N3 CARRIER TELEPHONE
GROUP TRANSMITTER AND RECEIVER UNITS
TOTAL CARRIER POWER INPUT AND OUTPUT—RECEIVING

The channel carrier frequencies transmitted from the distant transmitting terminal are received at the line terminating unit, amplified and regulated by the group receiver unit, and fed through the combining and switching unit into the channel group equipment. In this test, first, the total carrier power input is measured and, at the time of initial lineup, is recorded for future reference in maintenance tests. Then, the total carrier power output of the group receiver unit is measured and the quality of the received signal tones is monitored. When measuring on working systems, caution should be exercised to avoid causing hits on systems carrying data or special services.

This section is reissued to change the procedure for measuring the total carrier power input to the group receiver unit. Since this revision is of a general nature, arrows ordinarily used to indicate changes have been omitted. This reissue does not affect Equipment Test Lists.

The purpose of these tests is to ensure that the input power is within the regulating range of the group receiver unit and that the output power meets the objective. This is an in-service test.

APPARATUS:

1—J94002J (2J) Repeater Test Set

1—P5K Cord (14- to 20-pin 6-inch adapter cord)

1—P4R812 Tool (for connector plug removal)

1—400 Type Hewlett-Packard Vacuum Tube Voltmeter (VTVM) or equivalent

1—11004A Hewlett-Packard Line Matching Transformer (LMT) or equivalent

1—P3AW Cord

STEP	PROCEDURE

A. Total Carrier Power Input

Note: The jack arrangement of the combining and switching unit associated with the input to the group receiver unit with connections for making the total carrier power input measurement is shown in Fig. 1.

1 Energize the VTVM.

STEP	PROCEDURE

2 On the line matching transformer (LMT), set the toggle switch to BRIDGING.

3 Plug the LMT into the VTVM INPUT jacks (see Fig. 2).

4 Plug the meter end of the P3AW cord into the 135Ω jacks of the LMT.

5 At the combining and switching unit, check that connector plugs are inserted into both GRP RCVR switching jacks.

6 Using the P4R812 tool, remove the connector plug from one of the GRP RCVR switching jacks.

Caution: Removal of both connector plugs will cause service interruption.

7 Insert the connector end of the P3AW cord into the vacant GRP RCVR jack.

8 Set the VTVM selector switch to maintain a meter indication as close as possible to 0 dB. Measure the power of the received signal.

Requirement: See Table A.

9 If the requirement of Step 8 is met, proceed to Step 10. If it is not met, trouble exists in the repeatered line or terminal circuitry preceeding the group receiver unit. See Part C for trouble locating tests. When the requirement of Step 8 is met, proceed to Step 10.

10 For the initial lineup test, record the measured total carrier power input to the group receiver unit.

11 Disconnect the P3AW cord from the GRP RCVR jack and the LMT.

12 Disconnect the LMT from the VTVM.

B. Total Carrier Power Output

Note: The jack arrangement at the output of the group receiver unit with connections for making the total carrier power output measurement is shown in Fig. 3.

13 Connect the 2J repeater test set connector to the plug end of the P5K adapter cord (see Fig. 4).

14 Insert the connector end of the P5K adapter cord into the vacant GRP RCVR switching jack.

15 Set the 2J DBM toggle switch to W-E.

16 Set the rotary selector switch to the DBM range setting which will give a maximum on-scale indication on the meter.

Requirement: Between +2.2 and +6.2 dBm.

STEP	PROCEDURE
17	Set the rotary selector switch to the MON position. Monitor the quality of the received signal. ***Requirement:*** The tones should be distinct without excessive background noise.
18	If the requirements of Steps 16 and 17 are met, proceed to Step 19. If they are not met, the group receiver unit should be replaced (Section 362-905-510). If the requirements still are not met, the terminal should then be checked. See Part C for trouble locating tests. When the requirements of Steps 16 and 17 are met, proceed to Step 19.
19	Disconnect the P5K adapter cord from the switching jack.
20	Reinsert the connector plug into the vacant switching jack.

C. Trouble Locating

21 To sectionalize trouble in the high frequency repeatered line, refer to Sections 362-420-502 (N1, N1-H, and ON repeaters), 362-420-516 (N1A repeaters), or 362-470-502 (N2 repeaters). Possible sources of trouble in the terminal office are as follows:

(a) Defective receiving span pad or wrong value span pad—Check other systems operating in the same cable and direction. The total carrier power input of the system under test should be within $\pm$1.0 dB of the average value measured for the other systems. For initial tests, the value of the receiving span pad may be adjusted $\pm$2.0 dB from the value specified on the carrier layout record card to meet the carrier power input requirement. Deviations in excess of this amount should be referred, via lines of organization, to the transmission engineer for consideration.

(b) Defective line terminating unit.

(c) Bent or broken pins in 903A connector jacks J23 (line terminating unit), J30 (group receiver unit), and J38A (combining and switching unit). See SD-97185-01, Fig. 1.

(d) High group receiving signal—Total carrier power output does not meet the requirement of Part B. Check the level of the 304-kHz modulating signal (Section 362-915-502 for terminals equipped with the ED3C172-30 secondary distribution shelf or Section 362-915-501 for the J99300E panel).

TABLE A

GRP RCVR UNIT	REQUIREMENT (dBm)	
	Initial Lineup	Maintenance
High Group	Between −42.8 and −46.8	Value recorded on initial lineup ±6.0
Low Group	Between −34.3 and −38.3	

Note: Under conditions of extreme temperature change, the measured value may exceed ±6.0 dB from the recorded value at initial lineup. If this occurs, check other systems from the same direction in the same cable. If these systems show the same variations and the input power to the group receiver unit is between −36.8 and −52.8 dBm for high group, and −28.3 and −44.3 dBm for low group, the system under test can be considered within maintenance limits.

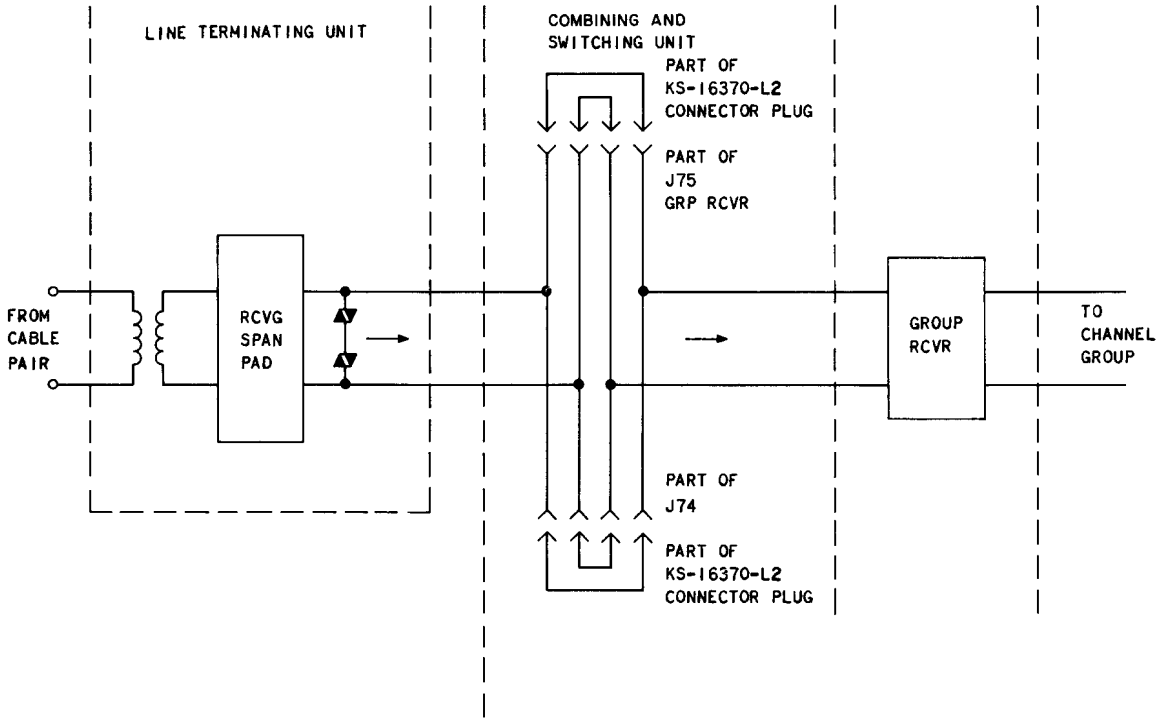

Fig. 1—Jack Arrangement at Input of Group Receiver Unit

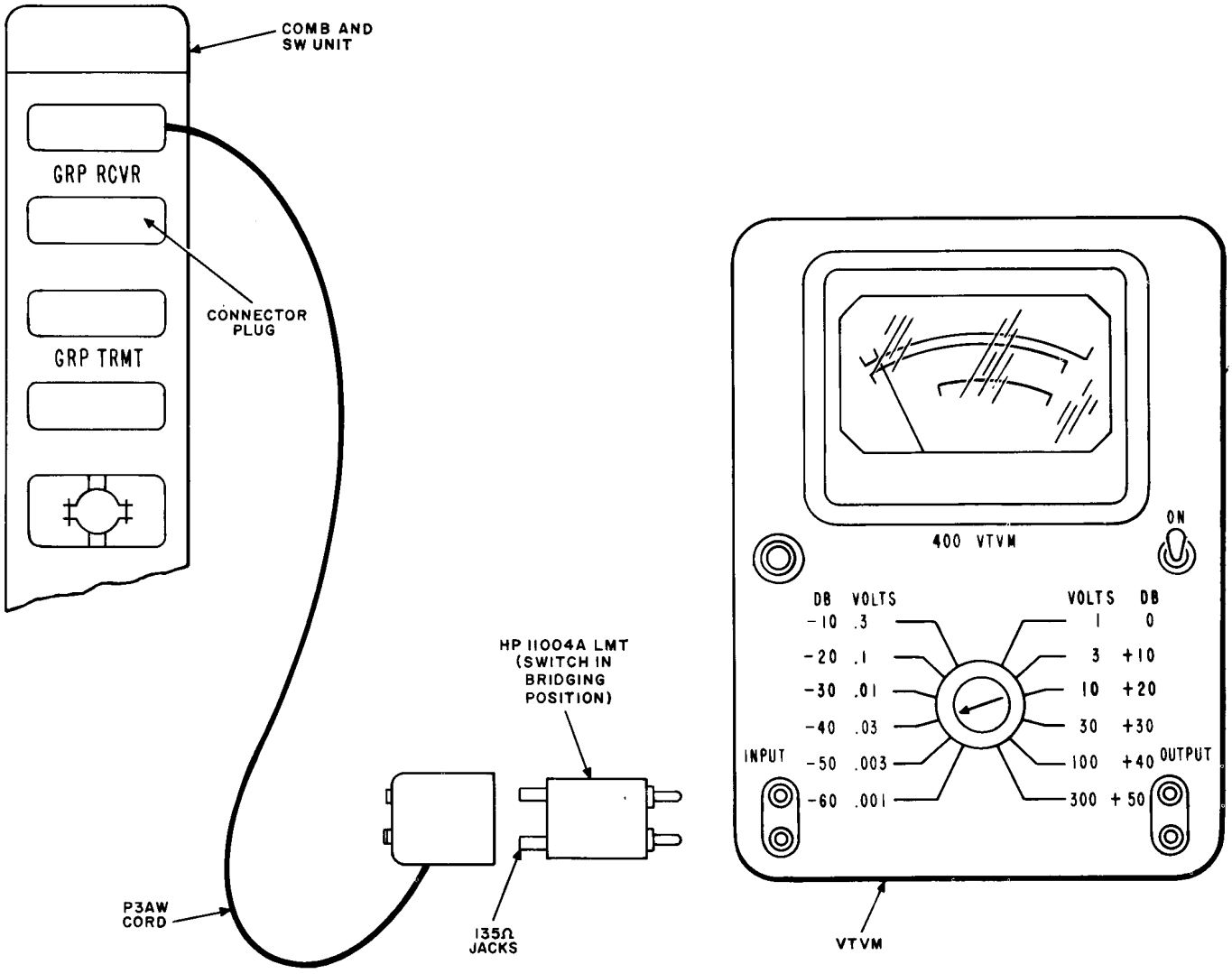

Fig. 2—Test Setup to Measure Total Carrier Power Input

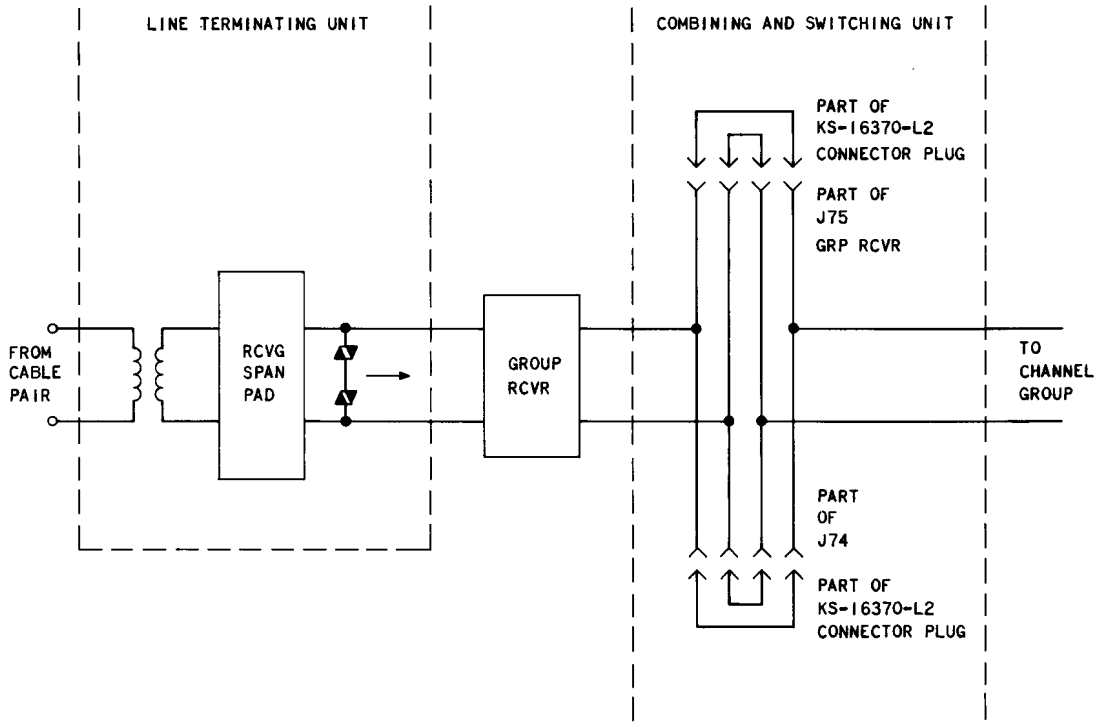

Fig. 3—Jack Arrangement at Output of Group Receiver Unit

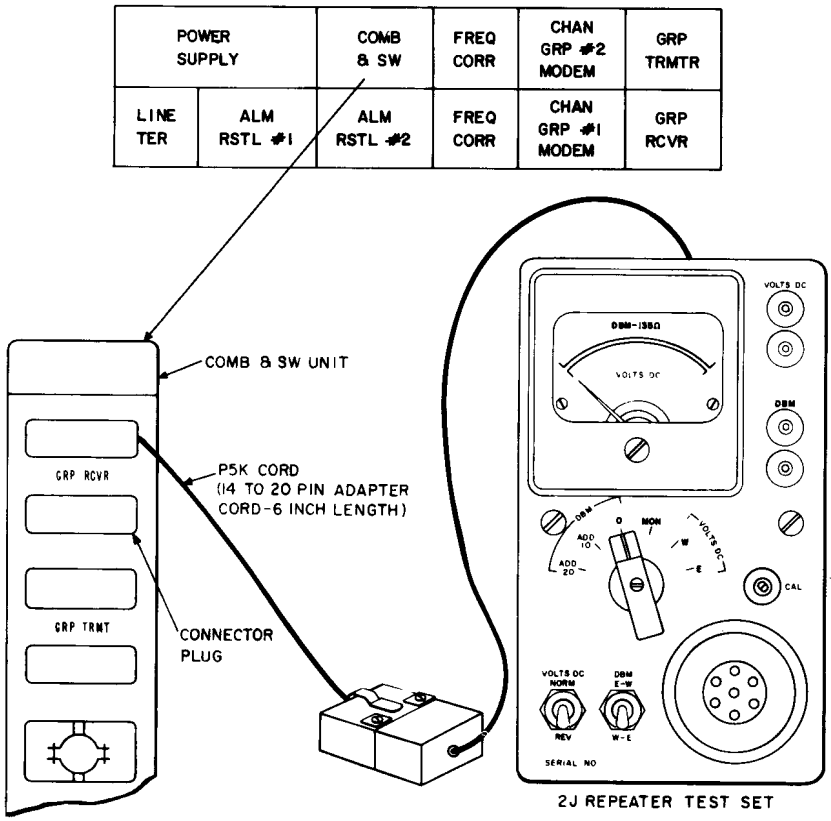

Fig. 4—Test Setup to Measure Total Output Power