

GEAR SELECTOR INDICATOR (Continued)

dimmer thumbwheel allows the VFD to be illuminated at full brightness while the exterior lamps are turned On during daylight hours. The gear selector indicator VFD is serviced as a unit with the instrument cluster.

OPERATION

The electronic gear selector indicator gives an indication to the vehicle operator of the transmission gear that has been selected with the automatic transmission gear selector lever. This gauge is controlled by the instrument cluster circuit board based upon cluster programming. The cluster circuitry automatically configures itself for the proper automatic transmission model based upon the hard wired transmission range sensor mux circuit input to the cluster. Each time the cluster is disconnected from battery current for more than about five minutes, it must configure itself again for the automatic transmission model that is in the vehicle when it is reconnected to battery current. The gear selector indicator information is displayed by a dedicated Vacuum Fluorescent Display (VFD) on the instrument cluster electronic circuit board, and the VFD will not display the gear selector indicator information after the ignition switch is turned to the Off position. The instrument cluster circuitry configures the gear selector indicator VFD based upon the following inputs from the transmission range sensor:

Open Circuit - If the transmission range sensor mux circuit is open, the cluster circuitry controls the gear selector indicator display based upon electronic messages received from the electronic Transmission Control Module (TCM) over the Programmable Communications Interface (PCI) data bus. If the input is open circuit and no electronic messages are received from the TCM within two seconds, the instrument cluster circuitry will cycle the indicated gear selector position from P, to R, to N, to D to 2 repeatedly and continuously until the condition is resolved or until the ignition switch is turned to the Off position, whichever occurs first.

Resolved Circuit - If the transmission range sensor mux circuit is resolved, the cluster circuitry controls the gear selector indicator display based upon the resistance value of the hard wired input from the transmission range sensor. If the cluster has configured itself for the transmission range sensor input and detects a short to ground in the transmission range sensor mux input, the cluster will indicate all positions in the VFD; or, if this input is open circuit, the cluster will blink all positions in the VFD. The VFD display for the short-to-ground and open circuit conditions will continue until the condition is resolved or until the ignition switch is turned to the Off position, whichever occurs first.

Actuator Test - Each time the cluster is put through the actuator test, the VFD will display all of its characters at once, then step through each character segment individually during the VFD portion of the test to confirm the functionality of the VFD and the cluster control circuitry.

On models with a TCM, the TCM continually monitors the transmission range sensor, then sends the proper gear selector indicator messages to the instrument cluster. On models without a TCM, the instrument cluster continually monitors the hard wired transmission range sensor multiplexed input. For further diagnosis of the gear selector indicator or the instrument cluster circuitry that controls this function, (Refer to 8 - ELECTRICAL/INSTRUMENT CLUSTER - DIAGNOSIS AND TESTING). On models without a TCM, for further diagnosis of the transmission range sensor, (Refer to 21 - TRANSMISSION/TRANSAXLE/AUTOMATIC - 42RE/TRANSMISSION RANGE SENSOR - DIAGNOSIS AND TESTING) or (Refer to 21 - TRANSMISSION/TRANSAXLE/AUTOMATIC - 46RE/TRANSMISSION RANGE SENSOR - DIAGNOSIS AND TESTING). On models with a TCM, for proper diagnosis of the transmission range sensor, the TCM, the PCI data bus, or the message inputs to the instrument cluster that control the gear selector indicator, a DRBIII scan tool is required. Refer to the appropriate diagnostic information.

HIGH BEAM INDICATOR**DESCRIPTION**

A high beam indicator is standard equipment on all instrument clusters. The high beam indicator is located near the upper edge of the instrument cluster overlay, between the tachometer and the speedometer. The high beam indicator consists of a stenciled cutout of the International Control and Display Symbol icon for "High Beam" in the opaque layer of the instrument cluster overlay. The dark outer layer of the overlay prevents the indicator from being clearly visible when it is not illuminated. A blue lens behind the cutout in the opaque layer of the overlay causes the icon to appear in blue when it is illuminated from behind by a replaceable incandescent bulb and bulb holder unit located on the instrument cluster electronic circuit board. The high beam indicator is serviced as a unit with the instrument cluster.

OPERATION

The high beam indicator gives an indication to the vehicle operator when the headlamp high beams are illuminated. This indicator is hard wired on the instrument cluster electronic circuit board, and is