

Installation: Critical High & Reverse Pumping System Installation



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Critical High Shutdown (option 3250) & Reverse Pumping System (option 1917)

TRS Series Day Tanks

The function of a day tank is to transfer fuel from a main tank. Tramont TRS-Series day tanks include the System 2000PLUS™ electronic control module (ECM). The System 2000PLUS™ is a microprocessor-based unit with a single float sensor that monitors fuel level, and provides warnings for high fuel level, low fuel level and critical low fuel level. The System 2000PLUS™ also controls the pump and motor.

Overfill Potential

The pump/motor standardly activates when the day tank reaches an 87% fuel level, and deactivates when the tank reaches a 100% level. While it is a rare occurrence, certain situations can cause the pump and motor to continue running, resulting in an overfill of the day tank. For example, if the float sensor becomes stuck at the 50% level, the pump and motor would continue to run even after the tank has reached the "full" level. Another possible cause of an overfill is siphoning. This can only occur when the fuel level in the main tank is above the day tank. Siphoning causes fuel to continue to flow into the day tank, even if the pump and motor are not running. One way to help prevent siphoning is to install an electrically operated solenoid valve and strainer in-line before the tank inlet. However, if the solenoid fails, siphoning can still occur.

Critical High Shutdown (option 3250)

The Critical High Shutdown is an optional feature that is designed to deactivate the pump and motor if the tank is overfilled. This option utilizes a separate reed switch installed at the top of the day tank. The switch is factory-wired to the System 2000PLUS™ ECM. If the pump and motor fail to stop running when the tank exceeds the 100% level, the Critical High Shutdown switch deactivates the motor, stopping the flow of fuel into the tank. The Critical High Shutdown option by itself will only deactivate the motor; it will not stop siphoning. This option should only be used by itself when the main tank is below the level of the day tank.

Reverse Pumping System (option 1917)

NFPA 37.6-4.2 states that when a tank is supplied by pumps the overflow line must be pumped in a continuous downward path back to the main tank without valves or traps. If the day tank is overfilled the overflow line will direct the fuel back to the main tank by gravity. Because of environmental regulations most new main tanks are placed above grade, making it impossible to pipe the overflow via gravity back to the main tank. If the fuel level in the main tank is above the level of the day tank, siphoning can occur causing an overfill even when the pump and motor are not running. If the overflow line is not connected or is piped in an upward path to the main tank, an overfill will occur.

A Reverse Pumping System is the only way to provide a properly operating overflow line when the fuel level in the main tank is above the level in the day tank. The Reverse Pumping System utilizes a separate pump/motor which is activated by a Critical High Switch (included with this option). If the tank becomes overfilled, the reverse pump/motor pushes fuel back to the main tank until the day tank fuel level drops below 100%. This option includes a 2 GPM pump and 1/3 HP motor. It is important to size the reverse pump to keep up with the supply pump, so it may be necessary to specify a different pump and/or motor. If your supply pumps are duplex, the reverse pump and/or motor must be sized to return the maximum flow rate from both supply pumps and any engine return fuel that may enter the day tank.

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Option #3250

Critical High Shutdown Retrofit Instructions

The following parts are “standard” with option #3250

- (1) #7505-SP 50 watt critical high level float switch with coupling and nipple
- (1) *99 Aromat yellow plug in critical high level relay

Critical High Level Shutdown Installation

1. Remove the cover from the existing day tank exposing the ECM.
2. Remove the (4) screws from the top of the ECM that secure the metal cover.
3. Remove the (4) ¼-20 nuts that secure the ECM to the tank.
4. Disconnect the (2) wires from the ECM that connect to the fuel sender. Remember which wire connected to the center nut, and which wire connected to the mounting flange of the fuel sender.
5. Remove the (8) 10-32 screws that secure the galvanized inspection port plate to the tank.
6. With inspection port plate removed from the tank, drill a 5/16” hole into the plate in an area that won't cause interference with the fuel sender gauge, or the tank.
7. Tap threads into the hole drilled with a 1/8” NPT pipe tap.
8. Screw the 50 watt critical high level float switch with coupling and nipple into the tapped hole. The yellow wires from the float should extend out of the top of the plate. One end of the close nipple should be threaded into the tapped hole. A full coupling should be connected to the other end of the close nipple, and the float switch should be screwed into the other end of the full coupling.
9. Secure the galvanized inspection port plate back to the tank using the (8) 10-32 screws previously removed.
10. Reconnect the (2) wires from the ECM to the fuel sender gauge. Remember to

- connect the wires to the same spot from which they were removed in step #4 above.
11. Run the (2) yellow wires from the critical high level float through the bottom of the ECM.
 12. Secure the ECM to the tank using the (4) ¼-20 nuts previously removed.
 13. Attach the (2) yellow wires from the critical high level float into terminals P204(3) and P204(4). Terminal (3) and (4) are the terminals marked on the back of the ECM as critical high.
 14. Insert the Aromat yellow relay socket #CR3. Make sure to position the relay as shown on the silkscreen under the relay socket.
 15. Remove the black plastic jumper that is just to the right of the relay previously installed. This jumper slides off of (2) pins which enables the critical high option.
 16. Replace the ECM cover.