

TP177010 SELECTOR MAGNET DRIVER

INSTALLATION

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1. GENERAL

1.01 This section provides instructions for installing the TP177010 selector magnet driver on 28-type equipment in the field. It is important that field personnel — especially those unfamiliar with solid-state circuitry — read the caution notes. For parts information refer to the appropriate section. Wiring information for standard units appears in standard wiring diagrams.

Note: To mount the driver on 15-type equipment requires the TP177015 modification kit. See the appropriate 50000-series specification for installing instructions.

CAUTION NOTES

1.02 The magnet driver is a solid-state device, not a mechanical relay. Therefore, the procedures for its use differ from those for a relay. It should be used only as instructed in this section. Otherwise, it may be seriously damaged. No adjustments are necessary. Tests

and repairs should be made by qualified personnel only as instructed in the section entitled "TP177010 Selector Magnet Driver Servicing."

INPUT

Note: See section entitled "TP177010 Selector Magnet Driver Wiring Diagram."

1.03 The input current should be limited to specified values (0.060 a. or 0.020 a.). The driver is designed to be driven by a given current — not a given voltage. Any source voltage may be used as long as enough resistance is in series with the input to ensure that the specified line current is not exceeded. For further information refer to the section entitled "TP177010 Selector Magnet Driver Description and Principles of Operation."

1.04 At full marking current of 0.060 a. or 0.020 a., the input resistance of the driver is 48 or 145 ohms respectively. This resistance increases rapidly with decreasing current. For example, it rises to 83 and 249 ohms respectively for zero or reverse current.

1.05 To avoid conflicts with existing signal line connections, the input leads of the driver should be attached only to the signal line — not to other voltage reference points including ground.

1.06 It is recommended that a milliammeter be placed in the line as a monitor when the line current is adjusted.

OUTPUT

1.07 The output current from the driver is 0.060 a. This current is supplied by an internal power supply and limiting resistors.

1.08 No batteries (or voltages), resistors, capacitors, or other components other than the specified load should be connected to

the output. The output should be connected only to a single selector magnet whose coils are in parallel. The output leads should float; ie they should connect only to the selector's coils, not to an external voltage including ground. If the selector coils are located at a distance from the driver, the added resistance of the connecting wire will reduce the coil's current and consequently the selector's margin.

RELIABILITY

1.09 Long life and reliable operation can be expected if the driver is used for its designed purpose within its rated limits. Otherwise, its performance may be impaired and its life reduced. Heat and voltage seriously affect the life of solid-state components. Thus the temperature and line voltage should be kept as close to specified limits (25°C and 117 v respectively) as possible.

2. UNPACKING

2.01 Cut the sealed edges of the carton and unpack the driver with care so as not to damage the solid-state circuitry.

3. INSTALLATION ON MODEL 28 ELECTRICAL SERVICE UNIT

3.01 Following instructions apply in particular to the electrical service unit LESU7 (Bell 28B and 28E), but are also applicable to similar units on Automatic Send-Receive and

Page Printer Sets. However, because of the many variations in wiring of various coded units, check appropriate wiring diagrams to make sure connections are correct.

PREPARATION OF ELECTRICAL SERVICE UNIT

3.02 If unit is equipped with TP152623, TP160226 or equivalent line relay mounting assembly, proceed as instructed in Paragraph 3.02(a) below. If it is not equipped with line relay mounting, refer to Paragraph 3.02(b).

(a) Electrical Service Unit with Line Relay Mounting

(1) Location of terminal block A on unit is shown in Figure 1 and on actual wiring diagram of specific unit involved. Remove leads from line relay mounting to terminal block A as follows:

Wire Color	Circuit	Terminal on Service Unit
Black	120 v dc	A9
Red	120 v dc	A7
Yellow	Signal Line	A6
Green	Signal Line	A5
Brown	120 v dc	A3

Other units - Check wiring diagram.

(2) Loosen mounting screws and remove line relay mounting assembly from unit.

(3) Open connection between positive side of dc supply and selector coils. For LESU7 (Bell 28B and 28E) and related units, this can be done by removing strap between terminals C20 and C21 on terminal block C on cabinet. On certain other units, it can be done by removing strap between A7 and A8 and connecting selector coil's lead to A7. Refer to appropriate wiring diagrams.

(4) A dc power supply (rectifier) on some electrical service units supplies current for relay bias and selector coils. If it supplies nothing else, it may be removed. However, if it supplies line battery, line-test key, etc, it should be left in place.

(b) Electrical Service Unit without Line Relay Mounting

(1) Open connections between selector coils and signal line. This can be done by removing straps on terminal block A (see Figure 1) as indicated in three typical examples below. Refer to appropriate wiring diagrams to verify these connections.

LESU5 (No Bell Code)	LESU27 (Bell 28K)	LESU28 (Bell 28L)
A4 to A6	A6 to A7	A4 to A6
A3 to A7	A3 to A5	A3 to A5

(2) Loosen mounting screws and remove blank plate at position where driver is to be mounted.

MOUNTING AND CONNECTING DRIVER

3.03 Strap circuit card on driver as indicated below for different types of line signals. Make strapping arrangements by removing and/or soldering bare wire between terminals. Driver is strapped at factory for 0.060 a. operation.

Signals	Strapping Arrangement
0.060 a. Neutral	Terminals 1 to 2 strapped; 3 to 4 open.
0.020 a. Neutral	Terminals 1 to 2 and 3 to 4 open.
0.020 to 0.030 a. Polar	Terminals 1 to 2 open; 3 to 4 strapped.

3.04 Mounting hardware is furnished with driver in two mounting slots in TP178843 chassis. Loosen two TP153841 screws so that TP151427 nut plates can move freely. Mount driver in vacant position with capacitor at front. Align nut plates so they will clamp to underside of service unit's frame and tighten mounting screws.

3.05 Connect leads on TP178887 signal line cable to terminal block (Figure 1) as indicated below. Signal line polarity must be correct.

Wire Color	Circuit	Terminal on LESU7 (Bell 28B and 28E)
Yellow	+ Signal Line	A6
Green	- Signal Line	A5
Orange	Selector Magnet	A4
Brown	Selector Magnet	A3

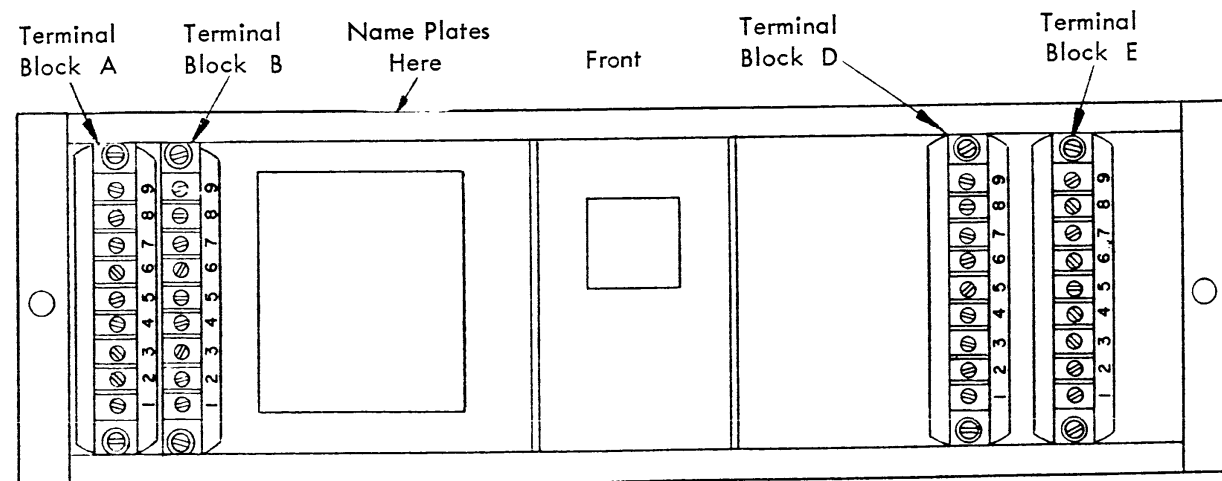
Other units - check wiring diagram.

3.06 According to what type of control is to be used, connect leads on TP178886 power cable to terminal block E (Figure 1) on LESU7/152 (no Bell code) only as indicated below. Refer to appropriate wiring diagrams for connections on other units.

One Wire To	Other Wire To	Type of Control
E1	E9	ON Continuously
E2	E9	Power switch
E3	E9	Motor control relay

3.07 Connect selector coils in parallel for 0.060 a. operation as instructed in appropriate wiring diagrams. Series connection will reduce margins and is not recommended. If series strap is present (eg, A1 to A2 or A3 to A4 etc), it should be removed.

3.08 To blind selector to incoming signals, connect terminals 5 and 6 to positive side of signal line through a 50-ohm, 1-watt resistor. When the original connection is restored, the driver will again follow the line signals. An external switch or relay should be provided to make the required connections. Refer to the section entitled "TP177010 Selector Magnet Driver Description and Principles of Operation" for detailed information on blinding.



(Bottom View)

Figure 1 - Electrical Service Unit