K AND L MULTIPLEX TERMINALS
COMMON EQUIPMENT
A1, A2, A3, A4, AND A5 CHANNEL BANKS
IN-SERVICE 104-KHZ CARRIER LEAK TEST

The A-type channel bank (Fig. 1) is a frequency-division multiplex terminal that translates 12 voice-frequency (VF) channels to the 60- to 108-kHz group band in its transmitting section and translates the 60- to 108-kHz group band to 12 VF channels in its receiving section.

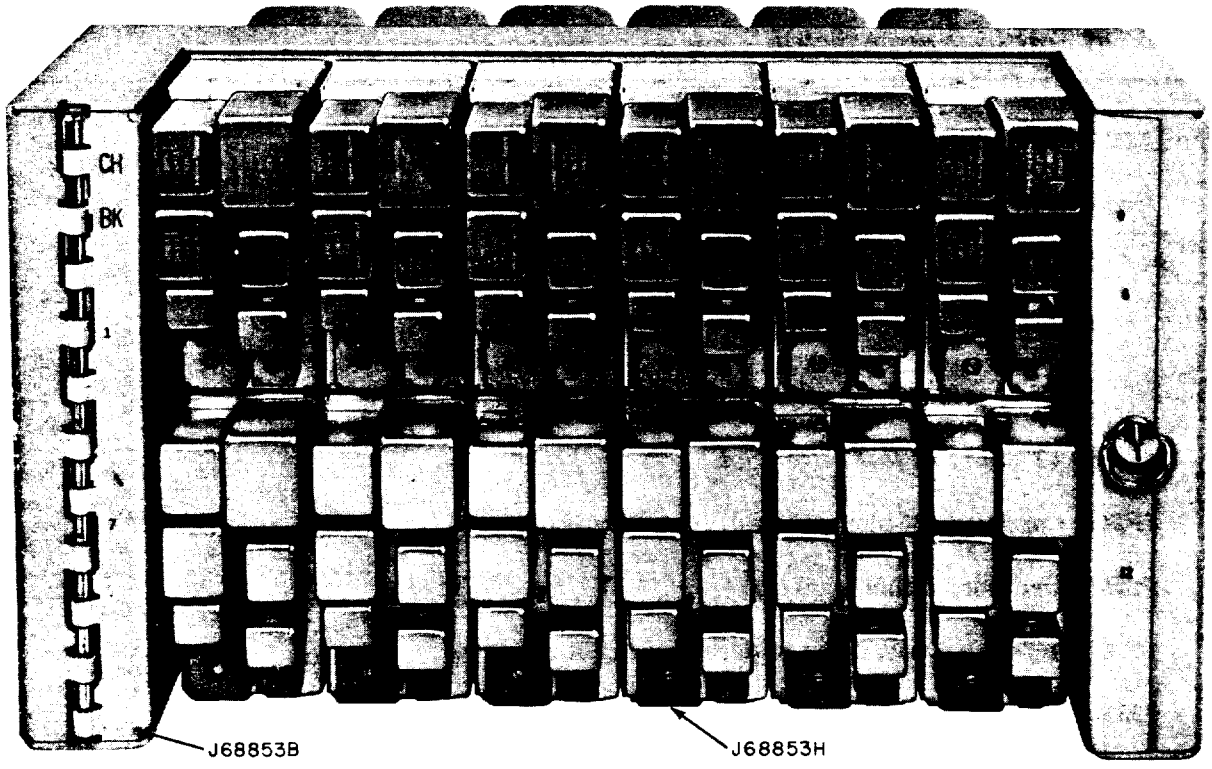

Fig. 1—J68853B 12-Channel A5 Bank Equipped With J68853H Modems—Front View

For proper operation, leakage of the channel-2 carrier signal (via the channel-2 modulator) must be kept at a low value to avoid interference (in the group band) between the channel-2 carrier (104.00 kHz) and the 104.08-kHz pilot, and thus prevent errors in group and supergroup pilot regulation.

This section provides procedures for performing in-service tests to insure that the carrier leak is below the maximum acceptable level.

Prior to making the tests and adjustments in this section, ensure that

(a) The channel bank under test is in-service and operating properly.

(b) All test equipment has been calibrated.

Note 1: If desired, the steps in the procedure in this section can be bypassed by referring to Fig. 2.

Note 2: Equipment specifications given in the apparatus list indicate only the ***minimum*** requirements for the test.

Note 3: The CH BK OUT ALT jack referred to in this test is located in the high-frequency (HF) patch bay.

This section is issued to update the test and to renumber the section from 356-015-520 to 356-015-503. ***Equipment Test Lists are affected.***

APPARATUS

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

Frequency: 104.00 and 104.08 kHz

Power: −72 to −85 dBm

Impedance: 75 ohms unbalanced

J68858AT (58AT) Pilot Filter Set

3P20B Cord (for 135-ohm patches)

P2BJ Cord (for 75-ohm patches)

258C Plugs (dummy), if the requirement is not met

323A Plug (135-ohm termination), if the 31-type TMS is used

STEP	PROCEDURE
1	Adjust the RTE as follows: Impedance: 75 ohms unbalanced Frequency: 104.08 kHz Power: −72.0 dBm

STEP	PROCEDURE
2	Connect the RTE to the 104.08-kHz pilot MEAS jack on the 58AT pilot filter set [patch (1), Fig. 2].
3	Connect the 104.08 KC PIL IN jack (58AT pilot filter set) to the CH BK OUT ALT jack [patch (2), Fig. 2]. ***Caution: Connect to the CH BK OUT ALT jack last to prevent possible hits on data and carrier telegraph circuits.***
4	Carefully adjust the RTE frequency control for a maximum indication of the 104.08-kHz pilot.

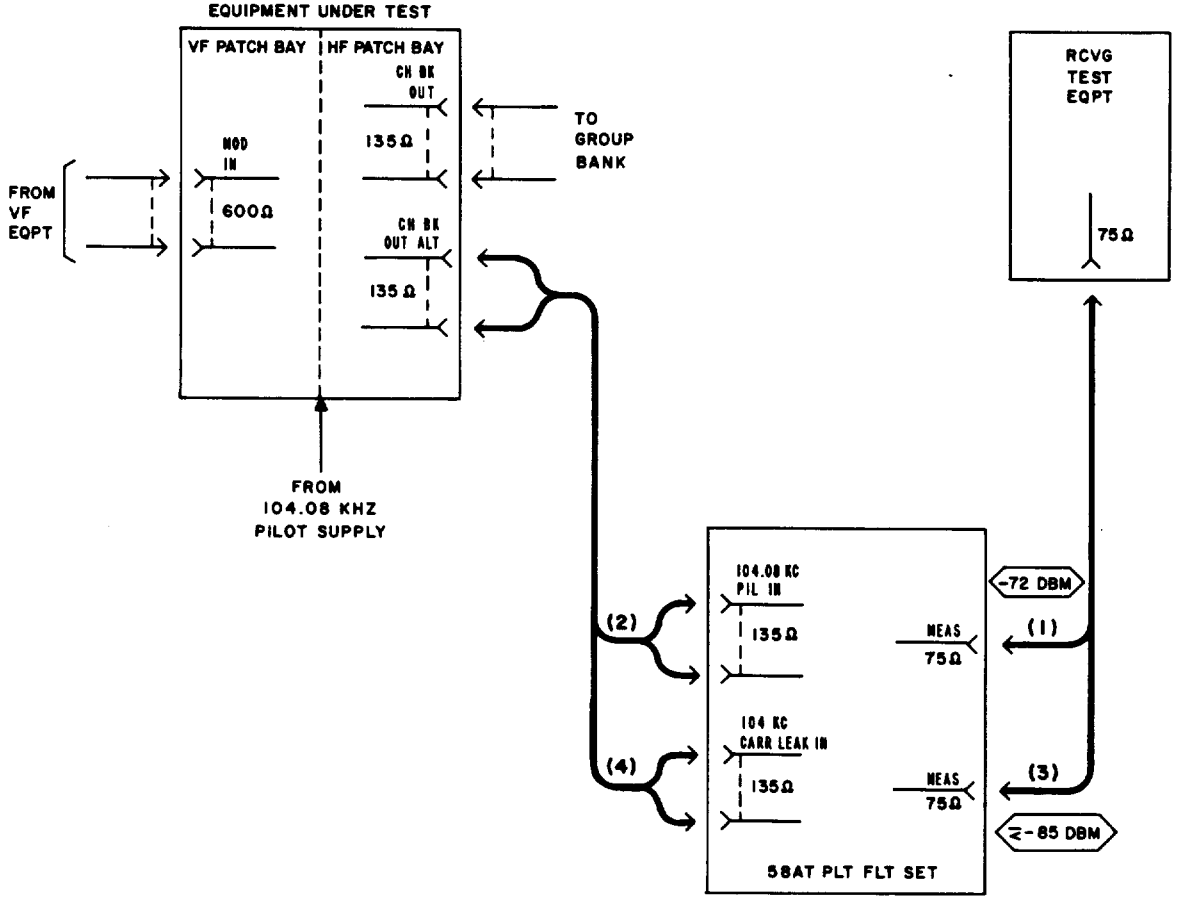

Fig. 2—Patching Diagram—104-kHz Carrier Leak Test

STEP	PROCEDURE
	Note: This adjustment locates the 104.08-kHz pilot to prevent mistaking it for the channel-2 carrier in Step 8.
5	Remove patches (2) and (1), Fig. 2. ***Caution: Remove patch (2) from the CH BK OUT ALT jack first to prevent possible hits on data and carrier telegraph circuits.***
6	Connect the RTE to the 104.00-kHz carrier leak MEAS jack on the 58AT pilot filter set [patch (3), Fig. 2].
7	Connect the 104 KC CARR LEAK IN jack (58AT pilot filter set) to the CH BK OUT ALT jack [patch (4), Fig. 2]. ***Caution: Connect to the CH BK OUT ALT jack last to prevent possible hits on data and carrier telegraph circuits.***
8	Carefully adjust the RTE frequency control for a maximum indication of the channel-2 carrier (104.00 kHz at approximately −85 dBm).
9	Measure the 104.00-kHz signal power. ***Requirement:*** −85 dBm or less (−86 dBm is less) ***Note 1:*** This requirement includes a 10-dB insertion loss in the 58AT pilot filter set. ***Note 2:*** If the RTE indication is fluctuating due to voice-frequencies on the channel, observe the RTE meter until a reasonably steady indication is obtained.
10	If the requirement of Step 9 is ***not*** met, proceed as follows: (a) Remove channels 1 and 2 from service. (b) Insert 258C dummy plugs in the MOD IN jacks for channels 1 and 2. (c) Repeat Step 9. (d) If the requirement of Step 9 ***cannot*** be met, (1) Replace the channel-2 modulator varistor in an A1, A2, A3, or A4 channel bank. (2) Replace the channel-2 plug-in modem in an A5 channel bank. ***Note:*** If the channel-2 modem meets the −69 dBm carrier leak requirement specified in Section 356-015-501, it can be exchanged for the modem in any other channel meeting the −75 dBm carrier leak requirement for channel 2 (−85 dBm via the 58AT pilot filter set). (3) Repeat Step 9. (4) Remove the plugs inserted in Step 10(b). (5) Return channels 1 and 2 to service.

STEP	PROCEDURE
11	Remove patches (4) and (3), Fig. 2. ***Caution: Remove patch (4) from the CH BK OUT ALT jack first to prevent possible hits on data and carrier telegraph circuits.***
12	Repeat Steps 1 through 11 for all other channel banks to be tested.