

## Connecting Aftermarket Tail Lamps to Ram LED System

Aftermarket tail lamps can be added to a Ram truck with production LED tail lights. But, special provisions must be made to eliminate the "fast flash" and the lamp out indication in the cluster. This is done by adding a relay that will ground the diagnostics circuit when the turn signal bulb/LED array is on.

OEMs are required to perform diagnostics on certain lighting circuits. In the tail lamps, this requirement applies to the turn signals. In vehicles with LED tail lamps, there is circuitry built into the LED array that determines if the LEDs are illuminating when the turn signal is on. The LED array sends a voltage out on the diagnostics circuit. The diagnostics voltage is read by the CBC. (Central Body Controller) The CBC controls all exterior lighting on the vehicle. When the turn signal array is illuminated, the voltage on the diagnostics circuit is low. Conversely, when the array is off, the diagnostics voltage is high. The diagnostic voltage cycles as the turn signal flashes. The CBC compares the state of the diagnostic voltage to the desired state of the turn signal circuit. If the states are incorrect, the CBC tells the Cluster there is a turn signal fault and the cluster "fast flashes" the turn signal indicator and displays a bulb out message.

To add aftermarket tail lamps, disconnect the production tail lamps in the vehicle. Connect the ground, stop/turn, back up and park lamp circuits of the vehicle to the appropriate circuits provided with the aftermarket tail lamp. (see attached schematic for details) Attach one side of the coil of a normally open SPST relay to the stop/turn lamp circuit. Ground the other side of the coil. Attach one side of the relay contacts to the diagnostics circuit. Ground the other side of the contacts. The attached schematic shows both relay grounds being made through tail lamp ground circuit. If this is not convenient, the relay grounds may be tied to chassis. Separate relays must be used for the left and right turn signals.

The preferred method for connecting the aftermarket lights to the vehicle wiring would be to use some sort of sealed connector system. Weather Pack has commercially available sealed connector systems. If no connector is available, the vehicle harness connector should be removed and the tail lamp circuits should be butt spliced to the vehicle harness. All splices should be soldered and sealed using self-sealing heat shrink tube. If there is a need to leave the vehicle harness connector intact, a center spliced may be used. All splices should be soldered and sealed. The harness connector must be capped. Bundle all splice wires together and secure with tie wraps.

Mount the relays in a location that is shielded from the environment and protected from damage.

# 2013 1500 EXTERIOR LIGHTING MODIFICATIONS / LED'S

