

## PAGING ADAPTER CIRCUIT

### 278A ADAPTER

#### 1. GENERAL

1.01 This section provides information on the identification, installation, connection, and maintenance of the 278A paging adapter.

1.02 This section is reissued to:

- Correct connection information for the 32A Communication System (HORIZON\*)
- Change format of connection figures
- Make minor correction in text.

1.03 This issue of the section is based on the CD- and SD-69922-01 drawing.

#### 2. IDENTIFICATION

##### A. Purpose

2.01 Provides manual intercom paging access circuit in 1A1 and 1A2 key telephone systems (KTSs) and a dialed access for the 6B Intercom System (DIALOG\*) and the 32A Communication System (HORIZON). If the paging adapter is used without intercom services, an intercom key telephone unit (KTU) is still required to provide talk battery to the telephone set.

##### B. Ordering Guide

2.02 Order as follows:

(a) Basic Unit:

Unit, Adapter, Paging, 278A—order one for each paging zone required (maximum 3). No additional unit is required for all zone paging.

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\*\*Reprinted to comply with modified final judgment.

(b) Associated Apparatus (order separately):

- Coupler, 33A or 33B—required when music-on-hold on CO lines and background music on the paging amplifier(s) are to be supplied.

(c) Replaceable Components:

- Fuse F1 70F .25A
- Fuse F2 70F .25A
- Fuse F3 70F .25A
- Fuse F4 70H .75A
- Fuse F5 70H .75A
- D-180768 Kit of Parts (additional option plugs)

##### C. Design Features

2.03 The 278A paging adapter provides paging access circuitry for key system intercoms. Other features are:

- Approximate dimensions are 5.2-inches wide, 5.0-inches long, and 1.68-inches high (Fig. 1).
- Exposed screw terminals for all customer-provided connections.
- **Background music**—a music input is provided via circuitry built into the 278A. Music can be fed to the paging amplifiers any time the paging access is not in use, and is only cut off to the zones that are being accessed. No additional circuitry is needed for this feature. However, if background music is to be provided to the paging amplifiers along with music-on-hold

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to the CO lines 33-type coupler will be necessary.

- **Busy-out**—a toggle switch, accessible by the customer, on the adapter can be thrown to disable that particular zone. In the 1A1/1A2 configuration, the lamp associated with the signal key is lighted at this time to warn potential page calls of the busy condition, but does not electrically prevent a page. In the DIALOG system, an attempt to access a zone in the busy-out mode will result in busy tone being returned. This feature is expected to be used when customer equipment is being serviced, etc.

- **Customer-provided tones**—customer-provided tones for coffee breaks, lunch breaks, etc, are not prohibited nor provided by the access circuit. A tone source connection must be made on the amplifier side of the access circuit allowing superposition of tones with background music or voice pages.

- **Contact closure**—a spare contact closure with capacity for 0.25 amperes at 117 volts is provided any time the voice path is completed through to the amplifier. This can be used in locally engineered situations where amplifier control or behind the amplifier zone switching is required.

- **Click suppression**—circuitry is employed in the 278A paging adapter to minimize audible clicks heard when the adapter is accessed or when the calling party terminates the page. It does not, however, act on transients that may occur during an actual page.

- Fuses are provided to protect the 278A paging adapter from excessive currents from the customer-provided equipment (CPE).

2.04 Features or service options are connected in the 278A paging adapter via option plugs. Option plugs are available by ordering a D-180768 Kit of Parts.

### 3. INSTALLATION AND CONNECTIONS

**Note:** All wiring should be completed before applying power to prevent damage to adapter components.

3.01 The 278A paging adapter is contained in a wall- or shelf-mountable housing.

3.02 All telephone company connections are made to the screw terminals under the cover. A separate terminal strip is provided for customer connections.

3.03 Refer to Table A for placement of options on the 278A paging adapter. Options should be added before connecting power.

3.04 ♦Refer to the following figures for 278A paging adapter connections:

Fig. 2—Schematic Diagram—278B Paging Adapter

Fig. 3—Paging Adapter Without Intercom (1A1 Key Telephone System)

Fig. 4—Paging Adapter Without Intercom (1A2 Key Telephone System)

Fig. 5—Paging Adapter With Intercom Using Nonlocking Access Button (1A1 Key Telephone System)

Fig. 6—Paging Adapter With Intercom Using Nonlocking Access Button (1A2 Key Telephone System)

Fig. 7—Paging Adapter Connections for 32A Communication System (HORIZON)

Fig. 8—Paging Adapter Connections for 6B Intercom System (DIALOG).♦

### 4. OPERATION

4.01 When the 278A paging adapter is used with 1A1/1A2 KTS arrangements, the circuit has two operational modes as follows:

- ♦**Paging With Intercom**—This arrangement requires two buttons, one locking button and one nonlocking button. If the locking button is depressed at any off-hook station, the manual intercom is accessed and a lamp lights under the locking button. This indicates the intercom is seized. If the paging feature is to be accessed, the nonlocking button is momentarily depressed. Ground from the nonlocking button is placed on lead BZ2 through 1C1 to the lamp lead on BZ1. Relay A operates and locks through its contacts

and option strap from terminal J to K to the intercom lamp lead. The lamp under the nonlocking button lights indicating that the intercom is connected to the paging adapter. The page connection is established and will remain connected until the calling party goes on-hook.

(b) **Paging Without Intercom**—This arrangement requires one locking button. If the locking button is depressed at any off-hook station, the intercom and the paging adapter are seized by the tip and ring short and ground on the A lead. The seizure of the paging adapter lights the lamp in the locking key indicating that the paging connection is established. The page connection will remain connected until the calling party goes on-hook.▲

**4.02** When the 278A paging adapter is used in HORIZON, paging access is accomplished via dialing a code. Up to three page zones and an all zone page are allowed, all under control of the system. A confirmation tone is heard by the person paging if the zone(s) desired is (are) not busy; otherwise, a busy signal is generated.

**4.03** When the 278A paging adapter is used in DIALOG, paging access is accomplished via dialing a code. Up to three page zones and an all zone page are allowed, all under control of the system. A confirmation tone is heard by the person paging if the zone(s) desired is (are) not busy; otherwise, a busy signal is generated.

#### Power

**4.04** The 278A paging adapter is designed to operate on -24 volt dc supply obtained from

the associated key system if capacity is available. Current drain is .030 amps at -24 volt direct current.

## 5. MAINTENANCE

**5.01** Maintenance is limited to checking for blown fuses, loose or broken connections, and verification that the wiring is good.

**5.02** When trouble is suspected in the 278A unit, have customer remove all wiring from terminals C1, C2, CT, CR, M1, M2, and GND, then replace unit.



*Do not attempt any tests or repairs to the CPE.*

**5.03** When in the judgment of repair personnel the trouble is located in the CPE, the customer should be notified so proper maintenance can be initiated.

## 6. COMPATIBILITY

**6.01** The 278A paging adapter is compatible with the following:

- DIALOG and HORIZON
- 211A, 232B, and 401-Type KTUs—Manual Intercom.

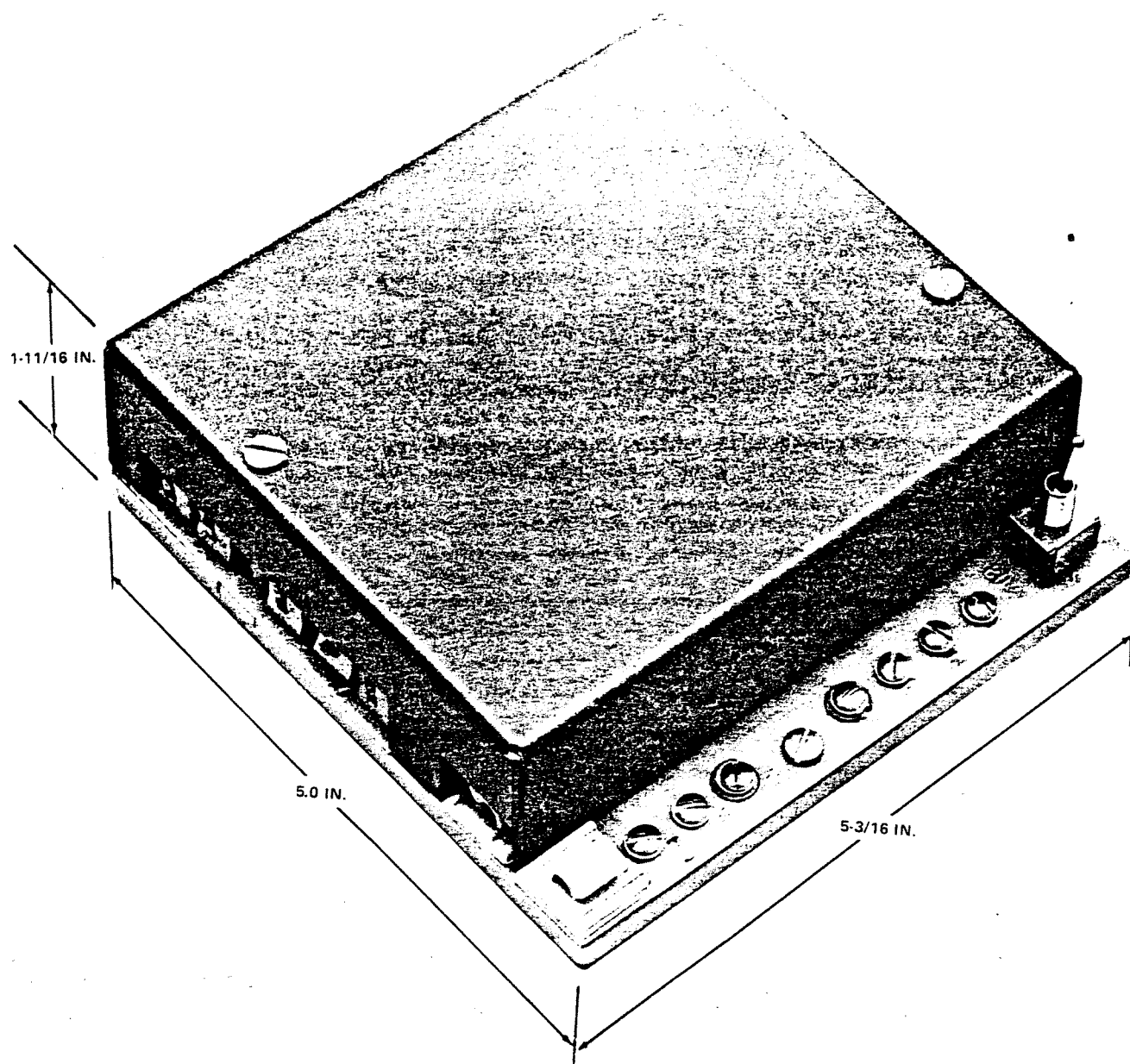


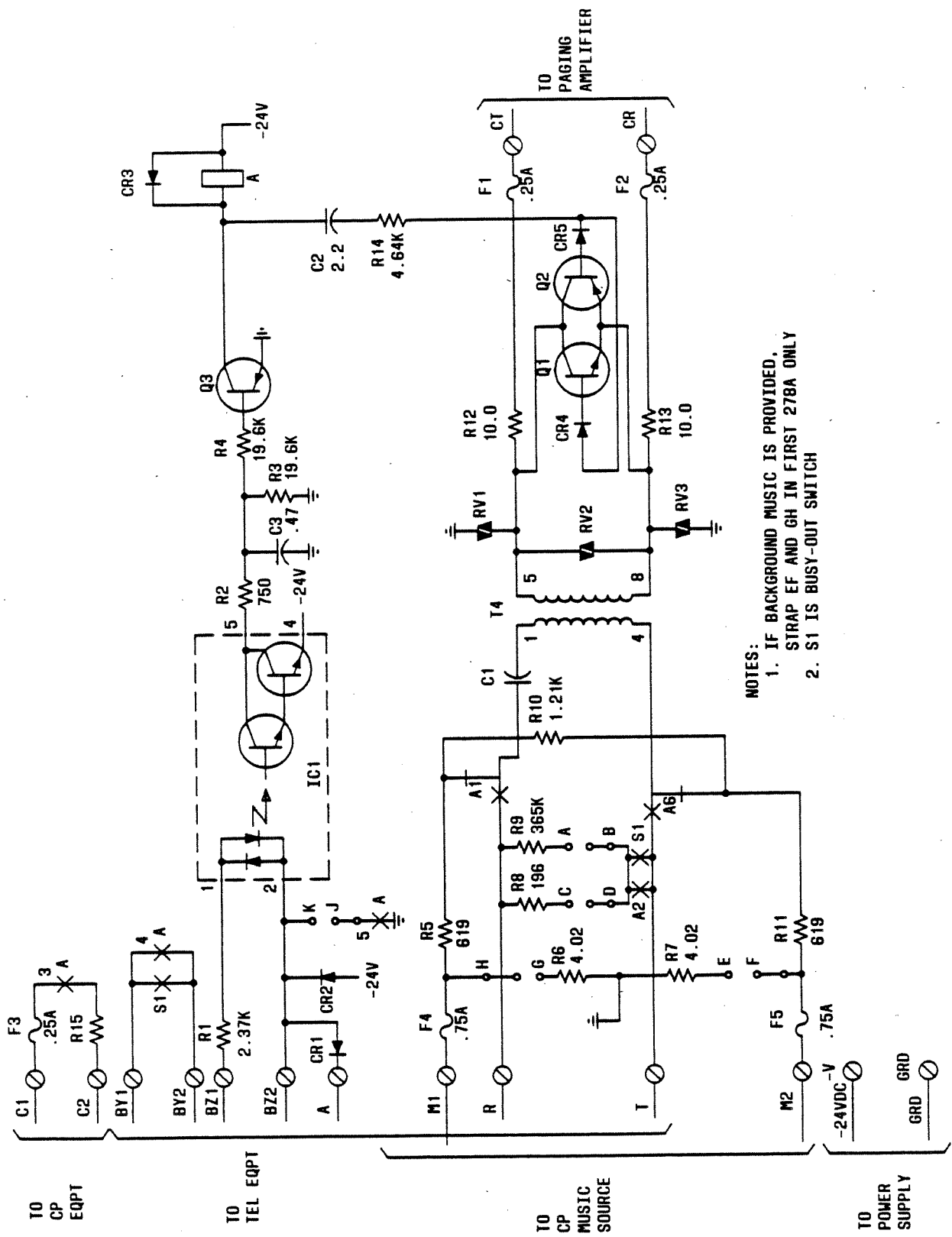
Fig. 1—278A Paging Adapter

TABLE A  
OPTION STRAPPING

OPTION	TERMINAL									
	A	B	C	D	E	F	G	H	J	K
DIALOG	○—○									
HORIZON			○—○							
1A1: 211A or 232B, KTU (nonlocking)									○—○	
1A2: 401A KTU (nonlocking)									○—○	
1A2: 401A KTU (locking)										
Background Music*†					○—○		○—○			

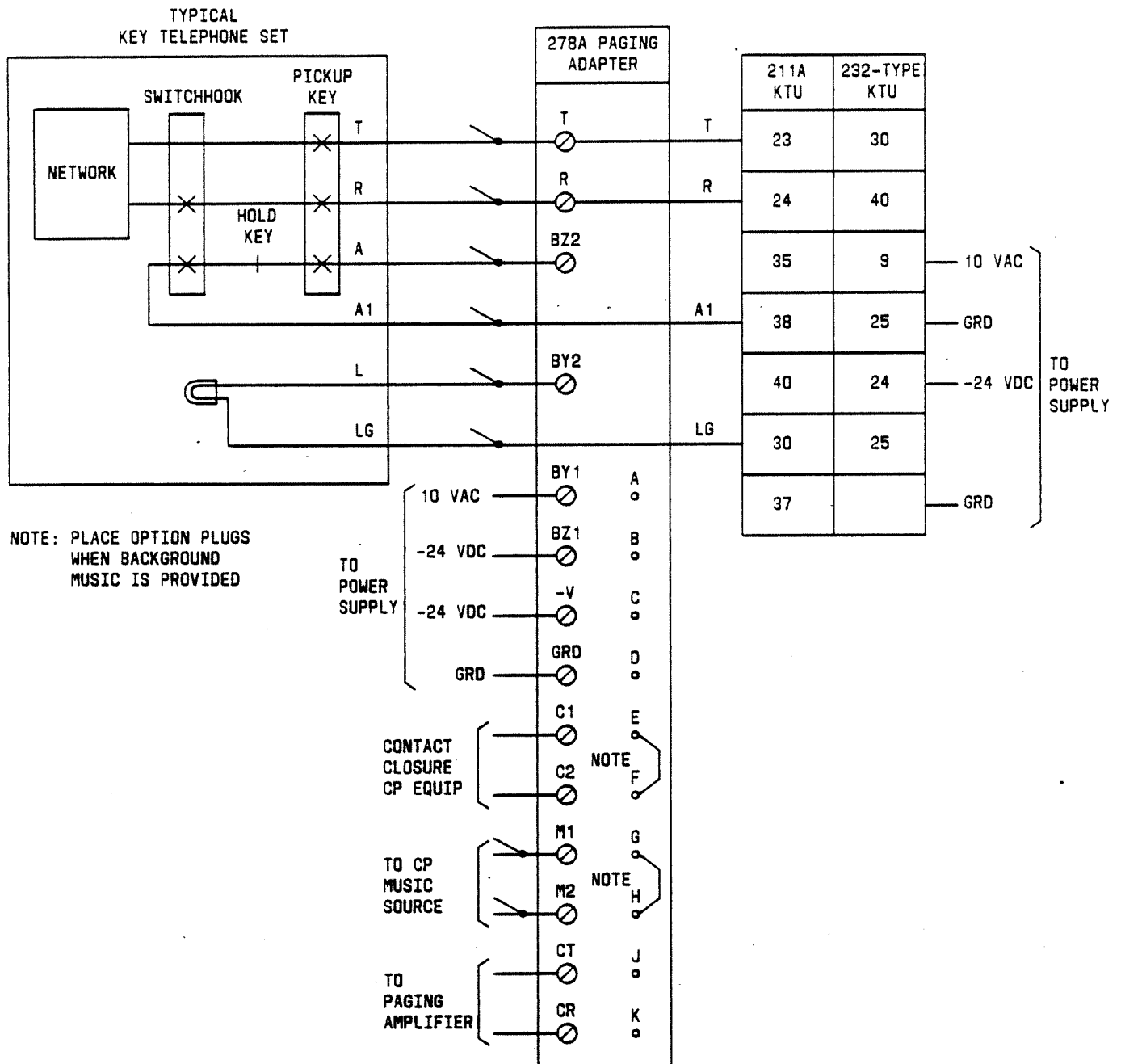
\* Provide in first 278A only.

† Do not place option straps on 32A Communication System (HORIZON).



NOTES:  
1. IF BACKGROUND MUSIC IS PROVIDED, STRAP EF AND GH IN FIRST 278A ONLY  
2. S1 IS BUSY-OUT SWITCH

Fig. 2—Schematic Diagram—278A Paging Adapter



**Fig. 3—♦Paging Adapter Without Intercom (1A1 Key Telephone System)♦**

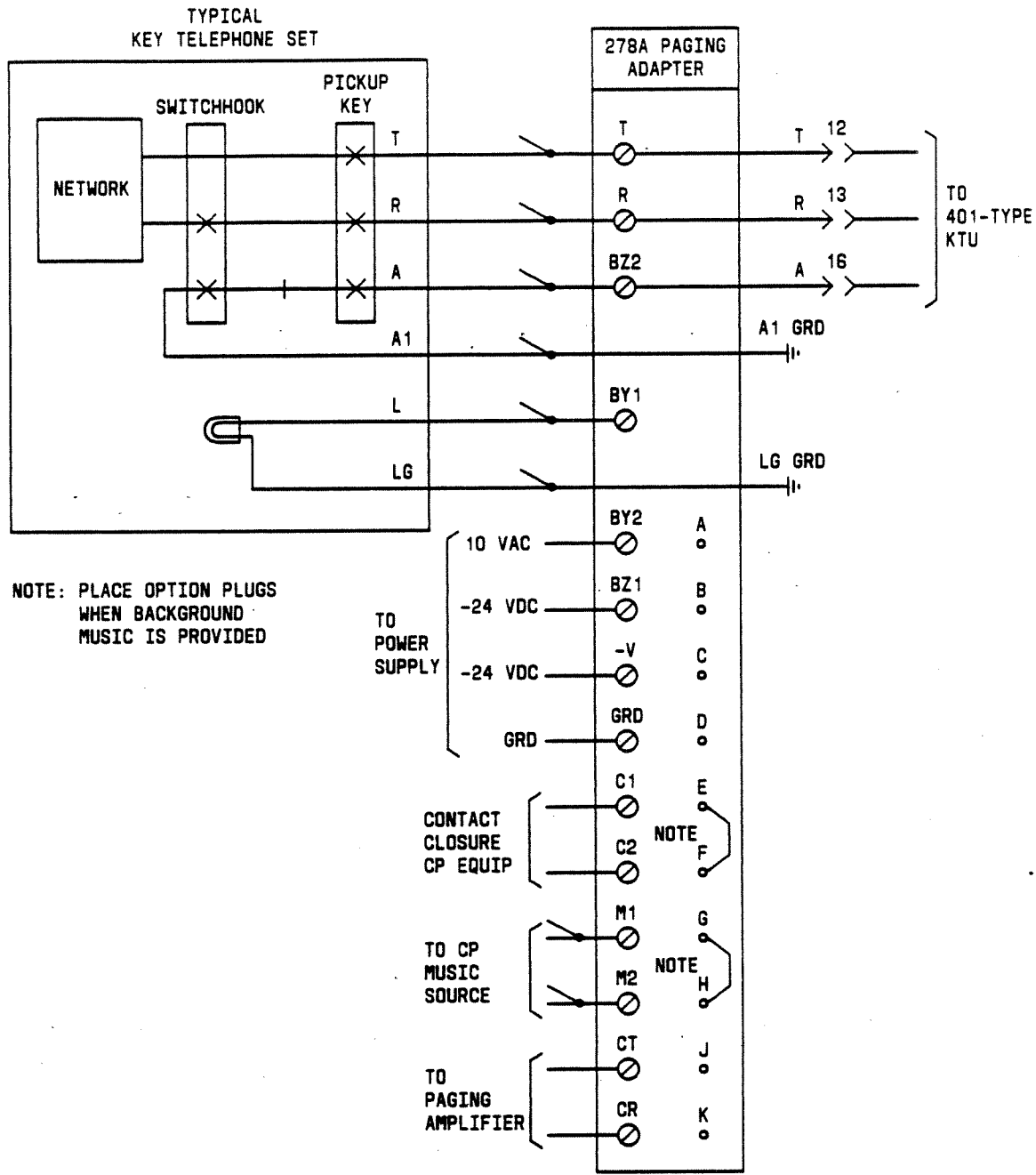
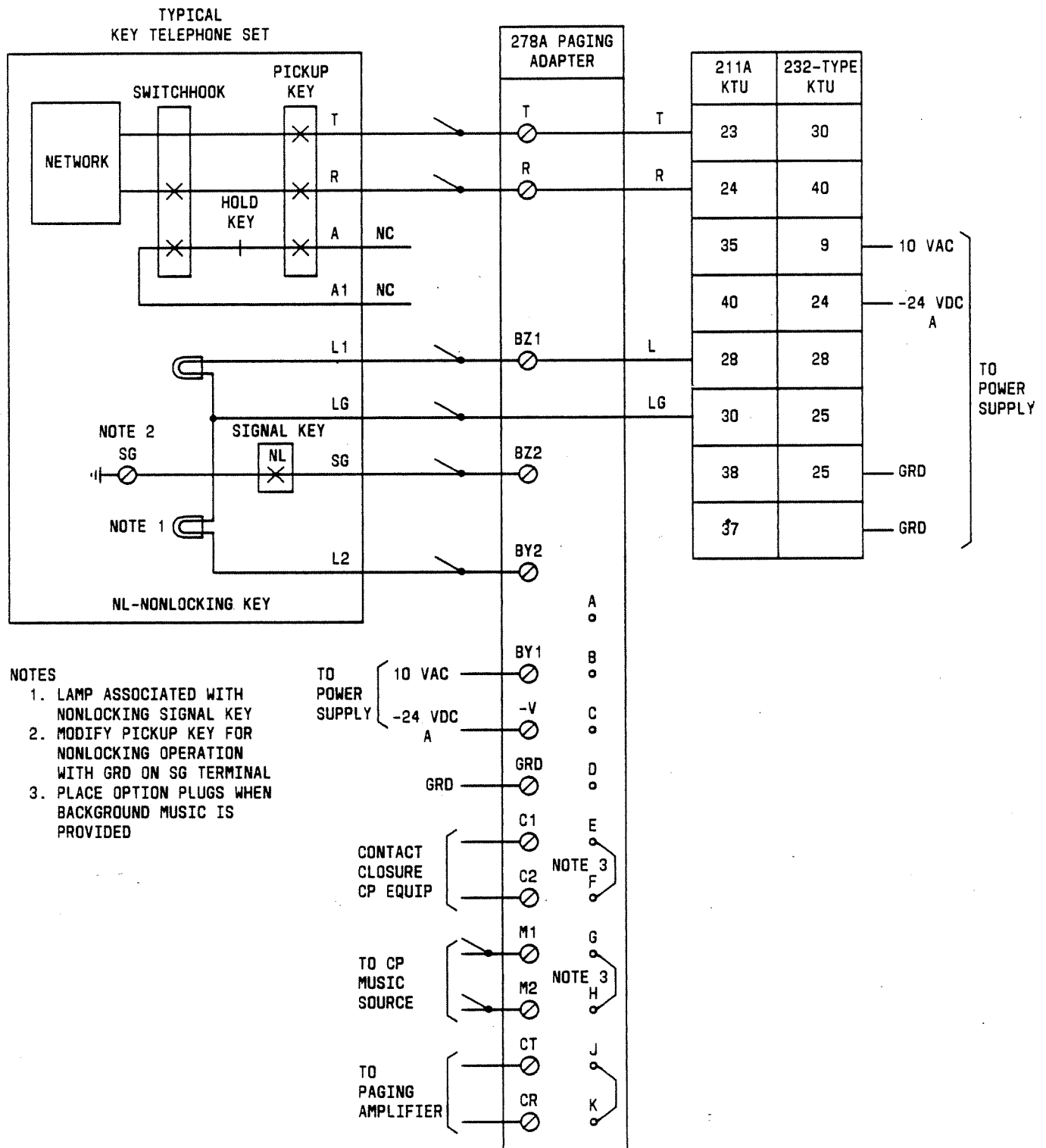


Fig. 4—Paging Adapter Without Intercom (1A2 Key Telephone System)





**Fig. 5—♦Paging Adapter With Intercom Using Nonlocking Access Button (1A1 Key Telephone System)♦**

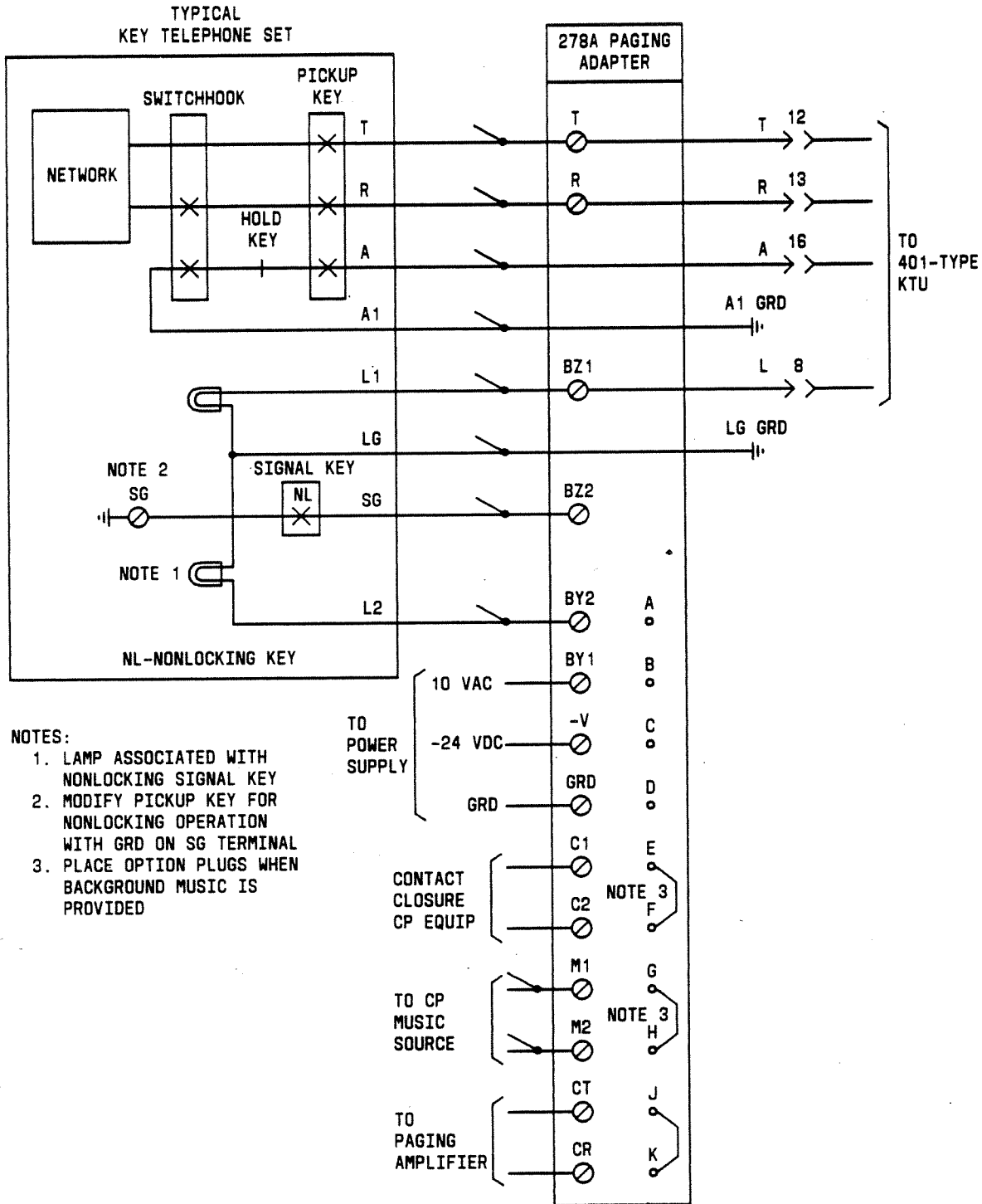


Fig. 6—Paging Adapter With Intercom Using Nonlocking Access Button (1A2 Key Telephone System)†

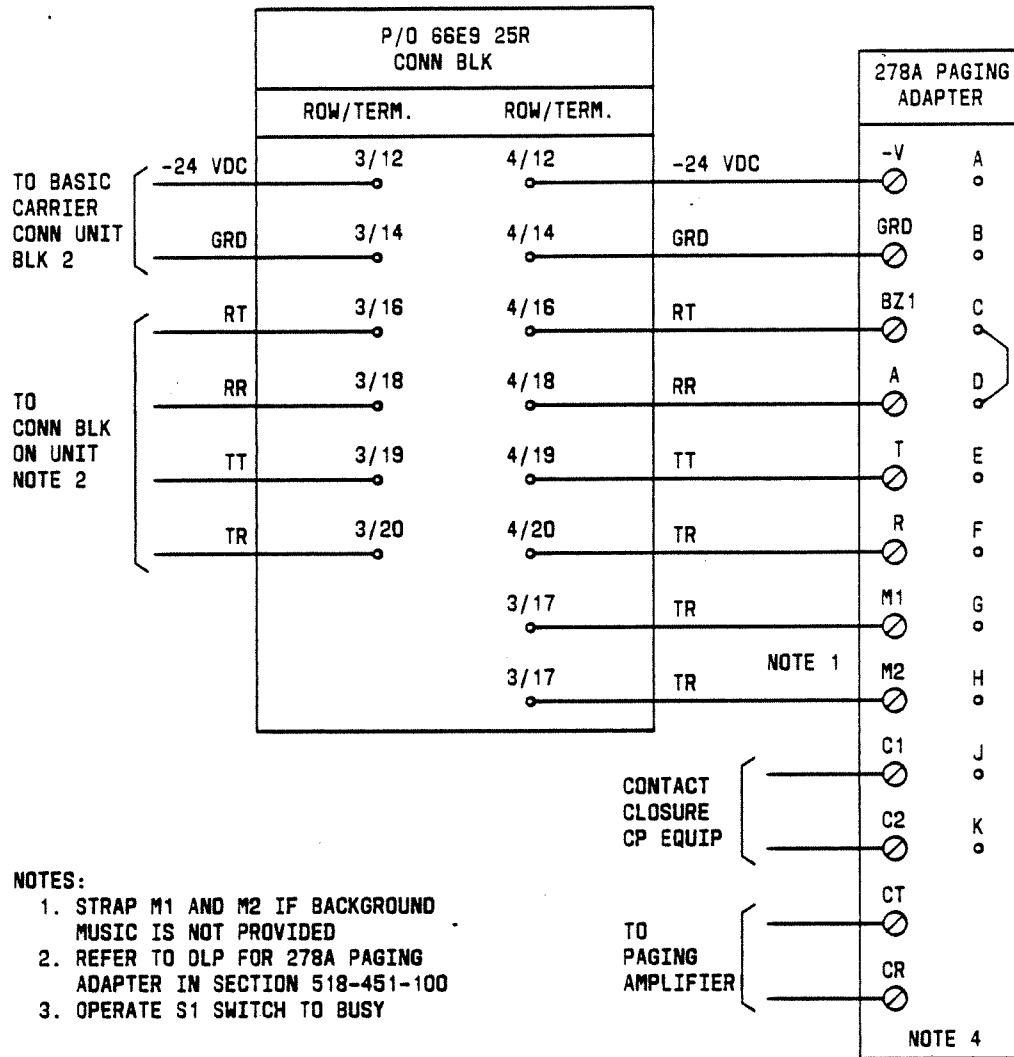
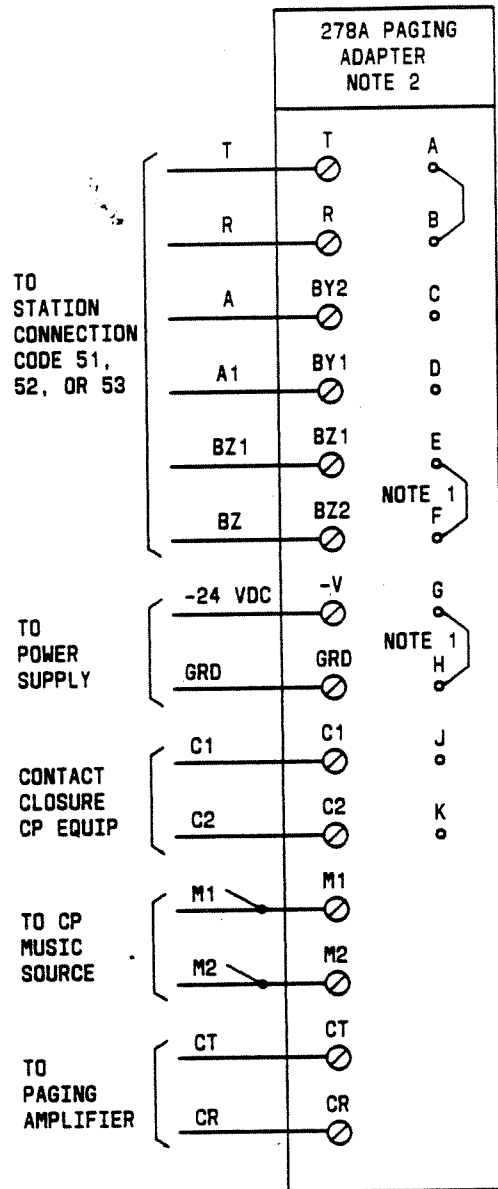


Fig. 7—♦Paging Adapter Connections for 32A Communication System (HORIZON)♦



- NOTES:
1. PLACE OPTION PLUGS WHEN BACKGROUND MUSIC IS PROVIDED
  2. ADD CONTINUOUS RING OPTION TO ASSOCIATED 484A KTU

Fig. 8—Paging Adapter Connections for 6B Intercom System (DIALOG)