

L MULTIPLEX TERMINALS
LMX-2
CARRIER AND PILOT SUPPLY
INDEPENDENT 64-KHZ LINE PILOT SUPPLY AND DISTRIBUTION CIRCUIT
TESTS

An independent 64-kHz pilot supply J68911A (Fig. 1) can supply line pilot signals for as many as 66 wire line entrance links. A block diagram is shown in Fig. 2.

This section is reissued to clarify several charts and figures. Arrows are used to indicate significant changes. *Equipment Test Lists are not affected.*

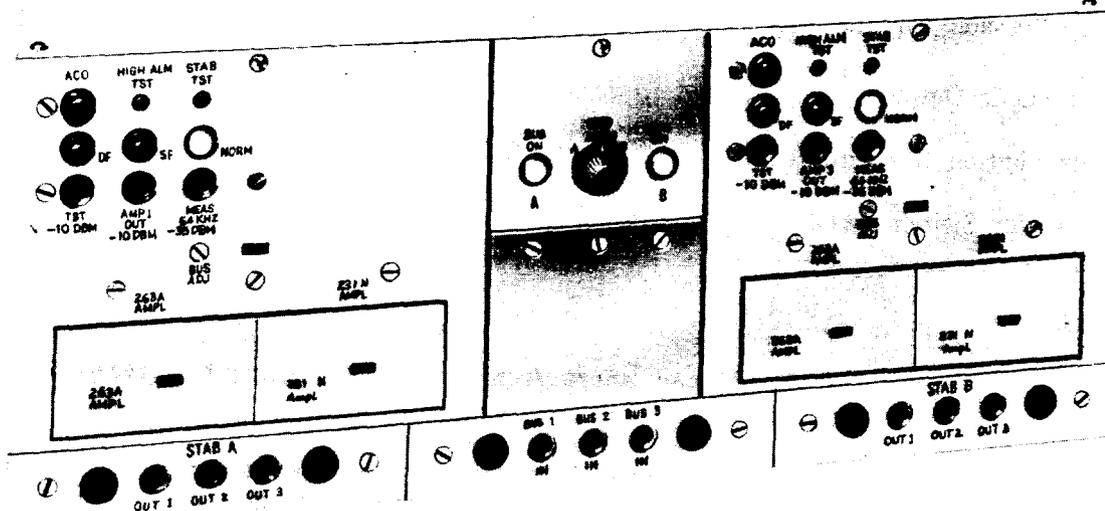


Fig. 1—Independent 64-kHz Pilot Supply J68911A

NOTICE

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Bell System except under written agreement

This section provides procedures to:

- (a) Measure the output of the stabilizer and verify the performance of the detector, alarm, and switching circuits
- (b) Measure the harmonic signal power
- (c) Measure the distribution bus output
- (d) Replace or restore a transfer switch.

The pilot supply consists of two identical stabilizer, detector, and alarm units. A nonrevertive transfer circuit connects the in-service stabilizer to the distribution buses and terminates the idle stabilizer. Each stabilizer provides four filtered and amplitude-stabilized outputs. Three outputs are connected to J68909B distribution buses, and one output is terminated in a test jack. Each distribution bus provides twenty-two 135-ohm balanced taps plus one test jack.

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APPARATUS:

Refer to Section 356-010-500 and select, from available equipment, a receiving unit having the following capabilities:

Receiving test equipment capable of detecting, from 135-ohm circuits, a signal of 64 kHz at powers between -37 and -10 dBm and capable of detecting, from 75-ohm circuits, a signal of 192 kHz at a power as low as -75 dBm.

3P17B cords

ED-50688-30, G2 cords (Fig. 3)

3P6C cords

609C filter

APPARATUS (Cont):

135- to 75-ohm impedance matching transformer.

Note: The impedance matching transformer contained in the 34A transmission measuring set is suitable for these tests.

CHART 1

STABILIZER, DETECTOR, AND ALARM TESTS

STEP	PROCEDURE
A. Stabilizer Test	
On independent 64-kHz pilot supply J68911A,	
1	Observe the BUS ON lamps located on the transfer switch unit to identify the idle stabilizer.
Requirement: The <i>idle</i> stabilizer is indicated by the <i>extinguished</i> BUS ON lamp.	
2	Calibrate the RTE for a 135-ohm terminated measurement of 64 kHz at -10 dBm.

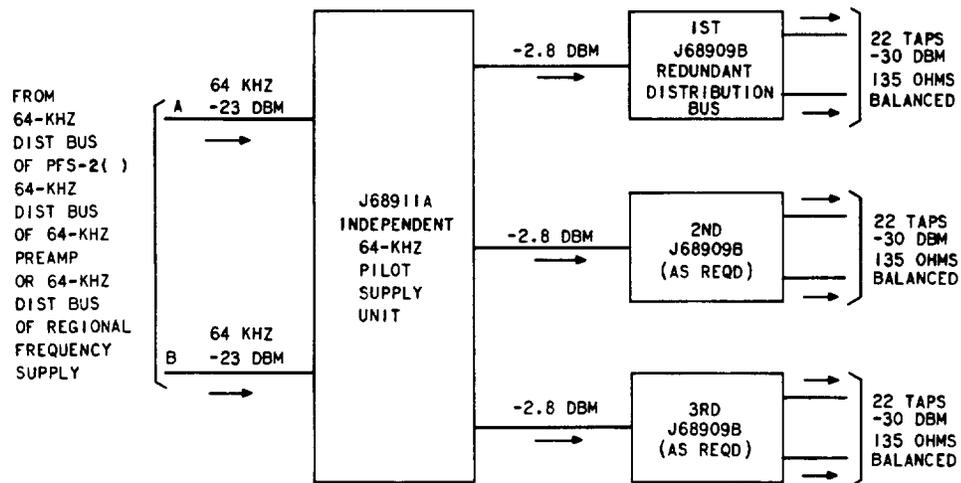


Fig. 2—Independent 64-kHz Supply and Distribution Circuit

CHART 1 (Cont)

STEP

PROCEDURE

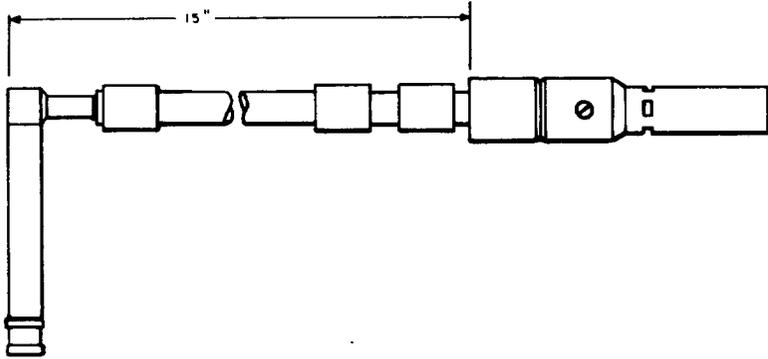


Fig. 3— Cord ED-50688-30

- 3 Measure the power of the 64-kHz signal at the TST -10 DBM jack on the idle stabilizer [patch (1), Fig. 4].

Requirement: -10.00 dBm \pm 0.05 dB

- 4 Adjust the BUS ADJ control on the idle stabilizer, if required, to meet the requirement.

- 5 Proceed to Step 9 if the requirement is now met. Otherwise, proceed to Step 6.

- 6 Calibrate the RTE for a 135-ohm terminated measurement of 64 kHz at -35 dBm.

- 7 Measure the power of the 64-kHz signal at the MEAS 64 KHZ -35 DBM jack on the *idle stabilizer* [patch (2), Fig. 4].

Requirement: Power is between -36.5 and -32 dBm.

Note: ♦If the requirement is not met, refer to the appropriate one of the following sections, according to the source of the 64-kHz input signals to the pilot supply: Section 356-153-501 for PFS-1, Section 354-102-500 for PFS-2A, Section 354-104-500 for PFS-2B, or Section 354-140-503 for regional frequency supply.♦

- 8 Clear trouble in the connecting apparatus or wiring, and repeat Steps 2 through 5.

- 9 Depress and hold depressed the STAB TST pushbutton on the idle stabilizer.

- 10 Note any change in the power of the 64-kHz signal.

Requirement: Power decreases less than 0.3 dB from the power measured in Step 3.

CHART 1 (Cont)

STEP

PROCEDURE

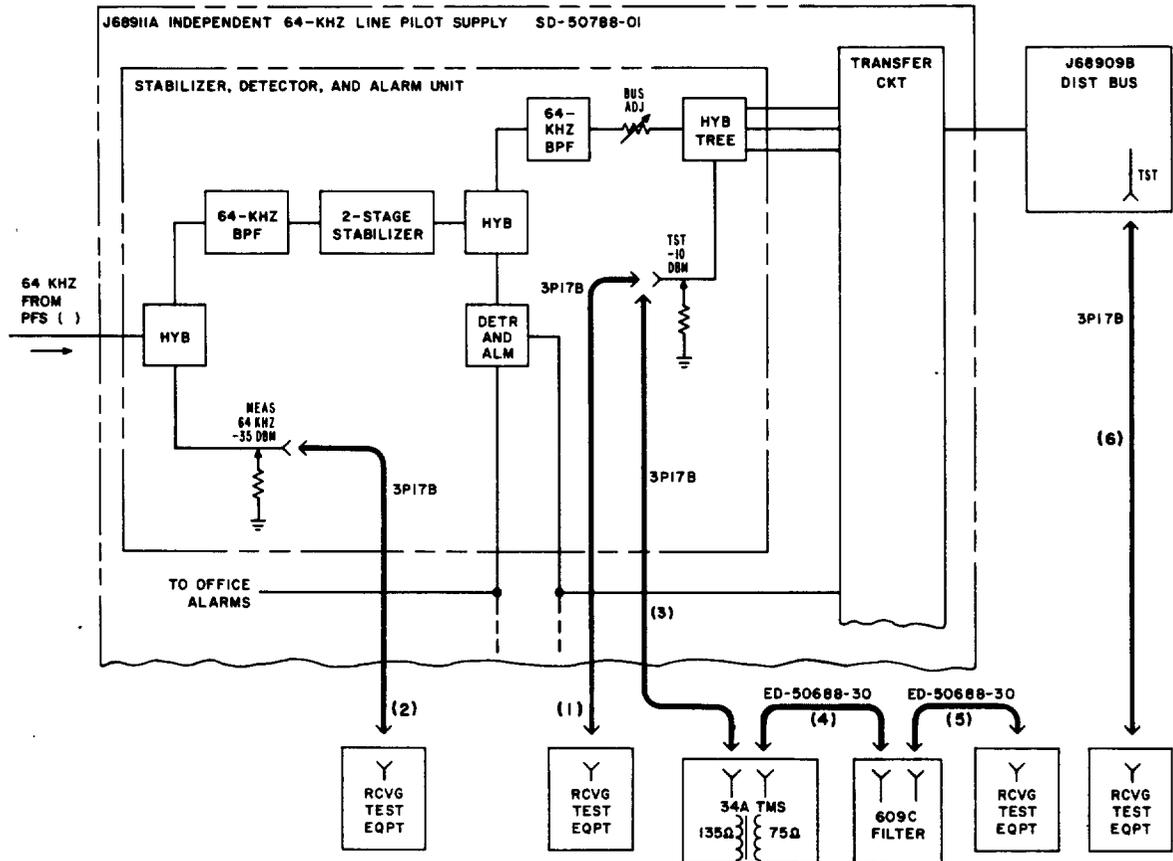


Fig. 4—Independent 64-kHz Pilot Supply and Distribution Bus Test Connections

- 11 Release the STAB TST pushbutton.
 - 12 Remove all test connections.
- B. Detector and Alarm Tests**
- 13 Depress and hold depressed the HIGH ALM TST pushbutton.
- Requirement 1:** NORM lamp is extinguished.
- Requirement 2:** SF lamp is lighted.
- Requirement 3:** Audible alarm is operated.

CHART 1 (Cont)

STEP	PROCEDURE
14	Depress the ACO pushbutton to silence the audible alarm.
15	Release the HIGH ALM TST pushbutton. Requirement 1: NORM lamp is lighted. Requirement 2: SF lamp is extinguished.
16	Remove the 263A amplifier. Requirement 1: NORM lamp is extinguished. Requirement 2: SF lamp is lighted. Requirement 3: Audible alarm is operated.
17	Reinsert the 263A amplifier. Requirement 1: NORM lamp is lighted. Requirement 2: SF lamp is extinguished. Requirement 3: Audible alarm is silenced.
C. Transfer Circuit Tests	
Caution: <i>Do not remove the A stabilizer when the transfer switch is in the AUTO position. If the A stabilizer is to be removed, first place the transfer switch in the B position.</i>	
18	Position the transfer switch control from the AUTO position to the in-service stabilizer position indicated by the lighted BUS ON lamp. Requirement: No change in status of BUS ON lamps.
19	Position the transfer switch control to the idle stabilizer position indicated by the extinguished BUS ON lamp. Requirement 1: BUS ON lamp previously lighted is extinguished. Requirement 2: BUS ON lamp previously extinguished is lighted.
20	Repeat Parts A and B for the stabilizer now in the idle condition.
21	Restore the transfer switch manual control to the AUTO position.

CHART 2
HARMONIC OUTPUT

STEP

PROCEDURE

Caution: Do not remove the A stabilizer when the transfer switch is in the AUTO position. If the A stabilizer is to be removed, first place the transfer switch in the B position.

On independent 64-kHz pilot supply J68911A,

- 1 Observe the BUS ON lamps located on the transfer switch unit to identify the idle stabilizer.

Requirement: The *idle* stabilizer is indicated by the *extinguished* BUS ON lamp.

- 2 ♦Remove patch (2) in Fig. 4.

- 3 Calibrate the RTE to make a 75-ohm terminated measurement of 192 kHz at -75 dBm.

- 4 Make patches (3), (4), and (5) in Fig. 4.

- 5 Measure the 192-kHz power present at the RTE.

Note: The third harmonic of 64 kHz (192 kHz) is being measured in this step.

Requirement: Power is less than -75 dBm (-76 dBm is less than -75 dBm).

- 6 Replace the stabilizer unit and repeat Step 5 if the requirement is not met.

- 7 Transfer service to the idle stabilizer and repeat Steps 1 through 6 for the new idle stabilizer.

- 8 Remove all test connections.♦

CHART 3
DISTRIBUTION BUS OUTPUT

STEP	PROCEDURE
	<i>On independent 64-kHz pilot supply J68911A,</i>
1	Observe the BUS ON lamps located on the transfer switch unit to identify the in-service stabilizer. Requirement: The <i>in-service</i> stabilizer is indicated by the <i>lighted</i> BUS ON lamp.
2	Calibrate the RTE for a 135-ohm terminated measurement of 64 kHz at -30 dBm.
3	Measure the power of the 64-kHz signal at the TST jack on the first J68909B distribution bus [patch (6), Fig. 4]. Requirement: -30.0 dBm \pm 0.1 dB
4	Adjust the BUS ADJ control on the in-service stabilizer, if required, to meet the requirement.
5	Perform the tests in Part A of Chart 1 if the requirement cannot be met by adjustment.
6	Transfer service to the idle stabilizer and repeat Steps 1 through 5 for the new in-service stabilizer.
7	Repeat Step 3 for the second and third J68909B distribution buses when provided. Note: If the requirement of Step 3 cannot be met for the second and third buses, investigate the cause of trouble. Do <i>not</i> readjust the BUS ADJ controls on the stabilizers.
8	Remove all test connections.

CHART 4
TRANSFER SWITCH REPLACEMENT

STEP	PROCEDURE
	<i>On independent 64-kHz pilot supply J68911A,</i>
1	Observe the BUS ON lamps located on the transfer switch unit to identify the in-service stabilizer. Requirement: The <i>in-service</i> stabilizer is indicated by the <i>lighted</i> BUS ON lamp.

CHART 4 (Cont)

STEP	PROCEDURE
2	Calibrate the RTE for a 135-ohm terminated measurement of 64 kHz at -30 dBm.
3	Connect the RTE to the TST jack on the first J68909B distribution bus [patch (1), Fig. 5].
4	◆Make patches (2), (3), and (4) in Fig. 5 on independent 64-kHz pilot supply—J68911A. <i>Note:</i> Depending upon equipment requirements, the BUS 2 and BUS 3 positions may not be equipped. Patches (3) and (4) are required for all equipment arrangements to ensure proper termination of the stabilizer when the transfer switch is removed.◆
5	Remove the transfer switch plug-in unit.
6	Verify that the RTE measures a 64-kHz signal at each distribution bus TST jack [patch (1), Fig. 5]. <i>Requirement:</i> -30.0 dBm \pm 0.5 dB
7	Insert the replacement transfer switch plug-in unit.
8	Remove the patches placed in Step 4 while monitoring the 64-kHz signal output at the distribution bus TST jack associated with the patch cord being removed.
9	Remove all test connections.
10	Perform the tests in Charts 1 and 3.

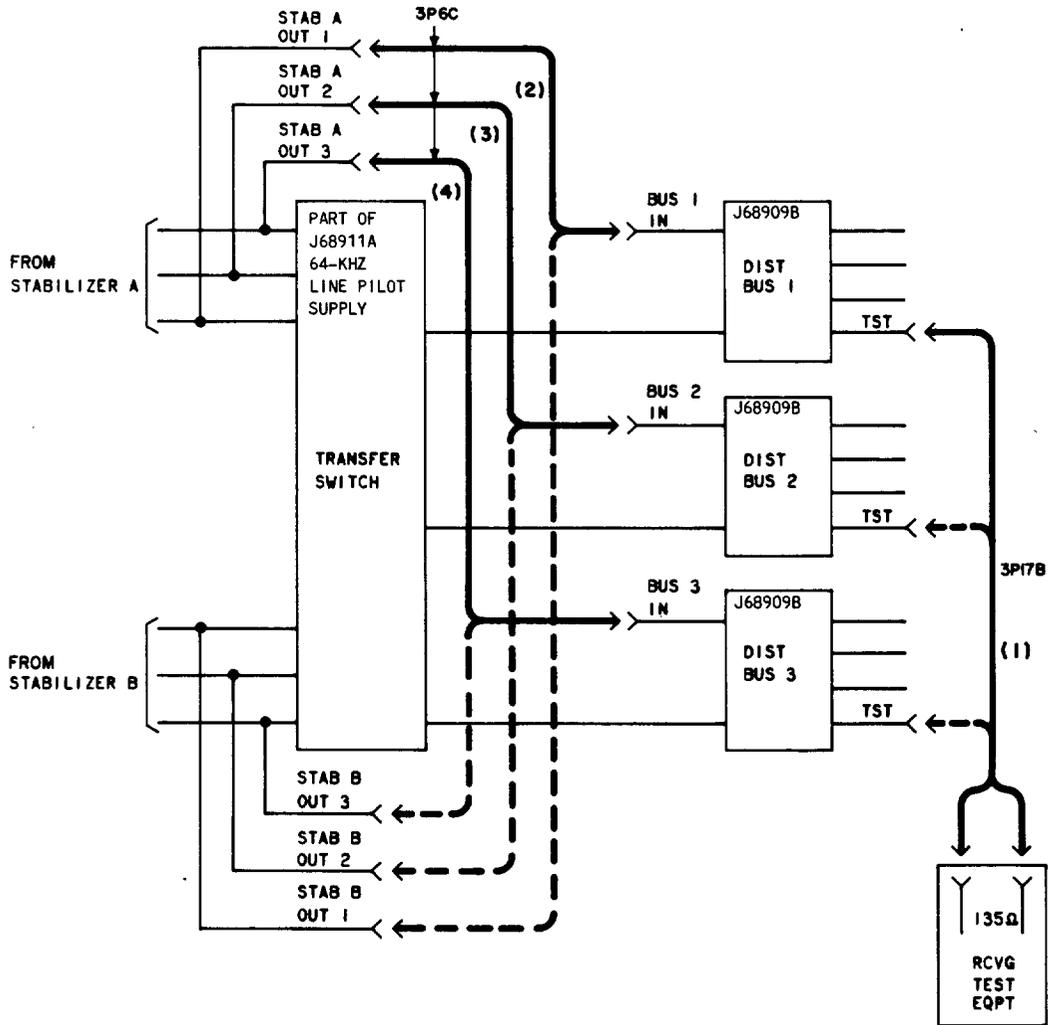


Fig. 5—Transfer Switch Replacement or Failure—Patching Procedures