

**L MULTIPLEX TERMINALS
COMMON EQUIPMENT
A6 CHANNEL BANK
CARRIER SUPPLY—TROUBLE CORRECTION PROCEDURES**

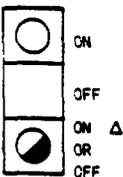
In the event of trouble in the A6 carrier supply, (a) determine the trouble-correction chart to use by comparing the actual office alarm and carrier supply lamp indications with the seven lamp combinations shown in Fig. 1, then (b) take the corrective action indicated in the applicable chart.

Caution: In the event a carrier supply failure causes loss of service, make appropriate restoration patches first. Then locate and correct the trouble.

Note: After carrier supply trouble has been corrected, perform all tests in Section 356-016-503.

OFFICE ALARM INDICATIONS			CARRIER SUPPLY LAMP INDICATIONS						TYPE OF TROUBLE	REFER TO CHART NO.
MINOR	MAJOR	FUSE	ALM	* ALM REG	SW ON ALT	CXR FAIL	ALT GEN FAIL	REG GEN FAIL		
●	○	○		●	●	●	●	●	FUSE FAILURE	1
○				○	○			○	PROTECTED REGULAR CARRIER SUPPLY FAILURE	2
								○	ALTERNATE (OR AUXILIARY) CARRIER SUPPLY FAILURE	3
○ OR ○			○	○					CHANNEL CARRIER AMPLIFIER FAILURE	4
	○		●	○	●	○		●	CHANNEL CARRIER SWITCHING FAILURE OR CHANNEL BANK CARRIER SWITCHING FAILURE	5
	○		●	○		○	○	○	PROTECTED (REGULAR & ALTERNATE OR REGULAR & AUXILIARY) CARRIER SUPPLY FAILURE (COMPLETE FAILURE - REQUIRES RESTORATION)	6
	○		●	○		○		○	UNPROTECTED REGULAR CARRIER SUPPLY FAILURE (COMPLETE FAILURE)	7

LEGEND:
LAMP INDICATIONS



* THE ALM REG LAMP CAN BE EXTINGUISHED ONLY BY OPERATION OF THE ALM REG KEY.

+ EITHER ALL OR NONE OF THE 12 ALM LAMPS WILL BE LIGHTED.

Δ DEPENDS ON LOCAL OPTION.

NOTE:

WHEN THE A6 SYSTEM IS EQUIPPED WITH THE J689298A CFA PILOT SUPPLY, A MINOR ALARM IN THE CFA SYSTEM WILL CAUSE THE ALM REG LAMP ABOVE TO LIGHT; A MAJOR ALARM IN THE CFA SYSTEM WILL CAUSE THE ALM REG AND CXR FAIL LAMPS TO LIGHT. (SEE SECTION 356-016-506.)

Fig. 1—A6 Carrier Supply—Trouble Indications at the Regular Carrier Supply

**Reprinted to comply with modified final judgment.

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SECTION 356-016-504

◆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. 2) 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. 3) consists of:

1—J68929AK channel bank carrier amplifier unit

1—J68929AL carrier supply generator unit

1—J68929AM - 12 volt regulator unit

1—Jack, lamp, and fuse panel

Note: If equipped with the J68929BA CFA carrier supply, do *not* attempt to correct trouble in the CFA supply (Section 356-016-506) until the appropriate procedure in this section has been completed. When so equipped, (a) removal of the J68929AJ carrier amplifier for either channel 1 or channel 2, (b) removal of the J68929AL carrier supply generator unit, or (c) making a manual switch may cause a switch to the alternate CFA supply and initiate an office minor alarm.◆

This section is reissued to update the information. Arrows are used to indicate significant changes. *Equipment Test Lists are affected.*

CHART	PAGE
1—Fuse Failure	5
2—◆Protected Regular Carrier Supply Failure◆	8

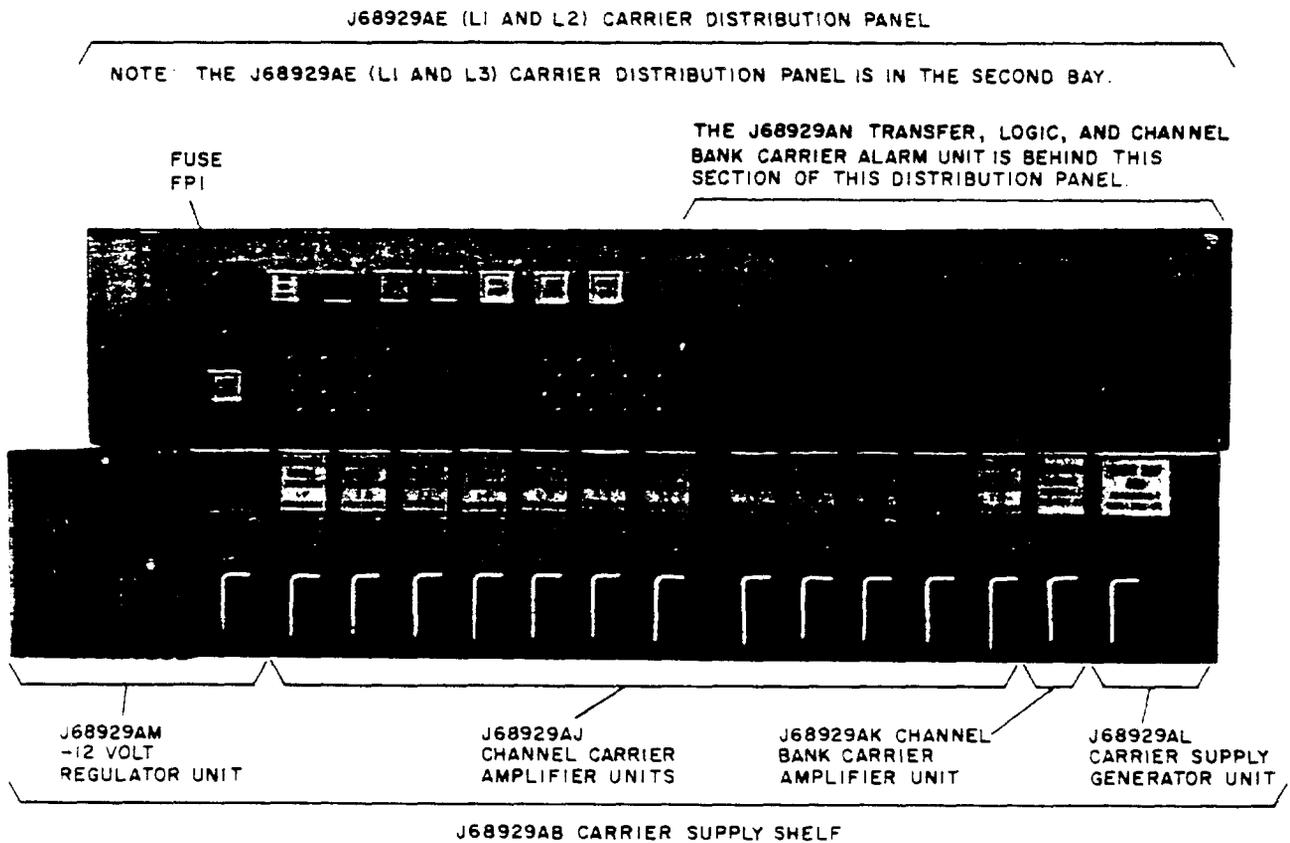


Fig. 2—A6 Carrier Supply and Distribution Panel—First Bay

3—◆Alternate (or Auxiliary) Carrier Supply Failure◆	9
4—Channel Carrier Amplifier Failure	11
5—◆Channel Carrier Switching Failure or Channel Bank Carrier Switching Failure◆	12
6—◆Protected (Regular and Alternate or Regular and Auxiliary) Carrier Supply Failure (Complete Failure—Restoration Procedure)◆	14
7—◆Unprotected Regular Carrier Supply Failure (Complete Failure)◆	18

Note: All lamp indications and tests in these charts refer to the *regular* carrier supply unless noted otherwise.

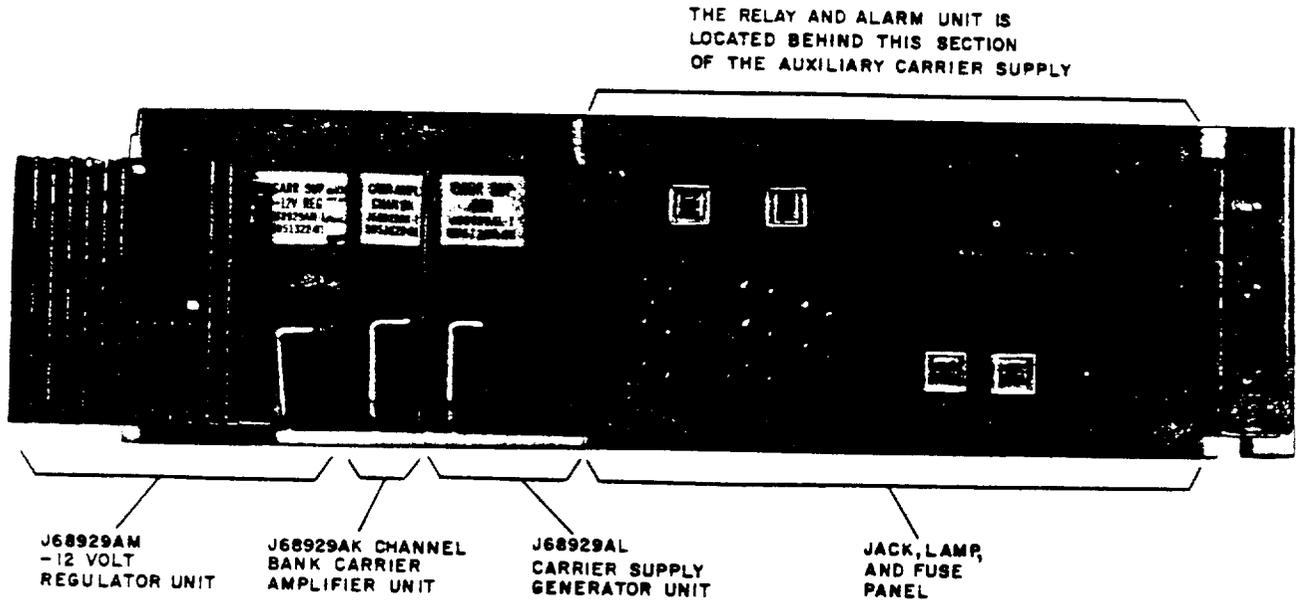


Fig. 3—A6 Auxiliary Carrier Supply

CHART 1

FUSE FAILURE

STEP	PROCEDURE
1	<p>Press the MAN SW key on the J68929AE (L1 and L2) carrier distribution panel associated with the blown fuse.</p> <p>Requirement: (a) The SW ON ALT lamp is lighted (b) The MAN SW lamp is lighted. (c) All other indications remain unchanged.</p>
2	<p>Replace any defective fuses.</p> <p>Note: A defective fuse is indicated by a colored plastic tip protruding from the center of the corresponding fuse holder cap. In addition,</p> <p>◆For the J68929AB regular carrier supply:◆</p> <p>(a) A defective F() or FR() fuse on J68929() bays or CS(), FR(), or CARR GEN fuse on J98626() frames causes an alarm lamp on the corresponding fuse panel to light.</p> <p>(b) A defective FP1 fuse causes the FUSE ALM lamp on the J68929AE (L1 and L2) carrier distribution panel to light.</p> <p>◆For the J68929AP auxiliary carrier supply:</p> <p>(a) A defective F1, F2, F3, F4, FP1, or FR1 fuse causes the FUSE ALM lamp on the J68929AP auxiliary carrier supply panel to light.◆</p>
3	<p>If any replaced fuse blows,</p> <p>(a) Replace all A6 carrier supply units listed in Table A or B, as applicable, that correspond with blown fuses.</p> <p>(b) Replace any blown fuses.</p>

CHART 1 (Cont)

STEP

PROCEDURE

♦ TABLE A ♦

FUSES AND CORRESPONDING CARRIER SUPPLY UNITS - J68929AB CARRIER SUPPLY

BLOWN FUSE		CIRCUIT VOLTAGE	CARRIER SUPPLY UNIT TO BE REPLACED
DESIGNATION (NOTE 1)			
J68924 BAYS	J68926 FRAMES		
F1	CS5	-24	J68929AN Transfer, Logic, and Channel Bank Carrier Alarm Unit (Notes 2 and 3)
F7	CS4	-24	J68929AN Transfer, Logic, and Channel Bank Carrier Alarm Unit (Note 2) and J68929AK Channel Bank Carrier Amplifier Unit
F8	CS2	-24	J68929AN Transfer, Logic and Channel Bank Carrier Alarm Unit (Note 2) and the twelve J68929AJ Channel Carrier Amplifier Units
F10	CS3	-24	J68929AL Carrier Supply Generator Unit
F11	CS1	-24	J68929AM -12 Volt Regulator Unit
FP1	FP1	-12	J68929AM -12 Volt Regulator Unit in the Alternate (or Auxiliary) Carrier Supply
FR1 thru FR6	FR1 thru FR6	-12	J68929AJ Channel Carrier Amplifier Unit for Channel 1 through Channel 6, as applicable
FR7	CARR GEN	-12	J68929AL Carrier Supply Generator Unit and J68929AK Channel Bank Carrier Amplifier Unit
FR9 thru FR14	FR7 thru FR12	-12	J68929AJ Channel Carrier Amplifier Unit for Channel 7 through Channel 12, as applicable

Note 1: ♦The FP1 fuse is on the *regular* and *alternate* J68929AE (L1 and L2) carrier distribution panels (or the J68929AP *auxiliary* carrier supply panel).♦

Note 2: Before replacing the J68929AN transfer, logic, and channel bank carrier alarm unit: (a) patch the ALT CH CXR jack to the CH HYB IN jack and (b) patch the ALT CH BK CXR jack to the CH BK HYB IN jack.

CHART 1 (Cont)

STEP

PROCEDURE

Note 3: A short circuit in the J68929AN transfer, logic, and channel bank carrier alarm unit in the *alternate* carrier supply can also cause fuse F1 or CS5 to blow.

♦ TABLE B ♦

FUSES AND CORRESPONDING CARRIER SUPPLY UNITS
J68929AP AUXILIARY CARRIER SUPPLY

BLOWN FUSE		CARRIER SUPPLY UNIT TO BE REPLACED
DESIGNATION (NOTE 1)	CIRCUIT VOLTAGE	
F1	-24	Relay and Alarm Unit in the J68929AP Auxiliary Carrier Supply
F2	-24	J68929AK Channel Bank Carrier Amplifier Unit
F3	-24	J68929AL Carrier Supply Generator Unit
F4	-24	J68929AM -12 Volt Regulator Unit
FP1	-12	J68929AM -12 Volt Regulator Unit in the associated Regular Carrier Supply
FR1	-12	J68929AL Carrier Supply Generator Unit or J68929AK Channel Bank Carrier Amplifier Unit

Note 1: All of the above fuses are on the J68929AP auxiliary carrier supply panel.

Note 2: A short circuit in the J68929AN transfer, logic, and channel bank carrier alarm unit in the associated *regular* carrier supply can also cause fuse F1 or CS5 to blow.

- 4 If patches were made according to Table A, Note 2, remove these patches.
- 5 Press the MAN SW key.

Requirement: All lamps except the ALM REG lamp are extinguished.

- 6 Press the ALM REG key.

Requirement: The ALM REG lamp is extinguished.

CHART 2

PROTECTED REGULAR CARRIER SUPPLY FAILURE

STEP	PROCEDURE
1	<p>Press the MAN SW key on the J68929AE (L1 and L2) carrier distribution panel associated with the failed carrier supply.</p> <p>Requirement: (a) The SW ON ALT lamp is lighted. (b) The MAN SW lamp is lighted. (c) All other indications remain unchanged.</p>
2	<p>Remove the -24 volt fuse [F10 in J68929() bays or CS3 in J98626() frames] associated with the carrier supply generator.</p>
3	<p>Replace the J68929AL carrier supply generator unit with a spare unit.</p>
4	<p>Reinsert the associated -24 volt fuse.</p> <p>Requirement: (a) The SW ON ALT lamp stays lighted. (b) The REG GEN FAIL lamp is extinguished.</p>
5	<p>If the requirement of Step 4 is <i>not</i> met,</p> <p>(a) Remove the associated -24 volt fuse inserted in Step 4.</p> <p>(b) Replace the J68929AL spare unit with the unit removed in Step 3.</p> <p>(c) Reinsert the associated -24 volt fuse.</p> <p>(d) Replace the J68929AK channel bank carrier amplifier unit with a spare unit.</p> <p>Requirement: (a) The SW ON ALT lamp stays lighted. (b) The REG GEN FAIL lamp is extinguished.</p>
6	<p>Press the MAN SW key.</p> <p>Requirement: All lamps except the ALM REG lamp are extinguished.</p>
7	<p>Press the ALM REG key.</p> <p>Requirement: The ALM REG lamp is extinguished.</p>

CHART 3

◆ALTERNATE (OR AUXILIARY) CARRIER SUPPLY FAILURE◆

STEP	PROCEDURE
	<i>At the alternate (or auxiliary) carrier supply</i>
1	Press the MAN SW key on the J68929AE (L1 and L2) carrier distribution panel associated with the failed carrier supply. Requirement: (a) The SW ON ALT lamp is lighted. (b) The MAN SW lamp is lighted. (c) All other indications remain unchanged.
2	Remove the -24 volt fuse [F10 in J68929() bays, CS3 in J98626() frames, or F3 in J68929AP panels] associated with the carrier supply generator.
3	Replace the J68929AL carrier supply generator with a spare unit.
4	Reinsert the associated -24 volt fuse. <i>◆Alternate Carrier Supply◆</i> Requirement: (a) The SW ON ALT lamp stays lighted. (b) The REG GEN FAIL lamp is extinguished. <i>◆Auxiliary Carrier Supply</i> Requirement: The AUX GEN FAIL lamp is extinguished.◆
5	If the requirement of Step 4 is <i>not</i> met, (a) Remove the associated -24 volt fuse inserted in Step 4. (b) Replace the J68929AL spare unit with the unit removed in Step 3. (c) Reinsert the associated -24 volt fuse. (d) Replace the J68929AK channel bank carrier amplifier unit with a spare unit. <i>◆Alternate Carrier Supply◆</i> Requirement: (a) The SW ON ALT lamp stays lighted. (b) The REG GEN FAIL lamp is extinguished. <i>◆Auxiliary Carrier Supply</i> Requirement: The AUX GEN FAIL lamp is extinguished.◆

CHART 3 (Cont)

STEP	PROCEDURE
6	Press the MAN SW key. <i>Requirement:</i> All lamps except the ALM REG lamp are extinguished.
7	Press the ALM REG key. <i>Requirement:</i> The ALM REG lamp is extinguished. <i>At the regular carrier supply</i>
8	Observe that all lamps except the ALM REG lamp are extinguished.
9	Press the ALM REG key. <i>Requirement:</i> The ALM REG lamp is extinguished.

CHART 4**CHANNEL CARRIER AMPLIFIER FAILURE**

STEP	PROCEDURE
1	Replace, with a spare unit, the J68929AJ channel carrier amplifier unit having the lighted ALM lamp. <i>Caution: Be sure that the replacing unit is stamped with the same channel number as the replaced unit.</i> <i>Requirement: The ALM lamp is extinguished.</i>
2	Press the ALM REG key. <i>Requirement: The ALM REG lamp is extinguished.</i>

CHART 5

**CHANNEL CARRIER SWITCHING FAILURE
OR
CHANNEL BANK CARRIER SWITCHING FAILURE**

STEP	PROCEDURE
1	Patch the ALT CH CXR jack to the CH HYB IN jack.
2	Patch the ALT CH BK CXR jack to the CH BK HYB IN jack. <i>Requirement:</i> (a) The 12 ALM lamps are extinguished. (b) The CXR FAIL lamp is extinguished.
3	If the requirement of Step 2 is <i>not</i> met, (a) Remove fuse F11 [J68929() bays] or CS1 [J98626() frames], as applicable, in the <i>regular</i> carrier supply. (b) Replace the J68929AM -12 volt regulator with a spare unit. (c) Reinsert fuse F11 or CS1, as applicable—replace if blown. (d) If the requirement of Step 2 is now met, (1) Check for -12 to -18.3 volts on the replacement regulator. (2) Check the FUSE ALM lamp in the <i>alternate</i> (or <i>auxiliary</i>) carrier supply. If lighted, replace fuse FP1. The FUSE ALM lamp should extinguish. (e) Proceed to Step 4.
4	If the requirement of Step 2 <i>is</i> met, check fuse F1 [J68929() bays or J68929AP panels] or CS5 [J98626() frames], as applicable. (a) If F1 or CS5 (as applicable) <i>is</i> blown, replace it and proceed to Step 6. (b) If F1 or CS5 (as applicable) is <i>not</i> blown, proceed to Step 5.
5	Replace the J68929AN transfer, logic, and channel bank carrier alarm unit in the <i>regular</i> carrier supply.
6	Remove the patches connected in Steps 1 and 2. <i>Caution: If the CXR FAIL lamp lights and the major alarms operate, reinsert the patches immediately. Check the transfer circuit wiring, then return to Step 4.</i>
7	Observe the lamps on the <i>regular</i> carrier supply.

CHART 5 (Cont)

STEP**PROCEDURE**

Requirement: All lamps except the ALM REG lamp are extinguished.

- 8 If the requirement of Step 7 is *not* met,
- (a) Remove fuse F10 [J68929() bays] or CS3 [J98626() frames], as applicable.
 - (b) Replace the J68929AL carrier supply generator with a spare unit.
 - (c) Reinsert fuse F10 or CS3, as applicable.
- 9 If the requirement of Step 7 *cannot* be met,
- (a) Remove fuse F10 or CS3, as applicable.
 - (b) Replace the carrier supply generator spare unit with the unit removed in Step 8(b).
 - (c) Reinsert fuse F10 or CS3, as applicable.
 - (d) Replace the J68929AK channel bank carrier amplifier with a spare unit.
- 10 Press the ALM REG key.

Requirement: The ALM REG lamp is extinguished.

CHART 6

◆PROTECTED (REGULAR AND ALTERNATE OR REGULAR AND AUXILIARY) CARRIER SUPPLY
FAILURE
(COMPLETE FAILURE—RESTORATION PROCEDURE)◆

STEP

PROCEDURE

Note 1: In a failed pair of carrier supplies (regular and alternate or regular and auxiliary), the failed carrier supply *selected for patching* to an operating carrier supply is designated the *failed regular carrier supply*. The *other* carrier supply of this failed pair is designated the *failed alternate (or auxiliary) carrier supply*.

Note 2: The carrier supply *nearest* the failed regular carrier supply and *on which all lamps are extinguished* is designated the *operating carrier supply*.

At the failed regular carrier supply

- 1 Using a balanced patch cord, patch the DIST IN jack to the ~~80~~ jack.
- 2 Connect a 75-ohm cord (long enough to reach the operating carrier supply) to the ~~75~~ jack.

At the operating carrier supply

- 3 Press the MAN SW key.

Requirement: The MAN SW lamp is lighted.

- 4 Connect the 75-ohm cord from the failed regular carrier supply (Step 2) to the ~~75~~ jack.
- 5 Using a balanced patch cord, patch the ~~80~~ jack to the GEN OUT jack.
- 6 Observe the lamp indications.

Requirement: (a) The ALM REG lamp is lighted.
(b) The SW ON ALT lamp is lighted.
(c) The REG GEN FAIL lamp is lighted.

At the failed regular carrier supply

- 7 Observe the lamp indications.

Requirement: (a) The ALM REG lamp is lighted.
(b) The ALT GEN FAIL lamp is lighted.

- 8 If the requirement of Step 7 *is* met and *no other lamps are lighted*,
 - (a) Remove the -24 volt fuse [F10 in J68929() bays or CS3 in J98626() frames] associated with the carrier supply generator.

CHART 6 (Cont)

STEP**PROCEDURE**

(b) Replace the J68929AL carrier supply generator with a spare unit.

(c) Reinsert F10 or CS3, as applicable.

(d) Proceed to Step 10.

9 If the requirement of Step 7 *is* met and *other lamps are lighted*.

(a) Test the power at the 64KHZ TST jack.

Requirement: -28 ± 2 dBm

(b) If the requirement of Step 9 (a) *is* met, proceed in the following sequence until the following requirement is met:

(1) Replace the J68929AK channel bank carrier amplifier with a spare unit.

(2) a. Remove the -24 volt fuse [F10 in J68929() bays or CS3 in J98626() frames] associated with the carrier supply generator. b. Replace the J68929AL carrier supply generator with a spare unit. c. Reinsert F10 or CS3, as applicable.

(3) Replace the J68929AN transfer, logic, and channel bank carrier alarm unit.

Requirement: (a) The ALM REG lamp remains lighted.
(b) The ALT GEN FAIL lamp remains lighted.
(c) All other lamps are extinguished.

(c) Proceed to Step 10.

At the failed alternate (or auxiliary) carrier supply

10 Observe the lamp indications.

◆ *Alternate Carrier Supply* ◆

Requirement: (a) The ALM REG lamp is lighted.
(b) The SW ON ALT lamp is lighted.
(c) The REG GEN FAIL lamp is lighted.

◆ *Auxiliary Carrier Supply* ◆

Requirement: (a) The ALM REG lamp is lighted.
(b) The AUX GEN FAIL lamp is lighted.◆

11 If the requirement of Step 10 *is* met,

CHART 6 (Cont)

STEP

PROCEDURE

- (a) Remove the -24 volt fuse [F10 in J68929() bays, CS3 in J98626() frames, or F3 in J68929AP panels] associated with the carrier supply generator.
- (b) Replace the J68929AL carrier supply generator with a spare unit.
- (c) Reinsert F10 or CS3, as applicable.

◆ *Alternate Carrier Supply* ◆

- Requirement:**
- (a) The ALM REG lamp is lighted.
 - (b) The SW ON ALT lamp is extinguished.
 - (c) The REG GEN FAIL lamp is extinguished.

◆ *Auxiliary Carrier Supply*

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

12 If the requirement of Step 11 is *not* met,

- (a) Remove F10, CS3, or F3, as applicable.
- (b) Replace the J68929AL spare unit with the unit removed in Step 11(b).
- (c) Reinsert F10, CS3, or F3, as applicable..
- (d) Replace the J68929AK channel bank carrier amplifier unit with a spare unit.

◆ *Alternate Carrier Supply* ◆

- Requirement:**
- (a) The ALM REG lamp is lighted.
 - (b) The SW ON ALT lamp is extinguished.
 - (c) The REG GEN FAIL lamp is extinguished.

◆ *Auxiliary Carrier Supply*

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

At the failed regular carrier supply

13 (a) Observe the lamp indications.

Requirement: All lamps except the ALM REG lamp are extinguished.

- (b) Press the MAN SW key.

 CHART 6 (Cont)

STEP	PROCEDURE
	<p>Requirement: (a) The ALM REG lamp is lighted. (b) The SW ON ALT lamp is lighted. (c) The MAN SW lamp is lighted.</p> <p>(c) Remove the patches connected in Steps 1 and 2.</p> <p>(d) Press the MAN SW key.</p> <p>Requirement: All lamps except the ALM REG lamp are extinguished.</p> <p>(e) Press the ALM REG key.</p> <p>Requirement: The ALM REG lamp is extinguished.</p> <p><i>At the failed alternate (or auxiliary) carrier supply</i></p>
14	Observe the lamp indications.
	<p>Requirement: All lamps except the ALM REG lamp are extinguished.</p>
15	Press the ALM REG key.
	<p>Requirement: The ALM REG lamp is extinguished.</p> <p><i>At the operating carrier supply</i></p>
16	(a) Remove the patches connected in Steps 4 and 5. (b) Press the MAN SW key.
	<p>Requirement: All lamps except the ALM REG lamp are extinguished.</p> <p>(c) Press the ALM REG key.</p> <p>Requirement: The ALM REG lamp is extinguished.</p>

◆CHART 7◆

UNPROTECTED REGULAR CARRIER SUPPLY FAILURE
(COMPLETE FAILURE)

STEP	PROCEDURE
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1 Replace with corresponding spares, the following units (in sequence) until the following requirement is met:

- (a) The J68929AM -12 volt regulator unit
- (b) The J68929AL carrier supply generator unit
- (c) The J68929AK channel bank carrier amplifier unit.

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

Note: Remove the -12 volt regulator fuse (F11 or CS1) or the J68929AL carrier supply generator fuse (F10 or CS3) *before* removing that unit; replace the fuse *after* replacing the unit.

2 Press the ALM REG key.

Requirement: The ALM REG lamp is extinguished.
