N3 CARRIER TELEPHONE SYSTEM
GROUP RECEIVER UNITS
RECEIVED CARRIER MEASUREMENTS

The channel carrier frequencies transmitted from the distant terminal are received at the line terminating unit, amplified and regulated by the group receiver unit, and fed through the combining and switching unit to the channel group equipment.

This section is reissued to change the title and the test procedure for use of the N Line Deviation Test Set. Arrows are used to indicate changes. This reissue affects Equipment Test Lists.

The purpose of Test A is to determine the slope, bulge, cubic, and quartic components in the carrier signal at the output of the group receiver. An alternate procedure is given in Test B for measuring the power of each carrier transmitted from the distant terminal and for determining the slope when an N Line Deviation Test Set is not available. Test B should be made only if Test A cannot be made or if the requirements of Test A are not met.

Bridged measurements are used since accuracy would not be improved by a termination at this point. The procedure may be used for initial tests and for maintenance tests on an in-service basis. These tests are normally made after the total carrier power measurement.

A schematic of that portion of the jack arrangement on the combining and switching unit associated with the output of the group receiver unit and the connections used in the test procedure is shown in Fig. 1.

When measuring on working systems, caution should be exercised to avoid causing hits on systems carrying data or special services.

APPARATUS:

1—KS-19750 N Line Deviation Test Set (DTS)

1—KS-15538 Carrier Frequency Voltmeter (CFVM)

1—P5K Cord, 12-Foot Length

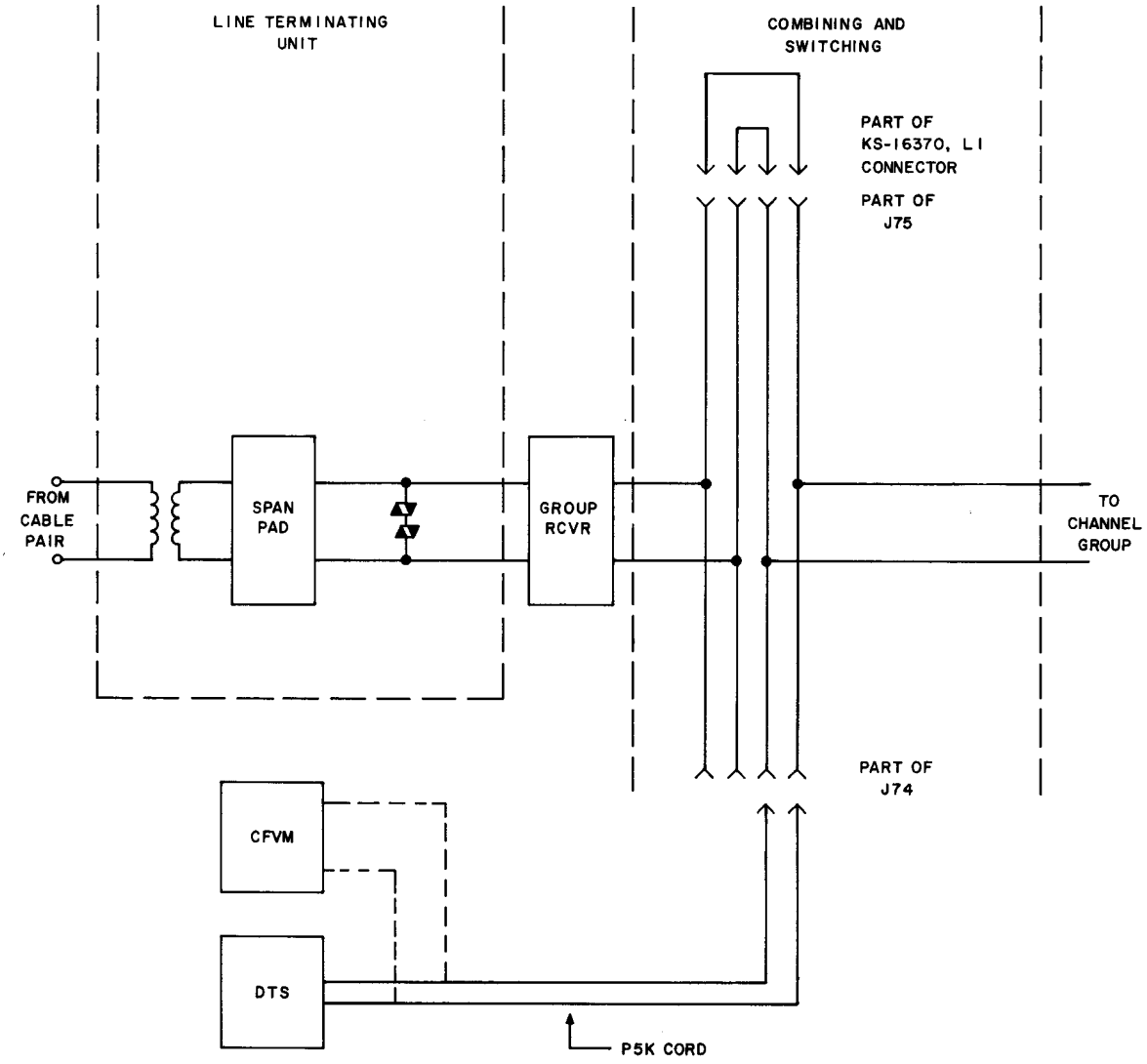

Fig. 1—Jack Arrangement For Received Carrier Measurements

STEP	PROCEDURE
	A. ▶Measurement of Slope, Bulge, Cubic, and Quartic Components Using the DTS
1	Refer to Section 103-478-100 for operation of the DTS and make the initial check.
2	Check that a connector is in RCVR jack J75 of the combining and switching unit.
3	Remove the connector from J74.

STEP	PROCEDURE
4	Connect the DTS to jack J74 using the P5K cord, as shown in Fig. 2.

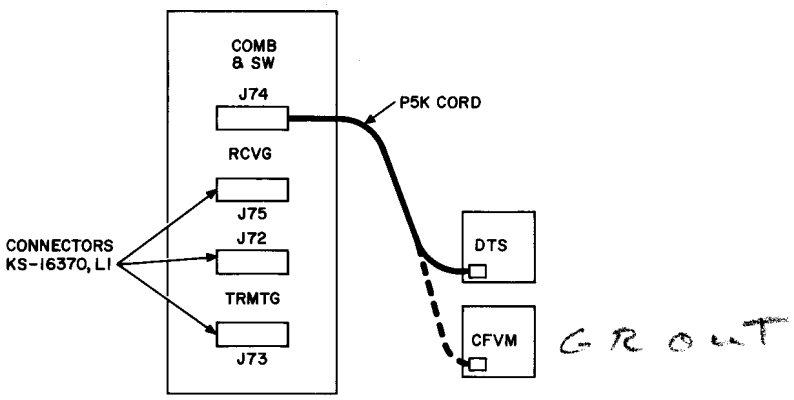

Fig. 2—Test Arrangements

5 Make deviation measurements according to the procedure given in Section 103-478-100.

Requirement: The slope, bulge, cubic, and quartic deviations should meet the requirement given in Table A for the type of repeatered line used on the system.

TABLE A

RECEIVED CARRIER DEVIATION REQUIREMENTS

TYPE DEVIATION	REQUIREMENT	
	N2 REPEATERED LINE	N1 OR N1A REPEATERED LINE
Slope	Value Specified on Carrier Layout Card ±2 dB	Value Specified on Carrier Layout Card ±3 dB
Bulge	0 ± 2 dB	0 ± 3 dB
Cubic	0 ± 2 dB	0 ± 2 dB
Quartic	0 ± 2 dB	0 ± 2 dB

6 If the requirement of Step 5 is not met, proceed with Test B. On initial lineup also notify the Transmission Engineering Department, or other appropriate group, through normal channels.

7 If the requirement of Step 5 is met, disconnect the DTS and remove the P5K cord from jack J74.

STEP	PROCEDURE
8	Replace the connector in jack J74.◀
	B. Measurement of Individual Carrier Output Using the CFVM
1	Energize the CFVM and allow time for the set to stabilize. Calibrate the set according to the procedure given in the section covering the CFVM.
2	Operate the SELECTOR switch of the CFVM to ▶GR OUT.◀ If Test A has been made, proceed with Step 5.
3	If Test A was not made, check that a connector is in jack J75 of the combining and switching unit.
4	Remove the connector from jack J74.
5	Connect the CFVM to jack J74 with the P5K cord, as shown in Fig. 2.
6	Measure the carrier powers at the frequencies given in Table B and record on Form E-4558-6. ***Requirement 1:*** The meter reading for each individual channel carrier power should be -6.6 ±7.0 dB. ***Requirement 2:*** The difference in power between adjacent carriers should be no greater than 2 dB.
7	If the requirements of Step 6 are not met on initial lineup, notify the Transmission Engineering Department, or other appropriate group, through normal channels.
8	If the requirements of Step 6 are not met on subsequent tests, the trouble should be located by checking the transmitting individual carrier outputs at the distant terminal, and if necessary, by investigating the equalization of the repeatered line.
9	If Test A cannot be made, determine the group receiver unit output slope, using the method described in Section 362-400-510. ***Requirement 1:*** The received power for each of the even-received channel carriers plotted on form E-4558-6 should be within ±3.0 dB of the computed slope line (Y_0-Y_{12}). ***Requirement 2:*** The computed slope should be within ±3.0 dB of the output slope specified on the carrier layout card.
10	If these requirements are not met on initial lineup, notify the Transmission Engineering Department, or other appropriate group, through normal channels. If not met on subsequent tests, the trouble should be located as indicated in Step 8.
11	Remove the P5K cord and replace the connector in switching jack J74.

TABLE B

CHANNEL CARRIER FREQUENCIES AT GROUP RECEIVER UNIT OUTPUT

UNIT	CHANNEL NUMBER	FREQUENCY KHZ	CARRIER NUMBER
CHAN GROUP 1	2	128	1
	4	120	2
	6	112	3
	8	104	4
	10	96	5
	12	88	6
CHAN GROUP 2	2	80	7
	4	72	8
	6	64	9
	8	56	10
	10	48	11
	12	40	12