

DESCRIPTION AND OPERATION

Wheels And Tires

⚠ WARNING: Do not mix different types of tires (radial, bias or bias-belted tires) on the same vehicle except in emergencies (temporary spare usage). Vehicle handling may be affected and may result in serious personal injury.

Factory-installed tires and wheels are designed to operate satisfactorily with loads up to and including full-rated load capacity when inflated to recommended inflation pressures.

Correct tire pressure and driving techniques have an important influence on tire life. Heavy cornering, excessively rapid acceleration and unnecessary sharp braking increase tire wear.

To equalize tire wear, the tires should be rotated at recommended intervals.

Safety Precautions

⚠ WARNING: Vehicle may have multiple drive wheels. Do not use engine to power the driveline unless all drive wheels are elevated off the ground. Drive wheels in contact with ground could cause unexpected vehicle movement. Failure to follow this instruction may result in serious personal injury.

⚠ WARNING: Always match the tire size to the wheel size during assembly. Incorrect matching can result in tire bead damage or tire separation from the wheel. Failure to follow this instruction may result in serious personal injury to technician or vehicle occupant(s).

⚠ WARNING: Before servicing any tire, ask the customer if anyone injected a tire sealant into the tire. Tire sealants may be flammable and can burn or explode if exposed to an ignition source. Failure to follow this instruction may result in serious personal injury.

⚠ WARNING: Replacement wheels must be equivalent to the original equipment wheels in:

- load carrying capacity.
- diameter, width and offset.
- pilot hole and bolt circle.

Combined load carrying capacity of replacement wheels for a given axle, must be equal to or greater than that axle's gross axle weight rating (GAWR) identified on the vehicle's Safety Compliance Certification label. All other specifications should be evaluated by measurement of both the original wheel and the replacement wheel. If specifications are not equivalent, the safety and handling of the vehicle may be degraded, which may result in serious injury to the vehicle occupant(s).

⚠ WARNING: Only use the correct wheel nut for the application. Incorrect nuts can come loose and result in wheel separation from vehicle and loss of vehicle control. Failure to follow this instruction may result in serious injury to vehicle occupant(s).

⚠ WARNING: Always wear eye protection when servicing a vehicle. Failure to follow this instruction may result in serious personal injury.

⚠ WARNING: Keep eyes away from valve stem when deflating tires. Reduce air pressure in tire as much as possible by pushing in valve core plunger prior to removing the core. Escaping air can carry particles that can injure the eyes. Failure to follow these instructions may result in serious personal injury.

⚠ CAUTION: Do not clean aluminum wheels with steel wool, abrasive-type cleaners or strong detergents or damage to the wheel finish may occur. Use Wheel and Tire Cleaner ZC-27-A or -B or equivalent.

When carrying out any inspection or repair procedures on wheels and tires, follow the preceding safety precautions.

Tire Pressure Monitoring System (TPMS)

The tire pressure monitoring system (TPMS) includes:

- the smart junction box (SJB), TPMS functionality is integrated within the SJB.
- four tire pressure sensors.
- four tire pressure sensor cradles.

DESCRIPTION AND OPERATION (Continued)

- four tire pressure sensor straps.
- an instrument cluster indicator.
- a message center (if equipped).

Tire Pressure Monitoring System (TPMS) Module

The SJB contains the TPMS functionality. Refer to Tire Pressure Monitoring System in Diagnosis and Testing for TPMS fault diagnosis and repair.

The SJB compares the information of each tire pressure sensor transmission against a pressure limit. If the SJB determines that the tire pressure has fallen below the low limit, the SJB communicates this to the instrument cluster on the vehicle communication bus.

Tire Pressure Monitoring System (TPMS) Pressure Sensor

The SJB monitors the air pressure in the 4 road tires with tire pressure sensors. The sensors transmit radio frequency signals to the SJB approximately every 60 seconds when the vehicle speed exceeds 32 km/h (20 mph).

The tire pressure sensors are battery operated and are mounted to metal brackets (called cradles) on the wheels inside the tires. The sensors are mounted 180 degrees from the valve stem.

The tire pressure sensor can be serviced separately from the cradle and the strap.

Tire Pressure Monitoring System (TPMS) Pressure Sensor Cradle

The tire pressure sensor cradles are mounted to the wheels with metal straps and have an adhesive strip to aid in their retention to the wheel.

To service the sensor cradle, the strap must also be removed.

Tire Pressure Monitoring System (TPMS) Pressure Sensor Strap

The sensor strap keeps the sensor and the cradle retained to the wheel. A factory-installed strap is joined together with a one-time use buckle and a dealer-installed strap is joined together with a worm gear (similar to a radiator hose clamp). Both straps should be discarded after removal and should not be re-used.

The sensor can be serviced separately from the strap and cradle. The sensor is available separately from the cradle and the strap. The cradle and strap are available as a strap kit. There are several different strap kits available based on wheel diameter, all strap kits share the same base part number.

Instrument Cluster and Message Center

The instrument cluster illuminates the TPMS indicator when it receives a message from the SJB to do so and displays the appropriate message(s) in the message center (if equipped).

The instrument cluster and message center are diagnosed and serviced in their own respective workshop manual sections.