# A6 CHANNEL BANK
# CARRIER SUPPLY—INITIAL TESTS
# COMMON EQUIPMENT
# ANALOG MULTIPLEX TERMINAL EQUIPMENT

This section provides test procedures to ensure proper operation of the A6 carrier supply. These procedures are to be used for ***initial lineup*** and ***out-of-service*** tests. For in-service tests, refer to Section 356-016-503.

This section is reissued to:

(a) Change the title

(b) Add gauge, type, and lengths to the KS-20906, L1 cable in the apparatus list for Chart 1

(c) Add a test in Chart 1C for the alternate supply

(d) Change all CXR designations for the ***regular*** carrier supply to CARR

(e) Expand the channel bank carrier supply test in Chart 1, Parts G and K

(f) Change the requirements in Chart 1, Parts I and K

(g) Clarify the location of J15 in Charts 2A and 3A and J3 in Chart 2I

(h) Refer to alarm options X and Y in Charts 2F and 3F

(i) Add fuse designations in Chart 2, Parts H and L

(j) Expand the trouble-locating information in Charts 2F and 3F.

Arrows are used to indicate significant changes. ***Equipment Test Lists are not affected.***

The A6 carrier supply provides the 12 individual channel carrier frequencies and the one channel bank carrier frequency for use in the A6 channel bank. The A6 ***regular*** carrier supply (Fig. 1) consists of:

The J68929AB carrier supply shelf equipped as follows:

12—J68929AJ channel carrier amplifier units

1—J68929AK channel bank carrier amplifier unit

1—J68929AL carrier supply generator unit

1—J68929AM -12 volt regulator unit

Plus switching and distribution equipment as follows:

1—J68929AN transfer, logic, and channel bank carrier alarm unit

1—J68929AE (L1 and L2) carrier distribution panel

1—J68929AE (L1 and L3) carrier distribution panel

***Note:*** Different J68929AE carrier distribution panel lists may be used in the A6 unitized (UTE) frame arrangements, but the test procedures remain unchanged.

The J68929AP A6 ***auxiliary*** carrier supply (Fig. 2) consists of:

1—J68929AK channel bank carrier amplifier unit

1—J68929AL carrier supply generator unit

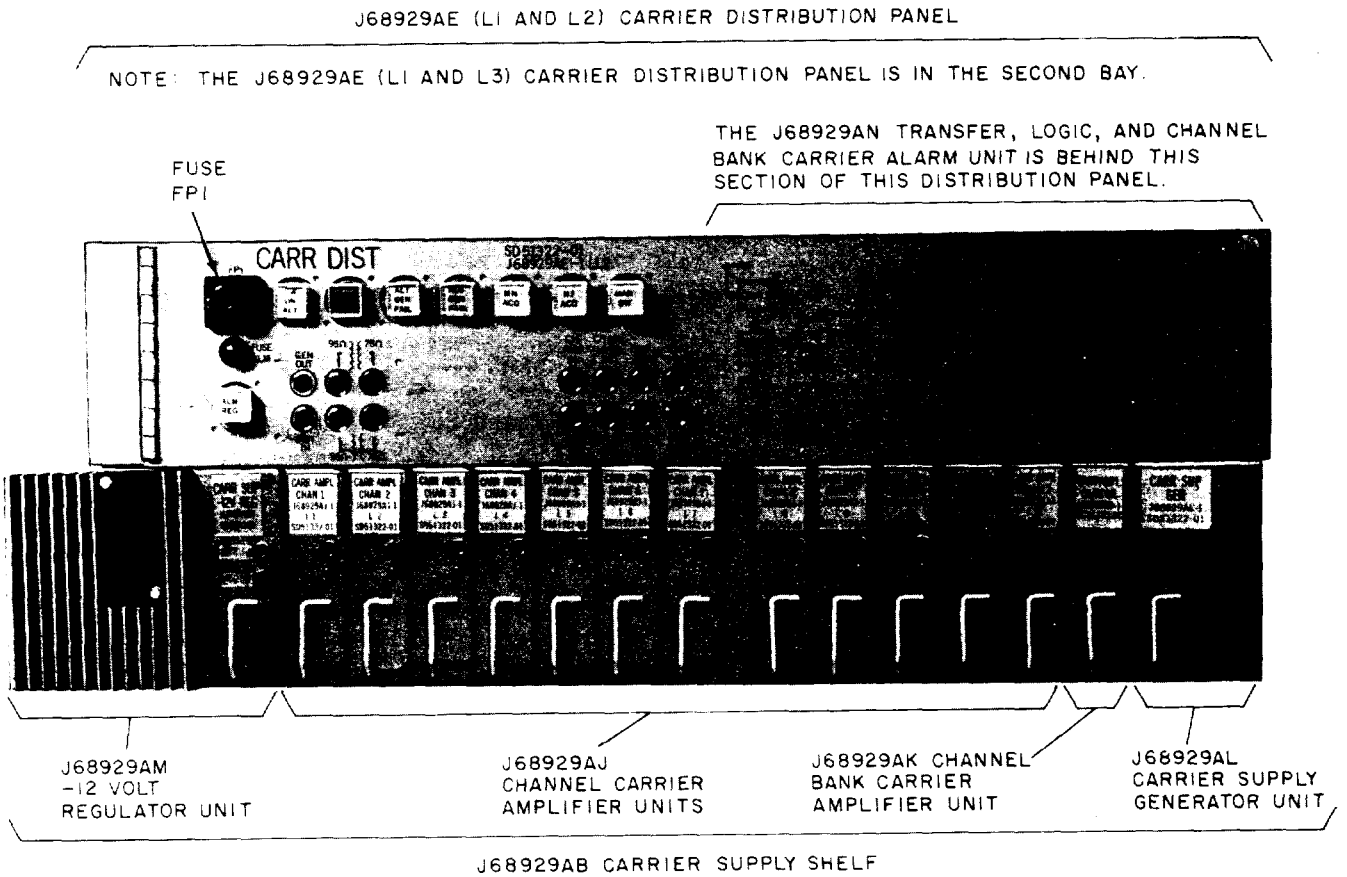


**Fig. 1—A6 Carrier Supply and Distribution Panel—First Bay**

1—J68929AM -12 volt regulator unit

1—Jack, lamp, and fuse panel

Prior to making the tests in this section, ensure that:

(a) All test equipment has been calibrated.

(b) The carrier supply under test and at least one associated channel bank are fully equipped. Refer to Section 356-016-300 for information on equipping and fusing the A6 channel bank bay or to Section 356-016-303 for the A6 UTE frame.

***Note 1:*** Unless specified otherwise, all test indications in this section are for the ***regular*** carrier supply under test.

***Note 2:*** If desired, the steps in any procedure in Chart 1 can be bypassed by referring to the applicable illustrations.

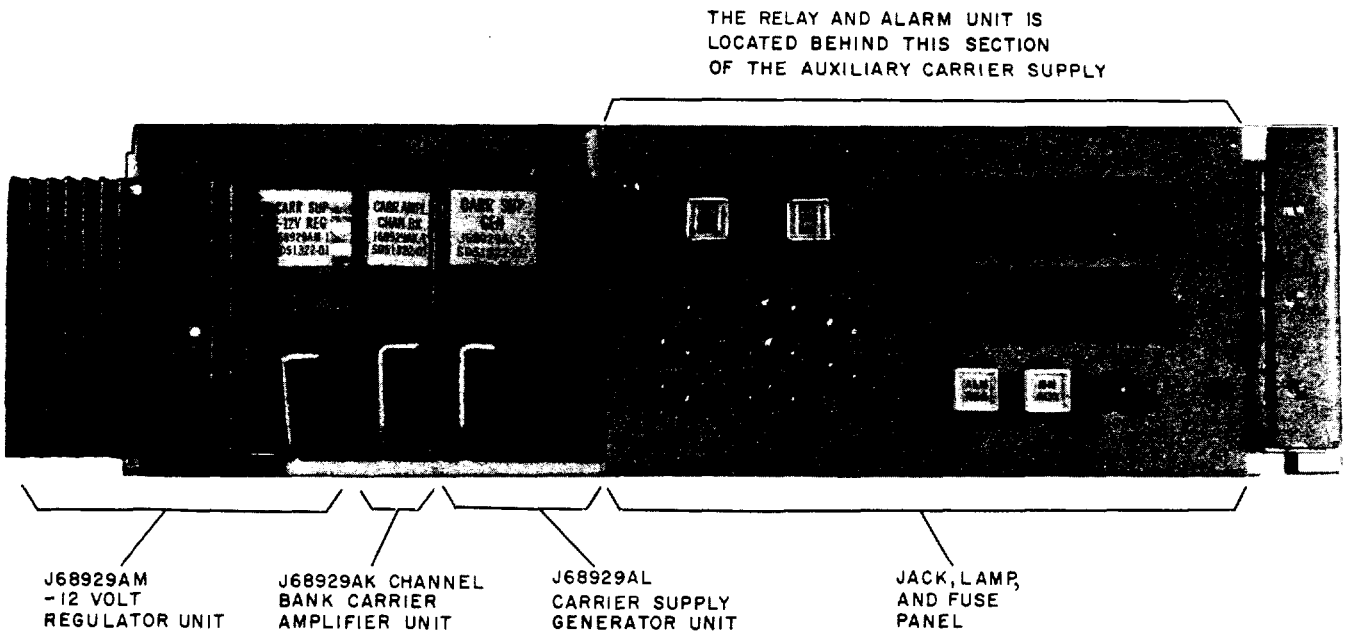


**Fig. 2—A6 Auxiliary Carrier Supply**

## CHART 1

## PERFORMANCE TESTS
## PROTECTED AND UNPROTECTED CARRIER SUPPLIES

For proper operation, the output power from the A6 carrier supply must be within the specified limits at the designated channel and channel bank frequencies.

***Note:*** The tests in this chart can be performed on arrangements involving protected ***(regular and alternate*** or ***regular and auxiliary)*** carrier supplies or unprotected ***(regular only)*** carrier supplies by using the applicable parts (A through K).

### APPARATUS

***Digital Voltmeter (DVM)*** meeting the following minimum specifications:

Range: 0.00 to 30.00 volts dc

Resolution: .01 volt

Accuracy: .05 volt

***Receiving Test Equipment (RTE)*** (Section 356-010-500):

Frequency: 64 kHz to 8.5 MHz

Power: -10 to -50 dBm

Impedance: 75 ohms unbalanced and 135 ohms balanced

***3P17A or B Cord*** (for 135-ohm patches)

***P2BJ Cord*** (for 75-ohm patches)

***P3BH Cord*** (for 95-ohm patches)

***Test Cord*** (for Charts 1G and 1K) constructed locally (see Section 356-016-500, paragraph 4.06) of the following items:

***KS-20906, L1,*** (95-ohm) ◗shielded, 26-gauge, solid, twisted-pair cable (10, 15, or 30 feet [3.05, 4.57, or 9.14 meters] long)◖

***310-Type Plug,*** one

***Alligator Clips,*** two

CHART 1 (Contd)

| STEP | PROCEDURE |
|---|---|
| | **A. -12 Volt Regulator—Regular and Auxiliary Carrier Supplies** |
| 1 | At the rear of the bay, measure the office -24 volt battery on pin 5 of the -12 volt regulator connector (J1).<br><br>***Requirement:*** -19 to -28 volts. |
| 2 | At the front of the bay, connect the DVM to the GRD and -12V jacks on the -12 volt regulator under test [connections (1) and (2), Fig. 3]. |
| 3 | Measure the voltage at the -12V jack.<br><br>***Requirement:*** -12.0 to -13.3 volts. |
| 4 | If the requirement of Step 3 is ***not*** met,<br><br>(a) Remove the fuse (F4, F11, or CS1, as applicable) for the regulator under test.<br><br>(b) Replace the regulator unit under test with a spare unit.<br><br>***Caution: No field adjustments can be made on the -12 volt regulator.***<br><br>(c) Reinsert the fuse removed in Step 4(a).<br><br>(d) Repeat Step 3. |
| 5 | Remove connections (2) and (1), Fig. 3. |
| 6 | Repeat applicable Steps 1 through 5 for the -12 volt regulator in the associated (alternate or auxiliary) carrier supply. |

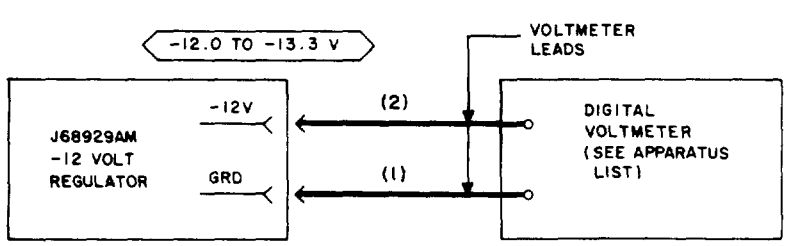


**Fig. 3—Connections—Carrier Supply -12 Volt Regulator Test**

CHART 1 (Contd)

| STEP | PROCEDURE |
|---|---|
| | **B. Sync Frequency—Regular Carrier Supply** |
| 7 | Adjust the RTE as follows:<br>Impedance: 135 ohms balanced<br>Frequency: 64 kHz<br>Power: -24 dBm |
| 8 | Connect the RTE to the 64KHZ TST 135Ω jack [patch (1), Fig. 4]. |
| 9 | Measure the signal power at the 64KHZ TST 135Ω jack.<br>***Requirement:*** -24.7 to -27.7 dBm. |
| 10 | If the requirement of Step 9 is ***not*** met,<br>(a) Ensure that the 64-kHz distribution circuit is properly adjusted (Section 356-275-502).<br>(b) Ensure that the 64-kHz input circuit in the channel carrier supply is operating properly (SD-51322-01, Fig. 1).<br>(c) Repeat Step 9. |
| 11 | Remove patch (1), Fig. 4. |

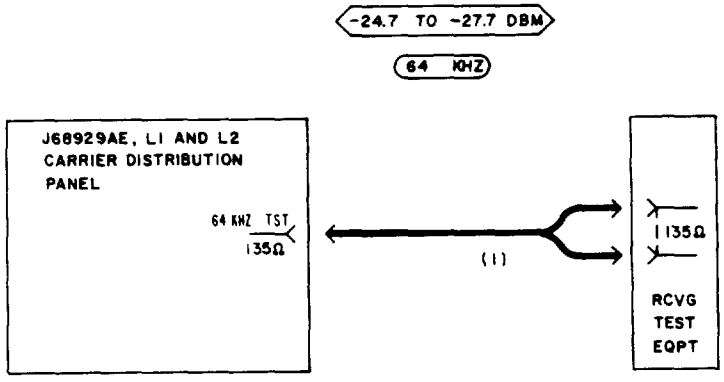


**Fig. 4—Patching Diagram—Sync-Frequency Test—Regular Carrier Supply**

CHART 1 (Contd)

| STEP | PROCEDURE |
|---|---|

**C. Carrier Frequencies—At Regular Carrier Supply**

12 Adjust the RTE as follows:

Impedance: 75 ohms unbalanced

Frequency: 8.140 MHz

Power: -44 dBm

13 Connect the RTE to the 75Ω jack [patch (1), Fig. 5].

14 Connect the 95Ω jack to the SIG TST jack [patch (2), Fig. 5].

15 ◗Ensure that the carrier supply under test is switched to regular (SW ON ALT lamp is extinguished).

16 Measure and record the signal power at the SIG TST jack.

***Note:*** Use a low-distortion test mode if provided on the RTE.

***Requirement:*** -43.8 to -45.8 dBm.

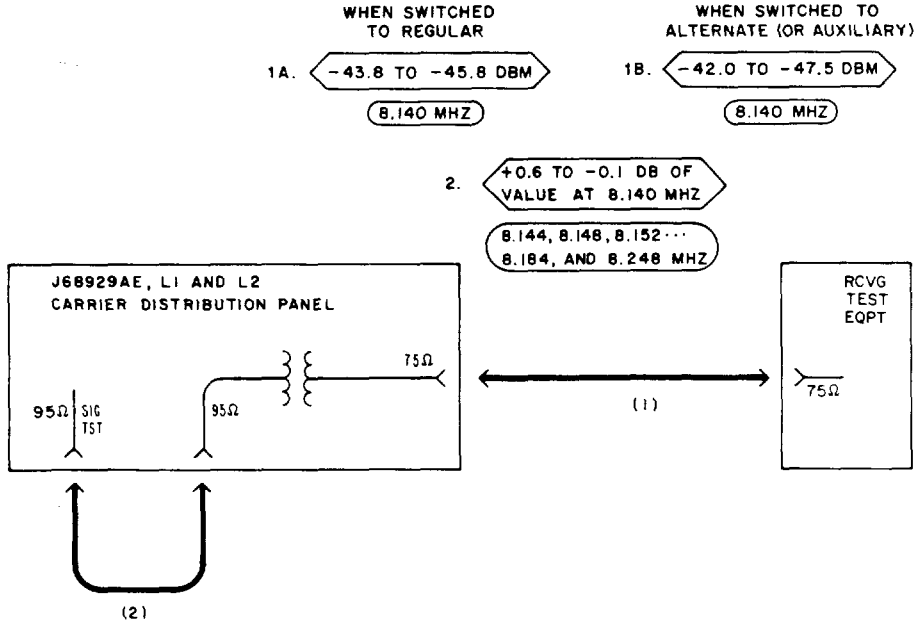


**Fig. 5—◗Patching Diagram—Carrier-Frequency Test—Regular Carrier Supply◖**

CHART 1 (Contd)

| STEP | PROCEDURE |
|---|---|
| 17 | Press the MAN SW key (the SW ON ALT lamp should light). |
| 18 | Measure and record the signal power at the SIG TST jack.<br><br>***Requirement:*** -42.0 to -47.5 dBm. |
| 19 | Press the MAN SW key (the SW ON ALT lamp should extinguish). |
| 20 | If the requirements of Steps 16 and 18 are ***not*** met,<br><br>(a) Remove the -24 volt fuse [F10 in J68929( ) bays, CS3 in J98626( ) frames, or F3 in J68929AP auxiliary supply] associated with the carrier supply generator.<br><br>(b) Replace the carrier supply generator with a spare unit.<br><br>(c) Reinsert the associated -24 volt fuse.<br><br>(d) Repeat Steps 15 through 19. |
| 21 | Repeat applicable Steps 15 through 20 at 8.144, 8.148, 8.152, ... 8.184, and 8.248 MHz (Table A).<br><br>***Requirement:*** Within +0.6 to -0.1 dB of the value obtained for 8.140 MHz in Steps 16 and 18. |
| 22 | Remove patch (2), Fig. 5. |
| | **D. Alternate (or Auxiliary) Channel Carriers—At Regular Carrier Supply**<br><br>***Note:*** This test can be performed only if the carrier supply under test is protected by an alternate or auxiliary carrier supply. |
| 23 | Adjust the RTE as follows:<br><br>Impedance: 75 ohms unbalanced<br><br>Frequency: 8.140 MHz<br><br>Power: -28 dBm |
| 24 | Connect the 95Ω jack to the ALT CH CARR jack [patch (2), Fig. 6]. |
| 25 | Measure and record the signal power at the ALT CH CARR jack.<br><br>***Note:*** Use a low-distortion test mode if provided on the RTE. |

CHART 1 (Contd)

| STEP | PROCEDURE |
|---|---|

▶TABLE A◀

CARRIER FREQUENCIES

| CHANNEL | |
|---|---|
| NUMBER | FREQUENCY (MHz) |
| 1 | 8.140 |
| 2 | 8.144 |
| 3 | 8.148 |
| 4 | 8.152 |
| 5 | 8.156 |
| 6 | 8.160 |
| 7 | 8.164 |
| 8 | 8.168 |
| 9 | 8.172 |
| 10 | 8.176 |
| 11 | 8.180 |
| 12 | 8.184 |
| Bank | 8.248 |

***Requirement:*** -28.0 to -33.5 dBm.

26 If the requirement of Step 25 is ***not*** met,

(a) Perform Tests A, B, and C above (Steps 1 through 22) on the ***alternate*** (or ***auxiliary***) carrier supply.

(b) Repeat Steps 23 through 25.

27 Repeat Step 25 at 8.144, 8.148, 8.152, ... and 8.184 MHz (Table ▶B◀ ).

***Requirement:*** Within +0.6 to -0.1 dB of the value obtained for 8.140 MHz in Step 25.

CHART 1 (Contd)

| STEP | PROCEDURE |
|---|---|

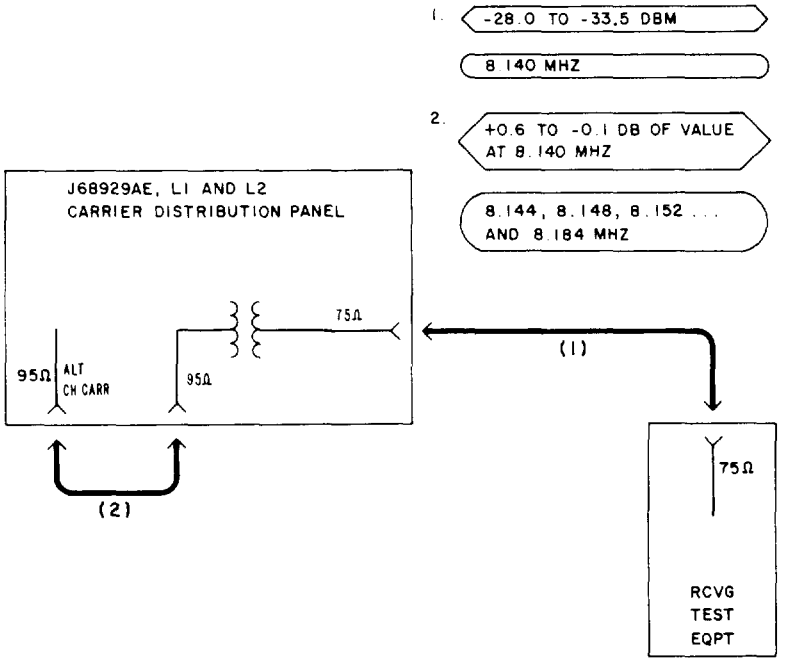


**Fig. 6—Patching Diagram—Alternate (or Auxiliary) Channel-Carrier Test—At Regular Carrier Supply**

28 Remove patch (2), Fig. 6.

**E. Channel Bank Carrier—Regular Carrier Supply**

29 Adjust the RTE as follows:

Impedance: 75 ohms unbalanced

Frequency: 8.248 MHz

Power: -11 dBm

30 Connect the 95Ω jack to the CH BK SW OUT jack [patch (2), Fig. 7].

31 Measure the signal power at the CH BK SW OUT jack.

***Requirement:*** -11.5 to -13.0 dBm.

CHART 1 (Contd)

| STEP | PROCEDURE |
|---|---|

♦TABLE B♦

CARRIER FREQUENCIES

| CHANNEL | |
|---|---|
| NUMBER | FREQUENCY (MHz) |
| 1 | 8.140 |
| 2 | 8.144 |
| 3 | 8.148 |
| 4 | 8.152 |
| 5 | 8.156 |
| 6 | 8.160 |
| 7 | 8.164 |
| 8 | 8.168 |
| 9 | 8.172 |
| 10 | 8.176 |
| 11 | 8.180 |
| 12 | 8.184 |

***Note:*** The CARR FAIL and ALM REG lamps should light. Operate the MJ ACO key; the MJ ACO lamp should light.

32 If the requirement of Step 31 is ***not*** met,

(a) Replace the channel bank carrier amplifier with a spare unit.

(b) Repeat Step 31.

33 Remove patch (2), Fig. 7.

***Note:*** The CARR FAIL and MJ ACO lamps should extinguish. Operate the ALM REG key; the ALM REG lamp should extinguish.

CHART 1 (Contd)

| STEP | PROCEDURE |
|---|---|

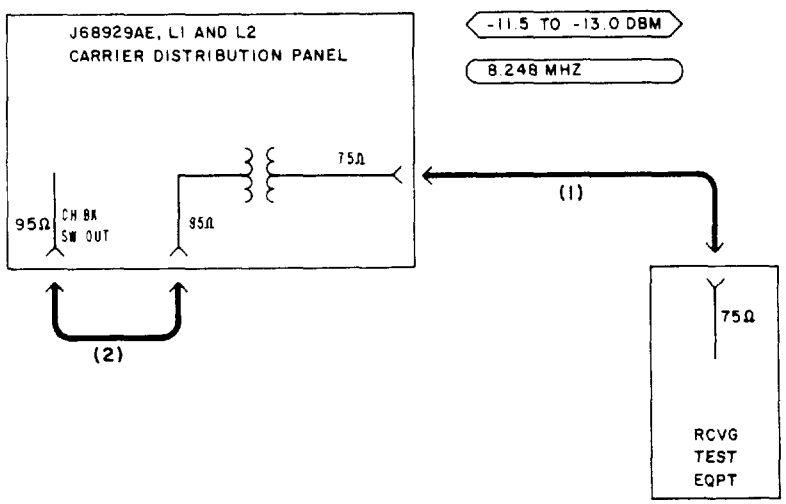


**Fig. 7—Patching Diagram—Channel-Bank-Carrier Test—Regular Carrier Supply**

### F. Alternate (or Auxiliary) Channel Bank Carrier—At Regular Carrier Supply

***Note:*** This test can be performed only if the carrier supply under test is protected by an alternate or auxiliary carrier supply.

34 Adjust the RTE as follows:

Impedance: 75 ohms unbalanced

Frequency: 8.248 MHz

Power: -11 dBm

35 Connect the 95Ω jack to the ALT CH BK CARR jack (patch (2), Fig. 8).

36 Measure the signal power at the ALT CH BK CARR jack.

***Requirement:*** -11.5 to -14.7 dBm.

37 If the requirement of Step 36 is ***not*** met,

(a) Replace the channel bank carrier amplifier in the ***alternate*** (or ***auxiliary***) carrier supply with a spare unit.

CHART 1 (Contd)

| STEP | PROCEDURE |
|---|---|

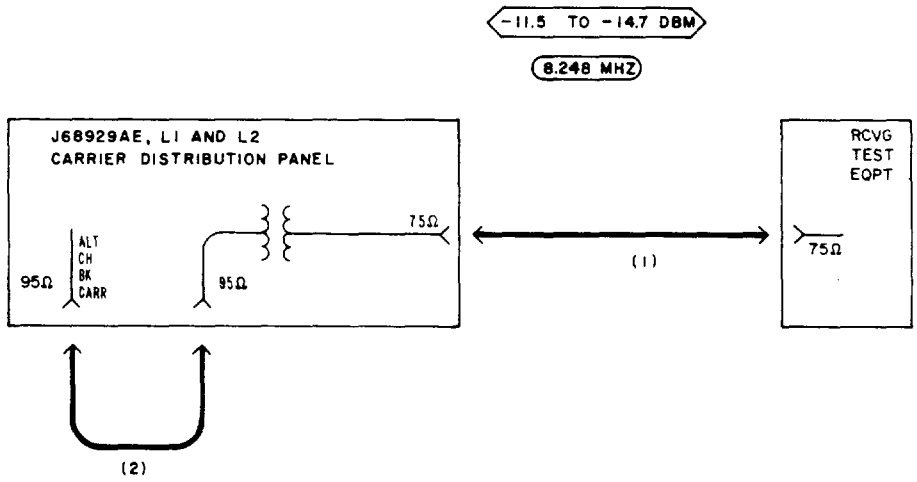


**Fig. 8—Patching Diagram—Alternate (or Auxiliary) Channel-Bank-Carrier Test—At Regular Carrier Supply**

(b) Repeat Step 36.

38 Remove patch (2), Fig. 8.

### G. Carrier Distribution—Regular Carrier Supply

39 Remove the associated -24 volt fuse [F( ) or FB( ), as applicable], the -12 volt regulator, and all channel and channel bank modems from the shelf of one A6 channel bank supplied by the ***regular*** carrier supply under test.

40 Adjust the RTE as follows:

Impedance: 75 ohms unbalanced

Frequency: 8.140 MHz

Power: -35 dBm

41 At the rear of the A6 channel bank shelf selected in Step 39, connect the 95Ω jack to pins 10 and 11 of the Channel 1 plug-in-unit jack (J2) [Table C and patch (2a), Fig. 9]. (See Section 356-016-500, paragraph 4.06, for special cord construction.)

CHART 1 (Contd)

| STEP | PROCEDURE |
|---|---|

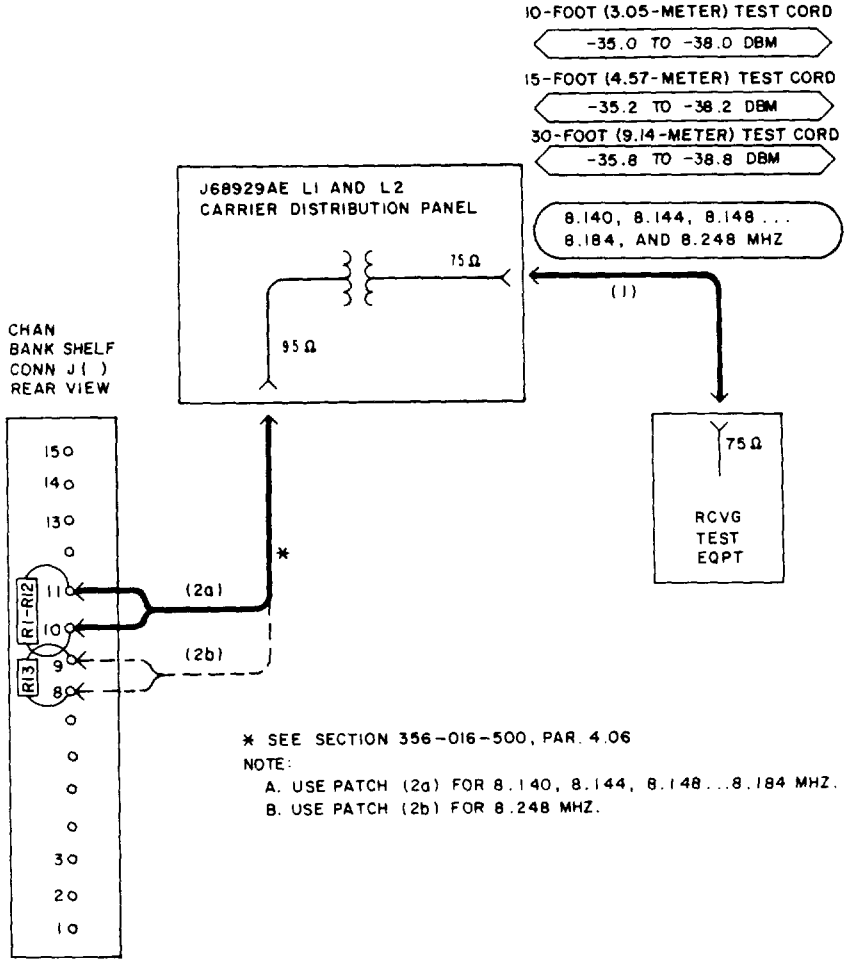


**Fig. 9—Patching Diagram—Carrier-Distribution Test—Regular Carrier Supply**

42 Measure the signal power at the modem connector, pins, and frequency designated in Table C.

***Requirement:***

| *Test Cord Length* | *Signal Power* |
|---|---|
| 10 feet (3.05 meters) | -35.0 to -38.0 dBm |
| 15 feet (4.57 meters) | -35.2 to -38.2 dBm |
| 30 feet (9.14 meters) | -35.8 to -38.8 dBm |

43 If the requirement of Step 42 is ***not*** met,

CHART 1 (Contd)

| STEP | PROCEDURE |
|---|---|

♦TABLE C♦

CARRIER FREQUENCIES
DISTRIBUTION

| CHANNEL | | TEST ACCESS | | |
|---|---|---|---|---|
| | | MODEM | | DIST PANEL |
| NUMBER | FREQUENCY (MHz) | CONNECTOR | PINS | JACK |
| 1 | 8.140 | J2 | 10 & 11 | 75Ω |
| 2 | 8.144 | J3 | | |
| 3 | 8.148 | J4 | | |
| 4 | 8.152 | J5 | | |
| 5 | 8.156 | J6 | | |
| 6 | 8.160 | J7 | | |
| 7 | 8.164 | J8 | | |
| 8 | 8.168 | J9 | | |
| 9 | 8.172 | J10 | | |
| 10 | 8.176 | J11 | | |
| 11 | 8.180 | J12 | | |
| 12 | 8.184 | J13 | 10 & 11 | |
| Bank | 8.248 | J14 | 8 & 9 | 75Ω |

(a) Check the applicable distribution circuit in the carrier supply, then check the carrier wiring between the carrier supply and the channel bank (SD-51321, -51322, and -51323).

(b) Repair any pertinent trouble.

(c) Repeat Step 42.

44 Repeat Step 42 at 8.144, 8.148, 8.152, ... and 8.184 MHz.

***Note:*** These frequencies are on pins 10 and 11 of channel bank shelf connectors J3, J4, J5, ... J13 [Table C and patch (2a), Fig. 9].

CHART 1 (Contd)

| STEP | PROCEDURE |
|---|---|
| 45 | Remove patch (2a), Fig. 9. |
| 46 | Connect the 95Ω jack to pins 8 and 9 of J14 [Table C and patch (2b), Fig. 9]. |
| 47 | Repeat Step 42 at 8.248 MHz. |
| 48 | Remove patches (1) and (2), Fig. 9. |
| 49 | Replace the channel bank -12 volt regulator, the 13 modems, and then the associated -24 volt fuse removed in Step 39. |
| 50 | (a) If two mutually-protected carrier supplies (two ***regular*** carrier supplies) are used, repeat applicable Steps 7 through 49 for the second ***regular*** supply.<br><br>(b) If one ***regular*** carrier supply is protected by an ***auxiliary*** carrier supply, proceed to Step 51. |
| | **H. Sync Frequency—Auxiliary Carrier Supply** |
| 51 | Adjust the RTE as follows:<br><br>Impedance: 135 ohms balanced<br><br>Frequency: 64 kHz<br><br>Power: -24 dBm |
| 52 | Connect the RTE to the 64KHZ TST jack [patch (1), Fig. 10]. |

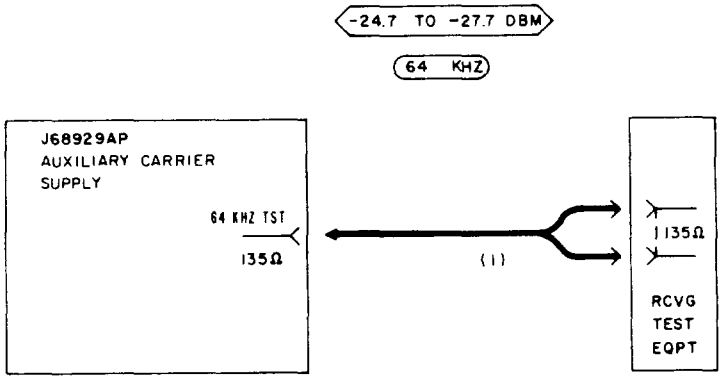


**Fig. 10—Patching Diagram—Sync-Frequency Test—Auxiliary Carrier Supply**

CHART 1 (Contd)

| STEP | PROCEDURE |
|---|---|
| 53 | Measure the signal power at the 64KHZ TST jack.<br><br>***Requirement:*** -24.7 to -27.7 dBm. |
| 54 | If the requirement of Step 53 is ***not*** met,<br><br>(a) Ensure that the 64-kHz distribution circuit is properly adjusted (Section 356-275-502).<br><br>(b) Ensure that the 64-kHz input circuit in the channel carrier supply is operating properly (SD-51320-01, Fig. 2).<br><br>(c) Repeat Step 53. |
| 55 | Remove patch (1), Fig. 10. |
| | **I. Carrier Frequencies—Auxiliary Carrier Supply** |
| | ***Note:*** This test cannot be performed on an A6 auxiliary carrier supply associated with a carrier failure alarm (CFA) auxiliary carrier supply, since the CH CXR jack is removed for this application. In this case, the test in part D above will be sufficient. |
| 56 | Adjust the RTE as follows:<br><br>Impedance: 75 ohms unbalanced<br><br>Frequency: 8.140 MHz<br><br>Power: -28 dBm |
| 57 | Connect the RTE to the 75Ω jack [patch (1), Fig. 11]. |
| 58 | Connect the 95Ω jack to the CH CXR jack [patch (2), Fig. 11]. |
| 59 | Measure and record the signal power at the CH CXR jack.<br><br>***Note:*** Use a low-distortion test mode if provided on the RTE.<br><br>***Requirement:*** -28.0 to ◖-31.0◗ dBm. |
| 60 | If the requirement of Step 59 is ***not*** met,<br><br>(a) Remove fuse F3 from the auxiliary carrier supply.<br><br>(b) Replace the carrier supply generator with a spare unit.<br><br>(c) Reinsert fuse F3 in the auxiliary carrier supply. |

CHART 1 (Contd)

| STEP | PROCEDURE |
|---|---|

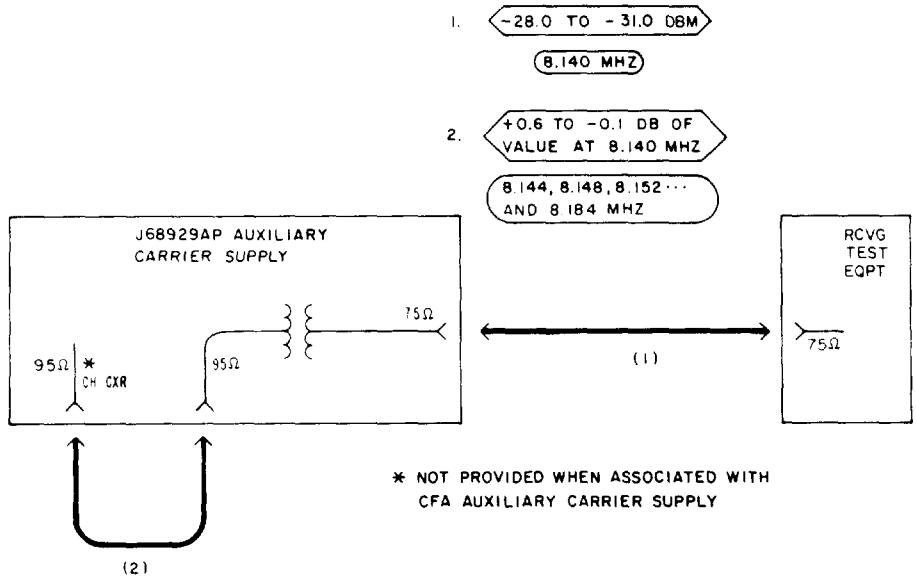


**Fig. 11—Patching Diagram—Carrier-Frequency Test—Auxiliary Carrier Supply**

(d) Repeat Step 59.

61 Repeat Step 59 at 8.144, 8.148, 8.152, ... and 8.184 MHz (Table D ).

***Requirement:*** Within +0.6 to -0.1 dB of the value obtained for 8.140 MHz in Step 59.

62 Remove patch (2), Fig. 11.

### J. Channel Bank Carrier—Auxiliary Carrier Supply

63 Adjust the RTE as follows:

Impedance: 75 ohms unbalanced

Frequency: 8.248 MHz

Power: -11 dBm

64 Connect the 95Ω jack to the CH BK CXR jack [patch (2), Fig. 12].

CHART 1 (Contd)

| STEP | PROCEDURE |
|---|---|

♦TABLE D♦

CARRIER FREQUENCIES

| CHANNEL | |
|---|---|
| NUMBER | FREQUENCY (MHz) |
| 1 | 8.140 |
| 2 | 8.144 |
| 3 | 8.148 |
| 4 | 8.152 |
| 5 | 8.156 |
| 6 | 8.160 |
| 7 | 8.164 |
| 8 | 8.168 |
| 9 | 8.172 |
| 10 | 8.176 |
| 11 | 8.180 |
| 12 | 8.184 |

65 Measure the signal power at the CH BK CXR jack.

***Requirement:*** -11.5 to -13.0 dBm.

66 If the requirement of Step 65 is ***not*** met,

(a) Replace the channel bank carrier amplifier with a spare unit.

(b) Repeat Step 65.

67 Remove patch (2), Fig. 12.

CHART 1 (Contd)

| STEP | PROCEDURE |
|---|---|

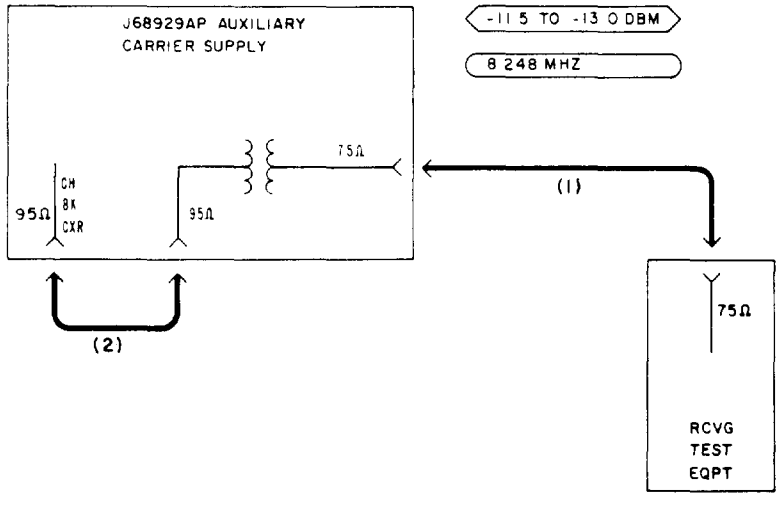


**Fig. 12—Patching Diagram—Channel-Bank-Carrier Test—Auxiliary Carrier Supply**

**K. Carrier Distribution—Auxiliary Carrier Supply**

68 ▶Remove the associated -24 volt fuse [F( ) or FB( ), as applicable], the -12 volt regulator, and all channel and channel bank modems from the shelf of one A6 channel bank supplied by the ***regular*** carrier supply protected by the ***auxiliary*** carrier supply under test.

69 Adjust the RTE as follows:

Impedance: 75 ohms unbalanced

Frequency: 8.140 MHz

Power: -35 dBm

70 At the ***regular*** carrier supply, press the MAN SW key on the J68929AE (L1 and L2) carrier distribution panel.

***Requirement:*** (a) The MAN SW lamp is lighted.
(b) The SW ON ALT lamp is lighted.

71 At the rear of the A6 channel bank shelf selected in Step 68, connect the 95Ω jack to pins 10 and 11 of the Channel 1 plug-in-unit jack (J2) [Table E and patch (2a), Fig. 13]. (See Section 356-016-500, paragraph 4.06, for special cord construction.)

CHART 1 (Contd)

| STEP | PROCEDURE |
|---|---|

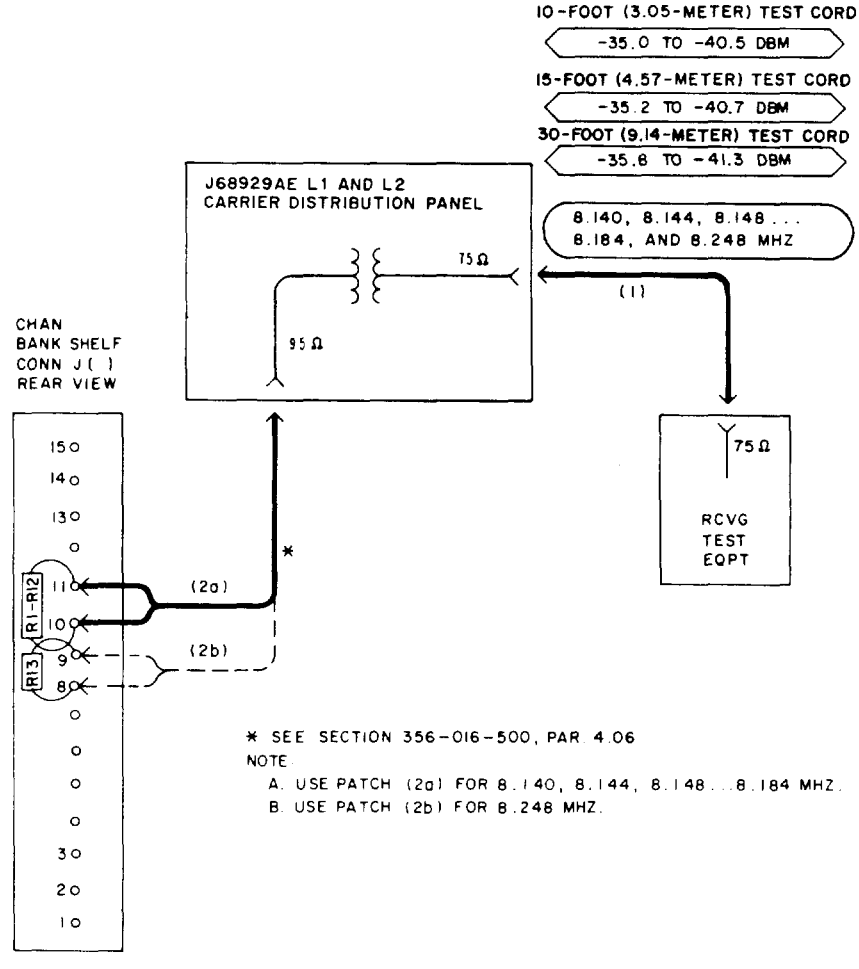


**Fig. 13—Patching Diagram—Carrier-Distribution Test—Auxiliary Carrier Supply**

72 Measure the signal power at the modem connector, pins, and frequency designated in Table E.

***Requirement:***

| *Test Cord Length* | *Signal Power* |
|---|---|
| 10 feet (3.05 meters) | -35.0 to -40.5 dBm |
| 15 feet (4.57 meters) | -35.2 to -40.7 dBm |
| 30 feet (9.14 meters) | -35.8 to -41.3 dBm |

73 If the requirement of Step 72 is ***not*** met,

CHART 1 (Contd)

| STEP | PROCEDURE |
|---|---|

◗TABLE E◖

CARRIER FREQUENCIES
DISTRIBUTION

| CHANNEL | | TEST ACCESS | | |
|---|---|---|---|---|
| | | MODEM | | DIST PANEL |
| NUMBER | FREQUENCY (MHz) | CONNECTOR | PINS | JACK |
| 1 | 8.140 | J2 | 10 & 11 | 75Ω |
| 2 | 8.144 | J3 | | |
| 3 | 8.148 | J4 | | |
| 4 | 8.152 | J5 | | |
| 5 | 8.156 | J6 | | |
| 6 | 8.160 | J7 | | |
| 7 | 8.164 | J8 | | |
| 8 | 8.168 | J9 | | |
| 9 | 8.172 | J10 | | |
| 10 | 8.176 | J11 | | |
| 11 | 8.180 | J12 | | |
| 12 | 8.184 | J13 | 10 & 11 | |
| Bank | 8.248 | J14 | 8 & 9 | 75Ω |

(a) Check the applicable distribution circuit in the carrier supply; then check the carrier wiring between the carrier supply and the channel bank (SD-51320, -51321, and -51323).

(b) Repair any pertinent trouble.

(c) Repeat Step 72.

74 Repeat Step 72 at 8.144, 8.148, 8.152, ... and 8.184 MHz.

*Note:* These frequencies are on pins 10 and 11 of channel bank shelf connectors J3, J4, J5, ... and J13 [Table E and patch (2a), Fig. 13].

**CHART 1 (Contd)**

| STEP | PROCEDURE |
|---|---|
| 75 | Remove patch (2a), Fig. 13 from pins 10 and 11. |
| 76 | Connect the 95Ω jack to pins 8 and 9 of J14 [Table E and patch (2b), Fig. 13]. |
| 77 | Repeat Step 72 at 8.248 MHz.◀ |
| 78 | Remove patches (1) and (2), Fig. 13. |
| 79 | At the ***regular*** carrier supply, press the MAN SW key on the J68929AE (L1 and L2) carrier distribution panel.<br><br>***Requirement:*** (a) The MAN SW lamp is extinguished.<br>(b) The SW ON ALT lamp is extinguished. |
| 80 | Replace the channel bank -12 volt regulator, the 13 modems, and then the associated -24 volt fuse removed in Step 68. |

## CHART 2

## ALARM AND PROTECTIVE SWITCHING TESTS
## PROTECTED CARRIER SUPPLIES

For proper operation, the following is ***required:***

(a) Transfer of all associated A6 channel banks from the ***regular*** carrier supply to the ***alternate*** (or ***auxiliary***) carrier supply must be accomplished and corresponding alarms and lamps must be activated by both manual switching and automatic switching. Automatic switching should occur upon loss of the synchronizing signal (64 kHz), failure of the carrier generating circuit, loss of the channel bank carrier signal, or loss of the channel carrier signals.

(b) Transfer from the ***regular*** carrier supply -12 volt regulator to the ***alternate*** (or ***auxiliary***) carrier supply -12 volt regulator must be accomplished automatically upon loss of dc output from the ***regular*** carrier supply -12 volt regulator.

***Note 1:*** The tests in this chart can be performed on arrangements involving protected ***(regular and alternate*** or ***regular and auxiliary)*** carrier supplies ***by using the applicable parts*** (A through L). The unprotected ***(regular only)*** arrangement is covered in Chart 3.

***Note 2:*** If the A6 system is equipped with the J68929BA CFA carrier supply shelf, the CFA carrier supply plug-in units must be installed (per Section 356-016-300 or 356-016-303) before performing the tests in this chart. When so equipped, removal of (a) the J68929AJ carrier amplifier unit for either Channel 1 or Channel 2, or (b) the J68929AL carrier supply generator unit will cause a switch to the alternate CFA supply and initiate an office minor alarm.

### APPARATUS

***Clip Lead,*** approximately 6 inches long

***Dummy Plug, 258-type***

***Digital Voltmeter (DVM)*** meeting the following minimum specifications:

Range: 10.00 to 30.00 volts dc

Resolution: .01 volt

Accuracy: .05 volt

| STEP | PROCEDURE |
|---|---|
| | **A. Loss of Sync Signal—Regular Carrier Supply** |
| 1 | At the rear of the shelf for the ***regular*** carrier supply under test, connect pin 13 to pin 14 of jack J15 [connection (1), Fig. 14]. |

CHART 2 (Contd)

| STEP | PROCEDURE |
|---|---|

***Note:*** Jack J15 is a 935A connector used for the J68929AL carrier supply generator (Fig. 1). ◗It is located in the first position (first slot) from the left end of the J68929AB carrier supply shelf when facing the rear of the shelf.◖

***Caution: Use extreme care to avoid touching adjacent pins with the clip lead.***

***Requirement:*** The office minor alarm is activated and a switch to the ***alternate*** (or ***auxiliary***) carrier supply is completed in less than 5 seconds.

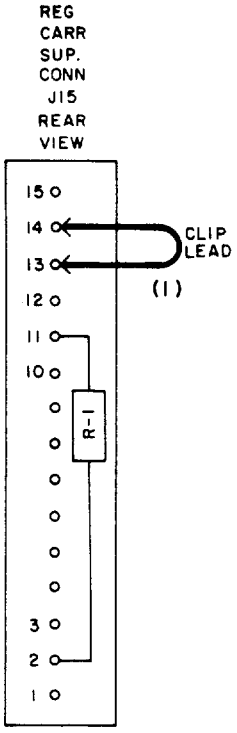


**Fig. 14—Connections—Loss-of-Sync-Signal Test—Regular Carrier Supply**

2 Observe the lamps on the J68929AE (L1 and L2) carrier distribution panel.

***Requirement:*** (a) The ALM REG lamp is lighted.
(b) The SW ON ALT lamp is lighted.
(c) The REG GEN FAIL lamp is lighted.
***Note:*** In addition,
(d) The ALT GEN FAIL lamp on the ***alternate*** supply is lighted.

CHART 2 (Contd)

| STEP | PROCEDURE |
|---|---|
| | or<br>(e) The REG GEN FAIL lamp on the ***auxiliary*** supply is lighted. |
| 3 | Operate the MN ACO key.<br><br>***Requirement:*** (a) The office audible alarm is silenced.<br>(b) The MN ACO lamp is lighted.<br>(c) The ALM REG lamp stays lighted.<br>(d) The SW ON ALT lamp stays lighted.<br>(e) The REG GEN FAIL lamp stays lighted.<br>***Note:*** In addition,<br>(f) The ALT GEN FAIL lamp on the ***alternate*** supply stays lighted.<br>or<br>(g) The REG GEN FAIL lamp on the ***auxiliary*** supply stays lighted. |
| 4 | Remove the connection applied in Step 1.<br><br>***Requirement:*** A switch back to the ***regular*** carrier supply is completed in less than 5 seconds.<br><br>***Note:*** The CFA carrier supply (if equipped) may cause a delay of approximately 25 seconds before the alarm circuit is released. |
| 5 | Observe the lamps on the J68929AE (L1 and L2) carrier distribution panel.<br><br>***Requirement:*** (a) The SW ON ALT lamp is extinguished.<br>(b) The REG GEN FAIL lamp is extinguished.<br>(c) The MN ACO lamp is extinguished.<br>(d) The ALM REG lamp stays lighted.<br>***Note:*** In addition,<br>(e) The ALT GEN FAIL lamp on the ***alternate*** supply is extinguished.<br>or<br>(f) The REG GEN FAIL lamp on the ***auxiliary*** supply is extinguished. |
| 6 | Operate the ALM REG key.<br><br>***Requirement:*** The ALM REG lamp is extinguished. |
| 7 | If the requirements of Steps 1 through 6 are ***not*** met,<br><br>(a) Replace the J68929AN transfer, logic, and channel bank carrier alarm unit with a spare.<br><br>***Note:*** This unit is located in the J68929AE (L1 and L2) carrier distribution panel.<br><br>(b) Repeat Steps 1 through 6. |

CHART 2 (Contd)

| STEP | PROCEDURE |
|---|---|
| | **B. Failure of Carrier Supply Generator—Regular Carrier Supply** |
| 8 | Insert a dummy plug in the GEN OUT jack on the J68929AE (L1 and L2) carrier distribution panel (Fig. 15).<br><br>***Requirement:*** The office minor alarm is activated and a switch to the ***alternate*** (or ***auxiliary***) carrier supply is completed in less than 5 seconds. |
| 9 | Observe the lamps on the J68929AE (L1 and L2) carrier distribution panel.<br><br>***Requirement:*** (a) The ALM REG lamp is lighted.<br>(b) The SW ON ALT lamp is lighted.<br>(c) The REG GEN FAIL lamp is lighted.<br>***Note:*** In addition,<br>(d) The ALT GEN FAIL lamp on the ***alternate*** supply is lighted.<br>or<br>(e) The REG GEN FAIL lamp on the ***auxiliary*** supply is lighted. |
| 10 | Operate the MN ACO key.<br><br>***Requirement:*** (a) The office audible alarm is silenced.<br>(b) The MN ACO lamp is lighted.<br>(c) The ALM REG lamp stays lighted.<br>(d) The SW ON ALT lamp stays lighted.<br>(e) The REG GEN FAIL lamp stays lighted.<br>***Note:*** In addition,<br>(f) The ALT GEN FAIL lamp on the ***alternate*** supply stays lighted.<br>or<br>(g) The REG GEN FAIL lamp on the ***auxiliary*** supply stays lighted. |
| 11 | Remove the dummy plug inserted in Step 8. |

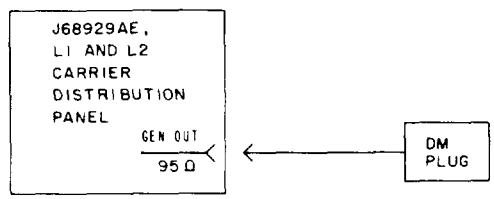


**Fig. 15—Connections—Failure-of-Carrier-Supply-Generator Test—Regular Carrier Supply**

CHART 2 (Contd)

| STEP | PROCEDURE |
|---|---|

***Requirement:*** A switch back to the ***regular*** carrier supply is completed in less than 5 seconds.

***Note:*** The CFA carrier supply (if equipped) may cause a delay of approximately 25 seconds before the alarm circuit is released.

12 Observe the lamps on the J68929AE (L1 and L2) carrier distribution panel.

***Requirement:*** (a) The SW ON ALT lamp is extinguished.
(b) The REG GEN FAIL lamp is extinguished.
(c) The MN ACO lamp is extinguished.
(d) The ALM REG lamp stays lighted.
***Note:*** In addition,
(e) The ALT GEN FAIL lamp on the ***alternate*** supply is extinguished.
or
(f) The REG GEN FAIL lamp on the ***auxiliary*** supply is extinguished.

13 Operate the ALM REG key.

***Requirement:*** The ALM REG lamp is extinguished.

14 If the requirements of Steps 8 through 13 are ***not*** met,

(a) Replace the J68929AN transfer, logic, and channel bank carrier alarm unit with a spare.

***Note:*** This unit is located in the J68929AE (L1 and L2) carrier distribution panel.

(b) Repeat Steps 8 through 13.

### C. Failure of Channel Bank Carrier Amplifier—Regular Carrier Supply

15 Remove the J68929AK channel bank carrier amplifier from the J68929AB shelf of the carrier supply under test (Fig. 1).

***Requirement:*** The office minor alarm is activated and a switch to the ***alternate*** (or ***auxiliary***) carrier supply is completed in less than 5 seconds.

16 Observe the lamps on the J68929AE (L1 and L2) carrier distribution panel.

***Requirement:*** (a) The ALM REG lamp is lighted.
(b) The SW ON ALT lamp is lighted.
(c) The REG GEN FAIL lamp is lighted.
***Note:*** In addition,
(d) The ALT GEN FAIL lamp on the ***alternate*** supply is lighted.

CHART 2 (Contd)

| STEP | PROCEDURE |
|---|---|
| | or<br>(e) The REG GEN FAIL lamp on the ***auxiliary*** supply is lighted. |
| 17 | Operate the MN ACO key.<br><br>***Requirement:*** (a) The office audible alarm is silenced.<br>(b) The MN ACO lamp is lighted.<br>(c) The ALM REG lamp stays lighted.<br>(d) The SW ON ALT lamp stays lighted.<br>(e) The REG GEN FAIL lamp stays lighted.<br>***Note:*** In addition,<br>(f) The ALT GEN FAIL lamp on the ***alternate*** supply stays lighted.<br>or<br>(g) The REG GEN FAIL lamp on the ***auxiliary*** supply stays lighted. |
| 18 | Reinsert the channel bank carrier amplifier removed in Step 15.<br><br>***Requirement:*** A switch back to the ***regular*** carrier supply is completed in less than 5 seconds. |
| 19 | Observe the lamps on the J68929AE (L1 and L2) carrier distribution panel.<br><br>***Requirement:*** (a) The SW ON ALT lamp is extinguished.<br>(b) The REG GEN FAIL lamp is extinguished.<br>(c) The MN ACO lamp is extinguished.<br>(d) The ALM REG lamp stays lighted.<br>***Note:*** In addition,<br>(e) The ALT GEN FAIL lamp on the ***alternate*** supply is extinguished.<br>or<br>(f) The REG GEN FAIL lamp on the ***auxiliary*** supply is extinguished. |
| 20 | Operate the ALM REG key.<br><br>***Requirement:*** The ALM REG lamp is extinguished. |
| 21 | If the requirements of Steps 15 through 20 are ***not*** met,<br><br>(a) Replace the J68929AN transfer, logic, and channel bank carrier alarm unit with a spare.<br><br>***Note:*** This unit is located in the J68929AE (L1 and L2) carrier distribution panel.<br><br>(b) Repeat Steps 15 through 20. |

CHART 2 (Contd)

| STEP | PROCEDURE |
|---|---|
| | **D. Loss of Channel Bank Carrier—Regular Carrier Supply** |
| 22 | Insert a dummy plug in the CH BK SW OUT jack for the carrier supply under test (Fig. 16).<br><br>***Requirement:*** The office major alarm is activated in less than 8 seconds. |
| 23 | Observe the lamps on the J68929AE (L1 and L2) carrier distribution panel.<br><br>***Requirement:*** (a) The ALM REG lamp is lighted.<br>(b) The CARR FAIL lamp is lighted. |
| 24 | Operate the MJ ACO key.<br><br>***Requirement:*** (a) The office audible alarm is silenced.<br>(b) The MJ ACO lamp is lighted.<br>(c) The ALM REG lamp stays lighted.<br>(d) The CARR FAIL lamp stays lighted. |
| 25 | Remove the dummy plug inserted in Step 22. |
| 26 | Observe the lamps on the J68929AE (L1 and L2) carrier distribution panel.<br><br>***Requirement:*** (a) The CARR FAIL lamp is extinguished.<br>(b) The MJ ACO lamp is extinguished.<br>(c) The ALM REG lamp stays lighted. |
| 27 | Operate the ALM REG key.<br><br>***Requirement:*** The ALM REG lamp is extinguished. |
| 28 | If the requirements of Steps 22 through 27 are ***not*** met, |

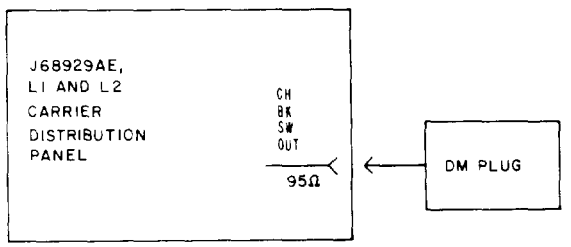


**Fig. 16—Connections—Loss-of-Channel-Bank-Carrier Test—Regular Carrier Supply**

CHART 2 (Contd)

| STEP | PROCEDURE |
|---|---|

(a) Replace the J68929AN transfer, logic, and channel bank carrier alarm unit with a spare.

***Note:*** This unit is located in the J68929AE (L1 and L2) carrier distribution panel.

(b) Repeat Steps 22 through 27.

**E. Loss of Channel Carriers—Regular Carrier Supply**

29 Insert a dummy plug in the CH SW OUT jack for the carrier supply under test (Fig. 17).

***Requirement:*** The office minor and major alarms are activated in less than 8 seconds.

30 Observe the lamps on the 12 J68929AJ channel carrier amplifier units and on the J68929AE (L1 and L2) carrier distribution panel.

***Requirement:*** (a) The 12 ALM lamps are lighted.
(b) The ALM REG lamp is lighted.
(c) The CARR FAIL lamp is lighted.

31 Operate the MN ACO and MJ ACO keys.

***Requirement:*** (a) The office audible alarm is silenced.
(b) The MN ACO lamp is lighted.
(c) The MJ ACO lamp is lighted.
(d) The 12 ALM lamps stay lighted.
(e) The ALM REG lamp stays lighted.
(f) The CARR FAIL lamp stays lighted.

32 Remove the dummy plug inserted in Step 29.

33 Observe the lamps on the 12 J68929AJ channel carrier amplifier units and on the J68929AE (L1 and L2) carrier distribution panel.

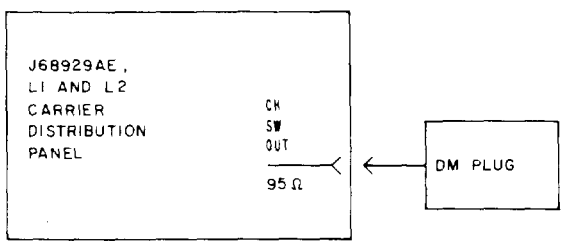


**Fig. 17—Connections—Loss-of-Channel-Carriers Test—Regular Carrier Supply**

CHART 2 (Contd)

| STEP | PROCEDURE |
|---|---|

***Requirement:*** (a) The 12 ALM lamps are extinguished.
(b) The CARR FAIL lamp is extinguished.
(c) The MN ACO lamp is extinguished.
(d) The MJ ACO lamp is extinguished.
(e) The ALM REG lamp stays lighted.

34 Operate the ALM REG key.

***Requirement:*** The ALM REG lamp is extinguished.

35 If the requirements of Steps 29 through 34 are ***not*** met,

(a) Replace the J68929AN transfer, logic, and channel bank carrier alarm unit with a spare.

***Note:*** This unit is located in the J68929AE (L1 and L2) carrier distribution panel.

(b) Repeat Steps 29 through 34.

**F. Channel Carrier Detector Operation—Regular Carrier Supply**

36 Connect the TST jack on the face of channel carrier amplifier unit 1 to the frame ground [connection (1), Fig. 18].

***Note:*** This connection operates the channel carrier detector without affecting the associated channel carrier.

***Requirement:*** Either the office minor alarm ◗(option X)◖ or office major alarm ◗(option Y),◖ depending on the local office alarm assignment, is activated in less than 8 seconds.

37 Observe the lamps on the J68929AJ channel carrier amplifier unit under test and on the J68929AE (L1 and L2) carrier distribution panel.

***Requirement:*** (a) The ALM lamp is lighted.
(b) The ALM REG lamp is lighted.

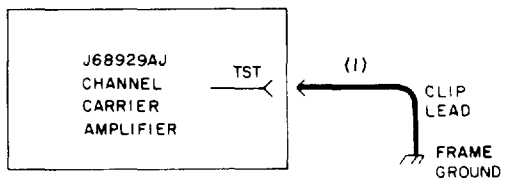


**Fig. 18—Connections—Channel-Carrier-Detector-Operation Test—Regular Carrier Supply**

CHART 2 (Contd)

| STEP | PROCEDURE |
|---|---|
| 38 | Operate the MN ACO or MJ ACO key, as applicable.<br><br>***Requirement:*** (a) The office audible alarm is silenced.<br>(b) The MN ACO or MJ ACO lamp, as applicable, is lighted.<br>(c) The ALM lamp stays lighted.<br>(d) The ALM REG lamp stays lighted. |
| 39 | Remove the connection made in Step 36. |
| 40 | Observe the lamps on the J68929AJ channel carrier amplifier unit under test and on the J68929AE (L1 and L2) carrier distribution panel.<br><br>***Requirement:*** (a) The ALM lamp is extinguished.<br>(b) The MN ACO or MJ ACO lamp, as applicable, is extinguished.<br>(c) The ALM REG lamp stays lighted. |
| 41 | Operate the ALM REG key.<br><br>***Requirement:*** The ALM REG lamp is extinguished. |
| 42 | ▮If the requirements of Steps 36 through 41 are ***not*** met, proceed as follows:<br><br>(a) If the ALM lamp requirements are not met, replace the channel carrier amplifier under test with a spare unit.<br><br>(b) If requirements other than the ALM lamp requirements are not met, replace the J68929AN transfer, logic, and channel bank carrier alarm unit with a spare.<br><br>***Note:*** This unit is located in the J68929AE (L1 and L2) carrier distribution panel.<br><br>(c) Repeat Steps 36 through 41.▮ |
| 43 | Repeat applicable Steps 36 through 42 for channel carrier amplifier units 2 to 12. |
| | **G. Manual Transfer of Carrier Supply—Regular Carrier Supply** |
| 44 | Press the MAN SW key. |
| 45 | Observe the lamps on the J68929AE (L1 and L2) carrier distribution panel.<br><br>***Requirement:*** (a) The MAN SW lamp is lighted.<br>(b) The SW ON ALT lamp is lighted.<br>***Note:*** In addition, if equipped for CFA,<br>(c) The SW ON ALT lamp on the J68929BL and/or J68929BM unit is lighted. |

CHART 2 (Contd)

| STEP | PROCEDURE |
|---|---|
| 46 | Press the MAN SW key. |
| 47 | Observe the lamps on the J68929AE (L1 and L2) carrier distribution panel.<br><br>***Requirement:*** (a) The MAN SW lamp is extinguished.<br>(b) The SW ON ALT lamp is extinguished.<br>***Note:*** In addition, if equipped for CFA,<br>(c) The SW ON ALT lamp on the J68929BL and/or J68929BM unit is extinguished. |
| 48 | If the requirements of Steps 45 and 47 are ***not*** met,<br><br>(a) Replace the J68929AN transfer, logic, and channel bank carrier alarm unit with a spare.<br><br>***Note:*** This unit is located in the J68929AE (L1 and L2) carrier distribution panel.<br><br>(b) Repeat Steps 44 through 47. |
| | **H. Automatic Transfer of -12 Volt Regulator—Regular Carrier Supply** |
| 49 | Remove the -12 volt regulator fuse ◗(F11 or CS1, as applicable)◖ for the ***regular*** carrier supply under test. |
| 50 | Observe the lamps on the 12 J68929AJ channel carrier amplifier units in the carrier supply under test.<br><br>***Requirement:*** The 12 ALM lamps are extinguished. |
| 51 | If the requirement of Step 50 is ***not*** met,<br><br>(a) Reinsert the fuse removed in Step 49.<br><br>(b) Remove the -12 volt regulator fuse ◗(F4, F11, or CS1, as applicable)◖ for the ***alternate*** (or ***auxiliary***) carrier supply.<br><br>(c) Replace the -12 volt regulator in the ***alternate*** (or ***auxiliary***) carrier supply with a spare.<br><br>(d) Reinsert the fuse removed in Step 51(b).<br><br>(e) Repeat Steps 49 and 50. |
| 52 | Reinsert the -12 volt regulator fuse removed in Step 49. |
| 53 | Measure the voltage at the -12V jack on the -12 volt regulator under test. |

CHART 2 (Contd)

| STEP | PROCEDURE |
|---|---|

***Requirement:*** -12.0 to -13.3 volts.

54 If the requirement of Step 53 is ***not*** met,

(a) Remove the -12 volt regulator fuse ◗(F11 or CS1, as applicable)◖ for the ***regular*** carrier supply under test.

(b) Replace the -12 volt regulator in the ***regular*** carrier supply with a spare.

(c) Repeat Steps 50 through 53.

55 (a) If two mutually protected carrier supplies (two ***regular*** carrier supplies) are used, repeat applicable Steps 1 through 54 for the second ***regular*** supply.

(b) If one ***regular*** carrier supply is protected by an ***auxiliary*** carrier supply, proceed to Step 56.

**I. Loss of Sync Signal—Auxiliary Carrier Supply**

56 At the rear of the shelf for the A6 ***auxiliary*** carrier supply under test, connect pin 13 to pin 14 of jack J3 [connection (1), Fig. 19].

***Note:*** ◗Jack J3 is a 935A connector used for the J68929AL carrier supply generator (Fig. 2). It is located in the first position (first slot) from the left end of the J68929AP carrier supply shelf when facing the rear of the shelf.◖

***Requirement:*** The office minor alarm is activated in less than 5 seconds.

57 Observe the lamps on the J68929AP auxiliary carrier supply panel.

***Requirement:*** (a) The ALM REG lamp is lighted.
(b) The AUX GEN FAIL lamp is lighted.
***Note:*** In addition,
(c) The ALT GEN FAIL lamp on the ***regular*** supply is lighted.

58 Operate the MN ACO key.

***Requirement:*** (a) The office audible alarm is silenced.
(b) The MN ACO lamp is lighted.
(c) The ALM REG lamp stays lighted.
(d) The AUX GEN FAIL lamp stays lighted.
***Note:*** In addition,
(e) The ALT GEN FAIL lamp on the ***regular*** supply stays lighted.

59 Remove the connection applied in Step 56.

CHART 2 (Contd)

| STEP | PROCEDURE |
|---|---|

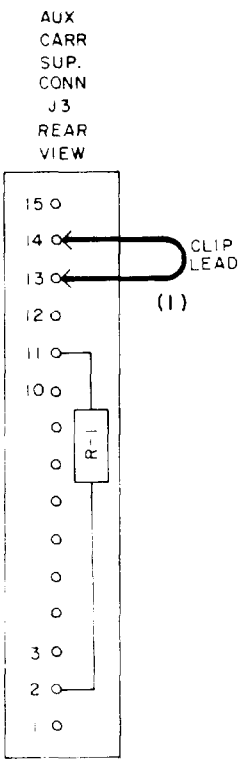


**Fig. 19—Connections—Loss-of-Sync-Signal Test—Auxiliary Carrier Supply**

***Requirement:*** The alarm circuit is released in less than 5 seconds.

***Note:*** The CFA carrier supply (if equipped) may cause a delay of approximately 25 seconds before the alarm circuit is released.

60 Observe the lamps on the J68929AP auxiliary carrier supply panel.

***Requirement:*** (a) The AUX GEN FAIL lamp is extinguished.
(b) The MN ACO lamp is extinguished.
(c) The ALM REG lamp stays lighted.
***Note:*** In addition,
(d) The ALT GEN FAIL lamp on the ***regular*** supply is extinguished.

61 Operate the ALM REG key.

***Requirement:*** The ALM REG lamp is extinguished.

CHART 2 (Contd)

| STEP | PROCEDURE |
|---|---|
| 62 | If the requirements of Steps 56 through 61 are ***not*** met,<br><br>(a) Replace the relay and alarm unit with a spare.<br><br>***Note:*** This unit is located in the J68929AP auxiliary carrier supply panel.<br><br>(b) Repeat Steps 56 through 61. |
| | **J. Failure of Carrier Supply Generator—Auxiliary Carrier Supply** |
| 63 | Insert a dummy plug in the GEN OUT jack on the J68929AP auxiliary carrier supply panel (Fig. 20).<br><br>***Requirement:*** The office minor alarm is activated in less than 5 seconds. |
| 64 | Observe the lamps on the J68929AP auxiliary carrier supply panel.<br><br>***Requirement:*** (a) The ALM REG lamp is lighted.<br>(b) The AUX GEN FAIL lamp is lighted.<br>***Note:*** In addition,<br>(c) The ALT GEN FAIL lamp on the ***regular*** supply is lighted. |
| 65 | Operate the MN ACO key.<br><br>***Requirement:*** (a) The office audible alarm is silenced.<br>(b) The MN ACO lamp is lighted.<br>(c) The ALM REG lamp stays lighted.<br>(d) The AUX GEN FAIL lamp stays lighted.<br>***Note:*** In addition,<br>(e) The ALT GEN FAIL lamp on the ***regular*** supply stays lighted. |
| 66 | Remove the dummy plug inserted in Step 63. |

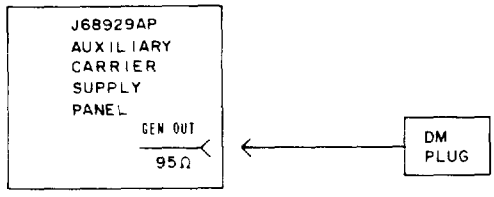


**Fig. 20—Connections—Failure-of-Carrier-Supply-Generator Test—Auxiliary Carrier Supply**

CHART 2 (Contd)

| STEP | PROCEDURE |
|---|---|
| 67 | Observe the lamps on the J68929AP auxiliary carrier supply panel.<br><br>***Requirement:*** (a) The AUX GEN FAIL lamp is extinguished.<br>(b) The MN ACO lamp is extinguished.<br>(c) The ALM REG lamp stays lighted.<br>***Note:*** In addition,<br>(d) The ALT GEN FAIL lamp on the ***regular*** supply is extinguished. |
| 68 | Operate the ALM REG key.<br><br>***Requirement:*** The ALM REG lamp is extinguished. |
| 69 | If the requirements of Steps 63 through 68 are ***not*** met,<br><br>(a) Replace the relay and alarm unit with a spare.<br><br>***Note:*** This unit is located in the J68929AP auxiliary carrier supply panel.<br><br>(b) Repeat Steps 63 through 68. |
| | **K. Failure of Channel Bank Carrier Amplifier—Auxiliary Carrier Supply** |
| 70 | Remove the J68929AK channel bank carrier amplifier from the J68929AP auxiliary carrier supply under test (Fig. 2).<br><br>***Requirement:*** The office minor alarm is activated in less than 5 seconds. |
| 71 | Observe the lamps on the J68929AP auxiliary carrier supply panel.<br><br>***Requirement:*** (a) The ALM REG lamp is lighted.<br>(b) The AUX GEN FAIL lamp is lighted.<br>***Note:*** In addition,<br>(c) The ALT GEN FAIL lamp on the ***regular*** supply is lighted. |
| 72 | Operate the MN ACO key.<br><br>***Requirement:*** (a) The office audible alarm is silenced.<br>(b) The MN ACO lamp is lighted.<br>(c) The ALM REG lamp stays lighted.<br>(d) The AUX GEN FAIL lamp stays lighted.<br>***Note:*** In addition,<br>(e) The ALT GEN FAIL lamp on the ***regular*** supply stays lighted. |
| 73 | Reinsert the channel bank carrier amplifier removed in Step 70. |
| 74 | Observe the lamps on the J68929AP auxiliary carrier supply panel. |

CHART 2 (Contd)

| STEP | PROCEDURE |
|---|---|

***Requirement:*** (a) The AUX GEN FAIL lamp is extinguished.
(b) The MN ACO lamp is extinguished.
(c) The ALM REG lamp stays lighted.
***Note:*** In addition,
(d) The ALT GEN FAIL lamp on the ***regular*** supply is extinguished.

75 Operate the ALM REG key.

***Requirement:*** The ALM REG lamp is extinguished.

76 If the requirements of Steps 70 through 75 are ***not*** met,

(a) Replace the relay and alarm unit with a spare.

***Note:*** This unit is located in the J68929AP auxiliary carrier supply panel.

(b) Repeat Steps 70 through 75.

**L. Automatic Transfer of -12 Volt Regulator—Auxiliary Carrier Supply**

77 Remove the -12 volt regulator fuse ▶(F4)◀ for the ***auxiliary*** carrier supply under test.

78 Observe the lamps on the J68929AP ***auxiliary*** carrier supply under test.

***Requirement:*** (a) The ALM REG lamp is extinguished.
(b) The AUX GEN FAIL lamp is extinguished.

79 If the requirement of Step 78 is ***not*** met,

(a) Reinsert the fuse removed in Step 77.

(b) Remove the -12 volt regulator fuse ▶(F11 or CS1, as applicable)◀ for the ***regular*** carrier supply.

(c) Replace the -12 volt regulator in the ***regular*** carrier supply with a spare.

(d) Reinsert the fuse removed in Step 79(b).

(e) Repeat Steps 77 and 78.

80 Reinsert the -12 volt regulator fuse removed in Step 77.

81 Measure the voltage at the -12V jack on the -12 volt regulator under test.

***Requirement:*** -12.0 to -13.3 volts.

CHART 2 (Contd)

| STEP | PROCEDURE |
|---|---|
| 82 | If the requirement of Step 81 is ***not*** met,<br>(a) Remove the -12 volt regulator fuse ◗(F4)◖ for the ***auxiliary*** carrier supply under test.<br>(b) Replace the -12 volt regulator in the ***auxiliary*** carrier supply with a spare.<br>(c) Repeat Steps 78 through 81. |

## CHART 3

## ALARM TESTS
## UNPROTECTED CARRIER SUPPLIES

For proper operation, appropriate alarms and corresponding lamps must be activated upon loss of synchronizing signal (64 kHz), failure of the carrier generating circuit, loss of the channel bank carrier signal, or loss of the channel carrier signals.

***Note 1:*** The tests in this chart can be performed on arrangements involving unprotected (***regular only***) carrier supplies ***by using the applicable parts*** (A through F). The protected (***regular and alternate*** or ***regular and auxiliary)*** arrangements are covered in Chart 2.

***Note 2:*** If the A6 system is equipped with the J68929BA CFA carrier supply shelf, the CFA plug-in units must be installed (per Section 356-016-300 or 356-016-303) before performing the tests in this chart.

**APPARATUS**

***Clip Lead,*** approximately 6 inches long

***Dummy Plug, 258-type***

| STEP | PROCEDURE |
|---|---|
| | **A. Loss of Sync Signal** |
| 1 | At the rear of the shelf for the unprotected ***regular*** carrier supply under test, connect pin 13 to pin 14 of jack J15 for the carrier supply under test [connection (1), Fig. 21].<br><br>***Note:*** Jack J15 is a 935A connector used for the J68929AL carrier supply generator (Fig. 1). ▶It is located in the first position (first slot) from the left end of the J68929AB carrier supply shelf when facing the rear of the shelf.◀<br><br>***Caution: Use extreme care to avoid touching adjacent pins with the clip lead.***<br><br>***Requirement:*** The office major alarm is activated in less than 5 seconds. |
| 2 | Observe the lamps on the J68929AE (L1 and L2) carrier distribution panel.<br><br>***Requirement:*** (a) The ALM REG lamp is lighted.<br>(b) The CARR FAIL lamp is lighted.<br>(c) The REG GEN FAIL lamp is lighted. |
| 3 | Operate the MJ ACO key. |

CHART 3 (Contd)

| STEP | PROCEDURE |
|---|---|

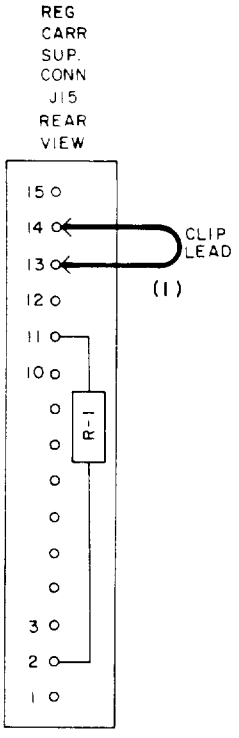


**Fig. 21—Connections—Loss-of-Sync-Signal Test—Unprotected Carrier Supply**

***Requirement:*** (a) The office audible alarm is silenced.
(b) The MJ ACO lamp is lighted.
(c) The ALM REG lamp stays lighted.
(d) The CARR FAIL lamp stays lighted.
(e) The REG GEN FAIL lamp stays lighted.

4 Remove the connection applied in Step 1.

***Requirement:*** The nonalarm state is restored in less than 5 seconds.

***Note:*** The CFA carrier supply (if equipped) may cause a delay of approximately 25 seconds before the alarm circuit is released.

5 Observe the lamps on the J68929AE (L1 and L2) carrier distribution panel.

***Requirement:*** (a) The CARR FAIL lamp is extinguished.
(b) The REG GEN FAIL lamp is extinguished.

CHART 3 (Contd)

| STEP | PROCEDURE |
|---|---|

(c) The MJ ACO lamp is extinguished.
(d) The ALM REG lamp stays lighted.

6 Operate the ALM REG key.

***Requirement:*** The ALM REG lamp is extinguished.

7 If the requirements of Steps 1 through 6 are ***not*** met,

(a) Replace the J68929AN transfer, logic, and channel bank carrier alarm unit with a spare.

***Note:*** This unit is located in the J68929AE (L1 and L2) carrier distribution panel.

(b) Repeat Steps 1 through 6.

**B. Failure of Carrier Supply Generator**

8 Insert a dummy plug in the GEN OUT jack on the J68929AE (L1 and L2) carrier distribution panel (Fig. 22).

***Requirement:*** The office major and minor alarms are activated in less than 5 seconds.

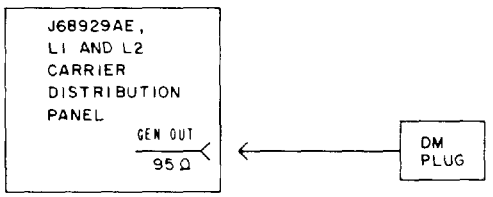


**Fig. 22—Connections—Failure-of-Carrier-Supply Test— Unprotected Carrier Supply**

9 Observe the lamps on the 12 J68929AJ channel carrier amplifier units and on the J68929AE (L1 and L2) carrier distribution panel.

***Requirement:*** (a) The 12 ALM lamps are lighted.
(b) The ALM REG lamp is lighted.
(c) The CARR FAIL lamp is lighted.
(d) The REG GEN FAIL lamp is lighted.

CHART 3 (Contd)

| STEP | PROCEDURE |
|---|---|

10 Operate the MJ ACO and MN ACO keys.

***Requirement:*** (a) The office audible alarm is silenced.
(b) The MJ ACO lamp is lighted.
(c) The MN ACO lamp is lighted.
(d) The 12 ALM lamps stay lighted.
(e) The ALM REG lamp stays lighted.
(f) The CARR FAIL lamp stays lighted.
(g) The REG GEN FAIL lamp stays lighted.

11 Remove the dummy plug inserted in Step 8.

***Requirement:*** The nonalarm state is restored in less than 5 seconds.

***Note:*** The CFA carrier supply (if equipped) may cause a delay of approximately 25 seconds before the alarm circuit is released.

12 Observe the lamps on the 12 J68929AJ channel carrier amplifier units and on the J68929AE (L1 and L2) carrier distribution panel.

***Requirement:*** (a) The 12 ALM lamps are extinguished.
(b) The CARR FAIL lamp is extinguished.
(c) The REG GEN FAIL lamp is extinguished.
(d) The MJ ACO lamp is extinguished.
(e) The MN ACO lamp is extinguished.
(f) The ALM REG lamp stays lighted.

13 Operate the ALM REG key.

***Requirement:*** The ALM REG lamp is extinguished.

14 If the requirements of Steps 8 through 13 are ***not*** met,

(a) Replace the J68929AN transfer, logic, and channel bank carrier alarm unit with a spare.

***Note:*** This unit is located in the J68929AE (L1 and L2) carrier distribution panel.

(b) Repeat Steps 8 through 13.

**C. Failure of Channel Bank Carrier Amplifier**

15 Remove the J68929AK channel bank carrier amplifier from the J68929AB shelf of the carrier supply under test (Fig. 1).

***Requirement:*** The office major alarm is activated in less than 5 seconds.

CHART 3 (Contd)

| STEP | PROCEDURE |
|---|---|
| 16 | Observe the lamps on the J68929AE (L1 and L2) carrier distribution panel.<br><br>***Requirement:*** (a) The ALM REG lamp is lighted.<br>(b) The CARR FAIL lamp is lighted.<br>(c) The REG GEN FAIL lamp is lighted. |
| 17 | Operate the MJ ACO key.<br><br>***Requirement:*** (a) The office audible alarm is silenced.<br>(b) The MJ ACO lamp is lighted.<br>(c) The ALM REG lamp stays lighted.<br>(d) The CARR FAIL lamp stays lighted.<br>(e) The REG GEN FAIL lamp stays lighted. |
| 18 | Reinsert the channel bank carrier amplifier removed in Step 15.<br><br>***Requirement:*** The nonalarm state is restored in less than 5 seconds. |
| 19 | Observe the lamps on the J68929AE (L1 and L2) carrier distribution panel.<br><br>***Requirement:*** (a) The CARR FAIL lamp is extinguished.<br>(b) The REG GEN FAIL lamp is extinguished.<br>(c) The MJ ACO lamp is extinguished.<br>(d) The ALM REG lamp stays lighted. |
| 20 | Operate the ALM REG key.<br><br>***Requirement:*** The ALM REG lamp is extinguished. |
| 21 | If the requirements of Steps 15 through 20 are ***not*** met,<br><br>(a) Replace the J68929AN transfer, logic, and channel bank carrier alarm unit with a spare.<br><br>***Note:*** This unit is located in the J68929AE (L1 and L2) carrier distribution panel.<br><br>(b) Repeat Steps 15 through 20. |
| | **D. Loss of Channel Bank Carrier** |
| 22 | Insert a dummy plug in the CH BK SW OUT jack for the carrier supply under test (Fig. 23).<br><br>***Requirement:*** The office major alarm is activated in less than 5 seconds. |
| 23 | Observe the lamps on the J68929AE (L1 and L2) carrier distribution panel. |

CHART 3 (Contd)

| STEP | PROCEDURE |
|---|---|

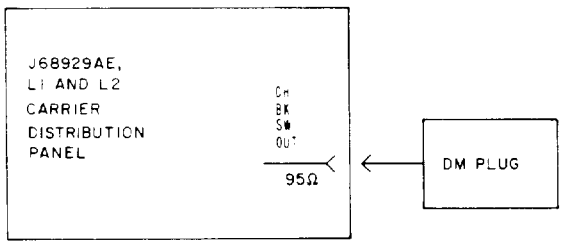


**Fig. 23—Connections—Loss-of-Channel-Bank-Carrier Test—Unprotected Carrier Supply**

***Requirement:*** (a) The ALM REG lamp is lighted.
(b) The CARR FAIL lamp is lighted.

24 Operate the MJ ACO key.

***Requirement:*** (a) The office audible alarm is silenced.
(b) The MJ ACO lamp is lighted.
(c) The ALM REG lamp stays lighted.
(d) The CARR FAIL lamp stays lighted.

25 Remove the dummy plug inserted in Step 22.

26 Observe the lamps on the J68929AE (L1 and L2) carrier distribution panel.

***Requirement:*** (a) The CARR FAIL lamp is extinguished.
(b) The MJ ACO lamp is extinguished.
(c) The ALM REG lamp stays lighted.

27 Operate the ALM REG key.

***Requirement:*** The ALM REG lamp is extinguished.

28 If the requirements of Steps 22 through 27 are ***not*** met,

(a) Replace the J68929AN transfer, logic, and channel bank carrier alarm unit with a spare.

***Note:*** This unit is located in the J68929AE (L1 and L2) carrier distribution panel.

(b) Repeat Steps 22 through 27.

CHART 3 (Contd)

| STEP | PROCEDURE |
|---|---|

**E. Loss of Channel Carriers**

29 Insert a dummy plug in the CH SW OUT jack for the carrier supply under test (Fig. 24).

***Requirement:*** The office minor and major alarms are activated in less than 8 seconds.

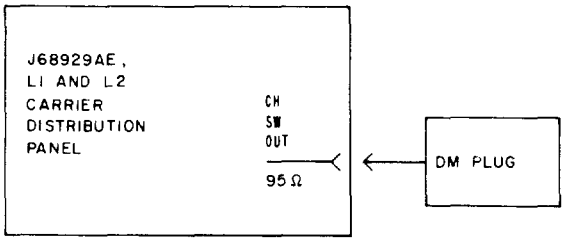


**Fig. 24—Connections—Loss-of-Channel-Carriers Test— Unprotected Carrier Supply**

30 Observe the lamps on the 12 J68929AJ channel carrier amplifier units and on the J68929AE (L1 and L2) carrier distribution panel.

***Requirement:*** (a) The 12 ALM lamps are lighted.
(b) The ALM REG lamp is lighted.
(c) The CARR FAIL lamp is lighted.

31 Operate the MN ACO and MJ ACO keys.

***Requirement:*** (a) The office audible alarm is silenced.
(b) The MN ACO lamp is lighted.
(c) The MJ ACO lamp is lighted.
(d) The 12 ALM lamps stay lighted.
(e) The ALM REG lamp stays lighted.
(f) The CARR FAIL lamp stays lighted.

32 Remove the dummy plug inserted in Step 29.

33 Observe the lamps on the 12 J68929AJ channel carrier amplifier units and on the J68929AE (L1 and L2) carrier distribution panel.

***Requirement:*** (a) The 12 ALM lamps are extinguished.
(b) The CARR FAIL lamp is extinguished.
(c) The MN ACO lamp is extinguished.

CHART 3 (Contd)

| STEP | PROCEDURE |
|---|---|

(d) The MJ ACO lamp is extinguished.
(e) The ALM REG lamp stays lighted.

34 Operate the ALM REG key.

***Requirement:*** The ALM REG lamp is extinguished.

35 If the requirements of Steps 29 through 34 are ***not*** met,

(a) Replace the J68929AN transfer, logic, and channel bank carrier alarm unit with a spare.

***Note:*** This unit is located in the J68929AE (L1 and L2) carrier distribution panel.

(b) Repeat Steps 29 through 34.

**F. Channel Carrier Detector Operation**

36 Connect the TST jack on the face of channel carrier amplifier unit 1 to the frame ground [connection (1), Fig. 25].

***Note:*** This connection operates the channel carrier detector without affecting the associated channel carrier.

***Requirement:*** Either the office minor alarm ◗(option X)◖ or office major alarm (◗(option Y),◖ depending on the local office alarm assignment, is activated.

37 Observe the lamps on the J68929AJ channel carrier amplifier unit under test and on the J68929AE (L1 and L2) carrier distribution panel.

***Requirement:*** (a) The ALM lamp is lighted.
(b) The ALM REG lamp is lighted.

38 Operate the MN ACO or MJ ACO key, as applicable.

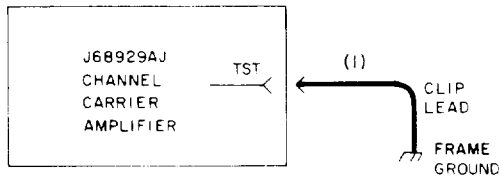


**Fig. 25—Connections—Channel-Carrier-Detector-Operation Test—Unprotected Carrier Supply**

CHART 3 (Contd)

| STEP | PROCEDURE |
|---|---|
| | ***Requirement:*** (a) The office audible alarm is silenced.<br>(b) The MN ACO or MJ ACO lamp, as applicable, is lighted.<br>(c) The ALM lamp stays lighted.<br>(d) The ALM REG lamp stays lighted. |
| 39 | Remove the connection made in Step 36. |
| 40 | Observe the lamps on the J68929AJ channel carrier amplifier unit under test and on the J68929AE (L1 and L2) carrier distribution panel.<br><br>***Requirement:*** (a) The ALM lamp is extinguished.<br>(b) The MN ACO or MJ ACO lamp, as applicable, is extinguished.<br>(c) The ALM REG lamp stays lighted. |
| 41 | Operate the ALM REG key.<br><br>***Requirement:*** The ALM REG lamp is extinguished. |
| 42 | ♦If the requirements of Steps 36 through 41 are ***not*** met, proceed as follows:<br><br>(a) If the ALM lamp requirements are not met, replace the channel carrier amplifier under test with a spare unit.<br><br>(b) If requirements other than the ALM lamp requirements are not met, replace the J68929AN transfer, logic, and channel bank carrier alarm unit with a spare.<br><br>***Note:*** This unit is located in the J68929AE (L1 and L2) carrier distribution panel.<br><br>(c) Repeat Steps 36 through 41.♦ |
| 43 | Repeat applicable Steps 36 through 42 for channel carrier amplifier units 2 to 12. |