noiseless switching (unlike mechanical switches). Environmental hazards such as moisture, humidity, heat and dust have also no effect on normal operation.

The below listed figures are provided as an accurate illustration and description of the POETS-PLUS telephone operating controls:

FIGURE 3-4. 6 Button Electronic Key Telephone.
FIGURE 3-5. 18 Button Electronic Key Telephone
FIGURE 3-6. 30 Button Electronic Key Telephone
FIGURE 3-7. Executive Station Electronic Key Telephone
FIGURE 3-8. Direct Station Select/Busy Lamp Field

FIGURE 3-4. 6 Button Electronic Key Telephone.

FIGURE 3-5. 18 Button Electronic Key Telephone

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MESSAGE WAITING
CALL FORWARD LED

CO 1-30

CO 1   CO 11   CO 21
CO 2   CO 12   CO 22
CO 3   CO 13   CO 23
CO 4   CO 14   CO 24
CO 5   CO 15   CO 25
CO 6   CO 16   CO 26
CO 7   CO 17   CO 27
CO 8   CO 18   CO 28
CO 9   CO 19   CO 29
CO 10   CO 20   CO 30

MONITOR/DND

HOOK
FLASH

FLA   MON   ABC   DEF
              1   2   3

INTERCOM

FEATURE &
PROGRAM

FEAT   ICM   GHI   JKL   MNO
              4   5   6

VOLUME
CONTROL

SPD   MIC   PRS   TUV   WXY
              7   8   9

HOLD   OPER
        .   0   #

SPEED DIAL   SYSTEM &   MIC ON/OFF
              EXCLUSIVE HOLD

FIGURE 3-6. 30 Button Electronic Key Telephone

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FIGURE 3-7. Executive Station Electronic Key Telephone

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DIRECT STATION SELECTION

STA 10   STA 16   STA 22   STA 28   STA 34

STA 11   STA 17   STA 23   STA 29   STA 35

STA 12   STA 18   STA 24   STA 30   STA 36

STA 13   STA 19   STA 25   STA 31   STA 37

STA 14   STA 20   STA 26   STA 32   STA 38

STA 15   STA 21   STA 27   STA 33   STA 39

NOTE: STATION
ID NUMBERING
MAY ALSO APPEAR
AS 40-69

NA

NIGHT RINGING

CBU

CALL BACKUP

MSG

MESSAGE WAITING

DISP   TIME   HR   MIN
CONT   SET   UP   UP

DISPLAY CONTROL   TIMESET   MINUTE SET   LCD
ENABLE/DISABLE   DISPLAY

HOURSET

FIGURE 3-8. Direct Station Select/Busy Lamp Field

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SECTION 4

SYSTEM PROGRAMMING

GENERAL

This section describes the permanent factory program and contains programming information using the primary (Ext #10) station.

PERMANENT FACTORY PROGRAMMING

POETS-PLUS is delivered with a permanent factory program (See Table 4-1 Factory Program Data), stored in a read only memory (ROM). This program must be loaded when first powering the system up or when adding an LEU to insure proper system operation. When the system is initialized, the contents of the ROM are transferred to a random access memory (RAM), which controls the operation of POETS-PLUS. This RAM can be modified according to customer requirements by using the port 1 station. Modifying the program data will not erase already existing factory data. However, even after the contents of the RAM are modified, the original permanent factory program can be reinserted in place of the modified program by performing the initialization procedure as indicated in Figure 4-1, "System Initialization Flow Chart". The permanent factory program that resides in the ROM is described in programming operations and lists the program numbers, title, and factory program description.

NOTE: IT IS IMPORTANT TO FOLLOW THE PROPER INITIALIZATION PROCEDURE WHEN INSTALLING POETS-PLUS OR WHEN ADDING AN LEU.

Table 4-1

FACTORY (DEFAULT) PROGRAM DATA

	Program		Default Data	Program No.
1.	Auto H-Flash Timing	=	3 Seconds	16
2.	Ring Timeout	=	8 Seconds	17
3.	Dial Pulse Break Ratio	=	60%	20
4.	Intercom Priority	=	Voice	13
5.	1st Depression of Hold	=	System Hold	14
6.	Dial Pulse Speed	=	10pps	19
7.	Hold Recall	=	No Timeout	15
8.	CO Type Dial	=	DTMF	18
9.	Trunk Group Assignment	=	All COS to #1 Group	25
10.	Station Class of Service	=	COS #1 (all stations)	27
11.	Forbidden Speaker Page	=	"0" = allowed	21
12.	Ring Assignment	=	Station #10, 21, 22 34, 46, 58	22
13.	Night Answer	=	Station #10, 21	23
14.	Toll Restriction Type per Trunk Group	=	#13 (non restricted)	28 to 31
15.	CO Line Assignment to Station CO Line Keys (non squared) operation	=	Squared Operation	32
16.	DND Allow/Disallow	=		33
17.	Trunk Group Class of Service	=	13 All Groups Non Restricted	26
18.	Assignment of Class of Service Per Station	=	01 All Stations	27

SYSTEM PROGRAM ENTRY

All system programming is performed from the port 1 station. If a DSS/BLF is available in the system, programmed data will be displayed on the DSS/BLF's liquid crystal display. WTC strongly recommends using a DSS console for programming. Programming is performed by using the "FEAT" and the dialpad only, while in the "Monitor" mode. All other buttons are inactive during the programming function. Error entry is indicated by a split-warning tone (multiple beep-like tones). Valid entry is indicated by a confirmation tone (single beep-like tone). All program modifications can be performed while the system is fully operational. Refer to Appendix A for some useful "Programming Tips".

PROGRAMMING USING THE PORT 1 STATION

The primary station communicates with POETS-PLUS to enable access to each piece of stored information in the system memory and to modify the memory contents.

To start (enter) the system programming mode, perform the following from the port 1 station (ICM-10):

1. Press MON button;

2. Press the (*) button and dial "0" and "1" on the keypad

3. Press the (#) button and the "FEAT" button twice. (At this point, confirmation tone should be heard.)

4. If busy tone is heard, check factory program SW1 positions 1, 3, and 4. They must be off (away from the wall) to enter programming mode. At this point in the programming sequence, all other stations remain active. [(*), 01, (#), FEAT, FEAT)]

To terminate (exit) the system programming mode, press the MON button from the port 1 station (ICM 10).

PROGRAMMING HINTS

1. Confirmation tones will be heard after pressing (#) and FEAT buttons when entering programming mode.

2. Multiple warning tones will be heard if:

    a. Invalid entry such as invalid program, illegal value for the program data is entered, etc.

    b. End of a programming sequence such as last key entry for station button assignment, ring assignment, etc.

    c. Station off-hook while attempting to change the station data of that station. (See Programming Tips - Appendix A)

3. On-Line Programming

    a. On-line programming can be performed while the system is in any state except the IPL state (DIP switch 1 of the CPU "ON" or toward the wall).

    b. When trying to change the program of an off-hook station, a warning tone (multiple beep-like tones) will be heard the first time an attempt is made to enter the data. If it is necessary to enter the data when the station is off-hook, simply re-enter the affected data.

4. The use of "X" as a Program Data Variable:

   a. In many instances, a choice of customer data for use is available by the end user in accordance with a particular program. Therefore, the alphanumeric symbol "X" is used to denote an unknown digit (variable). A variable (unknown) character will only become known once the data has been decided upon by the end user.

   b. Often, multiple variables are required to be programmed. In this case, the character "X" is followed by a number indicating the order in which the data is to be entered by the user. For instance:

   | X1, | | X2, | | X3 |
   First Variable   Second Variable   Third Variable
   Unknown   Unknown   Unknown
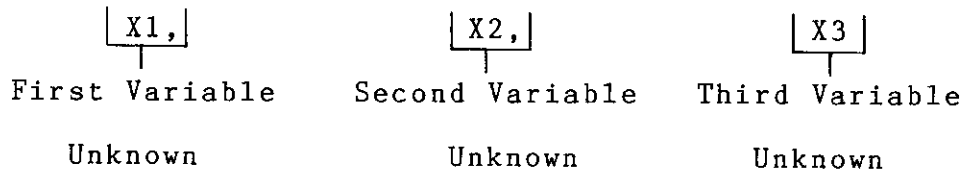
5. The Purpose of Programs 28-31:

   a. To allow the user to formulate reference tables for semi-restrictions (outward dialing restrictions).

   b. These tables are used by the system to determine what telephone numbers, area codes, and central office exchanges which may be allowed or disallowed from outward dialing at a particular station. Depending on the trunk group class of service (Program #26 and #27) assigned to a particular station, the system may reference one or two combination of tables for dialing information. Since the system analyzes the first four digits dialed (in the semi-restrict mode), it will be necessary to input only four digits (for area, toll and

exchange) in each entry (1-40) of a particular table. For customer convenience, wild card digits have been provided for use when the digits 0-9 or 2-9, * and # are to be restricted or allowed in a four digit sequence. For example, all area codes beginning with the digits 2-9 with subsequent digits 0-9 may be entered as follows:

```
         | P |  | A |  | A |  | A |        --      Data Displayed
```
Dialpad Entry -- |SPD| |FLA| |FLA| |FLA|

6.   Program Groups

All programs in this system are grouped into four categories. Access to each program requires that two digits be entered into the dialpad. For example:

Table 4-2
Program Profile

Program No.	Data Entered	Group
1	01	0
11	11	1
12	12	1
13	13	1
14	14	1
15	15	1
16	16	1
17	17	1
18	18	1
19	19	1
20	20	2
21	21	2
22	22	2
23	23	2
24	24	2
25	25	2
26	26	2
27	27	2
28	28	2
29	29	2
30	30	3
31	31	3
32	32	3
33	33	3

7. Program 26 (Class of Service Configuration)

    a. The purpose of this program is to allow the user to formulate classes of service for dialing restrictions. Since in most applications specific COs (trunks) are assigned to particular departments or tenants, trunk (CO) groups may be formed (see Program 25 to simplify class of service (dial restriction) assignments).

    b. There are 16 available classes of service provided which may be custom designed by the user (on a trunk group basis) for later assignment (see Program 27 on a per station basis).

    c. When trunks (COs) have been assigned to trunk groups, (see Program 25) dial restrictions (01-19) may be assigned to each trunk group (1-9) in a particular class of service (01-16) by use of the "Trunk Group Class of Service Restrictions" (Table 4-4).

8. Figure 4-28 has been provided as a quick reference to primary Customer programmed data. Once the worksheets (tables) are completed by the programmer the fold-out can be used to "eye-ball" current system data.

PROGRAM ENTRY CHARTS

The program charts on the following pages describe the procedure for modifying the system data. Table 4-3 provides a list of these programs.

Table 4-3

Program Charts

Table 4-3 (cont'd)

Program Charts

PROGRAM #1 ENTRY TO PROGRAMMING MODE

1. This program allows entry to the programming mode from the port 1 station (Extension #10). In order to program, the system main CPU switch, SW 1 Selector #1, #3 and #4 must be in the off position (away from wall). Selector #2 should also be off if speed dial is to be retained.

2. System programming must be performed from the port 1 station (Extension #10) including System SPD Dial banks (00-13), (50 and 51) are system special banks. Station speed dial banks are 60-73, 88 and 89 are station special banks.

3. The entry code takes the following form and must be entered from the dial pad with the monitor button in the "ON" condition (LED on):

   (*),   01,   (#),   FEAT   FEAT

4. A confirmation tone should be heard upon depressing the (#) button and upon depressing the FEAT button (second time). If a busy tone is heard, check the initialization DIP switches to insure they are in the proper position ("OFF" or away from the wall) and then re-enter the program.

5. Once the system is in the programming mode, any program sequence may be accessed.

6. All programming is on-line and does not affect the operation of the system. However, the port 1 station will remain inactive while in the programming mode.

7. When programming a particular station (other than EXT #10) while it is in use, it may be necessary to enter specific data twice. If error tones are heard during normal programming, refer to Appendix "A" Programming Tips for further details.

PROGRAM 1

SEQ. NO.	DIAL PAD	DATA ENTERED	LCD DISPLAY	DISPLAY DEFINITION	NEXT IN SEQ.	NOTE
1	*				2	
2	0				3	
3	1				4	
4	#				5	
5	Feat				6	
6	Feat					End of programming sequence
7						
8						
9						
10						
11						
12						

Figure 4-2. Procedure For Entry To Programming Mode

PROGRAM #11 -- CLEAR ALL PROGRAM DATA

1. This program step is used to clear the present system data, and replace it with factory (default) data.

2. Caution must be taken since this procedure completely destroys all customer data and reloads factory data.

3. The program sequence takes the following form:

(*),   11, | 00, | (3),   FEAT,   FEAT

   If "00" is not entered
   here, the system will
   not perform the procedure.

NOTE: This program is not a substitute for System Initialization.

PROGRAM #11

SEQ. NO.	DIAL PAD	DATA ENTERED	LCD DISPLAY	DISPLAY DEFINITION	NEXT IN SEQ.	NOTE
1	*				2	
2	1	Prog. No.	1		3	
3	1		1 1	Prog. No.	4	
4	0	Clear Code	0		5	To clear all program data
5	0		0 0	Clear Code	6	
6	#				7	
7	Feat				8	End program sequence
8	Feat					Exit program
9						
10						
11						
12						

Figure 4-3. Procedure For Clearing All Program Data.

PROGRAM #12 -- CLEAR SELECTED PROGRAM DATA

1. This program step is used to clear the data of specific programs.   In some
    instances, factory (default) data is reloaded in place of the customer data.   In
    other instances "00" is inputted in place of factory data.   See Note below.

2. Caution must be taken since this procedure completely destroys selected customer
    data.

3. The Clear Selected Program Data code takes the following form:

    (*),   12, |X1   X2| (#),   FEAT,   FEAT
                     |_____|
                     Program No.
                     to be cleared

Note:
    In some instances this program completely clears the selected program.   The
    selected program must be re-entered after clearing it.

    Only the following programs may be completely cleared:

Program (XX)	Description
32----------------------------------(Completely Cleared)	
All other Programs----------------------------------Factory data	

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SEQ. NO.	DIAL PAD	DATA ENTERED	LCD DISPLAY	DISPLAY DEFINITION	NEXT IN SEQ.	NOTE
1	*				2	
2	1	Prog. No.	1		3	
3	2	Prog. No.	1 2		4	
4	X1	Prog. No. to be Cleared	X1		5	
5	X2		X1 X2	Prog. No. Cleared	5	Go to 5 to change Prog. No.
					6	Go to 6 to continue sequence
6	#				5	Next Prog. No. to be cleared
					7	Clearing sequence completed
7	Feat				8	
8	Feat					End of program sequence
9						
10						
11						
12						

Figure 4-4. Procedure For Clearing Selected Program Data.

PROGRAM #13 -- CHANGE IN PRIORITY OF ICM CALLS

1. This program allows changing ICM call priority system wide from Voice to Tone or Tone to Voice.

2. The program sequence takes the following form:

   (*), 13, $\underline{X1,}$ (#), FEAT, FEAT

       ICM ID

3. The system is factory programmed for Voice priority on all ICM calls (Handsfree Answerback).

NOTE: Origination of a handsfree ICM call must be performed by using the handset (off-hook).

X1	I.D.	Definition
	0	Voice Call
	1	Tone Call

PROGRAM #13

SEQ. NO.	DIAL PAD	DATA ENTERED	LCD DISPLAY	DISPLAY DEFINITION	NEXT IN SEQ.	NOTE
1	*				2	
2	1	Prog. No.	1		3	
3	3		1 3	Prog. No. | I.D.	4	
4	X1	ICM Signalling Priority I.D.	X1	I.D.	5	Ø = Priority is Voice Call 1 = Priority is Tone Call
5	#				6	
6	Feat				7	
7	Feat					End of program sequence
8						
9						
10						
11						
12						

Figure 4-5. Procedure For Changing Priority Of ICM Calls.

PROGRAM #14 -- DEFINITION OF FIRST DEPRESSION OF THE HOLD BUTTON AS SYSTEM HOLD OR

EXCLUSIVE HOLD

1. This program defines the first depression of the HOLD Button as System hold or Exclusive Hold.

2. The program sequence takes the following form:

(*), 14, X1, (#), FEAT, FEAT, FEAT

HOLD ID

3. The system is factory programmed for the first depression of the HOLD Button to be System Hold.

	I.D.	Definition
X1	0	E-hold
	1	System-Hold

PROGRAM #14

SEQ. NO.	DIAL PAD	DATA ENTERED	LCD DISPLAY	DISPLAY DEFINITION	NEXT IN SEQ.	NOTE
1	∗				2	
2	1	Prog. No.	1		3	
3	4	Prog. No.	1 4	Prog. No.	4	
4	X1	System/E-Hold I.D.	X1	I.D.	5	∅ = E-hold with 1st hold depression 1 = System with 1st hold depression
5	#				6	
6	Feat				7	
7	Feat					End of program sequence
8						
9						
10						
11						
12						

Figure 4-6. Procedure For Defining The First Depression Of The Hold Button As System Hold Or Exclusive Hold.

PROGRAM #15 -- CHANGING HOLD RECALL TIMING (1st & 2nd)

1. This program determines the length of the hold recall periods.

2. The first and second hold recall timers are programmed independently via this program. (See Section III for feature description.)

3. It is possible to disable both of the hold recall features by entering "00" in the X1, X2 variable for first hold recall data.

4. Both first and second hold recall timers may be programmed independently for a maximum of 9.5 minutes and a minimum of 30 seconds in 30 second increments.

5. The program sequence takes the following form:

```
  *,    | 15, |   | #, |   | X1  X2, |   | #, |   | F F |

       or DSS    Step      00-9.5      Step to    Exit
       Key #15              See Table   Second Hold
                            4-1         Recall Timer
```
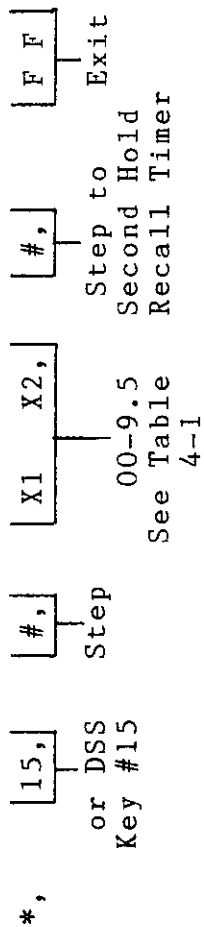
                        Repeat for
                     Second Hold Recall

Table 4-1   Hold Recall Timing IDs

Timing ID X1 X2		Timing
00	=	No Recall (Default Data)
05	=	30 seconds
10	=	60 seconds
15	=	1.5 minutes
20	=	2 minutes
25	=	2.5 minutes
..		..
..		..
95	=	9.5 minutes

NOTE: Second Hold Recall is the sum of the first and second hold recall.

6. This program replaces Program #15 of the POETS PLUS Installation and Maintenance Manual (pg 4-20/4-21).

PROGRAM NO. 15

SEQ. NO.	DIAL PAD	DATA ENTERED	LCD DISPLAY	DISPLAY DEFINITION	NEXT IN SEQ.	NOTE
1	*				2	
2	1	Prog. No.	1		3	Enter Prog. No.
3	5		1 5	Prog. No.	4	
4	#	Step	1 0 0	1st Hold Recall / Factory Data	5	Factory is "00" No Recall
5	X1	Hold Recall Timing I.D.	1 X1		6	Change Factory Data to Desire Timing
6	X2		1 X1 X2	New 1st Hold Recall Time	7	Step to Second Hold Recall
7	#	Step	2 0 0	2nd Hold Recall / Factory Data	5 / 8	Go to 5 Change Second Recall / Go to 8th Exit Program
8	FEAT					End of Program Sequence
9	FEAT					
10						
11						
12						

FIGURE 4-7. Changing hold recall timing (1st & 2nd)

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PROGRAM #16 -- CHANGING HOOK FLASH TIMING

1. This program allows changing the automatic Hook Flash Timing.

2. The program sequence takes the following form:

   (*),   16, |X1   X2,| (#),   FEAT,   FEAT,   FEAT
                 Hook Flash ID

3. The system is factory programmed for three seconds. In many cases a shorter timing may be used; i.e. 500-700 milliseconds.

Note: Timing can be changed from 0.1 sec. to 9.9 sec. in one tenth of a second increments.

Example: *   16   10   #,   FEAT,   FEAT   FEAT

   With this program, entry of "10" flash will be 1 second.

I.D.	Timing
01	0.1 sec.
02	0.2 sec.
----	----
30	3.0 sec.
----	----
98	9.8 sec.
99	9.9 sec.

X1,X2

PROGRAM 16

SEQ. NO.	DIAL PAD	DATA ENTERED	LCD DISPLAY	DISPLAY DEFINITION	NEXT IN SEQ.	NOTE
1	*				2	
2	1	Prog: No.	1		3	
3	6		1 6	Prog. No.	4	
4	X1	Flash Timing I.D.	X1		5	
5	X2		X1 X2	Timing	6 / 5	Go to 6 if timing OK / Go to 5 to change timing
6	#				7	
7	Feat				8	
8	Feat					End of program sequence
9						
10						
11						
12						

Figure 4-8. Procedure For Changing Hook Flash Timing.

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PROGRAM #17 -- CHANGING RING TIMEOUT TIMING

1. This program allows changing the abandon incoming call ringing timeout period. The purpose of the "Ring Timeout" is to prevent false ring detection; i.e. false ringing.

2. The program sequence takes the following form:

    (*),   17, | X1   X2 | (#),   FEAT,   FEAT

                         Ring
                      Timeout ID

3. Since most modern Central Offices have eight second ring cycles (4 seconds on and 4 seconds off), the system is factory programmed for an eight second timeout.

I.D.	Timeout	
05	5.0 sec.	
08	8.0 sec.	
11	11.0 sec.	
14	14.0 sec.	
17	17.0 sec.	X1,X2
20	20.0 sec.	
23	23.0 sec.	
26	26.0 sec.	

PROGRAM 17

SEQ. NO.	DIAL PAD	DATA ENTERED	LCD DISPLAY	DISPLAY DEFINITION	NEXT IN SEQ	NOTE
1	*				2	
2	1	Prog. No.	1		3	
3	7		1 7	Prog. No.	4	
4	X1	Ring Timeout Timing I.D.	X1		5	
5	X2		X1 X2	Timing	6 / 5	Go to 6 if timing is correct / Go to 5 to change timing
6	*				7	
7	Feat				8	End of program sequence
8	Feat					
9						
10						
11						
12						

Figure 4-9. Procedure For Changing Ring Abandon Timeout Timing

PROGRAM #18 -- SELECTION OF DP OR DTMF PER CO LINE

1. This program allows selection of DP or DTMF signaling on a per CO line basis.

2. The program sequence takes the following form:

(*),   18, | X1   X2, | | X4 | (#),   FEAT,   FEAT
                   CO Line   DP
                                       or
                  (01-30)   DTMF

Note: After CO Line number is entered, present signaling status of the CO line will be displayed in the first LCD position.

3. The system is factory programmed for DTMF signaling on all lines.

4. See Table 4-13 (Page 4-67) for programming worksheet.

Example: *   18 | 01 | | 1 | #   FEAT   FEAT
                           CO   DP
                           Line   or
                                      DTMF

With this program entry of "1" CO Line "1" would be dial pulse.

I.D.	Definition
X4	0	DTMF
	1	DP

PROGRAM #18

SEQ. NO.	DIAL PAD	DATA ENTERED	LCD DISPLAY	DISPLAY DEFINITION	NEXT IN SEQ.	NOTE
1	*				2	
2	1	Prog. No.	1		3	
3	8		1 8	Prog. No.	4	
4	X1	CO No.	X1		5	
5	X2		X2 X1	CO No.	5 / 6	Go to 5 to change CO No. / Go to 6 to change I.D.
6	X3	I.D. DP/DTMF	X1 X2 X3	CO No. I.D.	7	$\emptyset$ = DTMF (Factory Prog.) 1 = DP
7	#		0 0 0 0		5 / 8	Go to 5 for next CO No. / Go to 8 to end sequence
8	Feat				9	
9	Feat					End of program sequence
10						
11						
12						

Figure 4-10. Procedure For Selection Of DP OR DTMF Per CO Line.

PROGRAM #19 -- CHANGING DIAL PULSE SPEED

1. This program allows changing the dial pulse speed from 10pps or 20 pps.

2. The program sequence takes the following form:

(8),   19, | X1 X2,   (3),   FEAT,   FEAT
                └─────────┘
               Pulse Speed Value

3. The system is factory programmed for 10pps.

X1, X2	Value	Speed
	10	10 pps
	20	20 pps

PROGRAM 19

SEQ. NO.	DIAL PAD	DATA ENTERED	LCD DISPLAY	DISPLAY DEFINITION	NEXT IN SEQ.	NOTE
1	*				2	
2	1	Prog. No.	1		3	
3	9		1 9	Prog. No.	4	
4	X1	Dial Pulse Speed	X1		5	Speed is 10 or 20 pps.
5	X2		X1 X2	Speed	6	Go to 5 to change speed
					7	Go to 7 if speed OK
6	*					End of program sequence
7	Feat					
8	Feat					
9						
10						
11						
12						

Figure 4-11. Procedure For Changing Dial Pulse Speed.

PROGRAM #20 -- CHANGING DIAL PULSE BREAK RATIO

1. This program allows changing the dial pulse break ratio from 58 percent to 73 percent in one percent increments.

2. The program sequence takes the following form:

    (8),   20,   X1 X2,   (#),   FEAT,   FEAT,   FEAT
                       |_____|
                       Break Ratio Value

3. The system is factory programmed for 60 percent break.

Value	Break Ratio
58	58%
59	59%
60	60%
- - -	- - -
70	70%
71	71%
72	72%

X1,X2

PROGRAM #20

SEQ. NO.	DIAL PAD	DATA ENTERED	LCD DISPLAY	DISPLAY DEFINITION	NEXT IN SEQ.	NOTE
1	*				2	
2	2	Prog. No.	2 0		3	
3	0		2 0	Prog. No.	4	
4	X1	Dial Pulse Break Ratio	X1		5	
5	X2		X1 X2	Break ratio	6	Go to 6 if % break OK
					5	Go to 5 to change % break
6	#				7	
7	Feat				8	
8	Feat					End of program sequence
9						
10						
11						
12						

Figure 4-12. Procedure For Changing Dial Pulse Break Ratio.

PROGRAM #21 -- ALLOWING OR FORBIDDING INTERNAL SPEAKER ALL PAGE AND ZONE PAGE PER STATION

1. This program allows each station to be programmed to allow or forbid internal all-page and zone-page.

2. The program sequence takes the following form:

(*),   21, | X1 X2 | | X5, | (#),   FEAT,   FEAT

              Ext No   0=Allowed
                          1=Forbidden

3. The system is factory programmed to allow internal all-page and zone-page at each station.

0 = Internal Page Allowed / 1 = Internal Page Disallowed

Example: *   21 | 13 | | 1 | #   FEAT   FEAT

                       Ext   Allow
                       Number   or
                                  Forbid

With this program entry station "13" would be disallowed internal page.

PROGRAM #21

SEQ. NO.	DIAL PAD	DATA ENTERED	LCD DISPLAY	DISPLAY DEFINITION	NEXT IN SEQ.	NOTE
1	*				2	
2	2	Program No.	2		3	
3	1		2 1 2		4	
4	X1	Ext. No.	X1		5	
5	X2		X1 X2 X1 X4	Ext. No. / I.D.	5 / 6	Go to 5 to change Ext. No. / Go to 6 to change Internal page
6	X4	Forbidden Internal Page I.D.	X1 X2 X4	Ext. No. / I.D.	7	∅ = Internal Page Allowed / 1 = Internal Page Forbidden
7	#		0 0 0 0		5 / 8	Go to 5 to change Ext. No. / Go to 8 to end sequence
8	Feat				9	End of program sequence
9	Feat					
10						
11						
12						

Figure 4-13. Procedure For Allowing Or Forbidding Internal Speaker Page And Zone Page Per Station.

PROGRAM #22 -- RING ASSIGNMENT OF STATIONS

1. This program allows each station to be ring assigned to any or all of the CO/PBX lines. However, 10 stations may be ring assigned to any one CO/PBX line.

2. The program sequence takes the following form:

```
(*),  | 22, |   | X1 X2, |   | X3 X4, |   | X5 X6, |   | (#), |   | FEAT   FEAT |

       Or DSS      Co No.       Extension No.    New Station      Step          Exit
       Button      (01-30)      *(These are      Data (10-69)     10 times      Program
                                provided by      (if desired)
                                factory
                                default)
```
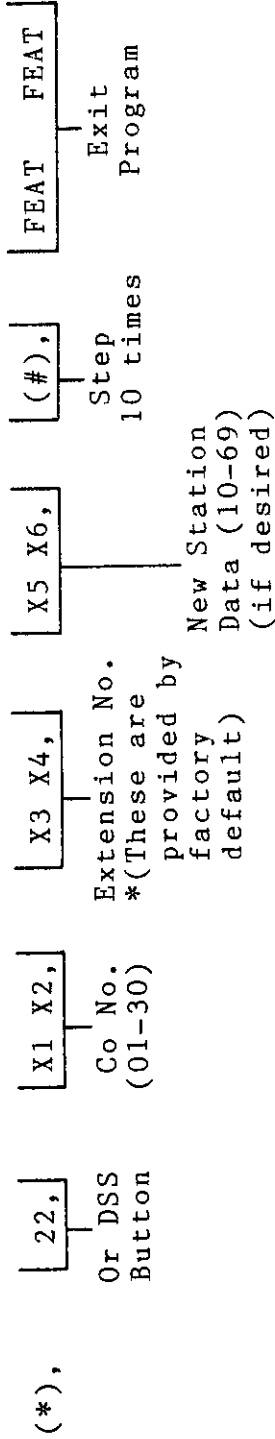
3. All CO Lines may be ring assigned to any station, a maximum of ten stations may be assigned to ring each CO line.

4. See Table 4-12 (page 4-65) for Ring Assignment Worksheet.

5.* The system is factory programmed for extensions 10, 21, 22, 34, 46 and 58 which are assigned to ring on all CO lines.

6. This program replaces program #22 of the POETS PLUS Installation and Maintenance Manual (pg 4-34/4-35).

PROGRAM NO. 22

SEQ. NO.	DIAL PAD	DATA ENTERED	LCD DISPLAY	DISPLAY DEFINITION	NEXT IN SEQ.	NOTE
1	*				2	
2	2	Prog. No.	2		3	
3	2		2 2	Prog. No.	4	Enter Prog. No.
4	X1	CO No.	X1	1st Digit of CO No.	5	Enter CO No. You want to assign Stations To
5	X2		X1 X2 X3 X4	CO No. — Factory Station Data	6	Enter Station Number
6	X5	STA No.	X1 X2 X5		7	
7	X6		X1 X2 X6	CO No. — New Station Data	8	
8	#	Step			6	Enter Next Station No. (Repeat 10 Times)
9	FEAT					
10	FEAT					End of Program Sequence
11						
12						

FIGURE 4-14. Ring Assignemnt of Stations

PROGRAM #23 -- NIGHTTIME RINGING ASSIGNMENTS (WITH UN STATION)

1. The purpose of this program is to assign night ringing stations as well as unanswered call (UN) stations on a per CO line basis.

2. A maximum of 5 night ringing stations may be assigned to ring on any incoming CO line when the system is placed in the night answer "NA" mode.

3. One UN station may also be assigned to ring on any incoming CO line in both the day and night modes. The unanswered call station assigned to a CO will ring only if the UN timer (see program #37) is programmed.

4. The program sequence takes the following form:

```
*   | 23,   | X1 X2,  | X3 X4,    | X5 X6,    | #,    | F  F |
    └────┘    └────┘     └────┘      └────┘      └───┘   └──────┘
   or DSS    *CO No.    Station    New Station         Exit
    #23      01-30      Extension  Data (#10-69)        Program
                        #10-69     (You may change
                        (Factory   factory data)
                        data)
                                           Step
                                           Repeat 5 times
                                           (Last Time (6th entry)
                                           for UN Station
```
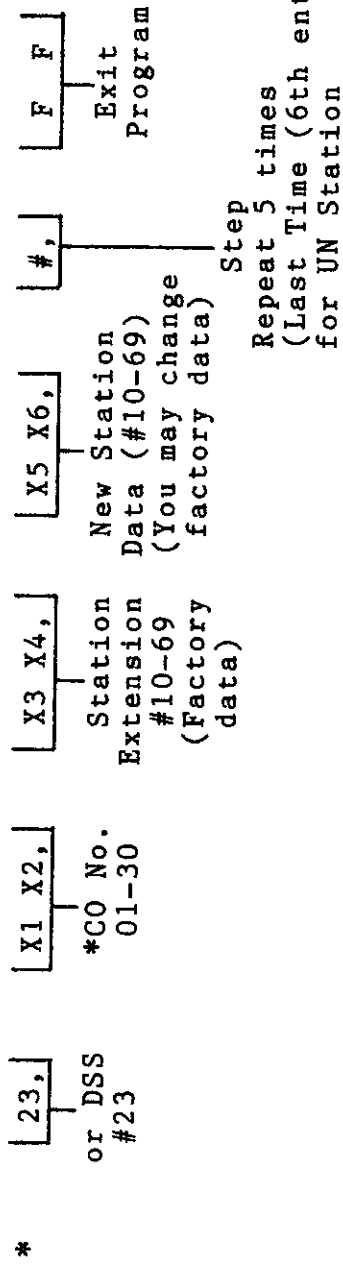
5. The 6th (or last) station (x5 X6) entry is designated as the UN station.

6. If "00" is inputted for "X3 X4" in the first 5 positions, then there will be no station assigned to ring in the night mode.

7. If "00" is inputted for (X5 X6) in the last station position, then there will be no UN station assigned to that corresponding CO line.

8. Factory (default) data is as follows:

(X1,X2) CO#	Station # (X3 X4) repeat 6 times	UN Station
01	10, 21, 00, 00, 00,	00
02	10, 21, 00, 00, 00,	00
03	10, 21, 00, 00, 00,	00
::	:: :: :: :: ::	::
::	:: :: :: :: ::	::
30	10, 21, 00, 00, 00,	00

*X1 and X2 represent any CO line 01-30

X5 and X6 represent any RA or UN station 10-69

9. This program replaces program #23 of the POETS PLUS Installation and Maintenance Manual (pg 4-36/4-37).

.

PROGRAM NO. 23

SEQ. NO.	DIAL PAD	DATA ENTERED	LCD DISPLAY	DISPLAY DEFINITION	NEXT IN SEQ.	NOTE
1	*				2	
2	2	Prog. No.	2		3	Enter Program No.
3	3		2 3	Prog. No.	4	
4	X1	CO No.	X1	1st Digit of CO No.	5	Enter CO No.
5	X2		X1 X2 X3 X4	CO No. / 1st Factory Station Data	6	Enter Station No.
6	X5	STA No.	X5		7	
7	X6		X1 X2 X5 X6	CO No. / New Station Data	8	Last entry is for UN station (This will be the sixth station)
8	#	Step			6	Enter Next Station No.
9	FEAT					
10	FEAT					End of Program Sequence
11						
12						

FIGURE 4-15. Nighttime Ringing Assignments and UN Station Assignments

PROGRAM #24 -- ASSIGNMENT OF CALL BACKUP STATION TO DSS CONSOLE

1. This program allows assignment of a call backup station to each DSS console.

2. The program sequence takes the following form:

(8), 24, #, | X1, | | X3 X4, | (#), FEAT, FEAT
              DSS   Call Backup
              Console   Extension
              (1-5)   (10-69)

3. If there is no CB station, "00" will show on the display.

4. The system is factory programmed for no call backup stations assigned.

Example:

* 24 # | 1 | | 16 | # | 2 | | 00 | # | 3 | | 00 | # FEAT FEAT
        DSS   CBU   DSS   CBU   DSS   CBU
              Station   Station   Station
              (10-69)   (10-69)   (10-69)
                          #2   #3

With this program entry DSS 1 would have station "16" assigned as its CBU. DSS #2 and 3 have no CBU stations assigned.

PROGRAM #24

SEQ. NO.	DIAL PAD	DATA ENTERED	LCD DISPLAY	DISPLAY DEFINITION	NEXT IN SEQ.	NOTE
1	*				2	
2	2	PROG # 24	2		3	
3	4		2 4		4	Step to first attendant back-up Assignment Location – notice no station assigned
4	#	Step	X1 0 0	ATTENDANT #1 | NO ASSIGNMENT	5	Enter 1st digit of call-back up station for #1 attendant
5	X2	Call Back-Up Station	X1 0 X2		6	Enter 2nd digit of call-back up station for #1 attendant
6	X3		X1 X2 X3	ATTENDANT #1 | CALL BACK-UP STATION #	7	Step to next DSS, Repeat this Procedure for all 5 DSS
7	#	Step	X4 0 0	ATTENDANT #2 | NO ASSIGNMENT	5	Enter 1st digit of call back-up
8	FEAT				8	Exit program sequence
9	FEAT				9	Exit program sequence
10						
11						
12						

Figure 4-16. Procedure for Assigning Call Back-up Station to DSS Consoles

PROGRAM #25 -- ASSIGNMENT OF CO LINES TO TRUNK GROUP

1. This program allows assignment of CO lines to trunk groups.

2. Each CO line may be assigned to one of nine trunk groups. The first eight trunk groups may be assigned class of service restrictions.

3. The program sequence takes the following form:

   (*), 25, # | X1 X2, | X4, | #, FEAT, FEAT

   CO Line   Trunk Group
   (01-30)   No.

4. The system is factory programmed for all CO lines to be assigned to trunk group #1.

5. CO Numbers = 01-30 / Trunk Group Numbers = 1-9

6. See Table 4-8 (Page 4-60) for programming worksheet.

Example: * 25 # | 01 | 1 | # | 02 | 1 | # | 03 | 2 | # FEAT FEAT

         CO   TRK   CO   TRK   CO   TRK
         Line GRP   Line GRP   Line GRP
               NO.   NO.   NO.

With this program entry CO Lines "01" and "02" are in trunk group number "1" CO Line 03 is in trunk group number "2".

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PROGRAM NO. 25

SEQ. NO.	DIAL PAD	DATA ENTERED	LCD DISPLAY	DISPLAY DEFINITION	NEXT IN SEQ.	NOTE
1	*				2	
2	2		2		3	
3	5	Prog. No.	2 5 2		4	
4	#	Step	X1 X2 X3	CO No. 1 / Trk. Grp. 1	5	Enter New TRK. GRP.
					6	Step to next CO
5	X4	New TRK. Grp. No.	X1 X2 X4	CO No. 1 / New Trk. Grp.	6	Step to Next CO
6	#	Step	X5 X6 X3	Next Co No. / Trk. Grp. 1	5	Enter new TRK. GRP.
					6	Step to next CO
7	Feat					End of Program Sequence
8	Feat					
9						
10						
11						
12						

FIGURE 4-17. Assignment of CO Lines to a Trunk Group

PROGRAM #26 -- TRUNK GROUP CLASS OF SERVICE ASSIGNMENT

1. This program allows COS configuration on a trunk group basis.

2. There can be 32 COS. Each COS is configured by assignment of one of 19 restriction designators to each of eight trunk groups. (Restrictions may not be assigned to trunk group #9).

3. The restriction class designator defines the type of restriction to be featured. (see tables 4-4 & 4-5/pages 4-56 & 4-57) in the POETS PLUS Installation Manual.

4. There are 19 possible types of restrictions that can be assigned to each trunk group. (see table 4-5/page 4-57)

5. The programming sequence takes the following form:

```
*,   | 26, | | X1 X2, | | (#), | | X3 X4, | | X5 X6, | | X7 X8, | | (#), | | FEAT FEAT |

    Or DSS      COS      Step    Trunk Grp                                         Exit
    26        (01-32)            These are
                                 constants and
                                 appear in
                                 sequential
                                 order and
                                 cannot be
                                 changed

                                          Factory Restriction      New Restriction    Step to Next
                                          Class Designation         Class Design       Trunk Group
                                          (Default Data)            (To Be Entered)
```
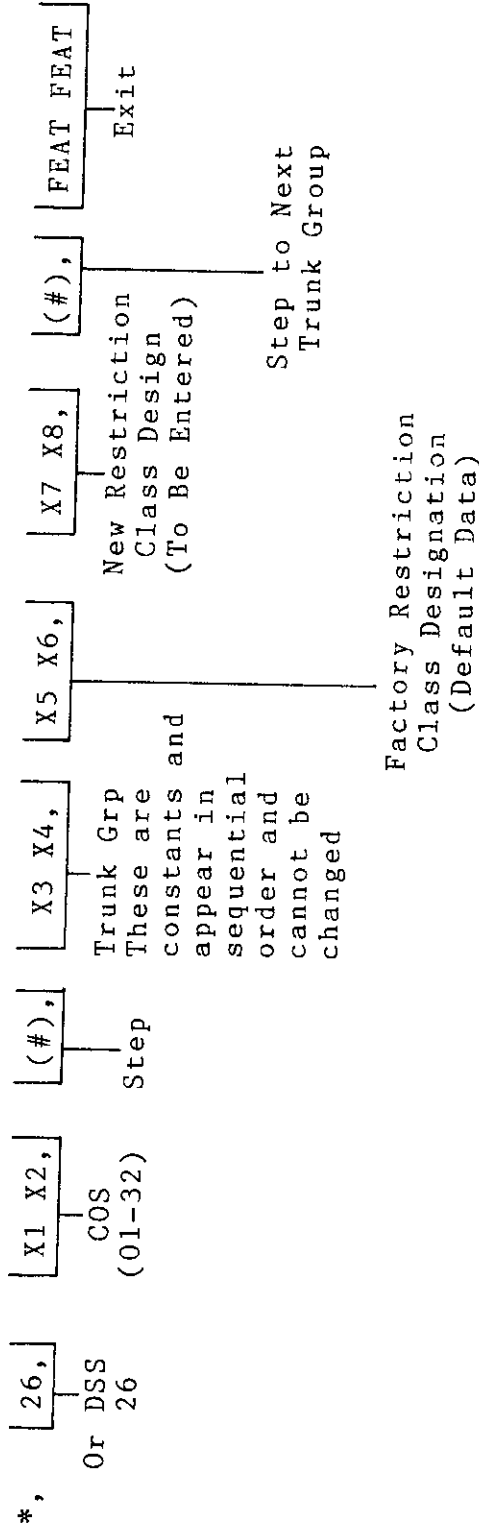
6. The system is factory programmed for all trunk groups in all COS as non restricted (restriction class designator 13).

7. See associated program numbers 25 and 27.

8. This manual replaces program #26 of the POETS PLUS Installation and Maintenance Manual (pg. 4-33/4-44).

PROGRAM NO. 26

SEQ. NO.	DIAL PAD	DATA ENTERED	LCD DISPLAY	DISPLAY DEFINITION	NEXT IN SEQ.	NOTE
1	*				2	
2	2	Prog. No.	2		3	Enter Program No.
3	6		2 6	Prog. No.	4	
4	X1	C.O.S. No.	X1	1st Digit of C.O.S. No.	5	Enter 1st Digit of C.O.S. No.
5	X2		X1 X2	C.O.S. No.	6	Enter 2nd Digit of C.O.S. No.
6	#	Step	X3 X4 X5 X6	TRK. GRP. / Restriction Designator	9 / 7	Go to 9 if C.O.S. is Unchanged / Go to 7 to Change Restriction Designator
7	X5	Restrict Desig.	X3 X4 X5		8	
8	X6		X3 X4 X5 X6	TRK. GRP. / New Restriction Designator	6	* Step to Next TRK. GRP.
9	#	Step.				
10		ALL TRK. GRPS. PROG.	X1 X2 F F	C.O.S. No. / All TRK. GRPS. Programmed	4	Enter Next C.O.S. (01-16)
11	FEAT				11	
12	FEAT					End of Program Sequence

* Eight Trunk GRPS. can be Assigned Class of Service

FIGURE 4-18. Trunk Group Class of Service Assignments

PROGRAM NO. 27 -- ASSIGNMENT OF CLASS OF SERVICE PER STATION

1. This program allows assignment of COS to stations.

2. Each station may be assigned 1 of 32 classes of services. Each station COS is associated with trunk group COS and assigns the station access restrictions for eight trunk groups.

3. The Program sequence takes the following form:

```
 *    27    | X1 X2 |   | X5 X6 |   #    FEAT   FEAT

           Extension   Station COS
           No. 10-69    (01-32)
```

4. The system is factory programmed for all stations to COS No.1.

5. See associated programs No. 25 and No. 26.

Example: *   27 | 13 | | 02 | #   FEAT   FEAT

                     Extension   Station
                       No.   COS

With this program entry, station "13" will be assigned station class of service "02".

PROGRAM NO. 27

SEQ. NO.	DIAL PAD	DATA ENTERED	LCD DISPLAY	DISPLAY DEFINITION	NEXT IN SEQ.	NOTE
1	*				2	
2	2	Prog. No.	2		3	
3	7		2 7		4	
4	X1	Ext. No.	X1		5	
5	X2		X1 X2 X3 X4	Ext. No. / Old C.O.S. No.	6	
6	X5	Station C.O.S. (01-32)	X1 X2 X5		7	
7	X6		X1 X2 X5 X6	Ext. No. / New C.O.S.	5	Go to 5 to change Ext. No. or C.O.S.
					8	Go to 8 to enter data
8	#	Step	0 0 0 0		5	Go to 4 to enter next Ext. No.
					9	Go to 9 to end sequence
9	FEAT				10	End of Program Sequence
10	FEAT					
11						
12						

FIGURE 4-19. Procedure for Assigning C.O.S. Per Station

PROGRAM #28, 29, 30, 31--ALLOW AND DISALLOW RESTRICTION TABLE CONFIGURATION

1. The purpose of this program is to configure semi-restrict, allow and disallow tables for allowing or restricting certain numbers.

2. Each program number (28-31) corresponds directly to one of four tables, e.g.:

   Program #28=Allow Table #1   Program #29=Allow Table #2

   Program #30= Disallow Table #1   Program #31=Disallow Table #2

3. There are 40 entries of four digits in each table (including Wild Card Digits "WCDs"). Each entry may be programmed for all tables.

4. Two WCDs are available for programming. They are "p" and "A". These digits may be programmed by depressing the SPD and FLA buttons, respectively.

   SPD Key="P"=2,3,4,5,6,7,8 and 9   FLASH Key="A"=0,1,2,3,4,5,6,7,8,9,* and #

5. The purpose of the WCDs is to represent the decimal numbers "2-9" and "0-9". They may be used to represent a group of numbers with a single entry. For example, entering "POPA" will represent all area codes with middle digit "0".

6. The program sequence takes the following form:

   (*), | X1 | X2, | (#), | X5 | X6 | X7 | X8, | (#),   FEAT,   FEAT
               Program   Digits to be allowed   Exit Program
               Number   or disallowed including
               (28-31)   "p" & "A"

To clear data, press the (*) button. "FFFF" indicates no data entered at the present location.

7. See Table 4-6 for programming examples and Table 4-7 for Programming Worksheet.

8. See associated programs #25, #26 and #27.

Note: It is highly recommended that a DSS console be used for this program.

Example: *   28   #   1800   #   911A   #,   FEAT,   FEAT

This program entry
will allow only 1800
numbers and 911 to be
dialed.

Example: *   30   #   976A   #   411A   #,   FEAT,   FEAT

This program entry
will disallow 976
numbers and 411 to be
dialed.

PROGRAM NO. 32 -- CO KEY, P-KEY AND DSS KEY ASSIGNMENT TO CO LINE KEYS

1. This program defines the actual function of the telephone station's line keys as CO pick up keys, pooled line keys, or direct station (DSS) keys.

2. A maximum of nine P-keys may be assigned to any telephone. Pooled line keys allow the programmer to designate access to lines in a particular trunk group (1-9) by use of any single pick-up key on the telephone station. Since there are nine trunk groups allowed in the system, it is therefore conceivable to assign nine trunk groups to nine individual keys on the same telephone station. However, only the first eight trunk groups may be assigned class of service.

3. In addition, the telephone pick-up (line keys) may be defined (assigned) as Direct Station Select keys. In this case, any key defined as a DSS/BLF will assume a standard DSS/BLF type of operation complete with coordinated LED indications.

4. The line keys may also be assigned for normal CO line access, in a squared or nonsquared configuration.

5. The system is factory programmed for squared operation. Therefore, CO numbers "01-30" appear on CO line keys 01-30.

6. The program sequence takes the following form:

| *32 | X1X2 | (#) | X3X4 | (#) | X5 | X6X7 | # | FEAT FEAT |

Or DSS
Key No.
32

Station

Step

Line Key No.
(These are a
constant and
appear in
sequential
order)

Step

Type of Key
1 = CO Key
2 = DSS Key
3 = P-Key
0 = No Key

CO #1-30
or station
number (10-69)
p-key #91-99
or no key 00

Step

End Program
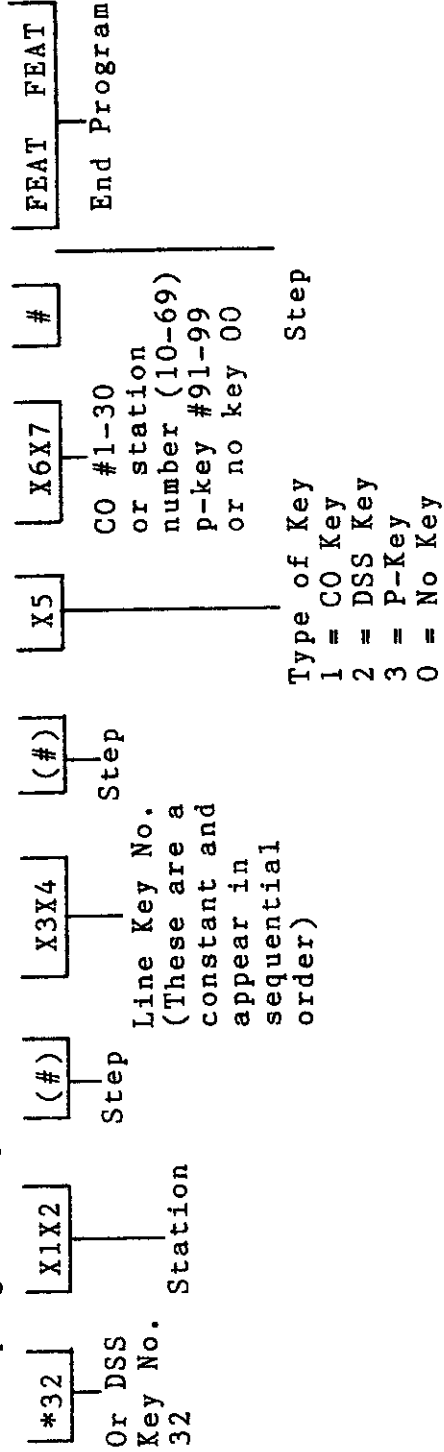
I.E. If you were to select "2" or "X5" you must then enter the station number you wish to appear at that DSS/CO key. If you select "3" for "X5" you must enter "9" and select a trunk group 1-9 for P-Key assignment.

If you select "1" for "X5" you must assign a trunk No. 01-30. If you select "0" for X5 you must input "00" for X6 and X7 to disable a key for a no-function condition or to allow for the programming of soft keys.

7. a maximum of 6 spare CO line keys may be used for feature access buttons. To allow soft key operation, X5X6X7 must be assigned 000.

8. To disable all CO line keys of one telephone:

```
*    32    X1X2    *    0    #    FEAT    FEAT
           └──────┘
           Station
           Number 10-69
```

All line keys of the station will be assigned 000.

9. To enable all CO line keys of one telephone:

```
*    32    X1X2    *    1    #    FEAT    FEAT
```

All line keys of the station will return to factory default, CO number "01-30" appear on CO line keys 01-30.

PROGRAM NO. 32

SEQ. NO.	DIAL PAD	DATA ENTERED	LCD DISPLAY	DISPLAY DEFINITION	NEXT IN SEQ.	NOTE
1	*				2	
2	3	Prog. No.	3 2 3		3	Enter Program No.
3	2		3 2		4	
4	X1	Ext. No.	X1		5	
5	X2		X1 X2	Extension No.	6	Enter Station Ext. No.
6	#	Step	X3 X4	Line Key No.	7	Line Keys will appear in Sequential Order
7	#	Step	X5 X6 X7	Present TRK No. / Key Definition	8	Function of Key is Defined as CO Key #1 in Factory
8	X5	Key Definition 1 = CO 2 = DSS 3 = P-Key/LCU 0 = No-Key	X5	New Key Definition	10	New Function of Key is Defined as CO, DSS, P-Key, or No-Key
9		CO #1-30 Ext/DSS Key 10-69 P-Key = 91-99 No-Key = 00 LCU = 90				
10	X6		X5 X6	1st Digit of New Data / New Key Definition	11	1st Digit of Applicable Data ie: CO No.; or DSS Key No, P-Key #, or No Key
11	X7		X5 X6 X7	CO, DSS, P-Key, No-Key or LCU	12	
12	#	Step		New Key Definition	7	Program Will Step to the Next Line Key
13	FEAT					
14	FEAT					End of Program Sequence

FIGURE 4-21. CO Key, P-Key and DSS Key Assignemnt to CO Line Keys

PROGRAM NO. 33 -- DO-NOT-DISTURB (ALLOW OR DISALLOW STATION)

1. This program allows a station to sue the Do-Not-Disturb feature:

2. This program sequence takes the following form:

    *   33   X1 X2   X3   #   FEAT   FEAT
                    └─────┐   └──┐
                  Extension   DND
                    10-69   0 = Allowed
                                 1 = Disallowed

3. By allowing a station: Allow = 0

    By disallowing a station: Disallow = 1

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SEQ. NO.	DIAL PAD	DATA ENTERED	LCD DISPLAY	DISPLAY DEFINITION	NEXT IN SEQ.	NOTE
1	*				2	
2	3	Prog No.	3		3	
3	3		3 3	Program No.	4	
4	X1	Station No.	X1	First digit of station No.	5	
5	X2		X1 X2	Second digit of station No.	6	
6	X3	Allow or Disallow	X3	1 = Disallow 0 = Allow	7	
7	#	Step	0 0 01 0		8	
8	Feat					End of Program Sequence
9	Feat					
10						
11						
12						

FIGURE 4-22. Allow or Disallow Do-Not-Disturb

PROGRAM NO. 34 -- PRIMARY STATIONS' ASSIGNMENT OF 2ND HOLD RECALL

1. The purpose of this program is to enable or disable the DSS 2nd hold recall. You may choose to enable a second hold recall or, disable a second hold recall on an individual basis at each of 5 DSS positions.

2. The program sequence is as follows:

```
*    | 34 |  | # |  | X |        | X1 |        | # |  | FF |
     Or DSS  Step   DSS          1=Yes (recall)  Step  Exit
     Key No.        No 1-5        0=(Recall)     *4 times
     34            (These are
                    constants
                    and will
                    appear in
                    sequential
                    order)
```
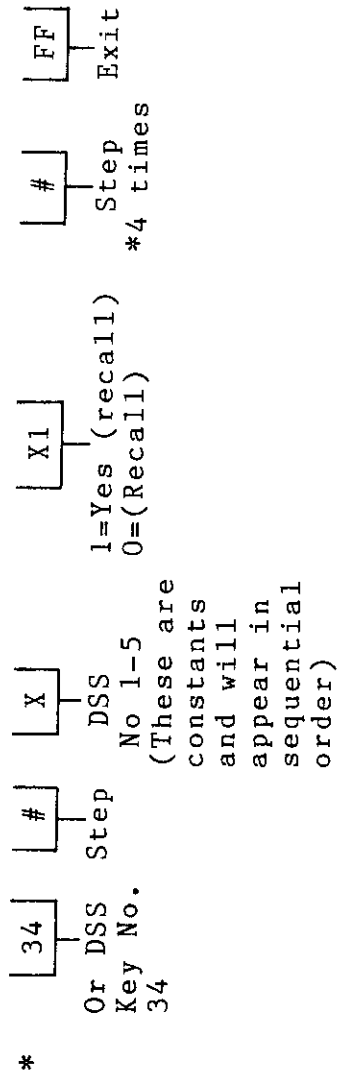
3. The system is factory programmed (default data) for the DSS associated with the No. 1 primary position (ICM 10) only to enable display 9station number and CO number) of the second hold recall along with associated tones (short beeps).

* First Step "#" is DSS No. 1
  Second Step "#" is DSS No. 2
  ∶ ∶ ∶ ∶ ∶
  Fifth Step "#" is DSS No. 5

PROGRAM NO. 34

SEQ. NO.	DIAL PAD	DATA ENTERED	LCD DISPLAY	DISPLAY DEFINITION	NEXT IN SEQ.	NOTE
1	*				2	
2	3	Prog. No.	3		3	Enter Program No.
3	4		3 4			
4	#	Step	1 X1	Primary Station No. 1 Data	5	1 = Yes Second Recall 0 = No Second Recall
5	X1	Primary Station-No. 1	1 X1	Primary Station No. 1 New Data	6	
6	#	Step	2 X2	Primary Station No. 2 Data	7	
7	X2	Primary Station-No. 2	2 X2	Primary Station No. 2 Data	8	
8	#	Step	3 X3	Primary Station No. 3 Data	9	
9	X3	Primary Station-No. 3	3 X3	Primary Station No. 3 New Data	10	
10	#	Step	4 X4	Primary Station No. 4 Data	11	
11	X4	Primary Station-No. 4	4 X4	Primary Station No. 4 New Data	12	
12	# X5	Step / PRIMARY STATION-No. 5	5 X5	Primary Station No. 5 Data		
13	FEAT					
14	FEAT					End of Program Sequence

FIGURE 4-23. Primary Stations Assignment of 2nd Hold Recall and/or Voice Mall

PROGRAM NO. 35 -- ALLOW OR DISALLOW BROKERAGE SERVICE (NON-PRIVATE)

1. This program will allow or disallow the use of the brokerage (non-private) feature on a station for station basis.

2. In order for a station user to have access to the brokerage feature on his or her station must be defined in system programming as an allowed station.

3. The program sequence takes the following form:

```
┌─────┐   ┌───────┐   ┌────┐   ┌────┐
│ *35 │   │ X1 X2 │   │ X3 │   │ FF │
└─────┘   └───────┘   └────┘   └────┘
Or DSS    Station     Allow=1    Exit
Key No.   No. 10-69   Disallow=0 Program
35                    Step
```
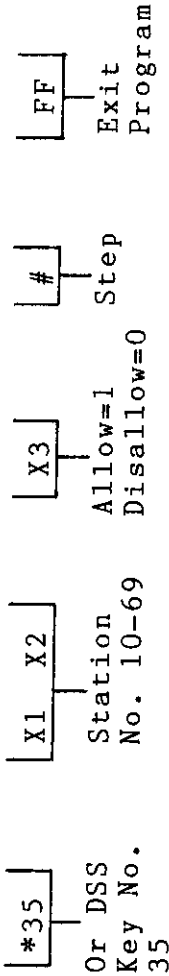
4. The system is factory programmed for disallow (Data0), or NO access to the brokerage feature for all stations. (No station is allowed to barge into a CO line.)

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PROGRAM NO. 35

SEQ. NO.	DIAL PAD	DATA ENTERED	LCD DISPLAY	DISPLAY DEFINITION	NEXT IN SEQ.	NOTE
1	*				2	
2	3		3 5		3	Enter Program No.
3	5	Prog. No.	3 5 3	Prog. No.	4	
4	X1	Sta. No. 10-69	X1	1st Digit of Station No.	5	
5	X2		X1 X2 X3	Station No. / Allow/Disallow Brokerage Data	6	1 = Allow Factory Data = 0 / 0 = Disallow
6	#	Step	0 0 0	Zeros Indicate Data Has Been Accepted	4	Enter New Station No.
7	FEAT				7	Exit Program Sequence
8	FEAT					End of Program Sequence
9						
10						
11						
12						

FIGURE 4-24. Allow or Disallow Brokerage Service (Non-Private)

PROGRAM NO. 36 -- ASSIGNMENT OF PRIME LINES

1. The purpose of this program is to enable or disable prime line pickup of a CO call on a CO per station basis.

2. Prime line outgoing gives a station user the ability to go off-hook and be connected to outgoing CO dial tone without depressing any buttons.

3. Prime line incoming gives a station user the ability to go off-hook and be connected to any incoming ring assigned CO line without depressing any buttons.

4. Each CO line can be programmed as a prime line incoming or outgoing or both.

5. A station that has intercom prime line programmed cannot have outgoing CO prime line.

6. The program sequence takes the following form:

```
*   | 36 |   | X1 X2 |   | # |   | 01 |   | X3 X4 |   | # |   | FEAT FEAT |
```

Or DSS   Station   Step   CO Line   Prime Line   Step to   Exit Program
Key No.   Number   Key Number   00=No prime line   next CO
36   10-69   1, next step   10=Outgoing only   line key
                             (#) goes to   01=Incoming only
                             CO line key   11=Both outgoing
                             number 2   and incoming

(handwritten: Flash, X, 0, 1, #)
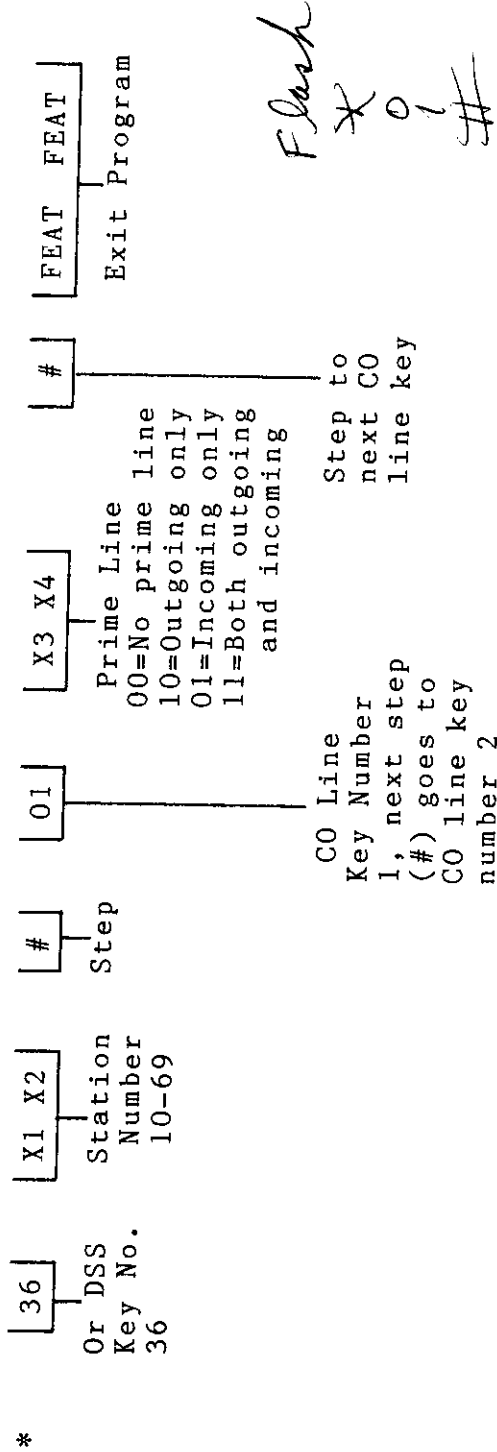
7. The system is factory programmed as all stations having no prime lines (Data 00).

8. This feature may be programmed on a per station basis by the station user.

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PROGRAM NO. 36

SEQ. NO.	DIAL PAD	DATA ENTERED	LCD DISPLAY	DISPLAY DEFINITION	NEXT IN SEQ.	NOTE
1	*				2	
2	3	Prog No.	3		3	Enter Program Number
3	6	Prog No.	3 6	Program Number	4	
4	X1	Sta No.	X1	1st Digit of Station Number	5	Enter First Digit of Station Number
5	X2	Sta No.	X1 X2	Station Number	6	Enter Second Digit of Station Number
6	#	Step	0 1 0 0	Factory Data 00-No Prime Line / CO Button Number 1	7	After Next Step CO Button 02 then 03...30. In Sequential Order
7	X3	Prime Code	0 1 X3	Enter 1st Digit of Prime Code / CO Button Number 1	8	Enter Prime Line Code 00-No Prime 01-Outgoing only. 10-Incoming only 11. Both outgoing and incoming
8	X4	Prime Code	0 1 X3 X4	Enter 2nd Digit of Prime Code / CO Button Number 1	9	
9	#	Step			7	Next CO Button can be Programmed for Prime Line Type
10	FEAT				10	
11	FEAT				11	End of Program Sequence
12						

FIGURE 4-25. Assignemnt of Prime Lines

PROGRAM NO. 37 -- UNANSWERED STATION RING TIMING

1. The purpose of this program is to specify the timing for the unanswered station recall from the ringing station.

2. The system may be programmed so that if a call ringing in at a particular station remained unanswered for a predetermined period of time, the call will be activated at the UN station position. This predetermined period of time is program selectable from 00 seconds to 297 seconds.

NOTE: The system may be programmed for no call diversion "00".

3. The factory (default) programmed timing is 05 or 15 seconds.

4. The program sequence takes the following form:

```
 *    | 37 |    | X1 X2 |    | # |    | F F |
      Or DSS                  Step     Exit
      Key No.                          Program
      37
```
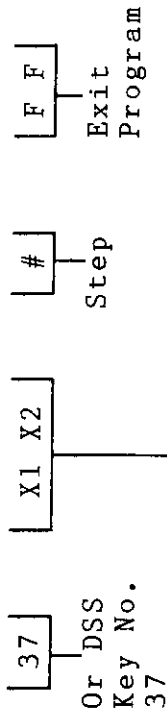
00-99 (01-3.0 sec) default = 05 (15 sec)
Note: 00 = no timer/no U/N function

e.g.:   00 = No Timer/No UN Operation
        01 = 3 seconds
        02 = 6 seconds
        03 = 9 seconds
        04 = 12 seconds
        05 = 15 seconds

        99 = 297 seconds

PROGRAM #37

SEQ. NO.	DIAL PAD	DATA ENTERED	LCD DISPLAY	DISPLAY DEFINITION	NEXT IN SEQ.	NOTE
1	*				2	
2	3	Prog. No.	3		3	Enter Program No.
3	7		3 7 0 5	Prog. No. / Factory Data Set	4	Factory Data = 05 or 15 Sec.
4	X1	Un-Timing I.D.	X1	1st Digit New Data	5	Enter First Digit of New Timing I.D.
5	X2		X1 X2	2nd Digit New Data	6	Enter Second Digit of New Timing I.D.
6	#	Step			7	Exit
7	FEAT				8	
8	FEAT					End of Program Sequence
9						
10						
11						
12						

FIGURE 4-26. Unanswered Station Recall Timing

PROGRAM #38 -- EXTERNAL PAGING / PORT ZONE ASSIGNMENTS

1. This program allows assignment of vacant station ports for use as external paging ports with the meet-me feature.

2. Three zones 86-88 are assigned to any three specific station ports 10-69.

3. Default data "00" is factory programmed for no allocation of station ports as paging ports.

4. The program sequence takes the following form:

```
  *,   | 38, |   | #, |   | X1, |   | X2 X3, |   | #, |   | F F |
       Or DSS      Step    Zone        Vacant Station    Exit
       #38                 1-3         Extension No.     Program Sequence
                           (Factory                  Step
                           Data)                      2 times
                                                      for zones
                                                      87, 88
```

5. In this program there are three values for X1, X2. By depressing the "#" key and entering three extension numbers the corresponding zones 86, 87, 88 are assigned.

   I.E. - X1, X2 = Zone 86
         X1, X2 = Zone 87
         X1, X2 = Zone 88

6. Dial access code 89 is solely for all call and is automatically assigned to three paging ports 86, 87, 88.

7. Dial *8 on the telephone dialpad will automatically connect you (meet-me) with the paging party no matter what zone has been selected by the paging party.

PROGRAM #38

SEQ. NO.	DIAL PAD	DATA ENTERED	LCD DISPLAY			DISPLAY DEFINITION		NEXT IN SEQ.	NOTE
1	*							2	
2	3	Prog. No.			3			3	Enter Program No.
3	8			3	8			4	
4	#	Step	X1	0	0	Zone No. 1-3	Factory Data No. Port Assigned	5	Factory Data = "00" or No Vacant Station Ports Assignment
5	X2	Vacant Sation/Port No. 10-69	X1		X2	Zone No.	1st Digit of New Paging Port	6	Enter First Digit of New Vacant Station/Port # 10-69/For Zone #1
6	X3		X1	X2	X3	Zone No.	External Paging Port/Vacant Station Port	7	Enter Second Digit 10-69
7	#	Step	X1	X2	X3	Next Zone	Factory Data	5	Step to Next Zone + Repeat for Zones 1-3
8	FEAT							9	Exit
9	FEAT								End of Program Sequence
10									
11									
12									

FIGURE 4-27. External Paging Port/Zone Assignments

PROGRAM #39 -- DIAL "976" RESTRICTION CONTROL

1. The purpose of this program is to allow or disallow "976" local, extended area and toll call restriction on a system wide basis.

2. Any station assigned a T/R or S/R class of restriction via a trunk group COS assignment (see Program #26 & #27) will either be allowed or disallowed "976" dial restriction depending on this data input.

3. The program sequence takes the following form:
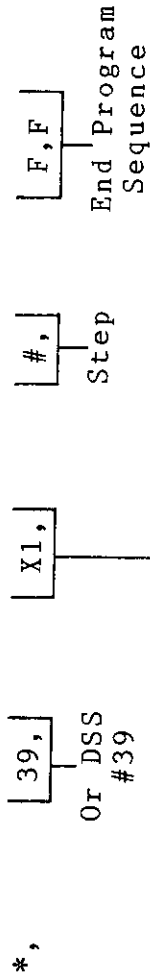
```
  *,     | 39, |     | X1, |     | #, |     | F,F |
         Or DSS                   Step        End Program
         #39                                  Sequence

              Allow dialing of 976 calls = 0
              Disallow dialing of 976 calls = 1
```

4. Factory Data = "0" all 976 calls are allowed.

PROGRAM #39

SEQ. NO.	DIAL PAD	DATA ENTERED	LCD DISPLAY	DISPLAY DEFINITION	NEXT IN SEQ.	NOTE
1	*				2	
2	3	Prog. No.	3		3	Enter Program No.
3	9		3 9 0	Prog. No. / Factory Data Set for Allow	4	
4	X1		3 9 X1	Prog. No. / New Data for "976"	5	0 = Allow "976" Dialing (No Restriction)
5	#	Step			6	1 = Disallow "976" Dialing (Restrict)
6	FEAT	Allow/Dishout "976" Dialing			7	Exit
7	FEAT					End of Program Sequence
8						
9						
10						
11						
12						

FIGURE 4-28. Dial "976" Restriction Control

PROGRAM NO. 55 -- SPEED DIAL ALLOW/DISALLOW

1. The purpose of this program is to allow or disallow system and/or station speed dialing on a per station basis.

2. A station user may be allowed to access both station and system speed dialing, station speed dialing only, system speed dialing only, or no station and system speed dialing.

3. The program sequence takes the following form:

```
 *   | 30 |   | X1 X2 |   | X3 X4 |   | # |    | FEAT   FEAT |

     Or DSS    2 digit                 Step     Exit Program
     Key #     station
     30        number
               10-69
```
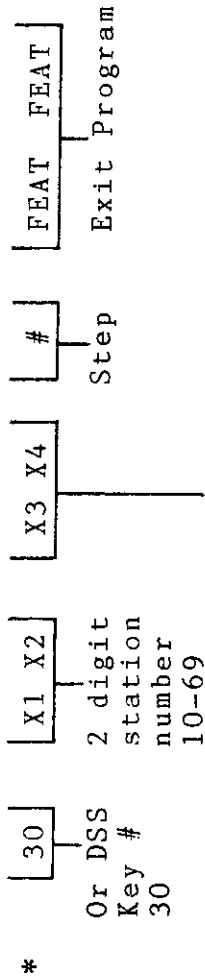
2 digit allow/disallow code
00 = both station and system SPD allowed
01 = station SPD allowed only
10 = system SPD allowed only
11 = both station and system SPD not allowed

4. The system is factory programmed for all stations to be allowed both station and system speed dialing (Data 00).

Table 4-4

TRUNK GROUP CLASS OF SERVICE RESTRICTIONS

*** Restriction Class Designator	Allowed Table PGM.28 A1	PGM.29 A2	Disallowed Table PGM.30 D1	PGM.31 D2	System Special Speed Banks
01	1	0	0	0	0**
02	0	1	0	0	0
03	1	1	0	0	0
04	0	0	1	0	0
05	0	0	0	1	0
06	0	0	1	1	0
07	1	0	0	0	1
08	0	1	0	0	1
09	1	1	0	0	1
10	0	0	1	0	1
11	0	0	0	1	1
12	0	0	1	1	1
13	N/R	Non-restricted			1
14	OCC 8	other common carrier 8-digits			1
15	OCC 7	other common carrier 7-digits			1
16	T/R 8	toll restrict 8-digits			0
17	T/R 7	toll restrict 7-digits			0
18	O/R 5	outgoing restrict 5-digits			0
19	O/R	outgoing restrict "0"-digits			0

Note: *The number "1" is used to indicate "yes" when program searches a table.

The number "0" is used to indicate table not assigned when the program searches for tables.

**The number "1" is used to indicate dialing from System Special Speed Banks allowed.

The number "0" is used to indicate dialing from System Special Speed Banks not allowed.

***These are the associated program numbers for allowed and disallowed tables.

Table 4-5
ALLOWED DIALING PATTERNS FOR RESTRICTION COS

DIALING PATTERN

Restriction Class Designation	Class Type	Outgoing Restriction	1st "0", 411, 1411 Dial Restriction	Restriction By Allow Table	Restriction By Disallow Table	Digits Restricted to 5, 7 or 8	Special SPD Bank Access
01	SR1			X			
02	SR2			X			
03	SR3			X			
04	SR4				X		
05	SR5				X		
06	SR6				X		
07	SR7			X			X
08	SR8			X			X
09	SR9			X			X
10	SR10				X		X
11	SR11				X		X
12	SR12				X		X
13	NR						X
14*	OCC8		X			8 Digit	X
15*	OCC7		X			7 Digit	X
16	TR8		X			8 Digit	
17	TR7		X			7 Digit	
18	OR5		X			5 Digit	
19	OR	X				0 Digit	

*These classes of service restrict 7 and 8 digit calls except when special SPD Banks 14, 15 (Station) and 30, 31 (System) are accessed prior to dialing long distance. (See Section 3 Features Operation). In this case all restrictions are overridden.

Table 4-5

ALLOWED DIALING PATTERNS FOR RESTRICTION COS

DIALING PATTERN

Restriction Class Designation	Class Type	Outgoing Restriction	1st "0"; 411, 1411 Dial Restriction	Restriction By Allow Table	Restriction By Disallow Table	Digits Restricted to 5, 7 or 8	Special SPD Bank Access
01	SR1			X			
02	SR2			X			
03	SR3			X			
04	SR4				X		
05	SR5				X		
06	SR6				X		
07	SR7			X			X
08	SR8			X			X
09	SR9			X			X
10	SR10				X		X
11	SR11				X		X
12	SR12				X		X
13	NR						X
14*	OCC8		X			8 Digit	X
15*	OCC7		X			7 Digit	X
16	TR8		X			8 Digit	
17	TR7		X			7 Digit	
18	OR5		X			5 Digit	
19	OR	X				0 Digit	

*These classes of service restrict 7 and 8 digit calls except when special SPD Banks 14, 15 (Station) and 30, 31 (System) are accessed prior to dialing long distance. (See Section 3 Features Operation). In this case all restrictions are overridden.

C.O.S. \ TRK. GRP. #	1	2	3	4	5	6	7	8
1	13 (N/R)	13 (N/R)	13 (N/R)	13 (N/R)	13 (N/R)	13 (N/R)	13 (N/R)	13 (N/R)
2	17 (T/R7)	13 (N/R)	13 (N/R)	13 (N/R)	13 (N/R)	13 (N/R)	13 (N/R)	13 (N/R)
3	16 (T/R8)	19 (O/R)	13 (N/R)	13 (N/R)	13 (N/R)	13 (N/R)	13 (N/R)	13 (N/R)
4	18 (O/R5)	19 (O/R)	19 (O/R)	13 (N/R)	15 (OCC7)	1 (S/R1)	13 (N/R)	13 (N/R)
5	18 (O/R5)	13 (N/R)	1 (S/R1)	2 (S/R2)	3 (S/R3)	1 (S/R1)	13 (N/R)	13 (N/R)
6	1 (S/R1)	2 (S/R2)	3 (S/R3)	4 (S/R4)	13 (N/R)	12 (S/R12)	1' (S/R1)	8 (S/R8)
7	2 (S/R2)	19 (O/R)	18 (O/R5)	13 (N/R)	16 (T/R8)	1 (S/R1)	13 (N/R)	2 (S/R2)
8	17 (T/R7)	1 (S/R1)	2 (S/R2)	13 (N/R)	1 (S/R1)	13 (N/R)	8 (S/R8)	13 (N/R)
9	18 (O/R5)	13 (N/R)	13 (N/R)	9 (S/R9)	13 (N/R)	8 (S/R8)	13 (N/R)	7 (S/R7)
10	13 (N/R)	16 (T/R8)	13 (N/R)	8 (S/R8)	13 (N/R)	13 (N/R)	2 (S/R2)	1 (S/R1)
11	15 (OCC7)	14 (OCC8)	13 (N/R)	6 (S/R6)	13 (N/R)	14 (OCC8)	13 (N/R)	13 (N/R)
12	15 (OCC7)	5 (S/R5)	13 (N/R)	4 (S/R4)	13 (N/R)	17 (T/R7)	14 (OCC8)	15 (OCC7)
13	14 (OCC8)	13 (N/R)	13 (N/R)	13 (N/R)	13 (N/R)	13 (N/R)	4 (S/R4)	3 (S/R3)
14	18 (O/R5)	18 (O/R5)	13 (N/R)	13 (N/R)	13 (N/R)	13 (N/R)	1 (S/R1)	2 (S/R2)
15	14 (OCC8)	13 (N/R)	14 (OCC8)	13 (N/R)	13 (N/R)	13 (N/R)	13 (N/R)	13 (N/R)
16	16 (T/R8)	17 (T/R7)	13 (N/R)	13 (N/R)	13 (N/R)	13 (N/R)	13 (N/R)	13 (N/R)

Tables 4-6. Example of Trunk Group/Station Class of Service Assignment.

SEMI-RESTRICT ALLOW and DISALLOW

Table No. / Entry No.	ALLOW 1				ALLOW 2				DISALLOW 1				DISALLOW 2			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
1																
2																
3																
4																
5																
6																
7																
8																
9																
10																
11																
12																
13																
14																
15																
16																
17																
18																
19																
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32																
33																
34																
35																
36																
37																
38																
39																
40																

TABLE 4-7 Worksheet for Semi-Restricted Allow and Disallow Tables

SEMI-RESTRICTED ALLOW AND DISALLOW

	PROG. #10 ALLOW 1				PROG. #11 ALLOW 2				PROG. #12 DISALLOW 1				PROG. #13 DISALLOW 2			
Table No. / Entry No.	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
1	1	2	1	2	5	2	A	P	9	7	6	A	1	2	P	2
2	P	P	P	A	6	A	A	P	1	P	P	P	1	3	P	P
3	P	A	A	P	P	P	P	P	0	P	P	P	P	P	P	P
4	1	8	0	0					P	P	P	P				
5																
6																
7																
8																
9																
10																
11																
12																
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35																
36																
37																
38																
39																
40																

TABLE4-8 Examples of Entries for Semi-Restricted Allow and Disallow Tables

PROGRAM #22

TRUNK	GROUP
CO #	*1-9
01	
02	
03	
04	
05	
06	
07	
08	
09	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	

*NOTE: 1-8 TRK GRP can have class of service. TRK GRP No. 9 has no class of service.

TABLE 4-9 Worksheet for CO Trunk Group Assignment

PROGRAM #29

C.O.S. ON TRUNK GROUP

C.O.S.	TRUNK GROUP #							
	1	2	3	4	5	6	7	8
01								
02								
03								
04								
05								
06								
07								
08								
09								
10								
11								
12								
13								
14								
15								
16								

TABLE4-10 Worksheet for Trunk Group/Station C.O.S. Assign.

*This chart should be filled out prior to programming C.O.S. program numbers 22, 23 and 29. Each C.O.S. 01-16 will be assigned to one or more stations in program #23.

Station C.O.S.			
STATION NO.	01-16	STATION NO.	01-16
10		40	
11		41	
12		42	
13		43	
14		44	
15		45	
16		46	
17		47	
18		48	
19		49	
20		50	
21		51	
22		52	
23		53	
24		54	
25		55	
26		56	
27		57	
28		58	
29		59	
30		60	
31		61	
32		62	
33		63	
34		64	
35		65	
36		66	
37		67	
38		68	
39		69	

TABLE4-11 Worksheet for Station C.O.S. Assignment

PROGRAM #32

LINE KEY	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
1																										
2																										
3																										
4																										
5																										
6																										
7																										
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27																										
28																										
29																										
30																										

Table 4-11. Worksheet for Non-Squared CO Key Assignment.

7	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	6

Program #22
FLEXIBLE STATION RINGING ASSIGNMENT (10-69)
STATIONS

CO #	1st	2nd	3rd	4th	5th	6th
0 1						
0 2						
0 3						
0 4						
0 5						
0 6						
0 7						
0 8						
0 9						
1 0						
1 1						
1 2						
1 3						
1 4						
1 5						
1 6						
1 7						
1 8						
1 9						
2 0						
2 1						
2 2						
2 3						
2 4						
2 5						
2 6						
2 7						
2 8						
2 9						
3 0						

Program #23
NIGHT STATION ASSIGNMENT (10-69)
STATIONS

CO #	1st	2nd
0 1		
0 2		
0 3		
0 4		
0 5		
0 6		
0 7		
0 8		
0 9		
1 0		
1 1		
1 2		
1 3		
1 4		
1 5		
1 6		
1 7		
1 8		
1 9		
2 0		
2 1		
2 2		
2 3		
2 4		
2 5		
2 6		
2 7		
2 8		
2 9		
3 0		

TABLE 4-13 Worksheets for Station Ringing Assignment and Night Assignment

PROGRAMMING TIPS

1. When programming terminals' (stations') specific operation-related data such as:

   a. Line Key Assignments, Program #30

   b. Ring Assignment (Day and Night) Program #27 and #28

   c. P-Key Assignment, Program #30

   when terminal stations are off-hook, it is necessary to enter specific program data twice. The following are examples of hypothetical operation:

   a. Suppose terminal station #25 is off-hook (busy on a CO call).

   b. You are presently programming Day-Ring Assignments and wish to program CO lines 1 through 6 to ring at extensions (terminal stations) #10 and #25.

   c. Enter data "01" for CO line #1. The DSS LCD displays "01/10".

   d. Press (#) to step to next ring locations. The DSS LCD displays "01/21". If you do not want station 21 to ring, alter this data as follows:

   e. Enter data "25" for next ring assigned station. The DSS LCD displays "01/25".

   f. Enter (#) in order to step to next location. Notice that an error tone (multiple beep-tones) is emitted from the programming station. This error tone is an indication that station #25 is in use. Therefore, the

system requires verification that you wish to change the station's present operation. Notice the DSS display has not changed from "01/25". DO NOT press (#) again. This will only tell the system to pass this ring location and resume default data for this specific assignment. INSTEAD--

g.   Reenter the data "25" for ring assignment and press (#). Reentering the actual data a second time will tell the system to store this information for use when station #25 becomes idle (on-hook condition) again. At that time, the system will reload the newly stored data into program #27 and assume the new operation for extension #25 with respect to its ring assignment.

2.   Review programmed data upon completing programming. Many times information is entered incorrectly onto the dialpad due to human error. In addition, often stations are in use and proper programming procedures are not followed.

3.   When Version 2 software is used, four types of toll restrictions are available:

TR8	TR7	N/R	O/R
16	17	13	19

Toll Designation IDs
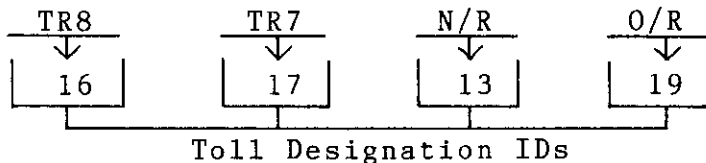
4. Station CO line LEDs may be disabled by assigning arbitrary or unused CO lines to a specific line key. For example, if lines 1-5 were to be assigned to line keys 1-5 (squared) on P-6 button telephone station leaving line key #6 unused, you may wish to prevent the LED associated with line key #6 from indicating the status of line #6 in the system. Normally, LEDs associated with unassigned line keys will show line status in a square configuration, as indicated on following page.

LED	ASSOCIATED LINE
#1	CO #1
#2	CO #2
#3	CO #3
#4	CO #4
#5	CO #5
#6	CO #6

By assigning an unused or arbitrary line to a line key, there will be no activity on the associated LED. (The LED will not light.) Following is a hypothetical system configuration for 18 lines x 24 stations-- P-18 tel = 18 button telephone line key assignments:

| Line Key	CO Line Assigned	LED Activity (Status)
# 1	# 1	Normal
# 2	# 2	Normal
# 3	# 3	Normal
# 4	# 4	Normal
# 5	# 5	Normal
# 6	# 6	Normal
# 7	# 7	Normal
# 8	# 8	Normal
# 9	# 9	Normal
#10	#10	Normal
#11	#11	Normal
#12	#12	Normal
#13	#30	Will Not Light
#14	#29	Will Not Light
#15	#28	Will Not Light
#16	#27	Will Not Light
#17	#26	Will Not Light
#18	#25	Will Not Light

APPENDIX B

SPEAKERPHONE INSTALLATION

POETS-PLUS SPB (Speakerphone Module) Installation

POETS-PLUS SPB may be installed in the POETS-PLUS EK-6, EK-18, and EK-30 telephone sets when CO handsfree is required. To install a POETS-PLUS SPB:

1. Remove the modular line cord from the telephone.

2. Open the telephone by loosening two screws fastened at the base that secures the housing.

3. Place a POETS-PLUS SPB into the card holder located on the upper middle of the base and plug a connector cable from the SPB into the connector CN40 located at the base as shown in figure below.
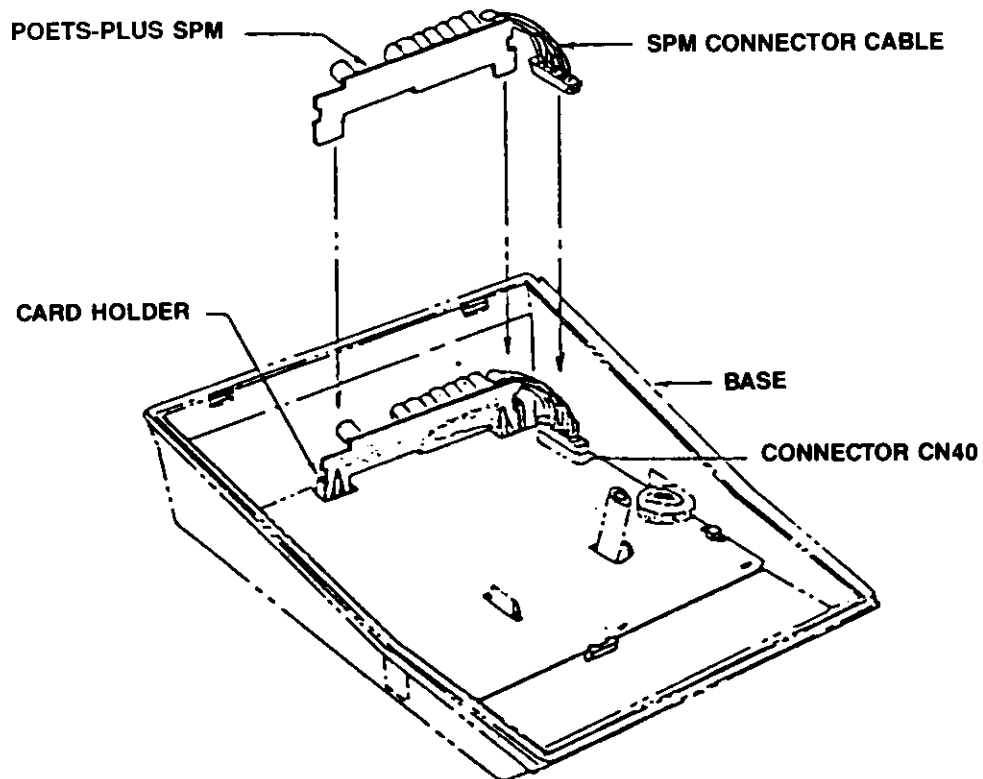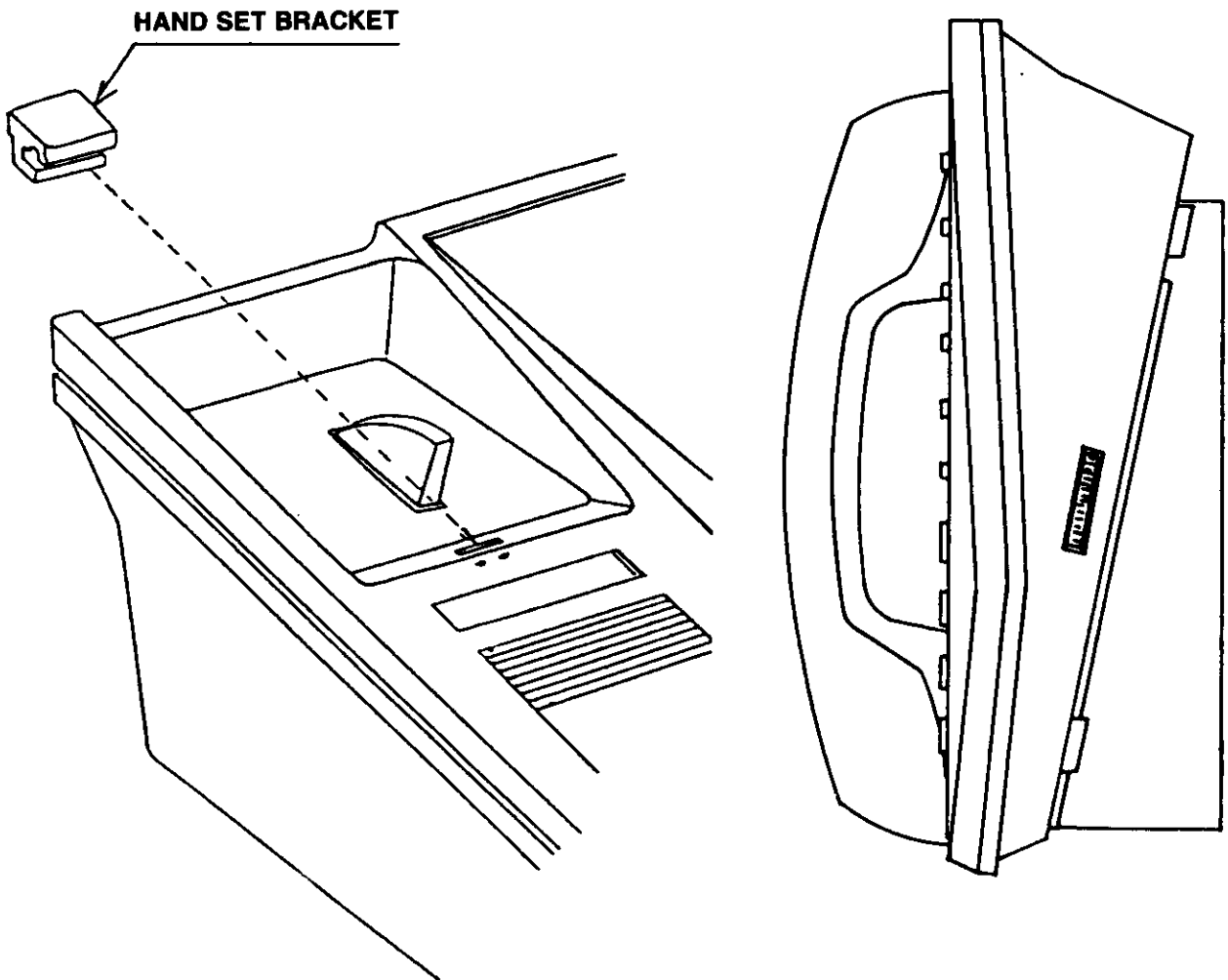

Figure B-1. Speaker Phone Installation.

APPENDIX C
Wall Phone Installation

HAND SET BRACKET

Figure C-1. Wall Phone Installation.

APPENDIX D

GLOSSARY OF TERMS

Term	Definition
BLF	Busy Lamp Field
BSU	Basic Service Unit
BTU	British Thermal Unit
C-MOS	Capacitive Metal Oxide Semiconductor
CO	Central Office
CONT DISP	Control Display
CO/PBX	Central Office/Private Branch Exchange
COS	Class of Service
COU	Central Office Line Unit
CPU	Central Processing Unit
Cradle	Handset rests in Cradle (On-Hook)
Dialpad	Keypad with digits 0-9 and letters A-Z
Depress	Apply soft pressure with finger
Digital Key Pad	Same as Dialpad
DIP Switch	Dual Inline Package Switch
DP	Rotary Dial Pulse
DSS	Direct Station Select
DTMF	Dual Tone Multi Frequency
ECU	Expansion Control Unit
EMC	Expansion Matrix Card
Enter	Depress appropriate key
Eprom	Electrically Programmable ROM
FCC	Federal Communications Commission

ICM	Intercom
Idle CO	Inactive Central Office Line
IPL	Initial Program Load
LCD	Liquid Crystal Display
LED	Light Emitting Diode
LEU	Line Expansion Unit
Line Key	Central Office Trunk Key
MDF	Main Distribution Frame
MOH	Music On Hold
ms	Millisecond
MSG	Message Key
Ohm	Value for (impedance) resistance to the flow of electrons
PBX	Private Branch Exchange
PTC	Positive Temperature Coefficient Varistor
RAM	Random Access Memory
ROM	Read Only Memory
Semi Restrict	Modified Outgoing Dial Restriction
SPD	Speed Dial
SMU	Station Message Recording Unit
Splash Tone	Alerting Tone
STU	Station Terminal Unit
Tenants	Sharers of Service in the same Key System