



# **LPT30**

## **TROUBLESHOOTING AND REPAIR MANUAL**

**ALL REPAIRS SHOULD BE PERFORMED BY A QUALIFIED ELECTRICIAN**

The LPT30 is a field repairable switch. Warranty covers defective parts only. Do not return the complete switch unless instructed to do so. The tools needed are straight blade & Phillips screwdrivers and an AC (Volt, Ohm) meter. These tools are available at most hardware stores. If technical support or repair parts are needed, please call your OEM or ESCO at (574) 264-4156. All warranty claims must be directed back to the OEM.

**ALWAYS BE SURE POWER IS OFF AND DISCONNECTED**

### **I. NO SHORE POWER**

The design of the LPT30 allows shore power to be run through the normally closed contacts of the relay. This means whenever the shore cord is plugged in, power goes through the relay to the load panel. The relay does not have to be energized. If you are having problems with incoming power from the shore cord, make sure there is nothing preventing the relay from returning to the normally closed position.

**WARNING: HAZARDOUS VOLTAGES.** If nothing is blocking the contacts, check the voltage at relay terminals 7 and 8 with an AC voltmeter to make sure power is reaching the relay. Check terminals 3 and 4 to make sure there is power going out of the switch to the control panel. Lastly, check the wiring of the switch (refer to procedure IV below).

## II. NO GENERATOR POWER

Make sure the generator leads are attached to terminals 5 and 6 on the relay (refer to the drawing at the end of this document). Power up the generator.

- A. **WARNING: HAZARDOUS VOLTAGES.** Check the incoming voltage with an AC voltmeter to verify there is at least 90 to 120VAC coming into the switch. If power is measured at the relay terminals, wait 20 to 90 seconds for the relay to engage. If generator power does not engage the relay, check the status of the green LED.

**WARNING: HAZARDOUS VOLTAGES.** If the LED is ON and the relay is not engaged, check the voltage at terminals 1 and 2 with a voltmeter set to high DC volts. The voltmeter should read between 105 and 170 VDC. If it does not, replace the time delay pc board. See a list of replacement parts at the end of this document.

- B. **Remove all power coming in to the coach and make sure the generator is off.** Check the coil resistance by placing an Ohmmeter across terminals 5 and 6 of the relay. The meter should read in the 5.5 K ohm to 6.5K ohms range.

If there is sufficient DC voltage at the test points, the relay is not stuck in the normally closed position and the coil resistance is not reading correctly, then the coil on the relay is bad. Replace the relay.

- C. **WARNING: HAZARDOUS VOLTAGES.** If the LED remains OFF after the generator has been running for 90 seconds, check for power coming in from the generator (procedure II.A.). If power is there, refer to the diagram at the end of this document to locate the switch on the time delay pc board. Push the switch tab to the DOWN position to defeat the time delay. Check to see if the relay pulls in. If the relay does pull in, then the time delay pc board is bad. Replace the time delay.

## III. RELAY CHATTERING

Relay chattering is primarily caused by insufficient voltage from the generator. Check the voltages coming in from the generator. If the voltage starts to drop below 90VAC, the relays may begin to chatter. Also check for debris in the enclosure.

## IV. WIRING OF THE LPT30

Refer to the drawing at the end of this document.

### SHORELINE

- A. Shoreline Neutral to relay location #7 (coach manufacturer connection)  
B. Shoreline Hot to relay location #8 (coach manufacturer connection)

## **GENERATOR**

- C. Generator Neutral - 10awg white wire provided by ESCO to relay location #5.
- D. Generator Hot - 10awg black wire provided by ESCO to relay location #6.

## **LOAD PANEL**

- E. Load Panel Neutral to relay location #3 (Coach manufacturer connection)
- F. Load Panel Hot to relay location #4 (Coach manufacturer connection)

## **COIL AND TIME DELAY CONNECTIONS (all wires provided by ESCO)**

- G. Relay terminal #1 to PC board connection B with a 16awg blue wire.
- H. Relay terminal #2 to PC board connection A with a 16awg blue wire.
- I. Relay terminal #5 to PC board connection D with a 16awg blue wire.
- J. Relay terminal #6 to PC board connection C with a 16awg blue wire.

## **COMMON REASONS FOR FAILURE\*:**

### **(1) LOW VOLTAGE ON SHORE CORD -**

**Reasons:** Bad connection at park box, extension cord too long, defective adapters, operating too much load for power available.

**Potential Damage:** burned out coils and pitted contacts.

### **(2) DIRTY POWER AND SPIKES -**

**Reasons:** Storms (lightening), unbalance load at park, utility service at park is undersized or located next to an industrial environment.

**Potential Damage:** burned out coils, pc board damage, pitted contacts.

### **(3) DEBRIS IN ENCLOSURE -**

**Reasons:** Metal shavings, knock outs, saw dust caused by poor production control, moisture or dirt inside enclosure, transfer switch not installed in an airtight compartment.

**Potential Damage:** Chattering relays, burned out coils, damage to pc board. Metal particles could cause a fire.

#### (4) GENERATOR OVERRUNS -

**Reasons:** Generator needs to be serviced, manual override of governor or throttle control, generator is undersized or is not properly installed.

**Potential Damage:** burned out coils, pc board damage, pitted contacts.

\*All of the above reasons can create damage in the R.V.

#### **REPLACEMENT PARTS**

PART NO	DESCRIPTION	QUANTITY
20791-84	Relay DC 30A DPDT	1
COVER LABEL	Cover Label Transfer Switch	1
LAB-TORQ	Torque Label 1/2x1/2	1
10WHP-75S-00	7 1/2" White Wire with 1 spade	1
10BKP-77S8-00	7 3/4" Black Wire with 1 spade	1
16BLF-60F-00	6" Blue Wire with 2 Fem. Disconnect	2
16BLF-60S8-00	6" Blue Wire w/Female Disconnect & Spade	2
ON2-5	Ground Bar	1
40050	Metal Box 6x6x3	1
LPT30-TIME	Time Delay TD 30	1
PLS-0002	Insulator Pan	1
LAB-I30	Label I30 Inside Wiring	1
LAB-ID30	LPT30 ID Label	1

# LPT30 Wiring Diagram

