

ISO/TS16949 REGISTERED
TB-042 • REV.1

SmartLock™ Fifth Wheel

This technical bulletin is intended to provide information on the operation and troubleshooting of Fontaine® Fifth Wheel's 7000 and 7000CC series SmartLock fifth wheel. Fontaine's SmartLock system uses two electronic sensors to determine if the kingpin is correctly positioned in the lock and then relays that information to the in-cab display box. This technology improves driver safety and helps identify proper and improper coupling. It provides an extra 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 is not successfully coupled (unlocked)**. The SmartLock system displays a variety of lights for a range of durations to notify the driver of various issues (see Figure 1).

Light sequences

Coupled	Uncoupled	Light Status	Duration	Description
		Off	Continuous	No power to system
Green	Red	Steady On	10 Seconds	Startup check of sensors
Green	Black	Steady On	Continuous	Properly coupled
Black	Red	Steady On	Continuous	King pin detected and/or wedge not detected
Black	Red	Slow Blink*	Continuous	Wedge detected, no king pin, not ready to couple
Green	Red	Blink 1X then Pause	Continuous	Kingpin sensor failure
Green	Red	Blink 2X then Pause	Continuous	Wedge sensor failure
Green	Red	Blink 3X then Pause	Continuous	Wedge and king pin sensor failure

Figure 1: SmartLock light sequences

*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).



SmartLock 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 SmartLock 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 SmartLock fifth wheel with their own in-cab displays. Drivers or fleets that see light sequences that are not addressed or not consistent with Figure 1 should contact the truck manufacturer directly.

SmartLock system components

The SmartLock 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 SmartLock 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.

Fifth wheel with integral sensors



Figure 2: SmartLock fifth wheel

Coupling display box with the 31 foot wire (display to fifth wheel connection)



Figure 3: SmartLock display box

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 should be connected to the headlamps to activate the dimmer function automatically

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 connects the vehicle power and display to the fifth wheel and checks for voltage between pins 1 and 3. The voltage between pins 1 and 3 should be between 12-24 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 4 and check for a locked display. Similarly apply 12 volts of direct current to pin 5 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 locked and unlocked being displayed for 10 seconds during start-up. Error codes observed in light sequence concerning sensors are an indication of internal issue regarding the system. 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.

Plug that connects the vehicle power and display to the fifth wheel

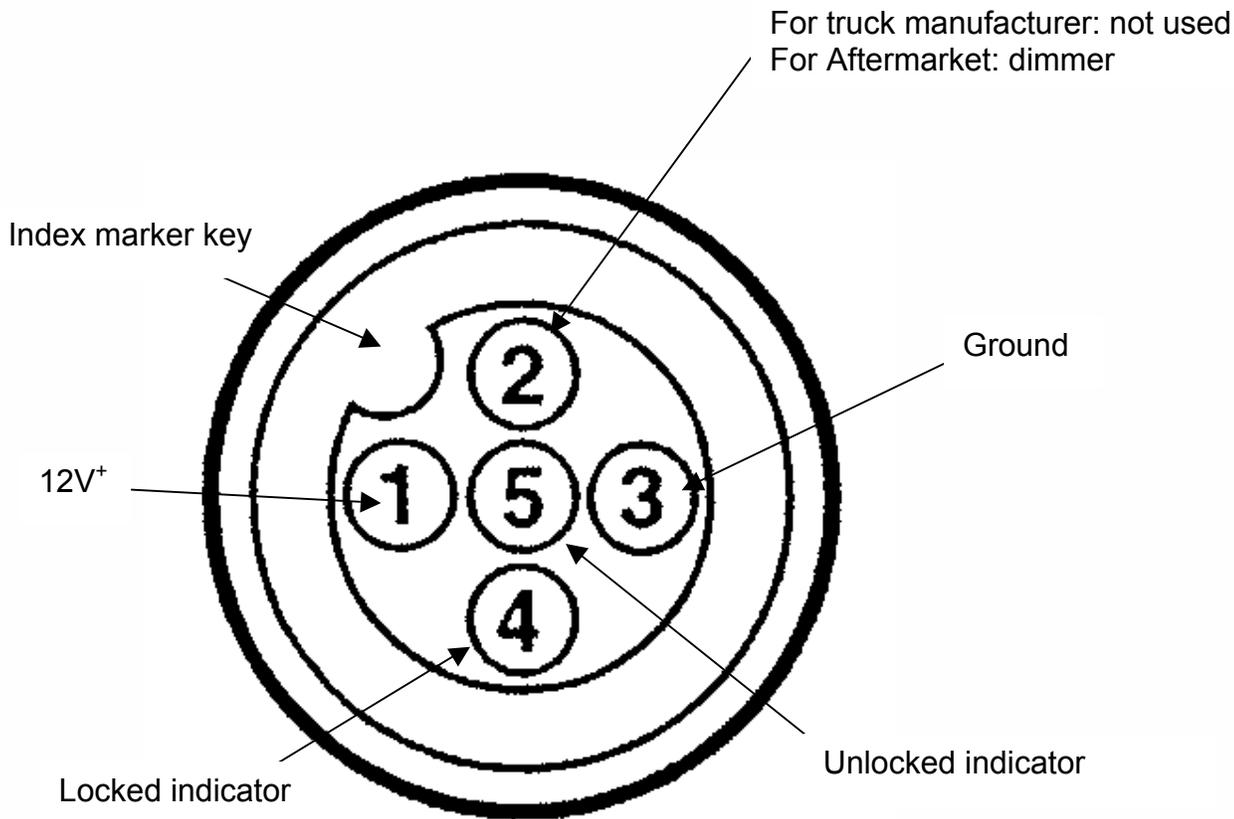


Figure 4: Plug pin designation

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