FORD MOTOR COMPANY (FORD) RESPONSE TO PE24-002

Request 15

Furnish Ford's assessment of the effects that the alleged defect has on the following vehicle systems:

a. The occupant restraint system;
b. External lighting systems such as headlamps, taillamps, and hazard lamps;
c. The auto start/stop system;
d. The electric parking brake;
e. The transmission gear selector controls; and
f. The electric door locks and window controls.

Answer

a. The occupant restraint system;
In the event of a loss of motive power and electrical power, the occupant restraint system may have a limited operating window. The normal operating range for the restraints control module (RCM) is 6.8V to 15 V. The RCM is equipped with a super capacitor to provide backup energy sufficient to activate the seat belt pretensioner and airbags for 150 milliseconds after a possible loss of electrical power event.

b. External lighting systems such as headlamps, taillamps, and hazard lamps;
In the event of a complete loss of electrical power from the vehicle's power supply system, all headlamp, tail lamp, and hazard functions would be inoperable. For scenarios where the driver reported loss of motive power and their vehicle came to a stop and entered into Park gear, there may be some intermittent functionality with lighting if the battery is at low voltage but not completely depleted.

c. The auto start/stop system;
The auto stop/start feature will be inhibited if the 12-volt battery voltage is below 68% state of charge (SOC) at key-on. When auto stop/start is inhibited the engine and alternator will continue to operate regardless of the SOC of the 12-volt battery.

However, if the 12-volt battery is above the 68% SOC at key on and then battery experiences a sudden loss of voltage during the drive cycle, the vehicle will not detect the drop in battery SOC and will not inhibit the auto stop/start event. This can lead to an inability for the auto stop/start system to restart the vehicle.

d. Electric parking brake:
In the event of complete electrical power loss, the electronic park brake cannot be applied or released. It will stay in the state it was in when the failure event occurred.

e. The transmission gear selector controls;
In the event of complete electrical power loss to the gear selector and transmission, the transmission will default to park automatically. No 12V power is needed to engage the park pawl due to stored energy in the return spring in the transmission. From a gear selector perspective, the gear selector will lose function and will not display the range of the transmission. The gear selector is electronic and needs electric power to function.

f. The electric door locks and window controls.
In the event of a complete electrical power loss, the vehicle doors, when locked, cannot be opened by pulling the exterior side of the door handle. Interior door handles are always usable to open the door from inside the vehicle cabin irrespective of the vehicle locking state by pulling the appropriate interior handle. Front driver side and passenger side doors, when locked, require one pull of the inside release door handle to open the door. Rear driver side and passenger side doors, when locked, require two pulls of the inside release handle to open the door.

Powered windows will not respond to switch inputs and will remain secured in the last stopped position. If a window or windows were moving at the time of a complete power loss, the windows will stop moving immediately.