



## SVE BULLETIN

### SPECIAL VEHICLE ENGINEERING – BODY BUILDERS ADVISORY SERVICE

Toll-free: (877) 840-4338

E-Mail: [bbasqa@ford.com](mailto:bbasqa@ford.com) (preferred)

Fax: (313) 594-2633

Website: [www.fleet.ford.com/truckbbas](http://www.fleet.ford.com/truckbbas)

QVM Bulletin: Q-163

Date: July, 30 2007

## Wig Wags and DRL Control with Smart Junction Box

**Models Affected:** 2008 Model Year F350/450/550 Chassis Cab. US ambulance applications only.

### **Background**

The 2008 F-Series have the same headlamp style as prior models, 1 bulb performs both low and hi beam functions. This style of lamp cannot have both filaments energized at the same time. The bulb cannot handle the stresses created when both filaments are lit (too much heat) and often the glass breaks. When activated the ambulance wig wag system controls the Ford headlamps and flashes the high beams. If an ambulance is equipped with Daytime Running Lamps (DRLs) and has wig wags active, the low beam will automatically turn on during the day and both the high and low beam filament will energize to potentially damage the headlamp. Therefore, DRLs must be disabled when operating wig wags. This can be performed by opening the low beam circuit before the headlamp with a relay and using the park lamp output signal as a control to disable the wig wags for normal Ford headlight functionality at night.

### **SPDJB: System Description**

Smart Power Distribution Junction Box (SPDJB or SJB) was incorporated in the 2008 model year for F250/350/450/550. Its job is to provide protection against excessive current loads, typical of a short circuit, by shutting down circuit function. The "low-beam" circuit (or "auto-lamps" if so equipped) is protected by SPDJB integrated circuit strategy that shuts down headlamp function when it detects excessive, predetermined, current levels (i.e. larger than a 55-watt bulb load) or short-to-ground.

### **The Affect on Aftermarket Ambulance Headlight Systems (Wig Wags) with DRLs**

The SJB strategy may interpret the switching from the aftermarket ambulance headlamps wig wag control system to the original Ford headlamps system with the DRLs, as a short-to-ground, causing the power feeding a headlamp circuit through the SJB to be turned off. The following is an example of normal Ambulance headlamp activity where this may occur.

- Returning to original Ford headlight functionality by enabling DRLs. To disable the DRLs a relay opens the low beam circuit, the relay is closed to complete low beam circuit to enable DRLs. The headlamp current is immediately diverted to the Ford headlamps. SPDJB interprets the immediate in-rush current to a cold Ford lamp as a short-to-ground.

### **The Effect of an SPDJB Shut-down Event**

- Full Ford headlamp function can be restored by turning the Ford headlamp switch off and back on again. However, a short-to-ground DTC code is flagged and will not clear until approximately 80 key-on ignition starts. The codes are B2A2F (right-front low-beam) and B2A31 (left-front low-beam). Also, the event is stored and after 200 events a Ford dealer will be required to clear codes and return normal headlamp switch function. This repeats at 400 events, and at 600 events the SJB will require replacement.
- Open circuits will not have an affect on SJB diagnostics during normal operation.

### **Solution**

On 07/30/07, customers may have their Ford dealer reprogram the Smart Junction Box (SJB) with a new calibration using Technical Service Bulletin TSB 07-16-06.