TYPE N2 CARRIER REPEATERS — REPEATERED HIGH-FREQUENCY LINE PRELIMINARY TESTS — REPEATER POWER SUPPLY POINT ADJUSTMENT OF CONSTANT-CURRENT REGULATOR AND SEALING CURRENT SOURCE FOR LINE POWERING OF N1, N1A, AND N2 REPEATERS WITH OR WITHOUT 240-TYPE AMPLIFIERS — CHECK OF FUSE ALARMS

When a local source of power is not available at repeater or 240-type amplifier locations, dc power can be supplied 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 dc (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 dc, in effect, seals the unsoldered splices.

The purpose of this section is to provide procedures for adjusting the constant-current regulator (J99321AC) 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 a power connecting board (ED-3C051-30) which supplies power over the line for 240-type amplifiers and/or sealing current to cable sections where power is not supplied to repeaters, and to test fuse alarms associated with a repeater power supply point.

Note: The procedures in this section apply only to those installations using a J99321AC constant-current regulator and/or ED-3C051-30 power connecting boards. For procedures applicable to other N and ON repeater power supplies, refer to Section 362-405-502. If the power supply point is located at an office employing N2 line build-out and cross-connect facilities, the power supplies will be part of these facilities. Adjustment procedures for these supplies are covered in Section 362-440-504.

APPARATUS:

1 — KS-14510, Volt-Ohm-Milliammeter (VOM), or equivalent, with KS-14510, L8 Test Leads
1 — 265C Tool (Contact Burnisher)
1 — 266C Tool (Steel Music Wire)

STEP	PROCEDURE
	A. Power Transmitted to N1, N1A, or N2 Repeaters, and/or 240-Type Amplifiers
1	Remove fuses (+130v, —130v, and —48v) associated with constant-current regulator being adjusted.

STEP	PROCEDURE
2	Remove the constant-current regulator unit from the bay.
3	Open screw-down switches S1 through S7. Switches S5 through S7 are designated —48, —130, and GRD on the regulator unit respectively.
4	Screw down the switches (S1 through S4) specified in Table A for the selected equipment arrangement.
5	Screw down switch —48, —130, or GRD in accordance with information noted on the circuit layout card. Not more than one of these screws should be engaged at any one time.
6	Restore regulator unit to the bay.
7	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.
8	If the repeater bay is equipped with constant current regulators to feed current over the cable pairs in one direction only, EAST or WEST, a power connecting board, P47Q236, is screw-fastened to a terminal strip at the rear of each repeater position. Ensure that this board is connected to the EAST or WEST position as specified on the circuit layout card.
9	Restore the fuses removed in Step 1.
10	After all N1, N1A, or N2 repeaters have been installed in a power string and tested per Section 362-455-502 and 240-type amplifiers have been adjusted, measure the voltage at the SX CUR test points on each constant current regulator. The voltage reading 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	A power connecting board per ED-3C051-30 is required for each repeater position for feeding sealing current and/or current to 240-type amplifiers. This power connecting board should be specified on the circuit layout card. Before screw-fastening this board to the terminal strip at the rear of each repeater position, remove the corresponding circuit fuse (+130v or —48v) and screw down either switch —48v(S8) or +130v(S9) on the board in accordance with the equipment arrangements listed in Table A.
2	Insert and screw-fasten the power connecting board(s) (ED-3C051-30) at the rear of each repeater position as specified on the circuit layout card. One power connecting board is required for each direction for which sealing current or 240-type amplifier power is provided.

STEP	PROCEDURE
3	Close all line switches T1, T2, R1, and R2 if line power is transmitted to the WEST and T3, T4, R3, and R4 if power is transmitted to the EAST. These screw-type switches are located at the rear of each repeater position; the switches are closed by turning the screw fully clockwise.
4	Restore the fuses removed in Step 1.
5	Measure the voltage at test points designated SX CUR (red terminal is positive) on the power connecting board. These test points are accessible from the rear of the repeater bay. 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. Fuse Alarm Operation — Initial Installation and Out-of-Service Tests
1	Check 70A-type power distribution fuse alarms (+130v, —130v, and —48v) by inserting a blown fuse into the appropriate fuse holder. ***Requirement:*** Associated alarms should operate.
2	Reinstall good fuses into fuse holders.
3	Check one 70K-type individual circuit fuse in each group (+130v, —130v, —48v) of individual circuit fuses by inserting a blown fuse into the fuse holder. ***Requirement:*** Associated alarms should operate.
4	Reinstall good fuses into fuse holders.
	D. Fuse Alarm Operation — In-Service Test
1	Place the 266C tool (steel music wire) in the 265C tool (contact burnisher). Put the cap in place over the end of the 265C tool. Insert the wire into the opening of the fuse holder cap, beside the alarm indicating plunger, so that the wire touches the side of the opening and the head of the fuse at the same time. ***Requirement:*** All alarms associated with the particular fuse should operate.
2	Remove tools; restore circuits to normal.

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
Constant Current Regulator J99321AC	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
Power Connecting Board ED-3C051-30	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.