TABLE OF CONTENTS

INTRODUCTION

CONTENTS

A MESSAGE FROM CHRYSLER LLC

Chrysler LLC and Cummins® welcome you as a Cummins® 24-Valve Turbo Diesel-powered truck owner.

NOTE: Some aftermarket products may cause severe engine/transmission and/or exhaust system damage. Your vehicle's Powertrain Control Systems can detect and store information about vehicle modifications that increase horsepower and torque output such as whether or not performance-enhancing powertrain components, commonly referred to as "performance chips," have been used.

This information cannot be erased and will stay in the system's memory even if the modification is removed. This information can be retrieved by Chrysler LLC, and service and repair facilities, when servicing your vehicle. This information may be used to determine if repair will be covered by warranty.

Almost 100% of the heavy duty trucks in the United States and Canada are diesel-powered because of the fuel economy, rugged durability, and high torque which permits pulling heavy loads. Cummins® engines power well over half of these trucks. Now this same technology and proven performance is yours in your truck equipped with the Cummins® turbocharged, charge air-cooled, diesel engine.

Your diesel truck will sound, feel, drive and operate differently from a gasoline-powered truck. It is important that you read and understand this manual. You may find that some of the starting, operating and maintenance procedures are different. However, they are simple to follow and careful adherence to them will ensure that you take full advantage of the features of this engine.

Thank you for choosing the Cummins® Turbo Diesel powered truck.

THINGS TO KNOW BEFORE STARTING YOUR VEHICLE

CONTENTS

NEW ENGINE BREAK-IN

The Cummins® 24-Valve Turbo Diesel engine does not require a break-in period due to its construction. Normal operation is allowed, provided the following recommendations are followed:

NOTE: Light-duty operation, such as light trailer towing or no load operation, will extend the time before the engine is at full efficiency. Reduced fuel economy and power may be seen at this time.

- Warm up the engine before placing it under load.
- Do not operate the engine at idle for prolonged periods.
- Use the appropriate transmission gear to prevent engine lugging.
- Observe vehicle oil pressure and temperature indicators.
- Check the coolant and oil levels frequently.
- Vary throttle position at highway speeds when carrying or towing significant weight.

Because of the construction of the Cummins® diesel engine, engine run-in is enhanced by loaded operating conditions, which allow the engine parts to achieve final finish and fit during the first 6,000 mi (10 000 km).

CAUTION!

- **During the first 500 mi (805 km) that your vehicle is driven, do not tow a trailer. Doing so may damage your vehicle.**
- **Limit your speed to 50 mph (80 km/h) during the first 500 mi (805 km) of towing.**

UNDERSTANDING THE FEATURES OF YOUR VEHICLE

CONTENTS

OVERHEAD CONSOLE WITH ELECTRONIC VEHICLE INFORMATION CENTER (EVIC)

The overhead console contains dome/reading lights, and an Electronic Vehicle Information Center (EVIC).

Dome/Reading Lights

Located in the overhead console are two dome/reading lights.

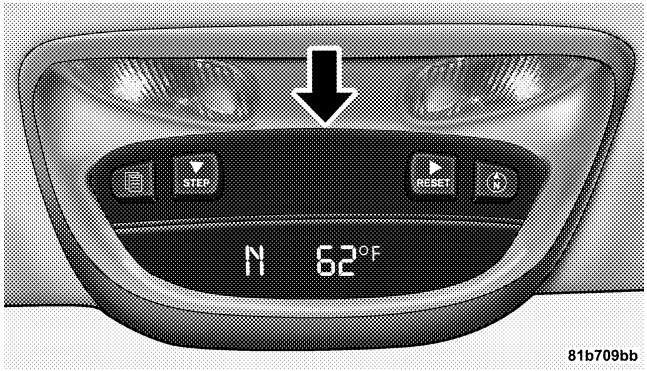
The dome/reading lights illuminate when a door is opened, or when the interior lights are turned on by rotating the dimmer control located on the headlight switch.

The reading lights are activated by pressing on the recessed area of the corresponding lens.

NOTE: The dome/reading lights will remain on until the switch is pressed a second time, so be sure they have been turned off before leaving the vehicle.

Dome/Reading Lights

Electronic Vehicle Information Center (EVIC) — If Equipped



Overhead Console with EVIC

MENU Button

Pressing the MENU button will change the display to one of the following features:

Trip Functions

Pressing the STEP button allows you to scroll through one of the following Trip Function features:

- TRIP – Shows the total distance traveled since the last reset. To reset the TRIP function, press and hold the RESET button.
- ELAPSED TIME – Shows the total elapsed time of travel since the last reset. Elapsed time will increment when the ignition switch is in the ON/RUN or START positions.
- UNIT IN US/METRIC – Press the RESET button to toggle between US and METRIC.
- AVG. MPG – Shows the average fuel economy since the last reset. When the fuel economy is reset, the display will show dashes for two seconds. Then the history information will be erased, and the averaging will continue from the last fuel average reading before

the reset. (Example: If your EVIC displays 18 AVG. MPG and the RESET button is pressed, the previous averaging history will be erased and the display will return to the 18 AVG. MPG, not to 0 AVG. MPG.) The display may take several miles/kilometers for the value to change, dependent upon driving habits.

- MI TO EMPTY (Distance to Empty) – Shows the estimated distance that can be traveled with the fuel remaining in the tank. This estimated distance is determined by a weighted average of fuel economy, according to the current fuel tank level. MI TO EMPTY cannot be reset through the RESET button.

NOTE: Significant changes in driving style or vehicle loading will greatly affect the actual drivable distance of the vehicle, regardless of the MI TO EMPTY displayed value.

When the MI TO EMPTY value is less than 30 mi (48 km) estimated driving distance, the MI TO EMPTY display will change to a text display of ″LOW FUEL.″ This display will continue until the vehicle runs out of fuel. Adding a significant amount of fuel to the vehicle will turn off the ″LOW FUEL″ text and a new MI TO EMPTY value will display.

System Status (EVIC Displays)
When the appropriate conditions exist, the Electronic Vehicle Information Center (EVIC) displays the following messages:

- TURN SIGNALS ON (with a continuous warning chime)
- PERSONAL SETTINGS NOT AVAILABLE – Vehicle Not in Park or Vehicle in Motion (manual transmissions only)
- LEFT/RIGHT FRONT DOOR AJAR (one or more, with a single chime if speed is above 1 mph (1.6 km/h)

- LEFT/RIGHT REAR DOOR AJAR (one or more, with a single chime if speed is above 1 mph (1.6 km/h)
- DOOR(S) AJAR (with a single chime if vehicle is in motion)
- LOW WASHER FLUID (with a single chime)
- OIL CHANGE REQUIRED (with a single chime)
- SERVICE AIR FILTER
- PERFORM SERVICE

NOTE: Depending on the build date of your vehicle or if the vehicle software has been updated, the EVIC will display one of the two following sets of messages.

Set One

- CATALYST FULL SEE OWNER MANUAL
- CATALYST STAT 1111111 90%
- CATALYST FULL SERVICE REQUIRED

Set Two

- EXHAUST SYSTEM — REGENERATION REQUIRED NOW
- EXHAUST FILTER XX% FULL
- SERVICE REQUIRED — SEE DEALER NOW
- EXHAUST SYSTEM — REGENERATION COMPLETED
- EXHAUST SYSTEM — REGENERATION IN PROCESS
- EXHAUST FILTER FULL — POWER REDUCED SEE DEALER

Oil Change Required

Your vehicle is equipped with an engine oil change indicator system. The "Oil Change Required" message

will flash in the EVIC display, for approximately 10 seconds after a single chime has sounded, to indicate the next scheduled oil change interval. The engine oil change indicator system is based on mileage driven and duty cycle, which means the engine oil change interval may fluctuate, dependent upon your personal driving style.

NOTE: When prompted by the Engine Oil Indicator System, the engine oil and filter must be changed. If not prompted by the Engine Oil Indicator System within 7,500 mi (12 000 km) or 6 months since the last oil and filter change, change the engine oil and engine oil filter. **Under no circumstances should oil change intervals exceed 7,500 mi (12 000 km) or 6 months, whichever comes first.**

Unless reset, this message will continue to display each time you turn the ignition switch to the ON/RUN position. To turn off the message temporarily, press and release the MENU button. To reset the oil change indicator system (after performing the scheduled maintenance) use the following procedure.

1. Turn the ignition switch to the ON position. **(Do not start the engine.)**

2. Fully depress the accelerator pedal slowly, three times within 10 seconds.

3. Turn the ignition switch to the OFF/LOCK position.

NOTE: If the indicator message illuminates when you start the vehicle, the oil change indicator system did not reset. If necessary, repeat this procedure.

Perform Service

Your vehicle will require emissions maintenance at a set interval. To help remind you when this maintenance is due, the Electronic Vehicle Information Center (EVIC) will display “Perform Service”. When the “Perform Service” message is displayed on the EVIC it is necessary to

have the emissions maintenance performed. Emissions maintenance includes replacing the Closed Crankcase Ventilation (CCV) filter element, cleaning of the EGR Cooler, and cleaning of the EGR Valve. The procedure for clearing and resetting the "Perform Service" indicator message is located in the appropriate Service Information.

Personal Settings (Customer-Programmable Features)

Personal Settings allows the driver to set and recall features when the transmission is in PARK. If the transmission is not in PARK, the EVIC will display NOT AVAILABLE and VEHICLE NOT IN PARK.

Press and release the MENU button until the "Personal Settings" displays on the EVIC.

Use the STEP button to display one of the following:

- "LANGUAGE" – When in this display you may select one of three languages for all display nomenclature, including the trip functions. Press the RESET button while in this display to select English, Espanol, or Francais. Then, as you continue, the information will display in the selected language.
- "AUTO DOOR LOCKS > ON" – When ON is selected, all doors will lock automatically when the vehicle reaches a speed of 15 mph (24 km/h). To make your selection, press and release the RESET button until "ON" or "OFF" appears.
- "AUTO UNLOCK ON EXIT > ON" – When ON is selected, all doors will unlock when the vehicle is stopped and the transmission is in the PARK or NEUTRAL position and the driver's door is opened. To make your selection, press and release the RESET button until "ON" or "OFF" appears.

- "RKE UNLOCK DRV DR 1st" – When **DRV DR 1st** is selected, only the driver's door will unlock on the first press of the remote keyless entry UNLOCK button. When Driver Door 1st Press is selected, you must press the remote keyless entry UNLOCK button twice to unlock the passenger's doors. To make your selection, press and release the RESET button until "DRV DR 1st " appears.
- "RKE UNLOCK ALL DR 1ST" – When **ALL DR 1ST** is selected, all of the doors will unlock on the first press of the remote keyless entry UNLOCK button. To make your selection, press and release the RESET button until "All DR 1st" appears.
- "SOUND HORN W/LOCK > ON" – When ON is selected, a short horn sound will occur when the remote keyless entry LOCK button is pressed. This feature may be selected with or without the flash lights on lock/unlock feature. To make your selection, press and release the RESET button until "ON" or "OFF" appears.
- "FLASH LIGHTS W/LOCK > ON" – When ON is selected, the front and rear turn signals will flash when the doors are locked or unlocked with the remote keyless entry transmitter. This feature may be selected with or without the sound horn on lock feature selected. To make your selection, press and release the RESET button until "ON" or "OFF" appears.
- "HEAD LAMP OFF DELAY > 0 SEC" – When this feature is selected, you can choose to have the headlights remain on for 0, 30, 60 or 90 seconds when exiting the vehicle. To make your selection, press and release the RESET button until "0," "30," "60" or "90" appears.
- "KEY OFF POWER DELAY > OFF" – When this feature is selected, the power window switches, radio, hands–free system (if equipped), and power outlets will remain active for up to 10 minutes after the

ignition switch is turned OFF. Opening a vehicle door will cancel this feature. To make your selection, press and release the RESET button until "Off," "45 sec.," "5 min.," or "10 min." appears.

- "ILLUMINATED APRCH > OFF" – When this feature is selected, the headlights will activate and remain on for up to 90 seconds when the doors are unlocked with the remote keyless entry transmitter. To make your selection, press and release the RESET button until "OFF," "30 sec.," "60 sec." or "90 sec." appears.

NOTE: If this feature is enabled, the headlamps will be on during the engine pre-heat and cold crank; therefore, it is recommended that the feature be disabled when overnight ambient temperature is at or below 20°F (-7°C) to prevent excessive drain on batteries during cold cranking.

- "UNIT IN > US/METRIC" – The EVIC and odometer display can be changed between English and Metric units of measure. To make your selection, press and release the RESET button until "US" or "METRIC" appears.
- "COMPASS VARIANCE > 8" – Press the RESET button to change the compass variance setting. For additional information, refer to "Compass Variance" in this section.
- "COMPASS CALIBRATE > YES" – Press the RESET button to calibrate the compass. For additional information, refer to "Compass Calibrate" in this section.

Compass/Temperature Button

Pressing the Compass/Temperature button will return the display to the normal compass/temperature display.

NOTE: Temperature accuracy can be affected from heat soak. For best accuracy, the vehicle should be driven at a speed greater than 25 mph (40 km/h) for several minutes.

Automatic Compass Calibration
This compass is self-calibrating, which eliminates the need to set the compass manually. When the vehicle is new, the compass may appear erratic and the EVIC will display "CAL" until the compass is calibrated. You may also calibrate the compass by completing one or more 360 degree turns (in an area free from large metal or metallic objects) until the "CAL" message displayed in the EVIC turns off. The compass will now function normally.

Manual Compass Calibration
If the compass appears erratic and the "CAL" message does not appear in the EVIC display, you must put the compass into the Calibration Mode manually as follows:

1. Turn the ignition switch to the ON/RUN position.

2. Press the MENU button until "Personal Settings" is displayed.

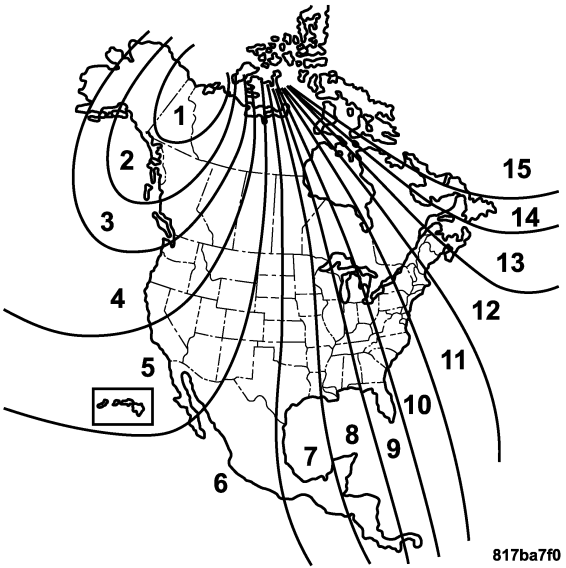
3. Press the STEP button until "Calibrate Compass YES" is displayed.

4. Press and release the RESET button to start the calibration. The message "CAL" will display in the EVIC.

5. Slowly drive the vehicle 5 mph (8 km/h) in a complete 360 degree circle (in an area free from large metal or metallic objects) until the "CAL" message turns off. The compass will now function normally.

Compass Variance
Compass Variance is the difference between Magnetic North and Geographic North. In some areas of the country, the difference between Magnetic and Geographic North is great enough to cause the compass to give false readings. If this occurs, the compass variance must be set using the following procedure:

NOTE: Magnetic materials should be kept away from the overhead console. This is where the compass sensor is located.



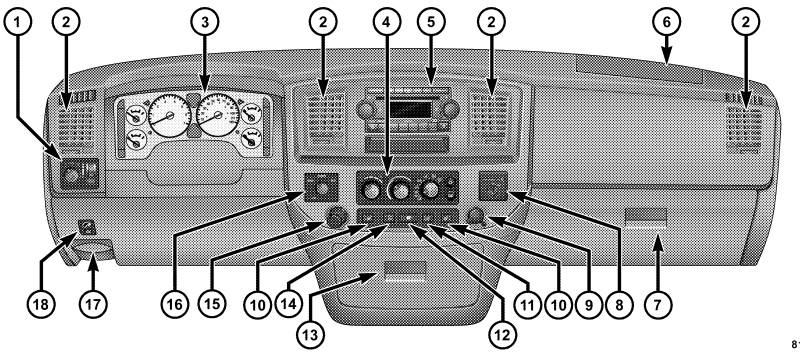
Compass Variance Map

1. Turn the ignition switch to the ON/RUN position.
2. Press the MENU button until “Personal Settings” is displayed.
3. Press the STEP button until “Compass Variance” is displayed.
4. Press and release RESET button until the proper variance zone is selected according to the map.
5. Press and release the Compass button to exit.

UNDERSTANDING YOUR INSTRUMENT PANEL

CONTENTS

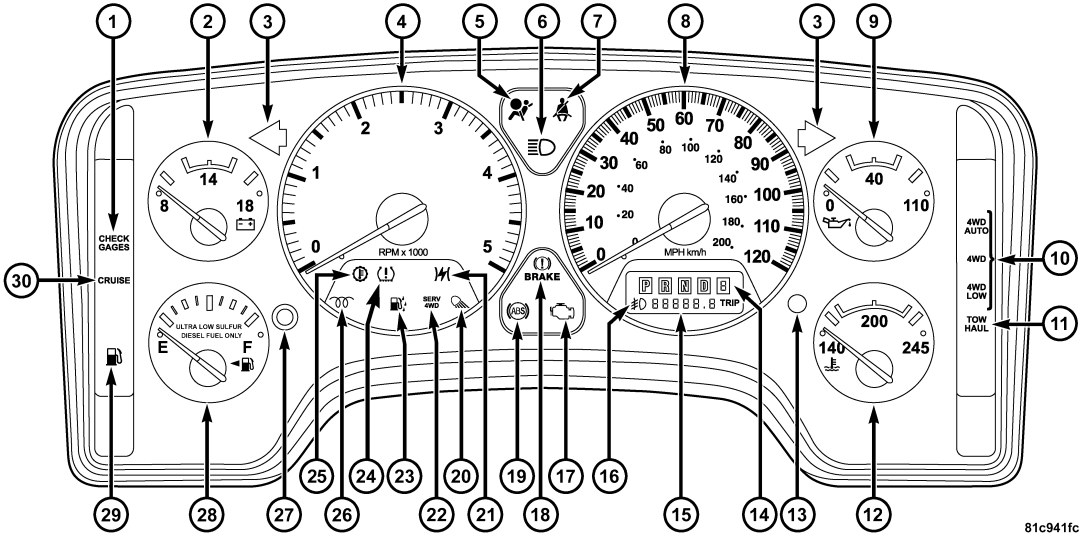
INSTRUMENT PANEL FEATURES



1 — Headlight Switch
2 — Air Outlets
3 — Instrument Cluster
4 — Climate Controls
5 — Radio
6 — Passenger Airbag*
7 — Glove Box
8 — Passenger Airbag On/Off Switch*
9 — Power Outlet
10 — Heated Seat Switch
11 — TPMS "Light Load" Reset Switch*
12 — Power Sliding Back Glass Switch*
13 — Cupholders
14 — Exhaust Brake Switch*
15 — Cigar Lighter
16 — Transfer Case Control Switch*
17 — Parking Brake Release Lever
18 — Adjustable Pedal Control Switch*
* If Equipped

INSTRUMENT CLUSTER

6.7L Diesel Engine



INSTRUMENT CLUSTER DESCRIPTION

1. CHECK GAGES Warning Light

CHECK GAGES This light will illuminate when the Voltmeter, Engine Oil Pressure, or Engine Coolant Temperature gage indicates a reading either too high or too low. Examine the gages carefully, and follow the instructions contained below for each indicated problem.

NOTE: When the ignition switch is turned to OFF, the Fuel, Voltmeter, Oil Pressure, and Engine Coolant Temperature gages may not show accurate readings. When the engine is not running, turn the ignition switch to ON to obtain accurate readings.

2. Voltmeter

When the engine is running, the gage indicates the electrical system voltage. The pointer should stay within the normal range if the battery is charged. If the pointer moves to either extreme left or right, and remains there during normal driving, the electrical system should be serviced.

NOTE: If the gage pointer moves to either extreme of the gage, the "CHECK GAGES" Warning Light will illuminate and a single chime will sound.

NOTE:

- The voltmeter may show a gage fluctuation at various engine temperatures. This cycling operation is caused by the post-heat cycle of the intake manifold heater system. The number of cycles and the length of the cycling operation is controlled by the engine control module. Post-heat operation can run for several minutes, and then the electrical system and voltmeter needle will stabilize.
- The cycling action will cause temporary dimming of the headlights, interior lights, and also a noticeable reduction in blower motor speed.

3. Turn Signal Indicator Light
Lights in the instrument cluster flash when outside turn signals are operating.

4. Tachometer
The tachometer indicates engine speed in revolutions per minute.

CAUTION!

Do not operate the engine with the tachometer pointer at high RPM for extended periods. Engine damage may occur.

5. Airbag Warning Light
This light turns on and remains on for six to eight seconds when the ignition is first turned on. If the light stays on, flickers or comes on while driving, have the airbag system checked by an authorized dealer.

6. High Beam Indicator Light

This indicator shows that headlights are on high beam.

7. Seat Belt Warning Light

When the ignition switch is first turned ON, this light will turn on for five to eight seconds as a bulb check. During the bulb check, if the driver's seat belt is unbuckled, a chime will sound. After the bulb check or when driving, if the driver's seat belt remains unbuckled, the Seat Belt Warning Light will flash or remain on continuously. Refer to "Enhanced Driver Seat Belt Reminder System (BeltAlert®)" under "Occupant Restraints" in Section 2.

8. Speedometer
The speedometer shows the vehicle speed in miles per hour and/or kilometers per hour.

9. Oil Pressure Gage

The pointer should always indicate some oil pressure when the engine is running. A continuous high or low reading, under normal driving conditions, may indicate a lubrication system malfunction. Immediate service should be obtained.

NOTE: If the gage pointer moves to either extreme of the gage, the "CHECK GAGES" Warning Light will illuminate and a single chime will sound.

10. Transfer Case Position Light

This display indicator shows the transfer case position selection.

For additional information, refer to "Four-Wheel Drive Operation" in Section 5 of this manual.

11. TOW HAUL Indicator Light

The TOW HAUL button is located at the end of the gear shift lever. This light will illuminate when the TOW HAUL button is pushed once.

12. Temperature Gage

The temperature gage indicates engine coolant temperature. Any reading within the normal range indicates that the cooling system is operating satisfactorily. The gage needle will likely indicate a higher temperature when driving in hot weather, up mountain grades, in heavy traffic, or when towing a trailer. If the needle rises to the 245°F (118°C) mark, stop the vehicle, shift into NEUTRAL, and increase the engine idle speed for two to three minutes. If the temperature reading does not return to normal, shut your engine OFF and allow it to cool. Seek authorized service immediately. Refer to "Cooling System" under "Maintaining Your Vehicle" in Section 7.

CAUTION!

Do not leave your vehicle unattended with the engine running as you would not be able to react to the temperature indicator if the engine overheats.

NOTE: Engine idle speed will automatically increase to 1000 RPM at elevated coolant temperatures to improve engine cooling.

NOTE: If the gage pointer moves to either extreme of the gage, the "CHECK GAGES" Warning Light will illuminate and a single chime will sound.

13. Security Alarm System Indicator Light

The light will flash rapidly for approximately 16 seconds when the Vehicle Theft Alarm is arming. The light will flash at a slower rate after the alarm is set. The Security Light will also come on for about two seconds when the ignition is first turned ON.

14. Transmission Range Indicator (Automatic Transmissions Only)

When the gear selector lever is moved on vehicles with the 68RFE transmission, this indicator shows the automatic transmission gear range selected (P R N D). Vehicles equipped with Auto-6/Electronic Range Select (ERS) will display the selection of the desired top gear, in the position next to the D (Drive).

15. Odometer/Trip Odometer

The odometer shows the total distance the vehicle has been driven. U.S. federal regulations require that upon transfer of vehicle ownership, the seller certify to the purchaser the correct mileage that the vehicle has been driven. Therefore, if the odometer reading is changed during repair or replacement, be sure to keep a record of the reading before and after the service so that the correct mileage can be determined.

The two trip odometers show individual trip mileage. To switch from odometer to trip odometers, press and release the Trip Odometer button.

To reset a trip odometer, display the desired trip odometer to be reset then push and hold the button until the display resets (approximately two seconds).

Vehicle Warning Messages
When the appropriate conditions exist, messages such as "door" (indicates that a door(s) may be ajar), "gASCAP" (which indicates that your gas cap is possibly loose or damaged), and "noFUSE" (indicates that the Ignition Off Draw (IOD) fuse is removed from the Integrated Power Module), will display in the odometer.

NOTE: Most warnings will display in the EVIC (Electronic Vehicle Information Center).

NOTE: There is also an engine hour function. This indicates the total number of hours the engine has been running. To display the engine hours perform the following: Place the ignition in RUN, but do not start the engine. With the odometer value displayed, hold the trip button down for a period of six seconds. The odometer will change to trip value first, then it will display the engine hour value. The engine hours will be displayed for a period of 30 seconds until the ignition is turned off or the engine is started.

16. Front Fog Light Indicator Light — If Equipped

This light shows when the front fog lights are ON.

17. Malfunction Indicator Light (MIL)

This light is part of an onboard diagnostic system which monitors the emissions and engine control system. If the vehicle is ready for emissions testing, the light will come on when the ignition is first turned on and remain on, as a bulb check, until the engine is started. If the vehicle is not ready for emissions testing, the light will come on when the ignition is first turned on and remain on for 15 seconds, then blink for five seconds, and remain on until the vehicle is started. If the bulb does not come on during starting, have the condition investigated promptly.

If this light comes on and remains on while driving, it suggests a potential engine control problem and the need for system service.

Although your vehicle will usually be drivable and not need towing, see your authorized dealer for service as soon as possible.

CAUTION!

Prolonged driving with the Malfunction Indicator Light (MIL) on could cause damage to the engine control system. It also could affect fuel economy and drivability.

If the Malfunction Indicator Light (MIL) is flashing, severe catalytic converter damage and power loss will soon occur. Immediate service is required.

18. BRAKE Warning Light

This light illuminates when the ignition key is turned to the ON position and remains on for a few seconds. If the light stays on longer, it may be an indication that the parking brake has not been released. This light will illuminate if the brake fluid is low, especially when braking or accelerating hard. This light will illuminate if the ABS Warning Light has a malfunction. This light will flash if the engine is running and the parking brake is on.

If the light remains on when the parking brake is released, it indicates a possible brake hydraulic system malfunction. In this case, the light will remain on until the cause is corrected.

If brake failure is indicated, immediate repair is necessary and continued operation of the vehicle in this condition is dangerous.

Acceleration that causes the rear wheels to slip for a period of time, may result in the red brake light illuminating and a brake switch code being set on ABS equipped vehicles. Depressing the brake pedal should extinguish the red brake light.

19. ABS Warning Light

This light monitors the Anti-Lock Brake System (ABS) which is described elsewhere in this manual. This light will come on when the ignition key is turned to the ON position and may stay on for five seconds. If the ABS light remains on or comes on during driving, it indicates that the anti-lock portion of the brake system is not functioning and that service is required. See your authorized dealer immediately. The ABS Warning Light could also illuminate during loss of traction and remain illuminated until the brake pedal is pressed.

20. Cargo Light Indicator Light

This light will illuminate when the Cargo Light is activated by pressing the Cargo Light Button on the headlight switch.

21. Electronic Throttle Control (ETC) Warning Light

This light informs you of a problem with the Electronic Throttle Control system. If a problem is detected, the light will come on while the engine is running. If the light remains lit with the engine running, your vehicle will usually be drivable, however, see your authorized dealer for service as soon as possible. If the light is flashing when the engine is running, immediate service is required and you may

experience reduced performance, an elevated/rough idle or engine stall and your vehicle may require towing. The light will come on when the ignition is first turned on, and remain on for 15 seconds, as a bulb check. If the light does not come on during starting, have the system checked by an authorized dealer.

22. SERV 4WD Warning Light

This light will illuminate whenever the 4WD mode is engaged for either the manual or electric shift 4WD systems. The SERV 4WD Warning Light monitors the electric shift 4WD system. If the SERV 4WD Warning Light stays on or comes on during driving, it means that the 4WD system is not functioning properly and that service is required.

23. Water In Fuel Warning Light

Indicates there is water detected in the fuel filter. Refer to "Maintenance Procedures/ Draining Fuel/Water Separator Filter" in Section 7 for water drain procedure.

24. Tire Pressure Monitoring Telltale Light — If Equipped

Each tire, including the spare (if provided), should be checked monthly when cold and inflated to the inflation pressure recommended by the vehicle manufacturer on the vehicle placard or tire inflation pressure label. (If your vehicle has tires of a different size than the size indicated on the vehicle placard or tire inflation pressure label, you should determine the proper tire inflation pressure for those tires.)

As an added safety feature, your vehicle has been equipped with a tire pressure monitoring system (TPMS) that illuminates a low tire pressure telltale when one or more of your tires is significantly under-inflated. Accordingly, when the low tire pressure telltale illuminates, you should stop and check your tires as soon as possible, and inflate them to the proper pressure. Driving on a significantly under-inflated tire causes the tire to overheat and can lead to tire failure. Under-inflation also reduces fuel efficiency and tire tread life, and may affect the vehicle's handling and stopping ability.

Please note that the TPMS is not a substitute for proper tire maintenance, and it is the driver's responsibility to maintain correct tire pressure, even if under-inflation has not reached the level to trigger illumination of the TPMS low tire pressure telltale.

Your vehicle has also been equipped with a TPMS malfunction indicator to indicate when the system is not operating properly. The TPMS malfunction indicator is combined with the low tire pressure telltale. When the system detects a malfunction, the telltale will flash for approximately one minute and then remain continuously illuminated. This sequence will continue upon subsequent vehicle start-ups, as long as the malfunction exists. When the malfunction indicator is illuminated, the system may not be able to detect or signal low tire pressure as intended. TPMS malfunctions may occur for a variety of reasons, including the installation of replacement or alternate tires or wheels on the vehicle that prevent the TPMS from functioning properly. Always check the TPMS malfunction telltale after replacing one or more tires or wheels on your vehicle, to ensure that the replacement or alternate tires and wheels allow the TPMS to continue to function properly.

CAUTION!

The TPMS has been optimized for the original equipment tires and wheels. TPMS pressures and warning have been established for the tire size equipped on your vehicle. Undesirable system operation or sensor damage may result when using replacement equipment that is not of the same size, type, and/or style. Aftermarket wheels can cause sensor damage. Do not use tire sealant from a can, or balance beads if your vehicle is equipped with a TPMS, as damage to the sensors may result.

TPMS "Light Load" Reset Switch – If Equipped

The TPMS "Light Load" reset switch allows you to choose between Light Load vehicle conditions and Max Load vehicle conditions tire pressures and related TPMS warning levels. The switch is located in the instrument panel, below the climate control panel. For additional information, refer to "Tire Pressure Monitoring System (TPMS) — If Equipped" in Section 5 of this manual.

25. Transmission Oil Temperature Warning Light (Automatic Transmissions Only)

This light indicates that there is excessive transmission fluid temperature. This might occur with severe usage such as trailer towing. It may also occur when operating the vehicle in a high torque converter slip condition, such as 4-wheel drive operation (e.g., snow plowing, off-road operation). If this light comes on, stop the vehicle and run the engine at idle or faster, with the transmission in NEUTRAL until the light goes off.

26. Wait To Start Light

This light will illuminate when the ignition is turned to the RUN position and the intake manifold temperature is below 66°F (19°C). Wait until the light turns off before starting the vehicle. Refer to "Starting Procedures" in Section 5 of this manual.

NOTE: The Wait To Start Light may not illuminate if the engine coolant temperature is warm enough.

27. Odometer/Trip Odometer Button

Press this button to toggle between the odometer and the trip odometer display. Holding the button in resets the trip odometer reading when in trip mode.

28. Fuel Gage

This gage shows the level of fuel in the tank when the ignition switch is in the ON position.

29. Low Fuel Warning Light

This light glows when the pointer is between "E" and 1/8 indication mark (approximately 15% of tank volume) on the fuel gage. When the fuel gage pointer is on "E" (equivalent to Distance To Empty [DTE] = 0 on the overhead console, if so equipped) there is reserve fuel capacity, which corresponds to approximately 8% of tank volume. This reserve capacity was put in place to prevent the likelihood of customers running out of fuel, when operating at maximum load conditions, in areas where there aren't many fuel stations.

Fuel tank volumes are as follows:

- 34 gal (128 L) - 2500/3500 short box models
- 35 gal (132 L) - 2500/3500 long box models

30. CRUISE Indicator Light

This indicator lights when the electronic speed control system is turned on.

STARTING AND OPERATING

CONTENTS

STARTING PROCEDURES

Before starting your vehicle, adjust your seat, adjust both inside and outside mirrors, and fasten your seat belts.

The starter should not be operated for more than 15-second intervals. Waiting a few minutes between such intervals will protect the starter from overheating.

WARNING!

Be sure to turn off the engine and remove the key from the ignition switch, if you want to rest or sleep in your vehicle. Accidents can be caused by inadvertently moving the shift lever or by pressing the accelerator pedal. This may cause excessive heat in the exhaust system, resulting in overheating and vehicle fire which may cause serious or fatal injuries.

WARNING!

Do not leave children or animals inside parked vehicles in hot weather. Interior heat build up may cause serious injury or death.

Automatic Transmission – If Equipped

Start the engine with the shift lever in NEUTRAL or PARK position. Apply the brake before shifting to any driving range.

The Cummins® 24–Valve Turbo Diesel Engine is equipped with several features designed to assist cold-weather starting and operation:

- The engine block has a resistance heater installed in the water jacket of the engine just above and behind the oil filter. It requires a 110–115 Volt AC electrical outlet with a grounded, three-wire extension cord.

NOTE: The engine block heater cord is a factory-installed option. If your vehicle is not equipped, heater cords are available from your authorized MOPAR® dealer.

- A 12–Volt heater built into the fuel filter housing aids in preventing fuel gelling. It is controlled by a built-in thermostat.
- A heated intake air system improves engine starting and reduces the amount of white smoke generated by a warming engine.

Manual Transmission – If Equipped

Apply the parking brake, place the shift lever in NEUTRAL and depress the clutch pedal to the floor before starting the vehicle. This vehicle is equipped with a clutch interlocking ignition system. It will not start unless the clutch is fully depressed.

Normal Starting Procedure – Engine Manifold Air Temperature Above 66°F (19°C)

Observe the instrument panel cluster lights when starting the engine.

1. Always apply the parking brake.

2. Shift into PARK for an automatic transmission. For vehicles equipped with manual transmissions, fully depress and hold the clutch pedal, and shift into NEUTRAL.

3. Turn the ignition key to the ON position and watch the instrument panel cluster lights.

CAUTION!

If WATER IN FUEL indicator light remains on, DO NOT START engine before you drain water from the fuel filter to avoid engine damage. Refer to "Draining Fuel/Water Separator Filter (6.7L Diesel Engine)" under "Maintenance Procedures" in Section 7.

4. Turn the ignition key to START and crank the engine. Do not press the accelerator during starting.

CAUTION!

Do not crank engine for more than 15 seconds at a time as starter motor damage may result. Turn key to OFF and wait at least two minutes before trying again.

5. When the engine starts, release the key.
6. Check to see that there is oil pressure.
7. Release the parking brake.

Starting Procedure – Engine Manifold Air Temperature Below 66°F (19°C)

NOTE: The temperature displayed on the overhead console (if equipped) does not necessarily reflect the engine manifold air temperature. When certain engine temperatures fall below 66°F (19°C) the lights will remain on, indicating the intake manifold heater system is active.

Follow the steps in the Normal Starting Procedure except:

CAUTION!

Do not crank engine for more than 15 seconds at a time or starter motor damage may result. Turn key to OFF and wait at least two minutes for starter to cool before repeating start procedure.

- The WAIT TO START light will remain on for a period of time (length of time depends on engine temperature).
- After the WAIT TO START light goes off, turn the ignition key to START. Do not press the accelerator during starting.
  - After engine start-up, check to see that there is oil pressure.
  - Allow the engine to idle about three minutes until the manifold heaters have completed the post-heat cycle.
  - Release the parking brake, and drive.

NOTE: Engine idle speed will automatically increase to 1,000 RPM at low coolant temperatures to improve engine warm-up.

NOTE: If the engine stalls or if the ignition switch is left ON for more than two minutes after the WAIT TO START light goes out, reset the grid heaters by turning the ignition switch to OFF for at least five seconds and then back ON. Repeat steps 3 through 7 of the normal starting procedure.

For Extremely Cold Weather Starting – Engine Manifold Air Temperature Below 0°F (-18°C)

In extremely cold weather below 0°F (-18°C) it may be beneficial to cycle the manifold heaters twice before attempting to start the engine. This can be accomplished by turning the ignition OFF for at least five seconds and then back ON after the WAIT TO START light has gone off, but before the engine is started. However, repeated cycling of the manifold heaters will result in damage to the heater elements or reduced battery voltage.

Proceed by following the steps in the Normal Starting Procedure.

NOTE: If multiple pre-heat cycles are used before starting, additional engine run time may be required to maintain battery state of charge at a satisfactory level.

- If the engine stalls after the initial start, the ignition must be turned to the OFF position for at least five seconds, and then to the ON position to recycle the manifold heaters.

NOTE: Excessive white smoke and poor engine performance will result if manifold heaters are not recycled.

- Heat generated by the manifold heaters dissipates rapidly in a cold engine. If more than two minutes pass between the time the WAIT TO START light goes OFF and the engine is started, recycle the manifold heaters by turning the ignition OFF for at least five seconds, and then back ON.
- If the vehicle is driven and vehicle speed exceeds 19 mph (31 km/h) before the manifold heater post-heat (after start) cycle is complete, the manifold heaters will shut off.
- If the engine is started before the WAIT TO START light turns off, the preheat cycle will turn off.
- If the engine is cranked for more than 10 seconds, the post-heat cycle will turn off.

NOTE: Engine idle speed will automatically increase to 1,000 RPM at low coolant temperatures to improve engine warm-up.

NOTE: When a diesel engine is allowed to run out of fuel or the fuel gels at low temperatures, air is pulled into the fuel system.

You may try priming, as described below:

1. Add a substantial quantity of fuel to the tank (5 to 10 gal) (19 to 38 L) or eliminate the gelled fuel condition.

2. Crank the engine for one to two seconds. If the engine does not start, then turn the ignition back to the RUN position. (Do not turn the ignition back to the OFF position.) The electric fuel transfer pump will continue to run, and purge air from the system for about 20 seconds. After 20 seconds, attempt to start the engine again.

3. Start the engine using the Normal Starting Procedure.

4. Repeat the procedure if the engine does not start.

WARNING!

Do not open the high-pressure fuel system when cranking the engine or with the engine running. Engine operation causes high fuel pressure. High-pressure fuel spray can cause serious injury or death.

NOTE: The engine may run rough until the air is forced from all the fuel lines.

Starting Fluids

WARNING!

STARTING FLUIDS or flammable liquids are NEVER TO BE USED in the Cummins® Diesel (see Warning label). Never pour diesel fuel, flammable liquid, starting fluids (ether) into the air cleaner canister, air intake piping, or turbocharger inlet in an attempt to start the vehicle. This could result in a flash fire and explosion causing serious personal injury and engine damage.

The engine is equipped with an automatic electric air preheating system. If the instructions in this manual are followed, the engine should start in all conditions.

WARNING!

Do not leave children or animals inside parked vehicles in hot weather. Interior heat build up may cause serious injury or death.

NORMAL OPERATION

Observe the following when the engine is operating.

- All message center lights are off.
- Check Engine light is off.
- Engine Oil Pressure is above 10 psi (69 kPa) at idle.
- Low Oil Pressure light is off.

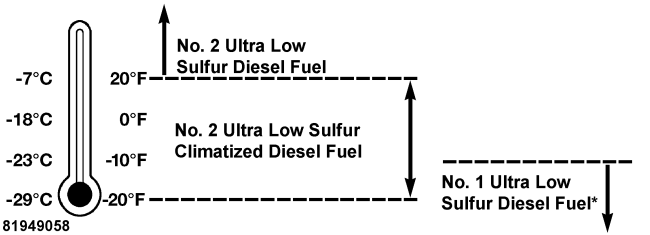
- Voltmeter Operation:
  - The voltmeter may show a gage fluctuation at various engine temperatures. This cycling operation is caused by the post-heat cycle of the intake manifold heater system. The number of cycles and the length of the cycling operation is controlled by the engine control module. Post-heat operation can run for several minutes, and then the electrical system and voltmeter needle will stabilize.
  - The cycling action will cause temporary dimming of the headlamps and interior lamps, and also a noticeable reduction in blower motor speed.

Cold Weather Precautions

Operation in ambient temperature below 32°F (0°C) may require special considerations. The following chart suggests these options:

Fuel Operating Range

NOTE: Use "Ultra Low Sulfur Diesel Fuels" **ONLY.**



*No. 1 Ultra Low Sulfur Diesel Fuel should only be used where extended arctic conditions (-10°F/-23°C) exist.

NOTE:

- Use of No. 2 Ultra Low Sulfur Climatized Diesel Fuel or No. 1 Ultra Low Sulfur Diesel Fuel results in a noticeable decrease in fuel economy.

- No. 2 Ultra Low Sulfur Climatized Diesel Fuel is a blend of No. 2 Ultra Low Sulfur and No. 1 Ultra Low Sulfur Diesel Fuels, which reduces the temperature at which wax crystals form in fuel.

NOTE: The engine requires the use of **"Ultra Low Sulfur Diesel Fuel"**. Use of incorrect fuel or use of additives could result in engine and exhaust system damage. Refer to" Fuel Requirements" in Section 5.

Engine Block Heater

The engine block heater warms engine coolant and permits quicker starts in cold weather. Connect the heater cord to a ground-fault interrupter protected 110–115 Volt AC electrical outlet with a grounded, three-wire extension cord.

The engine block heater cord is routed under the hood to the right side and can be located just behind the grille near the headlamp.

NOTE: The engine block heater cord is a factory-installed option. If your vehicle is not equipped, heater cords are available from your authorized MOPAR® dealer.

The block heater must be plugged in at least one hour to have an adequate warming effect on the coolant.

WARNING!

Remember to disconnect the cord before driving. Damage to the 110–115 Volt electrical cord could cause electrocution.

NOTE: The block heater will require 110 Volts AC and 6.5 Amps to activate the heater element.

Block Heater Usage

A. **Temperatures below 0°F (-18°C)**

- Block Heater Required for 15W-40
- Block Heater Recommended for 5W-40

B. **Temperatures below -20°F (-29°C)**

- Block Heater Required for 5W-40

Winter Front Usage

If a winter front or cold weather cover is to be used, a percentage of the total grille opening area must be left uncovered to provide sufficient airflow to the charge air cooler and automatic transmission oil cooler. The percentage of opening must be increased with the increasing ambient air temperature and/or engine load. If the cooling fan can be heard cycling frequently, increase the size of the opening in the winter front. A suitable cold weather cover is available from your MOPAR® dealer.

Battery Blanket Usage

A battery loses 60% of its cranking power as the battery temperature decreases to 0°F (-18°C). For the same decrease in temperature, the engine requires twice as much power to crank at the same RPM. The use of a 120–Volt AC powered battery blanket will greatly increase starting capability at low temperatures. Suitable battery blankets are available from your authorized MOPAR® dealer.

Arctic Operation

Where there are no provisions to keep the engine warm when it is operating in ambient temperatures consistently below -10°F (-23°C), use 5W-40 **synthetic** engine oil, and fuel that meets the requirements listed in "Maintenance Procedures/Engine Oil Selection" in Section 7.

Engine Warm-Up

Avoid full-throttle operation when the engine is cold. When starting a cold engine, bring the engine up to operating speed slowly to allow the oil pressure to stabilize as the engine warms up.

NOTE: High-speed, no-load running of a cold engine can result in excessive white smoke and poor engine performance. No-load engine speeds should be kept under 1,200 RPM during the warm-up period, especially in cold ambient temperature conditions.

If temperatures are below 32°F (0°C), operate the engine at moderate speeds for five minutes before full loads are applied.

Engine Idling

Avoid prolonged idling. Long periods of idling may be harmful to your engine because combustion chamber temperatures can drop so low that the fuel may not burn completely. Incomplete combustion allows carbon and varnish to form on piston rings and injector nozzles. Also, the unburned fuel can enter the crankcase, diluting the oil and causing rapid wear to the engine.

CAUTION!

Extended periods of idle time may not allow the vehicle's exhaust after-treatment system to properly regenerate. This can lead to the illumination of the Malfunction Indicator Light (MIL) or an Electronic Vehicle Information Center (EVIC) warning message. Operating the engine for extended periods with the MIL illuminated or an EVIC warning message displayed can cause extensive engine and exhaust system damage.

NOTE: Your vehicle is equipped with a turbo speed limiter. This feature limits the engine speed to 1,200 RPM when engine coolant temperatures are below 70°F (21°C).

This feature is designed to protect the turbo charger from damage and will only operate in PARK or NEUTRAL.

NOTE: An optional driver-controlled high idle speed is available on automatic transmission-equipped vehicles with speed control. This feature allows the driver to select an elevated idle speed between 1,100 and 1,500 RPMs. Your dealer can enable this feature.

The optional driver-controlled high idle speed will help increase cylinder temperatures and provide additional cab heat, however, it may still cause the exhaust after-treatment system to not properly regenerate. Extended periods of idle time should be avoided.

NOTE: If ambient temperatures are low and the coolant temperature is below 200°F (93°C), the engine idle speed will slowly increase to 1,000 RPM after 2 minutes of idle, if the following conditions are met:

- foot is off brake pedal and throttle pedal
- automatic transmission is in PARK
- vehicle speed is zero
- If the engine is equipped with an exhaust brake, operating the exhaust brake at idle will greatly improve warm-up rate and will help keep the engine close to operating temperature during extended idle.

CAUTION!

Use of aftermarket exhaust brakes is not recommended and could lead to engine damage.

Stopping The Engine

Idle the engine a few minutes before routine shutdown. After full load operation, idle the engine three to five minutes before shutting it down. This idle period will allow the lubricating oil and coolant to carry excess heat away from the combustion chamber, bearings, internal

components, and turbocharger. This is especially important for turbocharged, charge air-cooled engines.

NOTE: During engine shutdown on vehicles equipped with manual transmissions, it is normal for the diesel engine to resonate heavily for a moment during engine shut-off. When the engine is connected to a manual transmission, this resonance causes load gear rattle from the transmission. This is commonly referred to as "shut down rattle." The manufacturer recommends performing engine shutdown with the clutch pedal pushed to the floor (clutch disengaged). When engine shutdown is performed in this manner, the rattle is reduced (not eliminated).

Driving Condition	Load	Turbo-charger Temperature	Idle Time (min.) Before Engine Shutdown
Stop and Go	Empty	Cool	Less than One
Stop and Go	Medium		One
Highway Speeds	Medium	Warm	Two
City Traffic	Maximum GCWR		Three
Highway Speeds	Maximum GCWR		Four
Uphill Grade	Maximum GCWR	Hot	Five

Engine Speed Control

CAUTION!

Prevent overspeeding the engine going downhill. When descending steep grades, use a combination of gears and service brakes to control vehicle/engine speed. Overspeed can cause severe engine damage.

Operating Precautions

Avoid Overheating the Engine

The temperature of the coolant (a mixture of 50% ethylene-glycol and 50% water) must not exceed the normal range of the temperature gage 240°F (116°C) with a 16 psi (110 kPa) radiator cap.

Usually, the coolant temperature indicated during operation, will be to the left-of-center in the normal range of the gage.

Avoid Low Coolant Temperature Operation

Continual operation at low coolant temperature below the normal range on the gage, 140°F (60°C), can be harmful to the engine. Low coolant temperature can cause incomplete combustion, which allows carbon and varnish to form on piston rings and injector nozzles. Also, the unburned fuel can enter the crankcase, diluting the lubricating oil and causing rapid wear to the engine.

Cooling System Tips – Automatic Transmission

To reduce potential for engine and transmission overheating in high ambient temperature conditions, take the following actions:

- *City Driving —*

When stopped, put transmission in NEUTRAL and increase engine idle speed.

- *Highway Driving —*

Reduce your speed.

• *Up Steep Hills —*
Select a lower transmission gear, but try and keep the torque converter clutch engaged.

• *Air Conditioning —*
Turn it off temporarily.

Do Not Operate the Engine with Low Oil Pressure
When the engine is at normal operating temperature, the minimum oil pressures required are:

Idle 700 to 800 RPM . . . . . 10 psi (69 kPa)
Full-speed and load . . . . . 30 psi (207 kPa)

CAUTION!

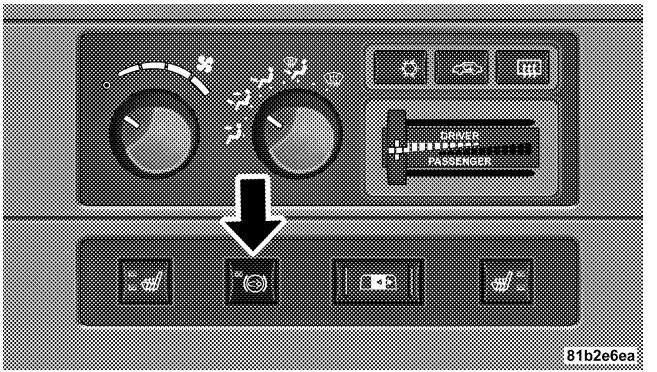
If oil pressure falls to less than normal readings, shut the engine off immediately. Failure to do so could result in immediate and severe engine damage.

Do Not Operate the Engine with Failed Parts
Practically all failures give some warning before the parts fail. Be on the alert for changes in performance, sounds, and visual evidence that the engine requires service. Some important clues are:

- engine misfiring or vibrating severely
- sudden loss of power
- unusual engine noises
- fuel, oil or coolant leaks
- sudden change, outside the normal operating range, in the engine operating temperature
- excessive smoke
- oil pressure drop

DIESEL EXHAUST BRAKE (ENGINE BRAKING) – IF EQUIPPED

The exhaust brake feature will only function when you turn the exhaust brake switch to the ON position. Once the switch is in the ON position and the vehicle is moving faster than 5 mph (8 km/h); the exhaust brake will automatically operate when pressure is removed from the accelerator pedal. Exhaust braking is most effective when the engine RPM is higher. The automatic transmission has been programmed, while in TOW/HAUL mode, to downshift more aggressively when the exhaust brake is enabled to increase brake performance.



Exhaust Brake Switch

WARNING!

Do not use the exhaust brake feature when driving in icy or slippery conditions, as the increased engine braking can cause the rear wheels to slide and the vehicle to swing around with the possible loss of vehicle control, which may cause an accident possibly resulting in personal injury or death.

NOTE: For optimum braking power it is recommended to use the exhaust brake while in TOW/HAUL mode.

The purpose of the exhaust brake (engine braking) feature is to supply negative (braking) torque to the engine. Typically, the engine braking is used for, but not limited to, vehicle towing applications where vehicle braking can be achieved by the internal engine power, thereby sparing the mechanical brakes of the vehicle.

Benefits of the exhaust brake are:

- vehicle driving control
- reduced brake fade
- longer brake life
- faster cab warm-up.

The exhaust brake feature can also be used to reduce the engine warm-up time. To use the exhaust brake as a warm-up device, the vehicle must be moving less than 5 mph (8 km/h), the exhaust brake switch must be in the ON position, the coolant temperature must be below 180°F (82°C) and ambient temperature must be below 60°F (16°C).

FUEL REQUIREMENTS

6.7L Diesel Engine

Use good quality diesel fuel from a reputable supplier in your vehicle. Federal law requires that you must fuel this vehicle with Ultra Low Sulfur Highway diesel fuel (15 ppm Sulfur maximum) and prohibits the use of Low Sulfur Highway diesel fuel (500 ppm Sulfur maximum) to avoid damage to the emissions control system. For most year-round service, No. 2 diesel fuel, meeting ASTM specification D-975 Grade S15, will provide good performance. If the vehicle is exposed to extreme cold (below 20°F or -7°C), or is required to operate at colder-than-normal conditions for prolonged periods, use climatized No. 2 diesel fuel or dilute the No. 2 diesel fuel with 50% No. 1 diesel fuel. This will provide better protection from fuel gelling or wax-plugging of the fuel filters.

WARNING!

Do not use alcohol or gasoline as a fuel-blending agent. They can be unstable under certain conditions and hazardous or explosive when mixed with diesel fuel.

Diesel fuel is seldom completely free of water. To prevent fuel system trouble, drain the accumulated water from the **fuel/water separator using the fuel/water separator** drain provided. If you buy good quality fuel and follow the cold weather advice above, fuel conditioners should not be required in your vehicle. If available in your area, a high cetane “premium” diesel fuel may offer improved cold-starting and warm-up performance.

Fuel Specifications

The Cummins® diesel engine has been developed to take advantage of the high energy content, and generally lower cost, No. 2 Ultra Low Sulfur diesel fuel or No. 2 Ultra Low Sulfur climatized diesel fuel. Experience has shown that it also operates on No. 1 Ultra Low Sulfur diesel fuel, or other fuels within specification.

NOTE: A maximum blend of 5% biodiesel meeting ASTM specification D-6751 may be used with your Cummins® diesel-equipped vehicle.

NOTE: In addition, commercially available fuel additives are not necessary for the proper operation of your Cummins® diesel-equipped vehicle.

NOTE: No. 1 Ultra Low Sulfur diesel fuel should only be used where extended arctic conditions (-10°F or -23°C) exist.

ENGINE RUNAWAY

WARNING!

In case of engine runaway due to flammable fumes from gasoline spills or turbocharger oil leaks being sucked into the engine, do the following to help avoid personal injury and/or vehicle damage:

1. Shut off the engine ignition switch.

2. Using a CO_2 or dry chemical-type fire extinguisher, direct the spray from the fire extinguisher into the grille on the passenger side so that the spray enters the engine air intake. (The inlet for the engine air intake is located behind the passenger side headlamp and receives air through the grille.)

ADDING FUEL

CAUTION!

To avoid fuel spillage and overfilling, do not "top off" the fuel tank after filling.

NOTE:

- When the fuel nozzle "clicks" or shuts off, the fuel tank is full.
- Tighten the gas cap until you hear a "clicking" sound. This is an indication that the gas cap is properly tightened.
- Make sure that the gas cap is tightened each time the vehicle is refueled.

WARNING!

A fire may result if fuel is pumped into a portable container that is on a truck bed. You could be burned. Always place fuel containers on the ground while filling.

Fuel Filler Cap (Gas Cap)

The gas cap is behind the fuel filler door. If the gas cap is lost or damaged, be sure the replacement cap is for use with this vehicle.

CAUTION!

Damage to the fuel system or emissions control system could result from using an improper fuel tank filler tube cap (gas cap). A poorly fitting cap could let impurities into the fuel system.

WARNING!

- **Never have any smoking materials lit in or near the vehicle when the gas cap is removed or the tank filled.**
- **Never add fuel to the vehicle when the engine is running.**

Avoid Using Contaminated Fuel

Fuel that is contaminated by water or dirt can cause severe damage to the engine fuel system. Proper maintenance of the engine fuel filter and fuel tank is essential. Refer to "Maintenance Procedures" in Section 7.

NOTE: Climatized diesel fuel is a blend of No. 2 and No. 1 diesel fuel, which reduces the temperature at which wax crystals form in the fuel.

Engine Priming Procedure

NOTE: When a diesel engine is allowed to run out of fuel, air is pulled into the fuel system.

You may try priming, as described below. However, if the engine will not start, refer to the fuel priming procedure in the Service Manual or have the vehicle towed to an authorized dealer.

WARNING!

Do not open the high-pressure fuel system with the engine running. Engine operation causes high fuel pressure. High-pressure fuel spray can cause serious injury or death.

1. Add a substantial quantity of fuel to the tank 5 to 10 gal (19 to 38L).

2. Crank the engine for one to two seconds. If the engine does not start, then release the key or starter button back to the RUN position (do not turn the key back to the OFF position). The electric fuel transfer pump will continue to run and purge air from the system for about 20 seconds. After 20 seconds, attempt to start the engine again.

3. Start the engine using the Normal Starting procedure.

4. Repeat the procedure if the engine does not start.

CAUTION!

Do not engage the starter motor for more than 15 seconds at a time. Allow two minutes between the cranking intervals.

NOTE: The engine may run rough until the air is forced from all the fuel lines.

WHAT TO DO IN EMERGENCIES

CONTENTS

JUMP STARTING

WARNING!

To prevent personal injury or damage to clothing, do not allow battery fluid to contact eyes, skin or fabrics. Do not lean over a battery when connecting jumper cables or allow cable clamps to touch each other. Keep open flames or sparks away from battery vent holes. Always wear eye protection when working with batteries.

Do not use a booster battery or any other booster source that has a greater than 12-Volt system, i.e., do not use a 24-Volt power source.

NOTE: Replacement batteries should both be of equal size to prevent damage to the vehicle's charging system.

Your vehicle is equipped with two 12–Volt batteries. If it becomes necessary to use a booster battery with jumper cables to start a vehicle's engine because its batteries are discharged, the following procedure should be used:

Set the parking brake and place an automatic transmission in PARK (or NEUTRAL for a manual transmission). Turn off lights, heater and other electrical loads. Observe charge indicator (if equipped) in both batteries. If the indicator (if equipped) is light or yellow on either battery, replace that battery.

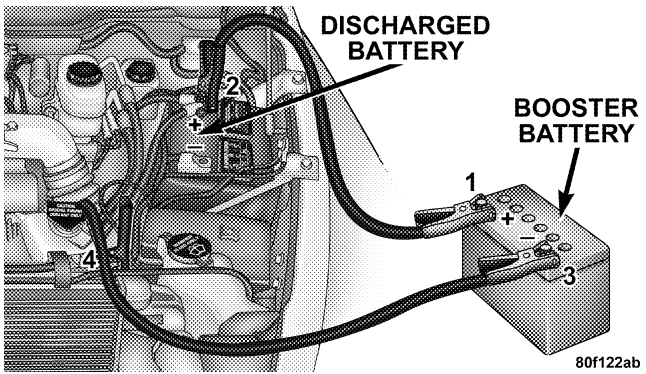
CAUTION!

Use the Jump-Start Procedure only when the charge indicator (if equipped) in both batteries is dark in the center. Do not attempt jump-starting when either battery charge indicator (if equipped) is bright or yellow. If charge indicator (if equipped) has a green dot in the center, failure to start is not due to a discharged battery and cranking system should be checked.

1. Attach one jumper cable to the positive terminal of booster battery and the other end of the same cable to the positive terminal of the discharged battery.

WARNING!

Do not permit vehicles to touch each other as this could establish a ground connection and personal injury could result.



2. Connect one end of the other jumper cable to negative (-) post of booster battery. Connect the other end of the jumper cable to a good ground on the engine block of the vehicle with the discharged battery. Make sure a good connection is made, free of dirt and grease.

WARNING!

- **Do not connect the cable to the negative post of the discharge battery. The resulting electrical spark could cause the battery to explode.**
- **During cold weather when temperatures are below freezing point, electrolyte in a discharged battery may freeze. Do not attempt jump-starting because the battery could rupture or explode. The battery temperature must be brought up above freezing point before attempting to jump-start.**

3. Take care that the clamps from one cable do not inadvertently touch clamps from the other cable. Do not lean over the battery when making connection. The negative connection must provide good electrical conductivity and current-carrying capacity.

4. After the engine is started or if the engine fails to start, cables must be disconnected in the following order:

a. Disconnect the negative cable at the engine ground.

b. Disconnect the negative cable at the negative post on booster battery.

c. Disconnect the cable from the positive post of both batteries.

WARNING!

Any procedure other than above could result in:
1. Personal injury caused by electrolyte squirting out the battery vent;
2. Personal injury or property damage due to battery explosion;
3. Damage to charging system of booster vehicle or of immobilized vehicle.

With Portable Starting Unit

There are many types of these units available. Follow the manufacturer's instructions for necessary precautions and operation.

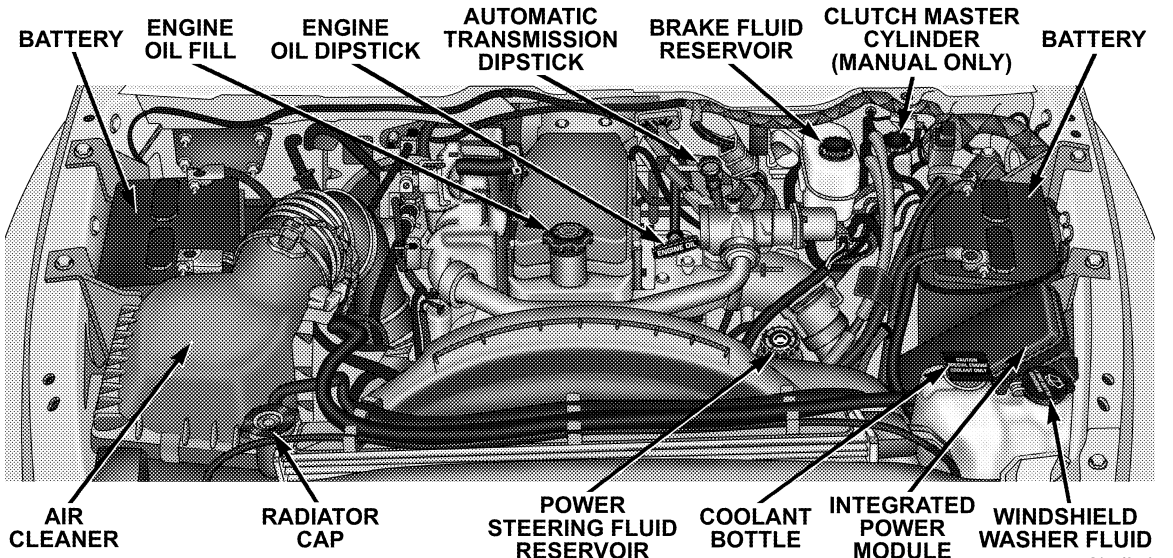
CAUTION!

It is very important that the starting unit operating voltage does not exceed 12-Volts DC or damage to battery, starter motor, alternator, or electrical system may occur.

MAINTAINING YOUR VEHICLE

CONTENTS

ENGINE COMPARTMENT — 6.7L DIESEL



MAINTENANCE PROCEDURES

The pages that follow contain the **required** maintenance services determined by the engineers who designed your vehicle.

Besides the maintenance items for which there are fixed maintenance intervals, there are other items that should operate satisfactorily without periodic maintenance. However, if a malfunction of these items does occur, it could adversely affect the engine or vehicle performance. These items should be inspected if a malfunction is observed or suspected.

Engine Oil

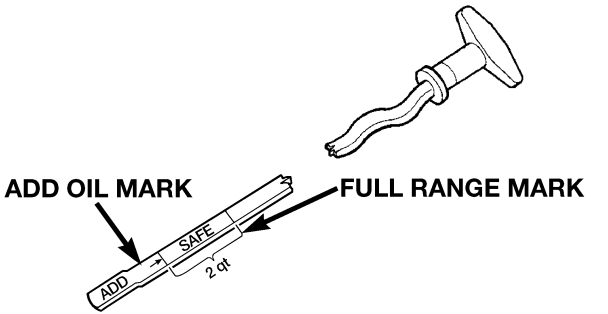
Checking Oil Level

To assure proper lubrication of your vehicle's engine, the engine oil must be maintained at the correct level. Check the oil level at regular intervals. The best time to check the oil level is before starting the engine, after it has been parked overnight. When checking oil after operating the engine, first ensure the engine is at full operating temperature, then wait at least 30 minutes after engine shutdown to check the oil.

Checking the vehicle while it's on level ground will also improve the accuracy of the oil level readings. Add oil only when the level on the dipstick is below the "ADD" mark. The total capacity from the low mark to the high mark is 2 qts (1.9 L).

CAUTION!

Overfilling or underfilling the crankcase will cause oil aeration or loss of oil pressure. This could damage your engine.



80698712

Never operate the engine with oil level below the "ADD" mark or above the upper "SAFE" mark.

Change Engine Oil

Refer to "Oil Change Required" under "System Status (EVIC Displays)" in the "Electronic Vehicle Information Center" section of this manual, for recommended oil change intervals.

Engine Oil Selection

For best performance and maximum protection under all types of operating conditions, the manufacturer only recommends engine oils that are API CJ-4 certified and meet the requirements of Chrysler LLC. Use MOPAR® or an equivalent oil meeting Chrysler Material Standards MS-10902. Products meeting Cummins® CES 20081 may also be used. The identification of these engine oils are typically located on the back of the oil container.

American Petroleum Institute (API) Engine Oil Identification Symbol

818dc76e

This symbol means that the oil has been certified by the American Petroleum Institute (API). The manufacturer only recommends API CJ-4 certified engine oils.

Oils with a high ash content may produce deposits on valves that can progress to guttering and valve burning. A maximum sulfated ash content of 1.00 mass % is recommended for all oil used in the engine.

The same oil change interval is to be followed for synthetic oil as for petroleum-based oil. Also, synthetic oil must meet the same performance specifications as petroleum oil.

Engine Oil Viscosity (SAE Grade)
Use SAE 15W-40 Engine Oil that meets Chrysler Materials Standard MS-10902 and the API CJ-4 engine oil category.

Engine oil not designated by the Chrysler or Cummins® Material Standards and API CJ-4 should not be used; engine and exhaust system durability may be compromised. For lower temperature operation, SAE 5W-40 engine oils may be used. These oils must meet the same requirements as stated previously. The engine oil filler cap also shows the recommended engine oil viscosity for your engine. For information on engine oil filler cap location, refer to the "Engine Compartment" illustration in this section.

Synthetic Engine Oils
You may use synthetic engine oils if the recommended oil quality requirements are met, and the recommended maintenance intervals for oil and filter changes are followed.

Materials Added to Engine Oil
The manufacturer strongly recommends against the addition of any additives (other than leak detection dyes or lube odorants) to the engine oil. Engine oil is an engineered product and its performance may be impaired by supplemental additives.

NOTE: The manufacturer offers a lube odorant (MOPAR® Diesel Fresh) for diesel engine crankcases. The lube

odorant is recommended by the manufacturer to reduce the sulfur smell that may occur during engine idling.

Engine Oil Filter
Refer to Fluids, Lubricants and Genuine Parts for the correct part number. The engine oil filter should be changed at **every** engine oil change.

Engine Oil and Filter — Change
Operate the engine until the coolant temperature reaches 140°F (60°C). Shut the engine OFF. Remove the oil fill cap and the oil drain plug.

Use a container that can hold at least 12 qts (11.3 L) to hold the used oil.

Always check the condition of the used oil. This can give you an indication of some engine problems that might exist.

- Thin, black oil indicates fuel dilution.
- Milky discoloration indicates coolant dilution.

Clean the area around the oil filter base. Remove the filter from the underside of the vehicle using a cap-style oil filter wrench.

Clean the gasket surface of the filter mount. The filter gasket can stick on the filter mount. Make sure it is removed.

Change the engine oil filter with every engine oil change.

Only a high-quality MOPAR® filter should be used to assure most efficient service.

CAUTION!

The filtering medium of other aftermarket filters may disintegrate. Debris from failed filters may plug the piston oil cooling nozzles, resulting in scuffed pistons and engine failure.

CAUTION!

Fill the oil filter element with clean oil before installation. Use the same type oil that will be used in the engine. When filling the oil filter, prevent foreign material from falling into the filter. Severe engine damage may occur.

Apply a light film of lubricating oil to the sealing surface of the filter gasket before installing the filter.

CAUTION!

Overtightening may distort the threads or damage the filter element seal.

Install the filter as specified by the filter manufacturer. Turn the filter 3/4–turn to one full-turn after making contact with the gasket.

Check the condition of the threads and sealing surface on the oil pan and drain plug.

Install the drain plug and sealing washer, and tighten to 37 ft-lbs (50 N·m).

Use only high-quality multi-grade lubricating oil in your Cummins® diesel engine. Choose the correct oil for your operating conditions as outlined in the Selection of Engine Oil.

Cummins® Turbo Diesel

Fill the engine with the correct grade of new oil. The engine capacity is 11 qts (10.4 L) in the crankcase and 1 qt (0.95 L) in the lubricating oil filter.

Start the engine and operate it at idle for several minutes. Check for leaks at the lubricating oil filter and oil pan drain plug.

Run the engine until it has reached operating temperature, and stop the engine. Wait approximately 15 minutes to let the oil in the upper parts of the engine drain back to the pan. Check the oil level again.

Add oil as necessary to bring the level to the "SAFE" mark on the dipstick.

Disposing of Used Engine Oil and Filter
Care should be taken in disposing of used engine oil and oil filters from your vehicle. Used oil and oil filters, indiscriminately discarded, can present a problem to the environment. Contact your authorized dealer, service station, or governmental agency for advice on how and where used oil and oil filters can be safely discarded in your area.

Drive Belt

Inspection
Check the belt for intersecting cracks.

- Transverse (across the belt width) cracks are acceptable.
- Longitudinal (direction of belt length) cracks that intersect with transverse cracks are NOT acceptable.

Replace the belt if it has unacceptable cracks, is frayed or has pieces of material missing.

The engine speed sensor, located near the damper, should be inspected for damage if a belt is frayed.

Engine Air Cleaner Filter

CAUTION!

All air entering the engine intake must be filtered. The abrasive particles in unfiltered air will cause rapid wear to engine components.

The condition of the air cleaner filter is monitored by the Engine Control Module. The Electronic Vehicle Information Center (EVIC) will display SERVICE AIR FILTER when service is required.

Do not remove the top of the air filter housing to inspect the filter element on your diesel engine under normal operating conditions.

The EVIC message SERVICE AIR FILTER could be displayed periodically. This is because engine airflow requirements change based on driving conditions. As the filter becomes more restrictive and airflow requirements increase, the EVIC message SERVICE AIR FILTER will be displayed. The message may not be displayed in subsequent drive cycles if the same conditions are not met. The air filter element should be replaced within 250 miles from the first time this message is displayed, to ensure proper engine operation during all driving conditions.

CAUTION!

Driving with a restricted air filter can cause engine damage.

If the vehicle experiences a sudden loss of engine power when being driven in heavy snow, rain or when plowing snow, and the EVIC message center states SERVICE AIR FILTER is showing a plugged filter, then visually inspect the air filter for snow/ice buildup or extreme water saturation. If the air filter is not damaged, remove all snow/ice and reinstall air filter. If the air filter is damaged, replace filter element.

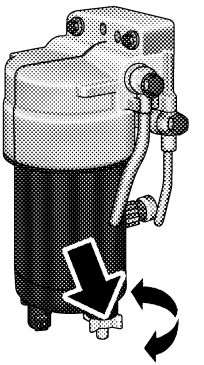
NOTE: The air filter housing contains a Mass Air Flow sensor. This sensor is critical to proper engine operation and component longevity. Any damage or modification to this sensor could result in major engine and/or exhaust aftertreatment damage. This includes the use of non-approved air filters. Use only MOPAR® approved air filters or equivalent.

A visual inspection of the air cleaner filter element is never recommended under normal circumstances. A badly restricted element may appear clean, while a soiled element may be quite effective in filtering particles without restricting airflow. Rely on the Engine Control Module to determine when a filter change is necessary.

CAUTION!

Many aftermarket performance air filter elements do not adequately filter the air entering the engine. Use of such filters can severely damage your engine.

Draining Fuel/Water Separator Filter



818e32b1

CAUTION!

Do not drain the fuel/water separator filter when the engine is running.

CAUTION!

Do not prefill the fuel filter when installing a new fuel filter. There is a possibility that debris could be introduced into the fuel filter during this action. It is best to install the filter dry and allow the in-tank lift pump to prime the fuel system.

NOTE: The fuel filter and water separator assembly is located on the driver's side of the engine. The best access to the water drain valve is through the driver's side wheel well.

NOTE: If water is detected in the water separator while the engine is running or while the key is in the ON position, the WATER IN FUEL light will illuminate and an audible chime will be heard five times. At this point you should stop the engine and drain the water from the separator.

If the WATER IN FUEL light comes on and a single chime is heard while you are driving, or with the key in the ON position, there may be a problem with your water separator wiring or sensor. See your authorized dealer for service.

Upon proper draining of the water from the fuel filter, the WATER IN FUEL light will remain illuminated for approximately 10 seconds. If the water was drained while the engine was running, the WATER IN FUEL light may remain on for approximately three minutes.

NOTE: Care should be taken in disposing of used fluids from your vehicle. Used fluids, indiscriminately discarded, can present a problem to the environment. Contact your local authorized dealer, service station, or government agency for advice on recycling programs and for where used fluids and filters can be properly disposed of in your area.

Drain a small amount from the fuel/water separator filter monthly, or when the WATER IN FUEL light is on. Turn the drain valve, located on the bottom of the filter, counterclockwise and allow any accumulated water to drain into an approved container. Leave the drain valve open until all water and contaminants have been removed. Close the drain valve by turning it clockwise when clean fuel is visible.

NOTE: The fuel/water separator drain valve is located on the bottom of the fuel filter housing.

If more than a couple ounces of fuel has been drained, follow the directions below for "Priming if the engine has run out of fuel."

WARNING!

Do not open the high-pressure fuel system with the engine running. Engine operation causes high fuel pressure. High-pressure fuel spray can cause serious injury or death.

Priming if the engine has run out of fuel

1. Add a substantial quantity of fuel to the tank, approximately 5 to 10 gal (19L to 38L).

2. Crank the engine for one to two seconds. If the engine does not start, then release the key or starter button back to the RUN position (do not turn the key back to the OFF position). The electric fuel transfer pump will continue to run and purge air from the system for about 25 seconds. After 25 seconds, attempt to start the engine again.

3. Start the engine using the Normal Starting procedure.

4. Repeat the procedure if the engine does not start.

CAUTION!

Do not engage the starter motor for more than 15 seconds at a time. Allow two minutes between the cranking intervals.

NOTE: The engine may run rough until the air is forced from all the fuel lines.

CAUTION!

Diesel fuel will damage black top paving surfaces. Drain the filter into an appropriate container.

WARNING!

Do not use alcohol or gasoline as fuel blending agents. They can be unstable under certain conditions and be hazardous or explosive when mixed with diesel fuel.

CAUTION!

Due to lack of lubricants in alcohol or gasoline, the use of these fuels can cause damage to the fuel system.

NOTE: A maximum blend of 5% biodiesel, meeting ASTM specification D-6751 may be used with your Cummins® diesel engine equipped vehicle. Use of biodiesel mixture in excess of 5% can negatively impact the on-engine fuel filter's ability to separate water from the fuel, resulting in high-pressure fuel system corrosion or damage.

NOTE: As sufficient testing has not been completed, ethanol blends are not recommended or approved for use with your Cummins® diesel engine equipped vehicle.

NOTE: In addition, commercially available fuel additives are not necessary for the proper operation of your Cummins® diesel engine equipped vehicle.

Intervention Regeneration Strategy – EVIC Message Process Flow (Early Build)

The Cummins® diesel engine meets all EPA Heavy Duty Diesel Engine Emissions Standards, resulting in the lowest emitting diesel engine ever produced.

NOTE: Depending on the build date of your vehicle or if the software has been updated, the EVIC may display the following messages.

To achieve these emission standards, your vehicle is equipped with a state of the art engine and exhaust system. The engine and exhaust aftertreatment system work together to achieve the EPA Heavy Duty Diesel Engine Emissions Standards. These systems are seamlessly integrated into your vehicle and managed by the Cummins® 6.7L engine Powertrain Control Module (PCM). The PCM manages engine combustion to allow

the exhaust system's catalyst to trap and burn Particulate Matter (PM) pollutants, with no input or interaction on your part.

Additionally, the overhead console in your vehicle has the ability to alert you to additional maintenance required on your truck or engine. Refer to the following messages that may be displayed on your Electronic Vehicle Information Center (EVIC):

WARNING!

A hot exhaust system can start a fire if you park over materials that can burn. Such materials might be grass or leaves coming into contact with your exhaust system. Do not park or operate your vehicle in areas where your exhaust system can contact anything that can burn.

Perform Service

The 6.7L Cummins® engine utilizes a Closed Crankcase Ventilation (CCV) system, EGR valve and an EGR cooler. This system filters and recycles gasses produced in the crankcase during the normal combustion process. "Perform Service" will be displayed on the overhead console of your vehicle if the CCV filter, EGR valve and EGR cooler are due for required maintenance. The CCV filter is located on the top of the engine valve cover. For additional information, see your local authorized dealer.

Catalyst Full See Owner Manual

"Catalyst Full See Owner Manual" will be displayed on the overhead console of your vehicle if the exhaust particulate filter reaches 80% of its maximum storage capacity. Under conditions of exclusive short duration and low speed driving cycles, your Cummins® engine and exhaust aftertreatment system may never reach the conditions required to remove the trapped PM. If this

occurs, "Catalyst Full See Owner Manual" will be displayed on the overhead console in your vehicle. If this message is displayed you will hear one chime to assist in alerting you of this condition.

Catalyst Stat::::::::::80%
Catalyst Stat::::::::::80% will replace the message "Catalyst Full See Owner Manual" after it is displayed for one minute. The engine Powertrain Control Module (PCM) will continue to monitor the amount of particulate matter trapped in the particulate filter. This message indicates the percentage of the particulate filter capacity that has been used.

By simply driving your vehicle at highway speeds for as little as 45 minutes you can remedy the condition in the particulate filter system and allow your Cummins® engine and exhaust aftertreatment system to remove the trapped PM and restore the system to normal operating condition.

Catalyst Stat::::::::::80%, 90%, 99%
Catalyst Stat::::::::::80%, 90%, 99% If you are unable to drive your vehicle under these conditions for an extended period of time after the initial warning notification, the Engine PCM will continue to monitor the particulate filter and will display the progression of particulate filter usage (80, 90, 99%) on the EVIC message center.

CATALYST FULL SERVICE REQD
If the particulate filter reaches 99% of its capacity, the overhead console in your vehicle will chime twice and display the message CATALYST FULL SERVICE REQD. At this point the engine PCM will register a fault code, the instrument panel will display a MIL light and the engine PCM will derate the truck, reducing its horsepower and torque output.

The PCM derates the engine in order to limit the likelihood of permanent damage to the aftertreatment system.

If this condition is not corrected and a dealer service is not performed, extensive exhaust aftertreatment damage can occur. In order to correct this condition it will be necessary to have the truck serviced by your local authorized dealer.

Intervention Regeneration Strategy – EVIC Message Process Flow (Late Build)

The Cummins® diesel engine meets all EPA Heavy Duty Diesel Engine Emissions Standards, resulting in the lowest emitting diesel engine ever produced.

NOTE: Depending on the build date of your vehicle or if the software has been updated, the EVIC may display the following messages.

To achieve these emissions standards, your vehicle is equipped with a state-of-the-art engine and exhaust system. The engine and exhaust after-treatment system work together to achieve the EPA Heavy Duty Diesel Engine Emissions Standards. These systems are seamlessly integrated into your vehicle and managed by the Cummins® Powertrain Control Module (PCM). The PCM manages engine combustion to allow the exhaust system's catalyst to trap and burn Particulate Matter (PM) pollutants, with no input or interaction on your part.

Additionally, the overhead console in your vehicle has the ability to alert you to additional maintenance required on your truck or engine. Refer to the following messages that may be displayed on your Electronic Vehicle Information Center (EVIC):

WARNING!

A hot exhaust system can start a fire if you park over materials that can burn. Such materials might be grass or leaves coming into contact with your exhaust system. Do not park or operate your vehicle in areas where your exhaust system can contact anything that can burn.

Perform Service

The Cummins® diesel engine utilizes a Closed Crankcase Ventilation (CCV) system, EGR valve and an EGR cooler. This system filters and recycles gasses produced in the crankcase during the normal combustion process. "Perform Service" will be displayed on the overhead console of your vehicle if the CCV filter, EGR valve and EGR cooler are due for required maintenance. The CCV filter is located on the top of the engine valve cover. For additional information, see your local authorized dealer.

Exhaust System — Regeneration Required Now

"Exhaust System — Regeneration Required Now" will be displayed on the overhead console of your vehicle if the exhaust particulate filter reaches 80% of its maximum storage capacity. Under conditions of exclusive short duration and low speed driving cycles, your Cummins® diesel engine and exhaust aftertreatment system may never reach the conditions required to remove the trapped PM. If this occurs, "Exhaust System — Regeneration Required Now" will be displayed on the overhead console in your vehicle. If this message is displayed, you will hear one chime to assist in alerting you of this condition.

By simply driving your vehicle at highway speeds for as little as 45 minutes, you can remedy the condition in the particulate filter system and allow your Cummins® diesel engine and exhaust after-treatment system to remove the trapped PM and restore the system to normal operating condition.

Exhaust Filter XX% Full
Indicates that the Diesel Particulate Filter (DPF) is approaching full.

Exhaust System — Regeneration in Process
Indicates that the Diesel Particulate Filter (DPF) is self-cleaning. Maintain your current driving condition until regeneration is completed.

Exhaust System — Regeneration Completed
Indicates that the Diesel Particulate Filter (DPF) self-cleaning is completed. If this message is displayed, you will hear one chime to assist in alerting you of this condition.

Service Required — See Dealer Now
Regeneration has been disabled due to a system malfunction. At this point the engine PCM will register a fault code, the instrument panel will display a MIL light.

IMMEDIATE SERVICE IS REQUIRED. See your authorized dealer as damage to the exhaust system could occur soon with continued operation.

Exhaust Filter Full — Power Reduced See Dealer
The PCM derates the engine in order to limit the likelihood of permanent damage to the after-treatment system. If this condition is not corrected and a dealer service is not performed, extensive exhaust after-treatment damage can occur. In order to correct this condition it will be necessary to have your vehicle serviced by your local authorized dealer.

IMMEDIATE SERVICE IS REQUIRED. See your authorized dealer, as damage to the exhaust system could occur soon with continued operation.

Cooling System

WARNING!

You or others can be badly burned by hot coolant or steam from your radiator. If you see or hear steam coming from under the hood, do not open the hood until the radiator has had time to cool. Never try to open a cooling system pressure cap when the radiator is hot.

Engine Coolant Checks

Check the engine coolant (antifreeze) protection every 12 months (before the onset of freezing weather, where applicable). If coolant is dirty or rusty in appearance, the system should be drained, flushed and refilled with fresh coolant. Check the front of the A/C condenser for any accumulation of bugs, leaves, etc. If dirty, clean by gently spraying water from a garden hose, vertically down the face of the condenser.

Check the coolant recovery bottle tubing for brittle rubber, cracking, tears, cuts and tightness of the connection at the bottle and radiator. Inspect the entire system for leaks.

Extremely cold ambient temperatures may require the addition of a "winter front" for effective operation of the cab heating/cooling system. Make certain that a percentage of the radiator is exposed for adequate airflow through the charge air cooler and automatic transmission oil cooler. The percentage of opening must be increased with the increasing ambient air temperature and/or engine load. If the cooling fan can be heard cycling frequently, increase the size of the opening in the winter front.

Coolant Bottle Level Check

The coolant reserve system provides a quick visual method of determining that the coolant level is adequate. With the engine idling and warmed to the normal

operating temperature, the level of the coolant on the coolant bottle should be between the fluid level marks. Check the coolant level whenever the hood is raised.

The radiator normally remains completely full, so there is no longer a need to remove the coolant pressure cap, except for checking coolant freeze point or replacement with new antifreeze coolant.

WARNING!

Never add coolant to the radiator when the engine is overheated. Do not loosen or remove pressure cap to cool overheated engine! The coolant is under pressure and severe scalding could result.

Cooling System — Drain, Flush and Refill

At the intervals shown on the Maintenance Schedule, the system should be drained, flushed and refilled. Refer to Section 8. See your authorized dealer for service.

CAUTION!

The manufacturer highly recommends that all cooling system service, maintenance, and repairs be performed by your local authorized dealer.

If the solution is dirty or contains a considerable amount of sediment, clean and flush with a reliable cooling system cleaner. Follow with a thorough rinsing to remove all deposits and chemicals. Properly dispose of old antifreeze solution.

Selection of Coolant

Use only the manufacturer's recommended coolant; for correct coolant type, refer to "Engine Coolant" under "Fluids, Lubricants and Genuine Parts" in this section.

CAUTION!

- **Mixing of coolants other than specified HOAT engine coolants may result in engine damage and may decrease corrosion protection. If a non-HOAT coolant is introduced into the cooling system in an emergency, it should be replaced with the specified coolant as soon as possible.**
- **Do not use plain water alone or alcohol-base engine coolant (antifreeze) products. Do not use additional rust inhibitors or antirust products, as they may not be compatible with the radiator engine coolant and may plug the radiator.**
- **This vehicle has not been designed for use with Propylene Glycol-based coolants. Use of Propylene Glycol-based coolants is not recommended.**

Adding Coolant

Your vehicle has been built with an improved engine coolant that allows extended maintenance intervals. This coolant can be used up to 5 Years or 100,000 mi (160 000 km) before replacement. To prevent reducing this extended maintenance period, it is important that you use the same coolant throughout the life of your vehicle. Please review these recommendations for using Hybrid Organic Additive Technology (HOAT) coolant. When adding coolant:

- The manufacturer recommends using MOPAR® Antifreeze/Coolant 5 Year/100,000 Mile Formula HOAT (Hybrid Organic Additive Technology).
- Mix a minimum solution of 50% HOAT engine coolant and distilled water. Use higher concentrations (not to exceed 70%) if temperatures below -34°F (-37°C) are anticipated.

- Use only high purity water such as distilled or deionized water when mixing the water/engine coolant solution. The use of lower quality water will reduce the amount of corrosion protection in the engine cooling system.

Please note that it is the owner's responsibility to maintain the proper level of protection against freezing according to the temperatures occurring in the area where the vehicle is operated.

NOTE: Mixing coolant types will decrease the life of the engine coolant and will require more frequent coolant changes.

Cooling System Pressure Cap

The cap must be fully-tightened to prevent loss of coolant and to ensure that coolant will return to the radiator from the coolant recovery bottle.

The cap should be inspected and cleaned if there is any accumulation of foreign material on the sealing surfaces.

WARNING!

- **The warning words "DO NOT OPEN HOT" on the cooling system pressure cap are a safety precaution. Never add coolant when the engine is overheated. Do not loosen or remove the cap to cool an overheated engine. Heat causes pressure to build up in the cooling system. To prevent scalding or injury, do not remove the pressure cap while the system is hot or under pressure.**
- **Do not use a pressure cap other than the one specified for your vehicle. Personal injury or engine damage may result.**

Disposal of Used Engine Coolant

Used ethylene glycol-based engine coolant is a regulated substance, requiring proper disposal. Check with your local authorities to determine the disposal rules for your community. Do not store ethylene glycol-based engine coolant in open containers or allow it to remain in puddles on the ground. Prevent ingestion by animals and children. If ingested by a child, contact a physician immediately. Clean up any ground spills immediately.

Coolant Level

The coolant bottle provides a quick visual method for determining that the coolant level is adequate. With the engine cold, the level of the coolant in the coolant recovery bottle should be between the ranges indicated on the bottle.

The radiator normally remains completely full, so there is no need to remove the radiator cap unless checking for coolant freeze point or replacing coolant. Advise your service attendant of this. As long as the engine operating temperature is satisfactory, the coolant bottle need only be checked once a month.

When additional coolant is needed to maintain the proper level, it should be added to the coolant bottle. Do not overfill.

Points to Remember

NOTE: When the vehicle is stopped after a few miles (a few kilometers) of operation, you may observe vapor coming from the front of the engine compartment. This is normally a result of moisture from rain, snow, or high humidity accumulating on the radiator and being vaporized when the thermostat opens, allowing hot coolant to enter the radiator.

If an examination of your engine compartment shows no evidence of radiator or hose leaks, the vehicle may be safely driven. The vapor will soon dissipate.

- Do not overfill the coolant recovery bottle.
- Check coolant freeze point in the radiator and in the coolant recovery bottle. If antifreeze needs to be added, contents of coolant recovery bottle must also be protected against freezing.
- If frequent coolant additions are required, or if the level in the coolant recovery bottle does not drop when the engine cools, the cooling system should be pressure-tested for leaks.
- Maintain coolant concentration at 50% HOAT engine coolant (minimum) and distilled water for proper corrosion protection of your engine, which contains aluminum components.
- Make sure that the radiator and coolant recovery bottle overflow hoses are not kinked or obstructed.
- Keep the front of the radiator clean. If your vehicle is equipped with air conditioning, keep the front of the condenser clean also.
- Do not change the thermostat for summer or winter operation. If replacement is ever necessary, install ONLY the correct type thermostat. Other designs may result in unsatisfactory coolant performance, poor gas mileage, and increased emissions.

Charge Air Cooler (Inter-Cooler)

The charge air cooler is positioned between the radiator and the air conditioner condenser. Air enters the engine through the air cleaner and passes through the turbo-charger where it is pressurized. This pressurized air rapidly reaches high temperature. The air is then directed through a hose to the charge air cooler and through another hose to the intake manifold of the engine. The air entering the engine has been cooled by about 50 – 100

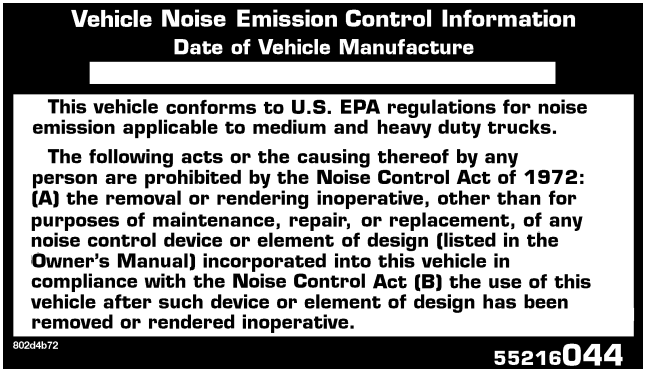
degrees F. This cooling process enables more efficient burning of fuel, resulting in fewer emissions.

To guarantee optimum performance of the system, keep the surfaces of the charge air cooler, condenser and radiator clean and free of debris. Periodically check the hoses leading to and from the charge air cooler for cracks or loose clamps, resulting in loss of pressure and reduced engine performance.

Noise Control System Required Maintenance & Warranty

For 3500 Two-Wheel Drive and Four-Wheel Drive models over 10,000 lbs (4 535 kg) Gross Vehicle Weight Rating.

All vehicles built over 10,000 lbs (4 535 kg) Gross Vehicle Weight Rating and manufactured for sale and use in the United States, are required to comply with the Federal Government's Exterior Noise Regulations. These vehicles can be identified by the Noise Emission Control Label located in the operator's compartment.



Required Maintenance For Noise Control Systems

The following maintenance services must be performed every 6 months or 6,000 mi (9 600 km), whichever comes first, to assure proper operation of the noise control systems. In addition, inspection and service should be

performed anytime a malfunction is observed or suspected. Proper maintenance of the entire vehicle will help the effectiveness of the noise control systems.

Exhaust System
Inspect the entire exhaust system for leaks and damaged parts. Devices such as hangers, clamps, and U-bolts should be tight and in good condition. Damaged components, burned or blown out mufflers, burned or rusted out exhaust pipes should be replaced according to the procedures and specifications outlined in the appropriate service manual.

Air Cleaner Assembly
Inspect air cleaner housing for proper assembly and fit. Make certain that the air cleaner is properly positioned and that the cover is tight. Check all hoses leading to the air cleaner for tightness. The air filter element must also be clean and serviced according to the instructions outlined in the Maintenance Schedule. Refer to Section 8 of this manual.

Tampering with Noise Control System Prohibited
Federal law prohibits the following acts or the causing thereof: (1) the removal or rendering inoperative by any person, other than for purposes of maintenance, repair, or replacement, of any device or element of design incorporated into any new vehicle for the purpose of noise control prior to its sale or delivery to the ultimate purchaser or while it is in use, or (2) the use of the vehicle after such device or element of design has been removed or rendered inoperative by any person.

Among those acts presumed to constitute tampering, are the acts listed below.

- **AIR CLEANER**
  - Removal of the air cleaner.
  - Removal of the air cleaner filter element from the air cleaner housing.
  - Removal of the air ducting.
- **EXHAUST SYSTEM**
  - Removal or rendering inoperative exhaust system components, including the muffler or tailpipe.
- **ENGINE COOLING SYSTEM**
  - Removal or rendering inoperative the fan clutch.
  - Removal of the fan shroud.

Noise Emission Warranty

The manufacturer warrants that this vehicle as manufactured by the manufacturer, was designed, built and equipped to conform at the time it left the manufacturer's control with all applicable U.S. EPA Noise Control Regulations.

This warranty covers this vehicle as designed, built and equipped by the manufacturer, and is not limited to any particular part, component or system of the vehicle manufactured by the manufacturer. Defects in design, assembly or in any part, component or system of the vehicle as manufactured by the manufacturer, which, at the time it left the manufacturer's control, caused noise emissions to exceed Federal standards, are covered by this warranty for the life of the vehicle.

Maintenance Log and Service Chart (Diesel Engines)

Noise Systems Maintenance Chart and Service Log — Insert Month, Day, Year under column mileage closest to the mileage at which service was performed.								
MILES KILOMETERS	7,500 12 000	15,000 24 000	22,500 36 000	30,000 48 000	37,500 60 000	45,000 72 000	52,500 84 000	60,000 96 000
Exhaust system-inspect								
Air cleaner assembly-inspect								
ODOMETER READING								
PERFORMED BY								
PERFORMED AT								

MILES KILOMETERS	67,500 108 000	75,000 120 000	82,500 132 000	90,000 144 000	97,500 126 000	84,000 156 000	105,00 168 000	112,500 181 000
Exhaust system-inspect								
Air cleaner assembly-inspect								
ODOMETER READING								
PERFORMED BY								
PERFORMED AT								

FLUID CAPACITIES

	U.S.	Metric
Fuel (Approximate)		
2500/3500 Shortbed Models	34 Gallons	128 Liters
2500/3500 Longbed Models	35 Gallons	132 Liters
Engine Oil with Filter		
6.7L Turbo Diesel Engine I-6 (SAE 15W-40, API CJ-4 Certified, that meets CES 20081 Standards)	12 Quarts	11.4 Liters
Cooling System		
6.7L Turbo Diesel Engine I-6 (MOPAR® Engine Coolant/ Antifreeze 5 Year/100,000 Mile Formula)	5.7 Gallons	21.4 Liters

FLUIDS, LUBRICANTS AND GENUINE PARTS

Engine

Component	Fluid, Lubricant, or Genuine Part
Engine Coolant	MOPAR® Antifreeze/Coolant 5 Year/100,000 Mile Formula HOAT (Hybrid Organic Additive Technology)
Engine Oil (6.7L Turbo Diesel Engine)	Use SAE 15W-40, API CJ-4 Certified, that meets Chrysler Material Standards MS-10902. Products meeting Cummins® CES 20081 Standards may also be used.
Engine Oil Filter (6.7L Turbo Diesel Engine)	MOPAR® Engine Oil Filter, P/N 05083285AA or equivalent
Engine Fuel Filter (6.7L Turbo Diesel Engine)	MOPAR® Fuel Filter, P/N 05183410AA or equivalent. Must meet 7 micron rating. **Using a fuel filter that does not meet the manufacturer's filtration and water separating requirements can severely impact fuel system life and reliability.**
Crankcase Ventilation Filter (6.7L Turbo Diesel Engine)	MOPAR® CCV Filter, P/N 68001433AA or equivalent

Component	Fluid, Lubricant, or Genuine Part
Fuel Selection (6.7L Turbo Diesel Engine)	Use good-quality diesel fuel from a reputable supplier in your vehicle. Federal law requires that you must fuel this vehicle with Ultra Low Sulfur Highway diesel fuel (15 ppm Sulfur maximum) and prohibits the use of Low Sulfur Highway diesel fuel (500 ppm Sulfur maximum) to avoid damage to the emissions control system. For most year-round service, No. 2 diesel fuel meeting ASTM specification D-975 Grade S15 will provide good performance. If the vehicle is exposed to extreme cold (below 20°F or -7°C), or is required to operate at colder-than-normal conditions for prolonged periods, use climatized No. 2 diesel fuel, or dilute the No. 2 diesel fuel with 50% No. 1 diesel fuel. This will provide better protection from fuel gelling or wax-plugging of the fuel filters. **This vehicle is fully compatible with biodiesel blends up to 5% biodiesel meeting ASTM specification D-975.**

Chassis

Component	Fluid, Lubricant, or Genuine Part
Automatic Transmission	MOPAR® ATF+4, Automatic Transmission Fluid
Transfer Case	MOPAR® ATF+4, Automatic Transmission Fluid
Manual Transmission Fluid (G-56)	MOPAR® ATF+4, Automatic Transmission Fluid
Clutch Linkage	Multipurpose Grease, NLGI Grade 2 E.P. or equivalent
Front and Rear Axle Fluid (2500/ 3500 Models)	GL-5 SAE 75W-90 Synthetic or equivalent. **Limited slip additive is not required.**
Brake Master Cylinder	MOPAR® DOT 3 and SAE J1703 should be used or equivalent. If DOT 3 brake fluid is not available, then DOT 4 is acceptable. Use only recommended brake fluids.
Power Steering Reservoir	MOPAR® ATF+4, Automatic Transmission Fluid

MAINTENANCE SCHEDULES

CONTENTS

MAINTENANCE SCHEDULE

CAUTION!

Failure to perform the required maintenance items may result in damage to the vehicle.

At Each Stop for Fuel

- Check the engine oil level about 30 minutes after a fully-warmed engine is shut off. Checking the oil level while the vehicle is on level ground will improve the accuracy of the oil level reading. Add oil only when the level is at or below the ADD or MIN mark.

Once a Month

- Inspect the batteries, and clean and tighten the terminals as required.
- Check the fluid levels of coolant reservoir, brake master cylinder, and transmission and transfer case (if equipped), add as needed.
- Drain water from the fuel filter.

At Each Oil Change

- Change the engine oil filter.
- Inspect the exhaust system.
- Check the automatic transmission fluid level.
- Check the manual transmission fluid level.
- Check the coolant level, hoses, and clamps.

Inspection and service should also be performed anytime a malfunction is observed or suspected. Retain all receipts.

Oil Change Indicator System

Your vehicle is equipped with an engine oil change indicator system. This system will alert you when it is time to change your engine oil by displaying the words "Oil Change Required" on your Electronic Vehicle Information Center (EVIC). The engine oil change indicator system is based on miles driven and duty cycle, which means the engine oil change interval may fluctuate depending on your personal driving style. Driving styles such as frequent stop-and-go type driving can increase the frequency of the engine oil change. This is the result of more frequent regeneration of the exhaust aftertreatment system, which can decrease the life of the engine oil. Failure to change the engine oil per this message can result in internal engine damage.

For information on resetting the Oil Change Indicator message, refer to "Oil Change Required" under "System Status (EVIC Displays)" in the "Electronic Vehicle Information Center (EVIC)" section of this manual.

Perform Service Indicator

Your vehicle will require emissions maintenance at a set interval. To help remind you when this maintenance is due, the Electronic Vehicle Information Center (EVIC) will display "Perform Service". When the "Perform Service" message is displayed on the EVIC it is necessary to have the emissions maintenance performed. Emissions maintenance includes replacing the Closed Crankcase Ventilation (CCV) filter element, cleaning of the EGR Cooler, and cleaning of the EGR Valve. The procedure for clearing and resetting the "Perform Service" indicator message is located in the appropriate Service Information.

Maintenance Schedule

(Miles) **Kilometers** **[Months]**	**(7,500)** **12 000** **[6]**	**(15,000)** **24 000** **[12]**	**(22,500)** **36 000** **[18]**	**(30,000)** **48 000** **[24]**	**(37,500)** **60 000** **[30]**
When prompted by the Engine Oil Indicator System, the engine oil and filter must be changed. If not prompted by the Engine Oil Indicator System within 7,500 mi (12 000 km) or 6 months since the last oil and filter change, change the engine oil and engine oil filter. **Under no circumstances should oil change intervals exceed 7,500 mi (12 000 km) or 6 months, whichever comes first.**	X	X	X	X	X
Rotate tires.	X	X	X	X	X
Lubricate front drive shaft fitting (4x4).	X	X	X	X	X
Lubricate outer tie rod ends.	X	X	X	X	X
Inspect the transfer case fluid (4x4).				X	
Change front and rear axle fluid (4x4).		X		X	
Replace fuel filter element.		X		X	

(Miles) **Kilometers** **[Months]**	**(7,500)** **12 000** **[6]**	**(15,000)** **24 000** **[12]**	**(22,500)** **36 000** **[18]**	**(30,000)** **48 000** **[24]**	**(37,500)** **60 000** **[30]**
Inspect the brake linings, replace if necessary.			X		
Inspect and adjust parking brake if necessary.			X		
Inspect front wheel bearings.				X	
Inspect drive belt, replace as necessary.			X		

(Miles) **Kilometers** **[Months]**	**(45,000)** **72 000** **[36]**	**(52,500)** **84 000** **[42]**	**(60,000)** **97 000** **[48]**	**(67,500)** **109 000** **[54]**	**(75,000)** **121 000** **[60]**
When prompted by the Engine Oil Indicator System, the engine oil and filter must be changed. If not prompted by the Engine Oil Indicator System within 7,500 mi (12 000 km) or 6 months since the last oil and filter change, change the engine oil and engine oil filter. **Under no circumstances should oil change intervals exceed 7,500 mi (12 000 km) or 6 months, whichever comes first.**	X	X	X	X	X
Rotate tires.	X	X	X	X	X
Lubricate front drive shaft fitting. (4x4).	X	X	X	X	X
Lubricate outer tie rod ends.	X	X	X	X	X
Change the transfer case fluid (4x4).			X		
Change front and rear axle fluid (4x4).	X		X		X

(Miles) **Kilometers** **[Months]**	**(45,000)** **72 000** **[36]**	**(52,500)** **84 000** **[42]**	**(60,000)** **97 000** **[48]**	**(67,500)** **109 000** **[54]**	**(75,000)** **121 000** **[60]**
Change the automatic transmission fluid & filter if using your vehicle for any of the following: police, taxi, fleet or frequent trailer towing.			X		
Change manual transmission fluid.			X		
Flush and replace engine coolant at 60 months, if not replaced at 100,000 mi (160 000 km).***					X
Inspect drive belt, replace as necessary.	X				X
Replace fuel filter element.	X		X		X
Inspect the brake linings, replace if necessary.	X			X	
Inspect and adjust parking brake if necessary.	X			X	
Inspect front wheel bearings.			X		
Replace Crankcase Ventilation Filter (CCV).				X	
Clean EGR Valve.**				X	
Clean EGR Cooler.**				X	

(Miles) **Kilometers** **[Months]**	**(82,500)** **133 000** **[66]**	**(90,000)** **145 000** **[72]**	**(97,500)** **157 000** **[78]**	**(100,000)** **160 000**	**(105,000)** **169 000** **[84]**
When prompted by the Engine Oil Indicator System, the engine oil and filter must be changed. If not prompted by the Engine Oil Indicator System within 7,500 mi (12 000 km) or 6 months since the last oil and filter change, change the engine oil and engine oil filter. **Under no circumstances should oil change intervals exceed 7,500 mi (12 000 km) or 6 months, whichever comes first.**	X	X	X		X
Rotate tires.	X	X	X		X
Lubricate front drive shaft fitting (4x4).	X	X	X		X
Lubricate outer tie rod ends.	X	X	X		X
Flush and replace engine coolant, if not replaced at 60 mos.***				X	
Inspect the transfer case fluid (4x4).		X			
Change front and rear axle fluid (4x4).		X			X

(Miles) **Kilometers** **[Months]**	**(82,500)** **133 000** **[66]**	**(90,000)** **145 000** **[72]**	**(97,500)** **157 000** **[78]**	**(100,000)** **160 000**	**(105,000)** **169 000** **[84]**
Inspect drive belt, replace as required.*		X			X
Replace fuel filter element.		X			X
Inspect front wheel bearings.		X			
Inspect brake linings.		X			X
Inspect and adjust parking brake if necessary.		X			X

(Miles) **Kilometers** **[Months]**	**(112,500)** **181 000** **[90]**	**(120,000)** **193 000** **[96]**	**(127,500)** **205 0000** **[102]**	**(135,000)** **217 000** **[108]**	**(142,500)** **229 000** **[114]**	**(150,000)** **241 000** **[120]**
When prompted by the Engine Oil Indicator System, the engine oil and filter must be changed. If not prompted by the Engine Oil Indicator System within 7,500 mi (12 000 km) or 6 months since the last oil and filter change, change the engine oil and engine oil filter. **Under no circumstances should oil change intervals exceed 7,500 mi (12 000 km) or 6 months, whichever comes first.**	X	X	X	X	X	X
Rotate tires.	X	X	X	X	X	X
Lubricate front drive shaft fitting (4x4).	X	X	X	X	X	X
Lubricate outer tie rod ends.	X	X	X	X	X	X
Flush and replace engine coolant at 120 months, if not replaced at 100,000 mi (161 000 km).***						X

(Miles) **Kilometers** **[Months]**	**(112,500)** **181 000** **[90]**	**(120,000)** **193 000** **[96]**	**(127,500)** **205 0000** **[102]**	**(135,000)** **217 000** **[108]**	**(142,500)** **229 000** **[114]**	**(150,000)** **241 000** **[120]**
Inspect drive belt, replace as required.*		X		X		X
Change transfer case fluid (4x4).		X				
Check transfer case fluid (4x4).						X
Change front and rear axle fluid (4x4).		X		X		X
Change the automatic transmission fluid & filter.		X				X
Change manual transmission fluid.		X				
Replace fuel filter element.		X		X		X
Inspect front wheel bearings.		X			X	
Inspect the brake linings, replace if necessary.	X			X		
Inspect and adjust parking brake if necessary.	X			X		
Adjust valve lash clearance.						X
Replace Crankcase Ventilation Filter (CCV).				X		
Clean the EGR Valve.				X		

(Miles) Kilometers [Months]	(112,500) 181 000 [90]	(120,000) 193 000 [96]	(127,500) 205 0000 [102]	(135,000) 217 000 [108]	(142,500) 229 000 [114]	(150,000) 241 000 [120]
Clean the EGR Cooler.				X		

Inspection and service should also be performed anytime a malfunction is observed or suspected. Retain all receipts.

*This maintenance is not required if belt was previously replaced.

**The EGR Valve and EGR Cooler maintenance will be covered by the manufacturer only at this maintenance interval, for vehicles registered in California, Maine, Massachusetts, New York and Vermont.

CAUTION!

*****The manufacturer highly recommends that all cooling system service, maintenance, and repairs be performed by your local authorized dealer.**

WARNING!

You can be badly injured working on or around a motor vehicle. Do only that service work for which you have the knowledge and the right equipment. If you have any doubt about your ability to perform a service job, take your vehicle to your authorized dealer.

INDEX

9

NOTES

NOTES

NOTES

NOTES

NOTES