

Q-276



SVE BULLETIN

SPECIAL VEHICLE ENGINEERING – BODY BUILDERS ADVISORY SERVICE

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Ford Programmable Battery Guard / Enhanced Cut-off Relay

Models Affected: Transit with optional Ford Programmable Battery Guard / Enhanced Cut-off Relay (option code 59C, introduced in 2018 MY)

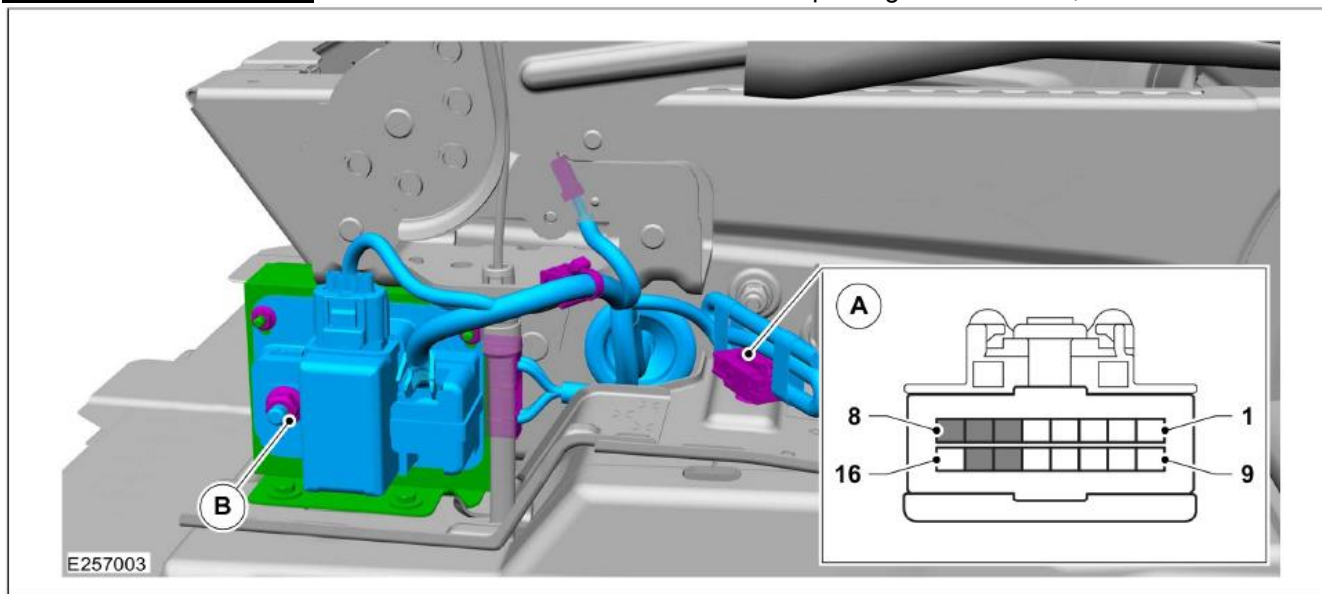
Purpose: To provide an overview of the Ford Programmable Battery Guard / Enhanced Cut-off Relay (FPBG) option (59C) available for Transit. **FPBG programming, set-up, and additional information is found in section 4.4.7 (Electrical; The Ford Programmable Battery Guard) of the most recent version of the Transit Body and Equipment Mounting Manual (BEMM). The BEMM is available to download from the [BBAS website](http://www.fleet.ford.com/truckbbas).**

FPBG System Summary:

FPBG is a system to control a production fit isolation relay to allow electric power take off at engine run and engine off. FPBG monitors the factory starting battery(s), and disconnects the aftermarket load when a preset minimum voltage or time limit is reached. This system provides the following benefits:

- Prevents low voltage / no start issues
- Prevents aftermarket systems from deep cycling Ford batteries
- Preserve crank functionality
- Maximizes fuel save by allowing electrical PTO with engine off.
- Provides efficient 3rd party load disconnect

FPBG Interface Location: The FPBG interface is located under the parking brake console, next to driver's seat.



| Item | Description |
|------|---|
| A | FPBG Interface Connector – Pin out found in BEMM |
| B | Power Relay Terminal (B)- Third Party Power Connection (+12V) |

OPERATION MODES:

- FPBG has 8 operation modes with various voltage disconnect and key off operation times for different battery configurations.

| FPBG Mode Calibration Table | | | | |
|-----------------------------|---|---|---------------------------|---------------------|
| Mode Number | Ford Battery Configuration | Upfitter Supplied Battery Configuration | Low Voltage Threshold (V) | Key Off Timer (min) |
| Mode 1 | Single Flooded -- 70AH | - | 12.300 | 30 |
| Mode 2 | Single Flooded -- 70AH | AGM/GEL | 12.300 | 60 |
| Mode 3 | Single AGM -- 70AH | - | 12.150 | 60 |
| Mode 4 | Single AGM -- 70AH | AGM/GEL | 12.150 | 120 |
| Mode 5 | Twin AGM -- 70AH (x2) | - | 11.850 | 90 |
| Mode 6 | Twin AGM -- 70AH (x2) | AGM/GEL | 11.850 | 180 |
| Mode 7 | Twin AGM -- 70AH (x2) No Timer & Uninterrupted | - | 11.850 | N/A |
| Mode 8 | Twin AGM -- 70AH (x2) No Timer & Uninterrupted | AGM/GEL | 11.850 | N/A |

In addition the FPBG has these functions:-

- **Low Voltage Cut off – Engine off:**
 - FPBG allows engine off operation of peripheral loads (from 30mins to 3hrs) unless voltage drops below the minimum voltage (from 11.85V to 12.3V). Range of voltage and time set by the operation mode.
- **External Charger – Engine Off:**
 - FPBG closes contacts to get free charge up to 8 Hours or 16V when an external charger is detected.

Additional features:

FPBG has Diagnostics messages via a LED visual indicator on the ECU enclosure. Certain conditions transmitted to a relay output allowing the customer to be alerted to any failure during operation or service.

The Ford Programmable Battery Guard (FPBG) is not designed for long duration engine run power for loads greater than 70A. The system is mainly designed for engine off short duration heavy loads, or long duration low loads with the protection by isolation to allow enough energy to still crank the engine. The Guard can still provide engine run power to provide high current short duration, charge systems such as third party batteries and systems such as inverters but only for amperage versus time durations as described further in the Transit Body and Equipment Mounting Manual.

If you have any questions, please contact the Ford Truck Body Builders Advisory Service as shown in the header of this bulletin.