

1.0 Approaching PROTECTOR®IV Units that may have Hydrogen Accumulation

Unvented trackside friction management tanks may contain accumulated hydrogen gas in the electrical compartment of the tank. Hydrogen gas is combustible if it exceeds 4% of the enclosure volume and if it is exposed to a spark source. The instructions presented herein are recommended for mitigating this risk and for safely powering down and inspecting units.

Follow the steps below for approaching and inspecting the unit:

1. DO NOT approach the unit until you have completed steps 2 and 3 below. Ensure no train or hi-rail vehicle traffic is present at the site during taking the steps below
2. Power-down the system by cutting the power from the external AC power or by disconnecting the solar panel from the cable (on DC units) from the back of the solar panel. Leave the PIV unit unpowered for at least 24 hours without charging the battery (remember the unit is still functional and will apply product).
3. After 24 to 48 hours approach the PIV unit, disconnect the SWS (Smart Wheel Sensor) from the SWS cable. Ensure the wheel sensor cable is sealed with its cap attached to the cable. This is to protect the sensor leads until they are reconnected.
4. Remove the lock from the electric compartment while staying clear of the front of the unit (reach to remove the lock from the side of the tank, don't stand in front of the unit).
5. Once the lock is removed, unlock the latch and lift the electric compartment lid slowly.
6. At this point, if the unit is in open space the hydrogen gas does NOT pose any hazard to the worker. If the unit is placed inside of an envelope or recess in the wall, leave it open for at least 5 minutes before continuing with the next step.
7. Ensure that the power is turned off. On AC units trip the breaker on the GFCI unit or open the circuit breaker. On DC units remove both fuses from the charge controller.
8. Press the power button on the Digital Control box and record the voltage displayed along with the unit serial number and milepost.
9. Identify the 2 wires (one red and one black) coming from the AC or DC charge controller to the battery and disconnect them from the battery terminals.
 - a. Measure battery voltage and record it along with the unit serial number and milepost.
 - i. A battery that has a minimum of 12.0 VDC is considered a healthy battery and the AC or DC charge controller applies the proper voltage. Units showing this condition are expected to run for approximately 2 weeks without an AC or DC power source and not pose any danger to the railroad.
 - ii. A battery that has under 8.0 VDC is considered a completely depleted battery and needs to be replaced. These units will not run.
 - iii. A battery that is between 8.0-12.0 VDC is either an old battery close to the end of lifetime or may have been under-charged by the AC or DC charge controller (voltage is either too low or too high). These units will run but will do so for a shorter period.

2.0 Installing Retrofit Vents on Trackside Friction Management Systems

Unvented trackside friction management tanks may be suspect for accumulated hydrogen in the electrical compartment of the tank-. The instructions presented herein are recommended for installing retrofit vents on the units.

Follow the steps below for adding retrofit vents:

1. Ensure instruction on approaching PIV units have been followed and units are powered down. Ensure no train or hi-rail vehicle traffic is present at the site during taking the step below.
2. Locate and drill additional venting holes to install retrofit vents per vent kit instructions (L.B. Foster document GLB-MAN-PRT-026 for 200# tanks and GLB-MAN-PRT-027 for 800# tanks). Please contact your L.B. Foster representative at 1-866-523-7245 to request this document and retrofit vent kits.

3.0 Powering the System Back on Following Retrofit Vent Installation

Unvented wayside friction management tanks may be suspect for accumulated hydrogen in the electrical compartment of the tank. The instructions presented herein are recommended for powering wayside units back on following the installation of the retrofit vents.

Follow the steps below for powering the units back on following addition of retrofit vents:

1. Ensure instruction on approaching PIV units have been followed and units are powered down and retrofit vents are installed. Ensure no train or hi-rail vehicle traffic is present at the site during taking the steps below.
2. Position the red and black Wire from the AC or DC charge controller away from each other to avoid an electrical short and power on the unit by reversing the steps above. If there is no voltage output on these 2 wires, check the GFCI breaker or the circuit breaker (AC units) or the charge controller fuses (DC units).
 - a. Measure the charge controller output voltage and record it along with the unit serial number and milepost.
 - i. If the voltage output across the red and black output wires from the charge controller is over 14.5 V at an ambient temperature above 14 F (-10C), consider the AC or DC charger defective. Record the AC or DC charger output voltage and ambient temperature at that time, if possible. This trackside system is recommended to be kept off until a new charger is supplied.
 - ii. If the AC or DC charge controller is in good condition (e.g. its voltage output is less than 14.5 VDC). Turn off the power by using the GFCI breaker or circuit breaker on AC units or remove the solar panel fuse from the charge controller. Check the charge controller voltage output is zero.
 - b. Connect the charge controller red wire to the “+” battery terminal and the black wire to the “-” battery terminal.
 - c. Check the SWS connectors for debris or moisture; use an air blower to remove any particles if available.
 - d. Connect the SWS to the cable.
3. The unit can now be powered on by using the GFCI breaker/circuit breaker (AC units), or reinstallation of the charge controller solar panel fuse (DC) and put back in service.

Please be advised that this is a solution to the potential risk identified in our September 11, 2018 Product Safety Notice.