

TYPE N AND ON CARRIER TELEPHONE SYSTEMS
LINE BUILD-OUT AND CROSS-CONNECTING EQUIPMENT
REPEATER POWER SUPPLY POINT
ADJUSTMENT OF POWER SUPPLY AND SEALING CURRENT
FOR LINE POWERING OF N1, N1A, AND N2 REPEATERS
WITH OR WITHOUT 240-TYPE AMPLIFIERS

When a local source of power is not available at repeater or 240-type amplifier locations, dc power can be supplied remotely from a repeater power supply point by means of simplex arrangements over the cable pairs used for carrier transmission. In a similar manner, a small amount of direct current (sealing current) may be applied to the cable pairs when unsoldered cable splices are used and power is not supplied over the cable pairs to the repeater. The small amount of direct current, in effect, seals the unsoldered splices.

When shop-wired line build-out bays and cross-connect cabinets are used to connect carrier transmission cable pairs to repeaters or carrier terminals at a power supply point, power is supplied to remote repeaters via the transmission pairs through use of power circuit arrangements provided in the line build-out bays.

The purpose of this section is to provide procedures for adjusting the J99323AA, List 5 plug-in line build-out unit at a power supply point in order to supply proper regulated power over the cable pairs for various arrangements of remote N-type repeaters and 240-type amplifiers; to provide procedures for adjusting the J99323AA, List 6 plug-in line build-out unit which supplies sealing current and/or power to 240-type amplifiers only, in cable sections where power is not supplied to repeaters; and to provide procedures for adjusting the J99323AA, List 4 plug-in line build-out unit which is used when receiving sealing current from another power supply point.

APPARATUS:

1 — KS-14510, Volt-Ohm-Milliammeter (VOM), or equivalent, with KS-14510, L8 Test Leads

STEP	PROCEDURE
	A. Power Transmitted to N1, N1A, or N2 Repeaters, and/or 240-Type Amplifiers
1	Remove the J99323AA, List 5 line build-out (LBO) unit from the bay.
2	Open screw-down switches S1 through S7 on the LBO unit. Switches S5 through S7 are designated —48, —130, and GRD, respectively.

STEP	PROCEDURE
3	Screw down switches (S1 through S4) specified in Table A for the selected equipment arrangement.
4	Screw down switch -48, -130, or GRD in accordance with information noted on the carrier layout card. Not more than one of these screws should be engaged at any one time.
5	Restore LBO unit to the bay.
6	If power is being supplied to N1 tube-type repeaters and 240-type amplifiers on the same power string with or without sealing current, check that option Q (Fig. 13, SD-97399-01) is provided at the power dissipation resistor panel located at the top of the bay.
7	Ensure that fuses have been provided for each LBO unit supplying power to the line.
8	Measure the voltage at the SX CUR test points (red terminal is positive) on the LBO unit. If voltage exceeds 5.5 vdc replace the unit.
9	After all N1, N1A, or N2 repeaters have been installed in a power string and tested per Section 362-405-503, 362-405-516, or 362-455-502, respectively, and 240-type amplifiers have been adjusted, measure the voltage at the SX CUR test points on each LBO unit. The voltage measured should meet the requirements for the particular equipment arrangement specified in Table A.
B. Sealing Current and/or 240-Type Amplifier Power Transmitted at Power Supply Point	
1	Remove the J99323AA, List 6 line build-out (LBO) unit from the bay and screw down either switch -48V (S8) or -130V (S9) in accordance with the equipment arrangements listed in Table A.
2	Restore LBO unit to the bay.
3	Ensure that fuses have been provided for each LBO unit supplying power to the line.
4	Measure the voltage at test points designated SX CUR (red terminal is positive) on the LBO unit. The voltage requirements for various equipment arrangements feeding sealing current and/or 240-type amplifiers are listed in Table A. In order to meet these requirements, it is essential that 240-type amplifiers be properly adjusted and the correct sealing current termination at the remote repeater be provided.
C. Receiving Sealing Current from Another Power Supply Point	
1	Remove the J99323AA, List 4 line build-out (LBO) unit from the bay.
2	Screw down line switch S10, S11, or S12 to provide a proper line termination as follows: (a) If sealing current is received from an adjacent 240-type amplifier which follows an N1 tube-type repeater in a power string, or an adjacent 240-type amplifier which is powered directly from a power source, screw down switch S10.

STEP	PROCEDURE
2 (Cont)	(b) If sealing current is received from an adjacent 240-type amplifier which is located at the end of a string of N1A or N2 repeaters, screw down switch S11. (c) If sealing current is received from any source other than those noted in (a) and (b), screw down switch S12.
3	Restore LBO unit to the bay.

TABLE A

SUPPLY UNIT	TO PROVIDE LINE POWER FOR THE FOLLOWING EQUIPMENT ARRANGEMENTS	SCREW DOWN SWITCH	PROVIDE OPTION	OBTAINS LINE CURRENT OF	VOLTAGE AT TEST POINTS SX CUR
LINE BUILD-OUT UNIT J99323AA, LIST 5	1, 2, or 3 N2 Repeaters	All switches up	—	85 ma	1.9 to 2.2
	1, 2, or 3 N1A Repeaters 1 N2 and 1 or 2 N1A Repeaters 1 or 2 N2 and 1 N1A Repeaters	S1	—	95 ma	2.2 to 2.4
	1 or 2 N2 Repeaters with One 240 Amplifier *	S2	—	110 ma	2.5 to 2.7
	1 or 2 N1A Repeaters with One 240 Amplifier *	S1 and S2	—	120 ma	2.8 to 3.0
	1 or 2 N2 Repeaters with Two 240 Amplifiers *	S3	—	135 ma	3.1 to 3.4
	1 or 2 N1A Repeaters with Two 240 Amplifiers *	S1 and S3	—	145 ma	3.4 to 3.6
	1 N1 Repeater without Sealing Current	S4	—	155 ma	3.6 to 3.9
	1 N1 Repeater with Sealing Current or One 240 Amplifier	S2 and S4	Q	180 ma	4.2 to 4.6
	1 N1 Repeater with Sealing Current and One 240 Amplifier	S3 and S4	Q	205 ma	4.6 to 5.1
LINE BUILD-OUT UNIT J99323AA, LIST 6	Sealing Current only	S8	—	20 ma	0.4 to 0.6
	One 240 Amplifier without Sealing Current	S9	—	25 ma	0.5 to 0.7
	One 240 Amplifier with Sealing Current	S9	—	45 ma	0.9 to 1.2

* Provide 25 ma less current for line current adjustment where the “240” amplifier is connected beyond the last N1A or N2 repeater on the same power string. When N1A and N2 repeaters are powered on the same power string, use the power requirements given for the N1A repeater.