L MULTIPLEX TERMINALS

LMX-2

CARRIER AND PILOT SUPPLY

SUPERGROUP CARRIER

OUTPUT POWER TEST

In the L600A multiplex terminals, the carrier frequencies for supergroups 3 through 10 are derived from harmonic outputs of the 124-kHz harmonic generator.

In the L1860A (U600) multiplex terminals, the carrier frequencies for supergroups 13 through 18 are derived from harmonic outputs of the 124-kHz harmonic generator. In addition, the carrier frequencies for supergroups D25 through D28 are derived from carrier supply modulators driven by the 1040-kHz output of the 80-kHz harmonic generator and the carrier frequencies of supergroups 15, 16, 17, and 18, respectively.

This section is reissued to revise information in Charts 1 and 2 and Fig. 2, 5, 6, and 7, for testing supergroups 25 through 28 in L600 terminals converted to U600 and for the testing of newer L1860A equipments. Change arrows indicate major changes or additions. **Equipment Test Lists are not affected.**

In the L600 terminal that has been converted to U600, supergroups 25, 26, 27, and 28 replace supergroups 1, 2, 9, and 10. The carrier frequencies for supergroups 25 through 28 are obtained from the supergroup carrier supply in an existing (donor) U600 bay (Fig. 7).

The output of the 124-kHz harmonic generator and the output of the D supergroup modulators are connected to individual distribution modules (Fig. 1 and 8) where they are selected by one half-section of a supergroup carrier supply filter, amplified, refiltered by the second half-section of the carrier filter, and reamplified by the power amplifier for connection to the supergroup distribution buses. A lamp associated with each distrbution module lights when an output failure occurs.

The supergroup power at the distribution bus is adjusted during initial installation to +19.0 dBm. A test lamp is cabled via a 19-dB in-line pad either to the carrier supply test panel (L600/L1860), or to the DIST TST jack (L600 to U600 conversion, Fig. 7). Because of varying lengths of cable, the output power at the carrier supply test panel or DIST TST jacks may vary from 0.0 dBm. Hence, when the output power at the distribution bus is adjusted to +19.0 dBm, the power at the carrier supply test panel or the DIST TST jack is measured and posted. This posted value is used as a requirement for subsequent tests.

CHART **PAGE**

1—L600/L1860 Multiplex Terminals 2
2—SG 25 through 28—L600 to U600 Conversion 7

APPARATUS:

34A TMS or a suitable receiving unit, per Section 356-010-500, capable of detecting from 75-ohm circuits, signals between 1116 and 3396 kHz at approximately 0.0 dBm.

In addition, the following is required:

P2BJ Cord

CHART 1

L600/L1860 MULTIPLEX TERMINALS

STEP	PROCEDURE
1	Inspect the distribution bus to be tested and verify that all unused taps are terminated with 75-ohm termination plugs.
2	Prepare the RTE (receiving test equipment) or a 75-ohm terminated measurement of the supergroup carrier frequency to be tested at approximately 0.0 dBm. ***Note:*** The carrier frequencies for all supergroups are shown in Table A.
3	Determine the type carrier test panel used in the equipment and refer to Fig. 2.
4	(a) If the equipment uses a J68857-J( ) carrier test panel, rotate the CARR TST switch to the supergroup frequency being tested. Connect the RTE to the CARR TST jack [patch (1), Fig. 2], and proceed to Step 5.
4	(b) If the equipment uses an ED-51249-30G( ) supergroup carrier test panel, connect the RTE to the appropriate supergroup (SG) jack on the test [patch (2), Fig. 2] for the frequency being tested.
5	Measure the output power at the carrier supply test panel. ***Requirement:*** Within ±0.5 dB of the reference value posted at the carrier supply test panel
6	If the requirement of Step 5 is met, proceed to Step 12. If it is not met, proceed to Step 7 or Step 9 as applicable. ***Old Model Distribution Amplifier (Fig. 3)***
7	Adjust the COARSE and FINE GAIN ADJ controls on the associated distribution amplifier. ***Requirements:*** (a) ±0.5 dB of the posted reference value (b) Alarm lamp on associated distribution module is extinguished.

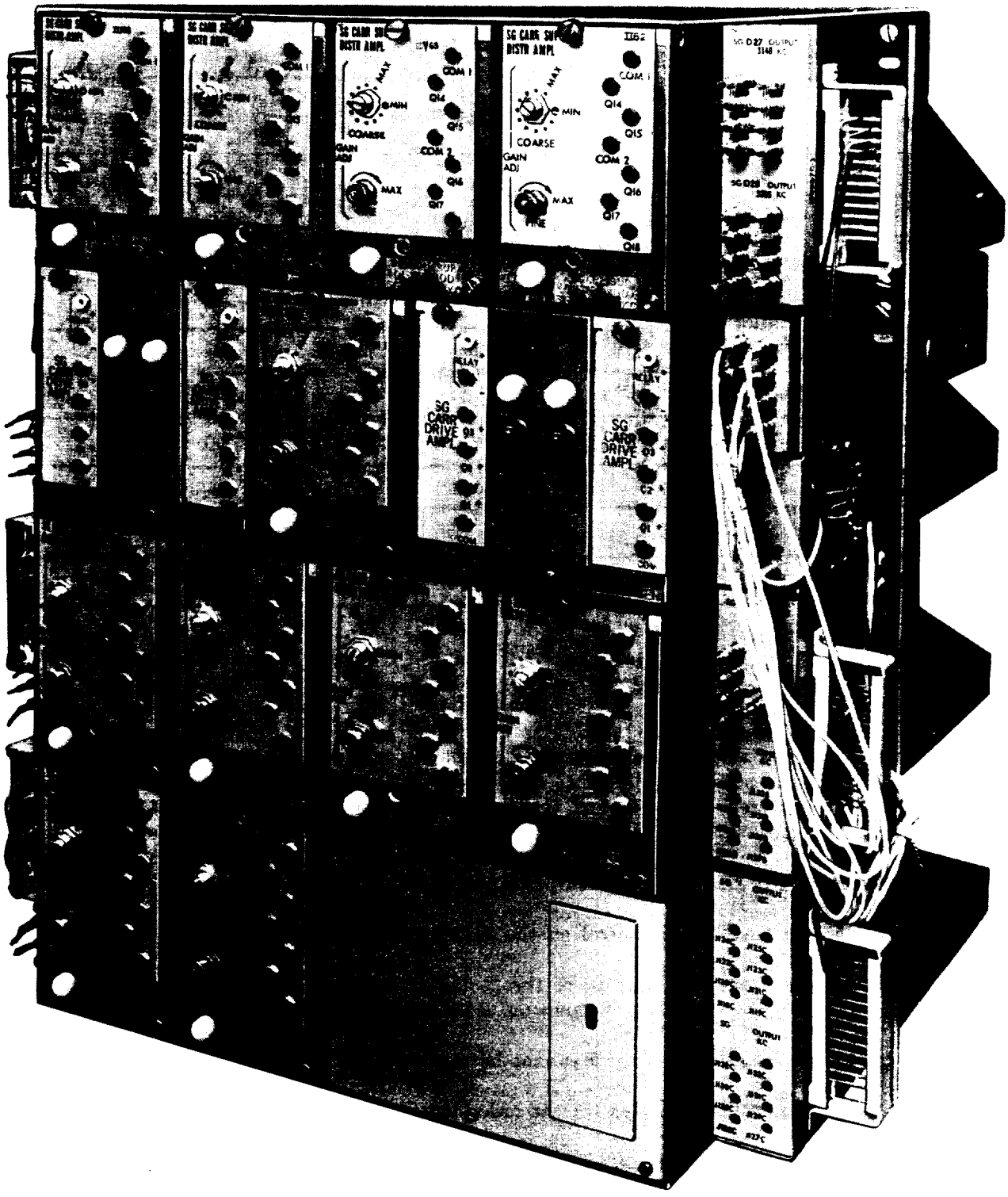

Fig. 1—J68857C Supergroup Carrier Supply Unit—Front View

CHART 1 (Cont)

STEP	PROCEDURE

TABLE A

SUPERGROUP CARRIER (KHZ)

L600A										
SG	3	4	5	6	7	8	9	10		
FREQUENCY	1116	1364	1612	1860	2108	2356	1860	3100		
				L1860A						
SG	13	14	15	16	17	18	D25	D26	D27	D28
FREQUENCY	1116	1364	1612	1860	2108	2356	2652	2900	3148	3396

8 If the alarm lamp on the associated distribution module does not extinguish (requirement b) while the power requirement (requirement a) is met, rotate the COARSE GAIN ADJ control one step clockwise, and then return this control to its previous position. If the requirements of Step 7 still cannot be met, proceed to Step 11.

New Model Distribution Amplifier (Fig. 4)

9 Adjust the GAIN ADJ control on the associated distribution amplifier.

Requirements: (a) ±0.5 dB of the posted reference value
(b) Alarm lamp on associated distribution module is extinguished.

10 If the requirements of Step 9 cannot be met, proceed to Step 11.

11 Perform the following steps (in the order listed), as necessary, to meet the requirements.

Caution: Service must be removed from all supergroups powered by the distribution bus affected by the distribution amplifier in trouble.

(a) Obtain a spare distribution amplifier and replace the amplifier of the supergroup carrier frequency under test.

(b) Obtain a spare distribution module and replace the module of the supergroup carrier frequency under test.

CHART 1 (Cont)

STEP	PROCEDURE

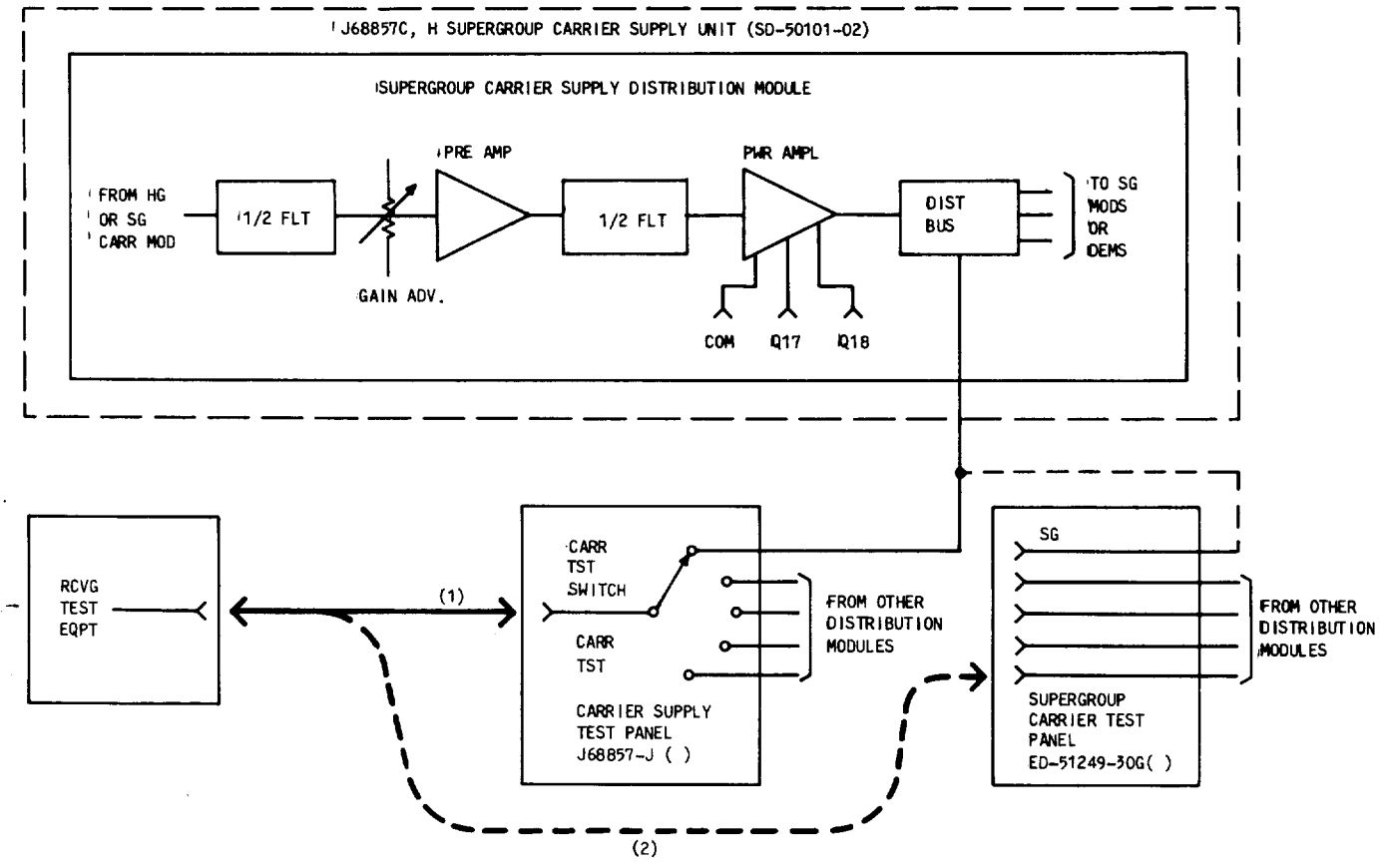

Fig. 2—Supergroup Carrier Supply—Measurement of Output Power at the Carrier Supply Test Panel

(c) If other supergroup carrier supply distribution modules are having similar trouble, make drive amplifier output tests as prescribed in Section 356-270-501.

(d) If the trouble still cannot be cleared, perform trouble location procedures as prescribed in Section 356-270-505.

12 (a) Remove patch (1), Fig. 2 and set the CARR TST switch to the OFF position, or,

(b) Remove patch (2), Fig. 2.

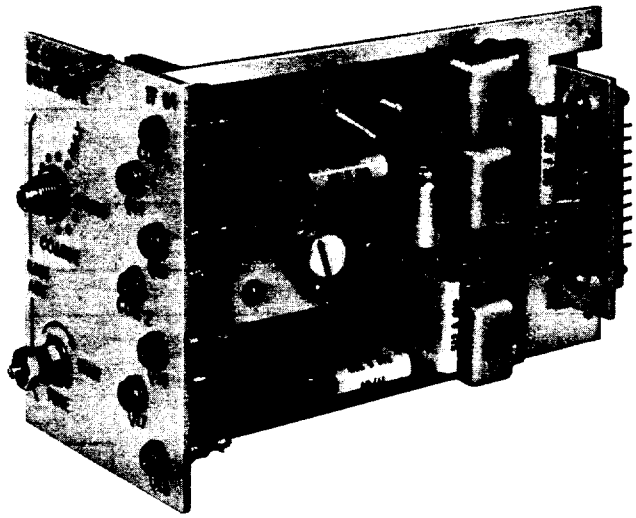

Fig. 3—Old Model Supergroup Carrier Distribution Amplifier Module Having COARSE and FINE GAIN ADJ Controls

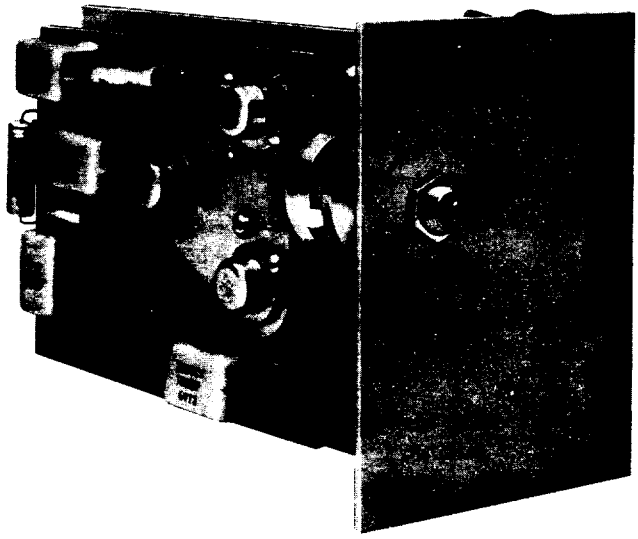

Fig. 4—New Model Supergroup Carrier Distribution Amplifier Module Having Continuous "T" Pad Gain ADJ Control

CHART 2

SG 25 THROUGH 28—L600 TO U600 CONVERSION

STEP	PROCEDURE

Note: The procedure in this chart applies to supergroups 25 through 28 only when involved in the L600 to U600 conversion.

1 Verify that all unused taps, on the distribution bus to be tested, are terminated with 75-ohm termination plugs.

2 Prepare the receiving test equipment (RTE) for a 75-ohm terminated measurement of the supergroup carrier frequency to be tested at approximately 0.0 dBm.

Note: See Table A for carrier frequencies of supergroups 25, 26, 27, and 28.

3 At the test and restoration panel, connect the RTE to the DIST TST jack of the supergroup to be tested [patch (1), Fig. 5].

4 Measure the output power at the DIST TST jack.

Requirement: Within ±0.5 dB of the posted reference value

5 If the requirement is met, proceed to Step 13. If it is not met, proceed to Step 6.

6 At the test and restoration panel:

(a) Disconnect the RTE from the DIST TST jack [patch (1), Fig. 5].

(b) Connect the RTE to the HBY TST [patch (1), Fig. 6].

7 Measure the output power at the HYB TST jack.

Requirement: 0.0 dBm to +3.0 dBm

8 If the requirement is met, proceed to Step 10. If it is not met, adjust the LEV ADJ control associated with the supergroup being tested to meet the requirement.

9 If the requirement cannot be met, measure the carrier frequency, as prescribed in Chart 1, for the supergroup being tested at the donor bay carrier supply test panel.

10 At the test and restoration panel:

(a) Disconnect the RTE from the HYB TST jack [patch (1), Fig. 6].

(b) Connect the RTE to the DIST TST jack [patch (1), Fig. 5)].

CHART 2 (Cont)

STEP	PROCEDURE
11	While monitoring the output power at the DIST TST jack, adjust the GAIN ADJ control of the distribution amplifier associated with the supergroup being tested. ***Requirement:*** The posted reference value
12	If the requirement is met, proceed to Step 13. If it is not met, perform the following in the order listed as necessary to meet the requirement. ***Caution: Service must be removed from all supergroups powered by the distribution bus affected by the distribution amplifier in trouble.*** (a) Replace the distribution amplifier of the supergroup being tested. (b) Replace the distribution module of the supergroup being tested.
13	At the test and restoration panel, disconnect the RTE from the DIST TST jack [patch (1), Fig. 5].
14	Repeat Steps 1 through 5 for each supergroup 25, 26, 27, or 28 to be tested.

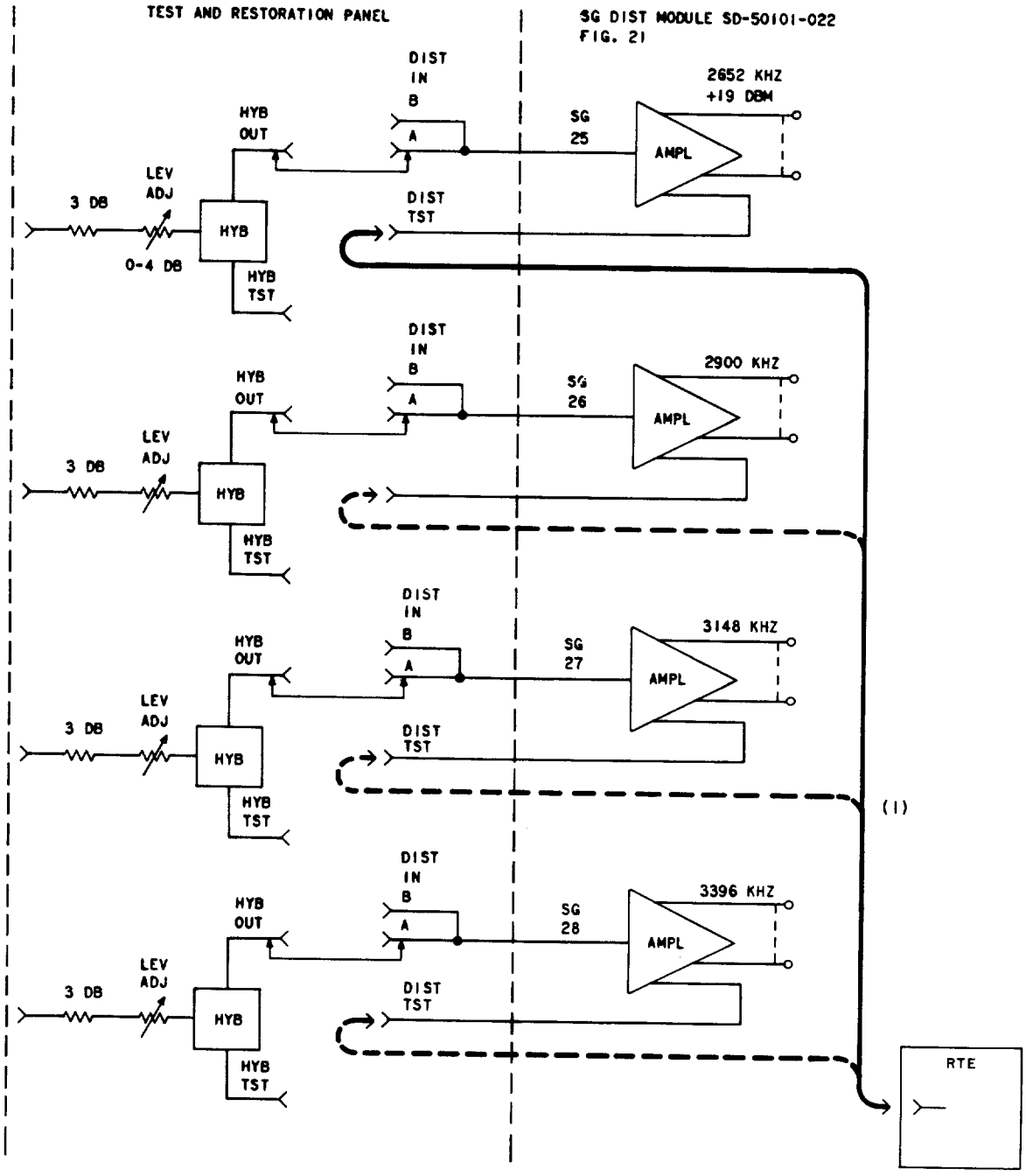

Fig. 5—Distribution Module Output—Test Connection

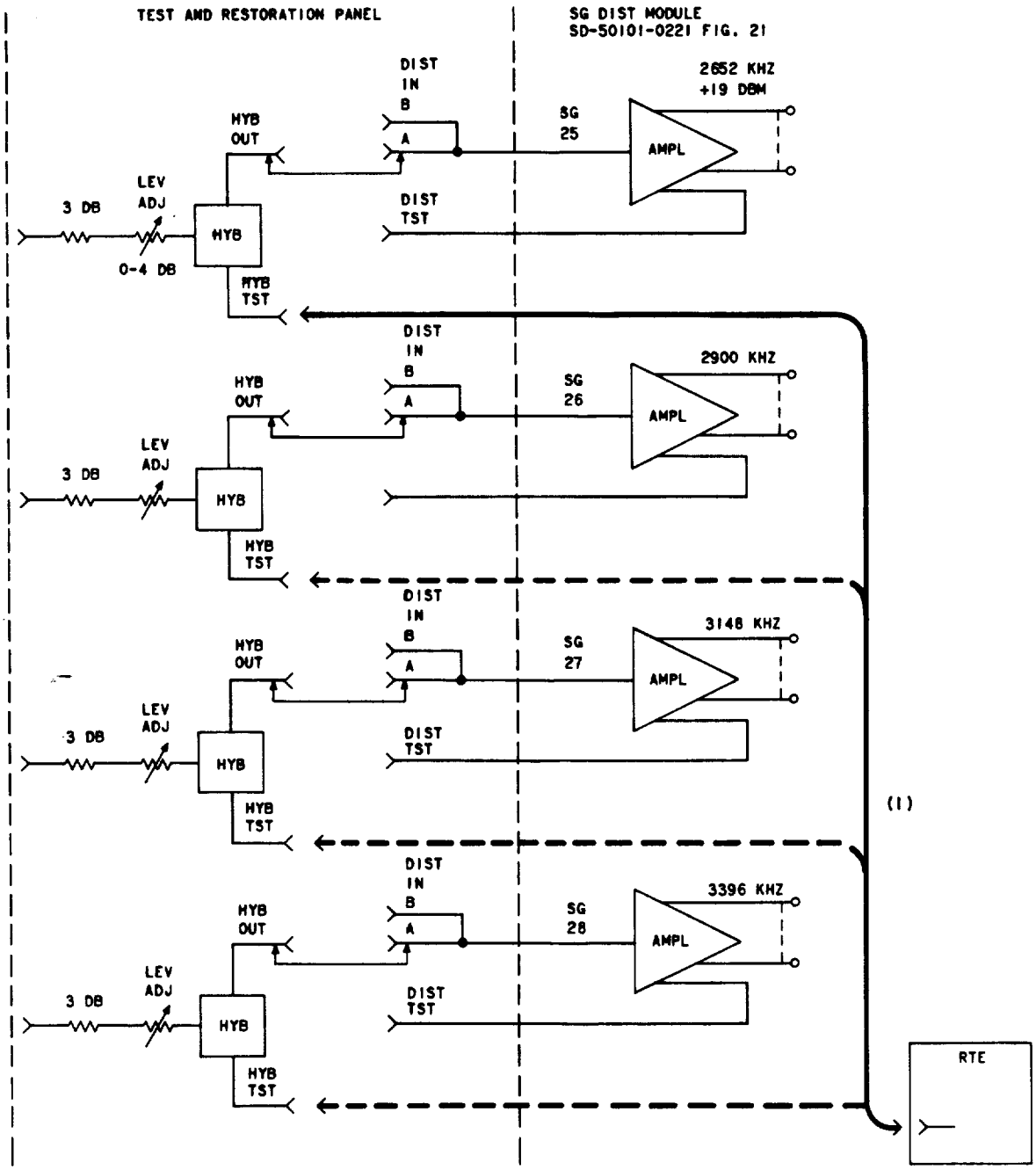

Fig. 6—Distribution Module Input—Test Connection

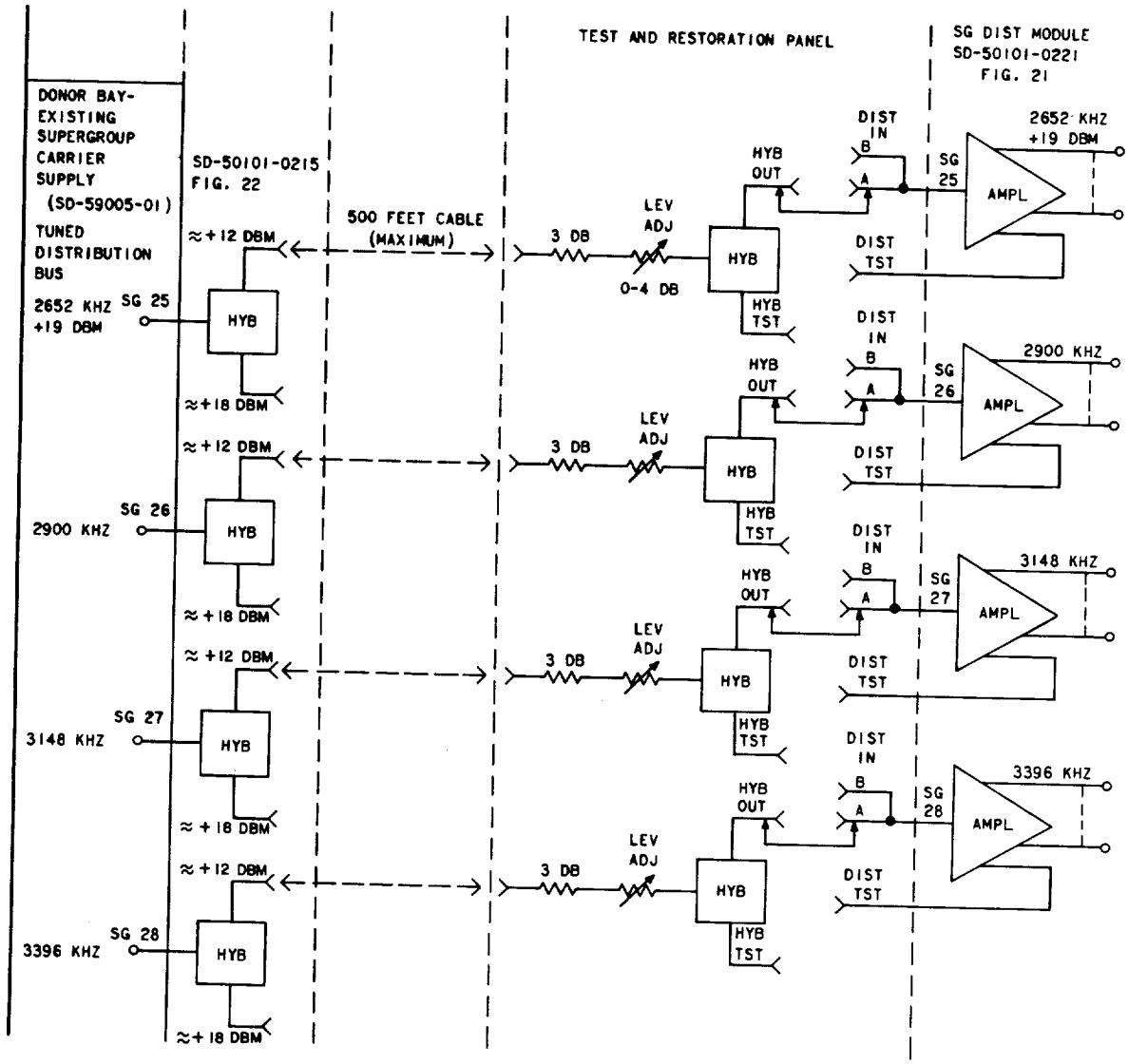

Fig. 7—Supergroup Carrier Supply—L600 to U600 Conversion

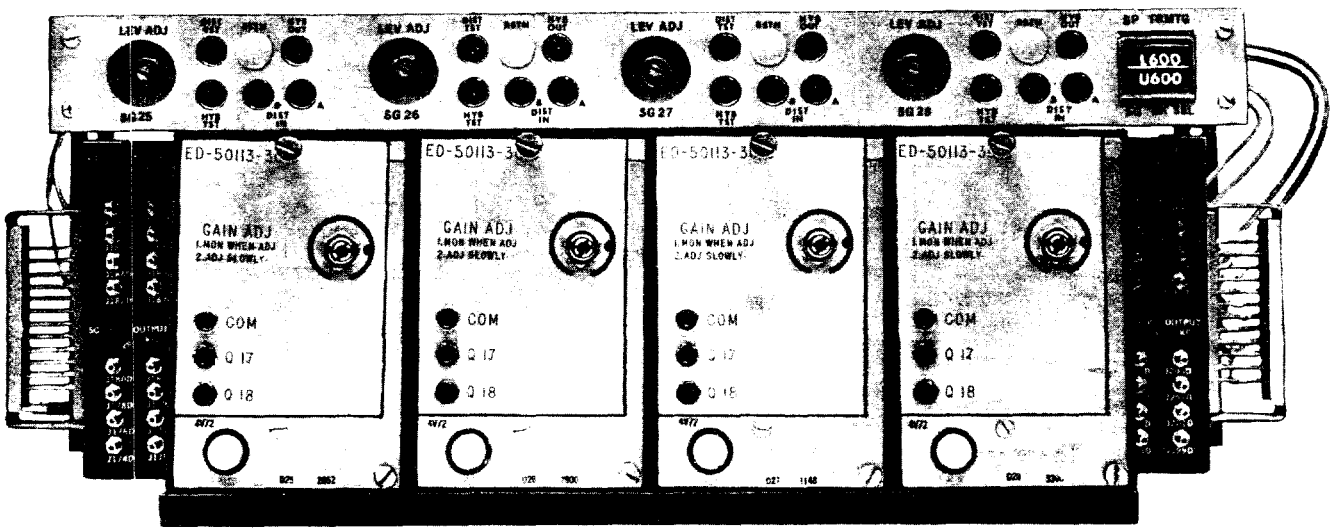

Fig. 8—Supergroup 25 through 28 Distribution Module and Test and Restoration Panel—L600 to U600 Conversion