TYPE N1 CARRIER TELEPHONE SYSTEM — TERMINAL EQUIPMENT
PRELIMINARY TESTS — TRANSISTORIZED REPEATERED SYSTEMS
ADJUSTMENT OF POWER SUPPLY TO ADJACENT REPEATERS

This section is reissued to include information on the shop-wired N1 terminal bays and on options not previously shown.

When a local source of power is not available at a transistorized repeater, dc power can be supplied to it over the two cable pairs used for carrier transmission by means of simplex arrangements. In this manner, up to three repeaters may be powered in series. The transmitting pair carries +130 volts and the receiving pair carries −130 volts to the repeater. When unsoldered cable splices are used, a small amount of dc may be applied to the cable pairs in a similar manner to seal the splices if power is not supplied to a repeater.

Options are available by strapping of the main terminal strip on the terminal mounting for the different power conditions. On a special basis, the power-feed circuit may be modified to provide +130V and ground or +130V and −48V power feed (per ES-97142-01).

The purpose of this test is to show the strapping for the various options and to show the adjustment of the resistance in series with the power supplies to the values specified in order that the correct current will be supplied to the repeaters.

If no power is supplied, or if sealing current only is supplied, refer to Section 362-015-502 for the strapping and adjusting procedures.

APPARATUS:

1 — KS-14510 Volt-Ohm-Milliammeter, or equivalent (20,000 ohms per volt)

2 — KS-13895 Plugs, unwired (connectors for test connections)

1 — W1Y Cord, or equivalent (for temporary strap)

STEP	PROCEDURE
	(A) Standard Arrangement — J98703A Mounting
1	Remove the +130V REP and −130V REP fuses.
2	Loosen the top and bottom fasteners which hold the resistor subassembly. This is the covered subassembly just above the alarm lamps. Do not remove the cover. Pull the subassembly slightly out of the mounting and swing the top end forward and to the right to expose the terminal strip mounted behind it.
3	Provide option Y by strapping terminal 25 to 26 and 57 to 58 on the terminal strip.
4	Put the resistor subassembly back in place and tighten the fasteners.
5	Remove the cover of the resistor subassembly.
6	Remove the group connectors from J13, J14, J15 and J16.

STEP	PROCEDURE
7	Insert unwired KS-13895 plugs in J14 and J16.
8	Connect terminal 19 of each plug together.
9	Set the VOM to the 300V scale.
10	Connect the VOM to the equipment side of the +130V REP and the −130V REP fuse holders. See figures.
11	Set the VOM to ohms.
12	Adjust the slider on resistor R8 to obtain the value of resistance specified on the circuit layout card. If necessary, add the strap on R9 per option E of Fig. 1. When the correct setting has been made, tighten the clamping screw and recheck the resistance reading.
13	Remove the KS-13895 plugs and replace the group connectors in J13, J14, J15 and J16.
14	Replace the cover on the resistor subassembly.
15	Place 70K (1/4 amp) fuses in the +130V REP and −130V REP fuse holders.
	(B) Standard Arrangement — J98703AT, AW Bays
1	Remove the +130V REP and −130V REP fuses.
2	Loosen the top and bottom fasteners which hold the miscellaneous terminal equipment panel. Pull the panel subassembly forward to gain access to the resistors and standoff terminals E2 and E3.
3	Provide option Y by strapping the front end of R9 to E2 and the front end of R7 to E3.
4	Remove the group connectors from J13, J14, J15 and J16.
5	Insert unwired KS-13895 plugs in J14 and J15.
6	Connect terminal 19 of each plug together.
7	Set the VOM to the 300V scale.
8	Connect the VOM to the equipment side of the +130V REP and −130V REP fuse holders. See figures.
9	Set the VOM to ohms.
10	Adjust the slider on resistor R8 to obtain the value of resistance specified on the circuit layout card. If necessary, add the strap on R9 per option E of Fig. 1. When the correct setting has been made, tighten the clamping screw and recheck the resistance reading. ***Note:*** It may be necessary to loosen the bolt holding R8 and rotate R8 clockwise to gain access to the slider clamping screw. Position the lugs on R8 to point to the 10 o'clock position.
11	Replace the panel subassembly and tighten the fasteners.
12	Remove the KS-13895 plugs and replace the group connectors in J13, J14, J15 and J16.
13	Place 70K (1/4 amp) fuses in the +130V REP and −130V REP fuse holders.

STEP	PROCEDURE
	(C) Special Wiring — J98703A Mounting (per ES-97142-01)
1	Remove the +130V REP and −130V REP fuses.
2	Loosen the top and bottom fasteners which hold the resistor subassembly. This is the covered subassembly just above the alarm lamps. Do not remove the cover. Pull the subassembly slightly out of the mounting and swing the top end forward and to the right to expose the terminal strip mounted behind it.
3	Provide option ES by strapping terminal 25 to 26 and 57 to 58 on the terminal strip.
4	For option A (ground and +130V), strap terminal 57 to 29 on the terminal strip.
5	Put the resistor subassembly back in place and tighten the fasteners.
6	Remove the cover from the resistor subassembly.
7	If required for the specific job, replace R8 and/or R9 resistors with those specified.
8	Rewire resistor R8 to place it between resistor R9 and the +130V REP fuse holder.
9	For option C (−130V and +130V), rewire R7 to connect it directly to the −130V REP fuse holder.
10	For option B (−48V and +130V), proceed as follows: (a) Remove channels 11 and 12 and the group units. (b) Remove all terminal fuses. (c) Remove the bolts holding the group connector jack panel. (d) Pull the assembly forward to gain access to the −48V 10 amp fuse. (e) Remove the fuse. (f) Rewire R7 to connect it to the right-hand side of R10 (the side connected to the −48V 10 amp fuse). (g) Replace the fuse, the jack assembly and the plug-in units. (h) Change the designation on the −130V REP fuse holder to read −48V REP.
11	Remove the group connectors from J13, J14, J15 and J16.
12	Insert unwired KS-13895 plugs in J14 and J16.
13	Connect terminal 19 of each plug together.
14	Set the VOM to the 300V scale.
15	Connect the VOM to the +130V fuse holder and to ground for option A, or to the −130V (or −48V) fuse holder for option C (or B). See figures.
16	Set the VOM to ohms.
17	Adjust the slider on resistor R8 to obtain the value of resistance specified on the circuit layout card. If necessary, place straps on R7, R8 and R9 per option D (−48V option only), G, F and E. When the correct setting has been made, tighten the clamping screw and recheck the resistance reading.
18	Remove the KS-13895 plugs and replace the group connectors in J13, J14, J15 and J16.
19	Replace the cover on the resistor subassembly.
20	Place 70K (1/4 amp) fuses in the +130V REP fuse holder and (if required) in the −130V (or −48V) REP fuse holder.

Power Supply Options — Fig. 1	
OPTION	USE
Y	Standard power supply option for 2 or 3 repeaters
ES	Special wiring per ES-97142-01
A	Provides ground on the receive pair
B	Provides −48V on the receive pair
C	Provides −130V on the receive pair
D	Power adjust strap — used only with option B
E	Power adjust strap
F	Power adjust strap — to remove all of R8
G	Power adjust strap

Power Supply Resistor Options — Fig. 1			
BAY — OPTION	R7	R8	R9
J98703A Y Option	130ω	150ω 365ω	130ω 40ω + 130ω 36.5ω + 133ω
J98703AT,AW Y Option	130ω	365ω 909ω	36.5ω + 133ω 917ω + 133ω
J98703A ES Option (Special)	85ω + 48ω 519ω + 82ω + 48ω	365ω	309ω + 133ω
Fig. 1 Option	G D	F	E
Resistor Type	KS-8512,L-8A	KS-14272,L1	KS-8512,L-8A

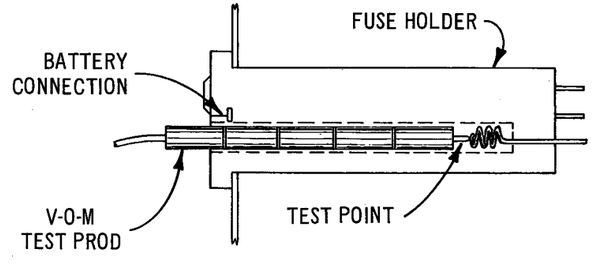

Fig. 3 – Fuse Holder Test Point

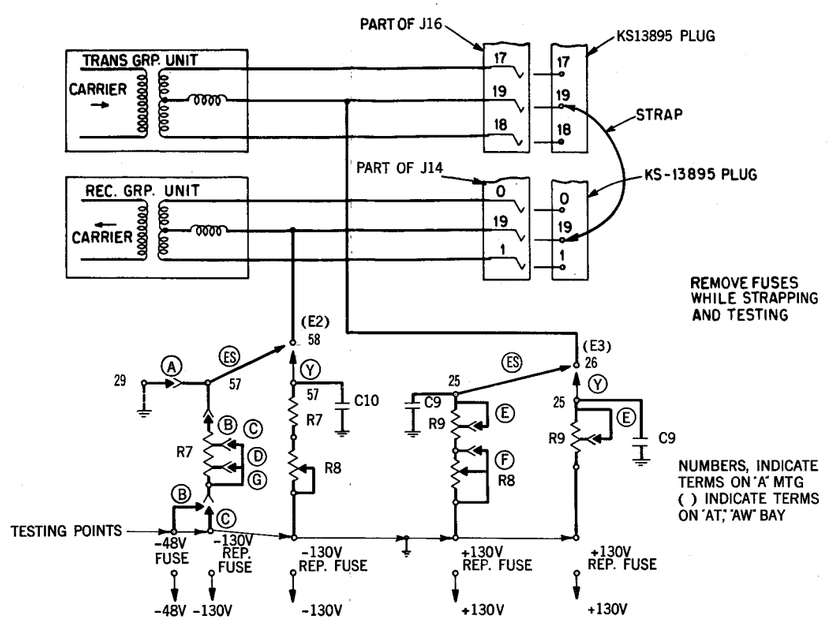

Fig. 1 – Terminal Power Supply Arrangements

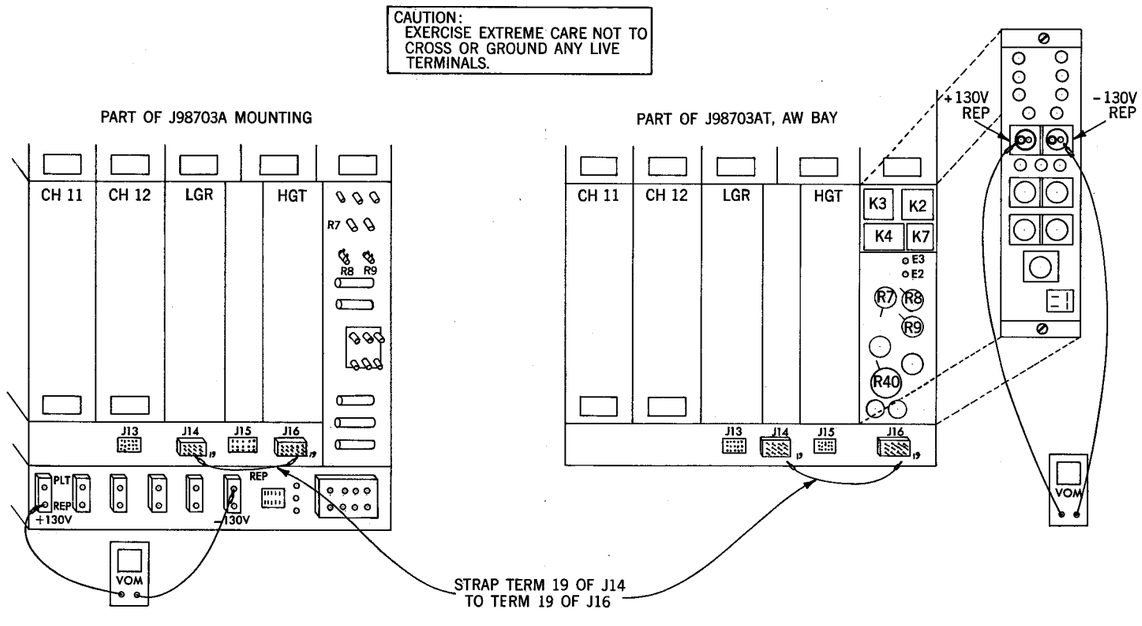

Fig. 2 – Adjustment of Power Supply to Adjacent Repeater

Figs. 1, 2, and 3