

TYPE N AND ON CARRIER REPEATERS
REPEATERED HIGH-FREQUENCY LINE
ADJUSTABLE DEVIATION EQUALIZER LINE-UP
USING N-LINE DEVIATION TEST SET

The adjustable deviation equalizer (J98703BE) is used at the output of a low-high repeater or the input of a high-low repeater on N and ON carrier systems to compensate for the deviation in the line characteristics encountered in these systems. The equalizer contains four adjustable networks, slope, bulge, cubic, and quartic, and an amplifier which compensates for the loss of the networks.

The N-line deviation test set is a device which when bridged across the carrier line at the output of a repeater, adjustable deviation equalizer, deviation regulator, or the output of terminal group equipment analyzes the carrier line signal to determine the magnitude of the slope, bulge, cubic, and quartic components present in the signal. These components can be read directly on the test set meter, thus indicating the equalization the line may need.

Normally the equalizer is installed near the middle of the carrier line section to be equalized while the N-line deviation test set is bridged at the end of the section. The four networks on the equalizer are adjusted to minimize associated transmission deviations while the deviation test set measures the effect of the adjustments. The final adjustment should produce a line characteristic equal to the design objective for the particular section. A talking path (such as the order wire) must be established over the section being equalized. A typical test arrangement is shown in Fig. 1.

The purpose of this section is to provide the procedures required to equalize a section of repeatered line by adjusting the four networks on the adjustable deviation equalizer and ascertaining the correctness of the adjustments through use of the N-line deviation test set.

APPARATUS:

- 1 — Type 65017 or KS-19750 (when available) N-Line Deviation Test Set
- 1 — W20C Cord (required at repeaters, deviation regulators, or deviation equalizers)
- 1 — P5K Cord (required at group receivers at N3 terminals)
- 1 — P4AN Cord (required at group receivers at N2 terminals)
- 1 — W20D Cord (required at group receivers at N1 terminals)
- 1 — P14C Cord (adapter cord required when using W20C cord with an N2 repeater)

STEP	PROCEDURE
	<p style="text-align: center;">A. Preparation</p> <p>Overall Line Section to be Equalized</p> <p>1 Verify that all repeater slope switches are set in accordance with information on the circuit layout card and that the repeatered line is operating properly. If N2 repeaters are used, verify that the correct 391-type equalizers are installed at the repeater locations.</p> <p>2 Establish a talking circuit (such as the order wire) between the three work locations (See Fig. 1.)</p> <p>Beginning of Line Section to be Equalized</p> <p>3 The carrier terminal is used as a source of signals and must be fully equipped (all 12 carriers transmitted over the carrier line including 2 through 13 for N1 and N2 systems or carriers 1 through 12 for ON2 and N3 systems) and lined up according to standard BSP sections.</p> <p>Equalizer Location</p> <p>4 Remove the cover from the front of the equalizer to be adjusted.</p> <p><i>Caution: To minimize intersystem crosstalk, never remove the cover from more than one equalizer at a time.</i></p> <p>End of Section to be Equalized (Deviation Test Set Location)</p> <p>Repeater Location</p> <p>5 Remove the repeater connector from either switching jack J2 or J3.</p> <p>6 Connect the N-line deviation test set to the vacant switching jack with either a W20C cord, or a W20C cord with P14C adapter cord, depending on the application. Calibrate and operate the set in accordance with instructions supplied with the set, or Section 362-415-508, when available.</p> <p>Terminal Location</p> <p>5a At an N1 terminal, remove one receiving group connector and connect the deviation test set with a W20D cord.</p> <p>5b At an N2 terminal, remove one receiving group connector and connect the deviation test set with a P4AN Cord.</p> <p>5c At an N3 terminal, remove one receiving group connector and connect the deviation test set to the group receiver with a P5K cord.</p> <p>6 Calibrate and operate the deviation test set in accordance with the instructions supplied with the set, or Section 362-415-508, when available.</p>

STEP	PROCEDURE
B. Adjustment	
1	Adjust the equalizer controls associated with each component of shape as detailed in the following steps.
2	Adjust the equalizer SLOPE control until slope measured at the test set is as near as possible to that specified on the circuit layout card.
3	Adjust the equalizer BULGE control until bulge measured at the test set is as near as possible to zero db.
4	Readjust the equalizer SLOPE control until slope measured at the test set is as near as possible to that specified on the circuit layout card.
5	Adjust the equalizer CUBIC control until cubic measured at the test set is as near as possible to zero db.
6	Readjust the equalizer SLOPE control until the slope measured on the test set is as near as possible to that specified on the circuit layout card and readjust the BULGE control until the measured bulge is as near as possible to zero db.
7	Adjust the equalizer QUARTIC control until quartic measured at the test set is as near as possible to zero db.
8	Readjust the equalizer SLOPE control until the slope measured at the test set is as near as possible to that specified on the circuit layout card and readjust the BULGE, CUBIC, and QUARTIC controls on the equalizer until each shape measured at the test set is as near as possible to zero db. <i>Requirement:</i> The slope of the span being equalized should be within ± 0.2 db of the value specified on the circuit layout card.
9	Notify the system control office of the four control settings on the equalizer and record them locally for future reference. (The numbers around the controls on earlier models of the adjustable deviation equalizer, Lists 1, 2, and 3, are for reference only and do not indicate db directly.)
10	Replace the cover on the adjustable deviation equalizer.
11	Remove all test equipment and restore the system to normal.

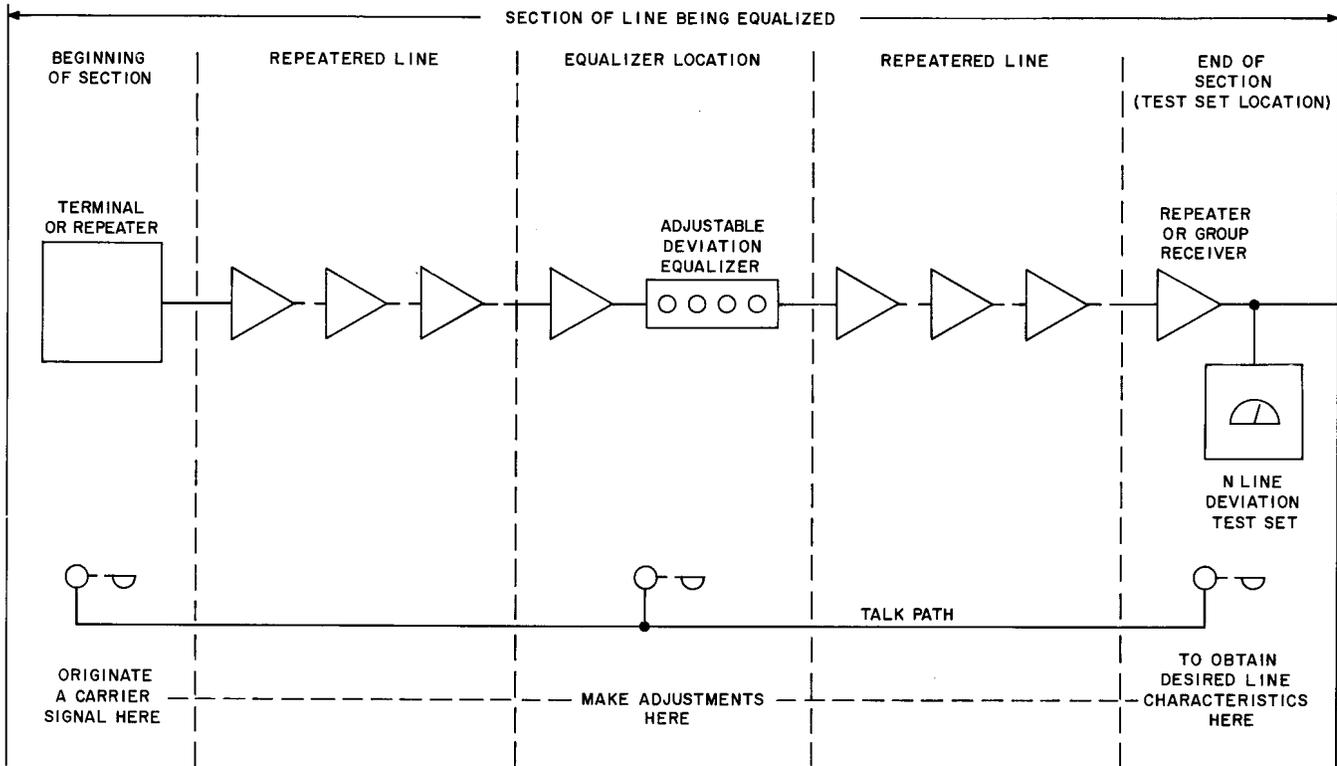


Fig. 1 — Overall Test Arrangement