



Question 13, Describe the potential and/or actual consequences of the wiring harness from the mDRIVE transmission gear lever selector to the mDRIVE transmission electronic control module chafing and/or short circuiting. Provide Mack's assessment of the vehicle operator's ability to mitigate the alleged defect condition as it is occurring, in the event the subject wiring harness has been compromised.

Response: Consequences of damage to the wiring harness between the transmission gear shift lever and transmission control is conditional upon vehicle status:

1. Vehicle not underway, not being driven, engine running:

Power input interrupted (power or ground)

Vehicle will not shift into gear clutch will not engage.

Engine stays at idle

Throttle response, engine responds to accelerator input.

Braking is normal

Instrument Cluster, Grade Gripper Malfunction and Lightning Bolt

Gear shifter, "***" Flashing, no response

BB 2 (DL 2) interrupted

Vehicle will not shift into gear clutch will not engage.

Engine stays at idle

Throttle response, engine responds to accelerator input.

Braking is normal

Instrument Cluster no change

Gear shifter no change

BB1 and PWT (DL 1 and DL 9) interrupted

Vehicle will not shift into gear clutch will not engage.

Engine stays at idle

Throttle response, engine responds to accelerator input.

Braking is normal

Instrument Cluster, Grade Gripper Malfunction and Lightning Bolt

Gear shifter, "***" Flashing, no response



2. Vehicle Underway Being Driven, Between Gears

Power input interrupted (power or ground)

The TECU (transmission electronic control unit) will not do anything at all. All valves are deactivated. Current Clutch state stays open or closed, current transmission state stays in gear or out of gear.

Vehicle will not shift into gear

Engine RPM rises due to lack of TECU speed control

Throttle response, engine responds to accelerator input.

Braking is normal

Instrument Cluster, Grade Gripper Malfunction and Lightning Bolt

Gear shifter, "***" Flashing, no response

3. Vehicle Underway Being Driven, Driveline Engaged

Power input interrupted (power or ground)

The TECU (transmission electronic control unit) will not do anything at all. All valves are deactivated. Current Clutch state stays open or closed, current transmission state stays in gear or out of gear.

Vehicle will stay in gear

Engine RPM when slowing vehicle to almost a stop, will rise to maintain idle set RPM (idle speed governor)

Throttle response, engine responds to accelerator input.

Braking, the engine load (RPM) and subsequent torque will rise against the braking application

Instrument Cluster, Grade Gripper Malfunction and Lightning Bolt

Gear shifter, "***" Flashing, no response

BB 2 (DL 2) interrupted

Vehicle will stay in gear (no impact)

Engine continues to function normally (no impact)



Throttle response, engine responds to accelerator input. (no impact)

Braking is normal

Instrument Cluster (no impact)

Gear shifter (no impact)

PWT (DL9) interrupted

Vehicle will stay in gear (no impact)

Engine continues to function normally (no impact)

Throttle response, engine responds to accelerator input. (no impact)

Braking is normal

Instrument Cluster (no impact)

Gear shifter (no impact)

BB1 and BB2 (DL1/2) interrupted

Vehicle will stay in gear (no impact)

Engine continues to function normally until near stationary and then goes to idle

Throttle response, engine responds to accelerator input until near stationary and then

No throttle authority.

Braking is normal

Instrument Cluster, Grade Gripper Malfunction and Lightning Bolt

Gear shifter, "***" Flashing, no response

BB1 and PWT (DL1/9) interrupted

Vehicle will stay in gear (no impact)

Engine continues to function normally until near stationary and then goes to idle

Throttle response, engine responds to accelerator input until near stationary and then

No throttle authority.

Braking is normal

Instrument Cluster, Grade Gripper Malfunction and Lightning Bolt

Gear shifter, "***" Flashing, no response

BB2 and PWT (DL2/9) interrupted



Vehicle will stay in gear (no impact)

Engine continues to function normally (no impact)

Throttle response, engine responds to accelerator input. (no impact)

Braking is normal

Instrument Cluster (no impact)

Gear shifter (no impact)

BB1, BB2, and PWT (DL1/2 and 9) interrupted

Vehicle will stay in gear

Braking, the engine load (RPM) and subsequent torque will rise against the braking application

Throttle response, engine responds to accelerator input.

Braking, the engine load (RPM) and subsequent torque will rise while braking

Instrument Cluster, Grade Gripper Malfunction and Lightning Bolt

Gear shifter, "***" Flashing, no response

Mack's assessment of the vehicle operator's ability to mitigate the alleged defect condition as it is occurring, in the event the subject wiring harness has been compromised:

Response: If there is damage or failure of the harnessing while the vehicle is stationary, the vehicle will not engage in gear and will not move.

If there is damage or failure of the harnessing while the vehicle is underway, the driver has sufficient control of the vehicle to bring it safely to a stop. The instrument cluster and gearshift selector both provide warning to the driver of a malfunction, which would alert the driver.