

L3 CARRIER

OVERALL SYSTEM

LINE REMOVAL FROM AND RESTORATION TO SERVICE

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1. GENERAL

1.01 This section delineates the procedures for removal of regular or standby lines from service for test and maintenance purposes and the restoration of the removed lines to service once maintenance is completed.

1.02 This section is reissued to add a new Step 2 to Chart 2 and to make other minor changes for clarification.

1.03 This section replaces Section 359-075-500. The information herein is limited to removal and restoration procedures. Other test information formerly contained in Section 359-075-500 is now contained in other sections.

1.04 Under normal conditions with 2-line, multiline, or expanded multiline switching arrangements,

the standby line, although not being used for transmission, is supplied with pilots and transmission signals from a working hybrid coil. With multiline and expanded multiline switching arrangements, these signals are supplied from the transmitting hybrid coil associated with the first regular line in the switching section.

1.05 When a line is removed from service, the normal pilot feed connection is removed from the regular line and the pilots are inserted into the removed line via a spare hybrid circuit. This allows test signals for equalization line-up to be inserted on the removed line without interfering with service on the working line.

1.06 When disconnecting a line from or connecting a line into a working transmitting hybrid coil, a double termination is placed on the hybrid leg involved rather than allowing the leg to remain open. This results in a 37.5-ohm termination instead of an infinite impedance termination being placed momentarily on the hybrid leg. The termination reduces the impedance unbalance between the two hybrid outputs and results in less disturbance on the line in service.

2. PROCEDURES

2.01 Communication between attendants at the transmitting and receiving ends is required. Chart 1 provides the procedures for removal of a standby line from service, Chart 2 provides procedures for removal of a regular line from service, and Chart 3 provides the procedures for restoring a regular or standby line to service.

CHART 1

REMOVAL OF STANDBY LINE FROM SERVICE

The switching circuit must be locked to a working line(s) by operation of the LOCK NORM and MSTR key before the standby line to be tested is removed from the transmitting hybrid coil. This will prevent the switching circuit from switching to a line that is out of service. If this is not done, service could be lost without activating the usual alarms accompanying such a failure.

APPARATUS

- 3—368A Plugs (75 ohms)
- 1—372A Patch Plug
- 1—P2BJ Patch Cord

STEP

PROCEDURE

Note: To avoid activation of auxiliary pilot and switching circuit alarms, establish connections and terminations in the order set forth in the following steps (Fig. 1 and 2).

- 1 At the receiving end of the switching section, ascertain that the standby line is not carrying transmission and then lock the switching circuit to the regular line by operating the LOCK NORM and MSTR key.
- 2 At the transmitting end of the same switching section, in the standby line bay or the nearest bay equipped with a spare hybrid coil, patch between the PIL jack and the SP HY NET jack using a 372A patch plug (Fig. 1 and 2).
- 3 Terminate the SP HY OUT B and SP HY IN jacks with 368A plugs.
- 4 Plug one end of a P2BJ cord into the SP HY OUT A jack.

Caution: Read the rest of this procedure before proceeding. Locate jacks and patch plugs so that the patches called for in Step 6 can be made quickly on a make-before-break basis.

- 5 **For 2-Line Switching:** Terminate the multiple of the TRSG HY OUT B jack with a 368A plug (Fig. 1) and perform Step 6 immediately.

For Multiline or Expanded Multiline Switching: Terminate the multiple of the TRSG HY OUT B jack associated with the first regular line with a 368A plug (Fig. 2) and perform Step 6 immediately.

CHART 1 (Cont)

STEP	PROCEDURE
6	Plug the free end of the P2BJ cord into the multiple of the standby line FLAT AMP T IN jack and immediately perform one of the following steps: For 2-Line Switching: Remove the patch plug from the TRSG HY OUT B TRK and FLAT AMP T IN jacks. For Multiline or Expanded Multiline Switching: Remove the patch plug from the SW OUT and FLAT AMP T IN jacks. Note: The standby line is now out of service. At the receiving end, the patch plug may be removed from the PIL HY OUT A and SW IN jacks on the regular line for connection of the measuring equipment to the PIL HY OUT A jack (Fig. 3).

CHART 2**REMOVAL OF REGULAR LINE FROM SERVICE**

When removing a regular line from service, a manual switch must be made and the switching circuit locked. In a 2-line switching circuit, service is switched and locked on the standby line. In a multiline or expanded multiline switching circuit, a standby line can be switched into service only if none of the pilot alarm relays for the standby line are operated. In a multiline or expanded multiline system, the SEL LINE key is operated to select the regular line to be removed. This is followed by simultaneous operation of the MAN and MSTR keys which results in switching service to the standby line. The switching circuit remains locked until manually released.

APPARATUS

- 3—368A Plugs (75 ohms)
 - 1—372A Patch Plug
 - 1—P2BJ Patch Cord
-

STEP	PROCEDURE
	Note: To avoid activation of auxiliary pilot and switching circuit alarms, establish connections and terminations in the order set forth in the following steps (Fig. 4 and 5).

CHART 2 (Cont)

STEP	PROCEDURE
1	At the receiving end, manually switch service to the standby line. First, observe that none of the pilot alarm relays are operated. Then set the SEL LINE key to the line to be removed and simultaneously operate the MAN and MSTR keys.
2	Before proceeding to Step 3, observe that the OUT SERV MAN lamp associated with the line being removed from service is lighted. Failure to do so may result in a service failure.
3	At the transmitting end, in the nearest transmitting bay equipped with a spare hybrid coil, connect the PIL and SP HY NET jacks with a 372A patch plug (Fig. 4 and 5).
4	Terminate the SP HY OUT B and SP HY IN jacks with 368A plugs.
5	Plug one end of a P2BJ patch cord into the SP HY OUT A jack.
	Caution: Read the rest of this procedure before proceeding. Locate the jack and patch plugs so that the patches called for in Step 6 can be made quickly on a make-before-break basis.
6	Terminate the multiple of the TRSG HY OUT A jack with a 368A plug and perform Step 7 immediately.
7	Plug the free end of the P2BJ cord into the multiple of the FLAT AMP T IN jack and immediately remove the patch plug from the FLAT AMP T IN and TRSG HY OUT A jacks.
	Note: The regular line is now out of service. At the receiving end, the patch plug may be removed from the PIL HY OUT A and SW IN jacks on the regular line for connection of measuring equipment to the PIL HY OUT A jack (Fig. 3.)

CHART 3RESTORATION OF LINES TO SERVICE

APPARATUS

1—J60437B Transmission Measuring Set (37B TMS)

CHART 3 (Cont)

STEP	PROCEDURE
1	Regular Line: At the <i>transmitting</i> end, connect the TRSG HY OUT A jack to the FLAT AMP T IN jack with a patch plug and simultaneously disconnect the patch cord from the multiple jack on a make-before-break basis, if possible. Immediately remove the termination from the TRSG HY OUT A multiple jack. Standby Line: At the <i>transmitting</i> end, connect a patch plug between the TRSG HY OUT B TRK or SW OUT and FLAT AMP T IN jacks and simultaneously remove the patch cord from the FLAT AMP T IN jack on a make-before-break basis. Immediately remove the termination from the TRSG HY OUT B multiple jack. 2 At the receiving end, replace the patch plug between the PIL HY OUT A and SW IN jacks. 3 After the pilots have become normal on the line being placed in service, as indicated on the pilot alarm panel, check for the presence of traffic by bridging the 37B TMS at the PIL HY OUT A jack. Tune the 37B TMS to a portion of the frequency band occupied by message signals and listen for distorted speech or carrier leaks in the receiver supplied with the 37B TMS. The sensitivity must be set to -60 dBm or better. The frequency band may be scanned to find signals. 4 If signals are present, indicating that the line is connected to the hybrid coil feeding signals, the line may be switched into service by simultaneously operating the MSTR and RLS keys.

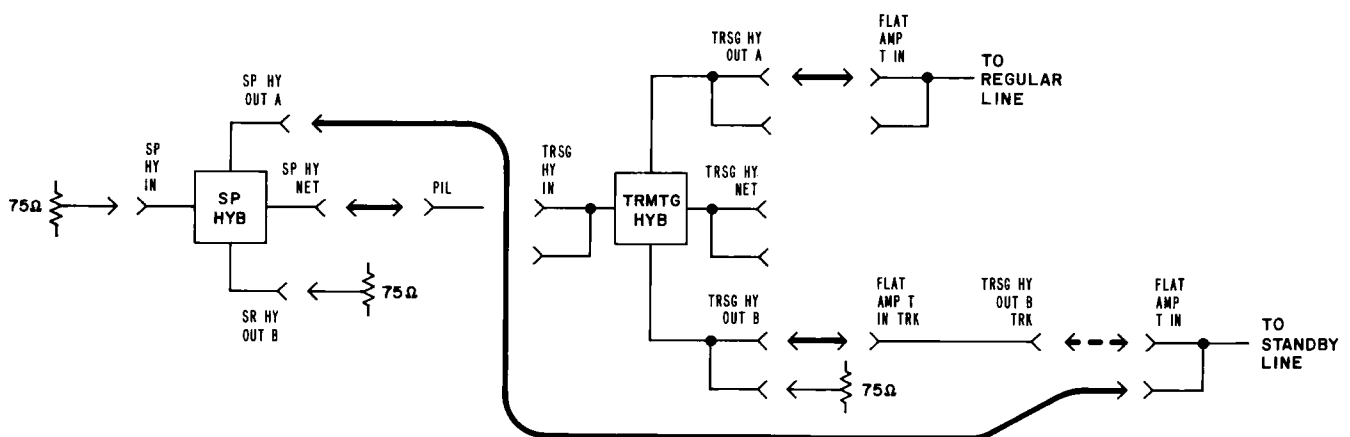


Fig. 1—Standby Lines—2-Line Switching—Transmitting End

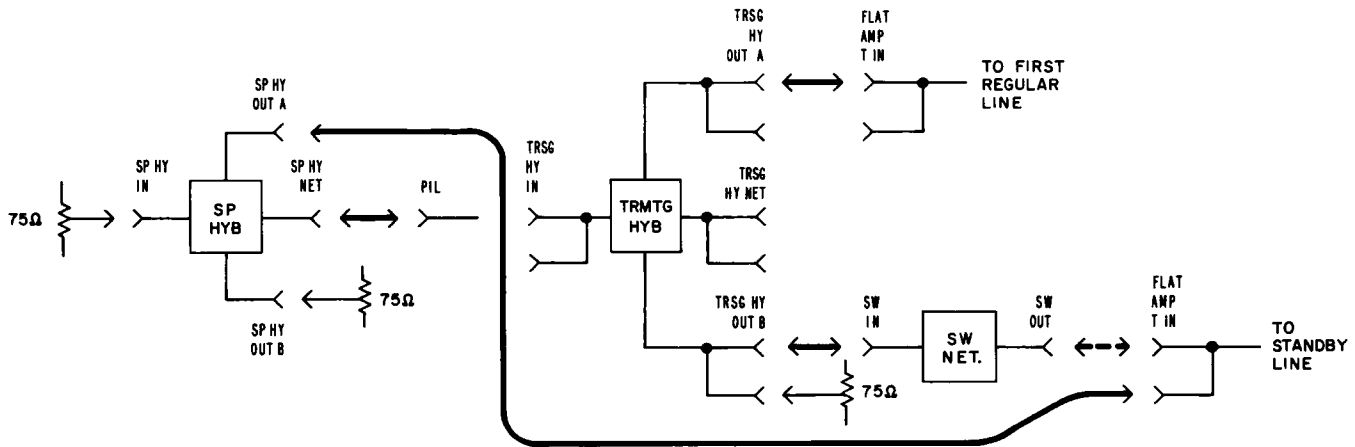


Fig. 2—Standby Lines—Multiline and Expanded Multiline Switching—Transmitting End

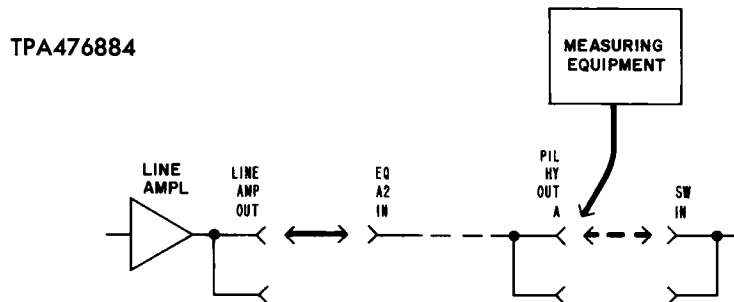


Fig. 3—Regular or Standby Lines—2-Line, Multiline, or Expanded Multiline Switching—Receiving End

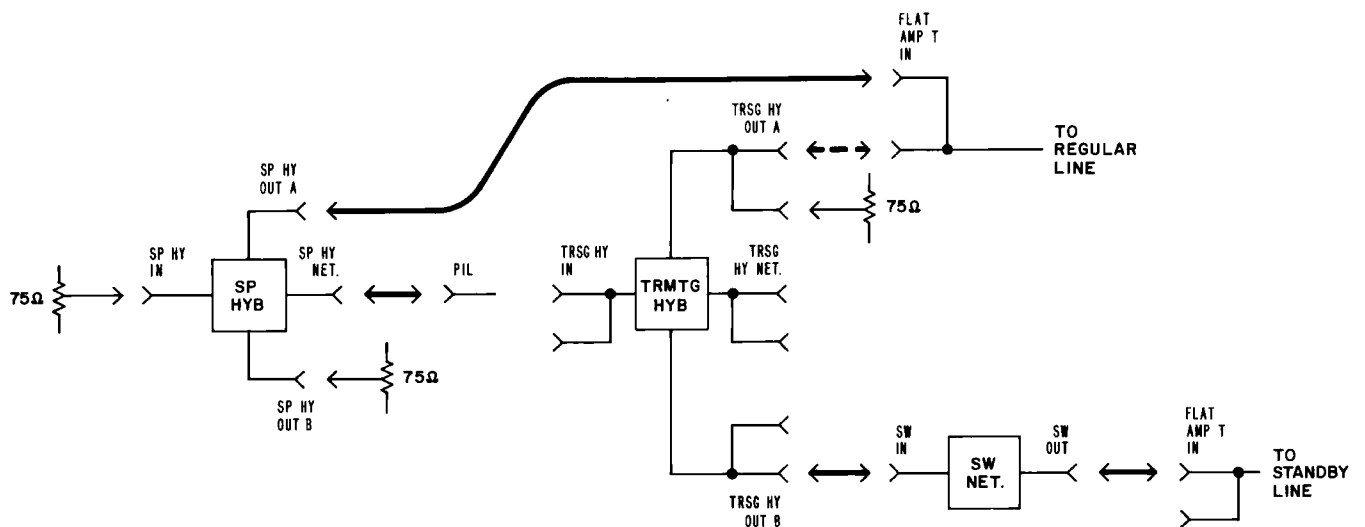


Fig. 4—Regular Lines—Multiline and Expanded Multiline Switching—Transmitting End

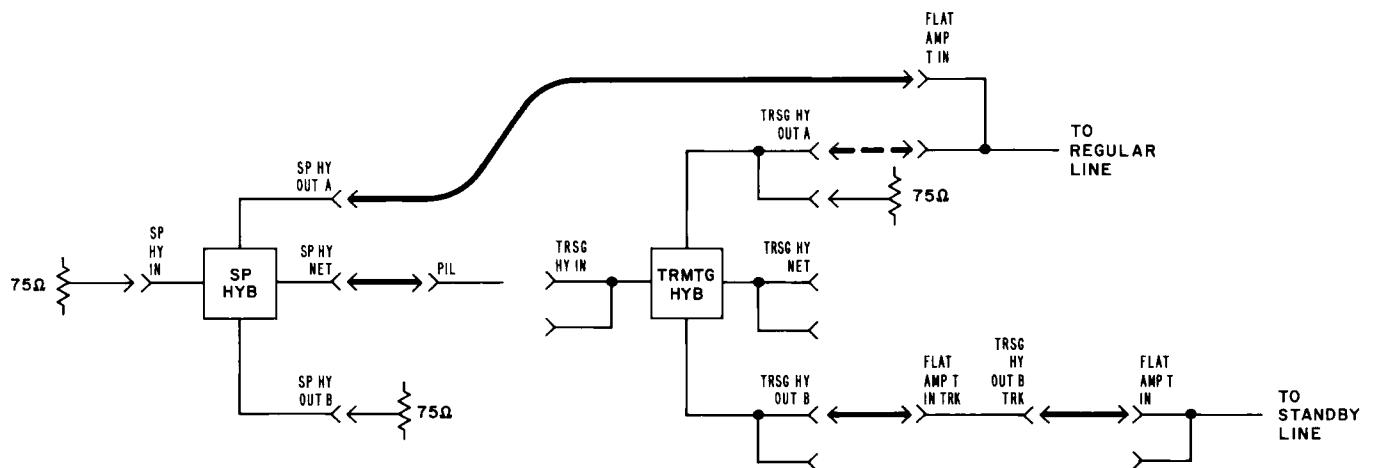


Fig. 5—Regular Lines—2-Line Switching—Transmitting End