SERVICING CENTER TESTS USING 5U (J98705U) TEST SET J98706C, D, E, AND F REPEATERS—ON CARRIER SYSTEM OVER-ALL TESTS

These repeaters are used in the high frequency line and at ON junctions and terminals in a type ON carrier system. The repeaters consist of combinations of low-high (L-H), high-low (H-L), and low-low (L-L) subassemblies. The L-H and H-L subassemblies are identical to the type N repeater subassemblies. The L-L subassembly receives the low group frequencies, amplifies, regulates, and equalizes them for transmission at the desired output.

The tests outlined herein are designed to check the characteristics of all subassemblies comprising the ON repeater.

APPARATUS:

1—Vacuum Tube Voltmeter
1—Oscillator
1—P2OD Cord
1—P2CC Cord
2—P2BP Cords
1—Volt-Ohm-Milliammeter
1—124B Adapter
2—Shorting Cords for Nonregenerative Gain Test
(These are made from one-inch pieces of No. 14 bare soft drawn copper wire with KS-6780 clips soldered on each end.)

STEP	PROCEDURE
1	Switches A and B on 5U test set on OFF position.
2	Connect repeater, oscillator, and vacuum tube voltmeter to 5U test set as shown on associated sketches. (Note connection for nonregenerative gain test—Test 5.)
3	Strap repeater for X wiring for Tests 1, 2, 6a, 6b, 7a and 7b and Y wiring for Tests 3, 4, and 5.
4	Insert a 427A vacuum tube in V41 and adjust filament and check plate voltages on 5U test set. ***Requirement:*** Filament 10 volts Plate 128 to 130 volts
5	Make tests for the following subassemblies as outlined below: Follow Test Procedure in Section E34.035.10 — Chart B — H-L — J98706C and D Chart A of this section — Chart D — L-H — J98706E and F L-L — J98706C, D, E and F

STEP	PROCEDURE
6	The nonregenerative gain test is discussed in Part 4 of Section E34.035.00. To make the test on L-L subassemblies (Test 5), P2CC cord is in SEND jack. Unsolder lead terminal 1 of T3 and connect P2CC cord between this terminal and a chassis ground as far away as possible from this terminal. Unsolder R24 from junction of C11-RT1. Place a short between the unsoldered end of R24 and the junction of C9 and R20. Place another short from the junction of C6-R12 to junction of C4-R10. For L-L subassemblies of repeater units J98706E and J98706F, place an additional short from TP5 to TP7 and open connection between L7 and R33.
7	After test is completed, rewire to original connections.

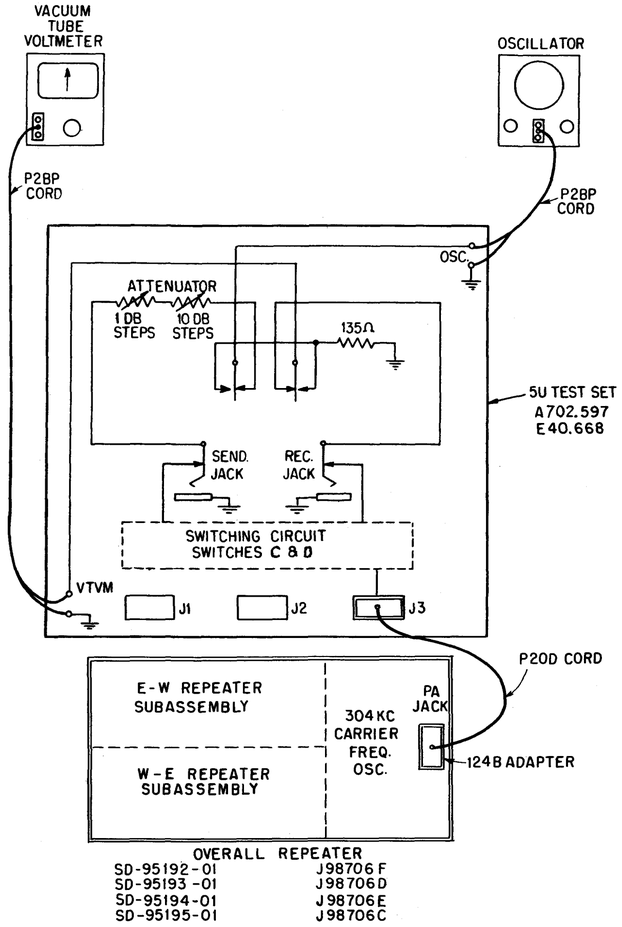
L.L. SUBASSEMBLIES **CHART A**

PURPOSE OF TEST	SWITCH POS. C	SWITCH POS. D	ATT (db)	CAL (db)	OSC FREQ (KC)	REPT SLOPE SWITCH SETTING	P2CC CORD IN SEND JACK	TEST LIMITS MIN	TEST LIMITS MAX	TS TST	TEST CONDITIONS AND REMARKS
1. THERMISTOR RESISTANCE CHECK (COLD)								150,000 Ohms			Dc power should be OFF. Meas. dc resistance across each thermistor bead (RT1 terminals 1 and 2) when the thermistor is at room temp. and has not been energized for at least 20 minutes. Use volt-ohm-milliammeter.
2. THERMISTOR RESISTANCE CHECK (HOT)	17	18	Remove Oscillator						½ Value of Test 1		Dc power on ON. Leave power on 15 min. Meas. dc resistance of each thermistor.
3. TRAN GAIN TEST L-L UNITS J98706C AND J98706D	W-E 17	10	5	+ 9	96	A		−0.5 db	+1.5 db		**Measured value between these limits is M value.
			8	+ 9	136	A		M −1.4 db	M +0.2 db		Measured value between these limits is N value.
			9	+ 9	136	B		N −1.1 db	N +0.3 db		
			10	+ 9	136	C		N −1.4 db	N db		
	E-W 18		3	+ 9	56	A		M −2.8 db	M −0.6 db		Measured value between these limits is P value.
			2	+ 9	56	B		P −1.1 db	P +0.5 db		
			1	+ 9	56	C		P −1.1 db	P +0.5 db		
4. TRAN GAIN TEST L-L UNITS J98706E AND J98706F	W-E 17	10	5	−11	96	A		−20.5 db	−18.5 db		**Measured value between these limits is M value.
			8	−11	136	A		M −1.4 db	M +0.2 db		Measured value between these limits is N value.
			9	−11	136	B		N −1.1 db	N +0.3 db		
			10	−11	136	C		N −1.4 db	N db		
	E-W 18		3	−11	56	A		M −2.8 db	M −0.6 db		Measured value between these limits is P value.
			2	−11	56	B		P −1.1 db	P +0.5 db		
			1	−11	56	C		P −1.1 db	P +0.5 db		

** If necessary, adjust connections to resistors R10, R11 and R12 as noted on SD — drawing.

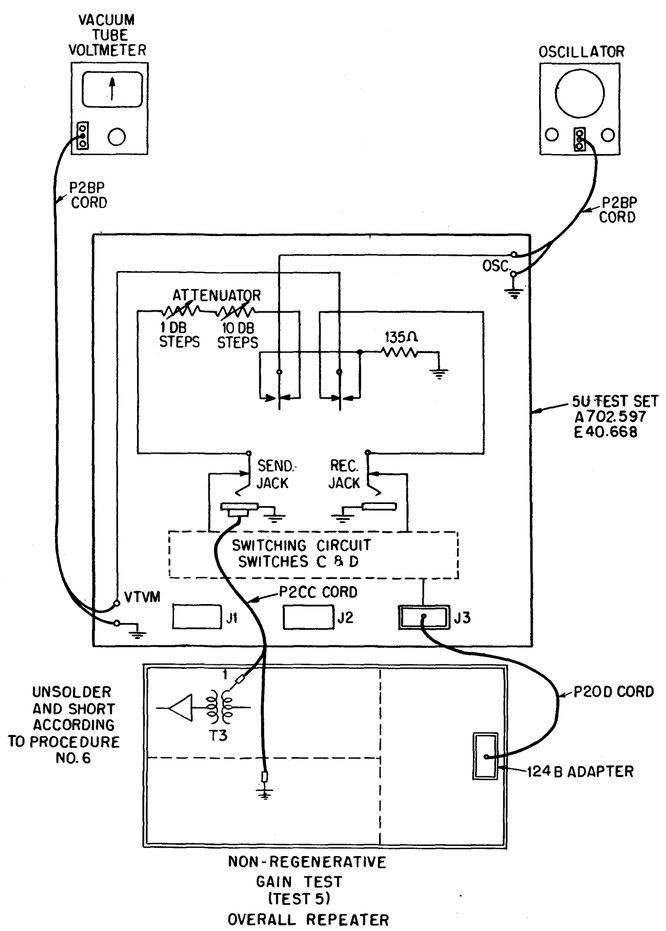
L.L. SUBASSEMBLIES — CHART A (cont'd)

PURPOSE OF TEST	SWITCH POS. C	SWITCH POS. D	ATT (db)	CAL (db)	OSC FREQ (KC)	REPT SLOPE SWITCH SETTING	P2CC CORD IN SEND JACK	TEST LIMITS MIN	TEST LIMITS MAX	TS TST	TEST CONDITIONS AND REMARKS
5. NON-REGEN GAIN	W-E 17		35	0	80	A	X	−1.0 db	+10.0 db		
		10	24	0	30	A	X	−3.0 db	+3.0 db		See text for procedure.
	E-W 18		27	0	200	A	X	−3.0 db	+3.0 db		
6a. THERM REGULATION TEST J98706C & D ONLY	W-E 17	10	0	+16.5	96	B		−5.0 db	−1.0 db		Connect RT1 thermistor in place of 20,000-ohm resistor R24. Wait 15 min. before taking readings.
	E-W 18										
6b. J98706E & F ONLY	W-E 17	10	4	+ 0.5	96	B		−25.0 db	−21.0 db		
	E-W 18										
7a. THERMISTOR RESISTANCE CHECK J98706C & D ONLY	W-E 17	10	0	+16.5	96	B		7000 Ohms	11,000 Ohms		Dc power on ON. Measure at same terms. as Test 1.
	E-W 18										
7b. J98706E & F ONLY	W-E 17	10	4	+ 0.5	96	B		7000 Ohms	Ohms 11,000		
	E-W 18										



OVERALL REPEATER

SD-95192-01	J98706F
SD-95193-01	J98706D
SD-95194-01	J98706E
SD-95195-01	J98706C



NON-REGENERATIVE GAIN TEST (TEST 5) OVERALL REPEATER