

**J, K, AND L MULTIPLEX TERMINALS
COMMON EQUIPMENT
GROUP CONNECTOR
B1—OUT-OF-SERVICE LOSS TESTS**

PURPOSE OF TESTS

- (a) To measure and, if necessary, adjust the loss of the B1 group connector
- (b) To check the edge-of-band characteristics
- (c) To measure and, if necessary, adjust the level of the reinserted pilot.

REASON FOR ISSUE

- (a) To renumber this section from 356-020-500 to 356-020-501
- (b) To add a procedure for testing the level-limiting option
- (c) To delete reference to the J68779 group connector.

Equipment Test Lists are affected.

SYNOPSIS

The B1 group connector (Fig. 1) is used to connect the output of a group demodulator to the input of a group modulator for retransmission of an entire 12-channel group without further steps of frequency translation. Bandpass filters are used in the B1 group connector to eliminate frequencies outside the 60- to 108-kHz group frequency band.

The group connector has a nominal loss of 37 dB, which can be adjusted by internal pads. When the connector is used as an L to L group connector, options are provided for blocking and reinserting the 104.08-kHz pilot and for inserting a delay equalizer. Either or both of these options affect the bandpass characteristics of the connector. The delay equalizer is used for wideband data transmission only.

CHART	PAGE
1—J, K, or L to J, K, or L	3
2—Level-Limiting Option	10

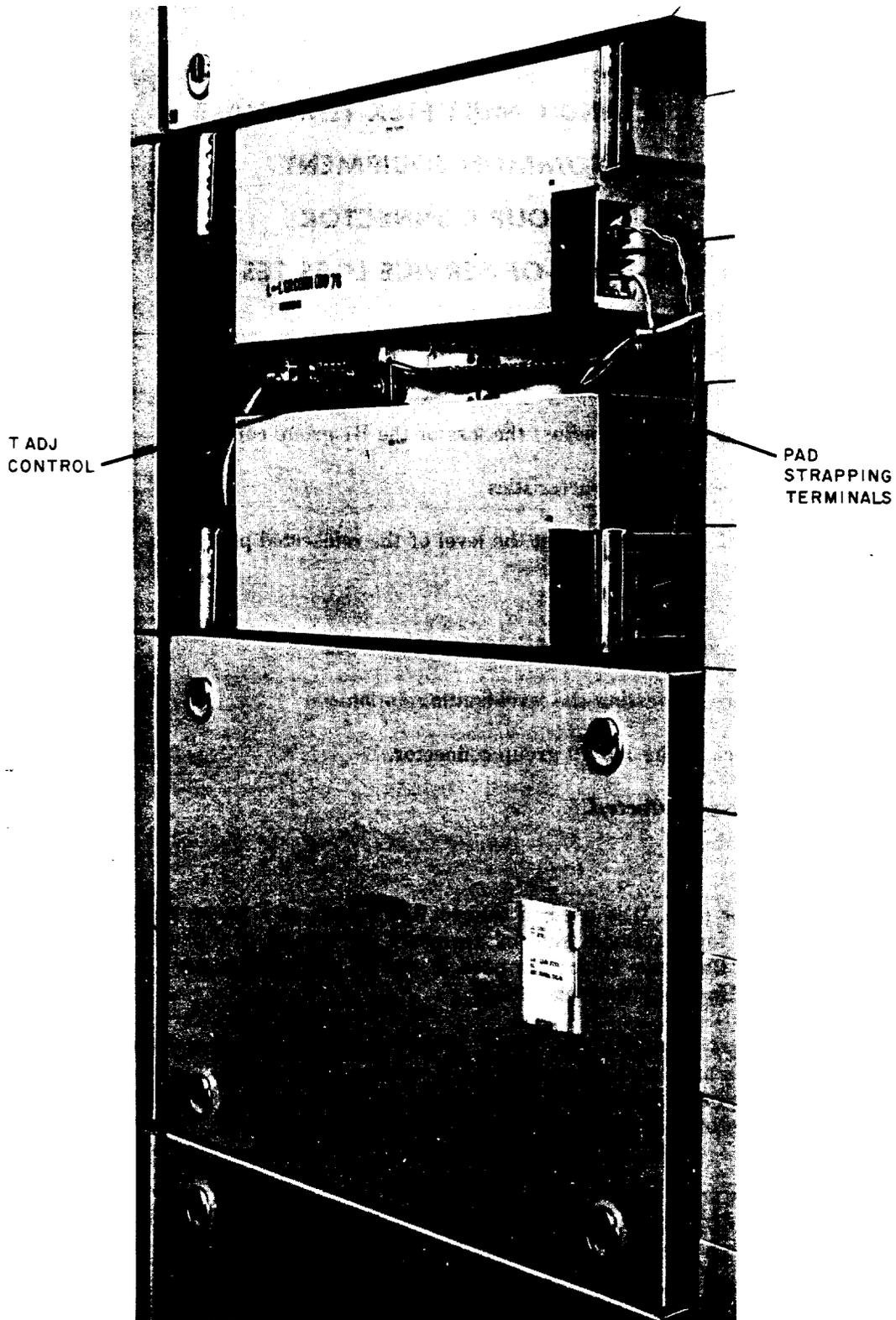


Fig. 1—B1 Group Connector—Front View

APPARATUS

Transmission Test Equipment. Refer to Section 356-010-500 and select, from available equipment, sending and receiving units having the following capabilities:

Sending test equipment capable of delivering, into 135-ohm circuits, signals between 60 and 108 kHz at levels between +15 and -14 dBm

Receiving test equipment capable of detecting, from 135-ohm circuits, signals between 60 and 108 kHz at levels between -32 and -62 dBm.

323A Plug (135-ohm termination) or equivalent

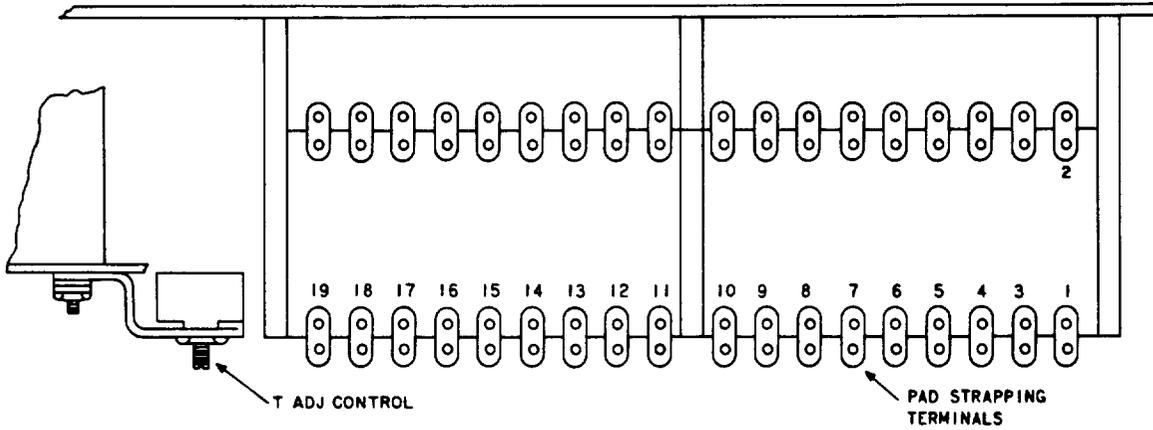
3P20B Cords, as required

P2BJ Cords, as required

CHART 1**J, K, OR L TO J, K, OR L**

STEP	PROCEDURE
	<p>Bandpass Test</p> <p>1 Ensure that the equipment to be tested is out of service.</p> <p>2 Determine from office records:</p> <ul style="list-style-type: none"> (a) That the correct type of B1 group connector is used (b) That the pad strapping (Fig. 2) is as specified (c) Whether option (V) (T ADJ control) is or is not used (d) Whether the delay equalizer is or is not used. <p>3 Determine whether the 104.08-kHz pilot is or is not blocked and reinserted as follows.</p> <ul style="list-style-type: none"> (a) Remove the associated pilot insertion unit. (b) Note whether the through (W + T) option (Fig. 3) or the blocked and reinserted (F + Z) option (Fig. 4) is used in the pilot insertion unit. (c) Replace the associated pilot insertion unit. <p>4 If option (V) is used, set the T ADJ control to the approximate center of its range.</p> <p>5 Set up and calibrate the RTE (receiving test equipment) for a 135-ohm terminated measurement of 95 kHz at -42 dBm.</p>

CHART 1 (Cont)



ADJUST PAD ACCORDING TO THE FOLLOWING STRAPPING DATA*

PAD LOSS-DB	TERMINALS TO BE STRAPPED			
0	1 TO 16			
	4 TO 17			
0.5	1 TO 16	15 TO 16*		
	4 TO 17			
1.0	1 TO 11	13 TO 16		
	4 TO 12	14 TO 17		
1.5	1 TO 11	13 TO 16	15 TO 16*	
	4 TO 12	14 TO 17		
2.0	1 TO 7	9 TO 16		
	4 TO 8	10 TO 17		
2.5	1 TO 7	9 TO 16	15 TO 16*	
	4 TO 8	10 TO 17		
3.0	1 TO 7	9 TO 11	13 TO 16	
	4 TO 8	10 TO 12	14 TO 17	
3.5	1 TO 7	9 TO 11	13 TO 16	15 TO 16*
	4 TO 8	10 TO 12	14 TO 17	
4.0	1 TO 3	5 TO 16		
		6 TO 17		
4.5	1 TO 3	5 TO 16	15 TO 16*	
		6 TO 17		
5.0	1 TO 3	5 TO 11	13 TO 16	
		6 TO 12	14 TO 17	
5.5	1 TO 3	5 TO 11	13 TO 16	15 TO 16*
		6 TO 12	14 TO 17	
6.0	1 TO 3	5 TO 7	9 TO 16	
		6 TO 8	10 TO 17	
6.5	1 TO 3	5 TO 7	9 TO 16	15 TO 16*
		6 TO 8	10 TO 17	
7.0	1 TO 3	5 TO 7	9 TO 11	13 TO 16
		6 TO 8	10 TO 12	14 TO 17
7.5	1 TO 3	5 TO 7	9 TO 11	13 TO 16
		6 TO 8	10 TO 12	14 TO 17

* WHEN (V) OPTION IS EMPLOYED, DO NOT STRAP TERMINAL 15 TO 16 AT ANY TIME. STRAP PAD LOSS TO NEAREST LOWER WHOLE NUMBER AND SET ADJ POTENTIOMETER(T) FOR FRACTIONAL LOSS.

Fig. 2—Pad Strapping Terminals and Variable Control for B1 Group Connector—Top View

CHART 1 (Cont)

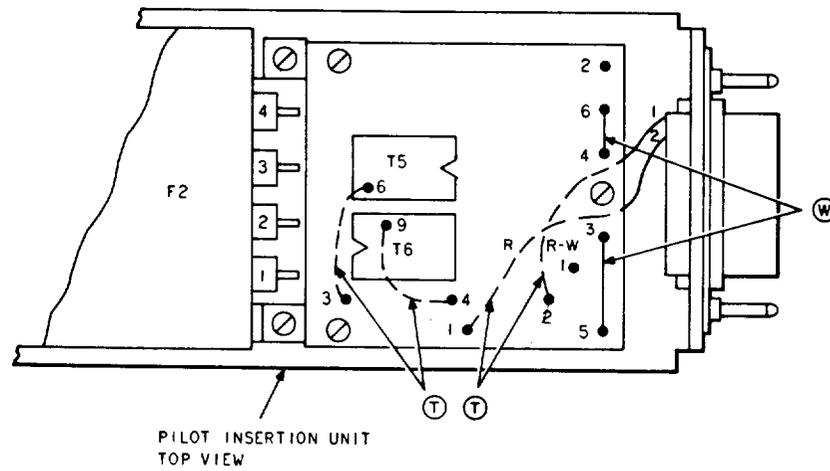
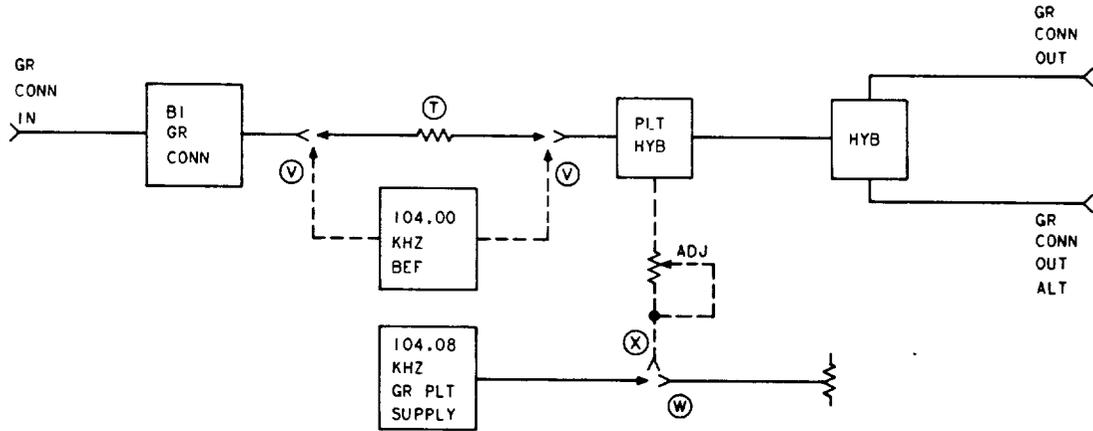
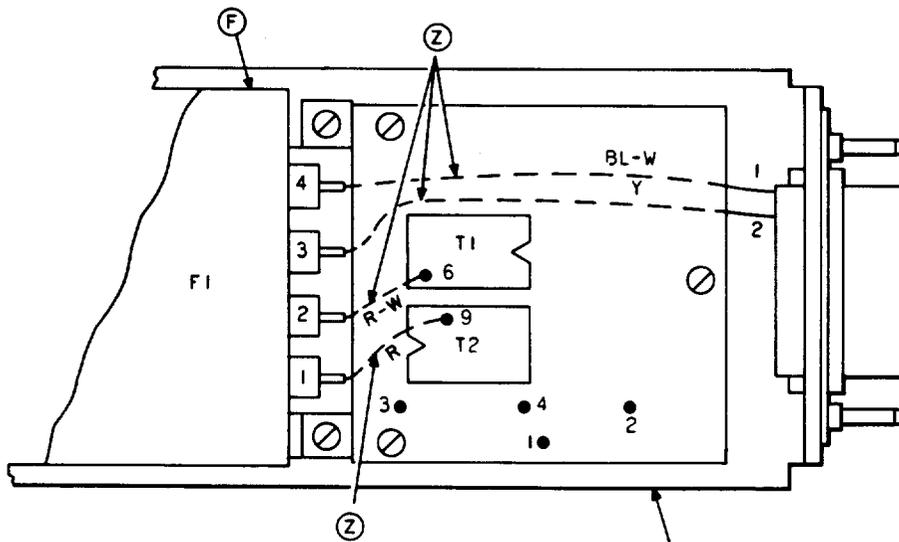
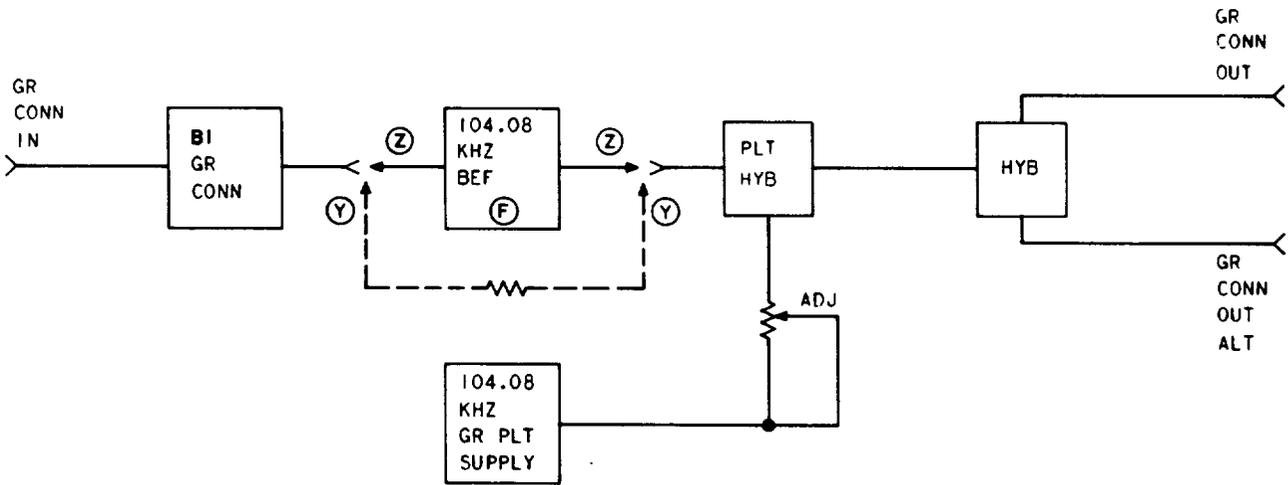


Fig. 3—Through Pilot (W + T Option)

CHART 1 (Cont)



NOTE:
 OPTION (A) IS SHOWN.
 OPTION (B) IS APPLIED BY REVERSING LEADS
 TO TERMINALS 3 AND 4 OF FILTER FI.

PILOT INSERTION
 UNIT TOP VIEW

Fig. 4—Blocked and Reinserted Pilot (F + Z Option)

CHART 1 (Cont)

STEP	PROCEDURE
6	Set up and calibrate the STE (sending test equipment) to deliver a 95-kHz signal, into a 135-ohm circuit, at -5 dBm.
7	Connect the STE to the GR CONN IN jack [patch (1), Fig. 5].
8	Connect the RTE to the GR CONN OUT jack [patch (2), Fig. 5].
9	Measure the level at the GR CONN OUT jack. Requirement: -42.0 dBm ± 0.1 dB if option (V) is used. -42.0 dBm ± 0.5 dB if option (V) is not used.

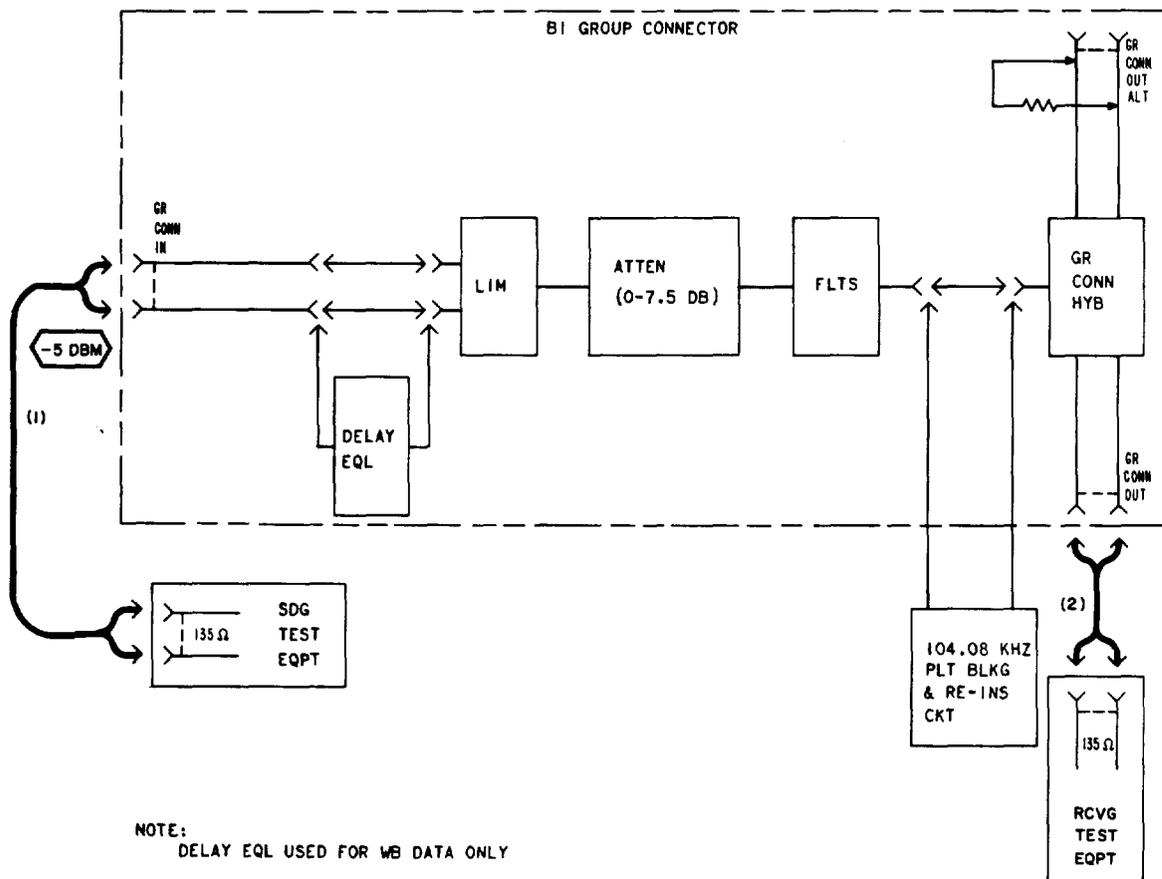


Fig. 5—B1 Group Connector—Out-Of-Service Loss Adjustment

CHART 1 (Cont)

STEP	PROCEDURE
10	If the requirement of Step 9 is met, proceed to Step 11. If it is not met, adjust the T ADJ control and/or the pad strapping to meet the requirement.
11	Repeat Steps 5 and 6 at a frequency of 63 kHz.
12	Measure the level at the GR CONN OUT jack. Requirement: See Table A.
13	Repeat Steps 5 and 6 at a frequency of 107 kHz.
14	Measure the level at the GR CONN OUT jack. Requirement: See Table A.

TABLE A

POWER LEVEL REQUIREMENTS								
104.08-KHZ -- PILOT BLOCKED	DEL EQL INSERTED	TYPE FILTERS USED				POWER LEVEL AT GR CONN OUT JACK (DBM)		
		225D AND 225D	225D AND 221T	225D AND 109A	225D, 221T, AND 109A	63 KHZ	107 KHZ	
						Yes		
No	No		Yes			-41.6 to -42.6	-41.2 to -42.6	
				Yes		-41.3 to -42.3	-41.3 to -42.7	
					Yes	-41.6 to -42.6	-41.4 to -42.8	
		Yes				-41.4 to -42.4	-41.6 to -43.6	
	Yes		Yes			-41.6 to -42.6	-41.7 to -43.1	
				Yes		-41.3 to -42.3	-41.8 to -43.2	
					Yes	-41.6 to -42.6	-41.9 to -43.3	
		Yes				-41.4 to -42.8	-41.2 to -43.0	
Yes	No	Yes				-41.2 to -42.6	-40.9 to -43.3	
			Yes			-41.4 to -42.8	-41.0 to -42.8	
				Yes		-41.1 to -42.5	-41.1 to -42.9	
					Yes	-41.4 to -42.8	-41.2 to -43.0	
	Yes		Yes				-41.2 to -42.6	-41.4 to -43.8
				Yes			-41.4 to -42.8	-41.5 to -43.3
				Yes			-41.1 to -42.5	-41.6 to -43.4
					Yes		-41.4 to -42.8	-41.7 to -43.5

CHART 1 (Cont)

STEP	PROCEDURE
15	<p>If the 104.08-kHz pilot is not blocked and reinserted, proceed to Step 16. If it is, proceed to Step 19.</p> <p>104.08-kHz Pilot Not Blocked and Reinserted</p>
16	Repeat Steps 5 and 6 at a frequency of 104.08 kHz.
17	<p>Measure the level at the GR CONN OUT jack.</p> <p>Requirement: $-42.0 \text{ dBm} \pm 0.1 \text{ dB}$ if option (V) is used. $-42.0 \text{ dBm} \pm 0.5 \text{ dB}$ if option (V) is not used.</p>
18	<p>If the requirement of Step 17 is met, proceed to Step 23. If it is not met, readjust the T ADJ control and/or the pad strapping to meet the requirement and then proceed to Step 23.</p> <p>1.04.08-kHz Pilot Blocked and Reinserted</p>
19	Disconnect the STE from the GR CONN IN jack [patch (1), Fig. 5].
20	Repeat Step 5 at a frequency of 104.08 kHz and at a level of -62 dBm .
21	<p>Measure the level at the GR CONN OUT jack.</p> <p>Requirement: -62.0 dBm.</p>
22	If the requirement of Step 21 is met, proceed to Step 23. If it is not met, adjust the ADJ control on the associated pilot insertion unit (Fig. 6) to meet the requirement.
23	Remove patches (1) and (2) in Fig. 5.

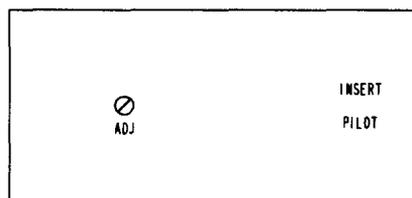


Fig. 6—Pilot Insertion Unit

CHART 2
LEVEL-LIMITING OPTION

STEP	PROCEDURE
1	Determine from office records whether a thermistor (option \textcircled{X}) is or is not used in the B1 group connector. Note: If option \textcircled{X} is not used, this test is not required.
2	Ensure that the equipment to be tested is out of service.
3	Set up and calibrate the RTE (receiving test equipment) for a 135-ohm terminated measurement of 95 kHz at a level of -32 to -37 dBm.
4	Set up and calibrate the STE (sending test equipment) to deliver a 95-kHz signal, into a 135-ohm circuit, at 0 dBm.
5	Connect the STE to the GR CONN IN jack [patch (1), Fig. 7].
6	Connect the RTE to the GR CONN OUT jack [patch (2), Fig. 7].

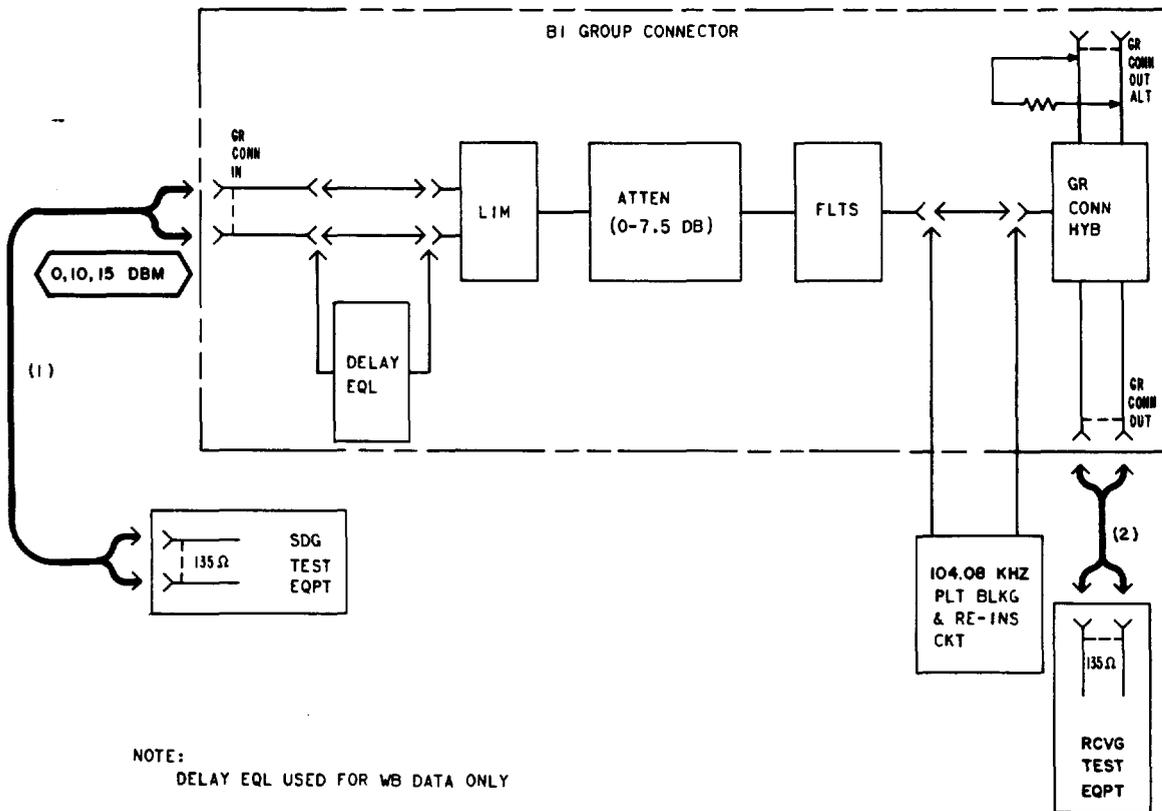


Fig. 7—B1 Group Connector—Out-Of-Service Level-Limiting Test

CHART 2 (Cont)

STEP	PROCEDURE
7	Measure and record the level at the GR CONN OUT jack. Requirement: See Table B.
8	If the requirement of Step 7 is met, proceed to Step 9. If it is not met, make tests as prescribed in Chart 1. Note: When option (X) is added to an existing B1 group connector, the loss will increase 0.3 ± 0.1 dB, which may require readjustment of the T ADJ control and/or the pad strapping.
9	Repeat Step 4 at a level of +10 dBm.
10	Measure the level at the GR CONN OUT jack. Requirement: From 0 to 0.5 dB less than the value recorded in Step 7 (-37.5 dBm is 0.5 dB less than -37.0 dBm).
11	Repeat Step 4 at a level of +15 dBm.
12	Measure the level at the GR CONN OUT jack. Requirement: From 1 to 7 dB less than the value recorded in Step 7.
13	If the requirements of Steps 10 and 12 are met, proceed to Step 14. If they are not met, replace the thermistor in the B1 group connector and repeat Step 4 and Steps 7 through 12.
14	Remove patches (1) and (2) in Fig. 7.

TABLE B

LEVEL AT GR CONN OUT JACK		
APPLICATION	OPTION (V)* USED IN GR CONN	REQUIRED LEVEL
L to N3	Yes	-32.5 dBm \pm 0.1 dB
L to N3	No	-32.5 dBm \pm 0.5 dB
Except L to N3	Yes	-37.0 dBm \pm 0.1 dB
Except L to N3	No	-37.0 dBm \pm 0.5 dB

* Refer to Step 2(c), Chart 1 to identify option (V).