LPT30BRD

(8x7x4 Enclosure)

TROUBLESHOOTING AND REPAIR MANUAL

ALL REPAIRS SHOULD BE PERFORMED BY A QUALIFIED ELECTRICIAN

The LPT30BRD 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, flexible nut driver and AC/DC (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

Disconnect shore cord, turn breakers off at the generator and disconnect the inverter if installed. Remove the lid from the enclosure and check for AC voltage at all terminals to be sure that power is disconnected. Refer to the wiring diagram at the end of this manual for test points. Check connections to make sure all wires are secured and not broken off or burned. Be sure there is no debris inside enclosure.

I. NO SHORE POWER TO COACH

The design of the LPT30BRD 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 – for example: a wire routed directly over the relay pushing down on the relay armature.

A. Check wiring of transfer switch. See procedure IV below or refer to the wiring diagram on the inside surface of the LPT50BRD cover.

B. Check wire connections to make sure there are no loose wires in the terminal blocks or on the relays.

II. NO GENERATOR POWER TO COACH

A. **WARNING: HAZARDOUS VOLTAGES.** If the transfer switch does not switch to generator power within 90 seconds of generator startup, check for proper AC voltage input using an AC voltmeter. Refer to the wiring diagram below. The screws on the terminal block are a good point to test for these voltages. Use the label placed in front of the block or the wiring diagram at the end of this document to locate the generator NEUTRAL (**4**), HOT (**3**) positions. The meter should read 90 to 120VAC between these two points.

B. If proper voltage is present, check the status of the green LED on the pc board. If the LED is illuminated, then the pc board has gone through the time delay and the transfer switch should transfer from shoreline to the generator power.

C. If the green LED did not light, then the time delay board is not getting the proper voltage from the generator (see procedure II-A above) or the time delay pc board is bad. Replace the time delay pc board if the proper voltage is present from the generator and the time delay is not working.

D. If the green LED did light, and the switch does not transfer from shore power to generator power, then check the DC coil voltage on the relay coil. Set the DC voltmeter to the 200 VDC, or equivalent range. With the terminal block facing the bottom of the enclosure, check the relay at terminals 1 and 2. The voltmeter should read between 105 and 170 VDC. If it does not, replace the time delay pc board.

If the proper DC voltage was present in the previous step, check the coil resistance using an Ohmmeter. **MAKE SURE ALL POWER COMING INTO THE TRANSFER SWITCH IS OFF**. Refer to the wiring diagram below. Individually check the relay at terminals 1 and 2. The resistance of each coil should be in the 5.5 K ohm to 6.5K ohms range. If the coil fails the resistance check, replace the relay.

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 LPT30BRD

Refer to the drawing at the end of this document.

SHORELINE

A. From the terminal block Shoreline Neutral location (**6**) to relay location #7 (single 10 AWG WHITE wire)

B. From the terminal block Shoreline Hot location (**5**) to relay location #8 (single 10 AWG BLACK wire)

GENERATOR

A. From the terminal block Generator Neutral location (**4**) to relay location #5 (single10 AWG WHITE wire).

B. From terminal block Generator Hot location (**3)** to relay location #6 (single 10 AWG BLACK wire)

LOAD PANEL

A. From terminal block Load Panel Neutral location (**2**) to relay location #3 (single10 AWG WHITE wire).

B. From terminal block Load Panel Hot location (**1**) to relay location #4 (single 10 AWG BLACK wire).

COIL AND TIME DELAY CONNECTIONS

The connections are made using 16 AWG blue wires as follows:

A. A single wire is connected from point A on the time delay pc board to terminal #2 on the relay.

B. A single wire connects point B on the pc board to terminal #1 on the relay.

C. A single wire connects point C on the time delay pc board to terminal #6 of the relay.

D. A single wire connects point D on the time delay pc board to terminal #5 of the relay.

<u>COMMON REASONS FOR FAILURE*:</u>

(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 cause damage to the R.V.

REPLACEMENT PARTS

PART #	DESCRIPTION	QUANTITY
21791-84	Relay: DC 30 Amp DPDT	1
LAB-30-BLOCK	Terminal Block Label 30 BRD	1
LAB-I30BRD	Inside Wiring Label I-30 BRD	1
LAB-ID30BRD	LPT30 ID Label	1
LAB-TORQ	Torque Label 1/2x1/2	1
LPT30BRD-WIRE	Wire set for LPT30BRD	3
QN2-5	Ground Bar	1
LPT30-TIME	Time Delay TD 30	1
PLS-0002	Insulator Pan	1
0710260	6 Position Terminal Block	1
COVER LABEL	Cover Label Transfer Switch	1
CAN-1001797	Metal Box 8x7x4	1
8-32x3/8	Lid Screw 8-32x3/8"	4

LPT30BRD Wiring Diagram