



# Preliminary Information

## PIT5747A Diagnostic Tip - Trailer Lighting Complaints With Trailing App RPO U1D

Models

Brand:	Model:	Model Years:	VIN:		Engine:	Transmissions:
			from	to		
Chevrolet	Silverado 1500 (New Model)	2019	All	All	All	All
Chevrolet	Silverado	2020	All	All	All	All
GMC	Sierra 1500 (New Model)	2019	All	All	All	All
GMC	Sierra	2020	All	All	All	All

Involved Region or Country	North America
Additional Options (RPO)	With Trailing App RPO U1D
Condition	<p>Some customers may comment that their trailer lighting does not operate in the manner expected. Diagnosing these concerns can be difficult because the issue could either be related to the truck or the trailer. This PI is to provide some additional diagnostic information for the symptoms below:</p> <ul style="list-style-type: none"> <li>-Trailer lighting is inoperative</li> <li>-Trailer detection is not possible</li> <li>-Trailer lights flash intermittently while the ignition/vehicle is OFF</li> </ul> <p><b>General Information</b></p> <p>-Any current body style vehicle without RPO U1D, along with all previous model years, are not equipped with a K68 Trailer Lighting Control Module. These vehicles utilize relays to power the trailer connector and do not have features like trailer detection, trailer theft, circuit diagnostics, or bulb outage detection.</p> <p>-Vehicles with RPO U1D, are equipped with a K68 Trailer Lighting Control Module, which powers the trailer lighting circuits to the trailer connector. This provides additional features like trailer detection, trailer theft and trailer lighting circuit diagnostics, such as, trailer bulb outage detection and over current.</p> <p>2019 Model Year Vehicles - Equipped with U1D use the K68 Trailer Lighting Control Module to control all trailer lighting through pulse width modulated (PWM) voltage. The trailer park, stop/turn signal lamp control circuits must draw at least 55mA of total current to be detected as a trailer or the Trailer Lighting Control Module will not control the lighting circuits to the trailer.</p> <p>2020 Model Year Vehicles- Equipped with U1D use the K68 Trailer Lighting Control Module to control trailer lighting through pulse width modulated (PWM) voltage to the stop/turn signal and backup lamps. The park lamps utilize an internal printed circuit board (PCB) relay to control the park lamp circuit. This enables additional output current for the park lights. The trailer stop/turn signal lamp control circuits must draw at least 55mA of total current to be detected as a trailer or the Trailer Lighting Control Module will not control the lighting circuits to the trailer.</p>
Cause	Root cause can vary, follow the information in the Correction section below.

### Correction:

When diagnosing a trailer lighting complaint it is recommended to connect the trailer simulator test tool (shown below), GM P/N EL-52641, to the truck's 7 way connector. The K68 Trailer Lighting Control Module will detect the test tool and enable the trailer lighting outputs. Turn on the ignition and operate all the lights: park, LT/RT turn, stop and reverse. If the lights on the test tool illuminate in correlation with the lights on the vehicle and no DTC's or warning messages are displayed, then the truck is operating as designed and no repairs should be performed to the truck.

**Note:** When the ignition is turned off, while the trailer simulator test tool is connected, it may be noticed that the trailer lighting LED's on the tester flicker/flash randomly. This is normal and is part of the K68 Trailer Lighting Control Module's trailer detection/trailer theft features.

Some trailers have wiring that is in very poor condition. A fault on the customer's trailer may result in DTCs set against the trailer lighting circuits along with DIC warning messages. In some cases, this may even open the K68 Trailer Lighting Control Module Fuse F74UA or F82UA on the vehicle. Verify the customer's trailer wiring is in good working condition.

If, after using the trailer simulator tester, the truck functions properly, you may follow the diagnostic tips listed below to help diagnose a trailer related issue. Trailer issues are NOT covered under warranty, but this information listed below can be used to help the customer/trailer supplier understand and correct any trailer related issues if they so choose.



1. Some trailers utilize a trailer mounted control module to operate some or all of the trailer lights. These trailers may use the B+ circuit from the trailer connector to power the trailer lighting circuits. These trailers may not always be detected by the Trailer Lighting Control Module and may set faults. Possible ways to remedy this:

A. Load resistors could be added in parallel to the detectable lighting circuits of the trailer, which will increase current draw. One known source is the Curt brand Trailer Wiring Adaptor P/N 57003, which can be plugged inline with the 7 way trailer connector. This adaptor can be used to simulate additional lighting load, allowing the K68 Trailer Lighting Control Module to detect the trailer, however some circuit diagnostics and bulb outage detection will not be possible. The addition of a load resistor/adaptor will be at the customer's/trailer manufacture's discretion.

B. The customer's trailer will need to be rewired to eliminate the trailer mounted control module and have the circuits wired directly to the trailer lamps. This option would allow for the K68 Trailer Lighting Control Module to properly detect the trailer and provide full system features such as, trailer detection, trailer theft, trailer lighting circuit diagnostics, and trailer bulb outage detection. This repair will be at the customer's/trailer manufacture's

discretion.

2. Some non-DOT approved LED lamps may not draw enough current for the K68 Trailer Lighting Control Module to detect a trailer when connected, and the K68 Trailer Lighting Control Module will not enable the lighting circuits to the trailer. Possible ways to remedy this:

A. Change one or more trailer lamps on the detectable circuits to incandescent bulbs/ DOT-approved LED lamps to increase the current draw which will maintain full functionality of the K68 Trailer Lighting Control Module. The addition of incandescent bulbs/ DOT-approved LED lamps will be at the customer's/trailer manufacture's discretion.

B. A load resistor could be added in parallel to the detectable lighting circuits of the trailer, which will increase current draw. One known source is the Curt brand Trailer Wiring Adaptor P/N 57003, which can be plugged inline with the 7 way trailer connector. This adaptor can be used to simulate additional lighting load allowing the K68 Trailer Lighting Control Module to detect the trailer, however some circuit diagnostics and bulb outage detection will not be possible. The addition of a load resistor/adaptor will be at the customer's/trailer manufacture's discretion.

3. Some aftermarket accessories, such as trailer mounted cameras, are incompatible with PWM voltage and may not function correctly when connected to the trailer lighting circuits of the vehicle. One possible way to remedy this is the lighting control circuits can be wired to control a relay, in which the relay will provide stable voltage to the customer's aftermarket accessory. This repair will be at the customer's/trailer manufacture's discretion.

4. With the ignition OFF, the K68 Trailer Lighting Control Module will periodically pulse the lighting circuits of the trailer to verify it is still connected. Depending on the configuration of the trailer lights, the trailer lights may periodically flash as part of the trailer detection and/or trailer theft features. These flashes correspond to when the K68 Trailer Lighting Control Module pulses the lighting circuits to ensure the trailer is still connected and is considered normal. If the periodic trailer light flashing is objectionable to the customer, then engineering released updates to the K68 Trailer Lighting Control Module, see the latest version of bulletin 20-NA-198. After this update is completed, the trailer lights will only flash once every 42 minutes when the trailer theft is turned off. If the trailer theft is on, there will be no change to the timing of the trailer light flashing as the system needs to continuously monitor the trailer connection.

### Version History

Version	2
Modified	06/03/2020 - Created on. 12/14/2020 - Updates to step 4 in the correction.



GENERAL MOTORS

© 2021 General Motors. All Rights Reserved.