

## SERVICE

### 1630- AND 1631-TYPE TELEPHONE SETS

#### 1. GENERAL

**1.01** This section contains connection information for 18- and 30-button general purpose CALL-DIRECTOR<sup>®</sup> telephone sets equipped with 10-button TOUCH-TONE<sup>®</sup> dials.

**1.02** The 1630- and 1631-type telephone sets are rated MD.

**1.03** Connection information for these sets was formerly contained in Section 502-630-411 which is hereby canceled.

#### 2. CONNECTIONS

**2.01** These sets are factory-wired for use with 1A1, 1A2, or 6A key telephone systems. They may also be used with 1A KTS line circuits by modifying the telephone set as shown in Table B. Line circuits for 1A, 1A1, or 1A2 KTS may be connected to the same set under the following conditions:

- (a) 1A1 or 1A2 KTS lines must be connected to the first key module with 1A lines connected to supplementary key modules.
- (b) 1A, 1A1, or 1A2 KTS lines should not be connected to the same 6 line key module.
- (c) 1A, 1A1, and 1A2 KTS lines appearing behind a manual switchboard should not be intermixed on a CALL DIRECTOR telephone set due to the different time out intervals provided by the associated KTU's.

**2.02** Tip, ring, A, and lamp leads of lines wired for supplementary hold feature must be routed per SD-69530-01 and Division 518 rather than directly to the line circuit. Supplementary hold can be furnished in either of the following arrangements.

(a) ***I Hold:*** Transfer A lead from ground to -24 volt (Fig. 5); connect stored (BR-V) lead from first module plug to any spare mounting cord lead using spare terminal or D-161488 connector. Mounting cord lead becomes SP lead at key equipment (Fig. 5).

(b) ***Priority Hold:*** Substitute the 599- or 657-type key in the first module with a 599H or 657H key which is equipped with a second hold button and wired per Fig. 6 to transfer the A lead from ground to -24 volt.

**2.03** To convert a key position from pickup (locking) to signal (nonlocking) remove the screw detail P-10E837 entirely from plunger at the key position to be converted. Make the necessary wiring changes as shown in Table C.



***Some spade-tipped conductors or mounting cord leads are insulated with tubing which should be cut off with electrician scissors or diagonal pliers. Other conductors are insulated with stiff plastic pockets. Pinch open the mouth to release the spade tips.***

**2.04** A 667-type speakerphone transmitter unit may be used in the third key position of an 18-button set or fifth key position of a 30-button set. See appropriate sections for connections to speakerphone systems.

**2.05** When using a 599B or 657B key in first module:

- (a) See Table D for connection of various key features.
- (b) Use auxiliary relay arrangement (such as 5A or 17B key telephone unit) to control circuit leads.

**TABLE A**  
**P-90D197 GUARD ASSEMBLY CONNECTIONS (Note 1)**

| WIRE OR LEAD      | COLOR | REMOVE FROM |             | CONNECT TO |    |
|-------------------|-------|-------------|-------------|------------|----|
|                   |       | NET.        | GUARD ASSY. | NET.       |    |
| Dial<br>(Note 2)  | BK    | RR          | T           |            |    |
|                   | G-W   | C           | S           |            |    |
| Line Switch       | W     | C           | S           |            |    |
| Guard<br>Assembly | G     |             |             |            | RR |
|                   | W     |             |             |            | C* |

\* (O-BK) dial lead remains connected to C of network.

- Notes 1: For use when specified by local instructions for end-to-end signaling installations.
- 2: (G-W) appears on 25Y3 dial only. Polarity guard cannot be added to sets with 25B3 dial and connected for speakerphone.

**TABLE B**  
**1630- AND 1631-TYPE TELEPHONE SETS—1A, 1A1, OR 1A2 CONVERSIONS**

| KEY TELEPHONE SYSTEM<br>CENTRAL OFFICE OR<br>PBX LINE FEATURE         | LEADS          |         |       |         |          |                     |                     |                     |                     |                     |             |            |                |   |
|---|----------------|---------|-------|---------|----------|---------------------|---------------------|---------------------|---------------------|---------------------|-------------|------------|----------------|---|
|   | HOLD KEY       |         |       |         |          | CHAINING SWITCH     |                     |                     |                     |                     | STRAP       |            | SWITCH<br>HOOK |   |
|   |                |         |       |         |          | 1630 AND 1631 SETS  |                     |                     | 1631 SETS<br>ONLY   |                     |             |            |                |   |
|   | (Y-G)          | (G-Y)   | (V-O) | (BR-V)  | (V-BR)   | (V-G)<br>1ST<br>KEY | (V-G)<br>2ND<br>KEY | (V-G)<br>3RD<br>KEY | (V-G)<br>4TH<br>KEY | (V-G)<br>5TH<br>KEY | (BL-V)<br>* | (O-V)<br>* | (BR)<br>[S-G]  |   |
| 1A1 or 1A2 only (as furnished by shop)                                | A-H (I)        | A-H (I) | †     | †       | †        | A-H (I)             | A-H (II)            | A-H (III)           | A-H (IV)            | A-H (V)             | R (I)       | 1B (VI)    | ‡              |   |
| First key unit 1A1 or 1A2; remaining key units 1A                     | A-H (I)        | ¶       | †     | 1§ (I)  | R (II)   | ¶                   | A-H (II)            | A-H (III)           | A-H (IV)            | A-H (V)             | R (I)       | 1B (VI)    | ‡              |   |
| First and second key units 1A1 or 1A2; remaining key units 1A         | A-H (I)        | ¶       | †     | 1§ (II) | R (III)  | A-H (I)             | ¶                   | A-H (III)           | A-H (IV)            | A-H (V)             | R (I)       | 1B (VI)    | ‡              |   |
| First, second, and third key units 1A1 or 1A2; remaining key units 1A | 1631 sets only | A-H (I) | ¶     | †       | 1§ (III) | R (IV)              | A-H (I)             | A-H (II)            | ¶                   | A-H (IV)            | A-H (V)     | R (I)      | 1B (VI)        | ‡ |
| First through fourth key units 1A1 or 1A2; fifth key unit 1A          |                | A-H (I) | ¶     | †       | 1§ (IV)  | R (V)               | A-H (I)             | A-H (II)            | A-H (III)           | X (VI)              | A-H (V)     | R (I)      | 1B (VI)        | ‡ |
| 1A only (see connection note 2, Fig. 3)                               | ¶              | A-H (I) | †     | R1 (VI) | R (I)    | A-H (I)             | A-H (II)            | A-H (III)           | A-H (IV)            | A-H (V)             | R1 (VI)     | SG (VI)    | 6 **           |   |

Note: Roman numerals in parentheses indicate terminal board designations.

\* BL-V lead connects to G switch lead at terminal 2 of telephone set terminal board. O-V lead connects to Y switch lead at terminal 1 of telephone set terminal board.

† Lead is spade tipped, insulated, and stored.

‡ BR lead connects to terminal 5 when station busy lamp circuit is not required or to terminal 6 of telephone set terminal board when station busy lamp is required.

§ Disconnect, insulate, and store R (BL-V) chaining lead.

¶ Connect to terminal X of TBIV on 18-button sets or to terminal X of TBVI on 30-button sets.

\*\* Terminal on telephone set terminal board.

( ) Current color code

[ ] MD color code

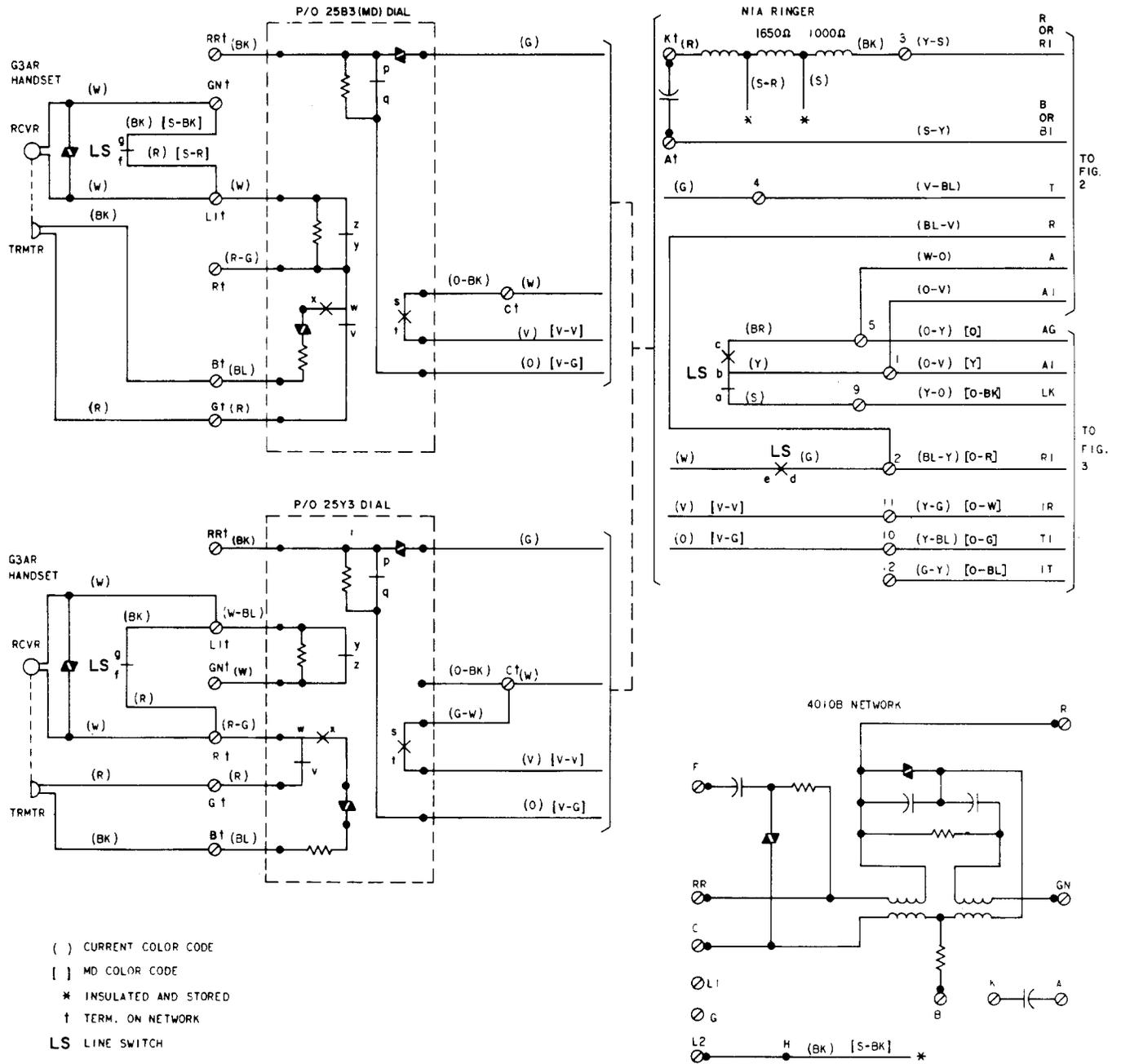


Fig. 1—1630-(MD) and 1631-(MD) Type Telephone Set, Connections

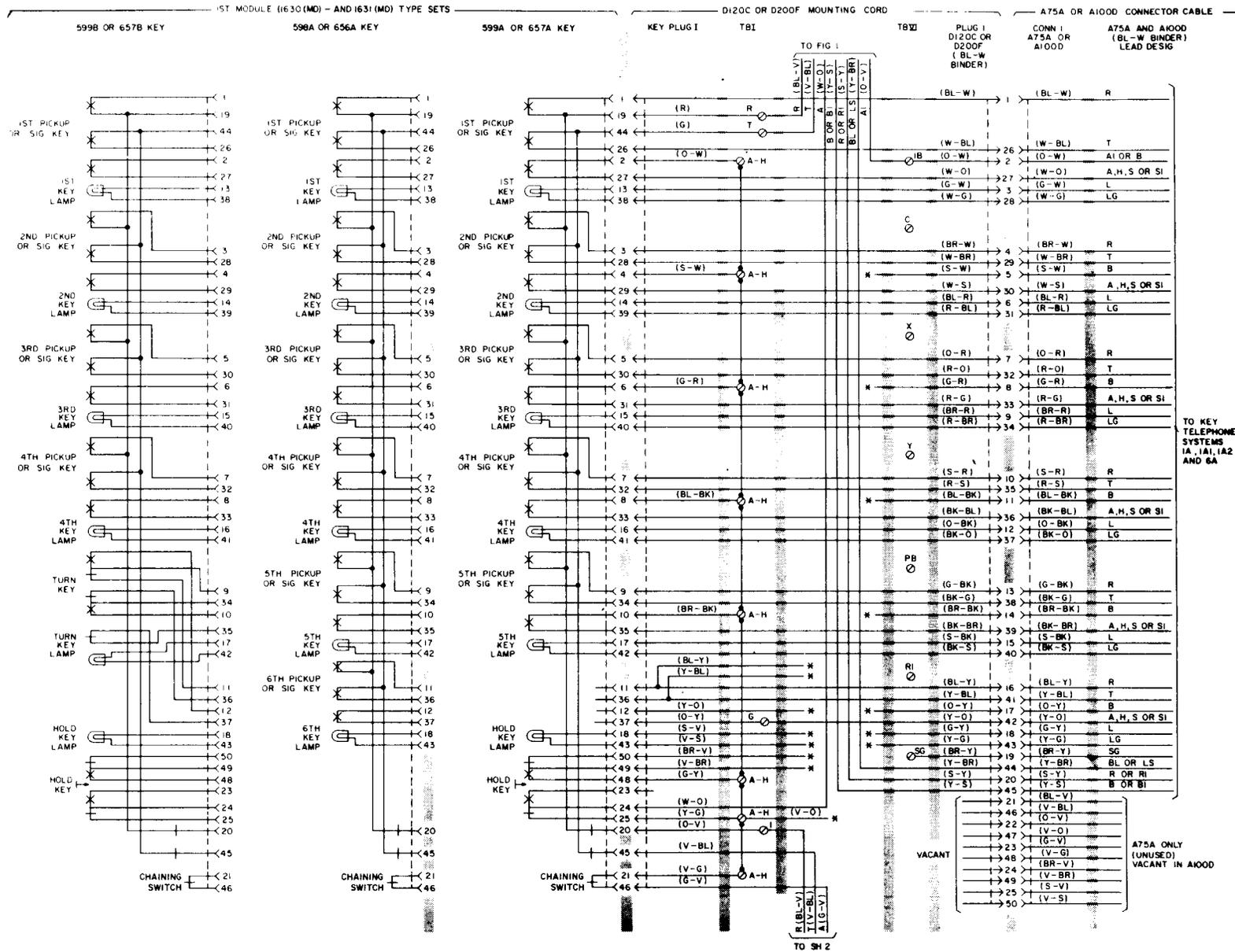


Fig. 2—Module Arrangements, Cord and Cable Connections (Sheet 1 of 3)



**TABLE C**  
**PICKUP-SIGNAL KEY CONVERSION (3RD OR 5TH MODULE)**

| CONVERSION<br>OPTIONS<br>(NOTES 1 AND 2) | 598A OR 656A KEY |     |     |       |       |      |     |
|--|------------------|-----|-----|-------|-------|------|-----|
|  | O-W              | S-W | G-R | BL-BK | BR-BK | Y-O  | O-Y |
| PPPPPP                                   | A-H              | A-H | A-H | A-H   | A-H   | A-H  | G   |
| PPPPPS                                   | A-H              | A-H | A-H | A-H   | A-H   | SG   | G   |
| PPPPSS                                   | A-H              | A-H | A-H | A-H   | SG    | SG   | G   |
| PPSSSS                                   | A-H              | A-H | A-H | SG    | SG    | SG   | G   |
| PPSSSS                                   | A-H              | A-H | SG  | SG    | SG    | SG   | G   |
| PSSSSS                                   | A-H              | SG  | SG  | SG    | SG    | SG   | G   |
| SSSSSS                                   | SG               | SG  | SG  | SG    | SG    | SG   | G   |
| PPPP*P*S                                 | A-H              | A-H | A-H | C     | C     | A-H† | C   |
| PPP*P*P*S                                | A-H              | A-H | C   | C     | C     | A-H† | C   |
| PP*P*P*P*S                               | A-H              | C   | C   | C     | C     | A-H† | C   |
| P*P*P*P*P*S                              | C                | C   | C   | C     | C     | A-H† | C   |

**Notes:**

1. Convert buttons on right hand key module first.
  2. All key positions are arranged in the shop, as pickup positions. To convert to signaling (nonlocking), remove the screw detail P-10E837 from the plunger at the key position to be converted. Make the necessary connection changes as shown in Table D.
- \* These arrangements use line switch controlled ground for common signal key used with private or intercommunicating lines. Common signal should be used to operate a common signal relay. Do not wire directly to a buzzer.
- † Terminal A-H used with 1A1 or 1A2 KTS, and terminal 5 used with 1A KTS.

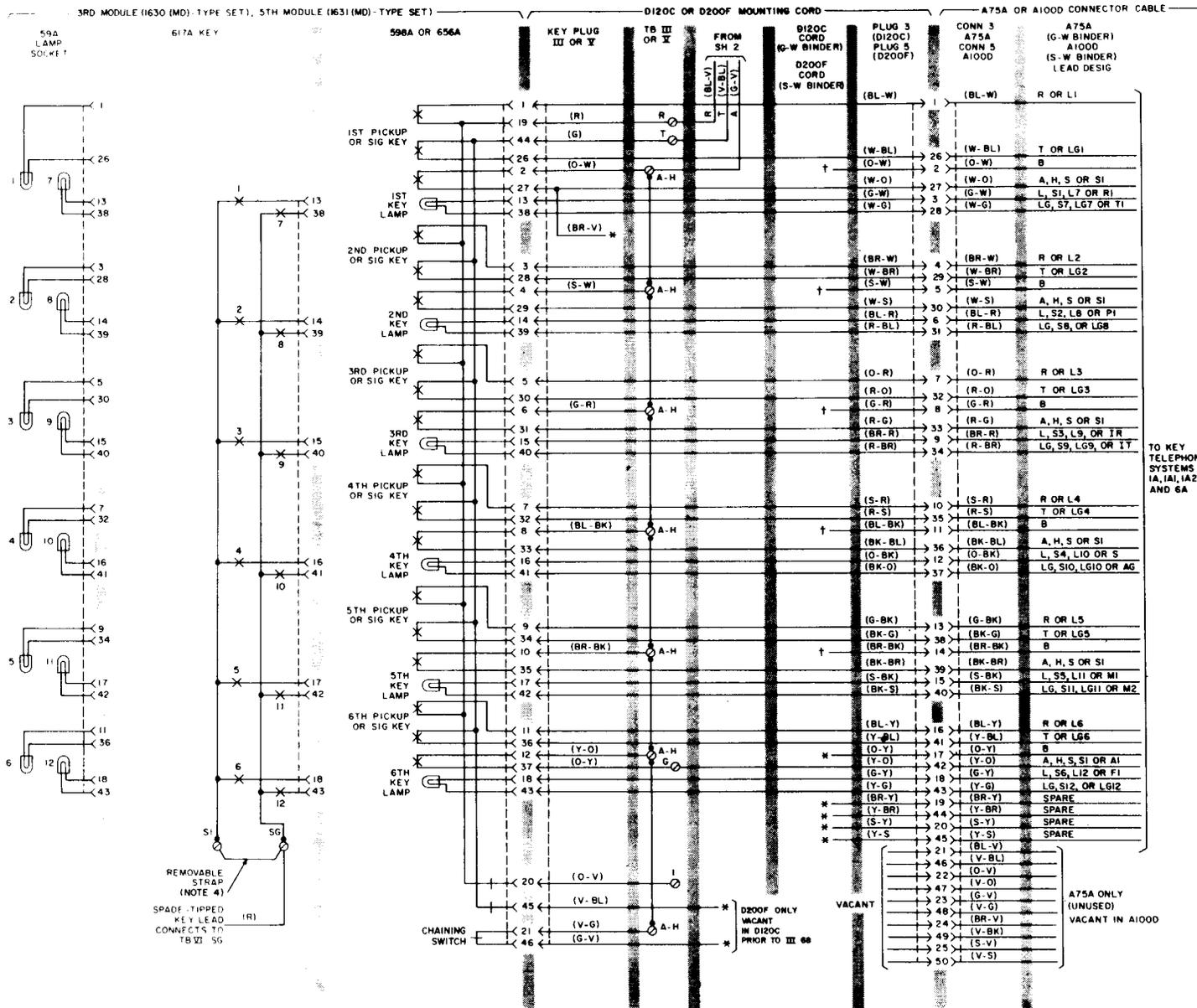


Fig. 2—Module Arrangements, Cord and Cable Connections (Sheet 3 of 3)

**TABLE D**  
**CONNECTIONS FOR 599B OR 657B KEY (TURN KEY)**

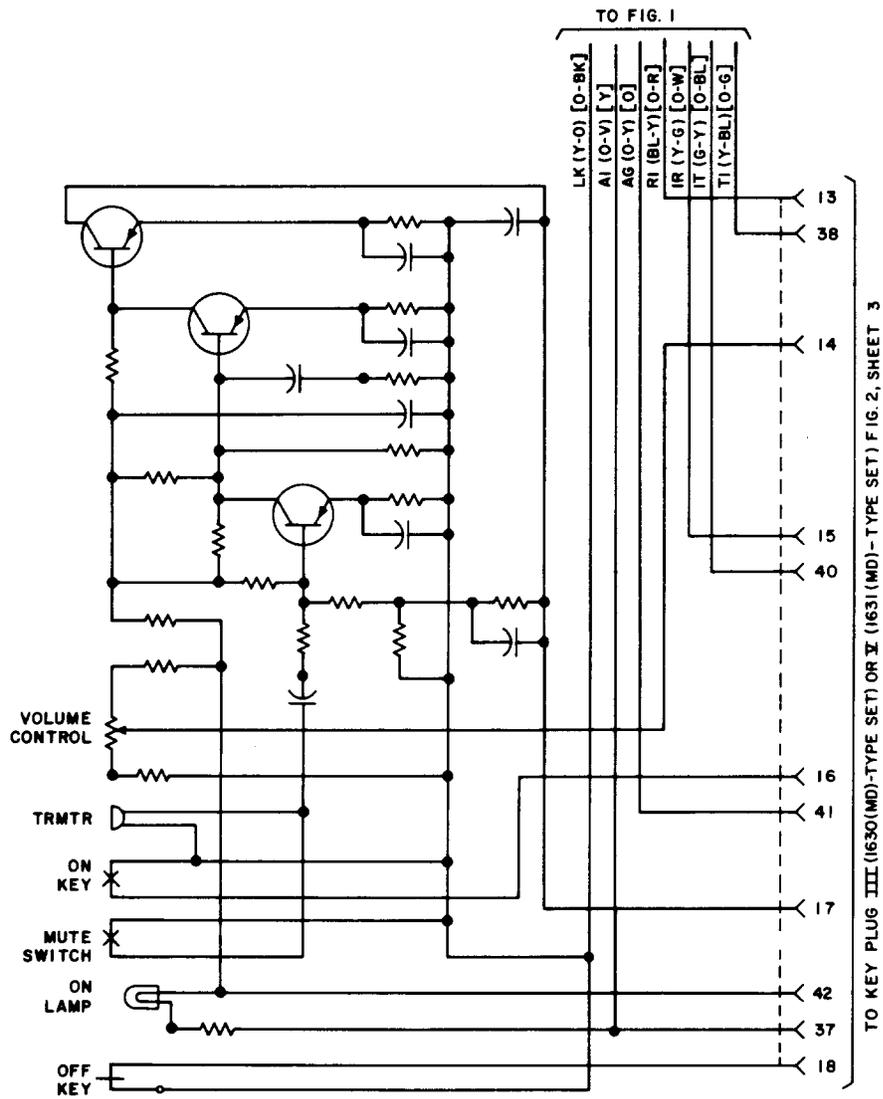
| FEATURE  | FIRST MODULE LEADS                           |       |       |                          |                               |            |              |                          |   |                               |
|--|--|-------|-------|--------------------------|-------------------------------|------------|--------------|--------------------------|---|-------------------------------|
|  | 5TH PICKUP<br>KEY POSITION                   |       |       |                          | 6TH PICKUP<br>KEY POSITION    |            |              |                          | STORED                                    |                               |
|  | R  | T     | A     | A-H                      | R                             | T          | A            | A-H                      |   |                               |
| Even-count color code                                  | G-BK   | BK-G  | BK-BR | BR-BK                    | BL-Y                          | Y-BL       | O-Y<br>Y-O   | Y-O                      | BL-Y                                      | Y-BL                          |
| Cord pin numbers                                       | 9-13   | 34-38 | 35-39 | 10-AH                    | 11-16                         | 36-41      | 37-G<br>G-42 | 12-†                     | 11-†                                      | 36-†                          |
| Cutoff station on 1A1<br>or 1A2 system                 | To equip.                                    |       |       | Insulate<br>and<br>Store |                               | To ext sta |              | Insulate and Store       |   |                               |
| Cutoff station on 1A<br>system without<br>hold feature | To equip.                                    |       |       | Insulate<br>and<br>Store | To ext sta                    |            |              | Insulate and Store       |   |                               |
| Cutoff station on 1A<br>system with hold<br>feature    | To aux<br>relay to<br>cutoff<br>T, R, B, & H |       |       | SG<br>TBVI               |                               |            |              | SG<br>TB VI              | Insulate<br>and Store                     |                               |
| Cutoff ext ringer<br>or buzzer                         | To equip.                                    |       |       | Insulate<br>and<br>Store | To ext<br>ringer<br>or buzzer |            |              | Insulate and Store       |   |                               |
| Cutoff ringer in<br>set                                | To equip.                                    |       |       | Insulate<br>and<br>Store |                               |            |              | Insulate<br>and<br>Store | 3‡<br>Tel Set<br>Term.<br>Board<br>(Note) | A‡<br>Net.<br>Term.<br>(Note) |
| Cutoff buzzer in<br>set                                | To equip.                                    |       |       | Insulate<br>and<br>Store |                               |            |              | Insulate<br>and<br>Store | Buzzer* (Note)                            | (Note)                        |
|  |  |       |       |                          |                               |            |              |                          | D   | C                             |
|  |  |       |       |                          |                               |            |              |                          | A   | C                             |
| Monitoring   | To mon<br>equip.                             |       |       |                          |                               |            |              | R<br>TB1                 | T<br>TB1                                  |                               |

Note: The BL-Y and Y-BL mounting cord leads should be insulated and stored at the equipment when the bridged spade tipped leads are used in set.

\* Insulate and store BZ and BZ1 leads to buzzer.

† Indicates leads are factory insulated and stored.

‡ Insulate and store the S-Y lead from terminal A of the network and the Y-S lead from terminal 3 of telephone set terminal board.



667-TYPE TRANSMITTER

Fig. 3—667-Type Transmitter

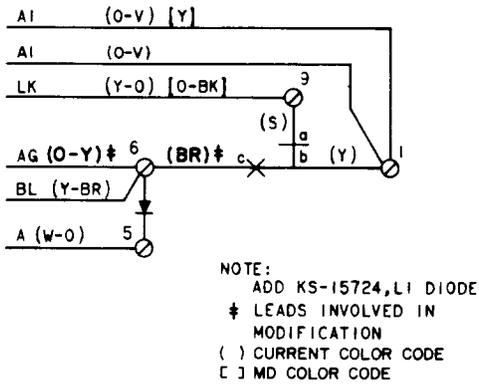
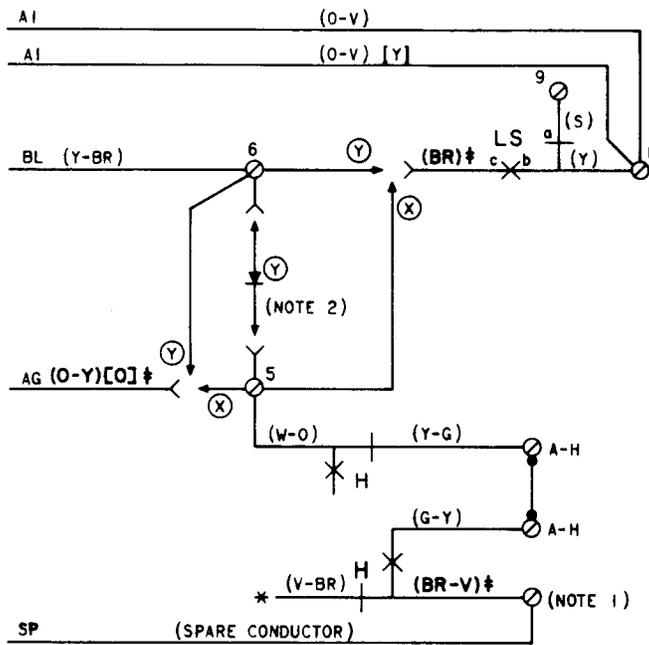
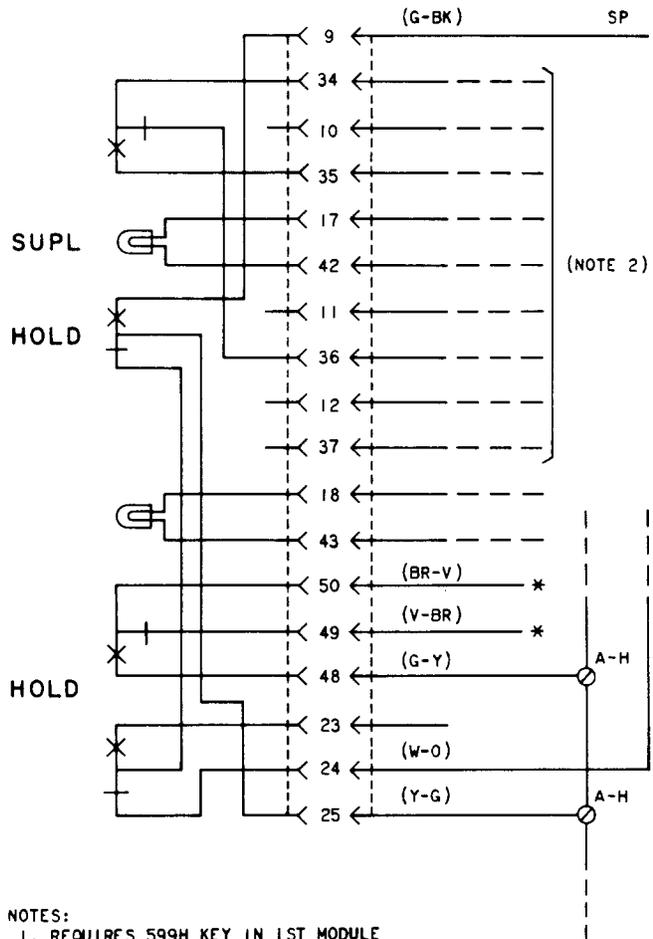


Fig. 4—Station Busy Lamp Circuit (Without I Hold)



- NOTES:
1. SPARE TERMINAL OR D-161488 CONNECTOR
  2. ADD KS-15724, L1 DIODE
- (X) WITHOUT STATION BUSY LAMP
  - (Y) WITH STATION BUSY LAMP
  - \* INSULATED AND STORED
  - ‡ LEADS INVOLVED IN MODIFICATION
  - ( ) CURRENT COLOR CODE
  - [ ] MD COLOR CODE
  - LS—LINE SWITCH
  - H—HOLD KEY

Fig. 5—I Hold Arrangement With or Without Station Busy Lamp Feature



- NOTES:
1. REQUIRES 599H KEY IN 1ST MODULE
  2. DO NOT USE THESE LEADS FOR OTHER FEATURES WHEN ASSOCIATED WITH 599H KEY

Fig. 6—Priority Hold Circuit