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**J98713F LINE TERMINATING UNIT AND  
ED-3C570-( ) LINE POWERING AND AUXILIARY UNIT  
INSTALLATION  
T1 DIGITAL LINE  
DIGITAL TRANSMISSION SYSTEMS**

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This section provides the procedures to be followed when installing the J98713F line terminating unit and ED-3C570-( ) line powering auxiliary unit in a T1 Carrier System facility. Physical installation and connecting circuit installation are not covered in this section since that type of information is contained in publications and drawings that are characteristic of a particular location. This section contains the information required to initially install fuses and repeaters, and the tests required to verify service readiness of the line terminating unit (LTU) and line powering auxiliary unit (LPAU).

This section is being reissued to eliminate the use of the 265C tool (contact burnisher) and 266C tool (steel music wire) in performing the fuse alarm test and to include information on the 236-type office repeaters. Revision arrows are used to emphasize the more significant changes. Equipment Test Lists are not affected.

The LTU is a miniature version of a T1 office repeater bay and serves two T1 carrier lines. The input and output line terminals of the LTU connect directly to a pair of T1 carrier lines. Input and output equipment terminals connect to T1 carrier equipment in the same manner as an office repeater. Power for an LTU equipped with 206 or 236-type repeaters may be obtained from the T1WM-4 power supply if -48V is used. For power greater than 48 volts, the LPAU is used with the LTU and the appropriate 206 or 236-type repeaters.

The procedure to be followed during the initial installation of an LTU, an LPAU, and the tests required to verify operational readiness is contained in the following chart.

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**APPARATUS:**

- 1 — Volt-Ohm-Milliammeter, 20,000 ohms per volt, or equivalent
- 1 — 70-Type Blown Fuse (used for checking fuse alarms)

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**NOTICE**

Not for use or disclosure outside the  
Bell System except under written agreement

## CHART 1

## INSTALLATION OF AN LTU WITH 206 or 236 REPEATER

STEP	PROCEDURE
1	Determine the powering requirements from the office records.
2	Depending upon the line powering requirements, select two 206 or 236-type office repeaters from Table A.  <b>Note:</b> 206 EXCP type repeaters (206T through 206AB and 236 E, F, G, HL, M and N) cannot be used.
3	Verify that the repeater slots of the LTU are keyed for the repeaters selected (Table A).
4	Inspect the LTU, LPAU (if required), and the 206 or 236-type repeaters selected above to ensure that all fuses are removed and that there are no loose connections, bent or broken connectors, shorted contacts, or other discrepancies.
5	With the voltmeter, verify that $-48V \pm 5.0V$ is connected between TB3 terminals 1 (-) and 3 (+) and that terminals 2 and 3 are strapped together on the LTU.
6	If +130 volt power is required, use the voltmeter to verify that $+130V \pm 10.0V$ is connected between TB3 terminals 1 (+) and 2 (-) on the LPAU.
7	If -130 volt power is required, use the voltmeter to verify that $-130V \pm 10.0V$ is connected between TB3 terminals 6 (-) and 2 (+) on the LPAU.
8	Verify that the proper options are installed in the LTU and LPAU (if required) per Table A.
9	Install blown 70-type fuse, in the LTU or LPAU.  <b>Requirement:</b> The alarm sounds and the FUSE lamp lights momentarily.  <b>Note:</b> The alarm relay operation may be observed through the receiving port in the LTU front panel (upper left of AK47 relay).
10	Remove blown 70-type Fuse.
11	Install the fuses, if required, in the LTU and LPAU per Table B.
12	If the alternate access capability is not to be used, verify that LTU terminals 10 and 13, and terminals 9 and 12 of TB2 are strapped together.  <b>Note:</b> When the alternate access terminals are not to be used (for inserting a second signal into the SPARE line), the terminals are strapped to provide looping through the transfer relay for the line not carrying primary service. For example, when the REGULAR line is the working

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**CHART 1 (Contd)**


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**STEP****PROCEDURE**

line (active), the SPARE line is looped and a stabilizing signal is usually inserted at the central office.

- 13 Verify that a 598-type fault locate filter with the required midband frequency, as determined from the office records, is connected to terminals 12 and 13 and terminals 10 and 11 of TB4 or that option X (a 1000-ohm termination) is installed across terminals 10 and 11 of TB4 and that terminals 12 and 13 are strapped together.

<b>CODE NO.</b>	<b>MIDBAND FREQ. (Hz)</b>
598A	832
598B	928
598C	1049
598D	1206
598E	1340
598F	1508
598G	1722
598H	2008
598J	2193
598K	2413
598L	2680
598M	3017

- 14 While observing the lower half of the AK47 relay (through the viewing port in the front panel of the LTU), operate the LT key to the vertical or LT position.

**Requirement:** The LT relay operates and the green LT lamp lights.

- 15 Return the LT key to the horizontal (NORM) position.
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## CHART 1 (Contd)

STEP	PROCEDURE
	<b>Requirement:</b> The LT relay releases and the LT lamp extinguishes.
16	While observing the transfer relay through the viewing port in the LTU front panel, operate the TR key to the vertical or TR position. <b>Requirement:</b> The AJ5 transfer relay operates and the yellow TR lamp lights.
17	Operate the TR key to the horizontal or NORM position. <b>Requirement:</b> The TR relay releases and the yellow TR lamp extinguishes. <b>Note:</b> If the remote transfer and remote looping features have been incorporated, Steps 14 through 17 should be repeated with one person operating the remote keys at the remote location, and another observing the LTU to verify the requirements.
18	If the 206-type office repeater is a nonintegrated circuit type, verify that the correct 836-LBO network is installed. The integrated circuit repeaters do not require LBO networks.
19	Verify that the correct power options are set in the repeaters and install the repeaters into the REGULAR and SPARE repeater mounting slots.
20	◆Install blown 70-type fuse in the 206 or 236 office repeater. <b>Requirement:</b> The alarm sounds and the FUSE lamp on the LTU lights momentarily.
21	Remove blown 70-type fuse.◆
22	Install 70R (0.15A) fuses in the 206 ◆or 236-type◆ office repeaters requiring fuses.

**TABLE A**  
**POWERING OPTIONS**

POWER LOOP VOLTAGE	BATTERY REQUIRED	EQUIPMENT REQUIRED	206-TYPE REPEATER CODES	KEYING	236-TYPE REPEATER CODES	KEYING	OPTIONS REQUIRED	
							LTU	LPAU
48	-48V	LTU	A(MD),E(MD), H, L	20	A(MD),C(MD), J, AA, AC	8, 19	W (Note 1)	—
130	-48V +130V	LTU, LPAU	B(MD), F(MD), J, M	8	A(MD),C(MD), J, AA, AC	8, 19	Remove option W and connect LPAU	S (Note 2) T (Note 3)
178	-48V +130V	LTU, LPAU	B(MD), F(MD), J, M	8	A(MD),C(MD), J, AA, AC	8, 19		S (Note 2) R (Note 4)
260	-48V +130V -130V	LTU, LPAU	B(MD), F(MD), J, M	8	A(MD),C(MD), J, AA, AC	8, 19		Q (Note 5)
Looped power	-48V	LTU	D(MD), G(MD), K, N	14	B(MD),D(MD), K, AB, AD	14, 19	W (Note 1) YY (Note 6)	—
Bridging Repeater (Note 7, 8)	-48V	LTU	C(MD), P(MD), R,S	10	P	10, 19	W (Note 1)	—

**Note 1:** Option W consists of straps between terminals 1 and 2 and terminals 3, 4, and 5 of TB6.

**Note 2:** For option S, install a strap between terminals 3 and 4 of TB3.

**Note 3:** For option T, install a strap between terminals 2 and 3 of TB3.

**Note 4:** For option R, install straps between terminals 4 and 5 of TB3 and terminals 1 and 2 of TB2.

**Note 5:** For option Q, install a 70A fuse in the -130V fuse holder. Remove options R, S, T, W, and YY before applying option Q, if installed.

**Note 6:** For option YY, install straps between terminals 1 and 8 and terminals 3 and 6 of TB5.

**Note 7:** Bridging repeaters are used only in T1ASU applications (Section 365-200-104).

**Note 8:** 206P and 206S bridging repeaters can be used in the LTU only in a DSX-1 installation when extra bridging repeaters are desired.

TABLE B

## FUSES

DESIGNATION	CODE	AMPERAGE
LTU		
MAIN		10A
MAIN ALM	70A	1-1/3A
CKT	70A	1-1/3A
TST PWR	70A	1-1/3A
LPAU (if required)		
+130V	70A	1-1/3A
-130V	70A	1-1/3A