4-WIRE PRIVATE LINE TERMINATING CIRCUIT SD-1G297-01 IDENTIFICATION, INSTALLATION, AND CONNECTIONS

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1. GENERAL

1.01 This section provides information on the 4-wire private line terminating circuit SD-1G297-01.

1.02 This section is reissued to:

- Add information on the new J1G034B 4-wire private line packaged system
- Change drawings to make them compatible with new packaged system
- Use revision arrows to emphasize the more significant changes.

1.03 This section is based on the following drawings:

SD-1G297-01, Issue ▶5D◀

SD-1G296-01, Issue 3B.

If this section is to be used with equipment or apparatus reflecting later issue(s) of the drawings, reference should be made to the CDs and SDs to determine the extent of changes and the manner in which the section may be affected.

1.04 The 4-wire private line terminating circuit SD-1G297-01 is designed for use with loudspeaker (voice) calling, 30-Hz automatic or manual ringdown signaling, or with the SS-4 Selective Signaling System. It is compatible with and can be used in the same 4-wire private line telephone system with the SD-69566-01 4-wire private line terminating circuit (Section 480-615-100), SS-1 (SD-98093-01), or SS-1A (SD-69594-01) equipment.

1.05 Incoming 30-Hz or SS-4 signals can be arranged for no time-out, 18-second (short interval) time-out, or for 45-second (long interval) time-out. Associated telephone sets can be connected with the 3- or 4-type speakerphone system. A maximum of 26 telephone sets may be off-hook simultaneously without degrading transmission. A data transfer circuit can be provided to permit data transmission over the 4-wire line.

1.06 ▶The 4-wire private line terminating circuit SD-1G297-01 may be ordered as a factory assembled and tested 4-wire private line package (J1G034B) or separate 4-wire private line circuit panels (J1G034A-1) and plug-in circuit packs (CPs).◀

1.07 ▶The J1G034B 4-wire private line package offers the opportunity of ordering a factory assembled, wired and tested, 4-wire private line system in two basic sizes, which with the addition of individual station or control CPs, may be configured in the field with a minimum of assembly and wiring.◀

2. IDENTIFICATION

2.01 ▶The J1G034B package (Fig. 1) is made up of list numbers as follows:

List 1—cabinet assembly, equipment, and wiring for up to 10 stations.

Consists of:

1—ED-1G269-70 cabinet equipped with 5-66M1 connector blocks
1—J1G034A-1,L1 panel
1—dual power panel
1—320C1 power supply
1—117C cabinet cover equipped with bracket.

List 2—equipment required in addition to L1 for first cabinet of 4-wire private line (CPs RT9, RT10, RT11)

List 3—equipment required in addition to L1 for up to 14 additional stations.

Consists of:

1—J1G034A-1,L1 panel
1—320C1 power supply.

List 4—euipment required in addition to L1 and L2 when used with SS-4 for station circuits. Circuit pack RT12 (one per station).

List 5—equipment required in addition to L1 and L2. One required for three audible and visual signaling circuits (CP RT13).

List 6—equipment required in addition to L1 and L2 if group code signaling is required. One for six codes (CP RT14).

List 7—station circuit for 30-Hz or voice signaling (CP RT15). One needed for each station circuit.

List 8—equipment required in addition to L1 and L2 when 30-Hz signaling is required (CP RT16).

List 9—equipment required in addition to L1 and L2 for control of miscellaneous circuits, such as loudspeaker cutoff (CP RT17).

List 10—documentation package containing SD, CD, Installation, and Maintenance Bell System Practice.◀

2.02 ▶Additional individual CPs (RT12 through RT17) may be ordered by apparatus code to implement the particular configuration for each installation and for additions to existing installations.◀

2.03 The 4-wire packaged system comes equipped with 5-66M1-50 connecting blocks mounted on the backboard, marked and wired as shown in Fig. 2 for the number of panels (L1 and L2) ordered.

2.04 The 4-wire private line terminating circuit SD-1G297-01 consists of a J1G034A-1,L1 panel (Fig. 3) and the following plug-in CPs:

- RT9—Option card
- RT10—Line amplifier circuit
- RT11—Talk-back amplifier for sidetone
- RT12—Station circuit for SS-4 station
- RT13—Signaling circuit for SS-4 codes
- RT14—Combined signaling circuit for SS-4 code and group code
- RT15—Station circuit for 30-Hz or voice-signaling station
- RT16—Signaling circuit for 30-Hz signaling
- RT17—Miscellaneous circuit.

2.05 The J1G034A-1,L1 panel mounts in a 23-inch by 4-inch mounting space. The front of the panel has fourteen 40-pin connectors (J1 through J14) for plug-in CPs. The back of the panel has one 20-pin connector (J15), two terminal strips (TSA for power connections and TSB for connections to succeeding panels), fuses, five plugs (P1 through P5) for connector cables, and one plug (P6) for the connector cable from a J1G033A-type SS-4 panel. The plugs are wired to the connectors in the following manner: connectors J1, J2, and J3 to P1; connectors J4, J5, and J6 to P2; connectors J7, J8 and J9 to P3; connectors J10, J11, and J12 to P4; and connectors J13 and J14 to P5.

2.06 The CPs used with the J1G034A-1,L1 panel are designed to be used in assigned connectors as shown in Fig. 4.

2.07 Circuit pack ***RT9*** is an option card. The option it connects depends on how the card is inserted in connector J15. By turning the card over or by reversing the card, options are added or changed. The following options are connected by means of CP RT9:

- Option V—Succeeding panel used
- Option W—SS-4 System with data access
- Option X—SS-4 System without data access
- Option Y—30-Hz or voice signaling with data access
- Option Z—30-Hz or voice signaling without data access.

2.08 Circuit pack ***RT10*** is a line amplifier circuit that provides the gain necessary for maintaining line transmission levels. In addition to a gain device, it is equipped with an equalizer circuit to equalize for line loss of high frequency signals. A test jack is provided in the CP to facilitate line testing. A J1G034A-1,L1 panel used as a first or only panel requires two line amplifiers—a transmit amplifier (in connector J1) and a receive amplifier (in connector J2).

Caution: Before initially inserting CP RT10 in the panel or when replacing CP RT10, make sure the GAIN and EQ controls are turned fully counterclockwise.

2.09 Circuit pack ***RT11*** is a talk-back amplifier that provides sidetone to the telephone set(s). The talk-back amplifier is factory-adjusted to maintain a 16-dB loss from the transmit to the receive side of the line. Two test jacks (J1 and J2) are provided in the CP for use in testing line amplifier gain and line levels. In a J1G034A-1,L1 panel used as a first or only panel, the talk-back amplifier is inserted in connector J3.

Note: The jack (J1) in CP RT10 (line amplifier) and the jacks (J1 and J2) in CP RT11 (talk-back amplifier) will accommodate a 310 plug.

2.10 Circuit pack ***RT12*** is a SS-4 station circuit that:

- Furnishes talk battery to the telephone set
- Provides line pickup and cut-through to the telephone set

- Opens the talk path for the push-to-talk (PTT) feature
- Repeats dial pulses generated by a rotary dial and extends the pulses to the SS-4 panel
- Supplies a ground over the RL and CO leads to release a lockup circuit in the audible and visual signaling circuit or to operate a miscellaneous circuit
- Removes the low tone (busy tone) from a called station in the SS-4 privacy system
- Closes a path for the S lead when manual privacy is used in the SS-4 System
- Provides a ground over the AG lead to operate an external circuit or device when the PTT feature is provided or when S option is provided and the telephone set goes off-hook
- Provides -24 volts over the FW lead to operate the FW relay in a 2-wire/4-wire telephone set.

2.11 Circuit pack ***RT13*** consists of three separate audible and visual signaling circuits. The signaling circuit is activated by a ground over the C lead from the SS-4 panel. When activated, the circuit starts an interrupter circuit and cuts ringing and lamp voltages through to the telephone set(s) or operates an auxiliary signal control relay. The audible and visual signaling circuit can be arranged for:

- Auxiliary relay control, option E
- Steady audible signal, option F
- Interrupted audible signal or common signal with diode matrix control, option G
- No time-out, option K
- Short time-out interval (18 seconds), option M
- Long time-out interval (30 seconds), omit option M.

2.12 Circuit pack ***RT14*** is a combined audible and visual signaling circuit. It consists of one audible and visual signaling circuit and a group code relay. The audible and visual signaling part of the CP has the same circuit functions as described in paragraph 2.11. The group code circuit consists of a relay (GC) which is operated by a ground over a group code (GC) C lead from the SS-4 panel. When operated, the GC relay connects ground to operate a maximum of six audible and visual signaling circuits that are to be operated by the same code.

Note: The group code may be referred to as a broadcast code or as a master code.

2.13 Circuit pack ***RT15*** is a 30-Hz or voice-signaling station circuit that:

- Furnishes talk battery to the telephone set
- Provides line pickup and cut-through to the telephone set
- Opens the talk path for the PTT feature
- Supplies a ground over the RL and CO leads to release a locked-in signal by an audible and visual signaling circuit or to operate a miscellaneous circuit
- Provides for loudspeaker cutoff when used with a voice-signaling circuit
- Closes a path for the S (signal) lead when used in a manual ringdown circuit
- Provides a ground over the AG lead to operate an external circuit or device when the PTT feature is provided or when S option is provided and the telephone set goes off-hook
- Provides -24 volts over the FW lead to operate the FW relay in a 2-wire/4-wire telephone set.

2.14 Circuit pack ***RT16*** is a 30-Hz signaling circuit that responds to incoming 30-Hz ringing and transmits 30-Hz ringing for outgoing calls. When activated by an incoming 30-Hz signal, the circuit starts an interrupter circuit and cuts ringing and lamp voltages through to the telephone set(s) or operates an auxiliary signal control relay. Outgoing ringing can be an automatic 2-second spurt or can be under the control of a nonlocking signal

key. The 30-Hz signaling circuit can be arranged for:

- Auxiliary relay control, option E
- Steady audible signal, option F
- Interrupted audible signal or common signal with diode matrix control, option G
- No time-out, option K
- Short time-out interval (18 seconds), option M
- Long time-out interval (45 seconds), omit option M
- Locked-in incoming signal, option N
- Automatic 2-second outgoing 30-Hz signaling, option Q.

2.15 Circuit pack ***RT17*** is a miscellaneous circuit used with the various operations that may be required for 4-wire private lines. It may be used:

- To provide a busy lamp indication when the SS-4 System (with privacy) is busy
- For dial-up and dial-down or turnon and turnoff arrangements with the SS-4 System
- For loudspeaker control
- For data transfer arrangements.

2.16 Interruped ringing and lamp signals used with the J1G034A-1,L1 panel and associated plug-in CPs must be supplied from an external interrupter circuit. A 232C KTU can be used as an external interrupter circuit (Fig. 5), or the ringing and lamp voltages can be wired through the interrupter of an existing key system panel.

3. ORDERING GUIDE

Note: Ordering information for the J1G033A-2,L1 SS-4 panel and associated CPs is covered in Section 480-623-001.

A. ▶4-Wire Private Line Packaged System

3.01 The 4-wire private line packaged system may be ordered as follows:

- J1G034B,L1—4-wire private line system for up to 10 stations or miscellaneous CPs
- J1G034B,L2—CPs RT9, RT10, and RT11
- J1G034B,L3—equipment for 14 additional stations
- J1G034B,L4—CP RT12
- J1G034B,L5—CP RT13
- J1G034B,L6—CP RT14
- J1G034B,L7—CP RT15
- J1G034B,L8—CP RT16
- J1G034B,L9—CP RT17
- J1G034B,L10—SD, CD, Installation, and Maintenance Bell System Practice.◀

B. 4-Wire Private Line Terminating Panel and Circuit Packs if Ordered Separately

3.02 The 4-wire private line terminating panel and CPs for line amplification, talk-back (sidetone) and station functions are ordered as follows:

- Panel, J1G034A-1,L1—order as required.
- Pack, Circuit RT9—option card; one required for each J1G034A-1,L1 panel.
- Pack, Circuit RT10—line amplifier; two required for first panel.
- Pack, Circuit RT11—talk-back amplifier; one required for first panel.
- Pack, Circuit RT12—station circuit for SS-4 station; one required for each telephone set.
- Pack, Circuit RT13—audible and visual signaling circuit. The CP contains three circuits and will accommodate three SS-4 station codes; order as required.

- Pack, Circuit RT14—combined audible and signaling circuit. The CP contains one audible and visual signaling circuit and one group code relay; order as required.

- Pack, Circuit RT15—station circuit for 30-Hz or voice-signaling station; one required for each telephone set.

- Pack, Circuit RT16—signaling circuit for 30-Hz signaling; one required.

- Pack, Circuit RT17—miscellaneous control circuit; order as required.

C. Interrupter

3.03 The ringing and lamp voltages can be connected through the interrupter circuit of a 1A2 KTS panel or connected to a separate interrupter. A typical interrupter arrangement (Fig. 5) is ordered as follows:

- Interrupter, KS-15900L1

- Unit, Telephone, Key, 232C.

D. Loudspeakers

3.04 The 106-type loudspeakers are compatible with all SD-1G297-01 circuit configurations utilizing loudspeakers. Refer to Section 463-220-100 for descriptive and ordering information on the 106-type loudspeakers.

E. Connecting Blocks and Connector Cables When Not Using Packaged System

3.05 Where the J1G034A-1,L1 panel is used as an only panel or as a first panel, up to four connector cables are used. Each cable is terminated on one 66-type connecting block. The connecting blocks are wired to correspond to the connectors in the panel with each block representing three connectors, except block 5 which represents connectors J13 and J14 only (Fig. 6). A second or succeeding panel will accommodate up to five connector cables (see Fig. 4). Connector cables and connecting blocks are ordered as follows:

- Cable, Connector, A25B—order as required (length must be specified)

- Block, Connecting, 66B4-25—order as required.

F. Power Supply

3.06 A single or succeeding J1G034A-1,L1 panel requires a 320C1, 19-type, or 20C3 power unit. One power unit has the capacity to power one J1G033A-type SS-4 panel and one J1G034A-1,L1 panel. Multiple power supplies shall have grounds tied common. Local conditions, such as power unit mounting arrangement and/or ringing requirements, will determine the type power unit(s) best suited for a particular installation. Refer to Section 167-440-201 and order power unit(s) as required.

G. Data Transfer Circuit

3.07 Where the 4-wire private line circuit SD-1G297-01 is to be used for both voice and data transmissions, a data transfer circuit must be provided locally. A typical data transfer circuit, consisting of 200-type KTUs and other components, is shown in Fig. 7. Refer to Section 463-140-100 for apparatus mountings. Components for this arrangement are ordered as follows:

- Unit, Telephone Key, 229B—one required

- Unit, Telephone Key, 245A—one required

- Pack, Circuit RT17—two required with automatic dial transfer; with manual access only one required

- Pack, Circuit RT12—one required

- Resistor, 89AT, —9 dB receive pad; one required

- Resistor, 89GE, —27 dB transmit pad; one required.

H. Speakerphone

3.08 The 3- and 4-type speakerphone systems are compatible with stations connected to the 4-wire private line circuit SD-1G297-01. A J53041D speakerphone control unit is required to adapt the 3-type speakerphone for 4-wire operation. Refer to Sections 480-716-200 and 512-620-100 for ordering information. An 80A control unit is required to adapt the 4-type speakerphone for 4-wire operation. Refer to Section 512-700-100 for ordering information

on 4A speakerphone equipment. The 80A control unit is ordered as:

- Unit, Control, 80A-49—one required for each 4A speakerphone.

4. INSTALLATION

4.01 ▶Install the J1G034B packaged system on wall as shown in Section 463-140-200 for 16C apparatus mountings. Make sure gates can open unhindered by adjacent equipment and that there is adequate working space to service and install equipment on both sides of gate with gate in open position.◀

4.02 ▶Insure that there is adequate nonswitch controlled commercial power source for all equipment and space necessary related equipment such as Interrupter, Data Transfer, and SS-4 equipment.◀

4.03 ▶When using individually ordered equipment,◀ install the J1G034A-1,L1 panel in a 23-inch apparatus mounting, an equipment bay or equipment cabinet having adequate working space for making wiring connections, changing fuses, or plugging in connector cables on the back of the panel, and clearance in front for inserting the plug-in CPs. The panel occupies a 23-inch by 4-inch mounting space.

4.04 When used in a SS-4 System, mount the (first) J1G034A-1,L1 panel adjustment to the J1G033A-type (SS-4) panel. The panels must be mounted close enough together for the 24-inch connector cable of the J1G033A-type panel to connect to plug 6 of the J1G034A-1,L1 panel. A second or succeeding J1G034A-1,L1 panel does not connect to the J1G033A-type panel, but should be located close to the first panel to facilitate cross-connections.

4.05 ▶When using J1G034B packaged system, the 66M1-50 connecting blocks are provided and mounted on the backboard of the package.◀

4.06 ▶When using individually ordered equipment,◀ install 66B4-25 connecting blocks at telephone locations, at a key telephone system connecting block cross-connect field, or concentrate connecting blocks in a separate cross-connect field.

4.07 Install telephone sets in the usual manner. The number of telephone sets that can be used with a J1G034A-1,L1 panel is controlled by the number of signaling circuits (CP RT13, RT14, RT15) and miscellaneous control circuits (CP RT17) used in the panel. Each telephone set requires a station circuit (CP RT12 or RT15), and the number of station circuits that can be used with the panel is reduced by one for each signaling circuit or miscellaneous circuit. Where the J1G034A-1,L1 panel is installed as the first panel or as a single panel, connectors J1 and J2 are occupied by line amplifiers (CP RT10) and connector J3 is for the talk-back amplifier (CP RT11) which further reduces the number of station circuits that can be used with the first panel.

4.08 Install the data transfer circuit as near as practicable to the connecting block associated with plug 5 of the (first) J1G034A-1,L1 panel.

4.09 Install loudspeakers where customer directs, provided the location affords the customer suitable speaker output and access to speaker controls and will not create a feedback oscillation condition with telephones located in the vicinity of the loudspeakers.

4.10 To provide the PTT feature, replace the telephone handset with a G5BR or equivalent handset. For connections, refer to Section 590-101-103 and the section pertaining to the telephone set used.

When the PTT feature is not provided, the S option strap (between terminal board terminals 5 and 6) must be installed in the station circuit (CP RT12 or RT15).

5. CONNECTIONS

5.01 Typical circuit arrangements using the 4-wire private line terminating circuit SD-1G297-01 are shown in Fig. 8, 9, and 10.

A. Interpanel

5.02 Connections between a J1G034A-1,L1 (4-wire private line terminating circuit) panel and a J1G033A-type (SS-4) panel are made via the connector-ended cable of the J1G033A-type panel to plug 6 of the J1G034A-1,L1 panel. Only one J1G034A-1,L1 panel can be connected to a J1G033A-type panel in this manner. Connections to a second or succeeding J1G034A-1,L1 panel are

made from terminal strip B of the first panel to terminal strip B of the second or succeeding panel(s) as illustrated in Fig. 11. Connections between J1G034A-1,L1 panels in 30-Hz or voice-signaling circuits are shown in Fig. 12.

B. Power

5.03 Power for one J1G034A-1,L1 and one J1G033A-type panel can be furnished by one 320C1, 19-type, or 20C3 power supply (Fig. 13). A single or succeeding J1G034A-1,L1 panel requires another 320C1, 19-type, or 20C3 power supply.

5.04 All power connections between the J1G034A-1,L1 panel and the power supply shall be 22-gauge wire or larger and are run directly from the power supply to terminal strip A on the panel (Fig. 11 and 12).

5.05 All power connections between the J1G033A-type panel and the power supply shall be 22-gauge wire or larger. The power leads are run directly from the power supply to terminal strip A on the panel (Fig. 11).

5.06 The RN, RG, ST, and MG leads between the J1G034A-1,L1 panel(s) and an interrupter circuit shall be 22-gauge wire or larger.

5.07 Refer to Section 463-220-100 for connecting power to the 106-type loudspeakers.

5.08 Ground the power supply to an acceptable ground. Where several power supplies are used, strap the ground terminal of each supply (with a 14-gauge wire) to the ground terminal of the one that is connected to the approved ground.

C. Line

5.09 Connections for the 4-wire facility from the serving central office are made on the connecting block associated with the connector cable connected to plug 5 of the first J1G034A-1,L1 panel. On this connecting block, the transmit (toward the CO) Tip and Ring (TT and TR) leads are connected to connecting block terminals 43 and 44. The receive (from the CO) Tip and Ring (RT and RR) leads are connected to terminals 45 and 46. See Fig. 8, 9, 10, and Table A.

Provide station protectors at the customer location when the 4-wire facility from the serving central office is an exposed facility. Also, an off-premises station requires electrical protection if the serving facility is exposed. Refer to Section 460-100-400 for explanation of exposed facilities and information on station protectors.

D. Station

5.10 Station connections (telephone set connections) are made at connecting blocks which are connected to the J1G034A-1,L1 panel by connector-ended cables. The connecting block arrangement is illustrated in Fig. 6 and Table A provides the lead assignment for the connecting blocks and connector cables.

5.11 Each telephone set served by a J1G034A-1,L1 panel requires the use of a station circuit—CP RT12 for SS-4 circuits or CP RT15 for 30-Hz and voice-signaling circuits. The connector used for the station circuit must correspond to the connecting block on which station connections are made (see Fig. 6).

> ***Note:*** The SS-4 station circuit (CP RT12) may be used in place of a 30-Hz or voice-signaling station circuit (CP RT15), provided a strap is placed between terminals 12 and 13 on terminal strip A of the J1G034A-1,L1 panel (T option).

5.12 Typical connections for one telephone set are shown in Fig. 14, 15, and 16. Typical connections for three telephone sets are illustrated in Fig. 17, 18, and 19.

5.13 Ground for connecting the telephone set A1 lead appears on connecting blocks associated with cables 2 and 3. Lamp ground and ring ground appear on connecting blocks associated with cables 4 and 5 (see Table A). Therefore, when making station connections, it may be necessary to terminate the station cable leads on as many as three connecting blocks.

E. Code Leads, SS-4

5.14 Code leads (C leads) must be run from the J1G033A-type (SS-4) panel to the signaling circuit (CP RT13 or RT14) and the station circuit

(CP RT12). The SS-4 equipment supplies ground over the C lead to activate signaling circuits. These signaling circuits control audible and visual signals to the telephone sets and control the privacy feature in the SS-4 station circuits. The C leads can also be connected:

- To miscellaneous circuits (CP RT17) to operate turnon- and turnoff-type circuits or other signaling devices
- For group code operation.

5.15 Connections for the C lead(s) are made by connecting C leads on the J1G033A-type panel to C terminals on the station connecting blocks associated with the signaling circuit and station circuits. Where a group code is used, an additional strap must be run on the connecting blocks. The additional strap connects the C lead of the signaling circuit (CP RT13 or RT14) and station circuit (CP RT12) to a contact (C1 through C6) of the group code relay. (The group code relay is part of CP RT14.)

5.16 Refer to Fig. 20 for location of the C leads on terminal strip B of the J1G033A-1 (MD) (SS-4) panel. Refer to Fig. 21 or 22 for location of C leads in connectors 1 and 2 of the J1G033A-2 (SS-4) panel; these leads are terminated on 66-type connecting blocks.

F. Release Leads

5.17 Release (RL) leads must be provided between station circuits and signaling circuits. In response to incoming 30-Hz ringing or a ground via a C lead, the signaling circuit operates and locks operated. The operated signaling circuit extends audible and visual signals to the telephone set(s). An off-hook at a telephone set operates a station circuit which applies ground over the RL lead to release the signaling circuit. When released, the signaling circuit cancels the audible signal and changes the lamp signal from flash to steady.

5.18 Connections for the RL lead(s) are made on the station connecting blocks. Refer to Table A for RL terminals and see Fig. 15, 16, 18, and 19 for typical RL lead connections.

G. Simplex Leads

5.19 The 30-Hz ringing signals are transmitted over the simplex of the 4-wire facility. In the 4-wire private line terminating circuit, SD-1G297-01, the simplex (SX) leads are derived from the center tap of the T2 transformer in the transmit line amplifier (TSX) and from the center tap of the T1 transformer in the receive line amplifier (RSX). The internal panel wiring for the SX leads in the J1G034A-1,L1 panel is shown in Fig. 23.

5.20 Connections for the SX leads depend on which connector the 30-Hz signaling circuit (CP RT16) is plugged into. Circuit pack RT16 can be used in connectors J10 through J14; however, connector J14 is the preferred location. When the signaling circuit is plugged into connector J14, SX lead connections are made via the option card (CP RT9). When the signaling circuit is used in connector J10, J11, J12, or J13, straps must be run from terminals 41 and 42 of connecting block associated with cable 5 to terminals 5 and 6 on the same connecting block or to terminals 37 and 38, 21 and 22, or 5 and 6 on connecting block associated with cable 4 (Fig. 23).

H. Loudspeakers

5.21 Voice-signaling circuits require the use of 106-type loudspeakers for detecting incoming calls. However, the use of loudspeakers is not limited to voice-signaling circuits. Loudspeakers can be incorporated in a SS-4 System or may be used with a 30-Hz signaling circuit. Examples of loudspeaker arrangements and connections are listed. Other arrangements can be locally engineered. Typical loudspeaker arrangements are:

(a) ***No loudspeaker cutoff (Fig. 24):*** Loudspeaker is connected to the receive side of the line at all times.

(b) ***Loudspeaker cutoff controlled by one telephone set (Fig. 25):*** As shown in Fig. 25, speaker leads are connected through break contacts of the PU relay in the station circuit (CP RT12). When the telephone set goes off hook, ground over the A lead operates the PU relay in the station circuit to cut off the loudspeaker.

(c) ***Loudspeaker cutoff controlled by more than one telephone set (Fig. 26):*** As shown in Fig. 26, speaker leads are connected through break contacts of the MC relay in a miscellaneous circuit (CP RT17). When a telephone set goes off hook, ground over the A lead operates the PU relay in a station circuit (CP RT12 or RT15). The operated PU relay connects a ground to the CO lead which operates the MC relay to cut off the loudspeaker.

(d) ***Loudspeaker cut off when privacy is initiated in a manual privacy SS-4 System (Fig. 27):*** As shown in Fig. 27, speaker leads are connected through break contacts of the MC relay in a miscellaneous circuit (CP RT17). When privacy is initiated in the SS-4 System, ground is connected over the PG lead from the SS-4 equipment to operate the MC relay which cuts off the loudspeaker. A strap must be connected from terminal 31 of terminal strip B of the J1G033A-1 (MD) (SS-4) panel or terminal 31 of the 66-type connecting block associated with connector 1 of the J1G033A-2 (SS-4) panel to the C lead terminal on the station connecting block associated with CP RT17.

(e) ***Loudspeaker activated and cut off by SS-4 codes (Fig. 28):*** As shown in Fig. 28, the speaker leads are connected through make contacts of the MC relay in CP RT17. When an activate SS-4 code is dialed, ground over the (activate) C lead causes the MC relay to operate. The MC relay locks operated (through its own contacts and through contacts of the MD relay) and closes the speaker leads to turn on the loudspeaker. When a cutoff SS-4 code is dialed, ground over the (cutoff) C lead causes the MD relay to operate momentarily. The operated MD relay releases the MC relay which in turn opens the speaker leads to cut off the loudspeaker. Straps must be placed between terminals 1 and 2, and 4 and 6 on CP RT17. Also, code leads must be run from the SS-4 panel to the connecting block associated with CP RT17.

(f) ***Loudspeaker activated by SS-4 code, automatic cutoff (Fig. 29):*** As shown in Fig. 29, the speaker leads are connected through make contacts of the MC relay in CP RT17. When an activate SS-4 code is dialed, ground over the C lead causes the MC relay to operate. The MC relay locks operated (through its own contacts) to the SS-4 busy ground (BG lead) and closes the speaker leads to turn on the loudspeaker. The loudspeaker remains connected to the receive side of the line until the SS-4 equipment returns to the idle condition and removes ground from the BG lead. Straps must be placed between terminals 1 and 5, 4 and 6 on CP RT17. Also, a code lead must be run from the SS-4 panel to the connecting block associated with CP RT17.

(g) ***Loudspeaker cutoff controlled by PTT handset:*** To arrange loudspeakers to be cut off when the switch in a PTT handset is operated, connect the speaker as shown in Fig. 26, except connect the AG lead from the station circuit (Fig. 30) to CP RT17 instead of the CO lead and omit S option from the station circuit.

5.22 For loudspeaker power connections and options, refer to Section 463-220-100.

I. AG Lead

5.23 The AG lead provides a ground for special applications (Fig. 30). An AG lead is available from each station circuit (CP RT12 or RT15) and may be arranged to provide a ground when a telephone set goes off hook (S option) or when the switch in a PTT handset is operated. The AG lead may be connected as required for local needs. For example, the AG lead could be connected to the CO, C lead of a miscellaneous circuit (CP RT17) for loudspeaker cutoff under control of the PTT handset.

J. Data Service

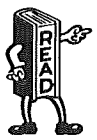
5.24 Data sets are connected to the SD-1G297-01 private line terminating circuit by means of a locally provided data transfer circuit. The transfer circuit must have the ability to:

- Transfer the 4-wire circuit from the private line stations to the data set
- Attenuate line levels to and from the data set
- Light a transfer lamp to indicate when the line is in the data mode

- Light the line lamp on a key telephone set(s) where the line is terminated in key telephone sets

- Extend a ground to the SS-4 equipment to hold the privacy feature in a privacy system.

5.25 Line connections to the data transfer circuit are made on the connecting block, ie, associated with plug 5 of the J1G034A-1,L1 panel. Additional connections are required to supply a ground to the RL lead(s) of the station circuit(s) and to the PR lead on the J1G034A-1,L1 panel, lamp voltage to the data transfer lamp, and a circuit to the data transfer key. See Fig. 7 for a typical data transfer circuit.



When transferring the circuit to the data mode, the data transfer key must be operated before the telephone handset is placed on hook.

K. Push-To-Talk Handsets

5.26 Telephone sets associated with the 4-wire private line terminating circuit SD-1G297-01 can be equipped with PTT handsets. Where the PTT handset is used, the transmit side of the line is open in the station circuit (CP RT12 or RT15) until the PTT switch in the handset is operated. Depressing the PTT switch in the handset applies ground over a PT lead from the telephone set to the station circuit to operate the PT relay in the station circuit (Fig. 31). The operated PT relay connects the transmit side of the circuit to the telephone set. Refer to Section 501-210-102 for information covering the G5BR-handset. See section pertaining to the type telephone set being used for connecting the handset to the telephone set.

L. Options

5.27 Options for the J1G034A-1,L1 (SD-1G297-01) 4-wire private line terminating circuit panel (Table B) are provided by:

- Proper insertion of option card

- Straps placed on terminal boards of the CPs

- A strap on terminal strip A of the panel

- Turndown screws on the CPs

- External connections to data equipment, keys, lamps, and audible signaling devices.

(a) ***Z Option—30-Hz or Voice Signaling, Without Data Access Required:*** Option Z is provided by inserting the option card, CP RT9, in panel connector J15, positioned for Z option. Connector J15 is located on the back of the panel.

(b) ***Y Option—30-Hz or Voice Signaling, Data Access Required:*** Option Y is provided by inserting the option card in panel connector J15, positioned for Y option, and by connecting data leads from the station connecting block to the data equipment. See Fig. 7, 8, 9, and Table A.

(c) ***X Option—SS-4 System, Without Data Access Required:*** Option X is provided by inserting the option card in connector J15, positioned for X option.

(d) ***W Option—SS-4 System, Data Access Required:*** Option W is provided by inserting the option card in connector J15, positioned for W option, and by connecting data leads from the station connecting block to the data equipment. See Fig. 7, 10, and Table A.

(e) ***V Option—Succeeding Panel Used:*** Option V is provided by inserting the option card in connector J15, positioned for V option, and by making interpanel connections as shown in Fig. 11 or 12.

(f) ***T Option—CP RT12 Used in Place of CP RT15:*** Option T is provided by strapping terminals 12 and 13 on terminal strip A of the J1G034A-1,L1 panel. Option T must be provided when CP RT12 is used in place of CP RT15 with a 30-Hz or voice-signaling private line.

(g) ***S Option—PTT Handset Not Used:*** Option S is provided by placing a strap between terminals 5 and 6 on the terminal board of the station circuit (CP RT12 or RT15).

(h) ***R Option—Station Without "A" Lead Control:*** Option R is provided by a strap between terminals 3 and 4 on the terminal board of CP RT12 or between terminals 3 and 4 on the terminal board of CP RT15.

(i) ***Q Option—30 Hz, 2-Second Automatic Ringdown, Outgoing Signaling:*** Option Q is provided by a strap between terminals 1 and 2 on the terminal board of the 30-Hz signaling circuit (CP RT16).

(j) ***N Option—Locked-in Incoming 30-Hz Signal:*** Option N is provided by a strap between terminals 9 and 10 on the terminal board of the 30-Hz signaling circuit (CP RT16).

(k) ***M Option—Audible and Visual Signal Time-out, Short Interval:*** Option M is provided by turning down the S1 (circuit 1), S2 (circuit 2), or S3 (circuit 3) screw on the audible and visual signaling circuit (CP RT13), by turning down the S1 screw on the combined audible and visual signaling circuit (CP RT14), or by turning down the S1 screw on the 30-Hz signaling circuit (CP RT16). A time-out interval of 18 seconds is established by turning down the S( ) screw. With the S( ) screw up, the time-out interval is extended to 45 seconds.

Note: Circuit pack RT13 contains three circuits.

(l) ***K Option—Audible and Visual Signal Time-out Disabled:*** Option K is provided by a strap between terminals 9 and 2 (circuit 1), terminals 9 and 4 (circuit 2), or terminals 9 and 1 (circuit 3), on the terminal board of CP RT13, by a strap between terminals 5 and 2 on the terminal board of CP RT14, or by a strap between terminals 5 and 6 on the terminal board of CP RT16. With K option, the incoming SS-4 or 30-Hz audible and visual signal is locked in until released by a telephone set going off-hook.

(m) ***G Option—Interrupted Audible Signal or Common Audible With Diode Matrix:*** Option G is provided by a strap between terminals 5 and 6 (circuit 1), terminals 5 and 8 (circuit 2), or terminals 5 and 10 (circuit 3) on the terminal board of CP RT13, by a strap between terminals 4 and 6 on the terminal board of CP RT14, or by a strap between terminals 7 and 8 on the terminal board of CP RT16. Refer to Fig. 32 and Table A.

(n) ***F Option—Steady Audible Signal:*** Option F is provided by a strap between terminals 7 and 6 (circuit 1), terminals 7 and 8 (circuit 2), or terminals 7 and 10 (circuit 3) on the terminal board of CP RT13, by straps between terminals 6 and 8 on the terminal board of CP RT14, or by straps between terminals 3 and 7 on the terminal board of CP RT16. Refer to Fig. 33 and Table A.

(o) ***E Option—Audible Signal, Common With Auxiliary Relay Control:*** Option E requires a strap on CP RT13, RT14, or RT16 and a connection to the ring relay in a separate signaling arrangement, or the use of CP RT17 (Fig. 34). A strap is required between terminals 9 and 6 (circuit 1), terminals 9 and 8 (circuit 2), or terminals 9 and 10 (circuit 3) on the terminal board of CP RT13, terminals 5 and 6 on the terminal board of CP RT14, or between terminals 6 and 7 on the terminal board of CP RT16. Connections to the ring relay of a separate signaling circuit are made from the RC-R1 terminal of the station connecting block associated with the signaling circuit (CP RT13, RT14, or RT16). Connections for using CP RT17 (miscellaneous control circuit) are made on the station connecting block associated with CP RT13, RT14, or RT16 and RT17. The RC-R1 lead of CP RT13, RT14, or RT16 is connected to the C lead of CP RT17. The signaling device is connected to the M lead, and the ringing supply, battery, or ground to operate the signaling device is connected to terminal F. See Table A for terminal locations on the station connecting blocks and Fig. 34 for E option connections.

(p) ***B Option—SS-4 Busy Lamp When Using Automatic or Manual Privacy:*** Option B requires the use of CP RT17. Circuit pack RT17 is connected to the BG lead of the SS-4 equipment and extends lamp voltage to CP RT13 or RT14 when the privacy feature of the SS-4 equipment is activated. Option B is provided by straps between terminals 5 and 6 and terminals 7 and 8 on the terminal board of CP RT17. See Fig. 35 and Table A.

(q) ***A Option—Privacy Busy Lamp Indicating System Busy and In-Privacy:*** Option A requires the use of CP RT17. A strap is run from terminal 31 of terminal strip B of the J1G033A-1 (MD) (SS-4) panel or terminal 31 of the 66-type connecting block associated with connector 1 of the J1G033A-2 (SS-4) panel to the C lead terminal on the station connecting block associated with CP RT17 (Fig. 36). Also, a strap is required between terminals 7 and 8

on the terminal board of CP RT17. See Table A for location of L terminals (from CP RT13 or RT14) on the station connecting blocks for lamp connections.

M. Miscellaneous Control Circuit (CP RT17)

5.28 Circuit pack RT17 (Fig. 37) is a general use unit for activating or deactivating loudspeakers, lamps, control relays and signaling devices, data transfer arrangements, or may be used to disable the privacy override key(s). Circuit pack RT17 can only be used in connectors J10 through J14 in the J1G034A-1,L1 panel (see Fig. 4). Connections to CP RT17 are made on the station connecting block(s) associated with connectors J10 through J14 (Fig. 6). See Table A for lead terminations on the station connecting blocks. The BG (busy ground), L (lamp), BL (busy lamp), B battery and B ground leads are wired to the connector terminals as part of the panel wiring. A terminal board is provided on the CP for strapping options or for features that may be required by local conditions. Special arrangements should be referred to engineering.

N. Disable Privacy Override (SS-4)

5.29 The privacy override capability of SS-4 stations can be disabled so that the stations cannot access the line while it is being used for data transmission. Circuit pack RT17 is required to disable the privacy override feature. Connecting the lead from a privacy override key(s) through unoperated relay contacts of CP RT17 is illustrated in Fig. 38. A code lead (C lead) is connected from the J1G033A-type panel to CP RT17 via the station connecting block.

5.30 By dialing the SS-4 code assigned to disable privacy override, ground over the C lead causes the MC relay in CP RT17 to operate and disable the privacy override key(s). The MC relay is held operated, through its own contacts, by a ground from the BG lead, until the calling station terminates the call (Fig. 38).

O. Speakerphone Connections

5.31 Connections for the 3-type speakerphone are show in Fig. 39 and SD-69542-01. Refer to Section 480-716-200 for information on the J53041D-1 speakerphone control unit and Section 512-620-100 for information on the 3-type speakerphone. Connections for the 4-type speakerphone are shown in Fig. 40 and Section 512-730-460. Refer to SD-69923-01 for information on the 80A speakerphone control unit.

P. Private Hold Arrangement

5.32 Private hold arrangement (Fig. 41) can be provided to place the private line on hold. With this arrangement, when the private line is placed on hold, the automatic privacy feature will remain in the privacy mode when other calls are answered or originated on the same telephone instrument. When the private line is on hold, the associated line lamp will wink. To provide this feature, a 400G KTU must be modified per Fig. 41.

Q. Voice-Data Transfer Arrangement

5.33 Voice-data transfer arrangement (Fig. 7) can be provided to transfer the private line to data or voice manually or automatically from a remote location. A key is provided to transfer the circuit manually, and C lead codes from the SS-4 Signaling System are used to transfer the circuit automatically from a remote location.

6. LINEUP PROCEDURES

6.01 Prior to performing any tests on a point-to-point or multipoint private line, a transmission circuit layout (TCL) card should be available. The TCL card will identify the 4-wire facility and give the expected measured loss (EML) of the facility between the customer's location and the Serving Test Center (STC).

6.02 Before verifying the 4-wire facility loss or starting the circuit lineup procedure, a talking circuit must be established between the STC and the customer location.

6.03 As various types of test equipment may be used for circuit lineup, test set preparation is not covered.

6.04 The test equipment used for circuit lineup must be capable of generating and detecting a 1000-Hz signal within the output level range of +3 and -20 dBm. The equipment must be set up for a 600-ohm impedance.

6.05 Test jacks are provided on the line amplifiers (CP RT10) and the talk-back amplifier (CP

RT11) to facilitate level adjustments. The cord(s) used to connect test equipment to the CPs must be equipped with a 310 plug.

Lineup procedures are to be performed before placing the 4-wire private line in service. When making operational transmission tests, the equipment should be taken out of service according to local procedures.

6.06 Set oscillator for 1000 Hz and adjust output using a 600-ohm detector set for 0 dBm.

6.07 Measure the 4-wire facility between the STC and the customer location:

(a) Connect the transmission measuring set (TMS) oscillator to the line jack (J1) of the transmit line amplifier (located in connector J1 of the J1G034A-1,L1 panel).

(b) Connect the TMS 600-ohm detector to the line jack (J1) of the receive line amplifier (located in connector J2 of the J1G034A-1,L1 panel).

(c) Request the STC to transmit the normal 1000-Hz test one at a 0-dBm level.

(d) Record the level as measured by the TMS detector.

(e) Send 1000-Hz test tone at a 0-dBm level to the STC.

(f) Record the level as measured at the STC.

(g) Disconnect test equipment.

(h) Verify that the facilities between the STC and the customer location test within the limits of the EML as specified on the TCL card. In the event the facilities do not meet the EML requirements, consult engineering or proceed according to local instructions.

6.08 Circuit lineup procedues are as follows:

1000- and 2800-Hz Tests

(a) ***Test the talk-back amplifier (CP RT11):*** Set the TMS oscillator at 1000-Hz and 0-dBm level and connect it to the TRANSMIT BUS jack on CP RT11. Connect the 600-ohm TMS detector to the RECEIVE BUS jack. Verify a -16 dBm (±1.5 dB) reading for the talk-back amplifier.

(b) ***Test receive level:*** Remove the TMS oscillator from the TRANSMIT BUS on CP RT11. (The TMS detector remains connected to the RECEIVE BUS.) Request the STC to send a 1000-Hz test tone at a 0-dBm level. Adjust the GAIN control on the receive line amplifier until a -16 dBm reading is indicated on the TMS detector.

(c) ***Equalization of receive line amplifier:*** With the TMS detector on the RECEIVE BUS of CP RT11:

(1) Request the STC to send 2800-Hz test tone at 0-dBm level

(2) Adjust the EQUALIZER ADJUST control on the receive line amplifier until a -16 dBm reading is obtained

(3) Disconnect test equipment.

Note: Use 2800-Hz test tone for equalization as the 2400- and 2600-Hz tones may be filtered out before reaching the RECEIVE BUS in CP RT11.

(d) ***Test transmit level:***

(1) Set the transmit amplifier EQUALIZER control to the fully counterclockwise position.

Note: The transmit amplifier EQUALIZER CONTROL will remain in the full counterclockwise position. Only the receive amplifier EQUALIZER CONTROL is adjusted.

(2) Remove the TMS detector from the RECEIVE BUS of CP RT11 and connect it to the TT and TR leads, terminals 43 and 44 on connecting block associated with the J1G034A-1,L1 panel. (Change test set cords as required.) Remove TT and TR cross-connections to the central office. Connect the TMS oscillator to the TRANSMIT BUS jack on CP RT11. Send a 1000-Hz test tone at 0 dBm and adjust the GAIN control on the transmit

line amplifier until a 0-dBm level is indicated on the TMS detector.

(3) Disconnect test equipment.

(4) Replace the TT and TR cross-connections.

(e) ***2600-Hz oscillator level adjustment:*** [This adjustment must be made after the 1000-Hz tests have been made as described in (d).]

(1) Place a temporary strap between the following terminals to send a continuous 2600-Hz tone to the STC.

PANEL	TERM.	
	FROM	TO
J1G033A1 Terminal Strip B	81	91
J1G033A2 Wiring Option F (MD) 66-Type Connecting Block Associated With Connector 2	11	31
J1G033A2 Wiring Option E 66-Type Connecting Block Associated With Connector 2	31	41

Note: If J1G033A-2 Issue 9 or later is not stenciled on the rear of the SS-4 panel, the panel is wired for Option F (MD).

(2) Adjust the LEVEL ADJ control on the CP RT3 (oscillator control circuit) until the 2600-Hz tone is 8 dB below the 1000-Hz test tone level at the STC. Circuit pack RT3 is located in connector J2 in the J1G033A-type (SS-4) panel.

(3) Remove the temporary strap between terminals 81 and 91 on terminal strip B of the J1G033A-1 (MD) panel or terminals 31 and 41 of the 66-type connecting block associated with connector 2 of the J1G033A-2 panel.

6.09 Refer to Fig. 42 through 45 for typical transmission diagrams and levels. See Fig. 7 for data transfer circuit and information on 89-type resistors.

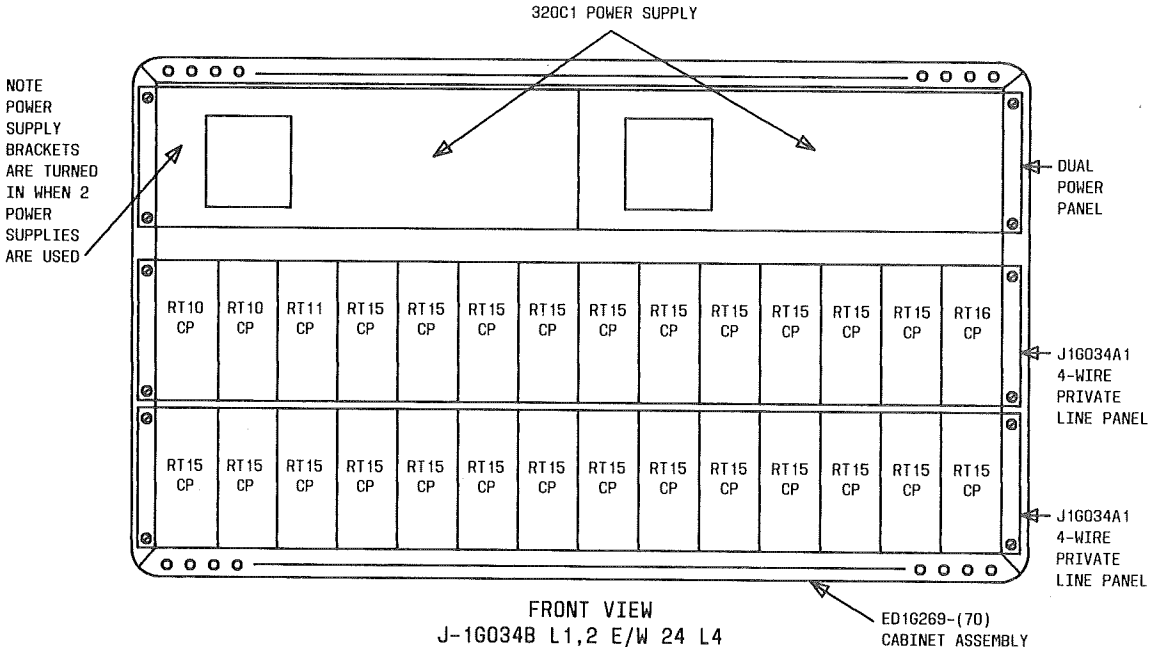


Fig. 1—J1G034B 4-Wire Private Line Packaged System (Front View)

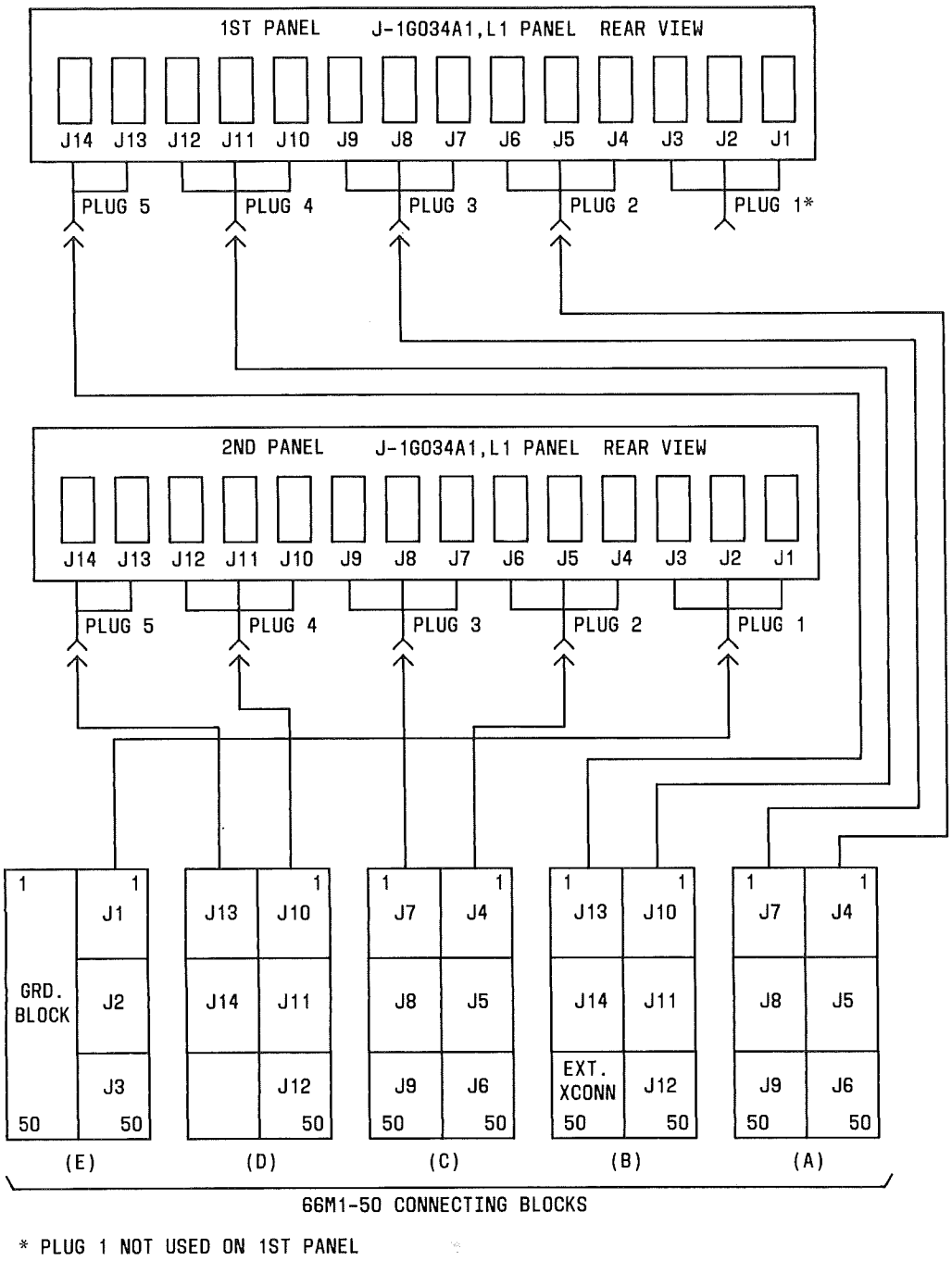
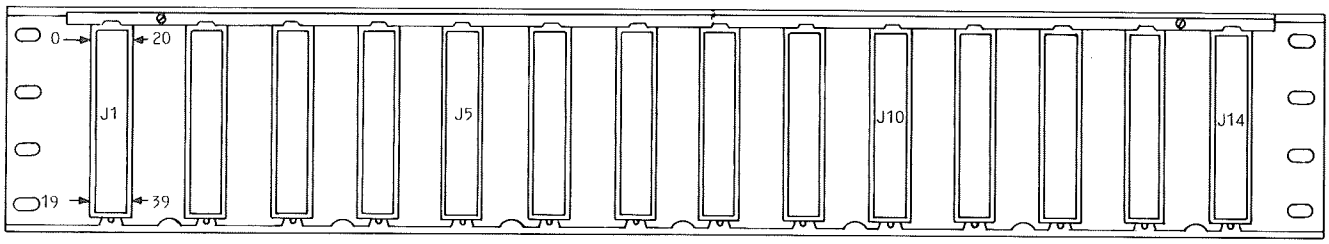
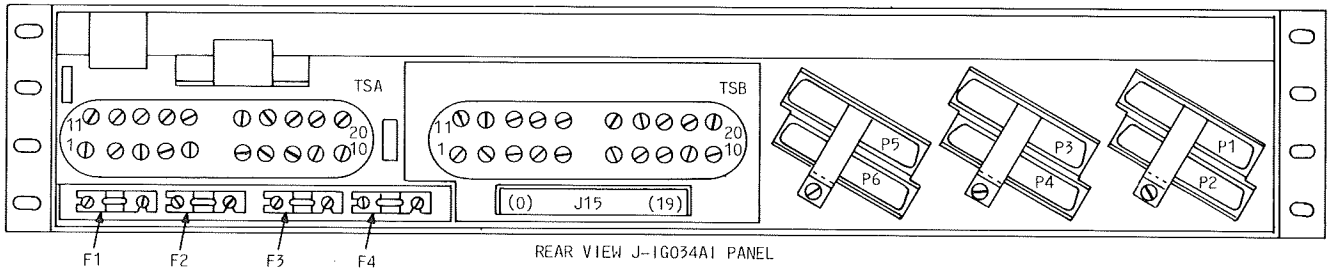


Fig. 2—Connecting Blocks Associated With Connectors in J1G034B 4-Wire Packaged System



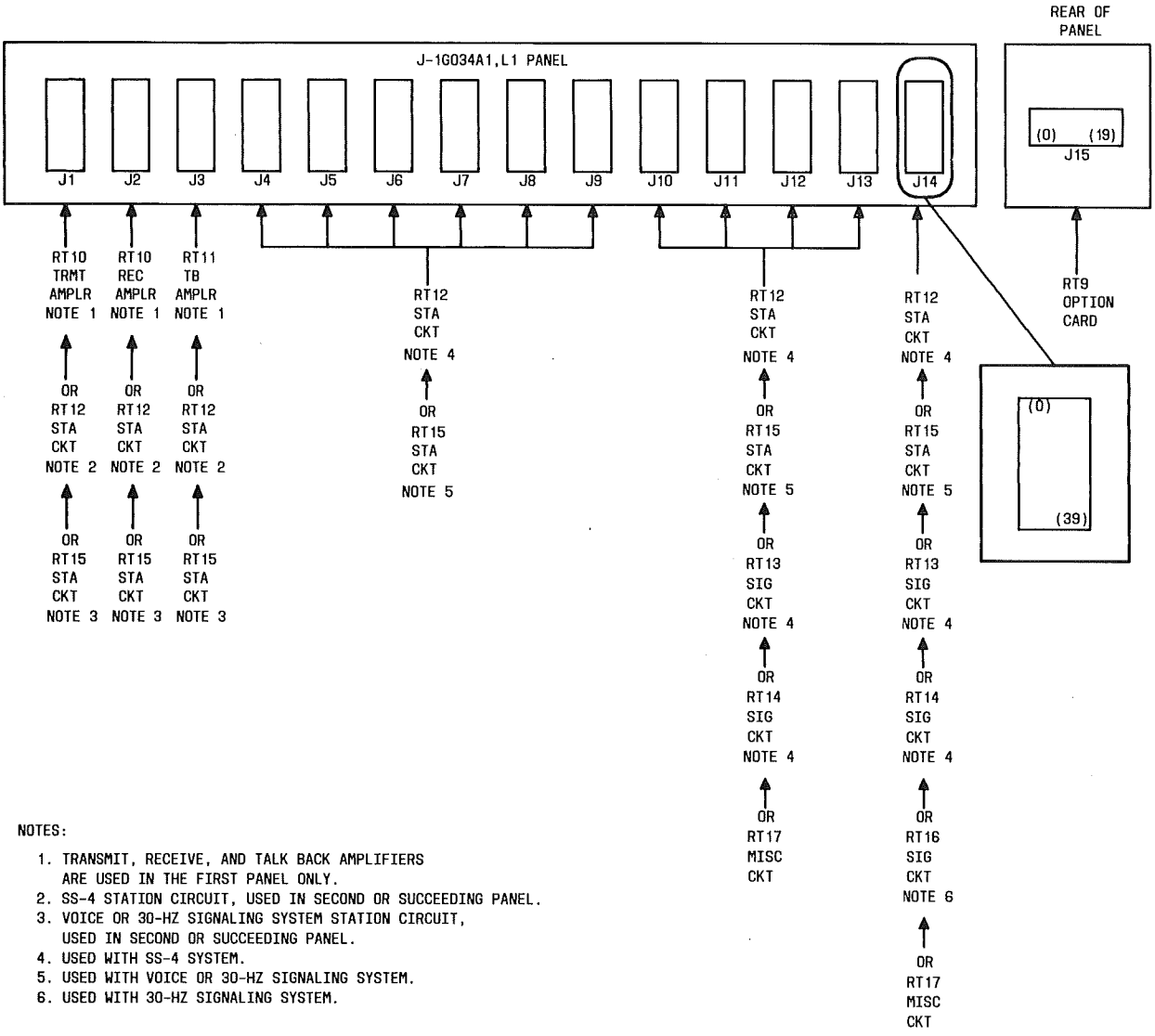
FRONT VIEW J-1G034A1 PANEL (SD-1G297-01)



REAR VIEW J-1G034A1 PANEL

NOTES:
1. THE J-1G034A1, L1 PANEL MOUNTS IN A 23-INCH BY 4-INCH MOUNTING SPACE.
2. POWER CONNECTIONS AND INTERRUPTER LEAD CONNECTIONS ARE MADE ON TERMINAL STRIP A.
3. CONNECTIONS TO SUCCEEDING OR PRECEDING PANELS ARE MADE ON TERMINAL STRIP B.
4. PLUGS 1 THROUGH 5 ACCOMMODATE CONNECTOR CABLES TO STATION CONNECTING BLOCKS.
5. PLUG 6 ACCOMMODATE THE CONNECTOR CABLE FROM A SS4 PANEL (J-1G033A1(MD) OR J1G033A2).
6. CONNECTORS, J1 THROUGH J14, ACCOMMODATE THE PLUG-IN CIRCUIT PACKS FOR STATION FUNCTIONS.
7. CONNECTOR J15 (ON REAR OF PANEL) IS USED ONLY FOR THE RT 9 OPTION CARD.

Fig. 3—J1G034A-1,L1 4-Wire Private Line Terminating Panel



NOTES:

1. TRANSMIT, RECEIVE, AND TALK BACK AMPLIFIERS ARE USED IN THE FIRST PANEL ONLY.
2. SS-4 STATION CIRCUIT, USED IN SECOND OR SUCCEEDING PANEL.
3. VOICE OR 30-HZ SIGNALING SYSTEM STATION CIRCUIT, USED IN SECOND OR SUCCEEDING PANEL.
4. USED WITH SS-4 SYSTEM.
5. USED WITH VOICE OR 30-HZ SIGNALING SYSTEM.
6. USED WITH 30-HZ SIGNALING SYSTEM.

Fig. 4—Circuit Pack Assignment for J1G034A-1,L1 Panel

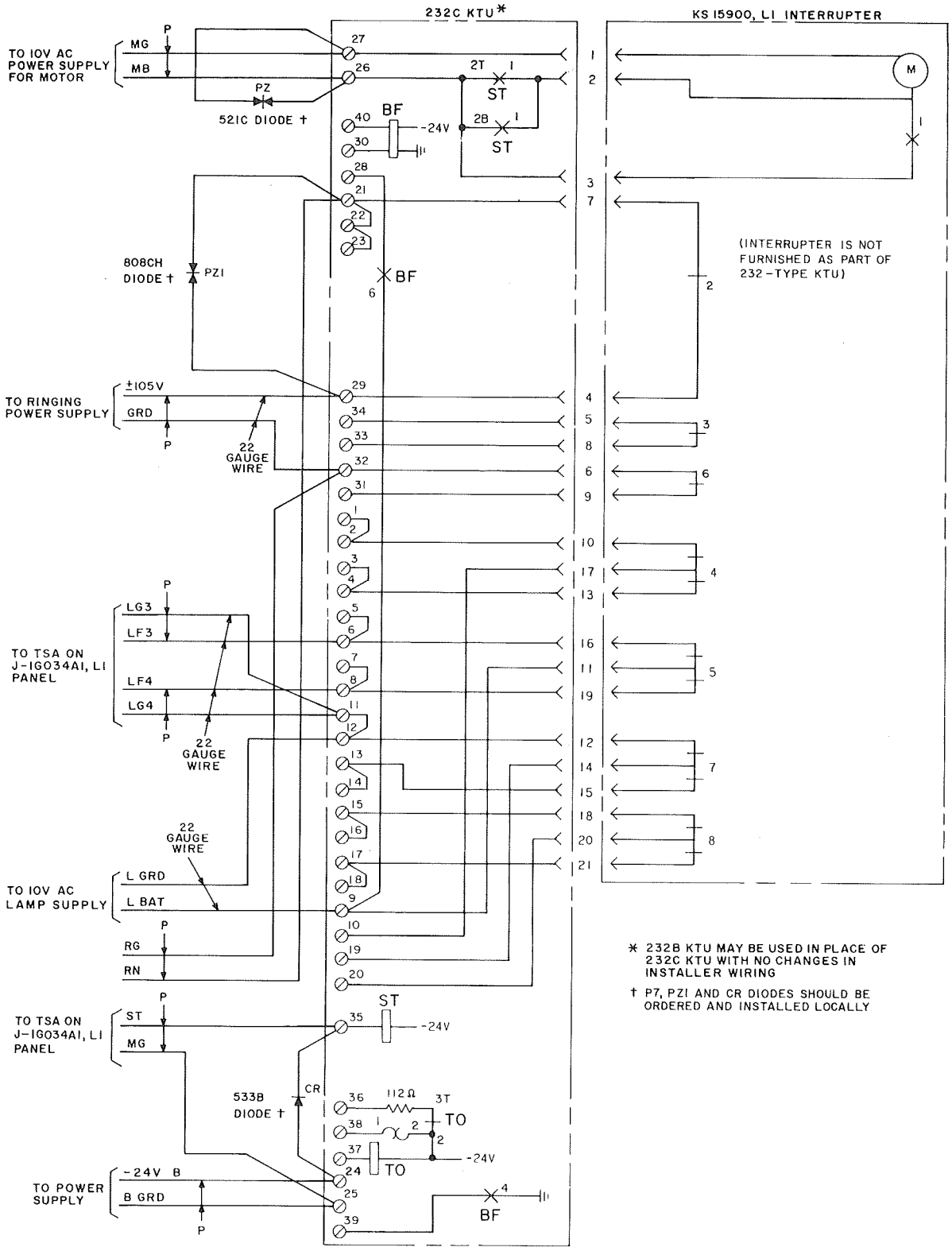


Fig. 5—Interrupter Circuit, 232C KTU

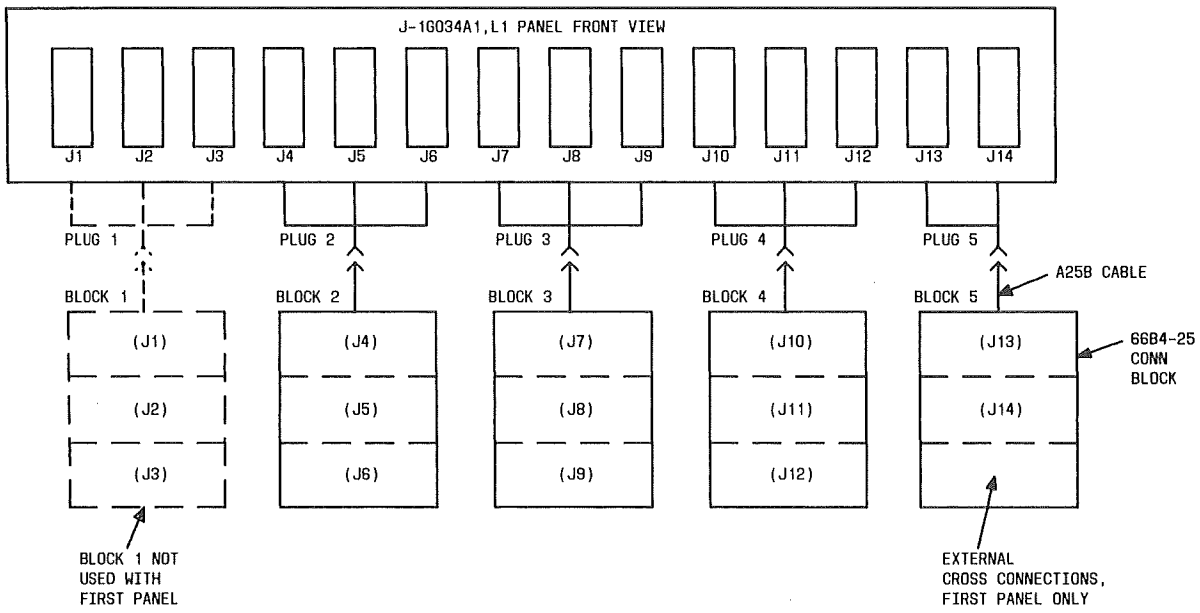


Fig. 6—How Connecting Blocks are Associated With Connectors in J1G034A-1,L1 Panel (Nonpackaged System)

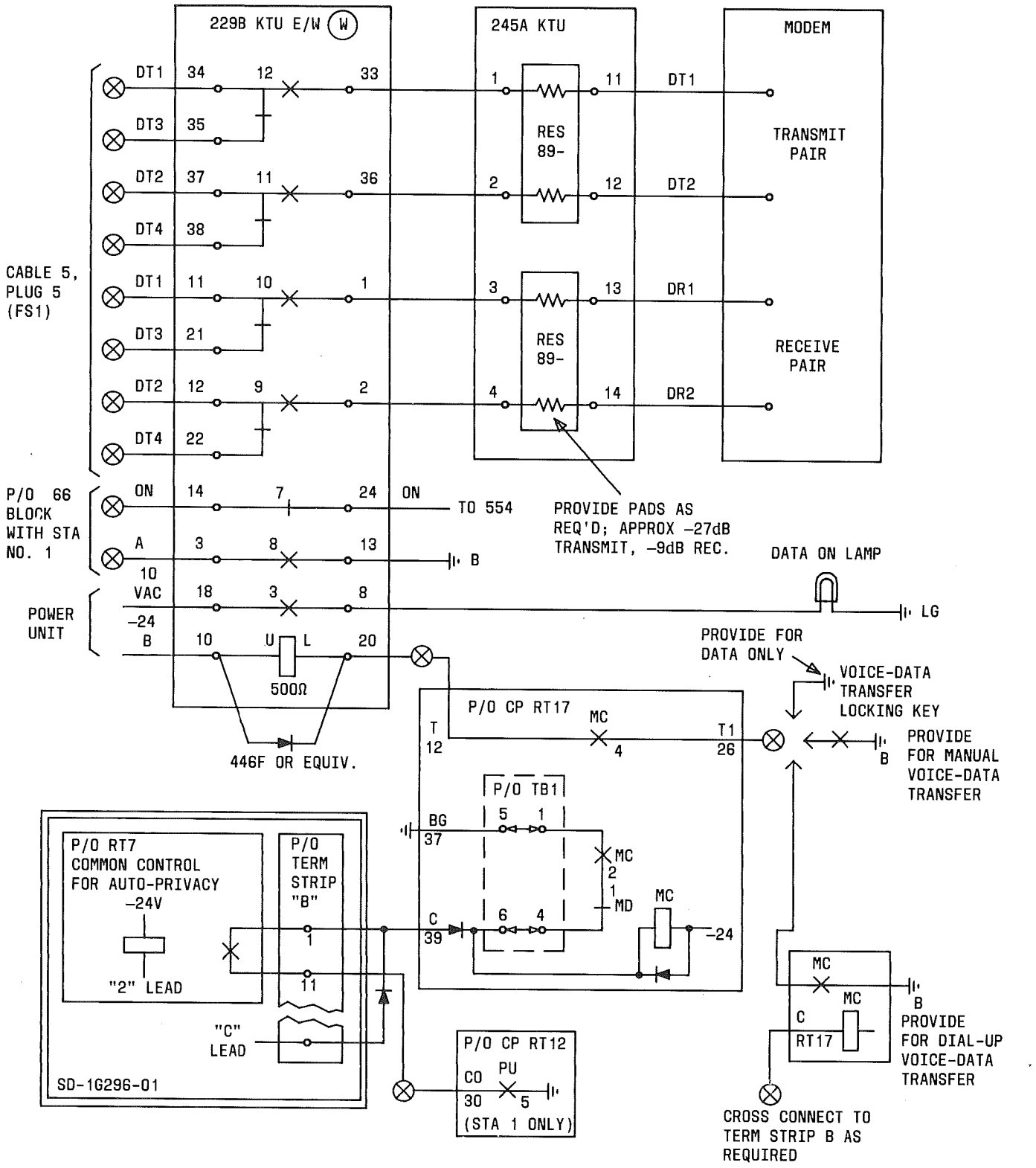


Fig. 7—Voice-Data Transfer Arrangement

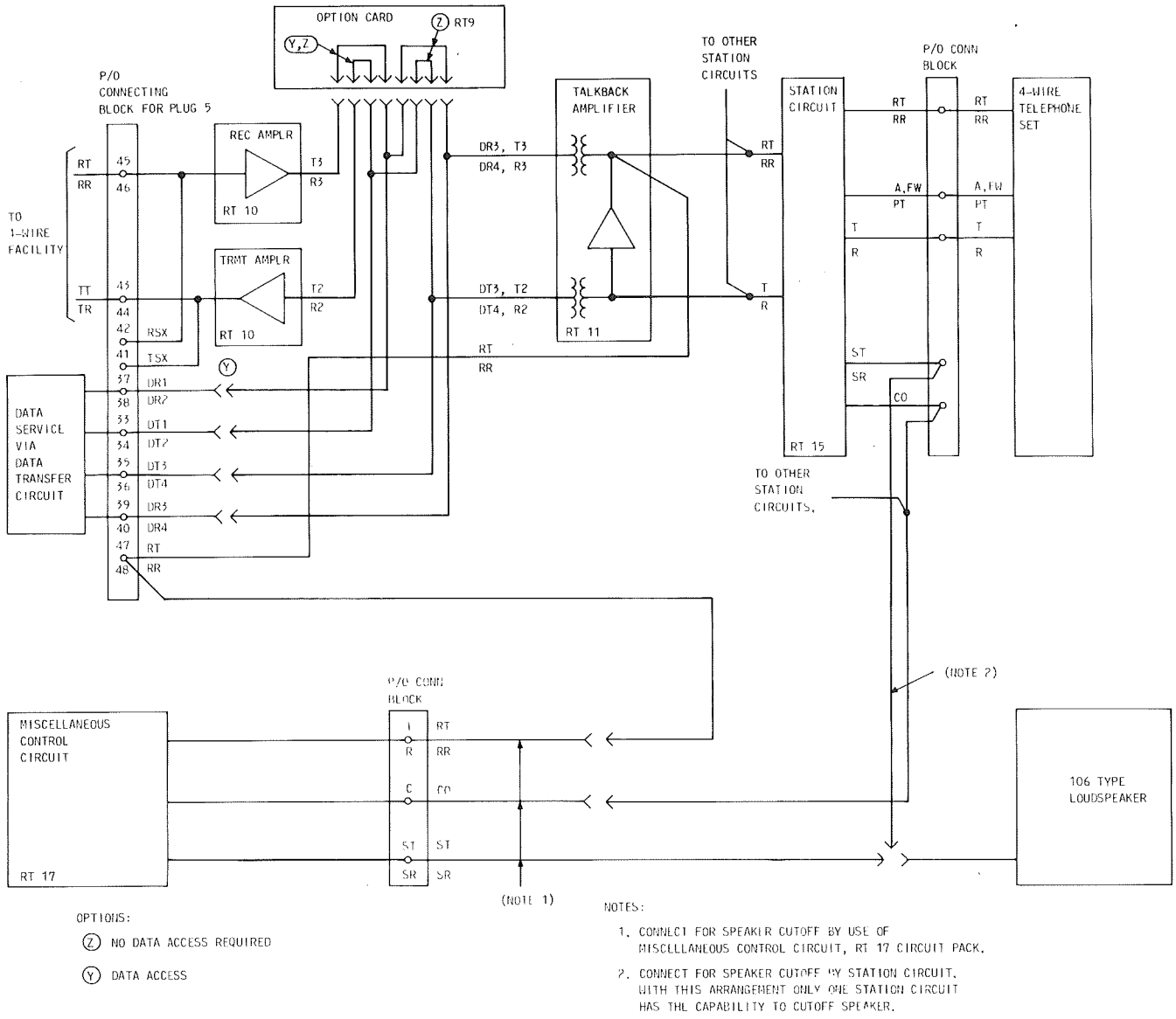


Fig. 8—Voice-Signaling Arrangement

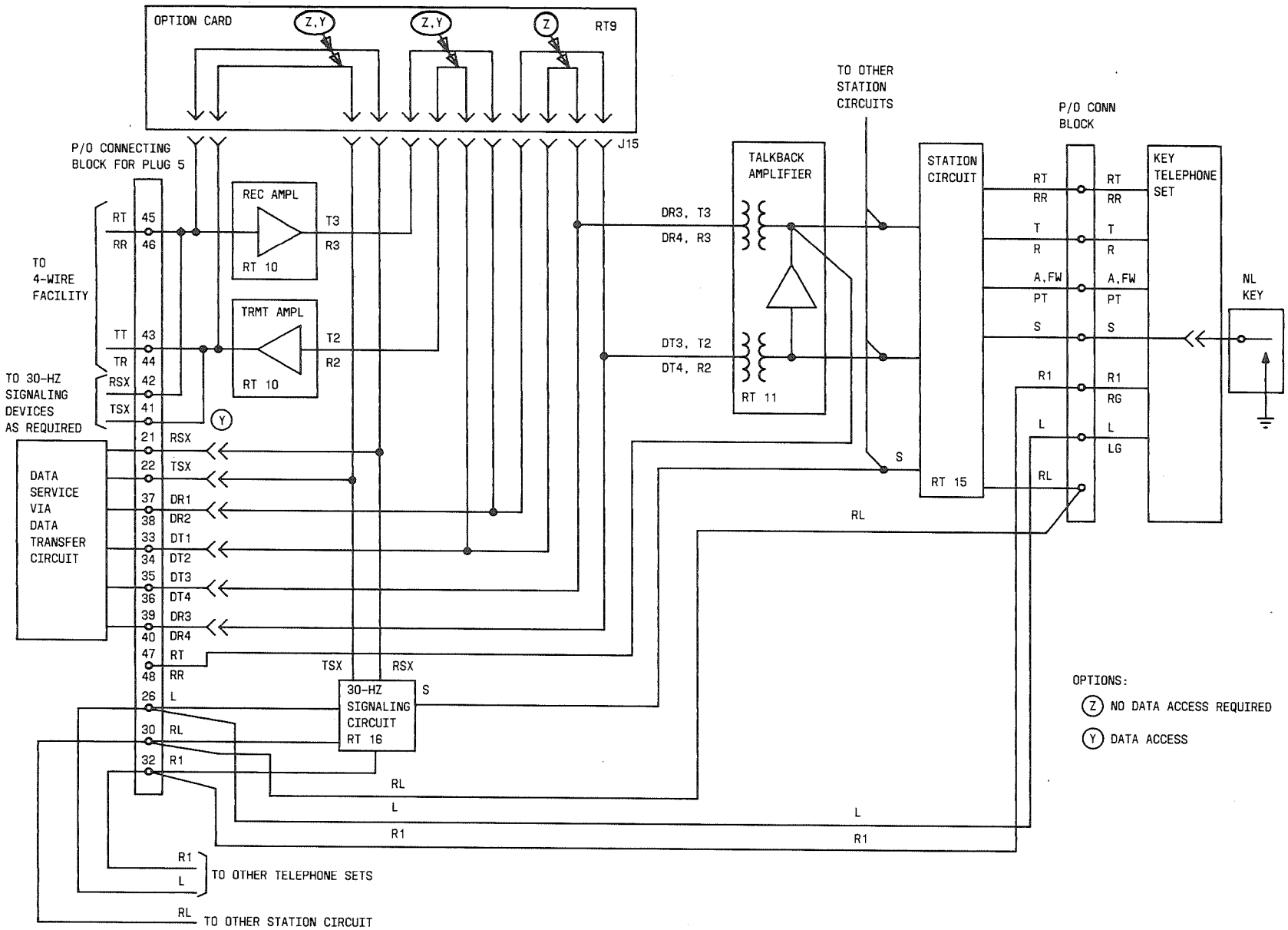


Fig. 9—30-Hz Manual or 2-Second Automatic Ringdown Arrangement

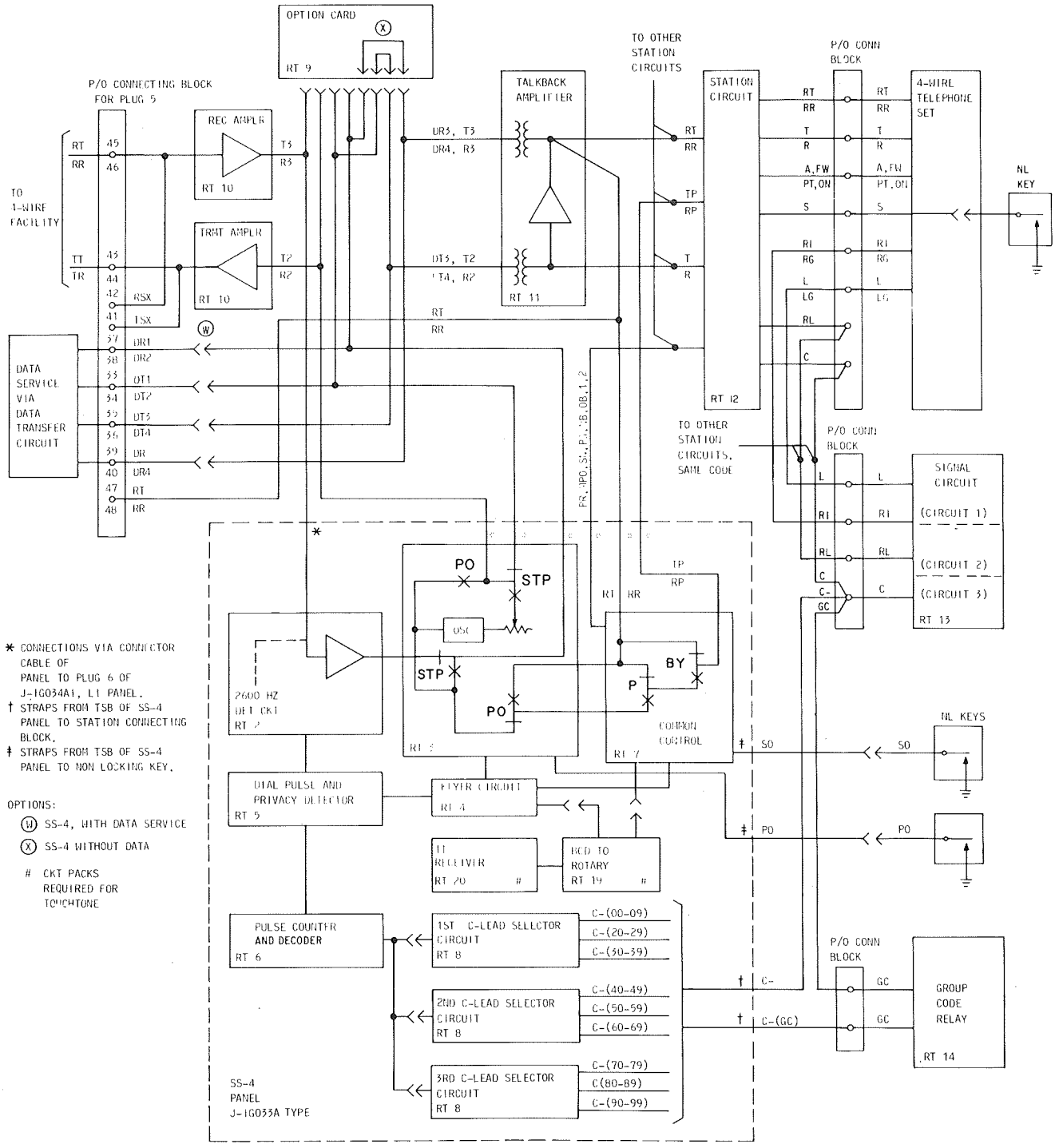


Fig. 10—SS-4 Arrangement

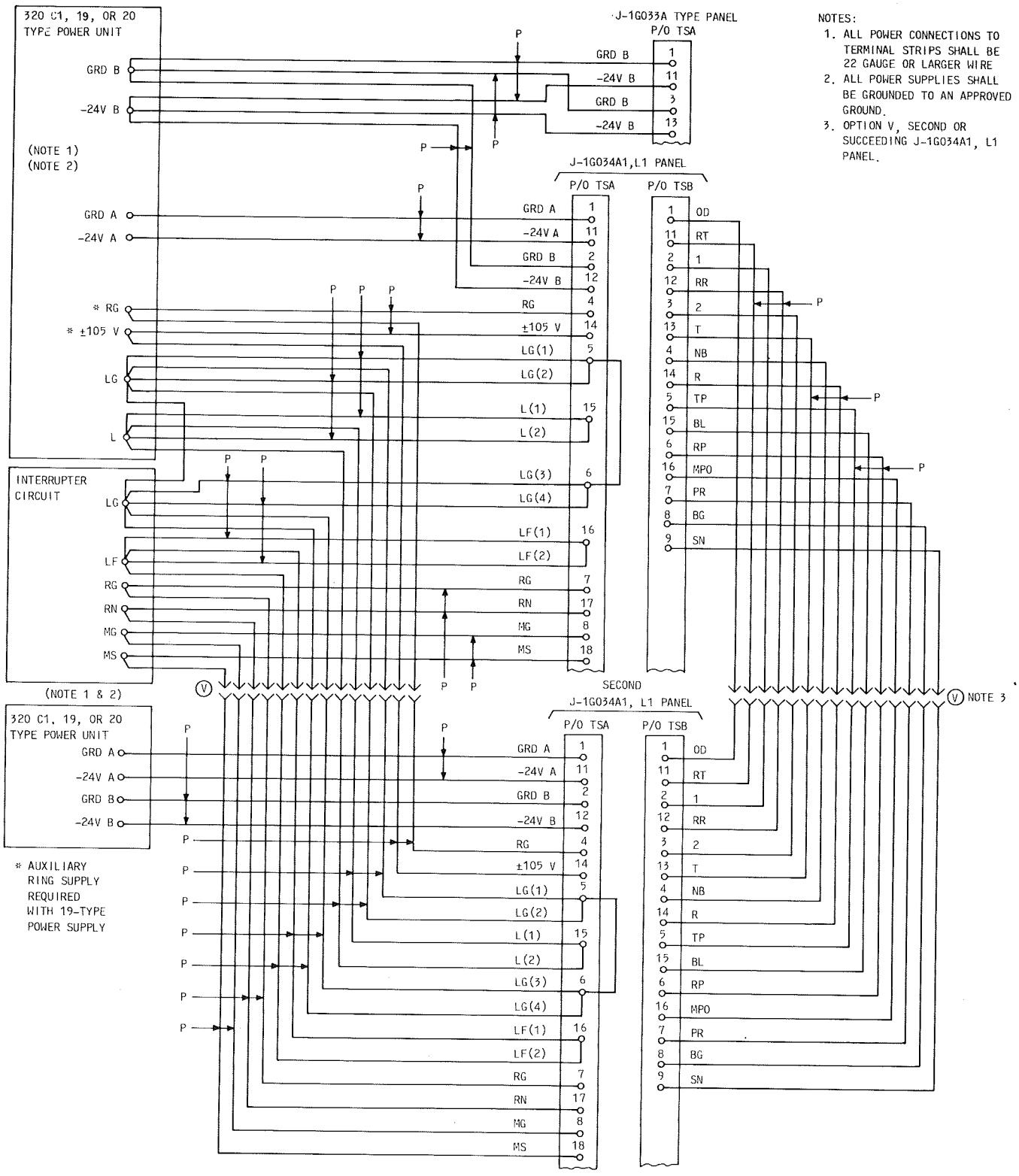


Fig. 11—Power and Interpanel Connections, SS-4 Signaling

NOTES:

1. ALL POWER CONNECTIONS TO TERMINAL STRIPS SHALL BE 22 GAUGE OR LARGER
2. ALL POWER SUPPLIES SHALL BE GROUNDED TO AN APPROVED GROUND.
3. OPTION V, SECOND OR SUCCEEDING PANEL.
4. INTERRUPTER CIRCUIT AND THE ±105V, RG, RN, LF, MG, AND MS LEADS ARE NOT REQUIRED FOR VOICE SIGNALING CIRCUITS.

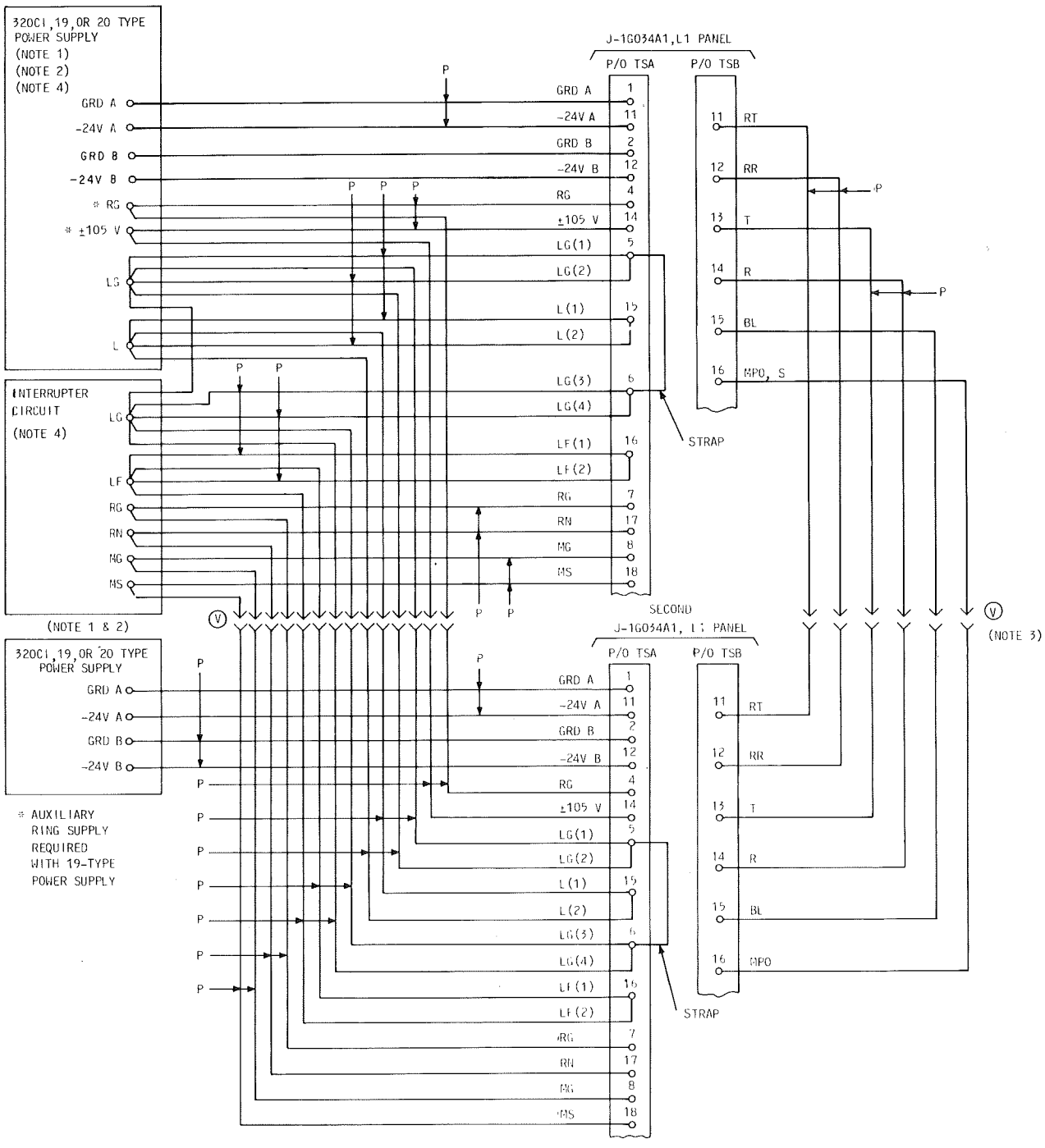


Fig. 12—Power and Interpanel Connections, 30-Hz or Voice Signaling

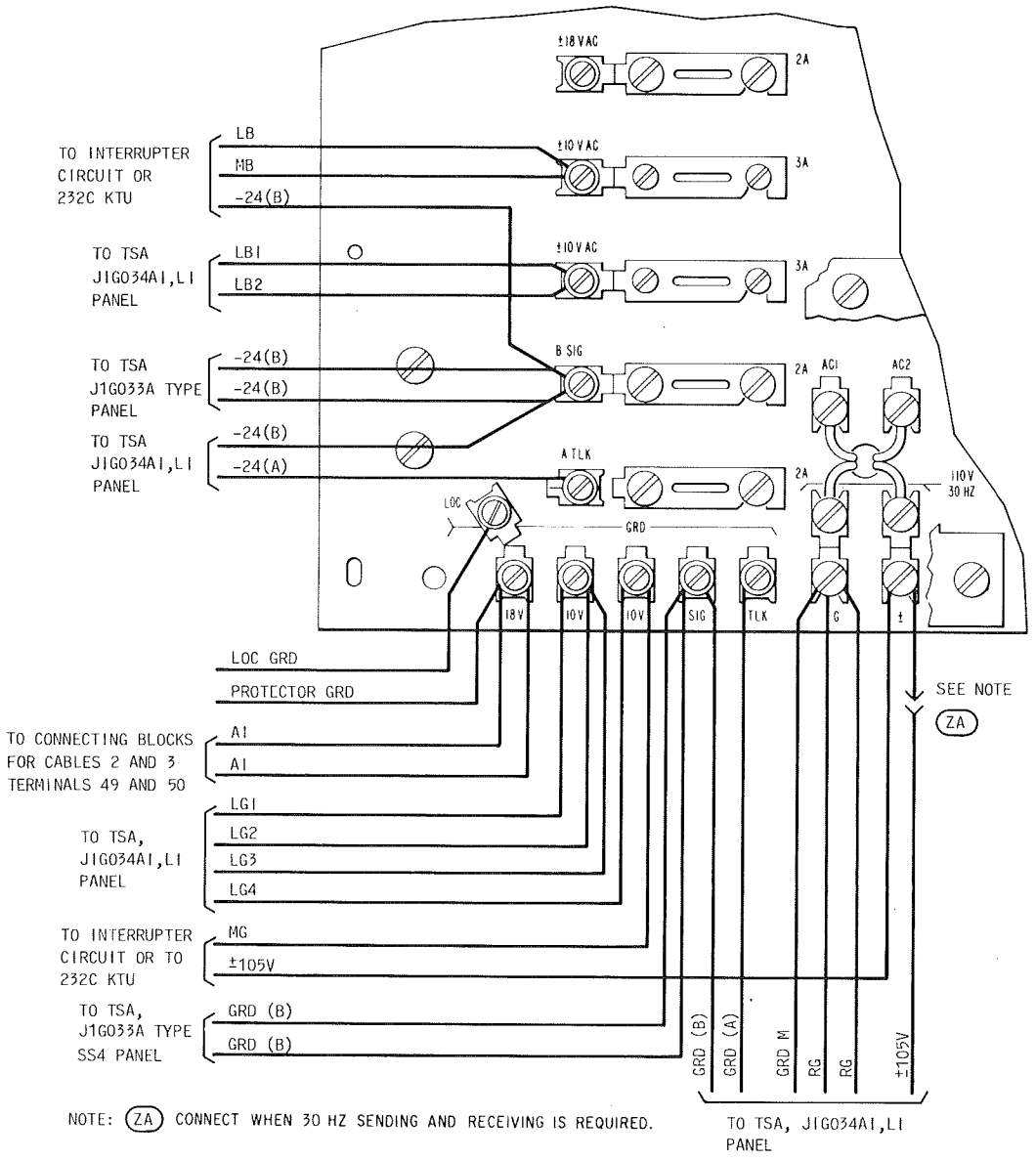


Fig. 13—Typical Connections for Power Supply

TABLE A

LEAD ASSIGNMENT FOR PLUGS, CONNECTOR CABLES, AND CONNECTING BLOCKS

LEAD ASSIGNMENT FOR PLUG 1, CONNECTOR CABLE 1, WHEN USED WITH SECOND OR SUCCEEDING PANEL (NOTE)						
66B4-25 CONN BLK TERM.	STA CKT CP RT12 (SS-4) LEAD DESIG	STA CKT CP RT15 LEAD DESIG	A25B CONN CABLE COLOR	PLUG PIN NO.	CONNECTOR	TERM.
1	RT	RT	W-BL	26		12
2	RR	RR	BL-W	1		13
3	T	T	W-O	27		26
4	R	R	O-W	2		24
5	A	A	W-G	28		16
6	FW	FW	G-W	3		25
7	PT	PT	W-BR	29		1
8	S	S	BR-W	4	J-1	22
9	ON	ST	W-S	30		0
10	CO	SR	S-W	5		30
11			R-BL	31		SPARE
12	AG	AG	BL-R	6		27
13			R-O	32		SPARE
14	RL	RL	O-R	7		36
15			R-G	33		SPARE
16	C	CO	G-R	8		39
17	RT	RT	R-BR	34		12
18	RR	RR	BR-R	9		13
19	T	T	R-S	35		26
20	R	R	S-R	10		24
21	A	A	BK-BL	36	J-2	16
22	FW	FW	BL-BK	11		25
23	PT	PT	BK-O	37		1
24	S	S	O-BK	12		22
25	ON	ST	BK-G	38		0

TABLE A (Contd)

LEAD ASSIGNMENT FOR PLUGS, CONNECTOR CABLES, AND CONNECTING BLOCKS

LEAD ASSIGNMENT FOR PLUG 1, CONNECTOR CABLE 1 (Contd)						
66B4-25 CONN BLK TERM.	STA CKT CP RT12 (SS-4) LEAD DESIG	STA CKT CP RT15 LEAD DESIG	A25B CONN CABLE COLOR	PLUG PIN NO.	CONNECTOR	TERM.
26	CO	SR	G-BK	13		30
27			BK-BR	39		SPARE
28	AG	AG	BR-BK	14		27
29			BK-S	40	J-2	SPARE
30	RL	RL	S-BK	15		36
31			Y-BL	41		SPARE
32	C	CO	BL-Y	16		39
33	RT	RT	Y-O	42		12
34	RR	RR	O-Y	17		13
35	T	T	Y-G	43		26
36	R	R	G-Y	18		24
37	A	A	Y-BR	44		16
38	FW	FW	BR-Y	19		25
39	PT	PT	Y-S	45		1
40	S	S	S-Y	20		22
41	ON	ST	V-BL	46		0
42	CO	SR	BL-V	21	J-3	30
43			V-O	47		SPARE
44	AG	AG	O-V	22		27
45			V-G	48		SPARE
46	RL	RL	G-V	23		36
47			V-BR	49		SPARE
48	C	CO	BR-V	24		39
49			V-S	50		SPARE
50			S-V	25		SPARE

Note: Plug 1, connector cable 1, not used with first panel.

TABLE A (Contd)

LEAD ASSIGNMENT FOR PLUGS, CONNECTOR CABLES, AND CONNECTING BLOCKS

LEAD ASSIGNMENT FOR PLUG 2, CONNECTOR CABLE 2						
66B4-25 CONN BLK TERM.	STA CKT CP RT12 (SS-4) LEAD DESIG	STA CKT CP RT15 LEAD DESIG	A25B CONN CABLE COLOR	PLUG PIN NO.	CONNECTOR	TERM.
1	RT	RT	W-BL	26		12
2	RR	RR	BL-W	1		13
3	T	T	W-O	27		26
4	R	R	O-W	2		24
5	A	A	W-G	28		16
6	FW	FW	G-W	3		25
7	PT	PT	W-BR	29		1
8	S	S	BR-W	4	J-4	22
9	ON	ST	W-S	30		0
10	CO	SR	S-W	5		30
11			R-BL	31		SPARE
12	AG	AG	BL-R	6		27
13			R-O	32		SPARE
14	RL	RL	O-R	7		36
15			R-G	33		SPARE
16	C	CO	G-R	8		39
17	RT	RT	R-BR	34		12
18	RR	RR	BR-R	9		13
19	T	T	R-S	35		26
20	R	R	S-R	10		24
21	A	A	BK-BL	36	J-5	16
22	FW	FW	BL-BK	11		25
23	PT	PT	BK-O	37		1
24	S	S	O-BK	12		22
25	ON	ST	BK-G	38		0
26	CO	SR	G-BK	13		30

TABLE A (Contd)

LEAD ASSIGNMENT FOR PLUGS, CONNECTOR CABLES, AND CONNECTING BLOCKS

LEAD ASSIGNMENT FOR PLUG 2, CONNECTOR CABLE 2 (Contd)						
66B4-25 CONN BLK TERM.	STA CKT CP RT12 (SS-4) LEAD DESIG	STA CKT CP RT15 LEAD DESIG	A25B CONN CABLE COLOR	PLUG PIN NO.	CONNECTOR	TERM.
27			BK-BR	39	J-5	SPARE
28	AG	AG	BR-BK	14		27
29			BK-S	40		SPARE
30	RL	RL	S-BK	15		36
31			Y-BL	41		SPARE
32	C	CO	BL-Y	16		39
33	RT	RT	Y-O	42	J-6	12
34	RR	RR	O-Y	17		13
35	T	T	Y-G	43		26
36	R	R	G-Y	18		24
37	A	A	Y-BR	44		16
38	FW	FW	BR-Y	19		25
39	PT	PT	Y-S	45		1
40	S	S	S-Y	20		22
41	ON	ST	V-BL	46		0
42	CO	SR	BL-V	21		30
43			V-O	47		SPARE
44	AG	AG	O-V	22		27
45			V-G	48		SPARE
46	RL	RL	G-V	23		36
47			V-BR	49		SPARE
48	C	CO	BR-V	24		39
49			V-S	50		A1 GRD
50			S-V	25		A1 GRD

TABLE A (Contd)

LEAD ASSIGNMENT FOR PLUGS, CONNECTOR CABLES, AND CONNECTING BLOCKS

LEAD ASSIGNMENT FOR PLUG 3, CONNECTOR CABLE 3						
66B4-25 CONN BLK TERM.	STA CKT CP RT12 (SS-4) LEAD DESIG	STA CKT CP RT15 LEAD DESIG	A25B CONN CABLE COLOR	PLUG PIN NO.	CONNECTOR	TERM.
1	RT	RT	W-BL	26	J-7	12
2	RR	RR	BL-W	1		13
3	T	T	W-O	27		26
4	R	R	O-W	2		24
5	A	A	W-G	28		16
6	FW	FW	G-W	3		25
7	PT	PT	W-BR	29		1
8	S	S	BR-W	4		22
9	ON	ST	W-S	30		0
10	CO	SR	S-W	5		30
11			R-BL	31		SPARE
12	AG	AG	BL-R	6		27
13			R-O	32		SPARE
14	RL	RL	O-R	7		36
15			R-G	33		SPARE
16	C	CO	G-R	8		39
17	RT	RT	R-BR	34	J-8	12
18	RR	RR	BR-R	9		13
19	T	T	R-S	35		26
20	R	R	S-R	10		24
21	A	A	BK-BL	36		16
22	FW	FW	BL-BK	11		25
23	PT	PT	BK-O	37		1
24	S	S	O-BK	12		22
25	ON	ST	BK-G	38		0
26	CO	SR	G-BK	13		30
27			BK-BR	39		SPARE

◗TABLE A (Contd)◖

LEAD ASSIGNMENT FOR PLUGS, CONNECTOR CABLES, AND CONNECTING BLOCKS

LEAD ASSIGNMENT FOR PLUG 3, CONNECTOR CABLE 3 (Contd)						
66B4-25 CONN BLK TERM.	STA CKT CP RT12 (SS-4) LEAD DESIG	STA CKT CP RT15 LEAD DESIG	A25B CONN CABLE COLOR	PLUG PIN NO.	CONNECTOR	TERM.
28	AG	AG	BR-BK	14		27
29			BK-S	40	J-8	SPARE
30	RL	RL	S-BK	15		36
31			Y-BL	41		SPARE
32	C	CO	BL-Y	16		39
33	RT	RT	Y-O	42	J-9	12
34	RR	RR	O-Y	17		13
35	T	T	Y-G	43		26
36	R	R	G-Y	18		24
37	A	A	Y-BR	44		16
38	FW	FW	BR-Y	19		25
39	PT	PT	Y-S	45		1
40	S	S	S-Y	20		22
41	ON	ST	V-BL	46		0
42	CO	SR	BL-V	21		30
43			V-O	47		SPARE
44	AG	AG	O-V	22		27
45			V-G	48		SPARE
46	RL	RL	G-V	23		36
47			V-BR	49		SPARE
48	C	CO	BR-V	24		39
49			V-S	50		GRD
50			S-V	25		GRD

▶TABLE A (Contd)◀

LEAD ASSIGNMENT FOR PLUGS, CONNECTOR CABLES, AND CONNECTING BLOCKS

LEAD ASSIGNMENT FOR PLUG 4, CONNECTOR CABLE 4										
66B4-25 CONN BLK TERM.	STA CKT CP RT12 (SS-4) LEAD DESIG	SIG CKT CP RT13 (SS-4) LEAD DESIG	SIG CKT CP RT14 (SS-4) LEAD DESIG	STA CKT CP RT15 LEAD DESIG	SIG CKT CP RT16 LEAD DESIG	MISC CKT CP RT17 LEAD DESIG	A25B CONN CABLE COLOR	PLUG PIN NO.	CONNECTOR	TERM.
1	RT	C(1)	GC	RT		T	W-BL	26		12
2	RR	RL(1)	C1	RR		R	BL-W	1		13
3	T	R1-RC(1)	C2	T		T1	W-O	27		26
4	R	C(2)	C3	R		R1	O-W	2		24
5	A	RL(2)	C4	A	TSX	T2	W-G	28		16
6	FW	R1-RC(2)	C5	FW	RSX	R2	G-W	3		25
7	PT	C(3)	C6	PT		F	W-BR	29		1
8	S	RL(3)		S		M	BR-W	4		22
9	ON	R1-RC(3)		ST		B	W-S	30	J10	0
10	CO		C	SR		MD	S-W	5		30
11		LG(1)			LG		R-BL	31		L GRD
12	AG	L(1)	RL	AG	L	GM	BL-R	6		27
13		LG(2)					R-O	32		L GRD
14	RL	L(2)	R1-RC	RL	RL	GB	O-R	7		36
15		LG(3)	LG				R-G	33		L GRD
16	C	L(3)	L	CO	R1-RC	C-	G-R	8		39
17	RT	C(1)	GC	RT		T	R-BR	34		12
18	RR	RL(1)	C1	RR		R	BR-R	9		13
19	T	R1-RC(1)	C2	T		T1	R-S	35		26
20	R	C(2)	C3	R		R1	S-R	10		24
21	A	RL(2)	C4	A	TSX	T2	BK-BL	36	J11	16
22	FW	R1-RC(2)	C5	FW	RSX	R2	BL-BK	11		25
23	PT	C(3)	C6	PT		F	BK-O	37		1
24	S	RL(3)		S		M	O-BK	12		22
25	ON	R1-RC(3)		ST		B	BK-O	38		0

◊TABLE A (Contd)◊

LEAD ASSIGNMENT FOR PLUGS, CONNECTOR CABLES, AND CONNECTING BLOCKS

LEAD ASSIGNMENT FOR PLUG 4, CONNECTOR CABLE 4 (Contd)										
66B4-25 CONN BLK TERM.	STA CKT CP RT12 (SS-4) LEAD DESIG	SIG CKT CP RT13 (SS-4) LEAD DESIG	SIG CKT CP RT14 (SS-4) LEAD DESIG	STA CKT CP RT15 LEAD DESIG	SIG CKT CP RT16 LEAD DESIG	MISC CKT CP RT17 LEAD DESIG	A25B CONN CABLE COLOR	PLUG PIN NO.	CONNECTOR	
										TERM.
26	CO		C	SR		MD	O-BK	13	J11	30
27		LG(1)			LG		BK-BR	39		L GRD
28	AG	L(1)	RL	AG	L	GM	BR-BK	14		27
29		LG(2)					BK-S	40		L GRD
30	RL	L(2)	R1-RC	RL	RL	GB	S-BK	15		36
31		LG(3)	LG				Y-BL	41		L GRD
32	C	L(3)	L	CO	R1-RC	C-	BL-Y	16		39
33	RT	C(1)	GC	RT		T	Y-O	42	J12	12
34	RR	RL(1)	C1	RR		R	O-Y	17		13
35	T	R1-RC(1)	C2	T		T1	Y-G	43		26
36	R	C(2)	C3	R		R1	G-Y	18		24
37	A	RL(2)	C4	A	TSX	T2	Y-BR	44		16
38	FW	R1-RC(2)	C5	FW	RSX	R2	BR-Y	19		25
39	PT	C(3)	C6	PT		F	Y-S	45		1
40	S	RL(3)		S		M	S-Y	20		22
41	ON	R1-RC(3)		ST		B	V-BL	46		0
42	CO		C	SR		MD	BL-V	21		30
43		LG(1)			LG		V-O	47		L GRD
44	AG	L(1)	RL	AG	L	GM	O-V	22		27
45		LG(2)					V-G	48		L GRD
46	RL	L(2)	R1-RC	RL	RL	GB	G-V	23		36
47		LG(3)	LG				V-BR	49		L GRD
48	C	L(3)	L	CO	R1-RC	C-	BR-V	24		39
49		RG	RG		RG		V-S	50		R GRD
50		RG	RG		RG		S-V	25		R GRD

TABLE A (Contd)

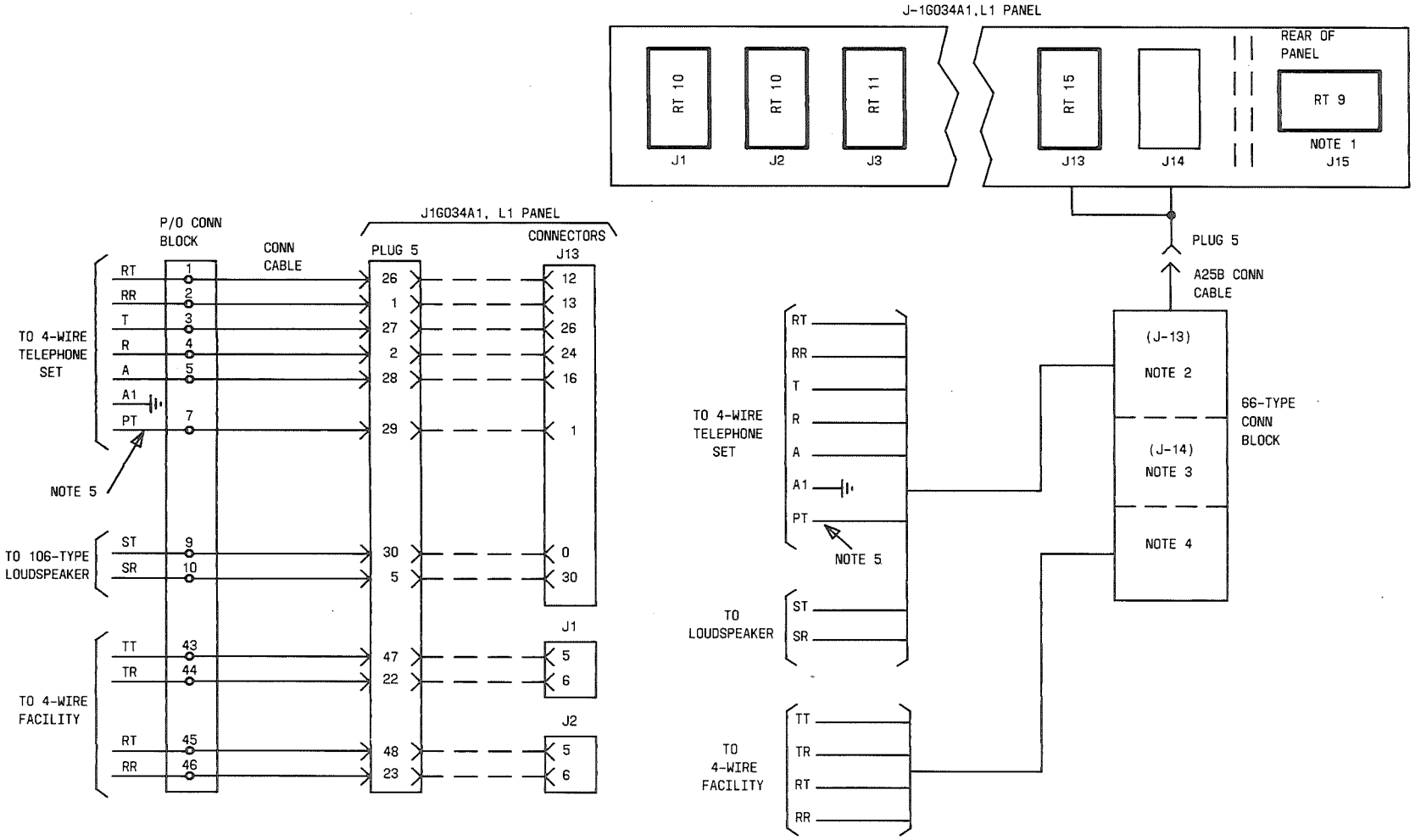
LEAD ASSIGNMENT FOR PLUGS, CONNECTOR CABLES, AND CONNECTING BLOCKS

LEAD ASSIGNMENT FOR PLUG 5, CONNECTOR CABLE 5										
66B4-25 CONN BLK TERM.	STA CKT CP RT12 (SS-4) LEAD DESIG	SIG CKT CP RT13 (SS-4) LEAD DESIG	SIG CKT CP RT14 (SS-4) LEAD DESIG	STA CKT CP RT15 LEAD DESIG	SIG CKT CP RT16 LEAD DESIG	MISC CKT CP RT17 LEAD DESIG	A25B CONN CABLE COLOR	PLUG PIN NO.	CONNECTOR	
										TERM.
1	RT	C(1)	GC	RT		T	W-BL	26	J13	12
2	RR	RL(1)	C1	RR		R	BL-W	1		13
3	T	R1-RC(1)	C2	T		T1	W-O	27		26
4	R	C(2)	C3	R		R1	O-W	2		24
5	A	RL(2)	C4	A	TSX	T2	W-G	28		16
6	FW	R1-RC(2)	C5	FW	RSX	R2	G-W	3		25
7	PT	C(3)	C6	PT		F	W-BR	29		1
8	S	RL(3)		S		M	BR-W	4		22
9	ON	R1-RC(3)		ST		B	W-S	30		0
10	CO		C	SR		MD	S-W	5		30
11		LG(1)			LG		R-BL	31		L GRD
12	AG	L(1)	RL	AG	L	GM	BL-R	6		27
13		LG(2)					R-O	32		L GRD
14	RL	L(2)	R1-RC	RL	RL	GB	O-R	7		36
15		LG(3)	LG				R-G	33		L GRD
16	C	L(3)	L	CO	R1-RC	C-	G-R	8		39
17	RT	C(1)	GC	RT		T	R-BR	34	J14	12
18	RR	RL(1)	C1	RR		R	BR-R	9		13
19	T	R1-RC(1)	C2	T		T1	R-S	35		26
20	R	C(2)	C3	R		R1	S-R	10		24
21	A	RL(2)	C4	A	TSX	T2	BK-BL	36		16
22	FW	R1-RC(2)	C5	FW	RSX	R2	BL-BK	11		25
23	PT	C(3)	C6	PT		F	BK-O	37		1
24	S	RL(3)		S		M	O-BK	12		22
25	ON	R1-RC(3)		ST		B	BK-O	38		0

◗TABLE A (Contd)◖

LEAD ASSIGNMENT FOR PLUGS, CONNECTOR CABLES, AND CONNECTING BLOCKS

LEAD ASSIGNMENT FOR PLUG 5, CONNECTOR CABLE 5 (Contd)										
66B4-25 CONN BLK TERM.	STA CKT CP RT12 (SS-4) LEAD DESIG	SIG CKT CP RT13 (SS-4) LEAD DESIG	SIG CKT CP RT14 (SS-4) LEAD DESIG	STA CKT CP RT15 LEAD DESIG	SIG CKT CP RT16 LEAD DESIG	MISC CKT CP RT17 LEAD DESIG	A25B CONN CABLE COLOR	PLUG PIN NO.	CONNECTOR	TERM.
26	CO		C	SR		MD	O-BK	13	J14	30
27		LG(1)			LG		BK-BR	39		L GRD
28	AG	L(1)	RL	AG	L	GM	BR-BK	14		27
29		LG(2)					BK-S	40		L GRD
30	RL	L(2)	R1-RC	RL	RL	GB	S-BK	15		36
31		LG(3)	LG				Y-BL	41		L GRD
32	C	L(3)	L	CO	R1-RC	C-	BL-Y	16		39
49		RG	RG		RG		V-S	50		R GRD
50		RG	RG		RG		S-V	25		R GRD
	EXTERNAL CROSS CONNECTIONS									
	LEAD DESIG	FROM		TO						
33	DT1	Data Transmit Circuit When Specified		Transmit Amplifier Via Option Card			Y-O	42	J15	13
34	DT2						O-Y	17		15
35	DT3						Y-G	43		14
36	DT4						G-Y	18		16
37	DR1	Data Receive Ckt When Specified		Receive Amplifier Via Option Card			Y-BR	44		9
38	DR2						BR-Y	19		11
39	DR3						Y-S	45		10
40	DR4						S-Y	20		12
41	TSX	External Sig Ckt as Required		Amplr SX Path Via Option Card			V-BL	46		19
42	RSX						BL-V	21		17
43	TT	Transmit to Serving CO		Transmit Amplifier			V-O	47	J-1	5
44	TR						O-V	22		6
45	RT	Receive from Serving CO		Receive Amplr			V-G	48	J-2	5
46	RR						G-V	23		6
47	RT	Misc Ckts as Specified		Common Receive Bus			V-BR	49	J3	14
48	RR						BR-V	24		9



NOTES:

1. INSERT OPTION CARD (RT9 CP) FOR Z OPTION.
2. PART OF CONNECTING BLOCK ASSOCIATED WITH CONNECTOR J13.
3. PART OF CONNECTING BLOCK ASSOCIATED WITH CONNECTOR J14.
4. PART OF CONNECTING BLOCK FOR LINE CONNECTIONS.
5. CONNECT PT LEAD WHEN TELEPHONE SET IS EQUIPPED WITH PUSH-TO-TALK HANDSET AND OMIT S OPTION IN STATION CIRCUIT (RT 15 CP).

Fig. 14—Connections for One 4-Wire Telephone Set, Voice Signaling

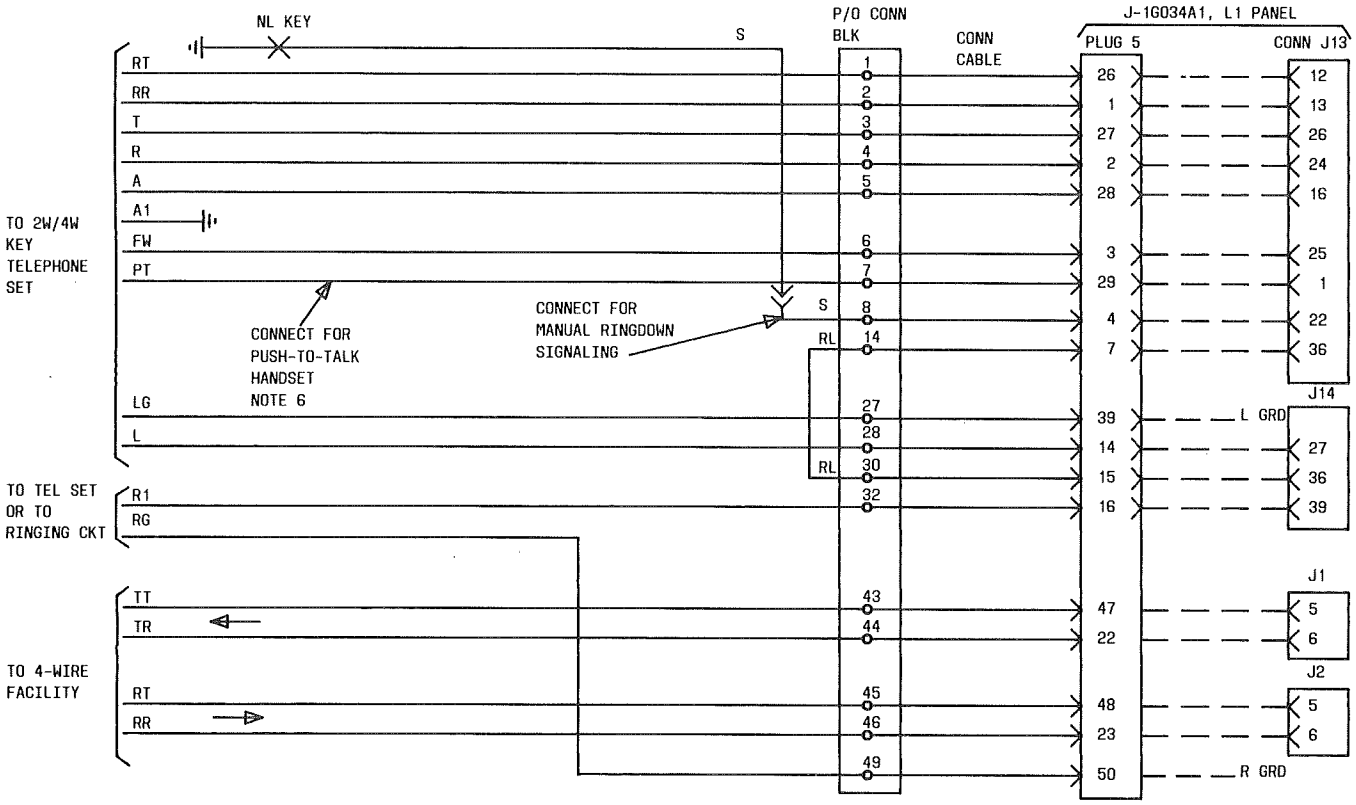


Fig. 15—Connections for One 2-Wire/4-Wire Telephone Set, 30-Hz Signaling (Sheet 1 of 2)

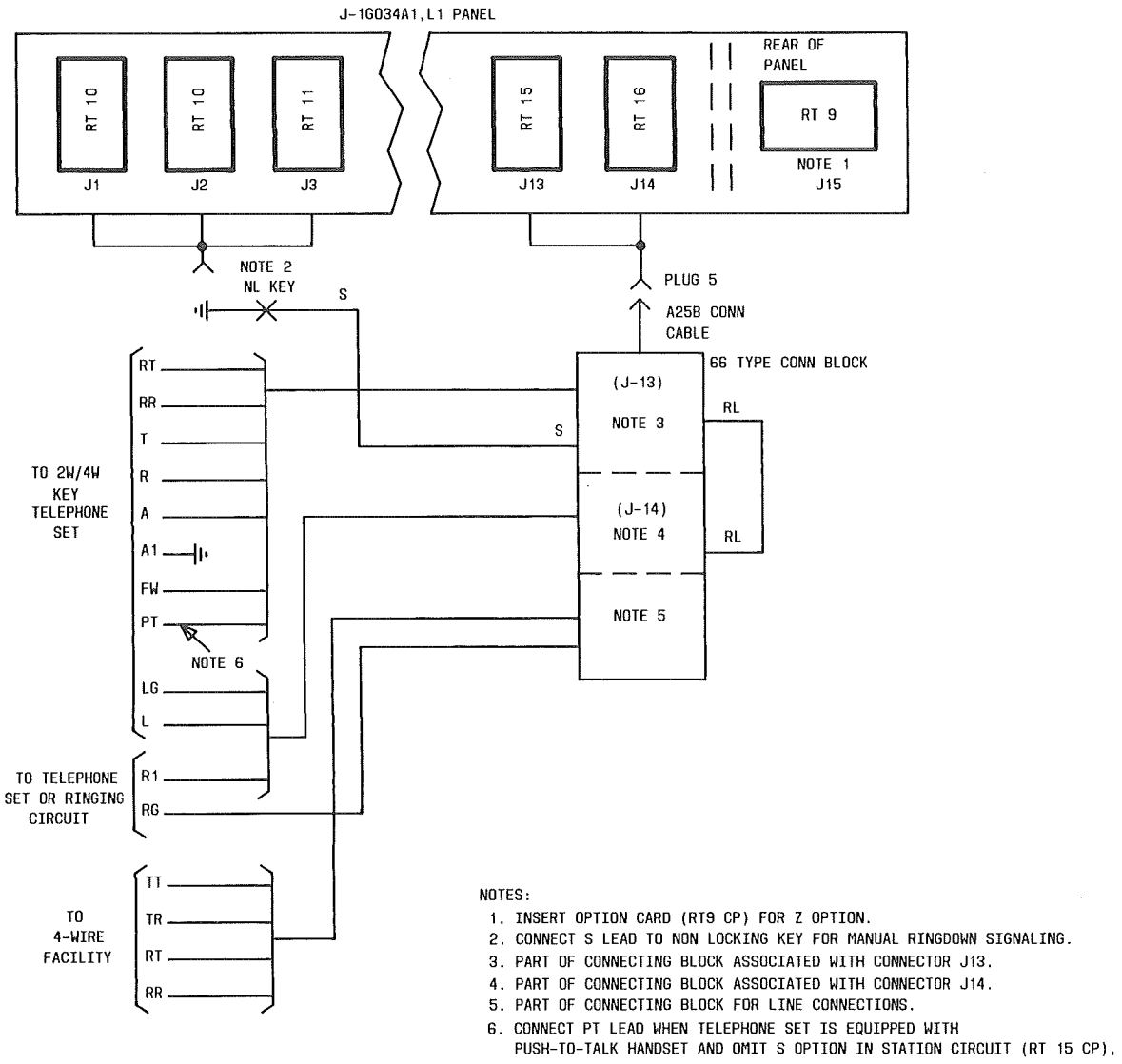


Fig. 15—Connections for One 2-Wire/4-Wire Telephone Set, 30-Hz Signaling (Sheet 2 of 2)

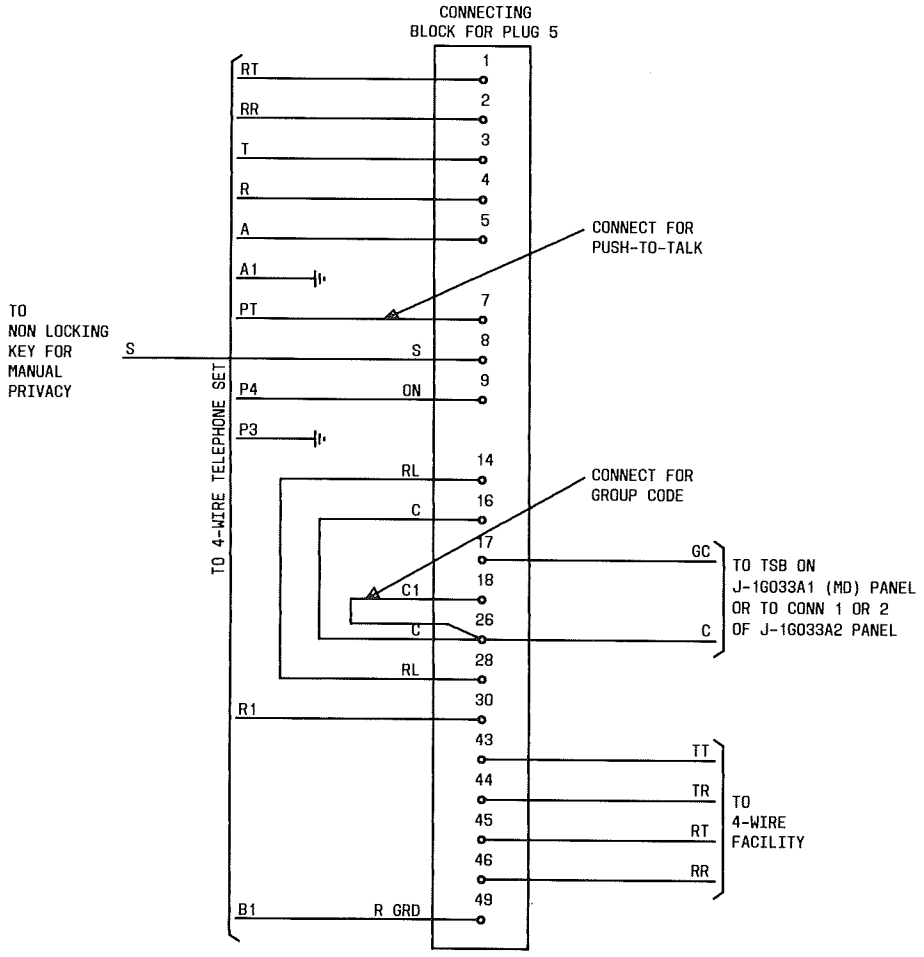
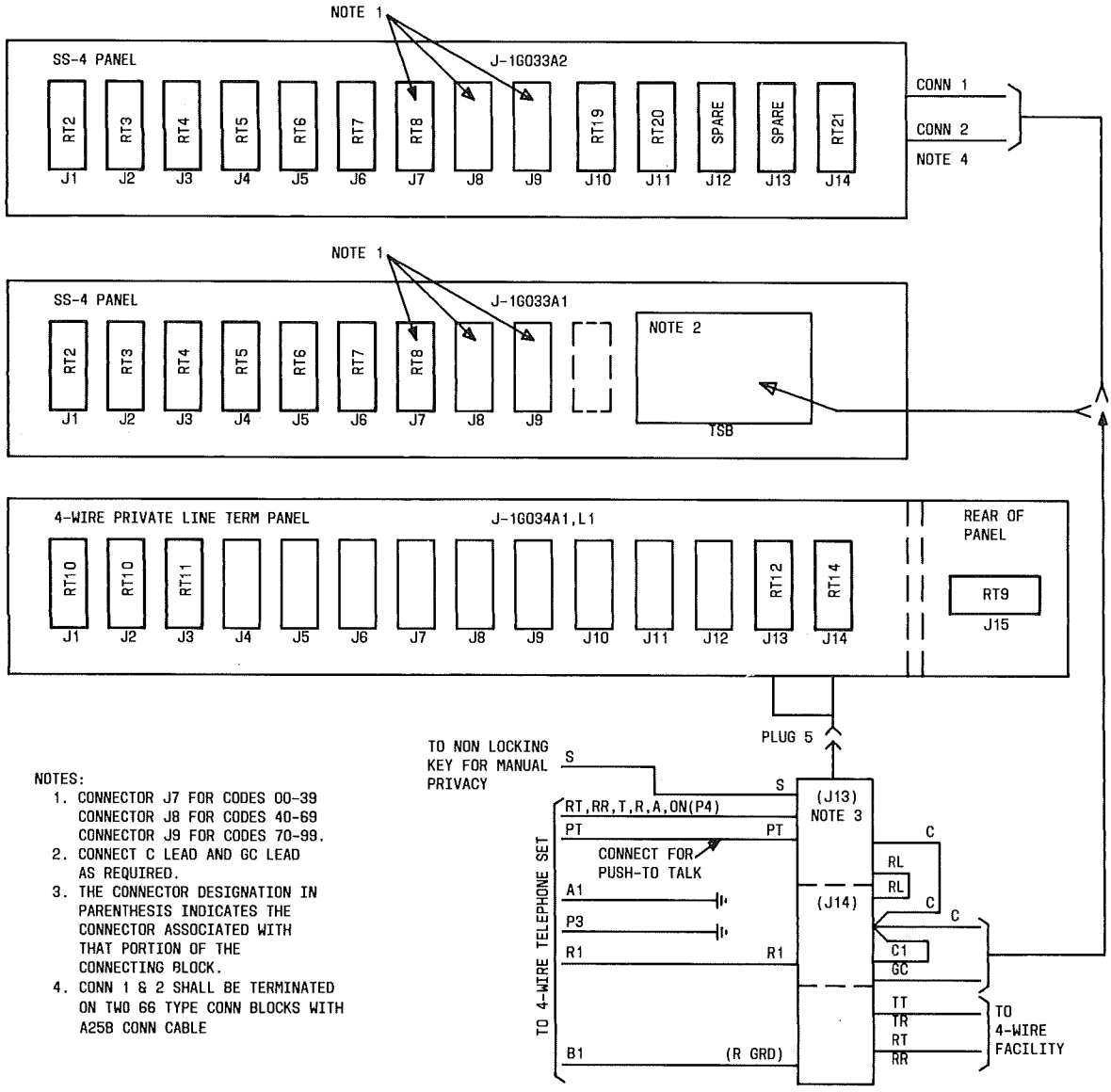


Fig. 16—Connections for One 4-Wire Telephone Set, SS-4 Signaling (Sheet 1 of 2)



NOTES:
1. CONNECTOR J7 FOR CODES 00-39
   CONNECTOR J8 FOR CODES 40-69
   CONNECTOR J9 FOR CODES 70-99.
2. CONNECT C LEAD AND GC LEAD AS REQUIRED.
3. THE CONNECTOR DESIGNATION IN PARENTHESIS INDICATES THE CONNECTOR ASSOCIATED WITH THAT PORTION OF THE CONNECTING BLOCK.
4. CONN 1 & 2 SHALL BE TERMINATED ON TWO 66 TYPE CONN BLOCKS WITH A25B CONN CABLE

Fig. 16—Connections for One 4-Wire Telephone Set, SS-4 Signaling (Sheet 2 of 2)

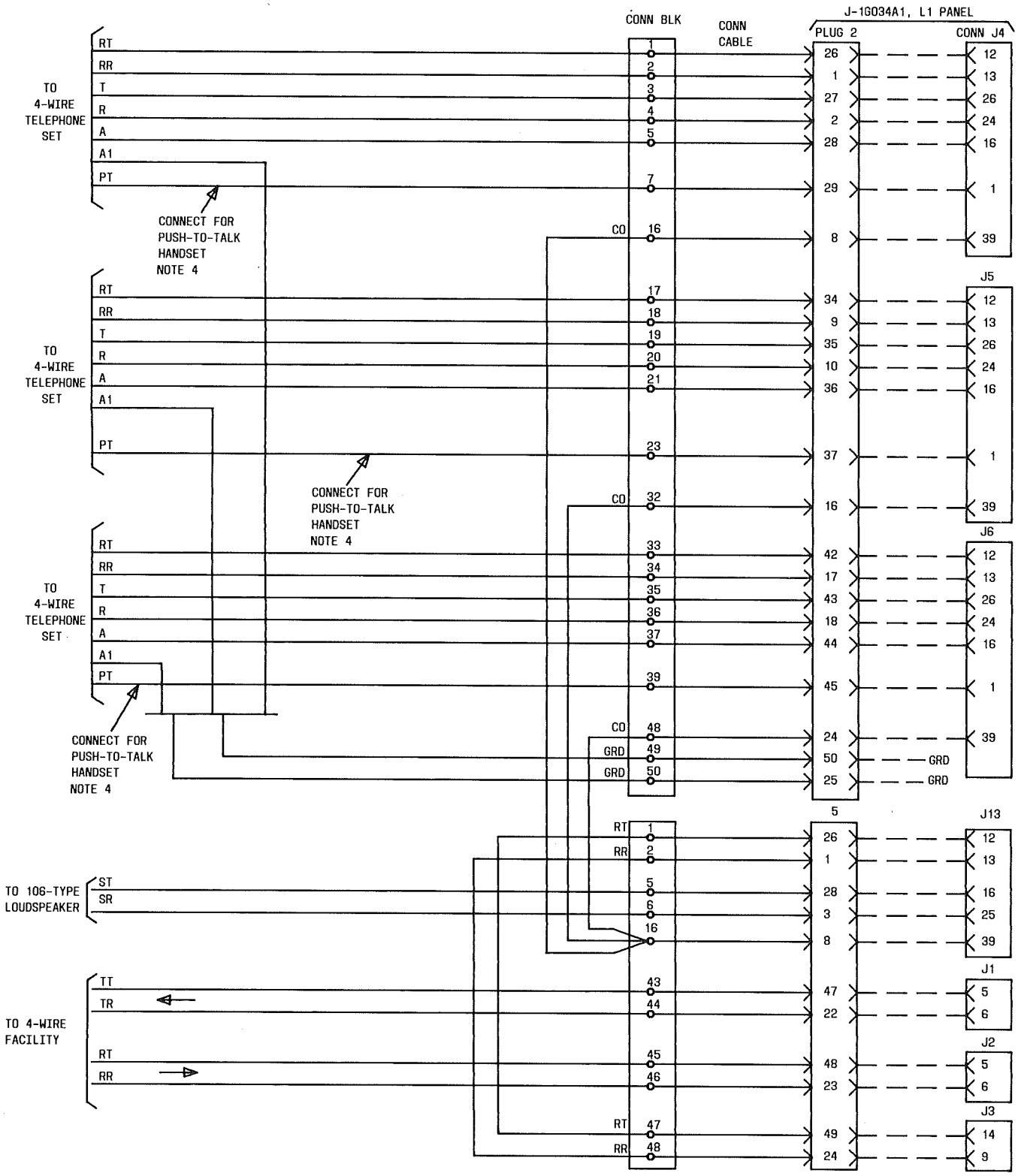


Fig. 17—Connections for Three 4-Wire Telephone Sets, Voice Signaling (Sheet 1 of 2)

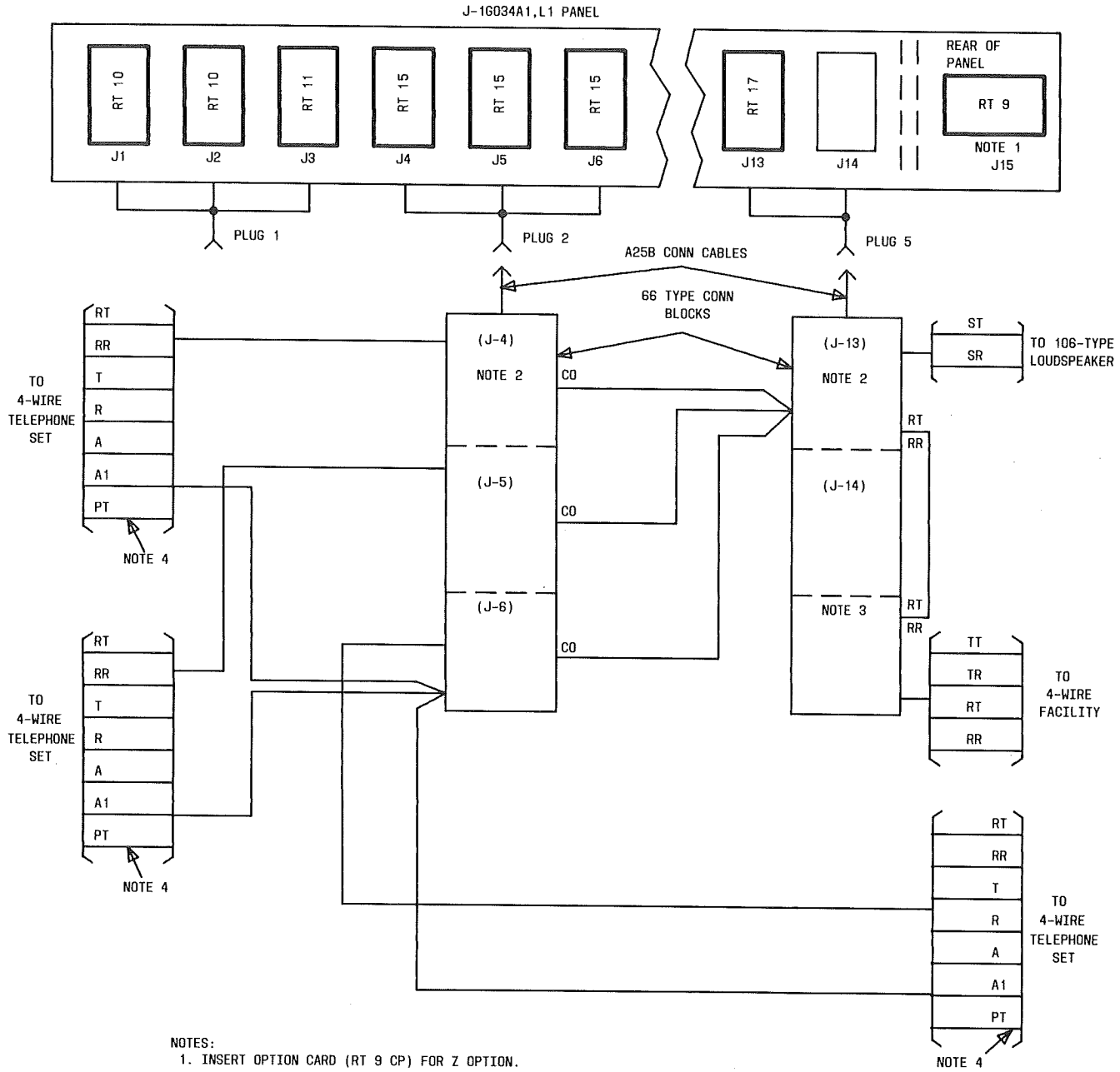


Fig. 17—Connections for Three 4-Wire Telephone Sets, Voice Signaling (Sheet 2 of 2)

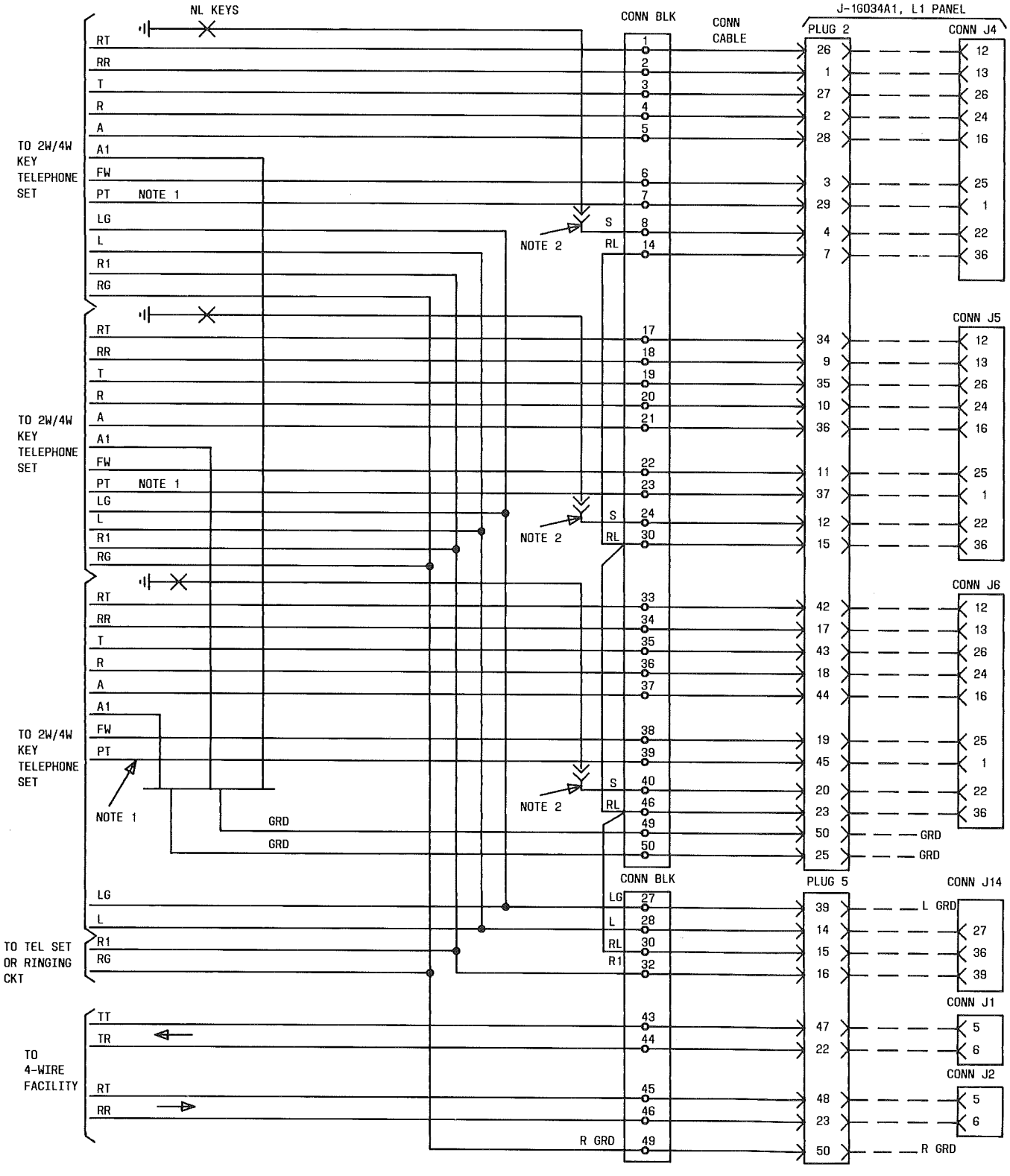


Fig. 18—Connections for Three 2-Wire/4-Wire Telephone Sets, 30-Hz Signaling (Sheet 1 of 2)

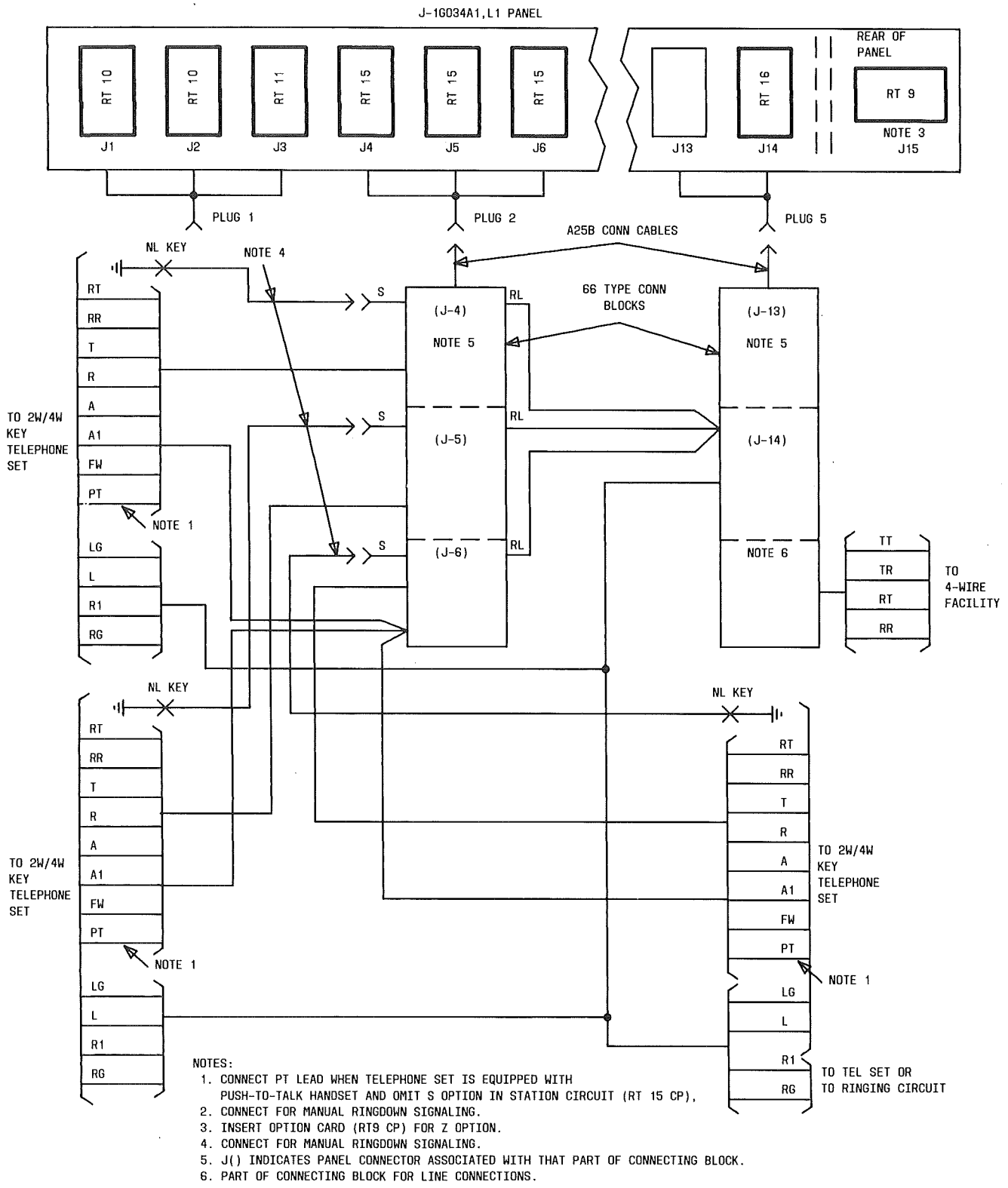


Fig. 18—Connections for Three 2-Wire/4-Wire Telephone Sets, 30-Hz Signaling (Sheet 2 of 2)

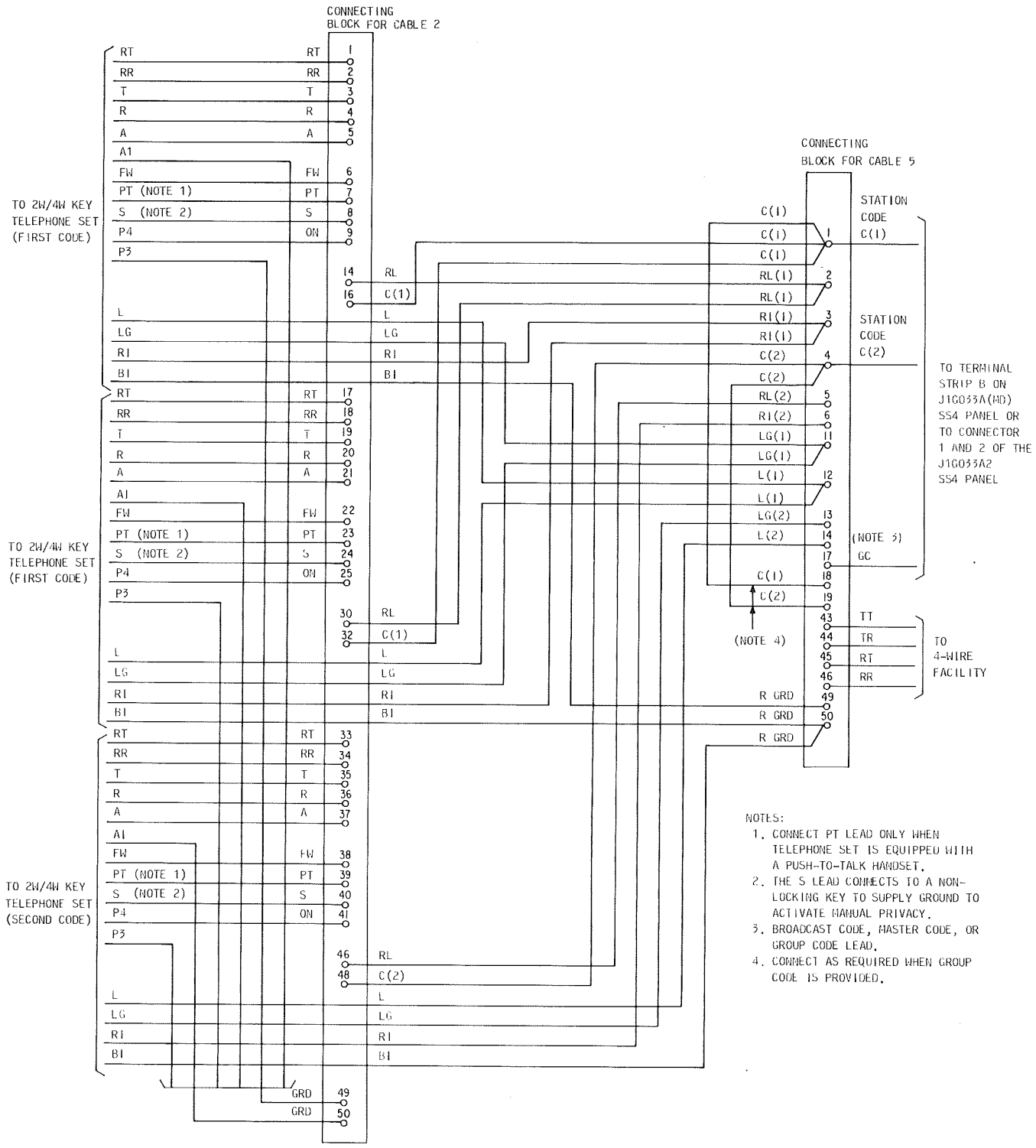


Fig. 19—Connections for Three Key Telephone Sets, SS-4 Signaling With Two Station Codes (Sheet 1 of 2)

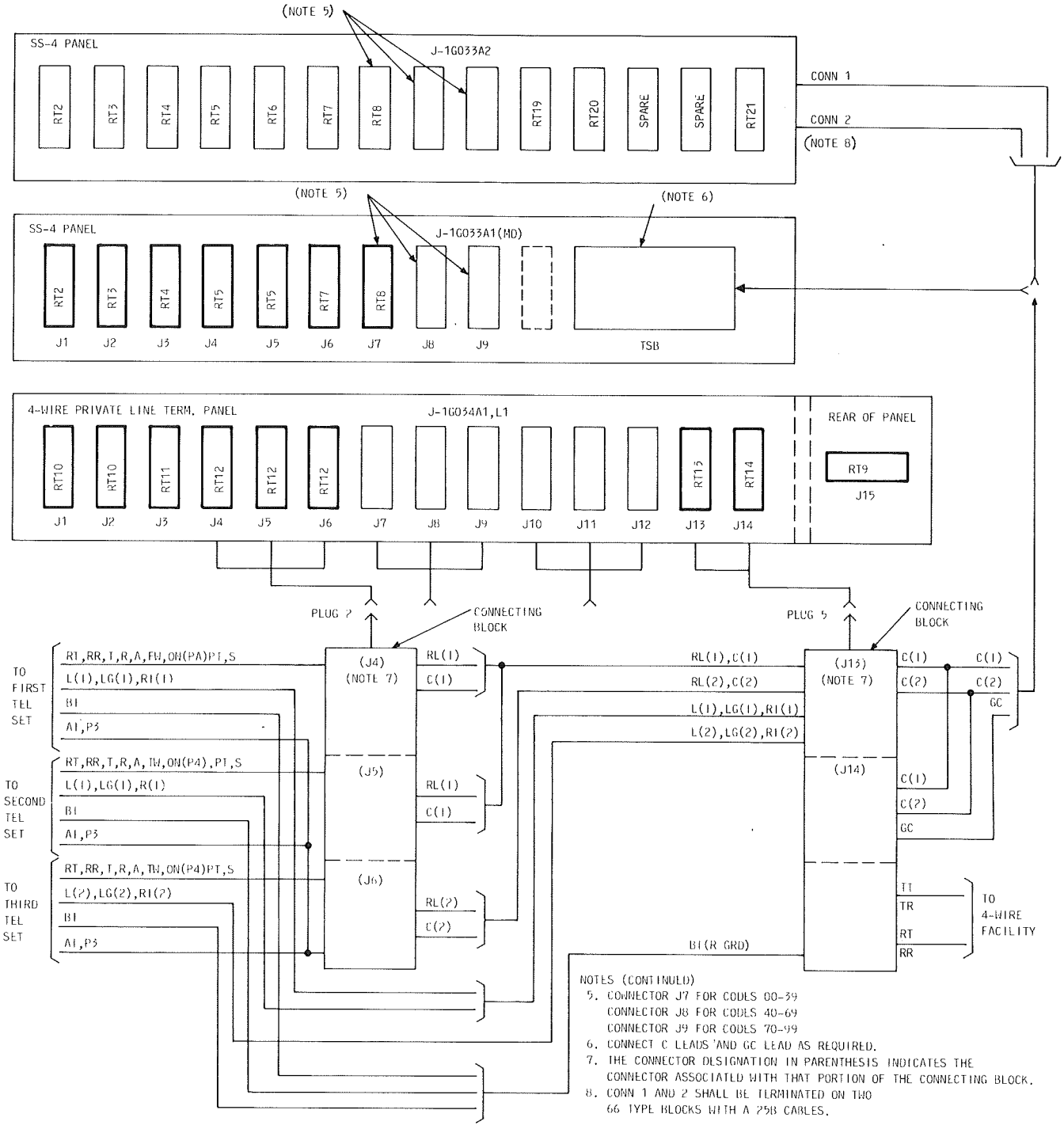


Fig. 19—Connections for Three Key Telephone Sets, SS-4 Signaling With Two Station Codes (Sheet 2 of 2)

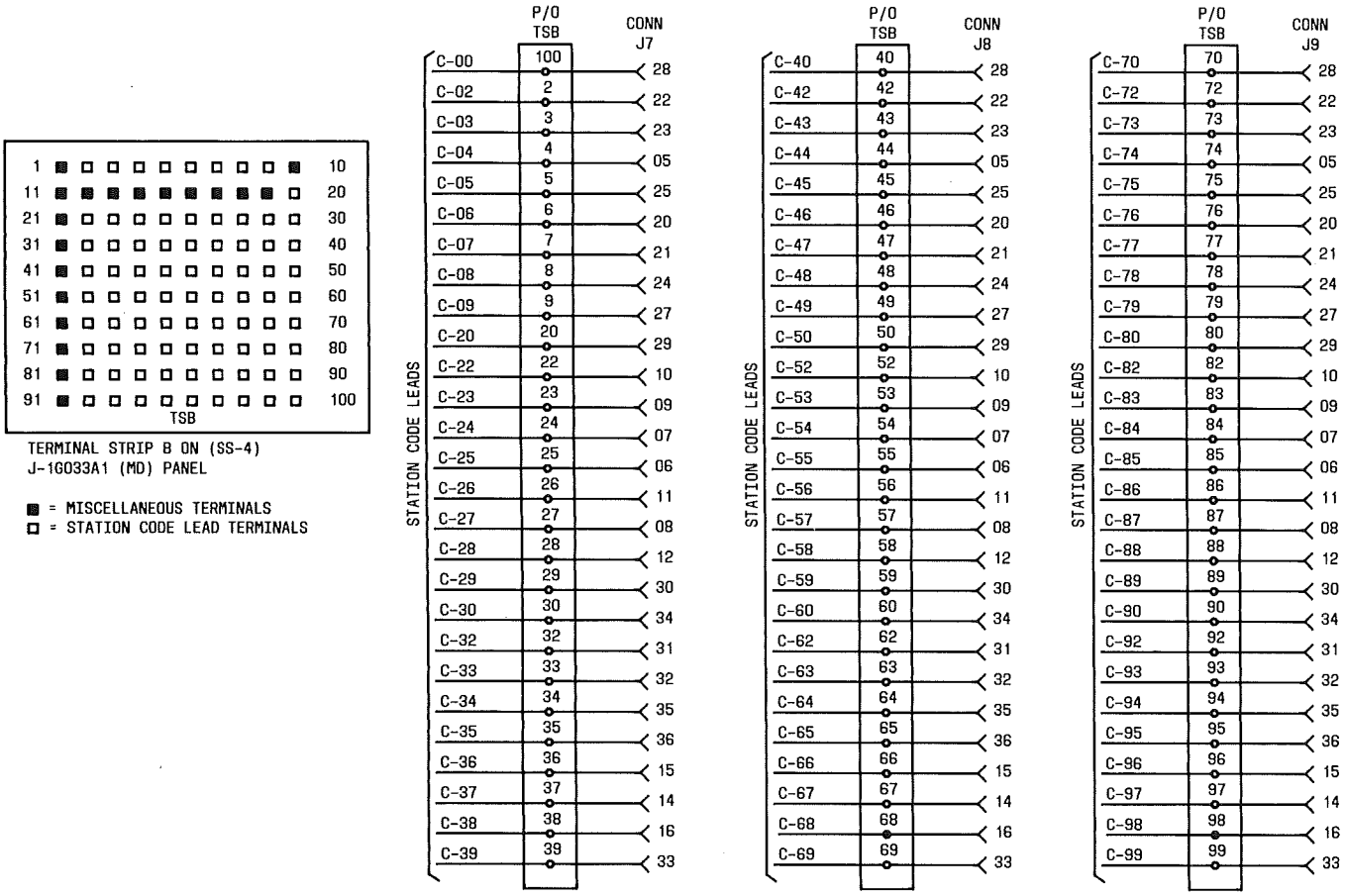


Fig. 20—Station Code Lead Terminals on J1G033A-1 (MD) SS-4 Panel

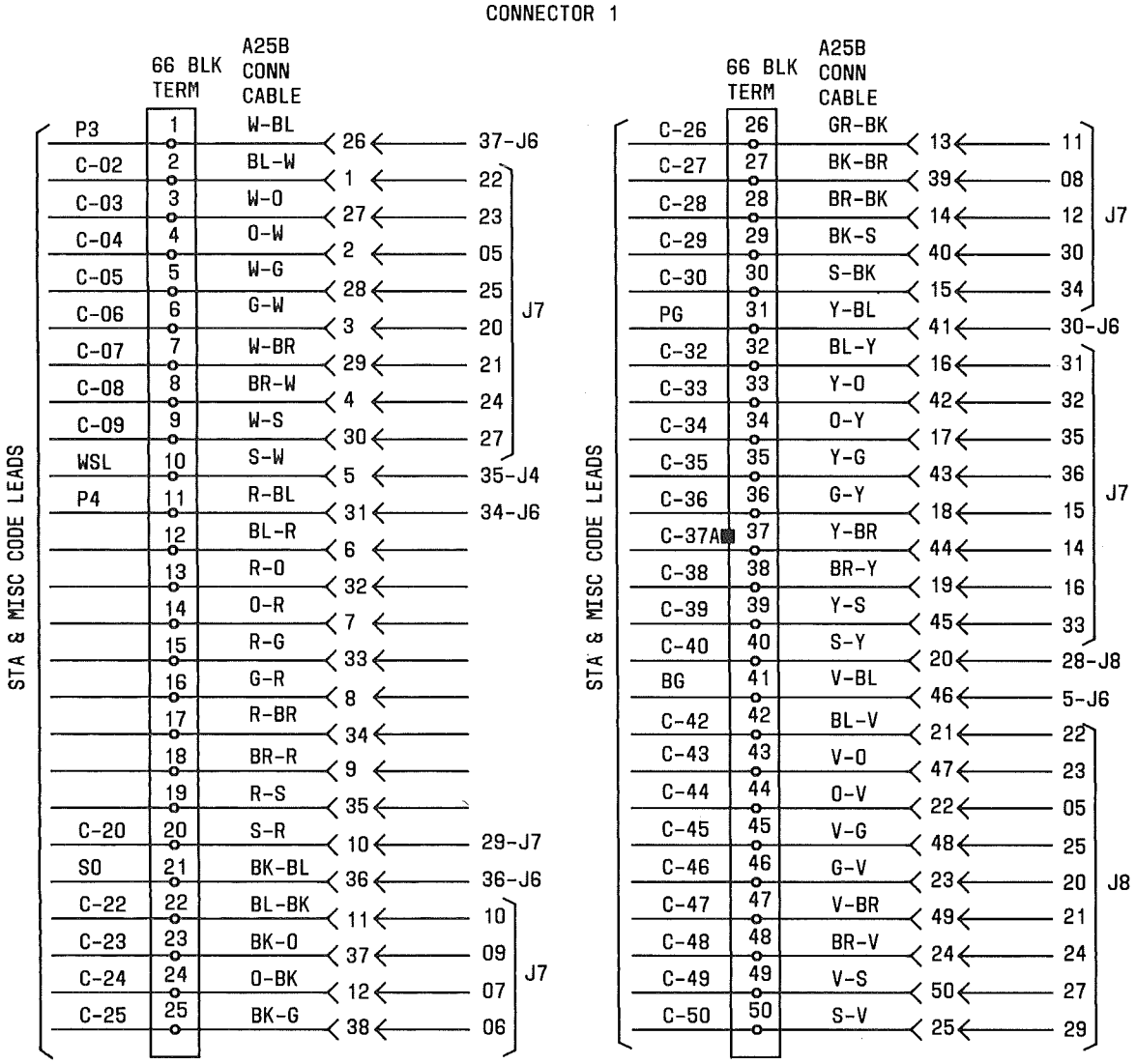
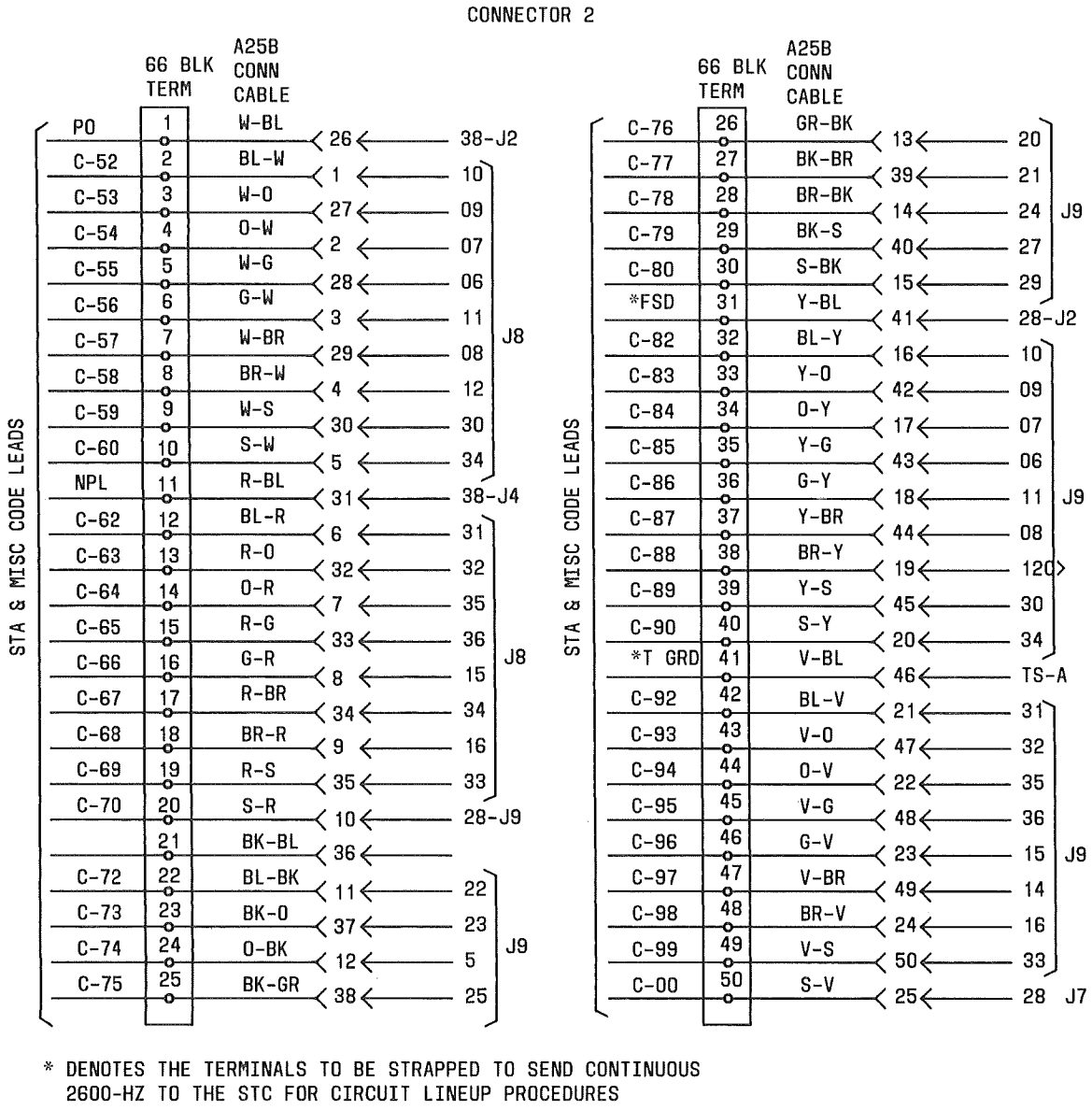


Fig. 21—Station and Miscellaneous Code Leads for J1G033A-2 (Using Option F) SS-4 Panel, Connectors 1 and 2 (Sheet 1 of 2)



* DENOTES THE TERMINALS TO BE STRAPPED TO SEND CONTINUOUS 2600-HZ TO THE STC FOR CIRCUIT LINEUP PROCEDURES

Fig. 21—Station and Miscellaneous Code Leads for J1G033A-2 (Using Option F) SS-4 Panel, Connectors 1 and 2 (Sheet 2 of 2)

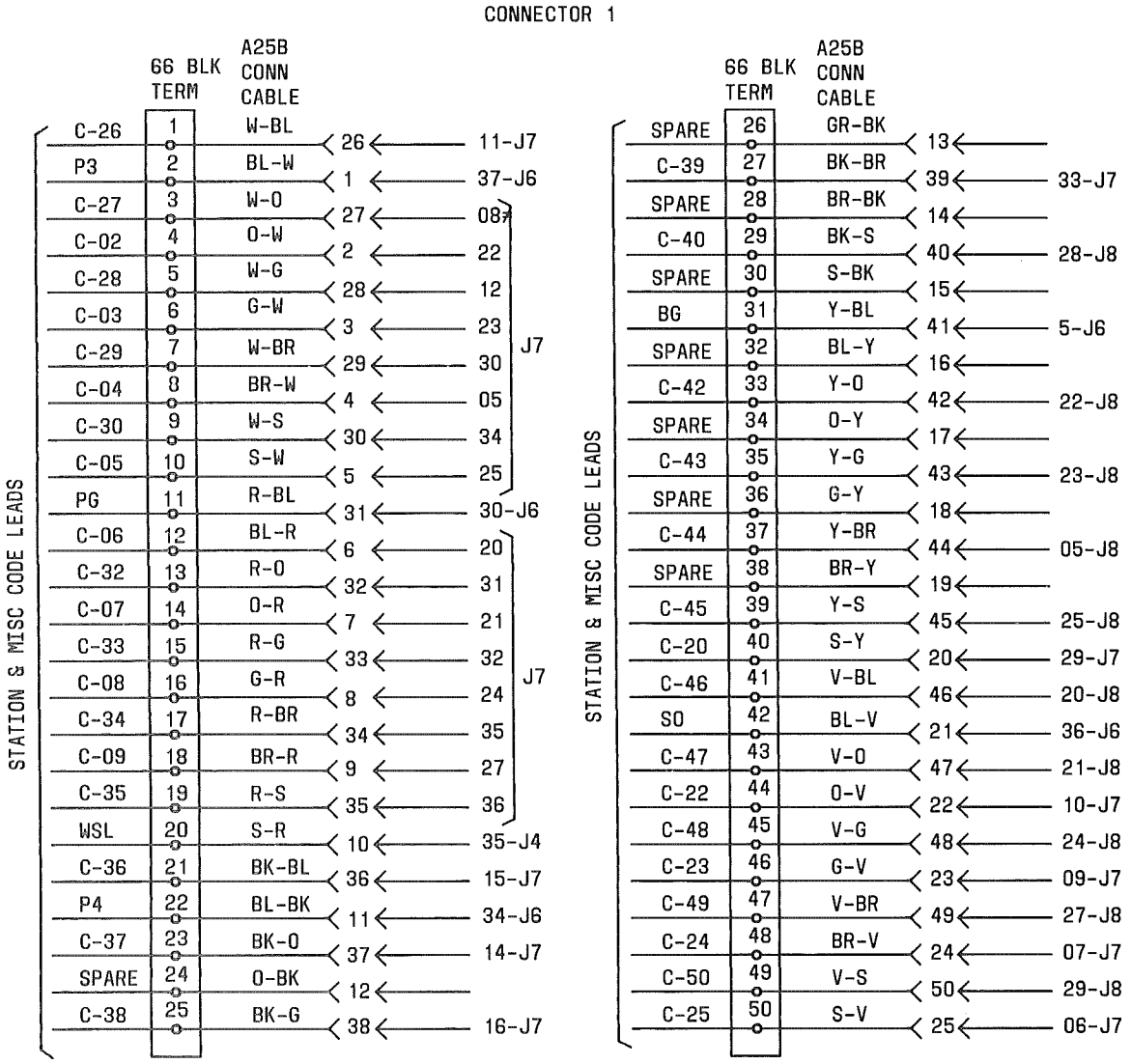
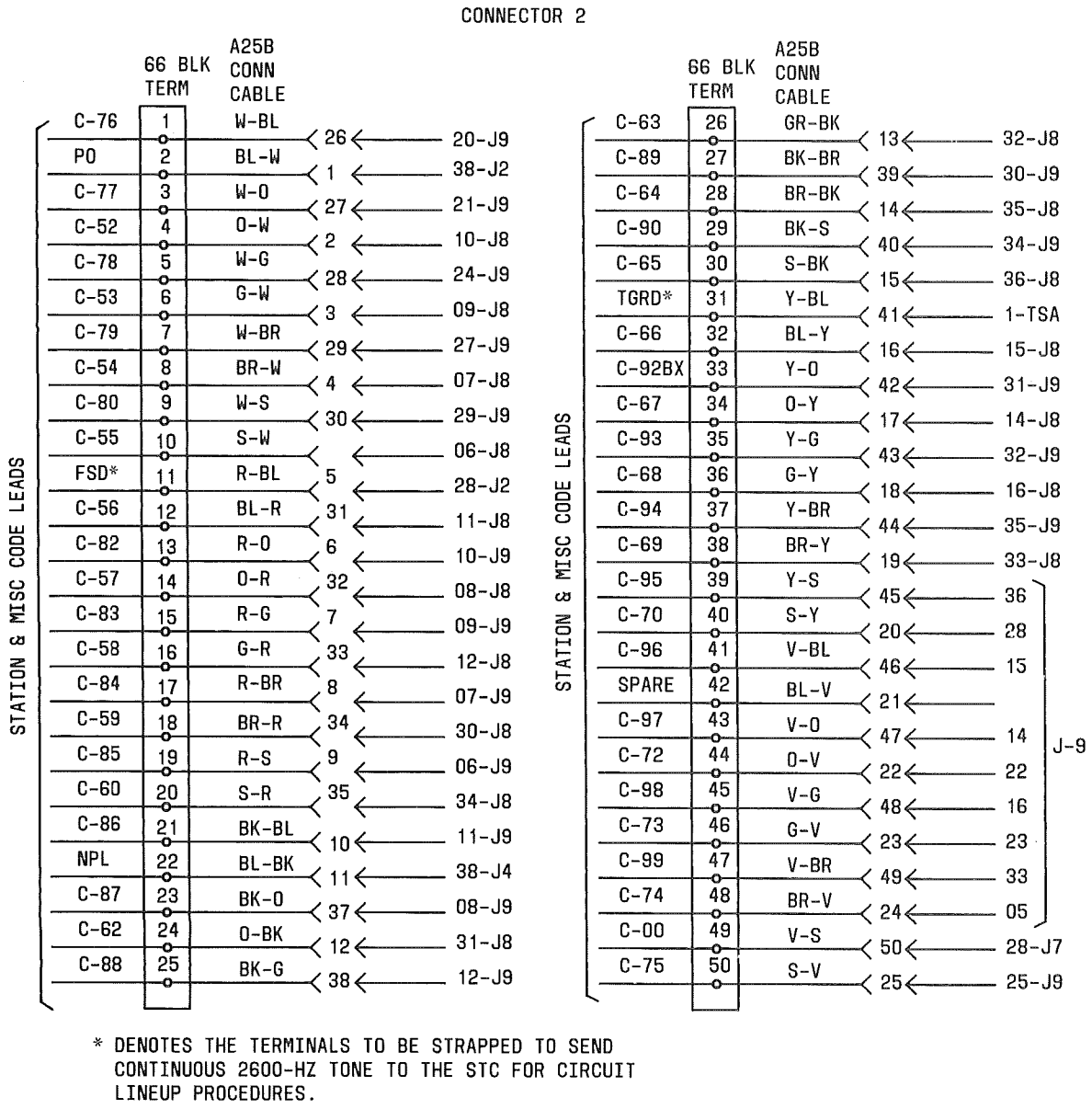


Fig. 22—Station and Miscellaneous Code Leads for J1G033A-2 [Aparatus Wiring Option E (MD)] SS-4 Panel, Connectors 1 and 2 (Sheet 1 of 2)



* DENOTES THE TERMINALS TO BE STRAPPED TO SEND CONTINUOUS 2600-HZ TONE TO THE STC FOR CIRCUIT LINEUP PROCEDURES.

Fig. 22—Station and Miscellaneous Code Leads for J1G033A-2 [Apparatus Wiring Option E (MD)] SS-4 Panel, Connectors 1 and 2 (Sheet 2 of 2)

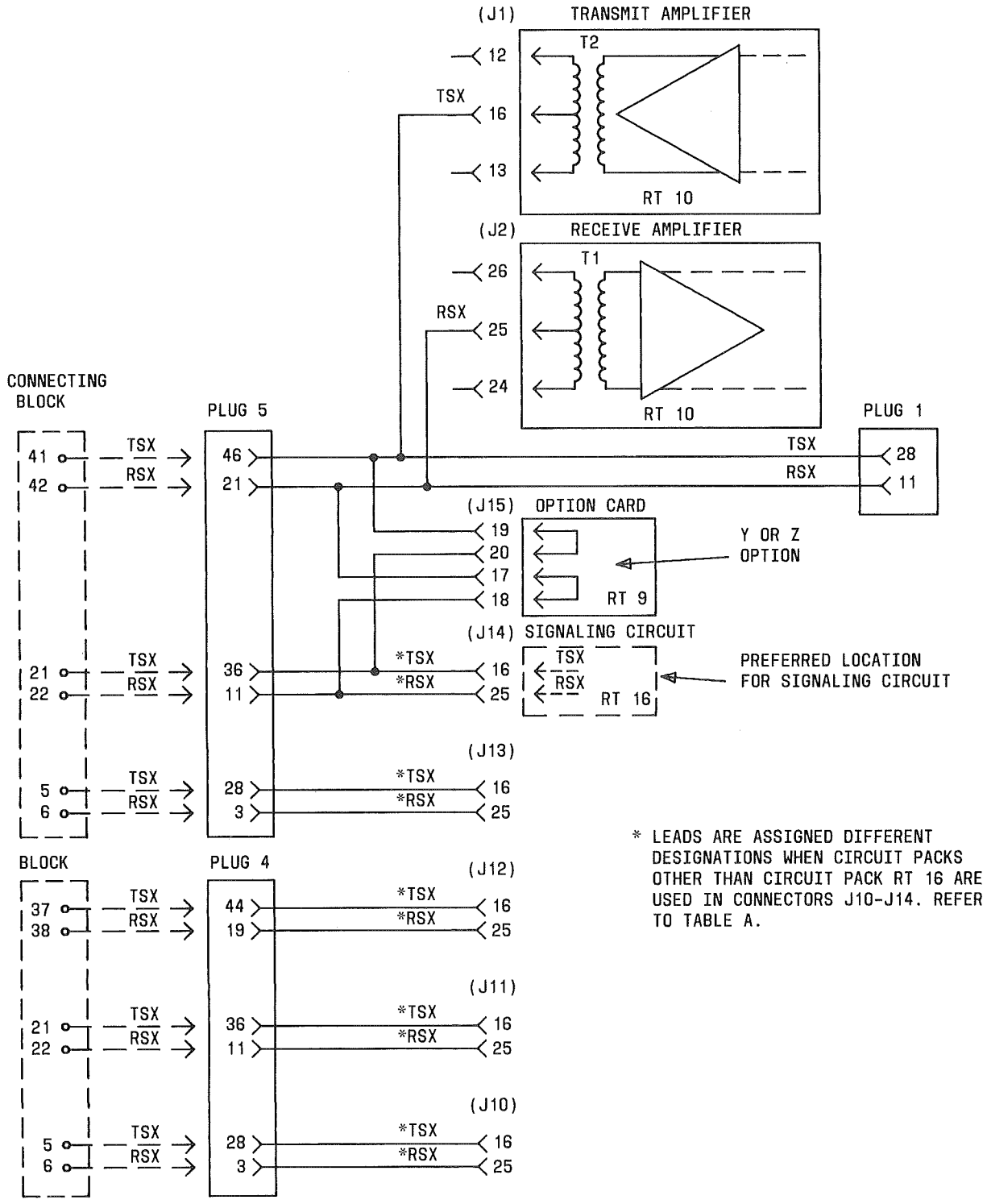


Fig. 23—J1G034A-1,L1 Panel Wiring, Simplex Leads

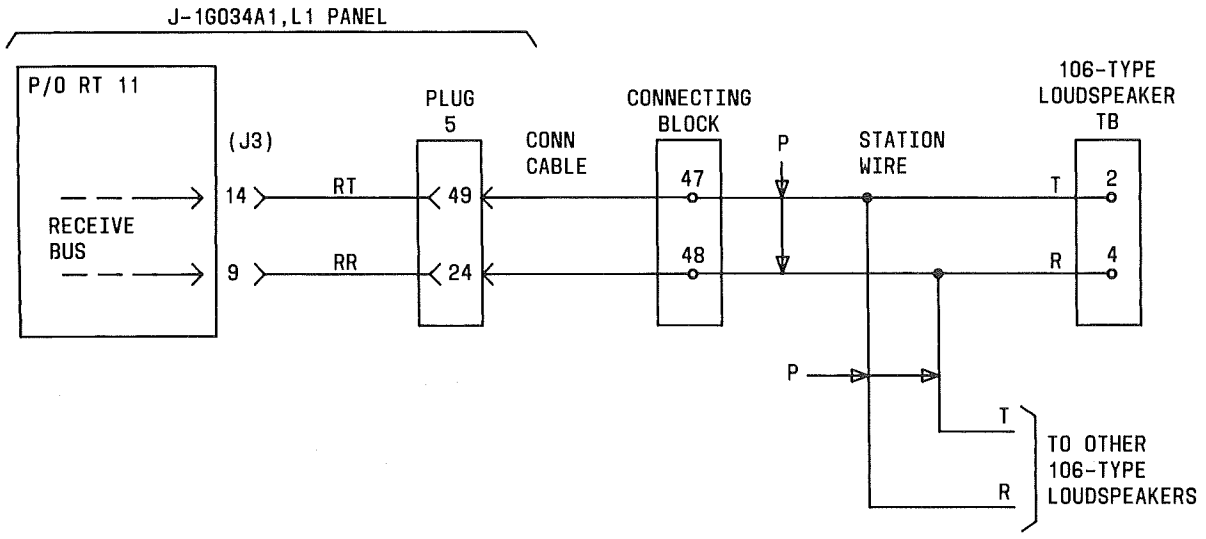


Fig. 24—Loudspeaker Connections, No Speaker Cutoff

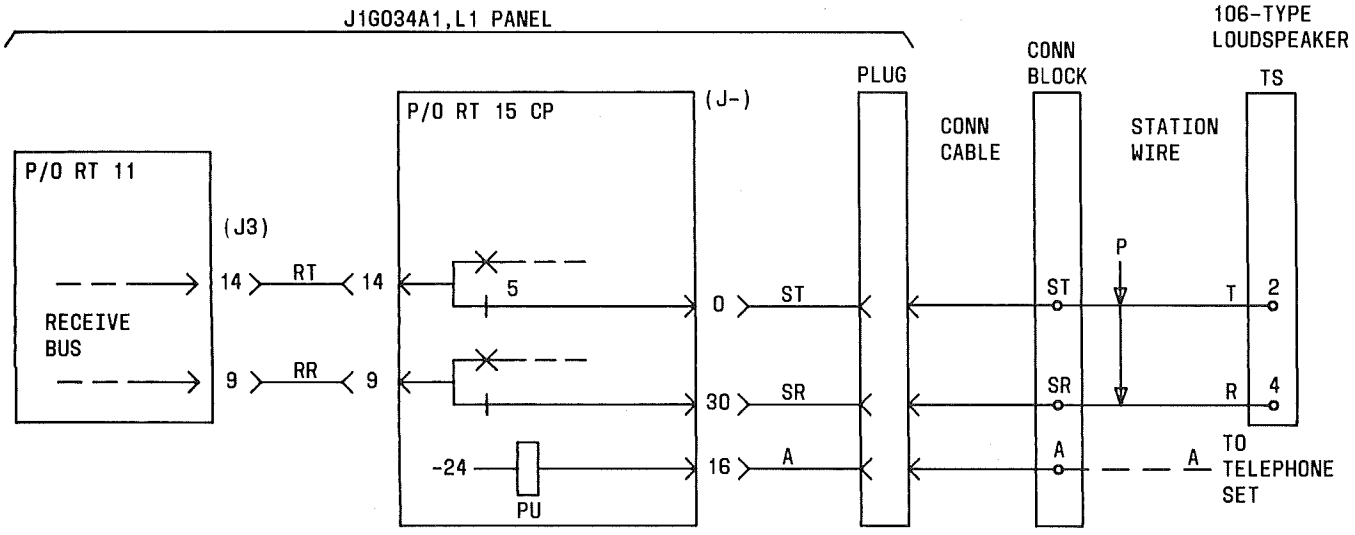
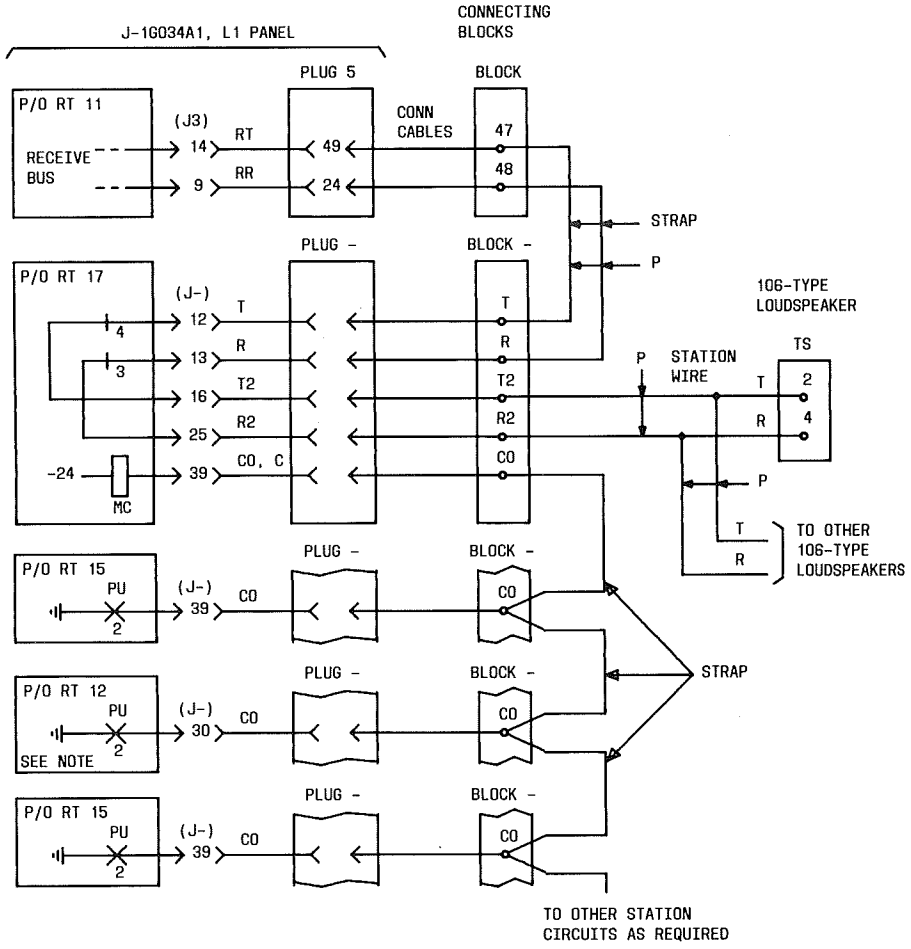


Fig. 25—Loudspeaker Connections, Cutoff Controlled by One Telephone Set



NOTE: WHERE THE RT 12 CP IS USED AS A STATION CIRCUIT IN A VOICE SIGNALING CIRCUIT, STRAP TERMINALS 12 AND 13 ON TERMINAL STRIP A OF THE J-1G034A1,L1 PANEL

Fig. 26—Loudspeaker Connections, Cutoff Controlled by More Than One Telephone Set

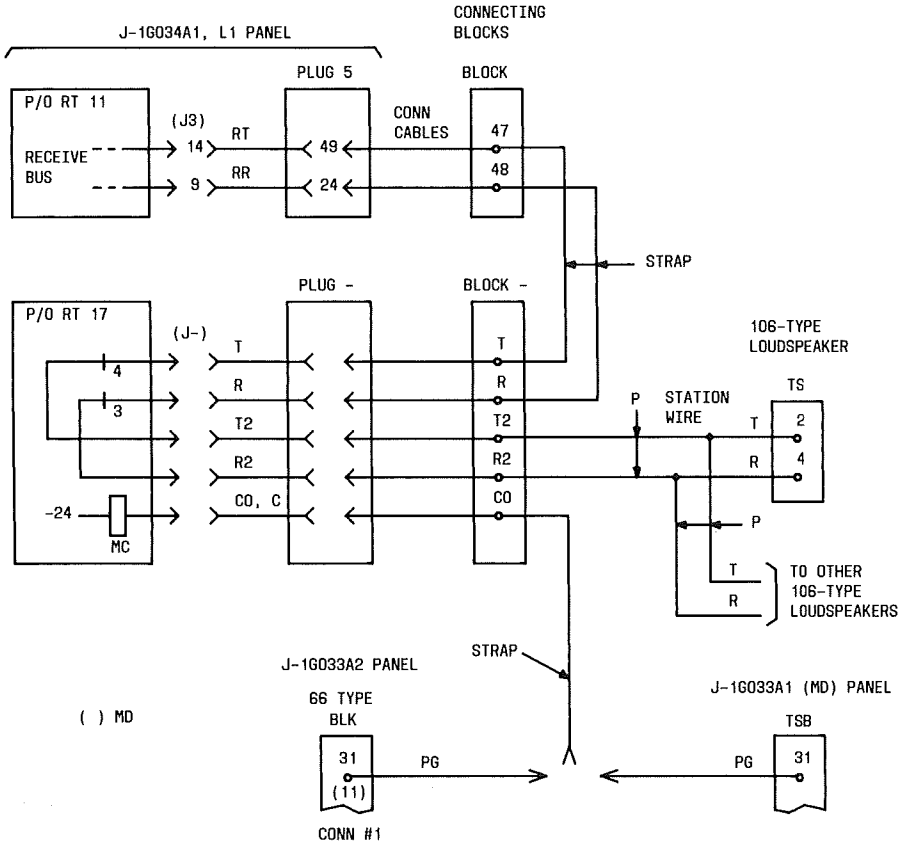


Fig. 27—Loudspeaker Connections, Speaker Cut Off When Privacy is Initiated on a Manual Privacy SS-4 System

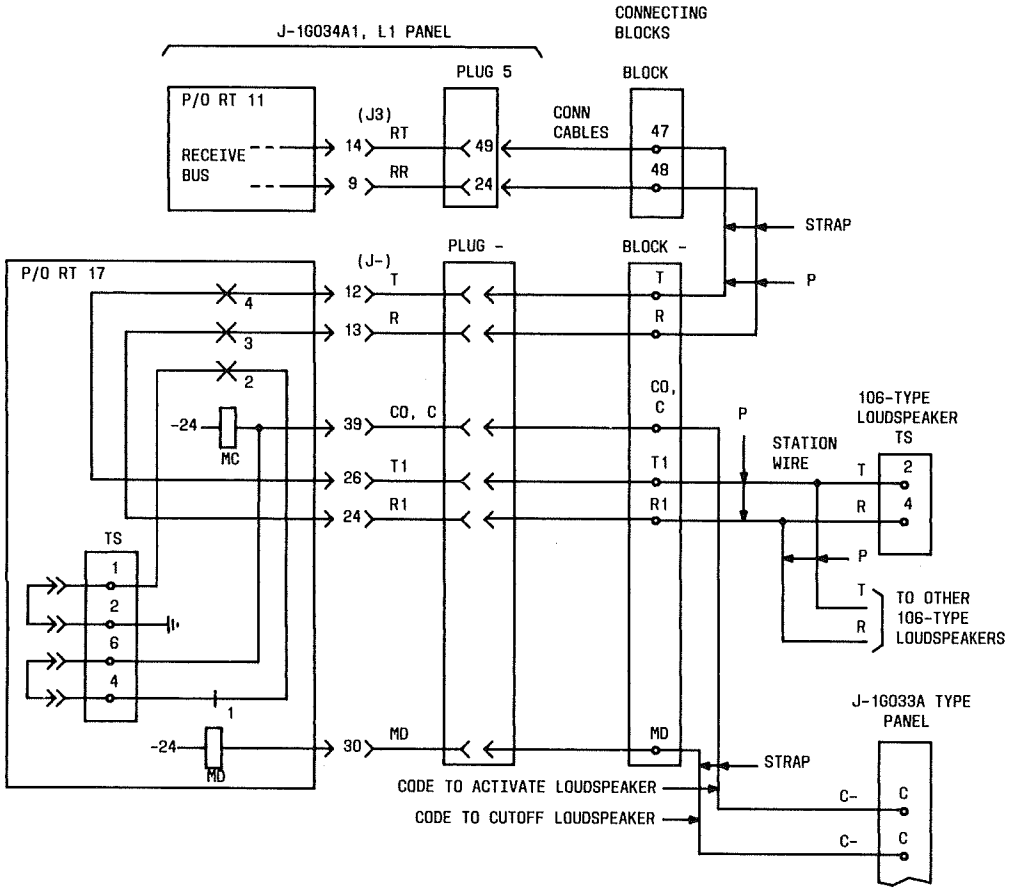


Fig. 28—Loudspeaker Connections, Speaker Activated and Cut Off by SS-4 Codes

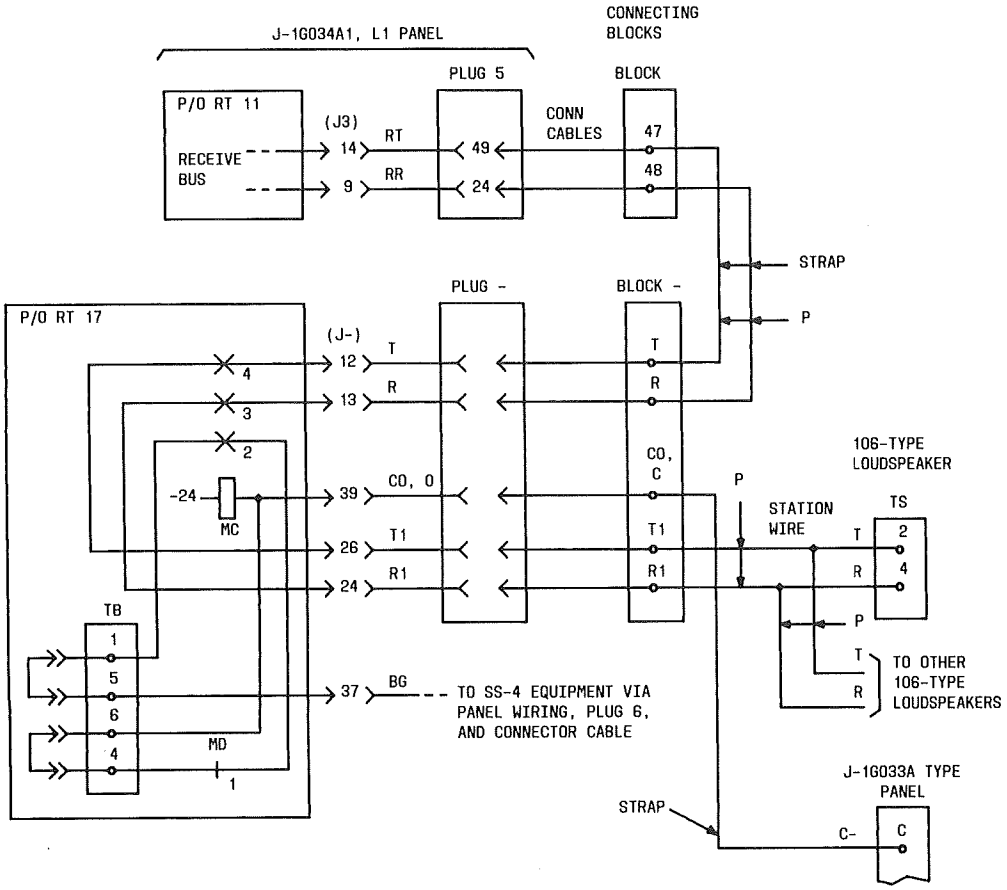


Fig. 29—Loudspeaker Connections, Speaker Activated by SS-4 Code, Automatic Cutoff

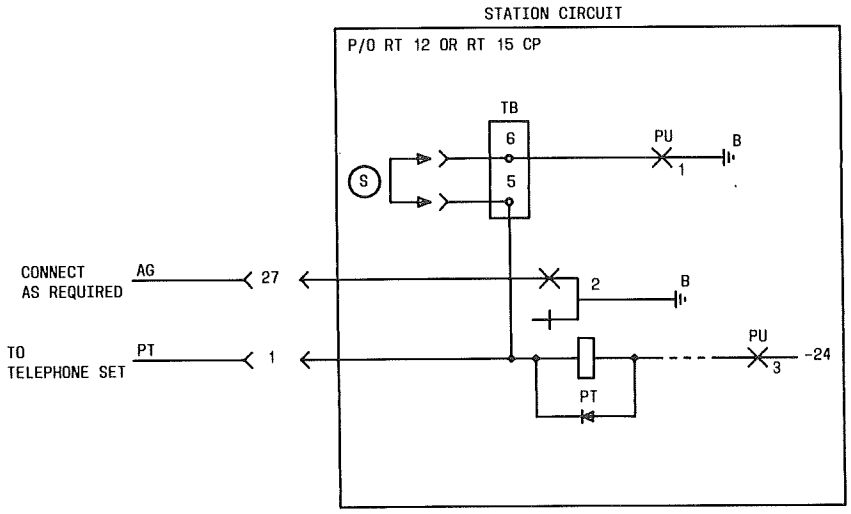


Fig. 30—AG Lead Ground for Special Application

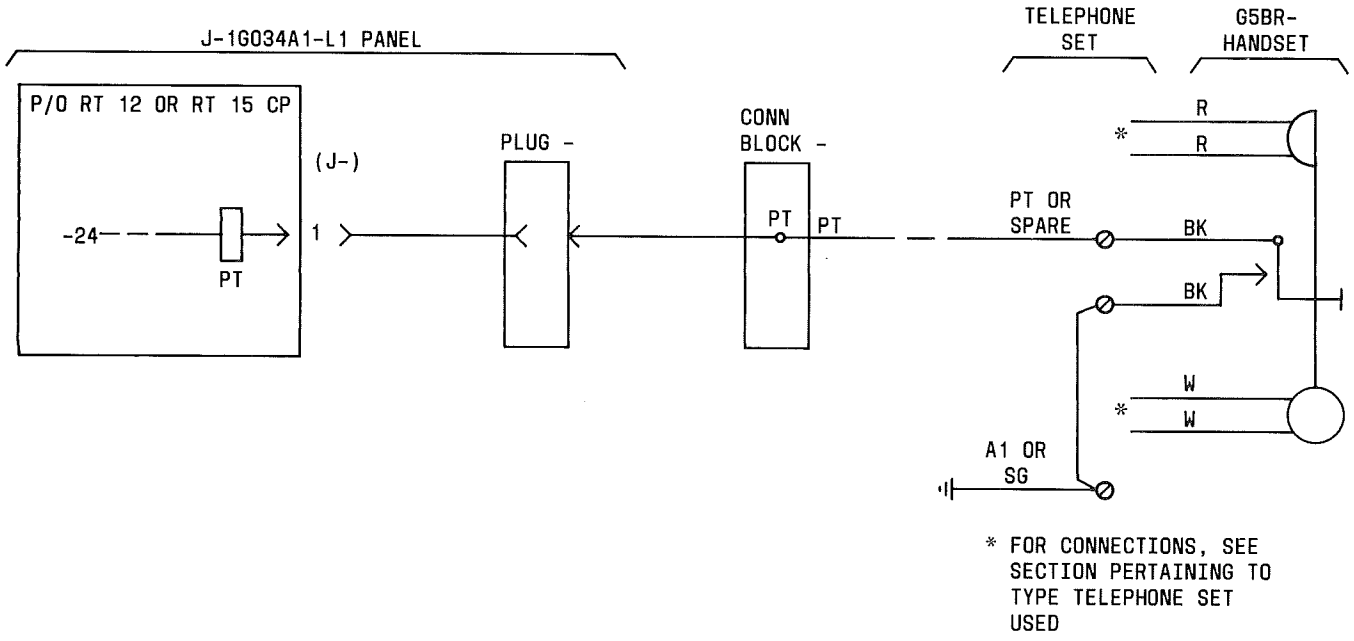


Fig. 31—Push-to-Talk Handset

◗TABLE B◖

OPTIONS FOR J-1GO34A1,L1 PANEL AND ASSOCIATED CIRCUIT PACKS

OPTIONS (SEE NOTE)	OPTION CARD CP RT9	STRAPS TO BE PROVIDED ON TERMINAL BOARD (77A BLOCK) OR TURNDOWN SCREW ADJUSTMENT ON CIRCUIT PACKS					
		RT12	RT13	RT14	RT15	RT16	RT17
Z	Insert card for Z option						
Y	Insert card for Y option						
X	Insert card for X option						
W	Insert card for W option						
V	Insert card for V option						
T		Strap terminals 12-13 on terminal strip A					
S		5-6			5-6		
R		3-4			3-4		
Q						1-2	
N						9-10	
M*			S1 Down Ckt 1 S2 Down Ckt 2 S3 Down Ckt 3	S1 Down		S1 Down	
K			9-2 Ckt 1 9-4 Ckt 2 9-1 Ckt 3	5-2		5-6	
G			5-6 Ckt 1 5-8 Ckt 2 5-10 Ckt 3	4-6		7-8	
F			7-6 Ckt 1 7-8 Ckt 2 7-10 Ckt 3	8-6		3-7	
E			9-6 Ckt 1 9-8 Ckt 2 9-10 Ckt 3	5-6		6-7	

TABLE B (Contd)

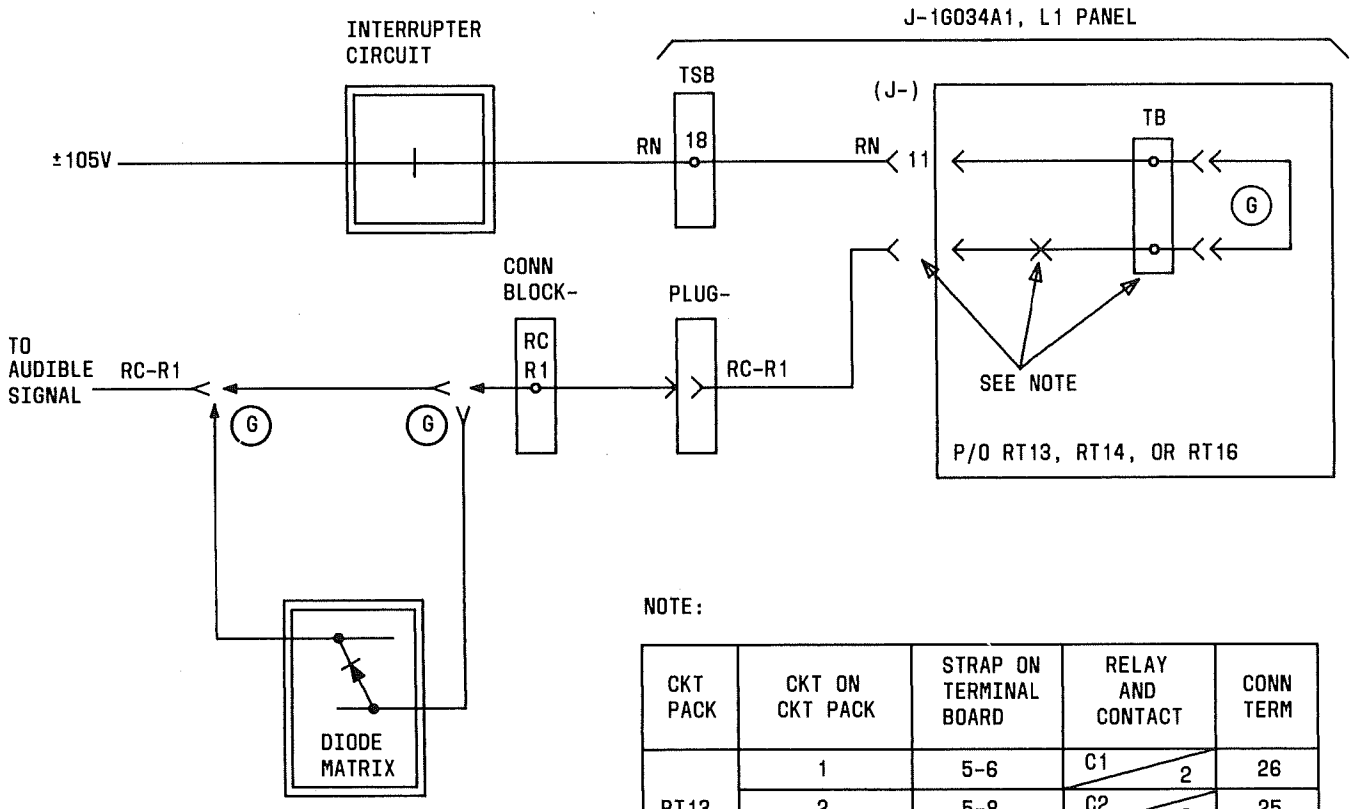
OPTIONS FOR J-1GO34A1,L1 PANEL AND ASSOCIATED CIRCUIT PACKS

OPTIONS (SEE NOTE)	OPTION CARD CP RT9	STRAPS TO BE PROVIDED ON TERMINAL BOARD (77A BLOCK) OR TURNDOWN SCREW ADJUSTMENT ON CIRCUIT PACKS					
		RT12	RT13	RT14	RT15	RT16	RT17
B							5-6 7-8
A							7-8

* S( ) up for long interval (45 seconds) time-out.

Notes:

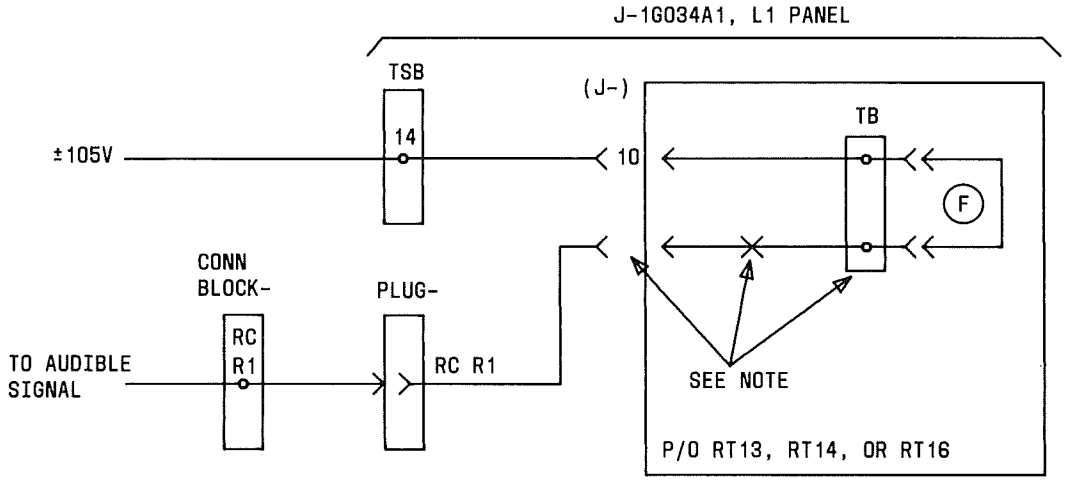
Z — Voice or 30-Hz signaling, no data access required.
Y — Voice or 30-Hz signaling, data access required.
X — SS-4 System, no data access required.
W — SS-4 System, data access required.
V — Succeeding panel used.
T — RT12 circuit pack used in place of RT15 circuit pack for voice or 30-Hz signaling circuit.
S — Push-to-Talk handset not used.
R — Station without A lead control.
Q — 30-Hz, 2-second automatic ringdown, outgoing signaling.
N — Locked-in incoming signal.
M — Audible and visual signal (incoming) time-out, short interval (18 seconds).
K — Audible and visual signal (incoming) time-out disabled.
G — Interrupted audible signal or common audible with diode matrix control.
F — Steady audible signal.
E — Audible signal, common with auxiliary relay control.
B — SS-4 busy lamp when using automatic or manual privacy.
A — SS-4 privacy busy lamp to indicate system busy and in privacy.



NOTE:

CKT PACK	CKT ON CKT PACK	STRAP ON TERMINAL BOARD	RELAY AND CONTACT	CONN TERM
RT13	1	5-6	C1 / 2	26
	2	5-8	C2 / 2	25
	3	5-10	C3 / 2	0
RT14	-	4-6	C / 2	36
RT16	-	7-8	RUA / 3	39

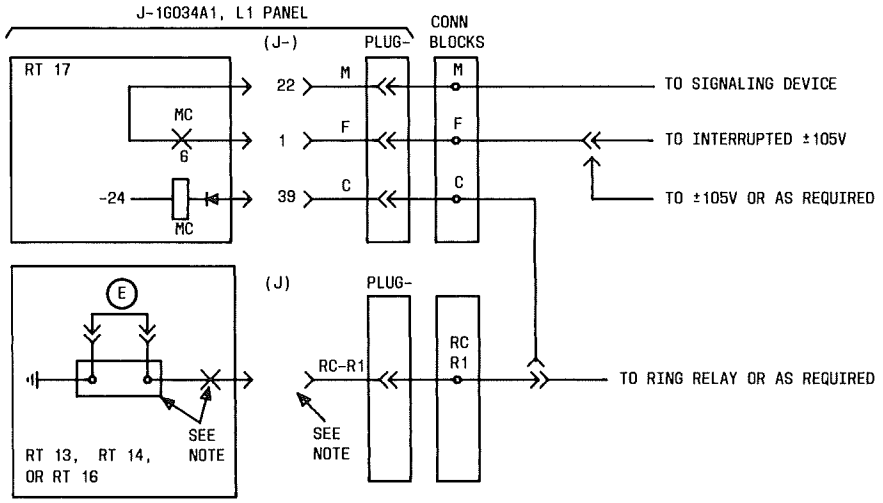
Fig. 32—Connections for G Option



NOTE:

CKT PACK	CKT ON CKT PACK	STRAP ON TERMINAL BOARD	RELAY AND CONTACT	CONN TERM
RT13	1	7-6	C1 / 2	26
	2	7-8	C2 / 2	25
	3	7-10	C3 / 2	0
RT14	-	8-6	C / 2	36
RT16	-	3-7	RUA / 3	39

Fig. 33—Connections for F Option



NOTE:

CKT PACK	CKT ON CKT PACK	STRAP ON TERMINAL BOARD	RELAY AND CONTACT	CONN TERM
RT13	1	9-6	C1 / 2	26
	2	9-8	C2 / 2	25
	3	9-10	C3 / 2	0
RT14	-	5-6	C / 2	36
RT16	-	6-7	RUA / 3	39

Fig. 34—Connections for E Option

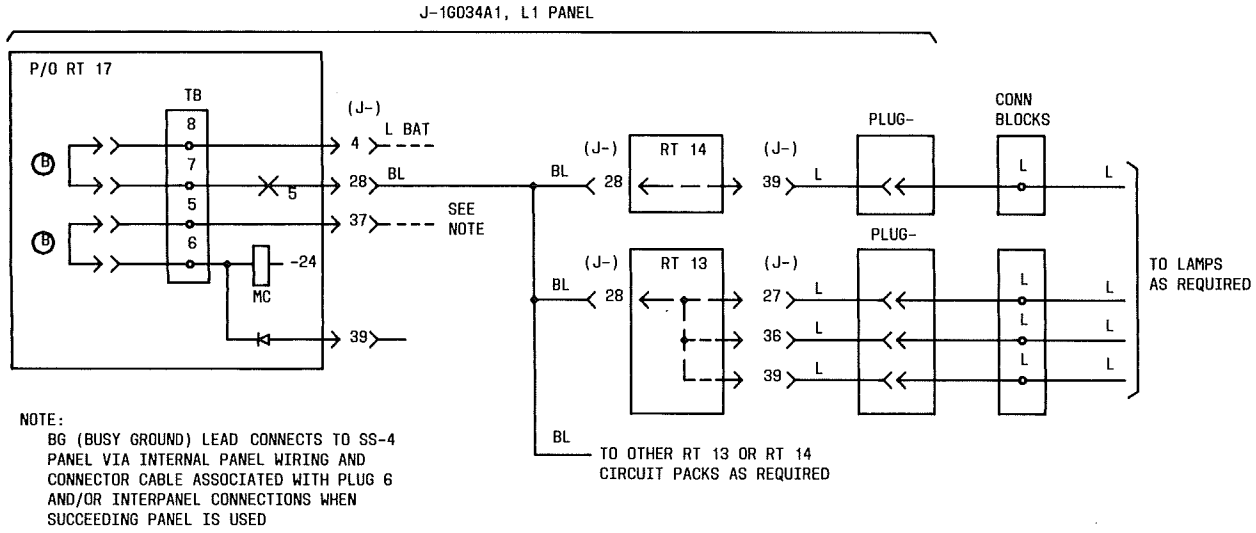


Fig. 35—Connections for B Option

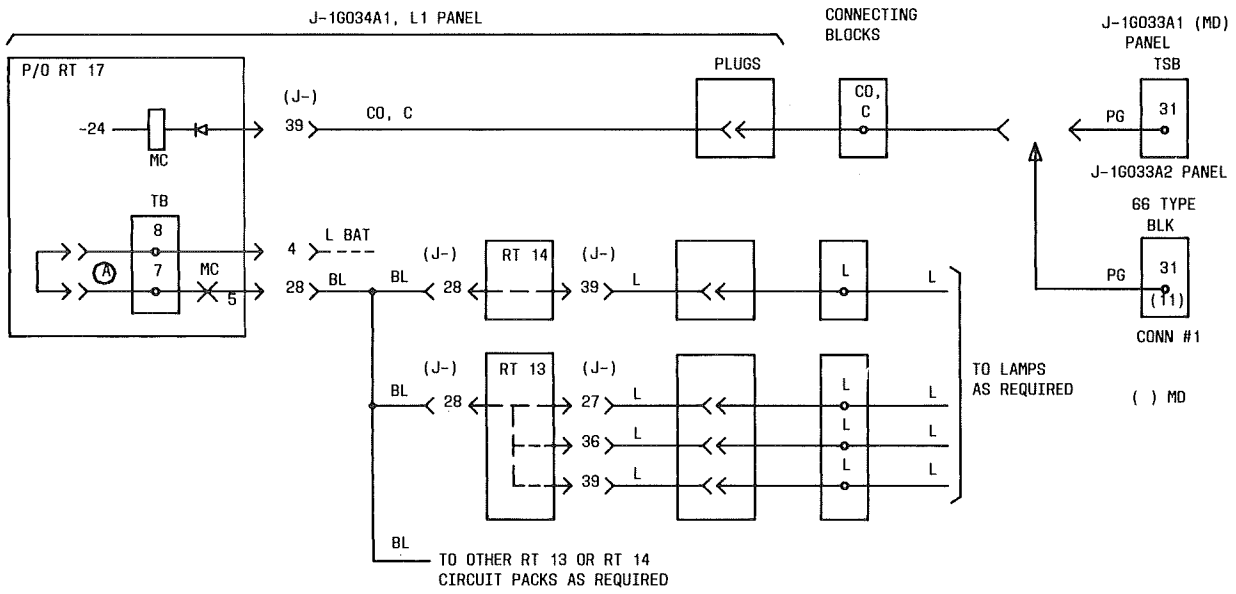


Fig. 36—Connections for A Option

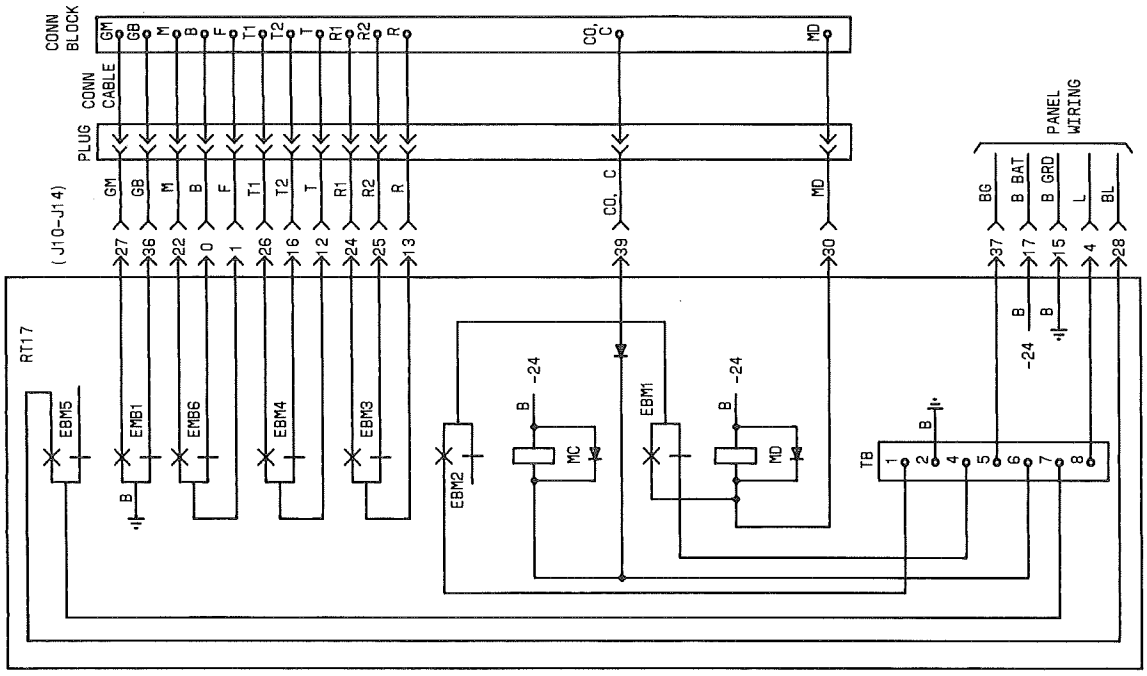


Fig. 37—Circuit Pack RT17, Lead Designations

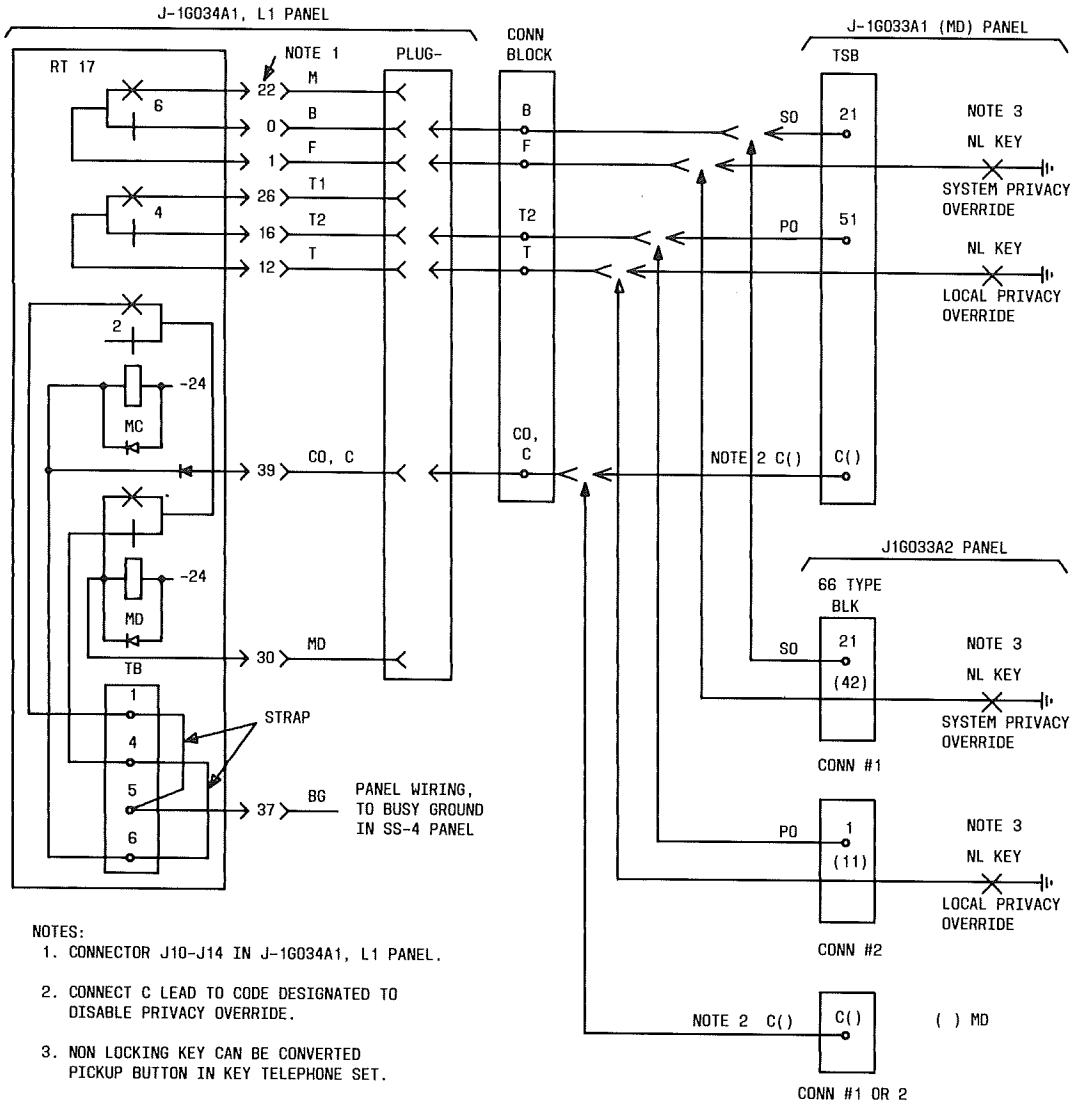


Fig. 38—Arrangement to Disable Privacy Override

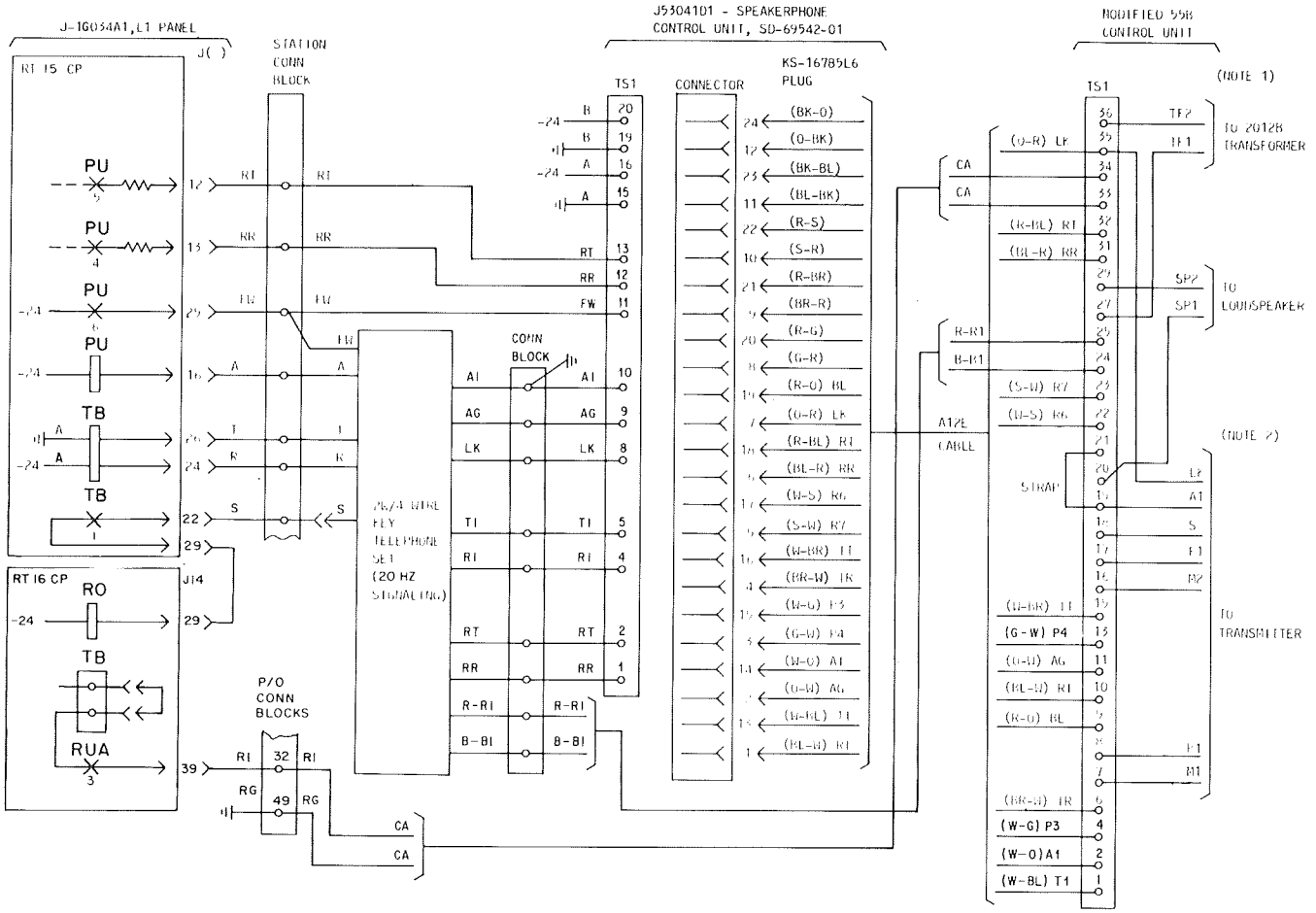
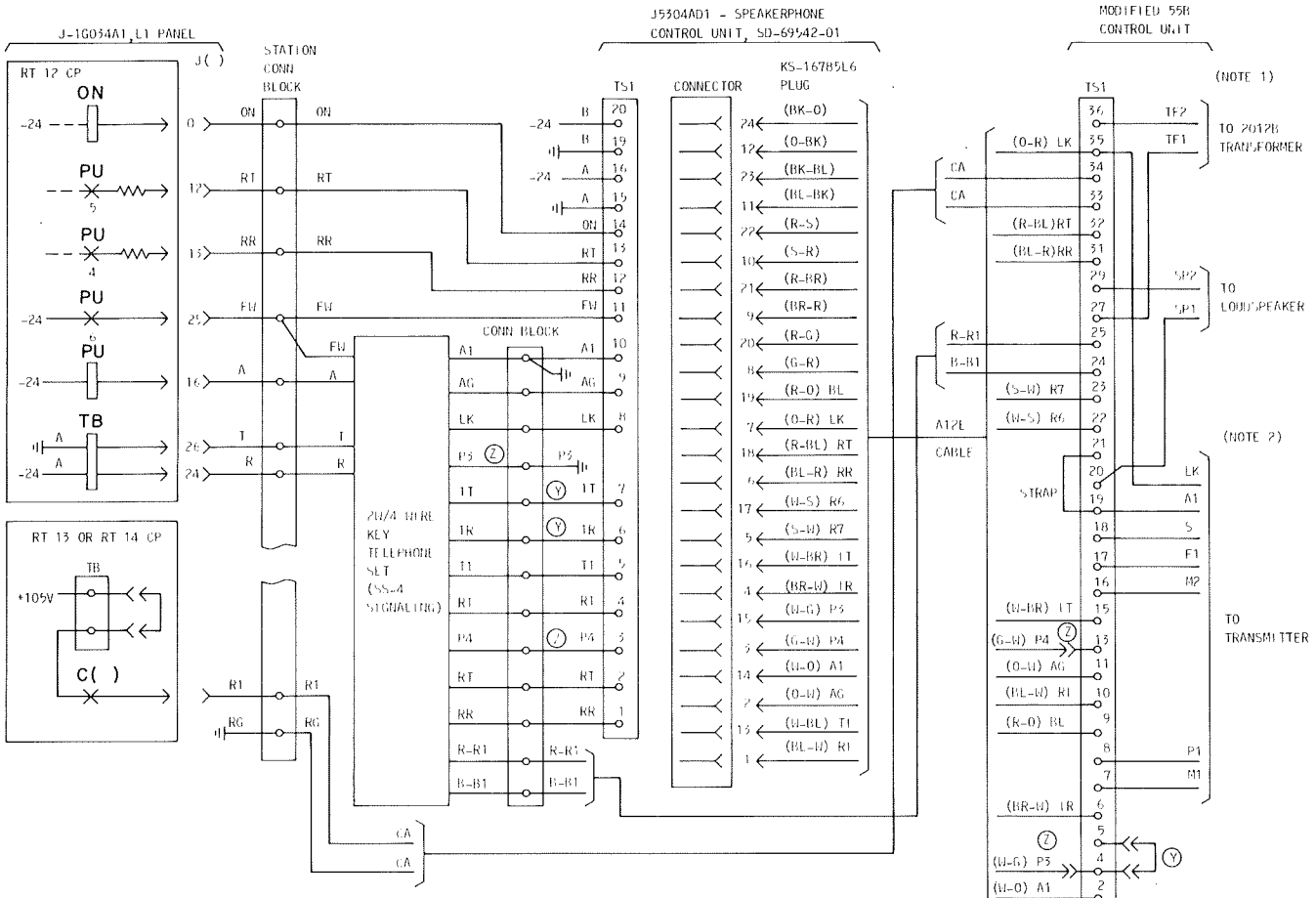


Fig. 39—3A Speakerphone Connections (Sheet 1 of 2)



NOTES:

1 MODIFY 55B CONTROL UNIT AS FOLLOWS:
- A. UNSOLDER RESISTOR (R6) FROM TERMINAL 3 OF TRANSFORMER (T2).
- B. UNSOLDER RESISTOR (R7) FROM TERMINAL 1 OF TRANSFORMER (T2).
- C. INSTALL TWO 208A TERMINAL ASSEMBLIES UNDER MOUNTING NUTS OF TRANSFORMERS (T1) AND (T2) IN SUCH A POSITION THAT THEY DO NOT INTERFERE WITH ADJACENT TERMINALS.
- D. CONNECT AND SOLDER THE FREE WIRE OF RESISTOR (R6) TO ONE TERMINAL ASSEMBLY.
- E. CONNECT AND SOLDER THE FREE WIRE OF RESISTOR (R7) TO THE OTHER TERMINAL ASSEMBLY.
- F. REMOVE FOUR MACHINE SCREWS HOLDING TERMINAL BOARD TO EXPOSE INTERNAL WIRING CONNECTIONS.
- G. INSTALL AND SOLDER FOUR NEW WIRES AS FOLLOWS:
  1. TERMINAL 22 OF TERMINAL BOARD TO TERMINAL ASSEMBLY ASSOCIATED WITH RESISTOR (R6).
  2. TERMINAL 23 OF TERMINAL BOARD TO TERMINAL ASSEMBLY ASSOCIATED WITH RESISTOR (R7).
  3. TERMINAL 31 OF TERMINAL BOARD TO TERMINAL 3 OF TRANSFORMER (T2).
  4. TERMINAL 32 OF TERMINAL BOARD TO TERMINAL 1 OF TRANSFORMER (T2).
- H. REPLACE TERMINAL BOARD AND SCREWS.
- I. STENCIL COVER "MODIFIED PER SD-69542-01".

2. REFER TO SECTION 512-620-100 FOR 3-TYPE SPEAKERPHONE.

Fig. 39—3A Speakerphone Connections (Sheet 2 of 2)

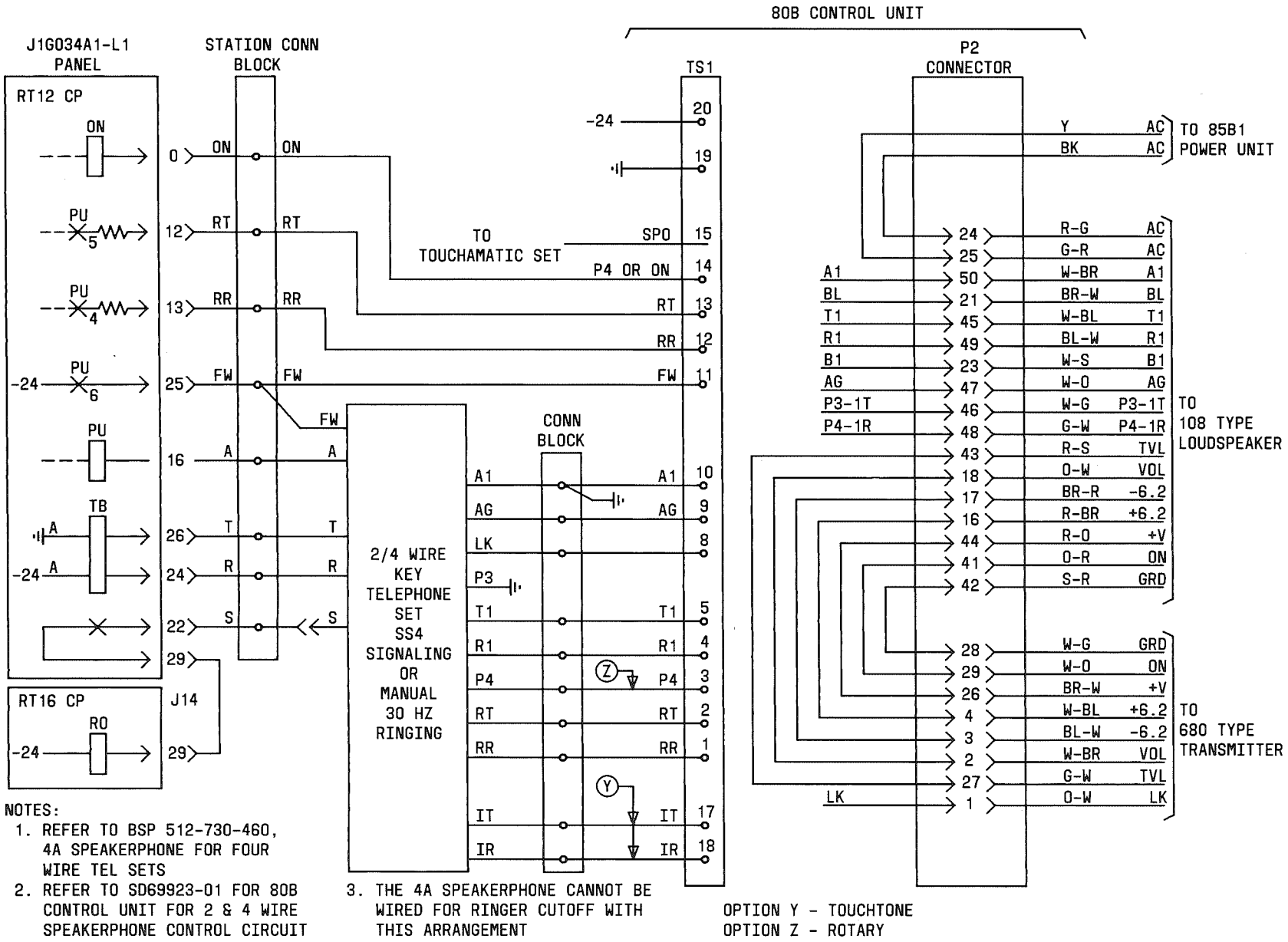


Fig. 40—4A Speakerphone Connections

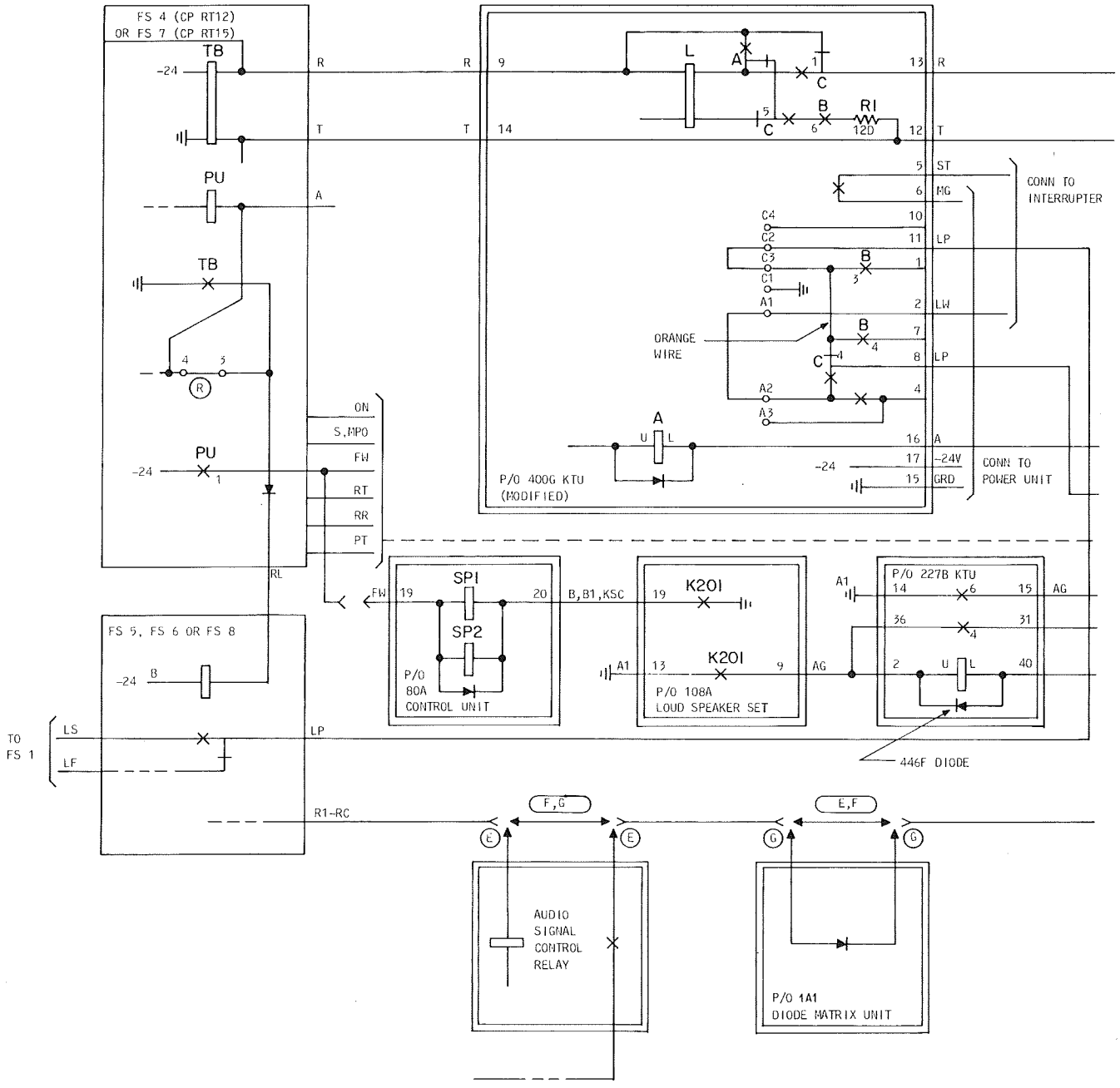


Fig. 41—Private Hold Arrangement (Sheet 1 of 2)

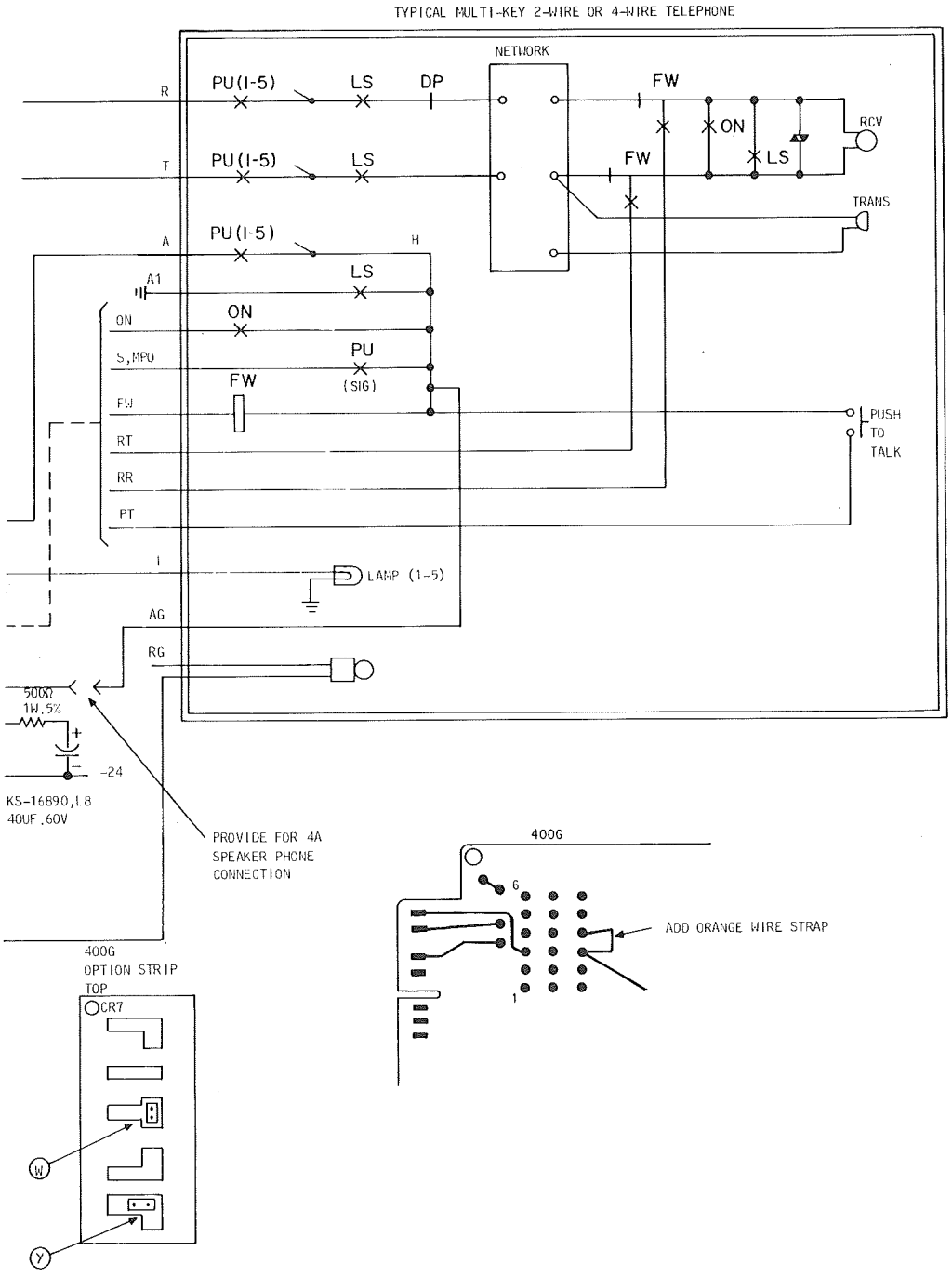


Fig. 41—Private Hold Arrangement (Sheet 2 of 2)

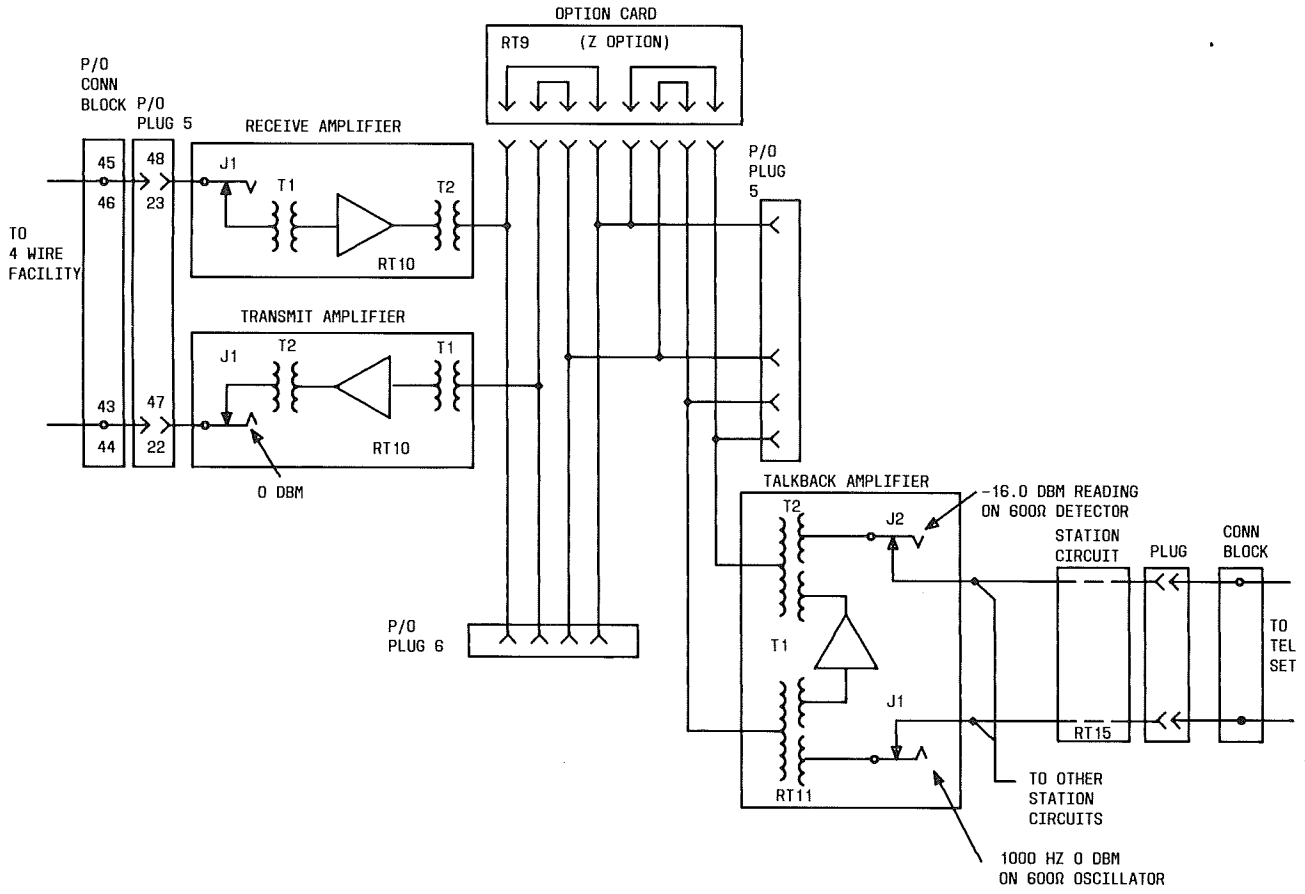


Fig. 42—Transmission Diagram, 30-Hz or Voice Signaling, Without Data Access

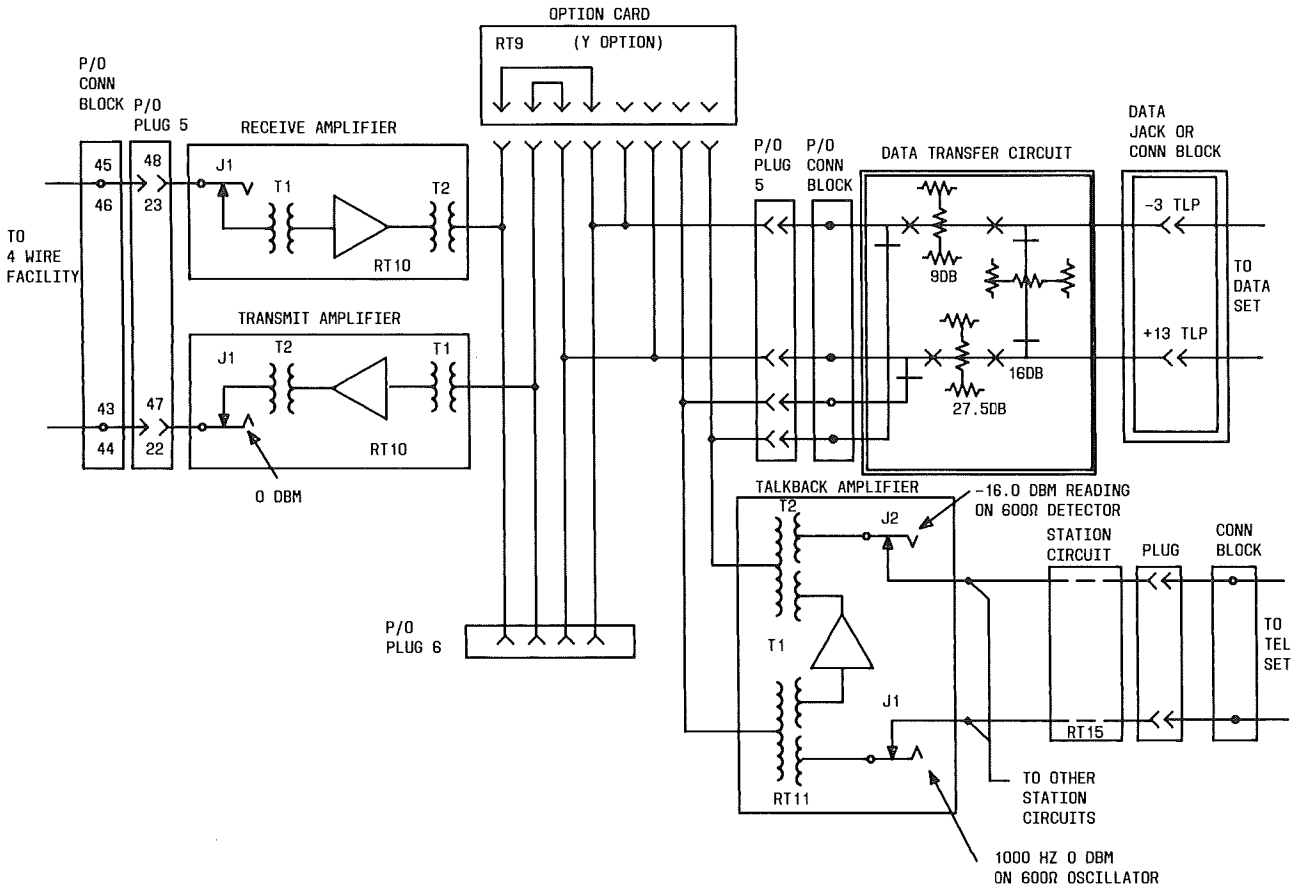


Fig. 43—Transmission Diagram, 30-Hz or Voice Signaling, With Data Access

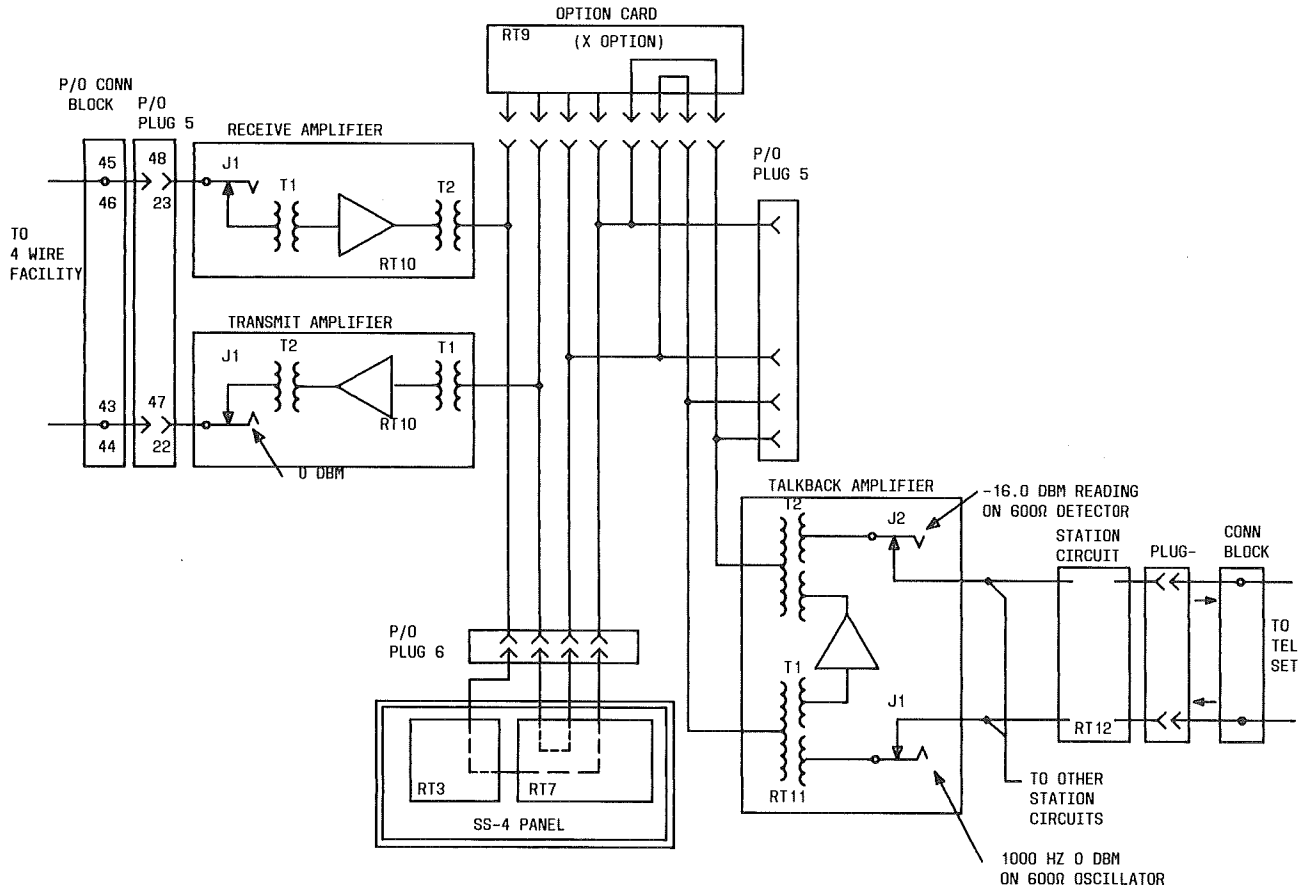


Fig. 44—Transmission Diagram, SS-4, Without Data Access

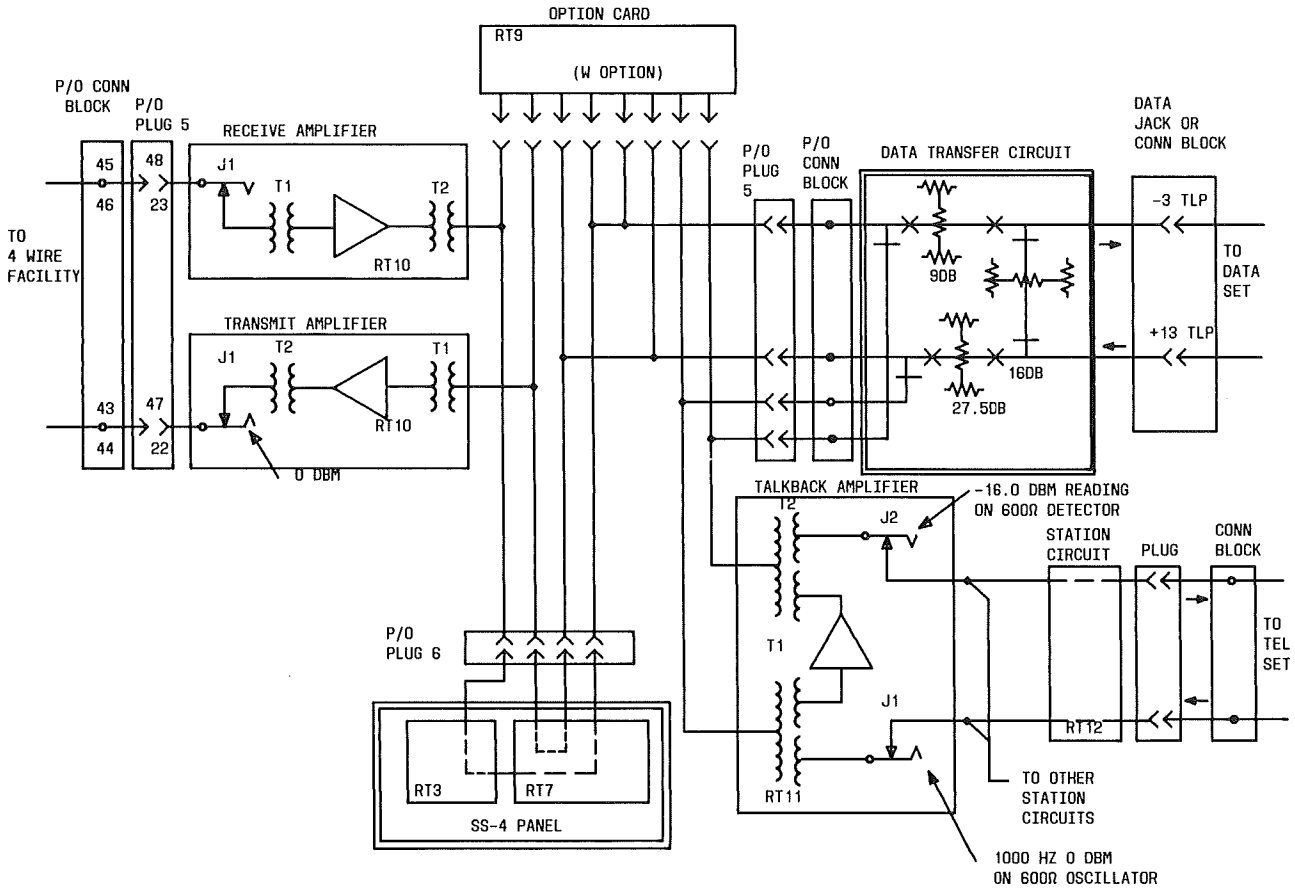


Fig. 45—Transmission Diagram, SS-4, With Data Access