

Larson Electronic Mfg.
System NC-1
Technical Help Manual & Troubleshooting Guide

Introduction

The NC-1 tank level monitoring system is a capacitive-type, non-continuous level detector used to measure the contents of fresh water and holding tanks. It uses one copper driver pad and four horizontal foil sensor fingers cemented to the outside vertical surface of the tank wall. The four horizontal sensor fingers are mounted 2 - 4 inches away from the copper driver pad and vertically placed at 1/4, 1/2, 3/4 and full levels measured from the bottom of the tank along the tank wall.

Located just to the left of the driver pad is a black electronic module which has grey wires running to each of the four foil sensor fingers, and a white wire running to the copper driver pad. The black wire is the tank module ground while the red and blue wires connect back to the monitor panel.

When a tank test button on the monitor panel is depressed, a +12 volt level is sent to the NC-1 tank module along the red wire which turns the tank sensor on. When the tank module turns on, it sends an ac signal to the copper driver pad. The four aluminum sensor fingers make up four separate capacitive sensors with one plate of the capacitors common (copper driver pad). As water fills up behind each foil finger, that capacitor couples an electronic signal from the copper driver pad to the foil sensor finger. The NC-1 tank module converts the four coupled ac signals from the sensor fingers into four distinct voltage ranges and puts those voltage levels out on the blue wire of the tank module. This signal returns to the monitor panel to control the lights in the display unit indicating the corresponding water level in the tanks.

It should be noted that the red NC-1 tank sensor wire is supplied power from the monitor panel and should not be tied to power directly. It is also important that the monitor panel red power wire should be tied to a clean source of power. The water pump and the water heater power source should not be used to power the logic board. The reason is due to the noise these circuits generate and the interference they would have with the proper operation of the monitor panel.

Tank Measurement

To measure the level of a tank, simply press the appropriate tank test button on the monitor panel and read the tank level from the lights. All of the monitor test functions use these lights to display the contents of the water tanks and LPG.

No Calibration Needed

This NC-1 system does not require any form of calibration. This is a nice feature since it not only simplifies the set up and operation of the unit, but it also saves water.

Technical Service Hotline

A technical service hotline is available for times when this publication does not cover the particular fault encountered during installation. It is requested that before calling our hotline, please refer to this manual first. However, if you should need further assistance, please make sure you have the model number of the panel available so that we may help you in an efficient manner. This is required due to the numerous models currently in use in the field. It is important that the technical hotline person know which circuit board your particular coach is using. Our technical hotline number is 1-800-456-4498 and our fax number is (714) 738-3565.

Troubleshooting a Malfunctioning System

Panel will not power up on any test function

Possible causes:

1. No power or ground applied to panel.
2. Blown .5 amp fast blow fuse.
3. Power and ground connections are reversed.
4. Defective panel.

Tank will not read full when tank is full

Possible causes:

1. Copper driver pads too small.
2. Defective NC-1 tank module.
3. Defective monitor panel.

Wrong tank reads on wrong test button

Possible causes:

1. Tank channel wires run to wrong tanks.

Tank reads full when tank is empty

Possible causes:

1. Blue wire on NC-1 module grounded.
2. Defective NC-1 tank module.
3. Defective monitor panel

Tank reads empty when tank is full

Possible causes:

1. Red and Blue wires on NC-1 tank module shorted
2. Defective NC-1 tank module.
3. Defective monitor panel.

Intermittent readings on panel

Possible causes:

1. Poor splice connection in tank harness.
2. Loose connection on plug.

Tank reads 1/4 or 1/2 which fades to 1/4

Possible causes:

1. Wrong tank module used.
2. Defective NC-1 tank module.
3. Defective monitor panel.