Instrument Cluster Description and Operation

Displays Test

Certain instrument panel cluster (IPC) features are tested when the ignition is turned on in order to verify the features are working properly. The following indicators illuminate for 3 seconds:

- The ABS indicator
- The battery indicator
- The brake indicator
- The LOW FUEL indicator
- The park brake indicator
- Security indicator
- All gages sweep to their minimum physical position and then to their actual physical position.

The following indicators illuminate for the specified times:

- The AIR BAG indicator flashes 7 times.
- The fasten seatbelt indicator illuminates for 20 seconds followed by 55 seconds of flashing with the drivers seatbelt unfastened, or, the fasten seatbelt indicator will illuminate for 8 seconds with the drivers seatbelt fastened.
- The SERVICE ENGINE SOON indicator (MIL) illuminates briefly.
- All segments of the driver information center (DIC) illuminate briefly.
- All gages sweep to their minimum physical position and then to their actual physical position.

Indicators and Warning Messages

Refer to Indicator/Warning Message Description and Operation .

Engine Coolant Temperature Gage

The IPC displays the engine coolant temperature as determined by the powertrain control module (PCM). The IPC receives a class 2 message from the PCM indicating the engine coolant temperature. The engine coolant temperature gage defaults to 75°C (160°F) or below when:

- The PCM detects a malfunction in the engine coolant temperature sensor circuit.
- The IPC detects a loss of class 2 communication with the PCM.

Engine Oil Pressure Gage

The IPC displays the engine oil pressure as determined by the PCM. The IPC receives a class 2 message from the PCM indicating the engine oil pressure. The engine oil pressure gage defaults to 0 kPa (0 psi) or below if:

- The PCM detects a malfunction in the engine oil pressure sensor circuit.
- The IPC detects a loss of class 2 communications with the PCM.

Fuel Gage

The IPC displays the fuel level as determined by the PCM. The IPC receives a class 2 message from the PCM indicating the fuel level percent. The fuel gage defaults to empty if:

- The PCM detects a malfunction in the fuel level sensor circuit.
- The IPC detects a loss of class 2 communications with the PCM.

When the fuel level is less than a pre-determined value, the low fuel indicator illuminates.

Reviewing the fuel system description will further explain how the system functions. Refer to Fuel System Description .

Hourmeter

The IPC can display the accumulated engine run time hours using the VF display when the cluster is in the LOCK or ACC position. The IPC stores the accumulated engine run time hours in a non-volatile format. The accumulated hours would not change if the battery was disconnected or removed. When the ignition is OFF and the trip reset switch is pushed in and held for more than 4 seconds, the IPC will display the accumulated hours for 30 seconds. The hourmeter will reset to 0.0 when 100,000 hours are accumulated, and begin to accumulate hours again.

Odometer

The IPC contains a season odometer, a trip odometer, and a hourmeter. Momentarily press the trip/reset switch on the IPC in order to toggle between the season odometer, the trip odometer, and the hourmeter. Press the trip/reset switch for greater than 1 second, while the trip odometer is displayed, in order to reset the trip odometer. For vehicles with steering controls, the Personal Trip On/Off (Business Trip On/Off) must be turned On in order for the trip odometer to accumulate. When the Personal Trip On/Off (Business Trip On/Off) parameter is displayed and the select button is pressed on the steering wheel, the On/Off state of the Personal Trip (Business Trip) shall be changed to the opposite state. The IPC displays the vehicle mileage and trip mileage as determined by the IPC. The IPC calculates the mileage based on the vehicle speed signal circuit from the PCM. The odometer will display 'error' if an internal IPC memory failure is detected. The odometer can be configured to display either miles or kilometers.

PRNDL Display

The IPC displays the selected gear position as determined by the PCM. The IPC receives a class 2 message from the PCM indicating the gear position. The PRNDL display blanks if:

- The PCM detects a malfunction in the transmission range switch circuit.
- The IPC receives a class 2 message indicating the park position and the column park switch indicates a position other than park, open input.
- The IPC detects a loss of class 2 communications with the PCM.

Speedometer

The IPC displays the vehicle speed on the analog speedometer based on the vehicle speed signal from the PCM. The PCM converts the data from the vehicle speed sensor to a 4,000 pulses/mile signal. The IPC uses the vehicle speed signal circuit from the PCM in order to calculate the vehicle speed.

The speedometer defaults to 0 km/h (0 mph) if a malfunction in the vehicle speed signal circuit exists.

Tachometer

The IPC displays the engine speed on the analog tachometer based on the engine speed signal from the PCM. The IPC uses the engine speed signal circuit--2 pulses/engine revolution--from the PCM in order to calculate the engine speed.

The tachometer defaults to 0 RPM if a malfunction in the engine speed signal circuit exists.

Transmission Temperature Gage

The IPC displays the transmission temperature as determined by the PCM. The IPC receives a class 2 message from the PCM indicating the transmission temperature. The transmission temperature gage will default to 40°C (100°F) or below if:

- The PCM detects a malfunction in the transmission temperature sensor circuit.
- The IPC detects a loss of class 2 communications with the PCM.

Voltmeter

The IPC displays the system voltage as detected at the ignition 1 input of the IPC. When the engine is ON, the gage should be between 10 and 16 volts.