

**TYPE O CARRIER TELEPHONE SYSTEM — REPEATERS**  
**CARRIER LINE-UP — OA REPEATER**

The OA repeater separates the two groups of frequencies used for the two directions of transmission on the open-wire line and amplifies the signals before transmitting these frequencies again to the line. The two repeater amplifiers are identical. The OUT control in the cathode circuit of the control amplifier provides an adjustment of repeater output by adjusting the operating point of the regulator.

The purpose of this test is to test and line-up the OA repeater.

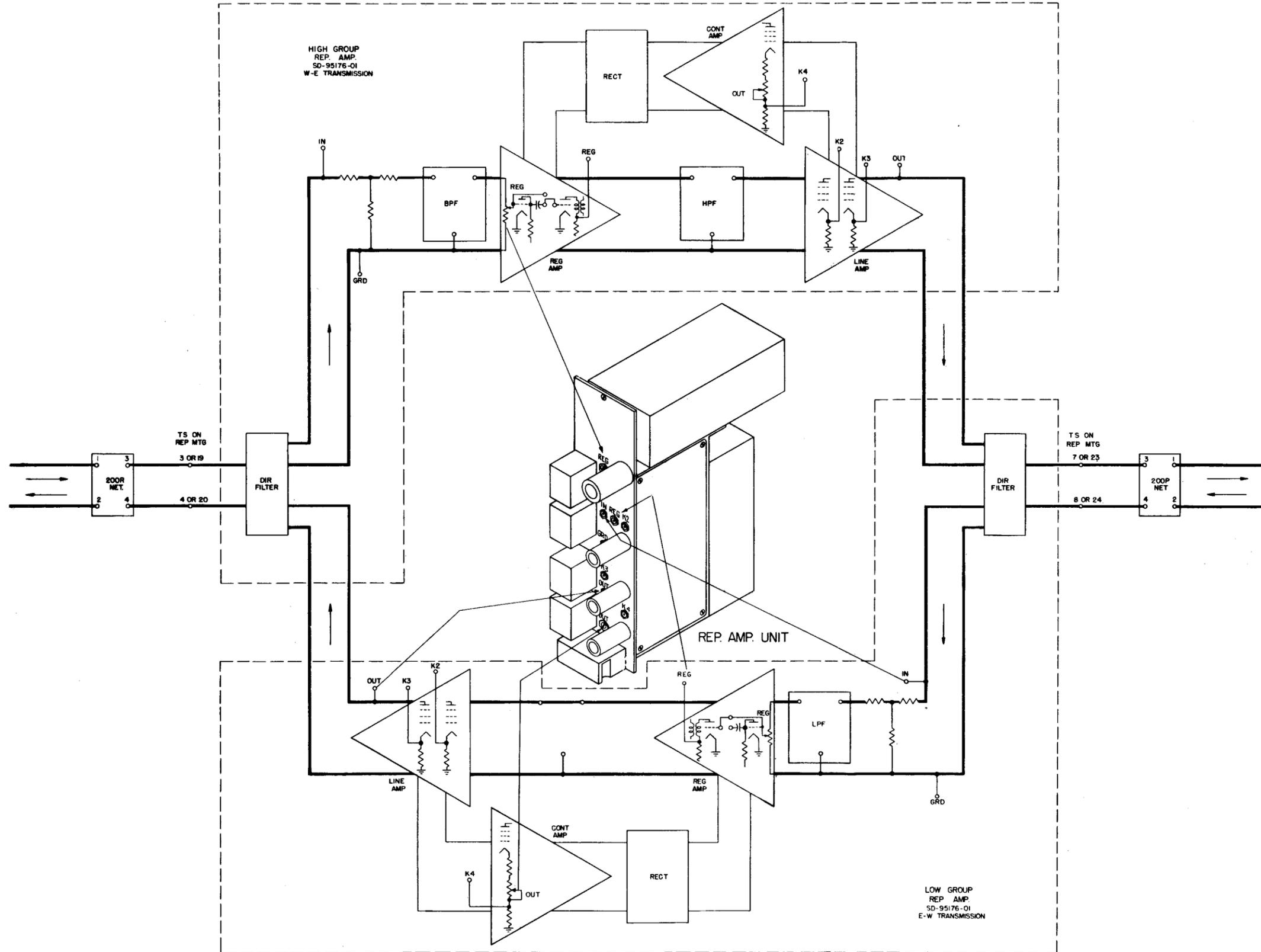
**APPARATUS:**

- 1 — 2J Repeater Test Set (J94002J)
- 2 — KS-9290 Test Leads
- 1 — KS-14510, L1 or L5 Volt-Ohm-Milliammeter
- 1 — Sierra Model 103 Carrier Frequency Voltmeter (for trouble location)

STEP	PROCEDURE									
1	On the HG (W-E) unit, check that the REG potentiometer is maximum counterclockwise.									
2	<p>Connect the 2J repeater test set to the OUT jack on the repeater amplifier unit under test. This may be an in-service test. Ignore irregular needle deflections due to speech or changing signaling tones.</p> <p><i>Requirements:</i></p> <table style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th></th> <th style="text-align: center;">TWO CARRIER</th> <th style="text-align: center;">ONE CARRIER</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">Test</td> <td style="text-align: center;">+18 ± 1 db</td> <td style="text-align: center;">+15 ± 1 db</td> </tr> <tr> <td style="text-align: center;">Initial and Readjust</td> <td style="text-align: center;">+18 db</td> <td style="text-align: center;">+15 db</td> </tr> </tbody> </table> <p><i>Note:</i> If this requirement is not met, adjust the OUT potentiometer on the repeater unit to meet the requirement. If reduction of the repeater output is necessary for coordination reasons, adjust the output to the desired level. The repeater gain changes very slowly and several minutes must be allowed for this adjustment.</p>		TWO CARRIER	ONE CARRIER	Test	+18 ± 1 db	+15 ± 1 db	Initial and Readjust	+18 db	+15 db
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3	<p><i>E-W Direction Only</i></p> <p>Connect the KS-14510 L5 meter on 300V scale between the REG JACK of the LG (E-W) unit and the + jack of the FIL CUR jacks on the fuse panel.</p>									
4	Ground all the T jacks at the LGT terminal.									

STEP	PROCEDURE				
5	<p>Read the voltmeter.</p> <p><b>Requirements:</b></p> <table><tr><td>Test</td><td>— .7V to 10 Volts (dc)</td></tr><tr><td>Initial and Readjust</td><td>— 1.5V (dc)</td></tr></table> <p><b>Note:</b> Adjust the REG potentiometer to obtain the 1.5V reading.</p>	Test	— .7V to 10 Volts (dc)	Initial and Readjust	— 1.5V (dc)
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Initial and Readjust	— 1.5V (dc)				
6	<p>Repeat Step 2 and then repeat Steps 3 through 5. Repeat adjustments at the REG and OUT jacks until both readings meet their requirement. Several minutes are usually required for these adjustments.</p>				
7	<p>Before disconnecting the voltmeter, put on 300V scale.</p>				

TEST EQUIPMENT	REMARKS
selective detector	Readings consistent with known transmitted levels and line loss. Detector arranged for 600 ohms BAL. BRIDG.
selective detector	Detector arranged for 600 ohms UNBAL. BRIDG.
selective detector	Detector arranged for 600 ohms UNBAL. BRIDG.
2J set	This test requires disabling other OA, OB, OC & OD repeaters in the same pair by grounding their IN jacks in same direction of transmission.
selective detector	Detector arranged for 600 ohms BAL. BRIDG.
—	Refer to Section 362-210-501.
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OA REPEATER LINE-UP PROCEDURE

**TROUBLE LOCATION TESTS**

TEST	PURPOSE OF TEST	TEST POINTS	LIMITS	TEST EQUIPMENT	REMARKS
1	Rep. Input — Individual Carriers	EQ BRDG Jacks or E LINE or W LINE Term	See remarks	selective detector	Readings consistent with known transmitted levels and line loss. Detector arranged for 600 ohms BAL. BRIDG.
2	Rep. Amp. Input — Individual Carriers	IN Jack	Reading obtained in Test 1 reduced by $1.5 \pm 2$ db	selective detector	Detector arranged for 600 ohms UNBAL. BRIDG.
3	Rep. Amp. Output — Individual Carriers	OUT Jack	$+7 \pm 4$ dbm	selective detector	Detector arranged for 600 ohms UNBAL. BRIDG.
4	Rep. Output — Total Power	EQ BRDG Jacks or E LINE or W LINE Term	$+17.5 \pm 2$ db	2J set	This test requires disabling other OA, OB, OC & OD repeaters in the same pair by grounding their IN jacks in same direction of transmission.
5	Rep. Output — Individual Carriers	EQ BRDG Jacks or E LINE or W LINE Term	$+6.5 \pm 4$ db	selective detector	Detector arranged for 600 ohms BAL. BRIDG.
6	Plate & Heater Supplies	—	—	—	Refer to Section 362-210-501.
7	Tube Tests	—	—	—	Refer to Section 362-210-501.

