

**TYPE N AND ON CARRIER REPEATERS — REPEATERED HIGH-FREQUENCY LINE  
ELECTRON TUBE REPEATER POINTS  
METHOD OF LOOPING SECTIONS OF HIGH-FREQUENCY LINE**

A means of testing for transmission troubles is provided by looping the transmission at the repeater so that the sending and receiving paths terminate in the same terminal. By progressive looping at different repeaters, trouble may be localized.

This method can be used only when the system is out of service. All Type N repeaters (J98703) may be looped at either the input or output. For Type ON repeaters (J98706) the inputs or outputs may be looped as shown in Table I.

**APPARATUS:**

Looping at Repeater Outputs:

- 1 — Looping Connector Per Fig. 1 or
- 1 — Looping Connector per Fig. 2 or 3

Looping at Repeater Inputs:

- 1 — Looping Connector per Fig. 1

The looping connector per Fig. 1 may be made up locally using:

- 2 — 2507P Transformers
- 2 — KS-14160 Connectors
- 1 — Bud Radio Inc., Minibox No. CU-2100 or equivalent

The unit is so wired that when the output is looped back the OUTPUT LOOP appears on top, by turning the unit 180° and plugging the other plug into the jack, the inputs are looped back and the INPUT LOOP appears on top.

The connectors for Fig. 3 or 4 may be made up locally using 2 — KS-13895 plugs.

STEP	PROCEDURE
1	The system must be out of service. At a repeater remove one of the regular connectors from J2 or J3. For output looping, insert the looping connector, per Fig. 1, or the connectors per Fig. 2 or 3. Remove the other connector.
2	At the terminal measure the received carrier at the R1 jacks with a 400C or D vacuum tube voltmeter. Supplement the measurements with listening tests at the E1-E2 jacks or the voice-frequency out jacks. Near normal measurement at the R1 jacks and the absence of excessive noise on listening tests would indicate no trouble in the looped section and one half of the repeater, as in Fig. 4.
3	Replace one regular connector and remove the looping connector unit.

STEP	PROCEDURE
4	For input looping insert the looping connector per Fig. 1 and remove the regular connector. Again make R1 measurements and listening tests as in Step 2. This is a check of the other half of repeater at this location as in Fig. 5.
5	<p>Replace one regular connector and remove the looping connector from J2 or J3. Replace the other regular connector.</p> <p>By looping at the various repeaters the trouble will be located in a certain section of the high-frequency line or at a particular repeater.</p>

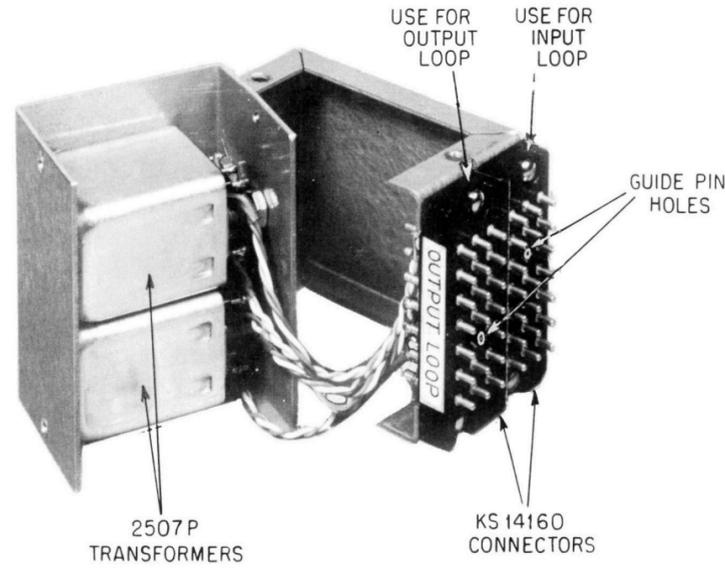


TABLE I

TYPE REPEATER	LOOP	
	INPUT	OUTPUT
H-L, L-L J98706C	NO	YES
L-L, H-L J98706D	NO	YES
L-H, L-L J98706E	YES	NO
L-L, L-H J98706F	YES	NO
L-L, H-H J98706J	NO	NO
H-H, L-L J98706K	NO	NO
H-L, L-L J98706CA	NO	YES
L-L, H-L J98706DA	NO	YES
L-H, L-L J98706EA	NO	NO
L-L, L-H J98706FA	NO	NO

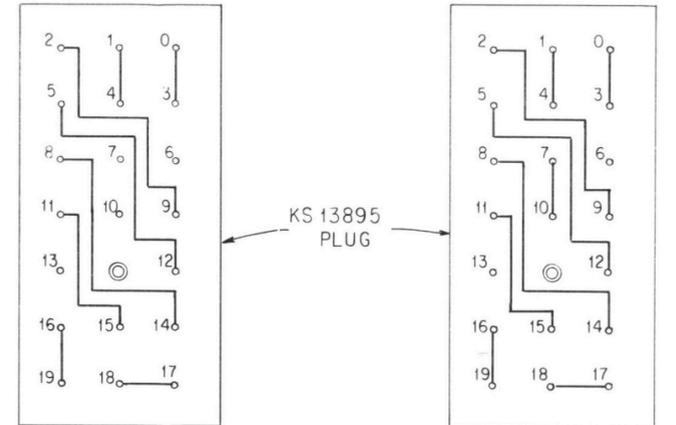


FIG. 2 LOOPING CONNECTOR FOR USE AT REPEATER OUTPUTS WITH POWER FEED IN BOTH DIRECTIONS.

FIG. 3 LOOPING CONNECTOR FOR USE AT REPEATER OUTPUTS WITH NO POWER FEED, OR POWER FEED ONE DIRECTION ONLY.

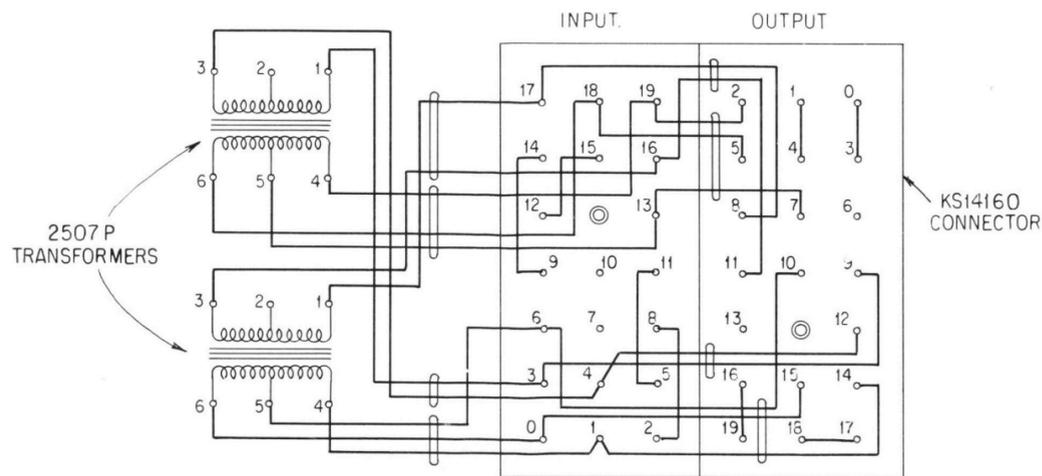


FIG. 1 LOOPING CONNECTOR FOR USE AT REPEATER OUTPUTS OR INPUTS WITH ANY POWER FEED CONDITION.

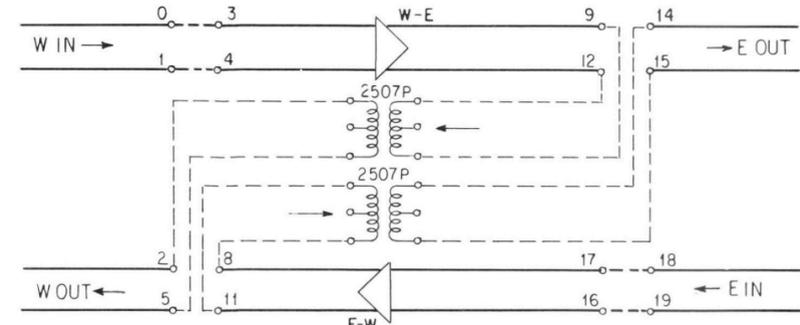


FIG. 4 SYSTEM LOOPED AT OUTPUTS WITH FIG. 1 CONNECTOR

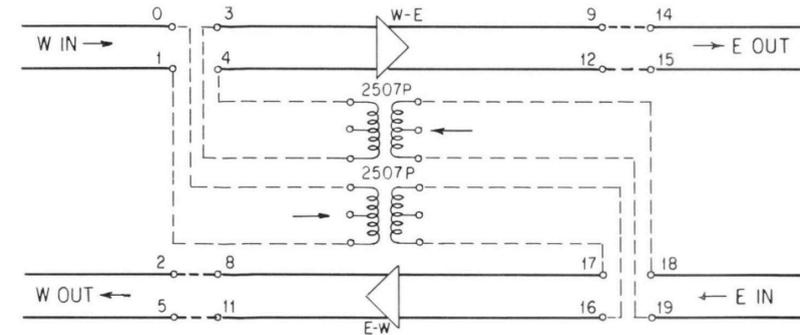


FIG. 5 SYSTEM LOOPED AT INPUTS WITH FIG. 1 CONNECTOR

SYSTEM LOOPING AT REPEATERS