
L3 CARRIER

GAIN EQUALIZATION OF L UNIT

TESTS

This section describes the method of equalizing an L unit of an L3 carrier system and provides the test procedure to ensure a properly equalized system.

This section is reissued to clarify test equipment at equalizing auxiliary repeaters, to include information from ADDENDUM 359-076-500, Issue 1, which is canceled, and to delete unnecessary steps from the procedure. ***Equipment Test Lists are not affected.***

The L unit includes the equipment between the TRSG HY IN () jack at the transmitting station and the PIL HY OUT () jack at the receiving station. Each L unit may consist of one or more equalizing sections. An equalizing section is the equipment between either the TRSG HY IN () or the output of a repeater having manually controlled equalizers, and the next repeater having manually controlled equalizers.

In those L units which have an intermediate equalizing repeater, alignment of the intermediate repeaters should be completed before overall tests are made. In L units which contain two equalizing repeaters, tests on the equalizing repeater adjacent to the transmitting terminal should be completed first.

When possible, the intermediate equalizing repeaters should be under control of the thermistor control set while performing terminal-to-terminal equalization. Manual control of the dynamic equalizers will reduce the possibility of false regulation by the cosine equalizer adjustment signal.

Caution: When bridging measurements are made, calibrate the receiving test equipment (RTE) for a measurement of 7266 kHz at -16.0 dBm using the precision method described in Section 359-035-505 or the calibration procedure described in Section 359-200-501, Chart 5A. (Bridging pad loss should be compensated for in the measurement.)

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APPARATUS

At Transmitting and Receiving Terminals:

Receiving Test Equipment (RTE) having the following characteristics (Section 356-010-500):

Frequency Range: 308 to 8320 kHz

Input Sensitivity: -41 to -16 dBm

Impedance: 75 ohms

J68837A (C or D) [37()] Cosine Equalizer Adjustment Set

KS-14655 Pad (16.0 dB)

J68839B (39B) Thermistor Control Set

11B Attenuator or L4 Isolation Test Probe ED-51073-30 or equivalent

At Equalizing Main Repeater:

Receiving Test Equipment (RTE) having the following characteristics (Section 356-010-500):

Frequency Range: 308 to 8320 kHz

Input Sensitivity: -41 to -16 dBm

Impedance: 75 ohms

J68837B (37B) Cosine Equalizer Adjustment Set

J68839B (39B) Thermistor Control Set

KS-14655 Pad (16.0 dB)

11B Attenuator or L4 Isolation Test Probe ED-51073-30 or equivalent

At Equalizing Auxiliary Repeater:

7A Pilot Indicator Set or other portable RTE (such as W&G AT463)

J68837B (37B) Cosine Equalizer Adjustment Set

J68839B (39B) Thermistor Control Set

11B Attenuator or L4 Isolation Test Probe ED-51073-30 or equivalent

CHART 1

TESTS AT SWITCHING OR TERMINAL MAIN REPEATERS

STEP

PROCEDURE

Note: See Table A for selection of Cosine Equalizer Adjustment Set.

- 1 Calibrate the J68837A (or C) Cosine Equalizer Adjustment Set (Section 103-453-501).
- 2 Verify the operation of the J68837D Cosine Equalizer Adjustment Set (Section 103-454-000).
- 3 Establish communications between all stations involved in the L-unit lineup.

At Transmitting Terminal:

- 4 Measure the power of the transmitted pilots of the spare hybrid to use for this test (Section 359-035-505, Transmitted Pilot Measurement).
- 5 Measure the power of the transmitted pilots at the TRSG HY OUT () jack on the line under test (Section 359-035-505, Transmitted Pilot Measurement).

At Transmitting and Receiving Terminals:

- 6 Remove the L unit to be equalized from service and verify that pilots are applied via spare hybrid circuit (Section 359-075-301).

TABLE A

OPTIONS – COSINE EQUALIZER ADJUSTMENT SET

OPTION	TRANSMIT TERMINAL			RECEIVE TERMINAL
	EQUALIZER SET	16-DB PAD	LEVEL (DBM)	EQUALIZER SET
1	J68837D	No	–25	J68837D
2	J68837D	No	–25	J68837A or C
3	J68837A or C*	No	–25	J68837D†
4	J68837A or C*	No	–25	J68837A or C†
5	J68837A or C*	Yes	–41	J68837A or C only
* If J68837A or C set is used when sending to a switching main repeater, the –41 dBm level (option 5) must always be used. † If pilot flutter (2064-kHz, 3096-kHz, 7266-kHz) at the receive terminal is greater than the 0.1-dB requirement, realign pilot skip adjustment of transmit set (J68837D is not field adjustable). If the 0.1 dB requirement cannot be met, use either the J68837D set (option 1 or 2) or the –41 dBm level (option 5) at the transmit terminal.				

CHART 1 (Cont)

STEP	PROCEDURE
	<i>At Receiving Terminal:</i>
7	Calibrate the receiving pilot indicators (Section 359-035-505, Received Pilot Measurements).
8	On the 39B thermistor control set, position the controls as follows: (a) SEL switch to REG NET (b) REG NET switch to NORM (c) All BAL switches to NORM (d) DYN EQ 1 TH RES control to 300 (e) DYN EQ 2 TH RES control to 400 (f) DYN EQ 3 TH RES control to 300 (g) DYN EQ 4 TH RES control to 300 (h) DYN EQ 5 TH RES control to 300.
9	Connect the 39B thermistor control set to the TH TST jacks of the line under test.
10	On the 39B thermistor control set, position the DYN EQ 2 BAL switch to the BAL position.
11	Slowly adjust the DYN EQ 2 BAL potentiometer until the associated BAL meter is balanced.
	Requirement: Meter reads zero (0).
	Note: Adjustment is slow in reacting. Allow sufficient time for the meter reading to stabilize. Recheck the adjustment after several minutes have elapsed and readjust if necessary.
12	Repeat Steps 10 and 11 for the DYN EQ 1, DYN EQ 3, DYN EQ 4, and DYN EQ 5 controls.
13	Calibrate the RTE for a bridging measurement of 7266 kHz at -16.0 dBm.
14	Connect the RTE to the LINE AMP OUT jack [patch (1), Fig. 1].
15	On the 39B thermistor control set, position the REG NET switch to ADJ.
16	Adjust the TH CUR control until the RTE indicates -16.0 dBm.

CHART 1 (Cont)

STEP

PROCEDURE

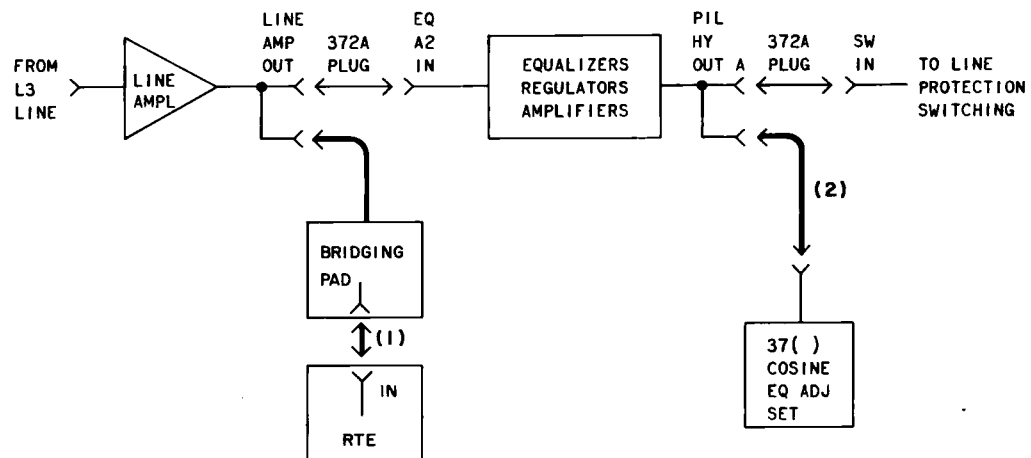


Fig. 1—Test Connections for Gain Equalization at Receiving Terminal

Note: Adjustment is slow in reacting. Allow sufficient time for the RTE indication to stabilize.

- 17 Disconnect RTE.

At Transmitting Terminal:

- 18 Remove 368A plug and connect the 37() cosine equalizer adjustment set to the SP HY IN jack [patch (1), Fig. 2].

At Receiving Terminal:

- 19 Connect the 37() cosine equalizer adjustment set to the PIL HY OUT A multiple jack [patch (2), Fig. 1].
- 20 Remove the patch plug between the PIL HY OUT A and SW IN jacks.
- 21 Remove equipment covers from manually adjustable equalizers.

Note: For initial alignment only, position equalizer controls FLAT through 14 to dial indicator reading of 5.

- 22 Observe the 2064-, 3096-, and 7266-KC PIL IN meters. If the meters fluctuate over a range greater than 0.1 dB peak-to-peak and the **transmitting terminal** cosine equalizer adjustment set is a 37A (or C), the pilot skip adjustment must be realigned. The 37D

CHART 1 (Cont)

STEP

PROCEDURE

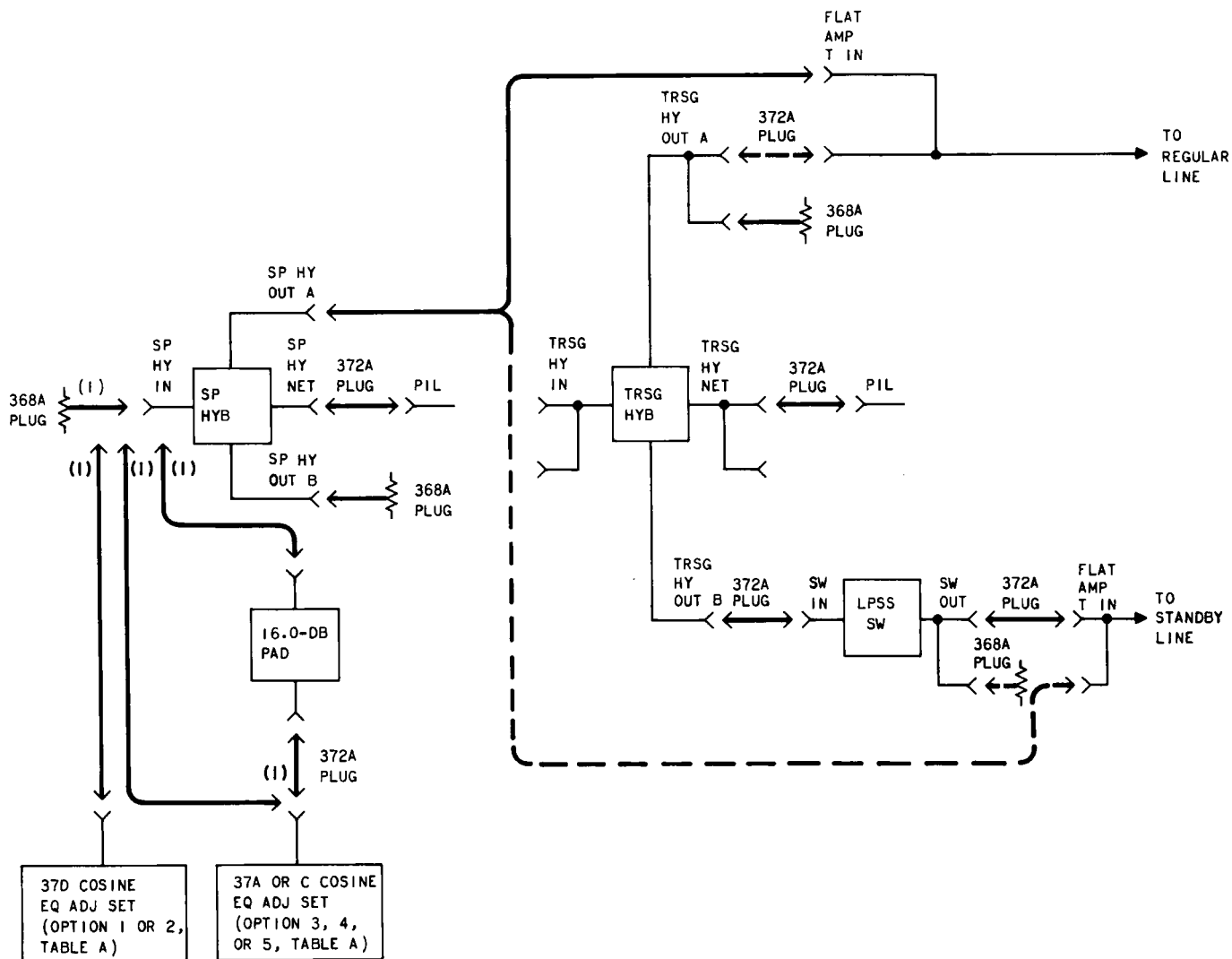


Fig. 2—Test Connections for Gain Equalization at Transmitting Terminal

cosine equalizer adjustment set is not field-adjustable and must be returned for repairs in accordance with local instructions.

- 23 Position the controls on the LF EQ, 308-, 556-, 3096-, and 8320-KC EQ equalizers to a dial setting of 50.
- 24 If the receiving cosine equalizer adjustment set is a 37D, proceed to Step 30.
- 25 On the 37A (or C) cosine equalizer adjustment set, position the ATT control to 4 dB. Check the sensitivity of the scope by inserting or removing 1 dB of attenuation. The

CHART 1 (Cont)

STEP

PROCEDURE

scope trace should move either up or down 10 divisions indicating a calibration of 1 dB per 10 divisions. The average value of the scope trace should be within 1 1/2 inches of the horizontal center line.

- 26 Adjust A1 equalizer networks 1 and 2 to make the scope trace as straight and level as possible.
- 27 Adjust A1 equalizers 3 and 4, A2 equalizers 5 through 9, and B1 equalizers 10 through 14, respectively, to obtain a minimum reading on the cosine equalizer adjustment set meter, while maintaining the meter in the 5- to 15-microamp range with the SENS control.

Note: The meter loses sensitivity when operated above a one-third full scale indication. The REC switch on the set should be positioned at B when adjusting equalizer controls higher than 10. Position A may be used for suppressing line noise when adjusting equalizer controls of 10 or lower.

- 28 Repeat Steps 26 and 27 until no further improvement in the flatness of the trace or the minimum meter reading can be obtained. Figure 3 shows the expected oscilloscope signal presentation of a properly equalized line. Signal deviations should not exceed the values indicated by the dashed lines.
- 29 Proceed to Step 33.

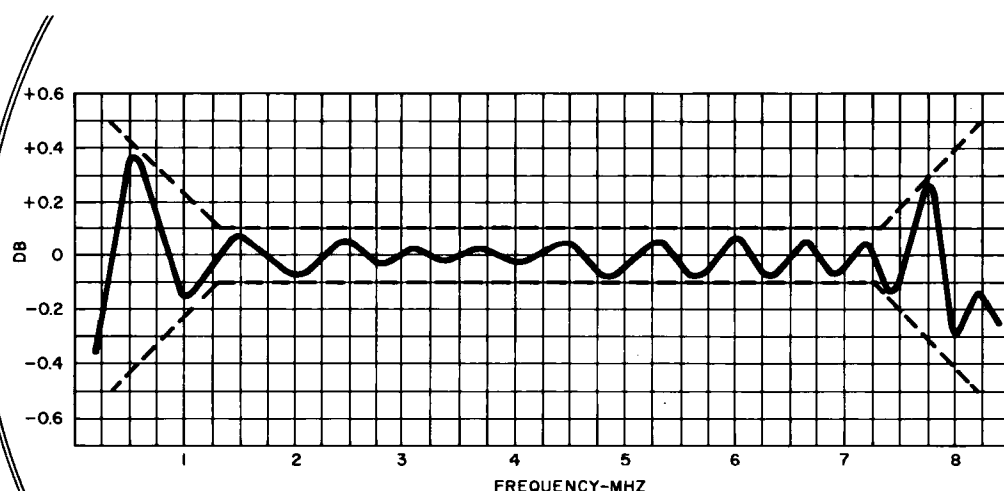


Fig. 3—Expected Result—Sectional Gain Equalization

CHART 1 (Cont)

STEP	PROCEDURE
30	On the 37D cosine equalizer adjustment set, adjust the SENSITIVITY control until the meter indicates between 15 and 100 microamps.
31	Adjust A1 equalizer networks 1 through 4, A2 equalizer networks 5 through 9, and B1 equalizer networks 10 through 14, respectively, to obtain a minimum reading on the cosine equalizer adjustment set meter, while maintaining the meter in the 15- to 100-microamp range with the SENSITIVITY control.
	Note: Optional connections have been provided on the 37D cosine equalizer adjustment set to connect an external oscilloscope for visual presentation of the test signal.
32	Repeat the adjustments in Step 31 until the lowest meter reading is obtained at the highest sensitivity position.
	Requirement: At the highest sensitivity position of the SENSITIVITY control, the meter indication is less than 20.
	At Transmitting Terminal:
33	Disconnect the 37() cosine equalizer adjustment set [patch (1), Fig. 2]; terminate the SP HY IN jack with a 368A (75-ohm) terminating plug.
	At Receiving Terminal:
34	Adjust the A1 equalizer FLAT to obtain a 0.0-dB indication on the 7266-KC PIL IND meter.
35	If the FLAT control reaches an end-of-range condition before the requirement of Step 34 is met, adjust the FLAT control to midrange, adjust the GAIN ADJ control on FLAT AMP A and FLAT AMP B to obtain 0 dB on the meter, and repeat Step 34.
36	Observe the 556-, 2064-, and 3096-KC PIL IND meters.
	Requirement 1: 556-KC PIL IND: 0.0 ± 2.0 dB
	Requirement 2: 2064- and 3096-KC PIL IND: 0.0 ± 0.25 dB
37	If the requirements of Step 36 are not met, verify that the transmitted pilot power, PIL IND meter calibration, and the cosine equalizer adjustment set calibration are correct and repeat Steps 34 through 36.
38	Adjust the LF EQ equalizer to obtain the same value on the 308- and 556-KC PIL IND meters as close to 0.0 dB as possible.
	Requirement: 308- and 556-KC PIL IND meters read 0.0 ± 0.8 dB.

CHART 1 (Cont)

STEP	PROCEDURE
39	Adjust the 308-, 556-, 3096-, and 8320-KC EQ equalizers to obtain 0.0 dB on the associated PIL IND meters.
40	Record the reading of all PIL IND meters for the line under test.
	<i>At Transmitting Terminal:</i>
41	Restore normal transmission connections between TRSG HY OUT A and FLAT AMP T IN for regular line or SW OUT and FLAT AMP T IN for standby line. Remove the 368A plug from the TRSG HY OUT A or SW OUT jack. (See Fig. 2 and Section 359-075-301, Chart 3, Step 1.)
42	Remove the patch between SP HY OUT A and FLAT AMP T IN for regular or standby line (Fig. 2).
	<i>At Receiving Terminal:</i>
43	Read all PIL IND meters for line under test. If the transmitting terminal is a switching main:
	<i>Requirement:</i> ± 0.35 dB from value recorded in Step 40.
	If the transmitting terminal is a terminal main:
	<i>Requirement:</i> ± 0.25 dB from value recorded in Step 40.
44	If the requirement of Step 43 is not met, verify the power of the transmitted regular and spare pilots (Section 359-035-505).
45	Adjust the 308-, 556-, 3096-, and 8320-KC EQ equalizers to obtain 0.0 dBm on the associated PIL IND meters.
46	On the 39B thermistor control set, operate the BAL and REG NET switches to the NORM position.
47	Disconnect the 39B thermistor control set.
48	Adjust the GAIN controls on the pilot indicator panel to obtain 0.0 dB on the associated PIL IND meters.
49	If the GAIN control reaches an end-of-range condition before 0.0 dB is reached, adjust the regulator gain and meter calibration (Section 359-035-505).
50	Replace the patch plug removed between the PIL HY OUT A and SW IN jacks and remove all test connections.

CHART 1 (Cont)

STEP	PROCEDURE
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At Transmitting and Receiving Terminals:

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| 51 | Complete restoration of L unit to service (Section 359-075-301). |
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CHART 2**TESTS AT EQUALIZING AUXILIARY REPEATERS**

STEP	PROCEDURE
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Note: If the L unit to be equalized has two equalizing repeaters, adjustments to the equalizing repeater adjacent to the transmitting terminal should be made first.

- | | |
|---|---|
| 1 | Calibrate the J68837A (or C) Cosine Equalizer Adjustment Set (Section 103-453-501). |
| 2 | Calibrate the J68837B and verify the operation of the J68837D Cosine Equalizer Adjustment Sets (Section 103-454-000). |
| 3 | Establish communications between all stations involved in the L-unit lineup. |

At Transmitting Terminal:

- | | |
|---|---|
| 4 | Measure the power of the transmitted pilots at the SP HY OUT A jack for the spare hybrid to be used in this procedure (Section 359-035-505, Transmitted Pilot Measurement). |
| 5 | Measure the power of the transmitted pilots at the TRSG HY OUT () jack on the line under test (Section 359-035-505, Transmitted Pilot Measurement). |

At Transmitting and Receiving Terminals:

- | | |
|---|---|
| 6 | Remove the L unit to be equalized from service and verify that pilots are applied via spare hybrid circuit (Section 359-075-301). |
|---|---|

At Equalizing Auxiliary Repeater:

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|---|--|
| 7 | On the 39B thermistor control set, position the controls as follows: <ul style="list-style-type: none"> (a) SEL switch to REG NET (b) REG NET switch to NORM (c) All BAL switches to NORM |
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CHART 2 (Cont)

STEP

PROCEDURE

- (d) DYN EQ 1 TH RES control to 300
- (e) DYN EQ 2 TH RES control to 400.
- 8 Connect the 39B thermistor control set to the TH TST jacks of the line under test.
- 9 On the 39B thermistor control set, position the DYN EQ 2 BAL switch to the BAL position.
- 10 Slowly adjust the DYN EQ 2 BAL potentiometer until the associated BAL meter reads zero (0).
- Note:** Adjustment is slow in reacting. Allow sufficient time for the meter reading to stabilize. Recheck the adjustment after several minutes have elapsed and readjust if necessary.
- 11 Repeat Steps 9 and 10 for the DYN EQ 1 controls.
- 12 Verify the operation of the 7A pilot indicator set or calibrate the RTE for a bridging measurement of 7266 kHz at -16.0 dBm.
- 13 Connect the RTE or the 7A to the LINE AMP OUT multiple jack [patch (1), Fig. 4].

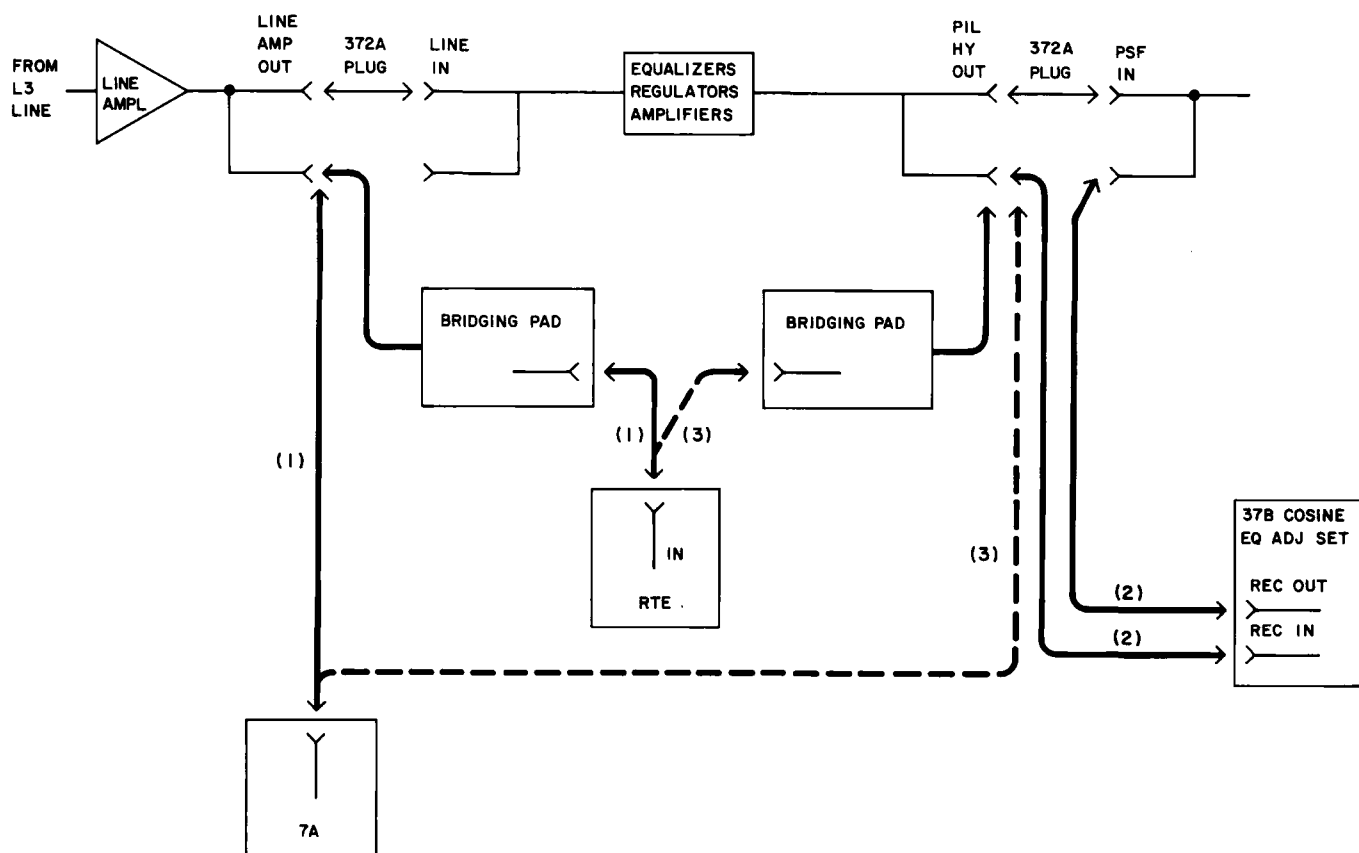


Fig. 4—Test Connections for Gain Equalization at Equalizing Auxiliary Repeater

CHART 2 (Cont)

STEP	PROCEDURE
14	On the 39B thermistor control set, position the REG NET switch to ADJ.
15	Adjust the TH CUR control until the RTE indicates -16.0 dBm or the 7A pilot indicator set indicates 0.0 dB. <i>Note:</i> If 7A pilot indicator set is used, indication will be 0.0 dBm.
16	Disconnect RTE or the 7A pilot indicator set. <i>At Transmitting Terminal:</i>
17	Remove the 368A plug and connect the 37() cosine equalizer adjustment set to the SP HYB IN jack [patch (1), Fig. 5]. <i>At Equalizing Auxiliary Repeater:</i>
18	Connect the 37B cosine equalizer adjustment set REC IN jack to the PIL HY OUT A multiple jack and the REC OUT jack to the PSF IN multiple jack [patch (2), Fig. 4].
19	Remove the patch plug between the PIL HY OUT A and PSF IN jacks. <i>At Receiving Terminal:</i>
20	Observe the 2064-, 3096-, and 7266-KC PIL IND meters. If the meters fluctuate over a range greater than 0.1 dB peak-to-peak and the cosine equalizer adjustment set at the transmitting terminal is a 37A (or C), the pilot skip circuit at the transmitting terminal must be realigned. The 37D cosine equalizer adjustment set is not field-adjustable and must be returned for repairs in accordance with local instructions. <i>At Equalizing Auxiliary Repeater:</i>
21	On the 37B cosine equalizer adjustment set, adjust the SENS control for a midscale meter reading.
22	Remove the equipment covers and adjust, respectively, manual equalizers 1 through 9 in EQ A1 and EQ A2 to obtain a minimum meter reading on the 37B cosine equalizer adjustment set while maintaining an on-scale meter reading with the SENS control. <i>Note:</i> The 37B cosine equalizer adjustment set loses sensitivity when the meter reading exceeds midscale.
23	Repeat Step 22 until the lowest meter reading is obtained at the highest sensitivity position of the SENS control.

CHART 2 (Cont)

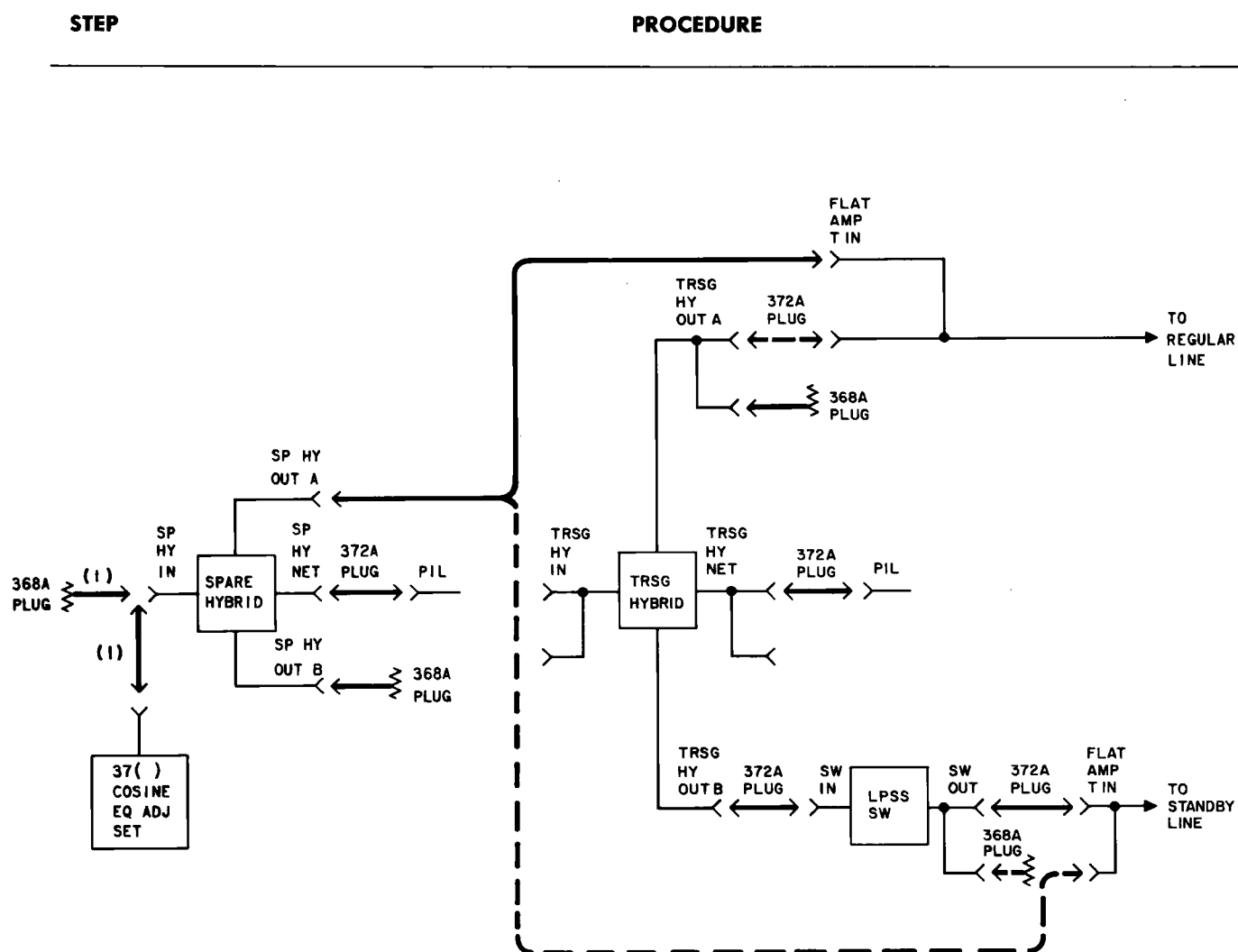


Fig. 5—Test Connections at Transmitting Terminal Sending Equalizing Signals to Equalizing Auxiliary or Main Repeaters

At Transmitting Terminal:

- 24 Disconnect the 37() cosine equalizer adjustment set and terminate the SP HY IN jack with a 368A (75-ohm) terminating plug [patch (1), Fig. 5].

At Equalizing Auxiliary Repeater:

- 25 Replace the patch plug removed between the PIL HY OUT A and PSF IN jacks.

CHART 2 (Cont)

STEP	PROCEDURE
26	Remove test connections to the 37B cosine equalizer adjustment set [patch (2), Fig. 4].
27	Verify the operation of the 7A pilot indicator set or calibrate the RTE for a bridging measurement of 7266 kHz at -16 dBm.
28	Connect the RTE or the 7A to the PIL HY OUT A multiple jack [patch (3), Fig. 4].
29	Adjust the EQ A1 equalizer FLAT control until the RTE indicates -16.0 dBm or the 7A pilot indicator set indicates 0.0 dB. <i>Note:</i> If 7A pilot indicator set is used, indication will be 0.0 dBm.
30	If the FLAT equalizer reaches an end-of-range condition before the requirement of Step 29 is met, adjust the FLAT control to midrange, adjust the GAIN ADJ control on FLAT AMP A and FLAT AMP B to obtain -16 dBm on the RTE or 0.0 dB on the 7A pilot indicator set and repeat Step 29. <i>Note:</i> Adjustment of the GAIN ADJ control on the regulator should be completed rapidly to limit the amount of damp air admitted to the amplifier through the removed access plug.
31	Disconnect the RTE or the 7A pilot indicator set.
32	Adjust the 2064-, 3096-, and 7266-ZERO controls on the alarm panel to obtain 0.0 dB on the associated ALM meter relay.
33	If a ZERO control reaches an end-of-range condition before the requirement of Step 30 is met, adjust the ZERO control to midrange, adjust the GAIN ADJ control on the associated regulator unit to 0 dB on the ALM meter relay, and repeat Step 32. <i>Note:</i> Adjustment of the GAIN ADJ control on the regulator should be completed rapidly to limit the amount of damp air admitted to the regulator through the removed access plug.
34	On the 39B thermistor control set, position the BAL and REG NET switches to NORM.
35	Adjust the 7266-GAIN control on the alarm panel to obtain a 0.0-dB reading on the associated ALM meter relay.
36	If the requirement of Step 35 is met, proceed to Step 41.
37	If the requirement of Step 35 is not met, adjust the 7266-GAIN control 1/3-turn away from the end-of-range stop.
38	Connect the RTE or the 7A to the PIL HY OUT A multiple jack [patch (3), Fig. 4].

CHART 2 (Cont)

STEP	PROCEDURE
39	Adjust the GAIN ADJ control on the 7266-KC regulator until the RTE indicates -16 dBm or the 7A pilot indicator set indicates 0.0 dB.
	<i>Note:</i> If 7A pilot indicator set is used, indication will be 0.0 dBm.
40	Adjust the 7266-ZERO control to obtain 0.0 dB on the ALM meter relay.
41	Disconnect the RTE or the 7A pilot indicator set.
42	Adjust the 2064- and 3096-GAIN controls on the alarm panel to obtain 0.0 dB on the associated ALM meter relays.
43	If the requirements of Step 42 are met, proceed to Step 51.
44	If the requirements of Step 42 are not met, operate the DYN EQ 1 and DYN EQ 2 BAL switches on the 39B thermistor control set to the BAL position.
45	If the 3096-KC GAIN control is at end-of-range, observe and record the DYN EQ 1 thermistor current or the DYN EQ 2 thermistor current indication for a 2064-KC end-of-range condition.
46	Position the out-of-range GAIN control 1/3-turn away from the end-of-range stop.
47	Position the associated DYN EQ () BAL switch to NORM.
48	Adjust the GAIN ADJ control for the regulator associated with end-of-range condition to obtain the same thermistor current recorded in Step 47.
49	Readjust the associated ZERO control to 0.0 dB on the ALM meter relay.
50	If the requirement of Step 49 is not met, repeat Steps 42 through 49 until all requirements are met.
51	On the 39B thermistor control set, position all BAL and REG NET switches to NORM, and disconnect the set.
	<i>At the Transmitting and Receiving Terminals:</i>
52	Restore L unit to service (Section 359-075-301).

CHART 3

TESTS AT EQUALIZING MAIN REPEATERS

STEP	PROCEDURE
	Note: If the L unit to be equalized has two equalizing repeaters, adjustments to the equalizing repeater adjacent to the transmitting terminal should be made first.
1	Calibrate the J68837A (or C) Cosine Equalizer Adjustment Set (Section 103-453-501).
2	Calibrate the J68837B and verify the operation of the J68837D Cosine Equalizer Adjustment Sets (Section 103-454-000).
3	Establish communications between all stations involved in the L-unit lineup.
	<i>At Transmitting Terminal:</i>
4	Measure the power of the transmitted pilots at the SP HY OUT A jack for the spare hybrid to be used in this procedure (Section 359-035-505, Transmitted Pilot Measurement).
5	Measure the power of the transmitted pilots at the TRSG HY OUT () jack on the line under test (Section 359-035-505, Transmitted Pilot Measurement).
	<i>At Transmitting and Receiving Terminals:</i>
6	Remove the L unit to be equalized from service and verify that pilots are applied via spare hybrid circuit (Section 359-075-301).
	<i>At Equalizing Main Repeater:</i>
7	On the 39B thermistor control set, position the controls as follows: (a) SEL switch to REG NET (b) REG NET switch to NORM (c) All BAL switches to NORM (d) DYN EQ 1 TH RES control to 300 (e) DYN EQ 2 TH RES control to 400.
8	Connect the 39B thermistor control set to the TH TST jacks of the line under test.
9	On the 39B thermistor control set, position the DYN EQ 2 BAL switch to the BAL position.
10	Slowly adjust the DYN EQ 2 BAL potentiometer until the associated BAL meter reads zero (0).
	Note: Adjustment is slow in reacting. Allow sufficient time for the meter reading to stabilize. Recheck the adjustment after several minutes have elapsed and readjust if necessary.
11	Repeat Steps 9 and 10 for the DYN EQ 1 controls.

CHART 3 (Cont)

STEP

PROCEDURE

- 12 Calibrate the RTE to make a bridging measurement of 7266 kHz at -16 dBm.
- 13 Connect the RTE to the LINE AMP OUT multiple jack (patch (1), Fig. 6).
- 14 On the 39B thermistor control set, position the REG NET switch to ADJ.
- 15 Adjust the TH CUR control until the RTE indicates -16.0 dBm.

Note: Adjustment is slow in reacting. Allow sufficient time for the meter reading to stabilize. Recheck the adjustment after several minutes have elapsed and readjust if necessary.

- 16 Disconnect RTE.

At Transmitting Terminal:

- 17 Remove the 368A plug and connect the 37() cosine equalizer adjustment set to the SP HY IN jack [patch (1), Fig. 5].

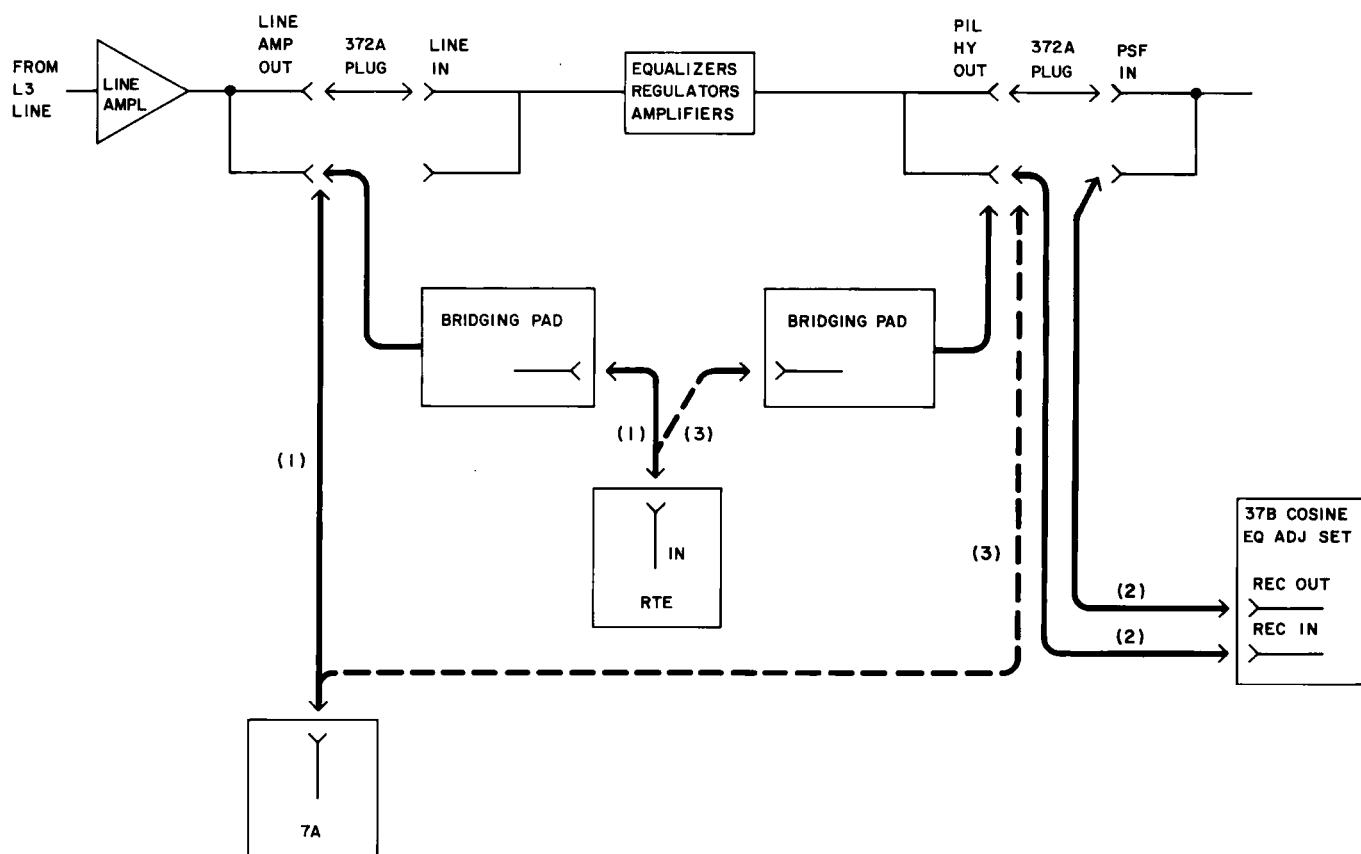


Fig. 6—Test Connections for Gain Equalization at Equalizing Main Repeaters

CHART 3 (Cont)

STEP	PROCEDURE
<i>At Equalizing Main Repeater:</i>	
18	Connect the 37B cosine equalizer adjustment set REC IN jack to the PIL HY OUT A multiple jack and the REC OUT jack to the PSF IN multiple jack [patch (2), Fig. 6].
19	Remove the patch plug between the PIL HY OUT A and PSF IN jacks.
<i>At Receiving Terminal:</i>	
20	Observe the 2064-, 3096-, and 7266-KC PIL IND meters. If the meters fluctuate over a range greater than 0.1 dB peak-to-peak and the cosine equalizer adjustment set at the transmitting terminal is a 37A (or -C), the pilot skip circuit at the transmitting terminal must be realigned. The 37D cosine equalizer adjustment set is not field-adjustable and must be returned for repairs in accordance with local instructions.
<i>At Equalizing Main Repeater:</i>	
21	On the 37B cosine equalizer adjustment set, adjust the SENS control for a midscale meter reading.
22	Remove the equipment covers and adjust, respectively, manual equalizers 1 through 9 in EQ A1 and EQ A2 to obtain a minimum meter reading on the 37B cosine equalizer adjustment set while maintaining an on-scale meter reading with the SENS control.
<i>Note:</i> The 37B cosine equalizer adjustment set loses sensitivity when the meter reading exceeds midscale.	
23	Repeat Step 22 until the lowest meter reading is obtained at the highest sensitivity position of the SENS control.
<i>At Transmitting Terminal:</i>	
24	Disconnect the 37() cosine equalizer adjustment set and terminate the SP HY IN jack with a 368A (75-ohm) terminating plug [patch (1), Fig. 5].
<i>At Equalizing Main Repeater:</i>	
25	Replace the patch plug removed between the PIL HY OUT A and PSF IN jacks.
26	Remove test connections to the 37B cosine equalizer adjustment set.
27	Calibrate the RTE for a bridging measurement of 7266 kHz at -16 dBm.
28	Connect the RTE to the PIL HY OUT A multiple jack [patch (3), Fig. 6].
29	Adjust the EQ A1 equalizer FLAT control until the RTE indicates -16.0 dBm.

CHART 3 (Cont)

STEP	PROCEDURE
30	If the FLAT equalizer reaches an end-of-range condition before the requirement of Step 29 is met, adjust FLAT control to midrange, adjust the GAIN ADJ control on FLAT AMP A and FLAT AMP B to obtain -16 dBm on the RTE, and repeat Step 29. <i>Note:</i> Adjustment of the GAIN ADJ control on the regulator should be completed rapidly to limit the amount of damp air admitted to the amplifier through the removed access plug.
31	Disconnect the RTE.
32	Adjust the 2064-, 3096-, and 7266-ZERO controls on the alarm panel to obtain 0.0 dB on the associated ALM meter relay.
33	If a ZERO control reaches an end-of-range condition before the requirement of Step 32 is met, adjust the ZERO control to midrange, adjust the GAIN ADJ control on the associated regulator unit to 0 dB on the ALM meter relay, and repeat Step 32. <i>Note:</i> Adjustment of the GAIN ADJ control on the regulator should be completed rapidly to limit the amount of damp air admitted to the regulator through the removed access plug.
34	On the 39B thermistor control set, position the BAL and REG NET switches to NORM.
35	Adjust the 7266-GAIN control on the alarm panel to obtain 0.0 dB on the associated ALM meter relay.
36	If the requirement of Step 35 is met, proceed to Step 41.
37	If the requirement of Step 35 is not met, adjust the 7266-GAIN control 1/3-turn away from the end-of-range stop.
38	Connect the RTE to the PIL HY OUT A multiple jack [patch (3), Fig. 6].
39	Adjust the GAIN ADJ control on the 7266-KC regulator to obtain -16.0 dBm on the RTE.
40	Adjust the 7266-ZERO control to obtain 0.0 dB on the ALM meter relay.
41	Disconnect the RTE.
42	Adjust the 2064- and 3096-GAIN controls on the alarm panel to obtain 0.0 dB on the associated ALM meter relays.
43	If the requirements of Step 42 are met, proceed to Step 51.
44	If the requirements of Step 42 are not met, operate the DYN EQ 1 and DYN EQ 2 BAL switches on the 39B thermistor control set to the BAL position.

CHART 3 (Cont)

STEP	PROCEDURE
45	If the 3096-GAIN control is at end-of-range, observe and record the DYN EQ 1 thermistor current or the DYN EQ 2 thermistor current indication for a 2064-KC end-of-range condition.
46	Position the out-of-range GAIN control 1/3-turn away from the end-of-range stop.
47	Position the associated DYN EQ () BAL switch to NORM.
48	Adjust the GAIN ADJ control for the regulator associated with end-of-range condition to obtain the same thermistor current recorded in Step 45.
49	Readjust the associated ZERO control to a 0.0-dB indication on the ALM meter relay.
50	If the requirement of Step 49 is not met, repeat Steps 42 through 49 until all requirements are met.
51	On the 39B thermistor control set, position all BAL and REG NET switches to NORM and disconnect the set.
<i>At Transmitting and Receiving Terminals:</i>	
52	Restore L unit to service (Section 359-075-301).
