

# TECHNICAL BULLETIN

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## LST™ Fifth Wheel Operation

This technical bulletin is intended to provide more information on the operation and troubleshooting of Fontaine's 7000 and 7000CC series LST™ fifth wheels. Fontaine's LST system uses two electronic sensors to determine if the kingpin is correctly positioned in the lock and relays that information to the in-cab coupling display. This technology improves driver safety and helps identify proper/improper coupling. Also, it provides an additional safety check to supplement the driver's visual inspection and pull test. The in-cab display unit illuminates green upon successful coupling (locked) and red to warn the driver that the fifth wheel has not yet been successfully coupled (unlocked). The LST system displays a variety of lights for a range of durations to notify the driver of various issues. These light sequences are described in the next section.



**Figure 1: LST Light Sequences**

Coupled	Uncoupled	Light Status	Duration	Description
None	None	Off	Continuous	No power to system (within the first 10 minutes of starting the tractor)
Green	Red	Steady on	10 seconds	System start up
Green	None	Steady on	Continuous**	Properly coupled
Red	None	Steady on	Continuous**	King pin and/or wedge not detected
None	Red	Slow blink*	Continuous	Wedge detected, no kingpin, not ready to couple

\*The slow steady blink by the unlocked display is reporting the wedge is detected without a king pin and is intended to warn the driver that the fifth wheel is closed before coupling. If this state is reported with a trailer attached verify that the king pin on the trailer meets the standard SAE king pin requirements (SAE J700, Feb 93).

\*\*The in-cab indicator light will turn off after 10 minutes. Note that the LST system will continue to monitor the fifth wheel. A change in the sensor state will reactivate the 10 minute timer.

### LST fifth wheels installed by truck manufacturers

Fontaine Fifth Wheel works with truck manufacturers to install genuine Fontaine products with the latest technological features (such as the LST system). Some truck manufacturers customize the technological features offered by Fontaine to fit their application seamlessly. For example, some truck manufacturers may choose to use the 7000 or 7000CC Series LST equipped fifth wheel with their own incab displays. Drivers or fleets that see light sequences that are not addressed or not consistent with Figure 1 (above) should contact the truck manufacturer directly.



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## LST system components

The LST system is only available with new fifth wheels and cannot be retrofitted to existing fifth wheels. A display box showing the locked and unlocked lights is also required to be installed in the cab and to be visible to the driver (see Figure 2). The LST system installed by the truck OEM may be integrated into the dash. Refer to the operator's manual or truck manufacturer for the location of these displays.

**Coupling display box with the 31 foot wire (display to fifth wheel connection), a 5.5" long M12 to 4 Pin Deutsch DT coupler cable is also included.**

Note:

- The red wire should be connected to a 12V battery source
- The black wire should be connected to a ground source
- The white wire is not currently used and should be capped

**Figure 2: LST Fifth Wheel**



**Figure 3: LST display box**



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## LST System Troubleshooting

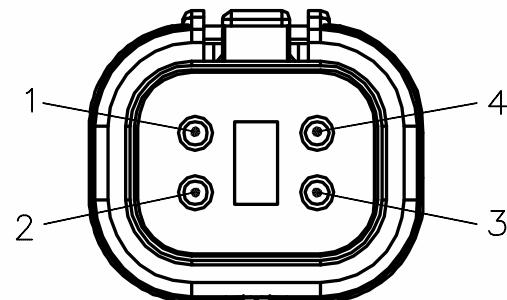
Prior to troubleshooting, make sure that the fifth wheel is in good operating condition and is properly adjusted. Check for any damage to the lock components and fifth wheel that may prevent the locking components from properly retaining the king pin.

Check for visible damage to the lock sensor connections and wiring. Many user issues can be quickly corrected with a clear understanding of the electrical system. Begin troubleshooting by determining if the issue is related to the vehicle and display or just the sensor system by checking to see if there is a display indication (locked and unlocked for 10 seconds) in the cab when the system is turned on. If there is no display for 10 seconds refer to Figure 4, which illustrates the function of various pins in the plug. The plug, shown in figure 4, connects the vehicle power and display to the fifth wheel and checks for voltage between pins 1 and 2. The voltage between pins 1 and 2 should be approximately 12 volts of direct current, depending on the power system. Any other reading could indicate the fifth wheel is not being supplied with the correct amount of power which means the issue is related to the vehicle. If possible, use a power probe to apply 12 volts of direct current to pin 3 and check for a locked display. Similarly apply 12 volts of direct current to pin 4 and check for an unlocked display.

If the wiring is correct and the correct amount of voltage is present, the light sequences in Figure 1 should be observed first with both the locked and unlocked indicators being displayed for 10 seconds during start-up. The sensors are preset at the factory for correct sensing distance and therefore adjustments are not recommended based on flashing error codes. Check all wiring and connections for any damage. If all power, wiring, and connections have been verified and error codes are still present, contact Fontaine customer service at 800-874-9780.

If an issue with the LST system has not been fully addressed by this technical bulletin, please contact Fontaine Fifth Wheel at 800.874.9780.

**Figure 4: LST Light Sequences**



Pin #	Pin Designation
1	+12VDC
2	Truck Ground
3	Locked Output
4	Unlocked Output