

**N2 CARRIER TELEPHONE  
LINE TERMINATING UNIT  
J99272BW  
ADJUSTMENT OF REPEATER POWER SUPPLY  
WITH OR WITHOUT 240-TYPE AMPLIFIERS AND SEALING  
CURRENT OVER CABLE**

**1. GENERAL**

**1.01** When a local power source is not available at a repeater point, dc power can be supplied to a repeater over the two cable pairs used for carrier transmission by means of simplex arrangements. The List 1 unit will provide a constant current source, irrespective of normal battery fluctuations and cable resistance changes, to any repeatered line section containing up to three remote repeaters. The List 2 unit provides for transmitting 240-type amplifier power and/or sealing current. It is also used for receiving sealing current. In addition, it must be used when power is neither transmitted nor received. Adjustments are made using screw-type switches in the line terminating unit for the various line current conditions.

**1.02** The purpose of this procedure is to adjust the line terminating unit options as required to satisfy the line current conditions.

List 1 — Part 3

List 2 — Part 4

**2. APPARATUS**

**2.01** The following listed test apparatus is required for performing the procedures in Parts 3 and 4.

1 — KS-14510 Volt-Ohm-Milliammeter (VOM) (20,000 Ohms Per Volt), or Equivalent

**3. TRANSMITTING REPEATER POWER WITH OR WITHOUT 240-TYPE AMPLIFIERS AND SEALING CURRENT (J99272BW, LIST 1 UNIT MUST BE USED)**

STEP	PROCEDURE
1	Remove the line terminating unit from the terminal bay. All screw switches should initially be in the up position.
2	Refer to the carrier layout card to determine the battery voltage required for the repeatered line arrangement. Turn down the appropriate screw switch S7 (GRD), S6 (-130), or S5 (-48) as specified. Check that only one of these screws is turned down. See A of Fig. 1 and see Fig. 2.
3	Using Table A, select the appropriate repeater line arrangement and adjust the screw switches as indicated in Table A.
4	Check to ensure that the proper fuses are in place on the alarm, power, and miscellaneous panel at the top of the bay. See Fig. 3.

STEP	PROCEDURE
5	On the line terminating unit, turn down screws S8 and S9 and insert the unit in the terminal bay. Using a VOM initially set for 300 volts dc, insert the meter probes into the REG VOLTS + (red) and - (brown) test points on the front panel of the unit and measure the voltage.
6	With the voltage measured in Step 5, refer to Table B and if necessary readjust switches S8 and S9 accordingly. Insert the line terminating unit in the terminal. List all screw switch options used in the space marked SCR on the faceplate.
7	<p>Measure the voltage at the REG VOLTS test points.</p> <p><b>Requirement:</b> The voltage shall be <math>30 \pm 20</math> volts. This requirement should also be met in subsequent in-service maintenance checks.</p> <p>If this requirement is not met it is necessary to repeat Steps 1 through 7.</p>
8	<p>Measure the voltage at the SX CUR + (brown) and - (black) test points.</p> <p><b>Requirement:</b> The voltage should be within the limits specified in Table A for the particular repeater line arrangement. If it is not correct repeat the preceding steps in this procedure.</p>

**4. TRANSMITTING 240-TYPE AMPLIFIER POWER AND/OR SEALING CURRENT — RECEIVING SEALING CURRENT — POWER NEITHER TRANSMITTED NOR RECEIVED (J99272BW, LIST 2 UNIT MUST BE USED)**

STEP	PROCEDURE
1	Remove the line terminating unit from the bay and check to see that all screw switches are in the up position.
2	Referring to Table C, select the appropriate line arrangement and turn down the screw switches required. Leave all other switches turned up. (See Fig. 1, 2, and 4.) List these options used in the space marked SCR on the faceplate.
3	Check at the top of the terminal bay on the alarm, power, and miscellaneous panel for proper fusing of the -48 or +130 volt supply as required. See Fig. 3 and Table C.
4	<p>Replace the line terminating unit in the terminal bay and measure the voltage at the SX CUR test points on the front panel of the unit.</p> <p><b>Requirement:</b> The voltage should be within the limits specified in Table C. If the requirement is not met, repeat Steps 1 through 4.</p>

**TABLE A**  
**LINE CURRENT ADJUSTMENTS FOR LIST 1 UNIT**

LINE	TO PROVIDE LINE POWER FOR THE FOLLOWING EQUIPMENT ARRANGEMENTS	SCREW SWITCHES		FOR LINE CURRENT OF	REQUIRED VOLTAGE AT TEST POINTS SX CUR
		DOWN	UP		
1	1, 2, or 3 N2 repeaters		S1, S2, S3, S4, S10	85 ma	1.9 to 2.2
2	1, 2, or 3 N1A repeaters; 1 N2 and 1 or 2 N1A repeaters; 1 or 2 N2 and 1 N1A repeaters	S1	S2, S3, S4, S10	95 ma	2.2 to 2.4
3	1 or 2 N2 repeaters with one 240-type amplifier*	S2	S1, S3, S4, S10	110 ma	2.5 to 2.7
4	1 or 2 N1A repeaters with one 240-type amplifier*	S1, S2	S3, S4, S10	120 ma	2.8 to 3.0
5	1 or 2 N2 repeaters with two 240-type amplifiers*	S3	S1, S2, S4, S10	135 ma	3.1 to 3.4
6	1 or 2 N1A repeaters with two 240-type amplifiers*	S1, S3, S10	S2, S4	145 ma	3.4 to 3.6
7	1 N1 repeater without sealing current	S4, S10	S1, S2, S3	155 ma	3.6 to 3.9
8	1 N1 repeater with sealing current or one 240-type amplifier	S2, S4, S10	S1, S3	180 ma	4.2 to 4.6
9	1 N1 repeater with sealing current and one 240-type amplifier	S3, S4, S10	S1, S2	205 ma	4.6 to 5.1

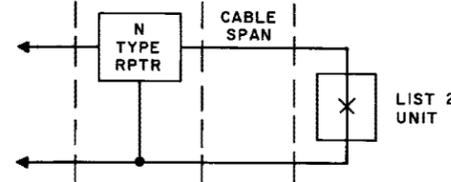
\*Provide 25 ma less current for line current adjustment where the 240-type amplifier is connected beyond the last N1A or N2 repeater on the same power string. When N1A and N2 repeaters are powered on the same power string, use the power requirements given for the N1A repeater.

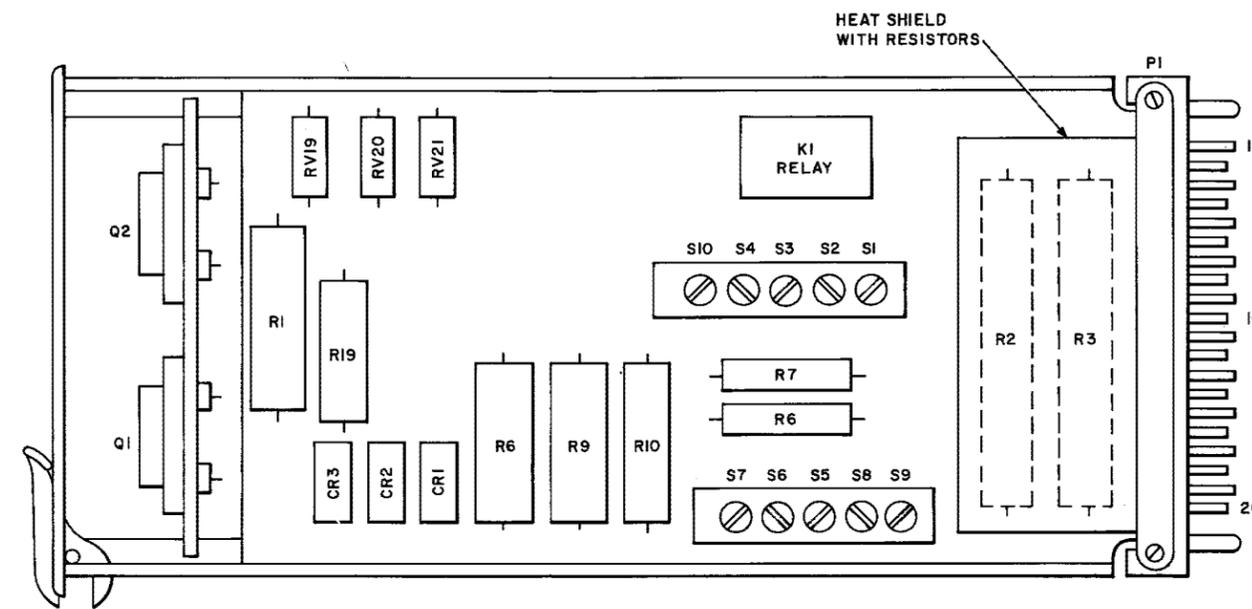
**TABLE B**  
**REGULATOR VOLTAGE ADJUSTMENTS FOR LIST 1 UNIT**

REG VOLTS MEASURED IN STEP 5 OF PART 3			SWITCH ADJUSTMENT* IN STEP 6 OF PART 3	
FOR LINE CURRENT OF			UP	DOWN
135 MA OR LESS	145 AND 155 MA	180 MA AND UP		
10V — 40V	10V — 45V	10V — 50V		S8, S9
41V — 60V	46V and up	51V and up	S9	S8
61V and up			S8	S9

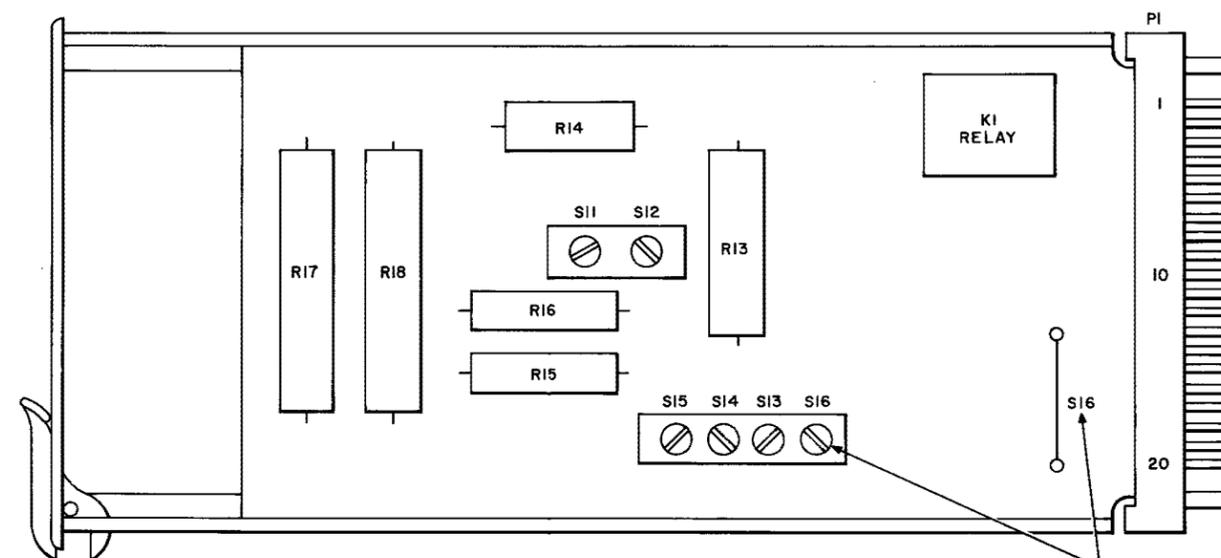
\*Following this adjustment the voltage at the REG VOLTS test points should be 10 to 50 volts.

**TABLE C**  
**ADJUSTMENTS FOR LIST 2 UNIT**

LINE	APPLICATION	LINE CURRENT	BAT. VOLTS	ADJUST SCREW SWITCH		REQUIRED VOLTAGE AT SX CUR	
				DOWN	UP		
1	Transmitting sealing current only	20 ma	-48	S11, S16	S12 through S15	0.4 to 0.6	
2	Transmitting power to one 240-type amplifier without sealing current	25 ma	+130	S12, S16	S11, S13, S14, S15	0.5 to 0.7	
3	Transmitting power to one 240-type amplifier with sealing current	45 ma	+130			0.9 to 1.2	
4	Receiving sealing current from N-type repeater	TYPICAL LAYOUT 		None	S13	S11, S12, S14, S15, S16	0.0 volts
5	Receiving sealing current from 240-type amplifier preceded by N1A or N2 repeater			None	S14	S11, S12, S13, S15, S16	
6	Receiving sealing current from 240-type amplifier or 240-type amplifier preceded by N1 repeater			None	S15	S11, S12, S13, S14, S16	
7	Not transmitting or receiving power		None	None	All		



A- LOWER DECK BOARD, LIST 1



B- LOWER DECK BOARD, LIST 2

NOTE:  
SCREW SWITCH S16 WAS NOT PROVIDED ON EARLY UNITS. ON THESE UNITS STRAP S16 IS USED FOR ADJUSTMENTS. A CUT STRAP CORRESPONDS TO THE SWITCH IN THE UP POSITION.

Fig. 1 — Line Terminating Units J99272BW, Lists 1 and 2, Side View

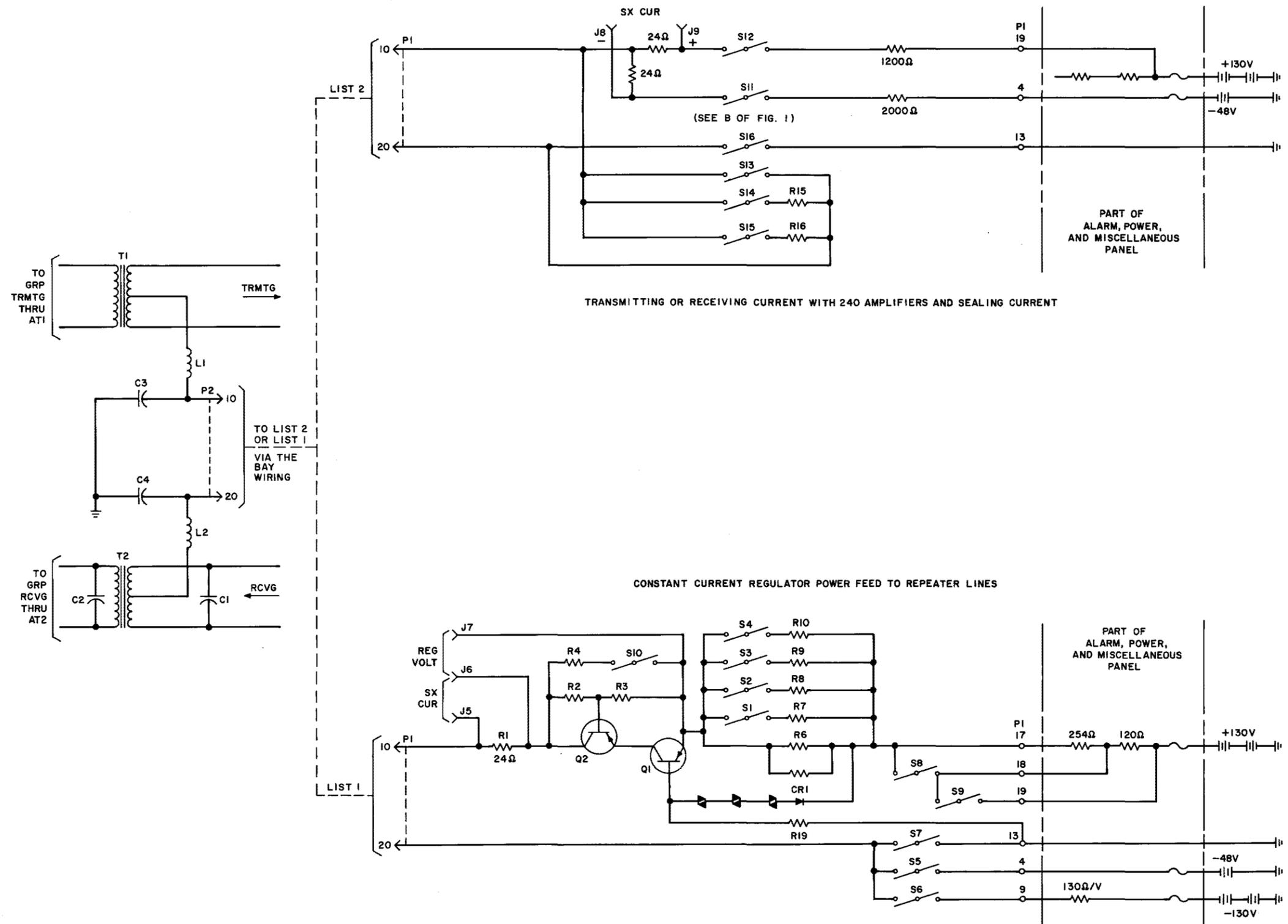


Fig. 2 — Line Terminating Unit J99272BW, List 1 and List 2 Application



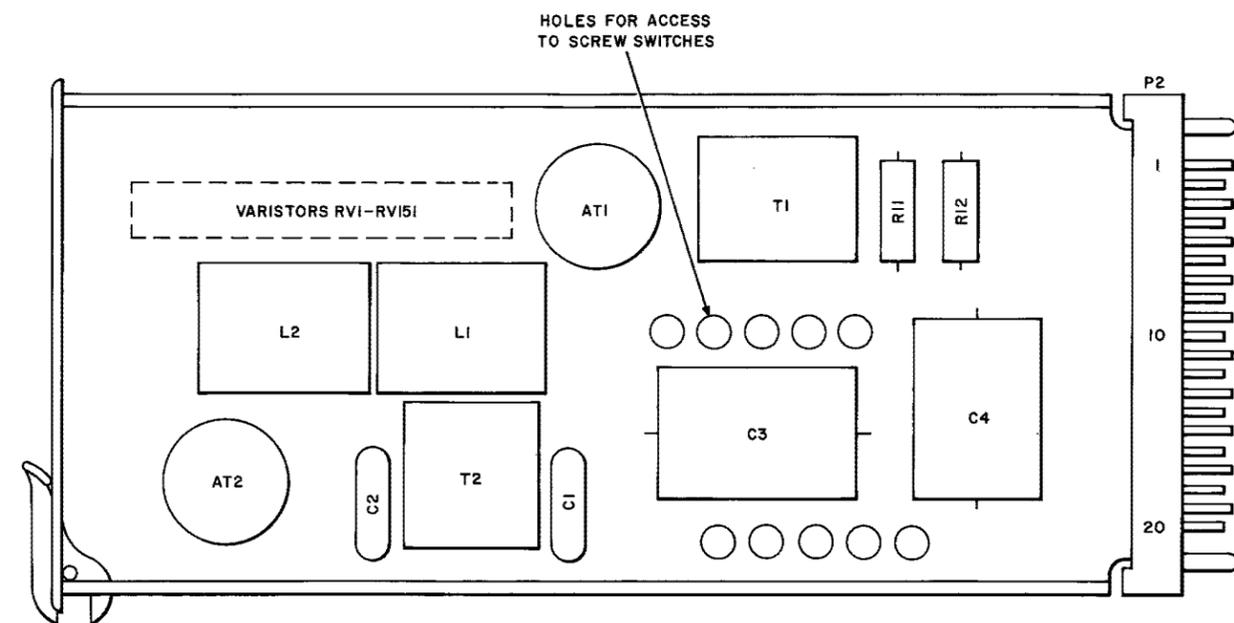


Fig. 4 — Line Terminating Unit J99272BW, List 1 or 2, Upper Deck Board, Side View