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The following warning may be required by California law:

CALIFORNIA Proposition 65 Warning



WARNING: Engine exhaust, some of its constituents, and certain vehicle components contain or emit chemicals known to the State of California to cause cancer and birth defects or other reproductive harm. In addition, certain fluids contained in vehicles and certain products of component wear contain or emit chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

CONGRATULATIONS

Congratulations on acquiring your new Ford. Please take the time to get well acquainted with your vehicle by reading this handbook. The more you know and understand about your vehicle the greater the safety and pleasure you will derive from driving it.

For more information on Ford Motor Company and its products visit the following website:

In the United States: www.ford.com

In Canada: www.ford.ca

In Mexico: www.ford.com.mx

In Australia: www.ford.com.au

Additional owner information is given in separate publications.



This Owner's Guide describes every option and model variant available and therefore some of the items covered may not apply to your particular vehicle. Furthermore, due to printing cycles it may describe options before they are generally available.



Remember to pass on the Owner's Guide when reselling the vehicle. It is an integral part of the vehicle.

Introduction

SAFETY AND ENVIRONMENT PROTECTION

Warning symbols in this guide

How can you reduce the risk of personal injury and prevent possible damage to others, your vehicle and its equipment? In this guide, answers to such questions are contained in comments highlighted by the warning triangle symbol. These comments should be read and observed.

Warning symbols on your vehicle

When you see this symbol, it is imperative that you consult the relevant section of this guide before touching or attempting adjustment of any kind.



Protecting the environment

We must all play our part in protecting the environment. Correct vehicle usage and the authorized disposal of waste cleaning and lubrication materials are significant steps towards this aim. Information in this respect is highlighted in this guide with the tree symbol.



SPECIAL NOTICES

Emission warranty

The New Vehicle Limited Warranty includes Bumper-to-Bumper Coverage, Safety Restraint Coverage, Corrosion Coverage, and 7.3L Power Stroke Diesel Engine Coverage. In addition, your vehicle is eligible for Emissions Defect and Emissions Performance Warranties. For a detailed description of what is covered and what is not covered, refer to the *Warranty Guide* that is provided to you along with your Owner's Guide.

Special instructions

For your added safety, your vehicle is fitted with sophisticated electronic controls.



By operating other electronic equipment (e.g. mobile telephone without exterior aerial) electromagnetic fields can occur which can cause malfunctions of the vehicle electronics. Therefore you should observe the instructions of the equipment manufacturers



















Introduction

These are some of the symbols you may see on your vehicle.

Vehicle Symbol Glossary

Safety Alert		See Owner's Guide	
Fasten Safety Belt		Child Seat	
Child Seat Installation Warning		Child Seat Tether Anchorage	
Brake System		Anti-Lock Brake System	
Brake Fluid - Non-Petroleum Based		Traction Control	
Master Lighting Switch		Hazard Warning Flasher	
Fog Lamps-Front		Fuse Compartment	
Fuel Pump Reset		Windshield Wash/Wipe	
Windshield Defrost/Demist		Rear Window Defrost/Demist	
Power Windows Front/Rear		Power Window Lockout	
Child Safety Door Lock/Unlock		Interior Luggage Compartment Release Symbol	

Vehicle Symbol Glossary

Panic Alarm		Engine Oil	
Engine Coolant		Engine Coolant Temperature	
Do Not Open When Hot		Battery	
Avoid Smoking, Flames, or Sparks		Battery Acid	
Explosive Gas		Fan Warning	
Power Steering Fluid		Maintain Correct Fluid Level	
Emission System		Engine Air Filter	
Passenger Compartment Air Filter		Jack	
Check fuel cap		Low tire warning	

Introduction

FEDERAL HIGHWAY ADMINISTRATION REGULATION

Regulations such as those issued by the Federal Highway Administration or issued pursuant to the Occupational Safety and Health Act (OSHA), and/or state and local laws and regulations may require additional equipment for the way you intend to use the vehicle. It is the responsibility of the registered owner to determine the applicability of such laws and regulations to your intended use for the vehicle, and to arrange for the installation of required equipment. Your Ford dealer has information about the availability of equipment which may be ordered for your vehicle.

ENTERING, EXITING AND/OR CLIMBING ON THIS VEHICLE

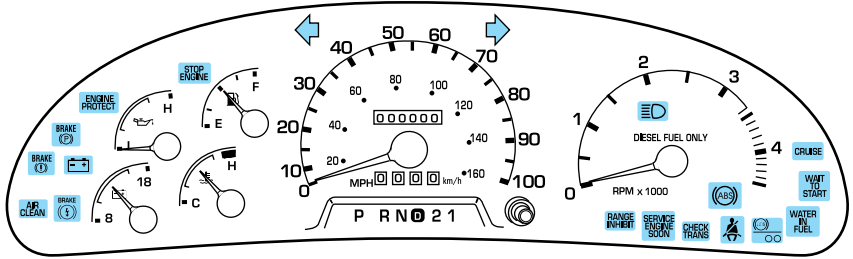
You must be careful and deliberate to minimize the possibility of personal injury from a slip and fall when entering, exiting and/or climbing on this vehicle. Always use the steps and assist handles before climbing. Do not skip any steps or assist handles. Use three point contact at all times with at least two feet and one hand or two hands and one foot firmly placed during all phases of entering, exiting and/or climbing. Always keep your shoe soles and hands clean. Keep the steps and assist handles free of snow, ice, oil, grease, substances or debris. Be sure to use extra care in bad weather. Avoid wearing thick gloves. Always perform trailer hook-up while standing on the ground.



Do not carry items while entering, exiting, and/or climbing. Make sure you keep a firm grip. Always FACE the VEHICLE STEP and HANDLE SYSTEM while climbing up and down. Do not climb behind the cab unless you have three point contact with a step and handle system at all times.

Instrument Cluster

WARNING LIGHTS AND CHIMES



Warning lights and gauges can alert you to a vehicle condition that may become serious enough to cause expensive repairs. A warning light may illuminate when a problem exists with one of your vehicle's functions. Many lights will illuminate when you start your vehicle to make sure the bulb works. **If any light remains on after starting the vehicle, have the respective system inspected immediately.**

Service engine soon

Illuminates briefly to ensure the system is functional. If it comes on after the engine is started, one of the engine's emission control systems may be malfunctioning. The light may illuminate without a driveability concern being noted. The vehicle will usually be drivable and will not require towing.

**SERVICE
ENGINE
SOON**

Light turns on solid:

Temporary malfunctions may cause your *Service Engine Soon* light to illuminate. Examples are:

1. The vehicle has run out of fuel.
2. Poor fuel quality or water in the fuel.

These and other temporary malfunctions can be corrected by filling the fuel tank with good quality fuel. After three driving cycles without these or any other temporary malfunctions present, the *Service Engine Soon* light should turn off. (A driving cycle consists of a cold engine startup followed by mixed city/highway driving.) No additional vehicle service is required.

Instrument Cluster

If the *Service Engine Soon* light remains on, have your vehicle serviced at the first available opportunity.



Under engine misfire conditions, excessive exhaust temperatures could damage the fuel system, interior floor coverings or other vehicle components, possibly causing a fire.

Engine protect warning (Cummins engine only)

Illuminates when there is a fault in the electronic subsystem but the vehicle can be driven, and indicates one of the following conditions:

- low oil pressure
- low coolant level
- high coolant temperature
- high intake manifold temperature

Refer to the Engine Operator's Manual.

**ENGINE
PROTECT**

Stop engine (if equipped)

This light is used in conjunction with the electronic engine control.

Refer to the Engine Operator's Manual for specific information regarding this feature.

If the engine shuts down, it can be restarted and operated for 30 seconds at a time or until the problem is corrected. Refer to *Engine shutdown system* in the *Driving* chapter.

Drivers of electronically controlled engines should know the extent of warning engine shutdown system before operating the vehicle. This information can be obtained from your dealer.

**STOP
ENGINE**

Brake reserve system warning (if equipped)

Illuminates to indicate normal Hydromax booster reserve system activation when the engine is OFF and the service brake pedal is applied, or when the ignition is in the ON or START position.



This light may also illuminate momentarily if the engine is running and the driver turns the steering wheel fully in one direction while braking.

If the light remains on while the engine is running, this indicates inadequate hydraulic booster pressure or reserve pump system failure. Stop the vehicle safely as soon as possible and seek service immediately.

Brake system warning

Momentarily illuminates when the ignition is turned to the ON position and the engine is off. If the brake warning lamp does not illuminate at this time seek service immediately.



If equipped with a hydraulic brake system and the warning lamp remains illuminated after engine start up, this indicates a brake system malfunction. Stop the vehicle safely as soon as possible and seek service immediately.

If equipped with an air brake system, the warning light stays on until the air pressure builds up to 414 kPa (60 psi). If the air pressure drops below 414 kPa (60 psi) during operation, the remaining brake system is still operational but the stopping distance will be greater.

Anti-lock brake system (ABS)

Momentarily illuminates when the ignition is turned to the ON position and the engine is off. If the light remains on after the vehicle is started, continues to flash or fails to illuminate, have the system serviced immediately. With the ABS light on, the anti-lock brake system is disabled and normal braking is still effective unless the brake warning light also remains illuminated.

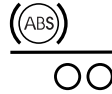


Instrument Cluster

Trailer ABS brake system (if equipped)

Illuminates briefly when the engine is powered-up and only when a PLC trailer or a PLC diagnostic tool is connected. If the light remains on

after the vehicle is started, continues to flash or fails to illuminate, have the system serviced immediately.



Parking brake warning (Hydraulic brakes only)

Momentarily illuminates when the ignition is turned to the ON position and the engine is off. Also illuminates when the parking brake is engaged. If the brake warning lamp does not illuminate at these times, seek service immediately.



Safety belt

Illuminates to remind you to fasten your safety belts. For more information, refer to the *Seating and safety restraints* chapter.



Check trans (Allison automatic transmission)

The lamp will illuminate for several seconds after the ignition is turned to the ON position. Illumination of this light indicates that a problem has been detected and shifting may be restricted. Depending upon the severity of the problem, the read-out digit on the shifter display may be blank. Operation may

continue in order to reach service assistance. The ECU may not respond to shift selector requests, since operating limitations are being placed on the transmission, i.e. upshifts and downshifts may be restricted. Direction changes will not occur.

Refer to the Transmission Operator's Manual for more information.



Instrument Cluster

Range inhibit

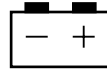
Illuminates when the transmission is not engaged in the selected gear. The warning light will go off when the gearshift lever is adjusted in to the appropriate gear.

Refer to the Transmission Operator's Manual for more information.

**RANGE
INHIBIT**

Charging system

Illuminates when the ignition is turned to the ON position and the engine is off, or an over voltage condition requiring electrical system service.



Wait to start

Indicates the air intake heater is in operation and special starting procedures are required. Refer to the *Driving* chapter.

**WAIT
TO
START**



If equipped with an air intake heater, DO NOT use ether or any other starting fluids. The use of starting fluids (ether) in an engine equipped with an air intake heater could result in damage and/or personal injury.

Instrument Cluster

Water in fuel (if equipped)

During refueling it is possible for water-contaminated diesel fuel to be pumped into your fuel tank. Your vehicle fuel system is equipped with a fuel filter/water separator to remove water from the fuel. The indicator light illuminates when the fuel filter/water separator has a significant quantity of water, or when the ignition key is switched to the START position. If the light illuminates when the engine is running, stop the vehicle as soon as safely possible, shut off the engine and drain the filter bowl. Allowing water to stay in the system could result in extensive damage to, or failure of, the fuel injection system.

To drain the fuel filter/water separator (refer to *Maintenance and Specifications* chapter for procedure). Rotate the valve at the bottom of the filter assembly allowing water to drain from the system. Close the valve upon completion.

**WATER
IN
FUEL**



Do not drain water separator while engine is running. Fuel may ignite if separator is drained while engine is running or vehicle is moving.

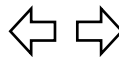
Air clean warning (if equipped)

Illuminates when the air system is restricted (dirty, clogged).

**AIR
CLEAN**

Turn signal

Illuminates when the left or right turn signal or the hazard lights are turned on. If one or both of the indicators stay on continuously or flash faster, check for a burned-out turn signal bulb. Refer to *Exterior bulbs* in the *Lights* chapter.



High beams

Illuminates when the high beam headlamps are turned on.



Safety belt warning chime

Sounds to remind you to fasten your safety belts.

BeltMinder chime

Sounds intermittently to remind you to fasten your safety belts.

Headlamps on warning chime

Sounds when the headlamps or parking lamps are on, the key is removed from the ignition and the driver's door is opened.

Key-in-ignition warning chime

Sounds when the key is left in the ignition and the driver's door is opened.

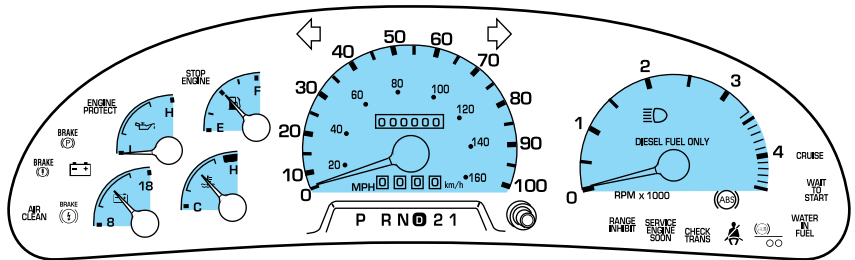
Parking brake warning chime — F650 SuperCrewzer

Sounds when the parking brake knob is pulled and the parking brake is not functioning properly.

For information on the parking brake warning chime, refer to the *Parking brake (SuperCrewzer and Allison automatic transmission with Park in Park)* in the *Hydraulic brakes* section in the *Driving* chapter.

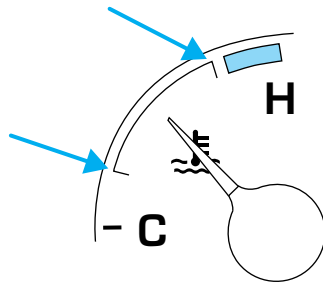
Instrument Cluster

GAUGES



Engine coolant temperature gauge

Indicates the temperature of the engine coolant. At normal operating temperature, the needle remains within the normal area (the area between the “H” and “C”). If it enters the red section, the engine is overheating. Stop the vehicle as soon as safely possible, switch off the engine immediately and let the engine cool. Refer to *Engine coolant* in the *Maintenance and specifications* chapter.



Never remove the coolant reservoir cap while the engine is running or hot. Steam and scalding liquid from a hot cooling system can burn you badly.

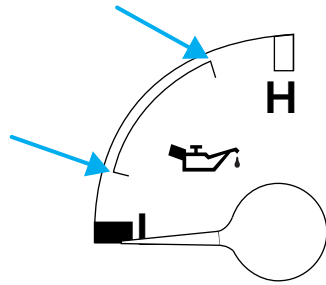
This gauge indicates the temperature of the engine coolant, not the coolant level. If the coolant is not at its proper level the gauge indication will not be accurate.

Instrument Cluster

Engine oil pressure gauge

Indicates engine oil pressure. At normal operating temperature, the needle will be in the normal range (the area between the “L” and “H”); if the needle goes below the normal range, stop the vehicle as soon as safely possible and switch off the engine immediately. Check the oil level. Add oil if needed (refer to *Engine oil* in the *Maintenance and specifications* chapter). If the oil level is correct, have your vehicle

checked at your dealership or by a qualified technician.

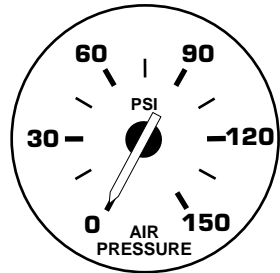


Air pressure gauge and warning buzzer (if equipped)

Indicates the amount of air pressure in the brake system (green=primary, red=secondary) in pounds per square inch. When the pressure is too low for normal brake operation (less than 414 kPa [60 psi]) and the ignition is turned to ON:

- a warning buzzer sounds
- the warning light illuminates

All vehicles have a dual-pointer air pressure gauge to indicate the pressure in both brake circuits.

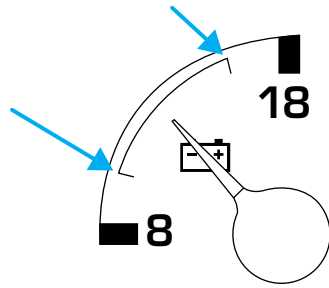


Do not drive the vehicle when the low air pressure buzzer is sounding or the warning light is lit. These warnings indicate there is not enough air pressure for the brake system to operate properly.

Instrument Cluster

Battery voltage gauge

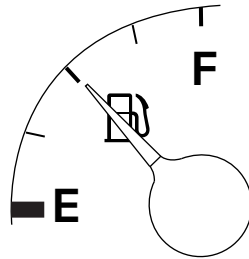
Indicates battery voltage. If the pointer moves and stays outside the normal operating range (as indicated by the arrows), have the vehicle's electrical system checked as soon as possible.



Fuel gauge

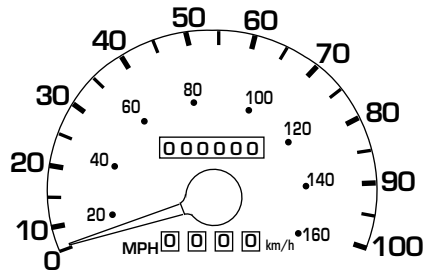
Displays approximately how much fuel is in the fuel tank. The fuel gauge may vary slightly when the vehicle is in motion or on a grade.

When refueling the vehicle from empty indication, the amount of fuel that can be added will be less than the advertised capacity due to the reserve fuel.



Speedometer

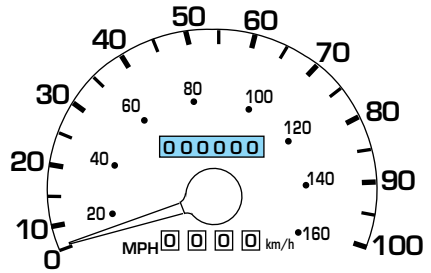
Indicates the current vehicle speed.



Instrument Cluster

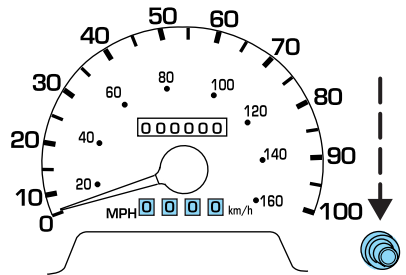
Odometer

Registers the total kilometers (miles) of the vehicle.



Trip odometer

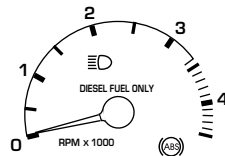
Registers the kilometers (miles) of individual journeys. To reset, depress the control.



Tachometer

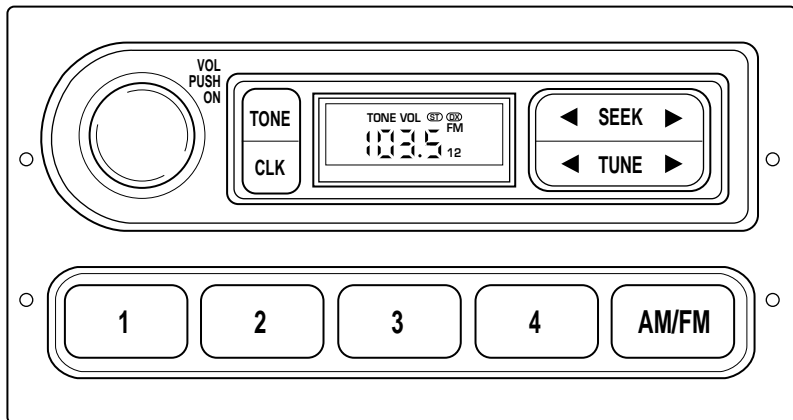
Indicates the engine speed in revolutions per minute.

Driving with your tachometer pointer in the red zone may damage the engine.

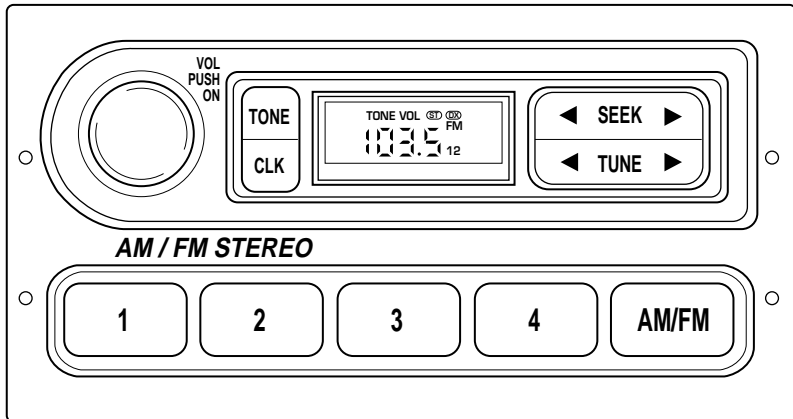


Entertainment Systems

AM/FM STEREO (WITH 2 SPEAKERS)



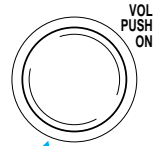
AM/FM STEREO (WITH 4 SPEAKERS AND FADE CAPABILITY)



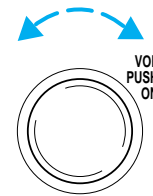
Entertainment Systems

Volume/power control

Press the control to turn the audio system on or off.



Turn the control to raise or lower volume.

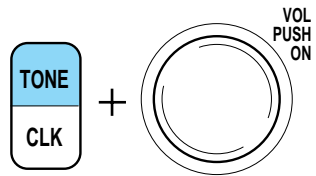


If the volume is set above a certain level and the ignition is turned off, the volume will come back on at a “nominal” listening level when the ignition switch is turned back on.

Bass adjust

The bass adjust control allows you to increase or decrease the audio system’s bass output.

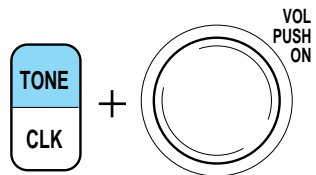
Press the TONE control once, then use the volume knob to adjust the desired level.



Treble adjust

The treble adjust control allows you to increase or decrease the audio system’s treble output.

Press the TONE control twice, then use the volume knob to adjust the desired level.

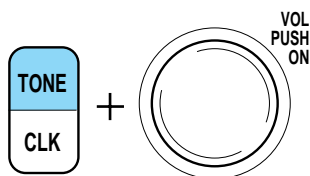


Entertainment Systems

Speaker balance adjust

Speaker sound distribution can be adjusted between the right and left speakers.

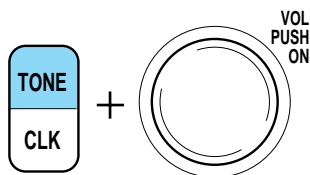
Press the TONE control three times, then use the volume knob to adjust the desired level.



Speaker fade adjust (if equipped)

Speaker sound can be adjusted between the front and rear speakers.

Press the TONE control four times, then use the volume knob to adjust the desired level.

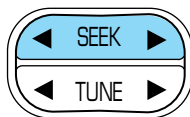


Seek function

The seek function control works in radio mode.

Seek function in radio mode

- Press ◀ to find the next listenable station down the frequency band.
- Press ▶ to find the next listenable station up the frequency band.



AM/FM select

The AM/FM select control works in radio mode.



AM/FM select in radio mode

This control allows you to select AM or FM frequency bands. Press the control to switch between AM, FM1 or FM2 memory preset stations.

Radio station memory preset



The radio is equipped with four station memory preset controls. These controls can be used to select up to four preset AM stations and eight FM stations (four in FM1 and four in FM2).

Setting memory preset stations

1. Select the frequency band with the AM/FM select control.
2. Select a station. Refer to *Tune adjust* or *Seek function* for more information on selecting a station.
3. Press and hold a memory preset control until the sound returns, indicating the station is held in memory on the control you selected.

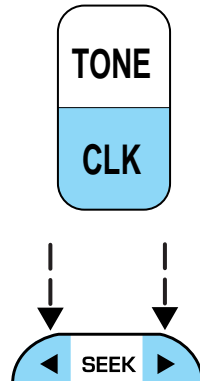


Setting the clock

Press CLK to toggle between listening frequencies and clock mode.

To set the hour, press and hold the CLK control until CLOCK SET appears in the display and press the SEEK control:

- ◀ to decrease hours and
- ▶ to increase hours.



Entertainment Systems

To set the minute, press and hold the CLK control until CLOCK SET appears in the display and press the TUNE control:

- ◀ to decrease minutes and
- ▶ to increase minutes.

The CLK control will allow you to switch between media display mode (radio station, stereo information, etc.) and clock display mode (time).

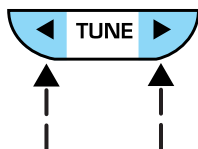
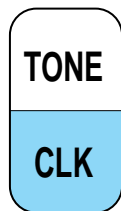
When in clock mode, the media information will display for ten seconds, when the radio is turned on, and then revert to clock information. Any time that the media is changed, (new radio station, etc.), the media information will again display for ten seconds before reverting back to the clock. In media mode, the media information will always be displayed.

Tune adjust

The tune control works in radio mode.

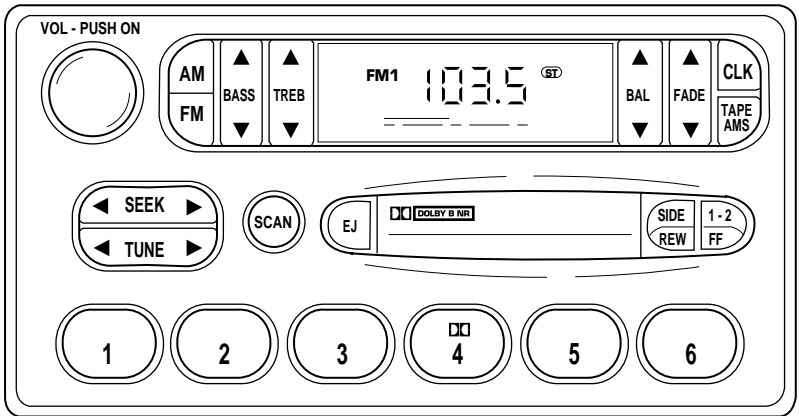
Tune adjust in radio mode

- Press ◀ to move to the next frequency down the band (whether or not a listenable station is located there). Hold the control to move through the frequencies quickly.
- Press ▶ to move to the next frequency up the band (whether or not a listenable station is located there). Hold for quick movement.



Entertainment Systems

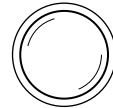
AM/FM STEREO CASSETTE



Volume/power control

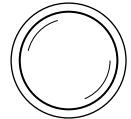
Press the control to turn the audio system on or off.

VOL - PUSH ON



Turn the control to raise or lower volume.

VOL - PUSH ON

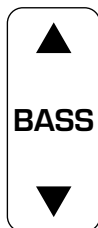


If the volume is set above a certain level and the ignition is turned off, the volume will come back on at a “nominal” listening level when the ignition switch is turned back on.

Entertainment Systems

Bass adjust

The bass adjust control allows you to increase or decrease the audio system's bass output.



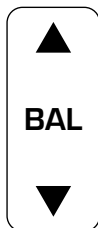
Treble adjust

The treble adjust control allows you to increase or decrease the audio system's treble output.



Speaker balance adjust

Speaker sound distribution can be adjusted between the right and left speakers.



Speaker fade adjust

Speaker sound can be adjusted between the front and rear speakers.

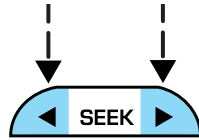


Seek function

The seek function control works in radio mode.

Seek function in radio mode

- Press ◀ to find the next listenable station down the frequency band.
- Press ▶ to find the next listenable station up the frequency band.



Scan function

The scan function works in radio mode.

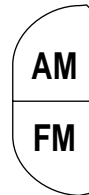


Scan function in radio mode

Press the SCAN control to hear a brief sampling of all listenable stations on the frequency band. Press the SCAN control again to stop the scan mode.

AM/FM select

The AM/FM select control works in radio and tape modes.



AM/FM select in radio mode

This control allows you to select AM or FM frequency bands. Press the AM control to select from AM selections, and press the FM control to select from FM1 or FM2 memory preset stations.

AM/FM select in tape mode

Press this control to stop tape play and begin radio play.

Radio station memory preset

The radio is equipped with six station memory preset controls. These controls can be used to select up to six preset AM stations and twelve FM stations (six in FM1 and six in FM2).

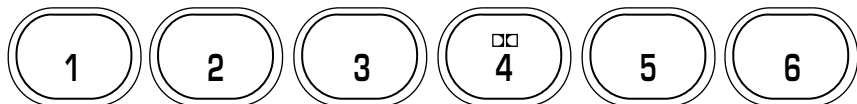
Setting memory preset stations

1. Select the frequency band with the AM or the FM select control.

Entertainment Systems

2. Select a station. Refer to *Tune adjust* or *Seek function* for more information on selecting a station.

3. Press and hold a memory preset control until the sound returns, indicating the station is held in memory on the control you selected.

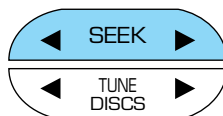


Setting the clock

Press CLK to toggle between listening frequencies and clock mode while in radio mode.

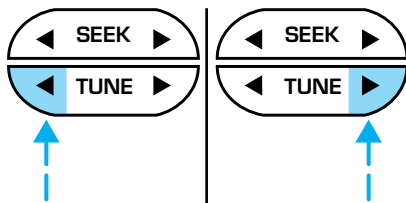
To set the hour, press and hold the CLK control and press the SEEK control:

- ◀ to decrease hours and
- ▶ to increase hours.



To set the minute, press and hold the CLK control and press the TUNE control:

- ◀ to decrease minutes and
- ▶ to increase minutes.



Entertainment Systems

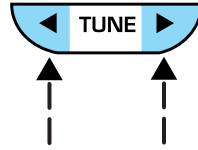
The CLK control will allow you to switch between media display mode (radio station, stereo information, etc.) and clock display mode (time). When in clock mode, the media information will display for 10 seconds, when the radio is turned on, and then revert to clock information. Any time that the media is changed, (new radio station, etc.), the media information will again display for 10 seconds before reverting back to the clock. In media mode, the media information will always be displayed.

Tune adjust

The tune control works in radio mode.

Tune adjust in radio mode

- Press ◀ to move to the next frequency down the band (whether or not a listenable station is located there). Hold the control to move through the frequencies quickly.
- Press ▶ to move to the next frequency up the band (whether or not a listenable station is located there). Hold for quick movement.



Tape select

- To enter tape mode while in radio mode, press the TAPE AMS control.



Automatic Music Search

The Automatic Music Search feature allows you to quickly locate the beginning of the tape selection being played or to skip to the next selection.

To activate the feature, momentarily depress the TAPE AMS button.



Entertainment Systems

Then, press either REW (for the beginning of the current selection) or FF (to advance to the next selection). The tape deck stops and returns to play mode when the AMS circuit senses a blank section on the tape.

In order to ensure proper operation of the AMS feature, the tape **MUST** have a blank section of at least four seconds duration between programs.

Rewind

The rewind control works in tape mode.

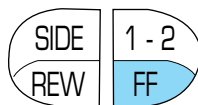
To rewind in tape mode, press the REW control.



Fast forward

The fast forward control works in tape mode.

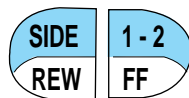
To fast forward in tape mode, press the FF control.



In the tape mode, tape direction will automatically reverse when the end of the tape is reached.

Tape direction select

Press SIDE and 1-2 at the same time to play the alternate side of a tape.



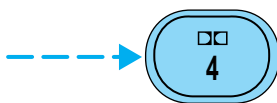
Eject function

Press the control to stop and eject a tape.



Dolby® noise reduction

Dolby® noise reduction operates only in tape mode. Dolby® noise reduction reduces the amount of hiss and static during tape playback.

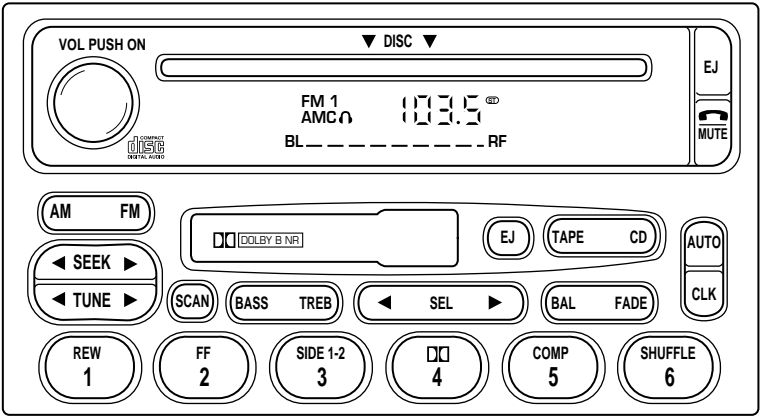


Press the  control to activate (and deactivate) Dolby® noise reduction.

Entertainment Systems

Dolby® noise reduction is manufactured under license from Dolby® Laboratories Licensing Corporation. “Dolby®” and the double-D symbol are registered trademarks of Dolby Laboratories Licensing Corporation.

PREMIUM AM/FM STEREO/CASSETTE/SINGLE CD

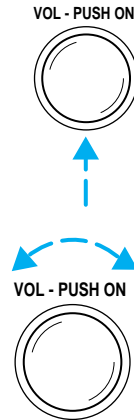


Volume/power control

Press the control to turn the audio system on or off.

Audio power can also be turned on by pressing the AM/FM select control or the TAPE/CD select control.

Turn control to raise or lower volume.



If the volume is set above a certain level and the ignition is turned off, the volume will come back on at a “nominal” listening level when the ignition switch is turned back on.

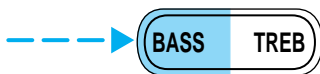
Entertainment Systems

Bass adjust

The bass adjust control allows you to increase or decrease the audio system's bass output.

Press the BASS control then press:

- ◀ to decrease the bass output and
- ▶ to increase the bass output.

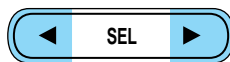


Treble adjust

The treble adjust control allows you to increase or decrease the audio system's treble output.

Press the TREB control then press:

- ◀ to decrease the treble output and
- ▶ to increase the treble output.

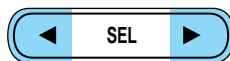


Speaker balance adjust

Speaker sound distribution can be adjusted between the right and left speakers.

Press the BAL control then press:

- ◀ to shift sound to the left and
- ▶ to shift sound to the right.





Speaker fade adjust

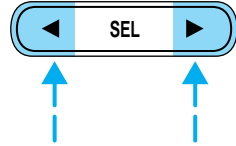
Speaker sound can be adjusted between the front and rear speakers.



Entertainment Systems

Press the FADE control then press:



-  to shift the sound to the front and
-  to shift the sound to the rear.

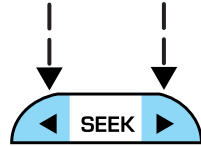


Seek function



The seek function control works in radio, tape or CD mode.

Seek function in radio mode


- Press  to find the next listenable station down the frequency band.
- Press  to find the next listenable station up the frequency band.

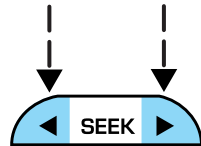


Seek function in tape mode

- Press  to listen to the previous selection on the tape.
- Press  to listen to the next selection on the tape.

Seek function in CD mode

- Press  to seek to the previous track of the disc.
- Press  to seek forward to the next track of the current disc. After the last track has been completed, the first track of the current disc will automatically replay.



Scan function

The scan function works in radio, tape or CD mode.



Scan function in radio mode

Press the SCAN control to hear a brief sampling of all listenable stations on the frequency band. Press the control again to stop the scan mode.

Entertainment Systems

Scan function in tape mode

Press the SCAN control to hear a short sampling of all selections on the tape. (The tape scans in a forward direction. At the end of the tape's first side, direction automatically reverses to the opposite side of the tape.) To stop on a particular selection, press the control again.

Scan function in CD mode

Press the SCAN control to hear a short sampling of all selections on the CD. (The CD scans in a forward direction, wrapping back to the first track at the end of the CD.) To stop on a particular selection, press the control again.

AM/FM select

The AM/FM select control works in radio, tape and CD modes.



AM/FM select in radio mode

This control allows you to select AM or FM frequency bands. Press the control to switch between AM, FM1 or FM2 memory preset stations.

AM/FM select in tape mode

Press this control to stop tape play and begin radio play.

Radio station memory preset

The radio is equipped with six station memory preset controls. These controls can be used to select up to six preset AM stations and twelve FM stations (six in FM1 and six in FM2).

Setting memory preset stations

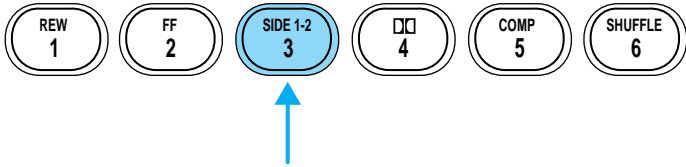
1. Select the frequency band with the AM/FM select control.



2. Select a station. Refer to *Tune adjust* or *Seek function* for more information on selecting a station.

Entertainment Systems

3. Press and hold a memory preset control until the sound returns, indicating the station is held in memory on the control you selected.



Autoset memory preset

Autoset allows you to set strong radio stations without losing your original manually set preset stations. This feature is helpful on trips when you travel between cities with different radio stations.

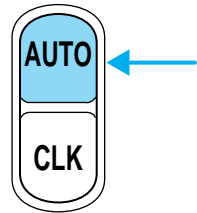
Starting autoset memory preset

1. Select a frequency using the AM/FM select controls.
2. Press the AUTO control.
3. When the first six strong stations are filled, the station stored in memory preset control 1 will start playing.

If there are less than six strong stations available on the frequency band, the remaining memory preset controls will all store the last strong station available.

These stations are temporarily stored in the memory preset controls (until deactivated) and are accessed in the same manner as your original presets.

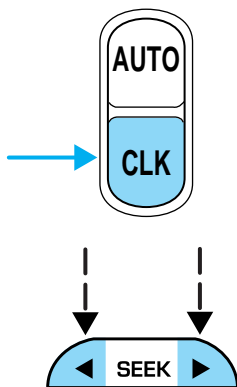
To deactivate autoset and return to your audio system's manually set memory stations, press the AUTO control again.



Entertainment Systems

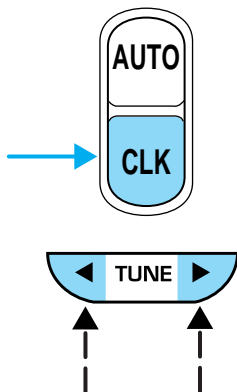
Setting the clock

To set the hour, press and hold the CLK control and press SEEK:



- ◀ to decrease hours and
- ▶ to increase hours.

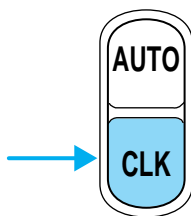
To set the minute, press and hold the CLK control and press TUNE:



- ◀ to decrease minutes and
- ▶ to increase minutes.

If your vehicle has a separate clock, (other than the digital radio display), the CLK control will not function in the above manner.

The CLK control will allow you to switch between media display mode (radio station, stereo information, etc.) and clock display mode (time). When in clock mode, the media information will display for 10 seconds, when the radio is turned on, and then revert to clock information. Any time that the media is changed, (new radio station, etc.), the media information will



Entertainment Systems

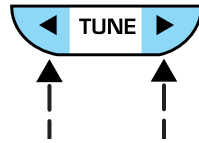
again display for 10 seconds before reverting back to the clock. In media mode, the media information will always be displayed.

Tune adjust

The tune control works in radio mode.

Tune adjust in radio mode

- Press ◀ to move to the next frequency down the band (whether or not a listenable station is located there). Hold the control to move through the frequencies quickly.
- Press ▶ to move to the next frequency up the band (whether or not a listenable station is located there). Hold for quick movement.



Tape select

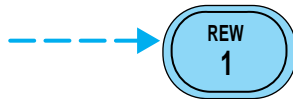
- To begin tape play (with a tape loaded into the audio system) while in the radio or CD mode, press the TAPE control. Press the button during rewind or fast forward to stop the rewind or fast forward function.



Rewind

The rewind control works in tape and CD modes.

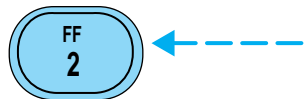
- In tape mode, radio play will continue until rewind is stopped (with the TAPE control) or the beginning of the tape is reached.
- In CD mode, pressing the REW control rewinds the CD within the current track.



Fast forward

The fast forward control works in tape and CD modes.

- In the tape mode, tape direction will automatically reverse when the end of the tape is reached.

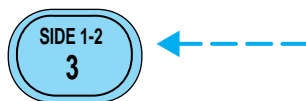


Entertainment Systems

- In CD mode, pressing the control fast forwards the CD within the current track.

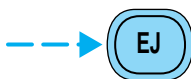
Tape direction select

Press SIDE 1-2 to play the alternate side of a tape.

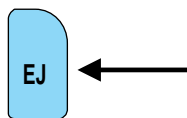


Eject function

Press the EJ control to stop and eject a tape.

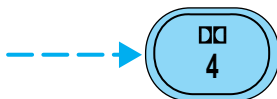



Press the EJ control to stop and eject a CD.




Dolby® noise reduction

Dolby® noise reduction operates in tape mode. Dolby® noise reduction reduces the amount of hiss and static during tape playback.



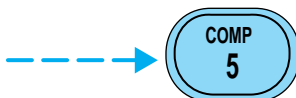
Press the  control to activate (and deactivate) the Dolby® noise reduction.

Dolby® noise reduction is manufactured under license from Dolby® Laboratories Licensing Corporation. "Dolby®" and the double-D symbol  are registered trademarks of Dolby® Laboratories Licensing Corporation.

Compression adjust

Compression adjust brings soft and loud CD passages together for a more consistent listening level.

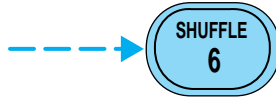
Press the COMP control to activate and deactivate compression adjust.



Entertainment Systems

Shuffle feature

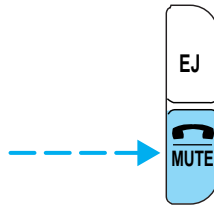
The shuffle feature operates in CD mode and plays all tracks in random order.



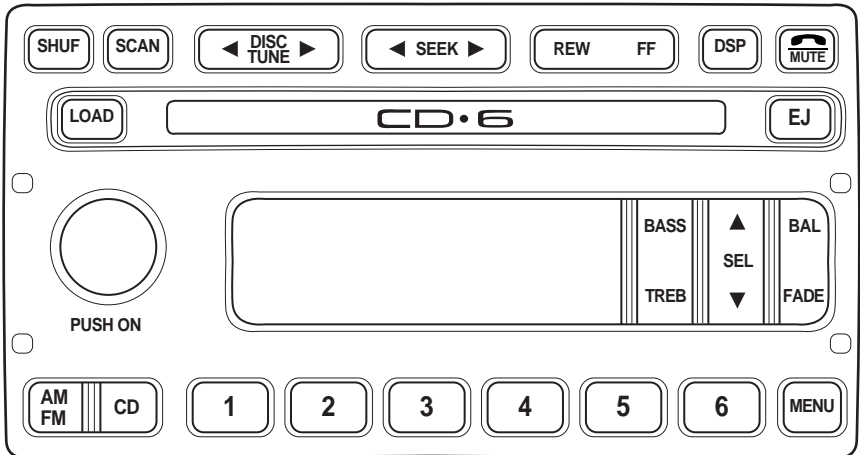
Press the SHUFFLE control to start this feature. Random order play will continue until the SHUFFLE control is pressed again.

Mute mode

Press the MUTE control to mute the playing media. Press the MUTE control again to return to the playing media.

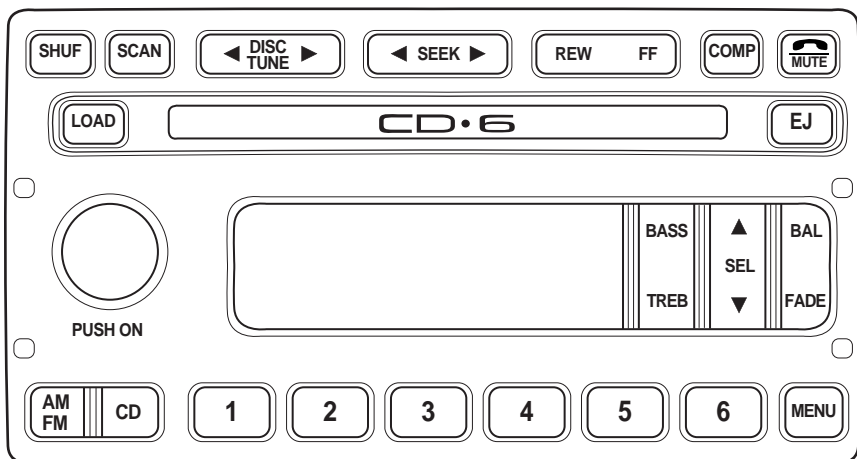


AUDIOPHILE AM/FM STEREO IN DASH SIX CD RADIO



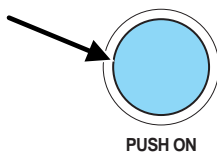
Entertainment Systems

PREMIUM AM/FM STEREO IN DASH SIX CD RADIO

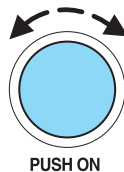


Volume/power control

Press the control to turn the audio system on or off.



Turn the control to raise or lower volume.

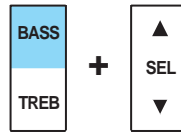


If the volume is set above a certain level and the ignition is turned off, the volume will come back on at a “nominal” listening level when the ignition switch is turned back on.

Bass adjust

The bass adjust control allows you to increase or decrease the audio system's bass output.

Press the BASS control. Use the SEL control to increase or decrease the amount of bass.



Treble adjust

The treble adjust control allows you to increase or decrease the audio system's treble output.

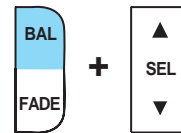
Press the TREB control. Use the SEL control to increase or decrease the amount of treble.



Speaker balance adjust

Speaker sound distribution can be adjusted between the right and left speakers.

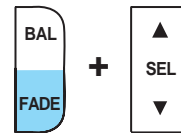
Press the BAL control. Use the SEL control to adjust the sound between the speakers.



Speaker fade adjust

Speaker sound can be adjusted between the front and rear speakers.

Press the FADE control. Use the SEL control to adjust the sound between the front and rear speakers.



Seek function

The seek function works in radio or CD mode.

Entertainment Systems

Seek function in radio mode

- Press ◀ to find the next listenable station down the frequency band. SEEK DOWN will display.
- Press ▶ to find the next listenable station up the frequency band. SEEK UP will display.



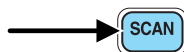
Seek function in CD mode

- Press ◀ to seek to the previous track of the current disc. If the beginning of the disc is reached, the CD player seeks to the beginning of the last track on the current disc and begins playing.
- Press ▶ to seek forward to the next track of the current disc. After the last track has been completed, the first track of the current disc will automatically replay.



Scan function

The scan function works in radio or CD mode.



Scan function in radio mode

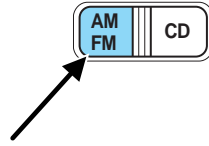
Press the SCAN control to hear a brief sampling of all listenable stations on the frequency band. Press the SCAN control again to stop the scan mode.

Scan function in CD mode

Press the SCAN control to hear a short sampling of all selections on the CD. (The CD scans in a forward direction, wrapping back to the first track at the end of the CD.) To stop on a particular selection, press the control again.

AM/FM select

The AM/FM select control works in radio and CD modes.



AM/FM select in radio mode

This control allows you to select AM or FM frequency bands. Press the control to switch between AM, FM1 or FM2 memory preset stations.

AM/FM select in CD mode

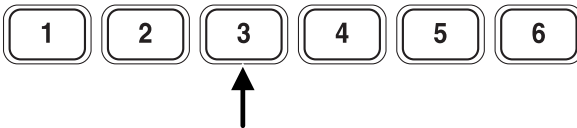
Press this control to stop CD play and begin radio play.

Radio station memory preset

The radio is equipped with six station memory preset controls. These controls can be used to select up to six preset AM stations and twelve FM stations (six in FM1 and six in FM2).

Setting memory preset stations

1. Select the frequency band with the AM/FM select control. Press the AM/FM control to toggle between AM, FM1, or FM2.
2. Press the SEEK control to access the next listenable station up or down the frequency band. Press the TUNE control to go up or down the listening band in individual increments.
3. Select a station. Refer to *Seek function* for more information on selecting a station.
4. Press and hold a memory preset control. The playing media will mute momentarily. When the sound returns, the station is held in memory on the control you selected. The display will read **SAVED**.



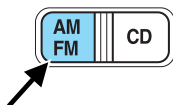
Entertainment Systems

Autostore

Autostore allows you to set the strongest local radio stations without losing your original manually set preset stations. This feature is helpful on trips when you travel between cities with different radio stations.

Starting autostore

1. Press and momentarily hold the AM/FM control.
2. AUTOSSET will flash in the display as the frequency band is scrolled through.
3. When the six strongest stations are filled, the station stored in memory preset control 1 will start playing.



If there are less than six strong stations available on the frequency band, the remaining memory preset controls will all store the last strong station available.

To deactivate autostore and return to your audio system's manually set memory stations, press the AM/FM control again.

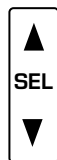
Setting the clock

Press the MENU control until SELECT HOUR or SELECT MINUTE is displayed. (The menu mode must be engaged to enable clock mode).



Use the SEL control to manually set the time.

- Press ▲ to increase hours/minutes.
- Press ▼ to decrease hours/minutes.



Press the MENU control again to disengage the clock mode.

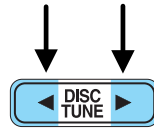
Tune adjust

The tune control works in radio or CD mode.

Entertainment Systems

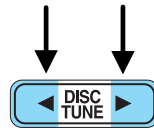
Tune adjust in radio mode

- Press ◀ to move to the next frequency down the band (whether or not a listenable station is located there). Hold the control to move through the frequencies quickly.
- Press ▶ to move to the next frequency up the band (whether or not a listenable station is located there). Hold for quick movement.



Tune adjust for CD mode

- Press ◀ to select the previous disc. (Play will begin on the first track of the disc unless shuffle mode is engaged.) Refer to *Shuffle feature* for more information. Hold the control to continue reversing through the discs.
- Press ▶ to select the next disc. Hold the control to fast-forward through the remaining discs.



CD select

CD mode may be entered by pressing the CD control and the LOAD control. Load the CD into the audio system. The first track of the disc will begin playing. After that, CD play will begin where it stopped last.



If an alternative CD is desired, press the corresponding preset control (1–6) of a loaded CD, or press the TUNE control to access the other loaded CDs.

NO CD will display if the CD control is activated when there is not a CD present in the audio system.

NO CD will illuminate in the display if the CD control and a present number (that is currently empty) are pressed. The system will play the next available disc.

If your vehicle is equipped with a CD changer, pressing the CD control again will allow you to toggle between accessing the multi disc system and the CD changer. The display will read CD or CDDJ.

Entertainment Systems

Display description

Six circles are always lit in the digital display. These signify the six CD slots in the audio system. When a disc is loaded into a particular slot (1–6), the number inside that specific circle lights. If the circle is empty, there is no CD in that particular slot.

Rewind

The rewind control works in CD modes.

Press and hold the REW control until the desired selection is reached.

If the beginning of the disc is reached, the CD will begin play at the first track. Release the control to disengage rewind mode.

When in rewind mode, your audio system will automatically lower the volume level of the playing media.



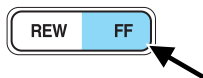
Fast forward

The fast forward control works in CD modes.

Press and hold the FF control until the desired selection is reached.

If the end of the disc is reached, the CD will return to the first track. Release the control to disengage fast forward mode.

When in fast forward mode, your audio system will automatically lower the volume level of the playing media.



Load

The load feature allows you to load single CDs into the player internal to the radio.



This six disc CD player is equipped with a CD door. Compact discs should only be inserted into the player after the door has been opened by the player. Do not attempt to force the door open. Compact discs should only be loaded by pressing the LOAD control.

Entertainment Systems

Press the LOAD control. (You can choose which slot will be loaded by pressing the desired preset number. If you do not choose a slot, the system will choose the next available one.) Wait until the CD door opens. Load the CD into the player. LOADING CD# is displayed. When the CD has been loaded, the door will close and the CD will begin to play. For example, to load a CD into slot 2, press the LOAD control and then press preset 2.

Auto load

This feature allows you to autoload up to 6 discs into the multi disc CD player internal to the radio.



Press and hold the LOAD control until AUTOLOAD # is displayed. The CD door will open. Load the desired disc, one at a time. The CD is loaded into position and the audio system will display CD#. Each time the CD door opens, INSERT CD# is displayed. The door will close and the player will move to the next slot after each disc has been loaded. The process is repeated until all 6 slots are full. The audio system plays the last CD loaded and the display is updated. If some slots are already full and autoload is activated, the system will fill all empty slots.

Eject

Press the EJ control to stop and eject a CD. You can choose which CD will be ejected by pressing the EJ control and the desired preset number (1–6). For example, to eject CD 2, press the EJ control and then press the preset 2 control. If you do not choose a specific CD, the player will eject the current CD.



If a CD is ejected and not removed from the door of the CD player, the player will automatically reload the CD. This feature may be used when the ignition is ON or OFF.

Entertainment Systems

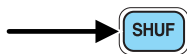
Auto eject

Press and momentarily hold the EJ control to engage auto eject. All CDs which are present in the player will be ejected one at a time. If a CD is ejected and not removed from the door of the CD player, the player will automatically reload the CD. This feature may be used when the ignition is ON or OFF.



Shuffle feature

Press the SHUF control until the desired shuffle mode is displayed. The audio system will then engage the desired shuffle mode.



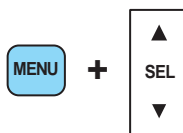
When engaged, the shuffle feature has two different modes: SHUFFLE DISC and SHUFFLE TRK.

SHUFFLE DISC randomly plays tracks from all the discs presently in the audio system.

SHUFFLE TRK plays all the tracks on the current disc in random order.

Compression feature (if equipped)

The compression feature operates in CD mode and brings soft and loud CD passages together for a more consistent listening level.



On Audiophile audios, press the MENU control until compression status is displayed. Press the SEL control to enable the compression feature when COMP OFF is displayed. Press the SEL control again to disable the feature when COMP ON is displayed.

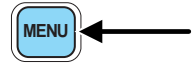
On Premium audios, press the COMP control until COMP ON is displayed.



Entertainment Systems

Menu mode

The MENU control allows you to access many different features within your audio system. There are three sets of menus available depending upon which mode or feature is activated.



While in FM mode, two menus are available. **If RDS is turned OFF**, you can access the following:

- SELECT HOURS — Refer to *Setting the clock*.
- SELECT MINUTES — Refer to *Setting the clock*.
- RDS OFF — Refer to *Radio data system feature*.

If RDS is turned ON, you can access the following:

- TRAFFIC ON/OFF—Refer to *Traffic announcements*.
- FIND type—Refer to *Program type*.
- SHOW (NAME, TYPE, NONE)— Refer to *Radio data system feature*.
- RDS ON— Refer to *Radio data system feature*.
- SELECT HOURS — Refer to *Setting the clock*.
- SELECT MINUTES —Refer to *Setting the clock*.

When in CD mode, you can access: SELECT HOURS, SELECT MINUTES or COMP ON/OFF.

SELECT HOURS, SELECT MINUTES— Allows you to adjust the hours and minutes. Refer to *Setting the clock*.

TRAFFIC ON/OFF— Traffic announcements can be programmed as local or distant. Refer to *Traffic announcements*.

RDS ON/OFF— This feature allows your audio system to receive text information from RDS-equipped FM radio stations. Refer to *Radio Data System feature*.

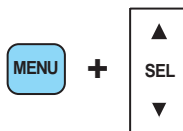
FIND type — Allows you to select your desired FM program type and search for that selection.

SHOW — Allows you to select from NAME (displays the name of the radio station), TYPE (displays the RDS program type: rock, jazz, etc.), or NONE (deactivates the RDS display).

Entertainment Systems

Traffic announcements

This feature allows you to hear traffic announcements. When in this mode, traffic announcements will interrupt radio and CD play.



When in FM mode and RDS is activated, press the MENU until TRAFFIC OFF displays. Press the SEL control to engage the feature. The display will read TRAFFIC ON.

This feature also allows you to control the volume of traffic announcements. With the display reading TRAFFIC ON, adjust the volume using the volume control to the desired level. The volume level will show at the bottom of the display. Interrupting traffic announcements will be at the selected volume level.

To disengage the feature, press the MENU control until TRAFFIC ON displays. Press the SEL control. The display will read TRAFFIC OFF.

RDS traffic seek feature

When in traffic mode, you can use the SEEK feature to seek up or down the listenable traffic capable frequencies.

With the RDS activated, press MENU until TRAFFIC ON is displayed. Press and hold the SEEK control until the desired selection is reached. The feature disengages when the control is released.

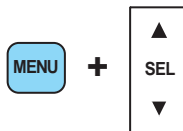
RDS traffic scan feature

When in traffic mode, you can use the SCAN feature to scan up the frequency band for listenable traffic capable frequencies.

With the RDS activated, press the MENU control until TRAFFIC ON is displayed. Press the SCAN control. SCAN TRAFFIC will display. The audio system will scan to all traffic capable frequencies. If no valid stations are found after one pass, the scan function is cancelled and NOT FOUND displays.

Radio data system (RDS) feature

This feature allows your audio system to receive text information from RDS-equipped FM radio stations.



Entertainment Systems

To activate RDS:

- When in FM mode, press the MENU control until RDS OFF displays.
- Press the SEL control to engage this feature (RDS ON).

RDS features:

Once the RDS feature is on, press the MENU control to scroll through the following selections:

Traffic announcements

This feature allows you to hear traffic announcements while in CD mode. These announcements are broadcast by traffic capable RDS stations.

When in this mode, traffic announcements will interrupt radio and CD play.

- Press the MENU control until TRAFFIC is displayed.
- Press the SEL control to engage the feature. The display will read TRAFFIC ON.

This feature also allows you to control the volume of traffic announcements. With the display reading TRAFFIC ON, adjust the volume using the volume control to the desired level. The volume level will show at the bottom of the display. Interrupting traffic announcements will be at the selected volume level.

To disengage the feature, press the MENU control until TRAFFIC ON displays. Press the SEL control. The display will read TRAFFIC OFF.

Traffic announcements are not available in most U.S. markets.

Program type

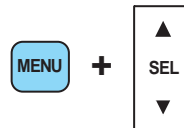
This feature allows you to search for RDS stations selectively by their program type.

Press the MENU control until FIND program type is displayed.

Use the SEL control to select the program type. With the feature on, use the SEEK or SCAN control to

find the desired program type from the following selections:

- Classic
- Country
- Info



Entertainment Systems

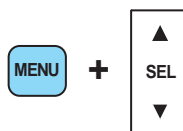
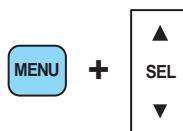
- Jazz
- Oldies
- R & B
- Religious
- Rock
- Soft
- Top 40

Show

This feature allows you to select the type of RDS broadcast information the radio will regularly show in the display.

With RDS activated, press the MENU control until SHOW is displayed.

Use the SEL control to select TYPE (displays the RDS program type: rock, jazz, etc), NAME (displays the name of the radio station) or NONE (deactivates the RDS display).



Digital signal processing (if equipped)

The digital signal processing (DSP) feature allows you to change the signal mode to suit your listening tastes.

Press the DSP control to access the DSP menu. Press the SEL control to enter one of the following modes:

- DSP OFF
- SIGNAL MODE
- OCCUPANCY MODE



Entertainment Systems

Use the SEL control to select the desired signal mode (the selected mode will appear in the display). The following signal modes can be selected:



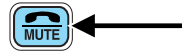
- DSP OFF—disengages the feature
- NEWS—"voice-only" type of sound with a limited audio band
- JAZZ CLUB—jazz club with clearly reflected sounds
- HALL—rectangular concert hall capacity of about 2 000
- CHURCH—church with a high vault
- STADIUM—outdoor stadium with a capacity of about 30 000

Press the DSP control again to access the occupancy modes. Use the SEL control to optimize the sound based upon the occupants in the vehicle. The following occupancy modes can be selected:

- ALL SEATS
- DRIVER SEAT
- REAR SEATS

Phone mode

This feature allows you to control the factory-installed cellular phone (if equipped) through the radio controls.



- Press the phone/mute control to enter phone mode. The playing media will mute.
- Use SEEK, TUNE or radio presets 1 through 6 to select a phone number previously programmed in the phone.
- Press the phone/mute control again to send and end calls.

This control will mute the playing media even if your vehicle is not equipped with a factory-installed cellular phone.

Press the control again to return to the playing media.

Entertainment Systems

TROUBLESHOOTING THE CD PLAYER (IF EQUIPPED)

If sound skips:

- You may be traveling on a rough road, playing badly scratched discs or the disc may be dirty. Skipping will not scratch the discs or damage the player.

If player does not work:

- The disc is inserted with the label surface downward.
- The disc is dusty or defective.
- A disc with format and dimensions not within industry standards is inserted.

CLEANING COMPACT DISCS

Inspect all discs for contamination before playing. If necessary, clean discs only with an approved CD cleaner and wipe from the center out to the edge. Do not use circular motion.

CD AND CD PLAYER CARE

- Handle discs by their edges only. Never touch the playing surface.
- Do not insert more than one disc at a time.
- Do not expose discs to direct sunlight or heat sources for extended periods of time.
- After playing, store the disc in its case.

CD units are designed to play commercially pressed 12 cm (4.75 in) audio compact discs only. Due to technical incompatibility, certain recordable and re-recordable compact discs may not function correctly when used in Ford CD players. Irregular shaped CDs, CDs with a scratch protection film attached, and CDs with homemade paper (adhesive) labels should not be inserted into the CD player. The label may cause the CD to become jammed. It is recommended that homemade CDs be identified with permanent marker rather than adhesive labels. Please contact your dealer for further information.

CLEANING CASSETTE PLAYER (IF EQUIPPED)

Clean the tape player head with a cassette cleaning cartridge after 10 to 12 hours of play in order to maintain the best sound and operation.

CASSETTE AND CASSETTE PLAYER CARE

- Use only cassettes that are 90 minutes long or less.
- Do not expose tapes to direct sunlight, high humidity, extreme heat or extreme cold. Allow tapes that may have been exposed to extreme temperatures to reach a moderate temperature before playing.
- Tighten very loose tapes by inserting a finger or pencil into the hole and turning the hub.
- Remove loose labels before inserting tapes.
- Do not leave tapes in the cassette player for a long time when not being played.

RADIO FREQUENCY INFORMATION

The Federal Communications Commission (FCC) and the Canadian Radio and Telecommunications Commission (CRTC) establish the frequencies AM and FM stations may use for their broadcasts. Allowable frequencies are:

AM 530, 540–1600, 1610 kHz

FM 87.7, 87.9–107.7, 107.9 MHz

Not all frequencies are used in a given area.

RADIO RECEPTION FACTORS

Three factors can affect radio reception:

- **Distance/strength.** The further an FM signal travels, the weaker it is. The listenable range of the average FM station is approximately 40 km (24 miles). This range can be affected by “signal modulation.” Signal modulation is a process radio stations use to increase their strength/volume relative to other stations.
- **Terrain.** Hills, mountains and tall buildings between your vehicle’s antenna and the radio station signal can cause FM reception problems. Static can be caused on AM stations by power lines, electric fences, traffic lights and thunderstorms. Moving away from an interfering structure (out of its “shadow”) returns your reception to normal.
- **Station overload.** Weak signals are sometimes captured by stronger signals when you pass a broadcast tower. A stronger signal may temporarily overtake a weaker signal and play while the weak station frequency is displayed.

Climate Controls

The audio system automatically switches to single channel reception if it will improve the reception of a station normally received in stereo.

AUDIO SYSTEM WARRANTIES AND SERVICE

Refer to the *Warranty Guide* for audio system warranty information.

If service is necessary, see your dealer or a qualified technician.

HEATER ONLY SYSTEM (IF EQUIPPED)



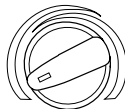
Fan speed control

Controls the volume of air circulated in the vehicle.



Temperature control knob



Controls the temperature of the airflow inside the vehicle. On heater-only systems, the air cannot be cooled below the outside temperature.






Mode selector control

Controls the direction of the airflow to the inside of the vehicle.



-  (Panel) – Distributes outside air through the instrument panel registers.
- OFF** – Outside air is shut out and the fan will not operate. For short periods of time only, use this mode to prevent undesirable odors from entering the vehicle.
-  (Panel and floor) – Distributes outside air through the instrument panel registers and the floor ducts.

Climate Controls

-  (Floor) – Distributes outside air through the floor ducts.
-  (Floor and defrost) – Distributes outside air through the floor ducts and the windshield defroster ducts.
-  (Defrost) – Distributes outside air through the windshield defroster ducts. It can be used to clear ice or fog from the windshield.

Operating tips

- In humid weather, place the climate control system in DEF before driving. This will reduce fogging on your windshield. Once the windshield has been cleared, select any desired position.
- To reduce humidity buildup inside the vehicle, do not drive with the climate control system in the OFF position.
- Under normal weather conditions, your vehicle's climate control system should be left in any position other than OFF position when the vehicle is parked. This allows the vehicle to “breathe” through the outside air inlet duct.
- Under snowy or dirty weather conditions, your vehicle's climate control system should be left in the OFF position when the vehicle is parked. This allows the climate control system to be free from contamination of outside pollutants.
- Do not place objects under the front seat which may interfere with the airflow to the rear seats.
- Remove any snow, ice, or leaves from the air intake area (at the base of the windshield and underneath the hood).
- Do not place objects over the defroster outlets. These objects may block airflow and reduce your visibility through the windshield. Avoid placing small objects on top of the instrument panel. These objects can fall into the defroster outlets and block airflow, in addition to, damaging your climate control system.

Do not place objects on top of the instrument panel, as these objects may become projectiles in instances of sudden impact or a sudden stop.

MANUAL HEATING AND AIR CONDITIONING SYSTEM (IF EQUIPPED)



Climate Controls

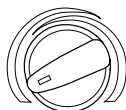
Fan speed control

Controls the volume of air circulated in the vehicle.



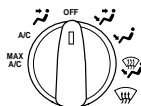
Temperature control knob



Controls the temperature of the airflow inside the vehicle.




Mode Selector Control

Controls the direction of the airflow to the inside of the vehicle.







The air conditioning compressor can operate in all modes except  and . However, the air conditioning will only function if the outside temperature is about 6°C (43°F) or higher.

Since the air conditioner removes considerable moisture from the air during operation, it is normal if clear water drips on the ground under the air conditioner drain while the system is working and even after you have stopped the vehicle.

- **MAX A/C** – Uses recirculated air to cool the vehicle. MAX A/C is noisier than A/C but more economical and will cool the inside of the vehicle faster. Airflow will be from the instrument panel registers. This mode can also be used to prevent undesirable odors from entering the vehicle.
- **A/C** – Uses outside air to cool the vehicle. It is quieter than MAX A/C but not as economical. Airflow will be from the instrument panel registers.
-  (Panel) – Distributes outside air through the instrument panel registers. However, the air will not be cooled below the outside temperature because the air conditioning does not operate in this mode.

Climate Controls

- OFF – Outside air is shut out and the fan will not operate. For short periods of time only, use this mode to prevent undesirable odors from entering the vehicle.
-  (Panel and floor) – Distributes outside air through the instrument panel registers and the floor ducts. Heating and air conditioning capabilities are provided in this mode. For added customer comfort, when the temperature control knob is anywhere in between the full hot and full cold positions, the air distributed through the floor ducts will be slightly warmer than the air sent to the instrument panel registers.
-  (Floor) – Distributes outside air through the floor ducts. However, the air will not be cooled below the outside temperature because the air conditioning does not operate in this mode.
-  (Floor and defrost) – Distributes outside air through the windshield defroster ducts and the floor ducts. Heating and air conditioning capabilities are provided in this mode. For added customer comfort, the air distributed through the floor ducts will be slightly warmer than the air sent to the windshield defroster ducts. If the temperature is about 6°C (43°F) or higher, the air conditioner will automatically dehumidify the air to reduce fogging.
-  (Defrost) – Distributes outside air through the windshield defroster ducts. It can be used to clear ice or fog from the windshield. If the temperature is about 6°C (43°F) or higher, the air conditioner will automatically dehumidify the air to reduce fogging.

Operating tips

- In humid weather conditions, place the climate control system in Defrost mode before driving. This will reduce fogging on your windshield. Once the windshield has been cleared, operate the climate control system as desired.
- To reduce humidity buildup inside the vehicle in cold weather conditions, don't drive with the climate control system in the OFF or MAX A/C position.
- To reduce humidity buildup inside the vehicle in warm weather conditions, don't drive with the climate control system in the OFF position.

Climate Controls

- Under normal weather conditions, your vehicle's climate control system should be left in any position other than the MAX A/C or OFF when the vehicle is parked. This allows the vehicle to "breathe" through the outside air inlet duct.
- Under snowy or dirty weather conditions, your vehicle's climate control system should be left in the OFF position when the vehicle is parked. This allows the climate control system to be free from contamination of outside pollutants.
- If your vehicle has been parked with the windows closed during warm weather conditions, the air conditioner will perform more efficiently in cooling the vehicle if driven for two or three minutes with the windows open. This will force most of the hot, stale air out of the vehicle. Once the vehicle has been "aired out", operate the climate control system as desired.
- Do not put objects under the front seat which may interfere with the airflow to the rear seats (if equipped).
- Remove any snow, ice or leaves from the air intake area (at the bottom of the windshield and underneath the hood).
- Do not place objects over the defroster outlets. These objects can block airflow and reduce visibility through your windshield. Avoid placing small objects on top of the instrument panel. These objects may fall down into the defroster outlets and block airflow, in addition to, damaging the climate control system.

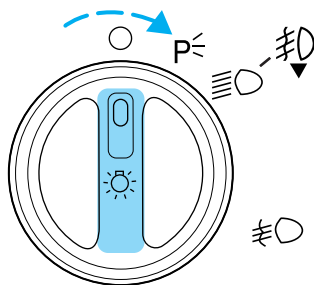
To aid in side window defogging/demisting in cold weather conditions:

1. Select the position that distributes air through the Panel and Floor.
2. Set the temperature control to full heat.
3. Set the fan speed to full fan.
4. Direct the outer panel vents towards the side windows.
5. To increase airflow to the outer panel vents, close the central panel vents.

Do not place objects on top of the instrument panel as these objects may become projectiles in a collision or sudden stop.

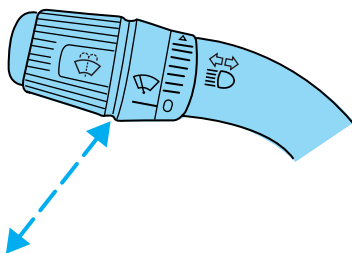
HEADLAMP CONTROL ☀

Rotate the headlamp control to the first position to turn on the parking lamps. Rotate to the second position to turn on the headlamps.



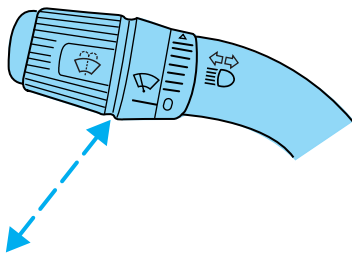
High beams ≡D

- Push forward to activate.
- Pull toward you to deactivate.



Flash to pass

Pull toward you to activate and release to deactivate.



Daytime running lamps (DRL) (if equipped)

Turns the headlamps on with a reduced output. To activate:


- the ignition must be in the ON position and
- the headlamp control is in the OFF or Parking lamps position.


Lights

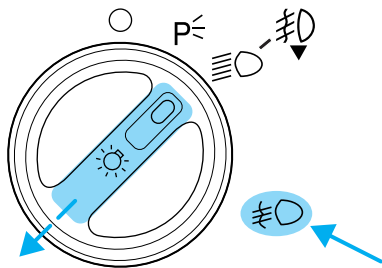


Always remember to turn on your headlamps at dusk or during inclement weather. The Daytime Running Lamp (DRL) system does not activate with your tail lamps and generally may not provide adequate lighting during these conditions. Failure to activate your headlamps under these conditions may result in a collision.

Foglamp control (if equipped)

The headlamp control also operates the foglamps. The foglamps can be turned on only when the headlamp control is in the  position and the high beams are not turned on.

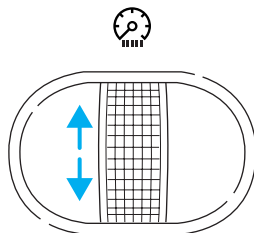
Pull headlamp control towards you to turn foglamps on. The foglamp indicator light  will illuminate.



PANEL DIMMER CONTROL

Use to adjust the brightness of the instrument panel during headlamp and parklamp operation.

- Rotate up to brighten.
- Rotate down to dim.
- Rotate to full up position (past detent) to turn on interior lamps.
- Rotate to full down position (past detent) to turn off interior lamps.

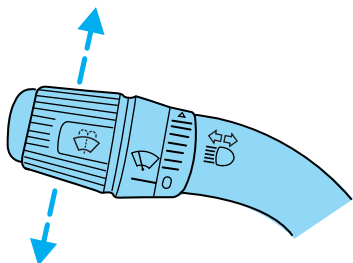


AIMING THE HEADLAMPS

The headlamps on your vehicle are properly aimed at the assembly plant. If your vehicle has been in an accident the alignment of your headlamps should be checked by a qualified service technician.

TURN SIGNAL CONTROL ⇄⇄

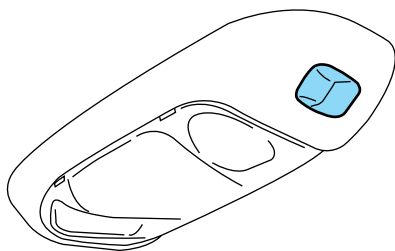
- Push down to activate the left turn signal.
- Push up to activate the right turn signal.



INTERIOR LAMPS

Map lamps (if equipped)

To turn on the map lamps, press the control next to each lamp.



EXTERIOR BULBS

Check operation of lamps, safety equipment and warning signals

It is a good safety practice to check operation of headlamps, parking lamps, turn signals, clearance and marker lamps, instrument panel and control lamps each day.

Lights

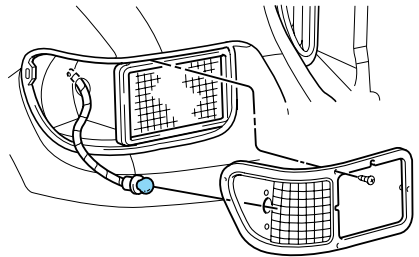
Using the right bulbs

Function	Number of bulbs	Trade number
Headlamps	2	4652
Park/turn signal	2	1157
Sidemarkers/rear marker lamp	5 red 12 (amber)	194
Tail/stop lamp	4	2057
Backup	4	1156
Foglamp	2	899
Running board/courtesy lamp	6	194
License plate lamp	2	194
Cabmarker	5	168
Exterior visor lamp (if equipped)	4	194
Rear fender clearance	4	(a)
Rear identification	3	194
Dome lamp	1	105
To replace all instrument panel lights - see your dealer		
(a) Replace entire lamp assembly; bulb is not serviceable.		

Replacing headlamp bulbs

To remove the headlamp bulbs:

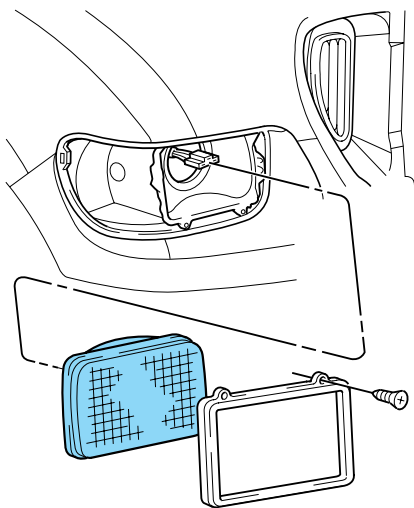
1. Make sure headlamp switch is in OFF position.
2. Remove four screws and move the parking lamp assembly away from the headlamp bulb.



3. Remove four screws and the retaining bracket from the headlamp bulb.

4. Pull headlamp bulb out of the housing, disconnect the electrical connector and remove the headlamp bulb.

5. To complete installation, follow the removal procedure in reverse order.



Replacing front parking lamp/turn signal bulbs

To remove the parking/turn signal bulbs:

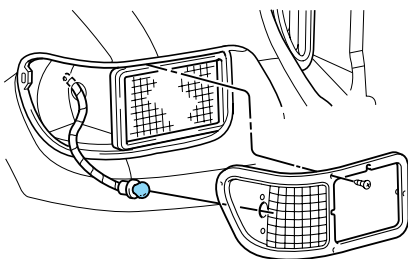
1. Make sure the headlamp control is in the OFF position.

2. Remove four screws from the lamp assembly.

3. Carefully lower lamp assembly and pull the bulb socket straight out of the lamp assembly.

4. Carefully pull the bulb straight out of the socket and push in the new bulb.

5. To complete installation, follow the removal procedure in reverse order.

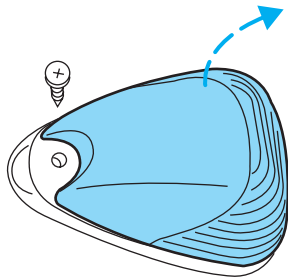


Lights

Replacing visor/cab marker bulbs

To change the cab marker bulbs:

1. Remove the screw and lens from the lamp assembly.
2. Carefully pull the bulb straight out of the socket and push in the new bulb.
3. Install lens on lamp assembly with screw.



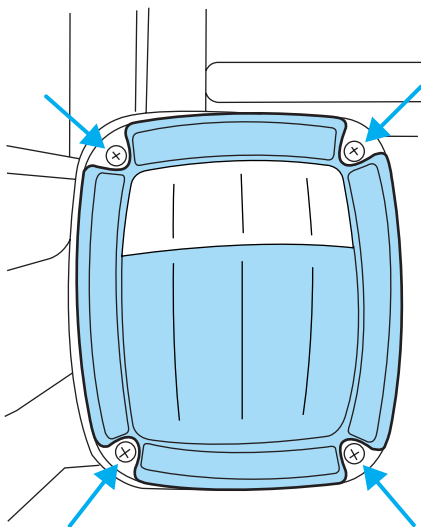
Replacing visor marker bulbs (SuperCrewzer only)

For visor bulb replacement see a dealer or qualified technician.

Replacing brake/tail/backup lamp bulbs – Except F650 SuperCrewzer

The brake/tail/backup lamp bulbs are located in the same portion of the tail lamp assembly. Follow the same steps to replace either bulb:

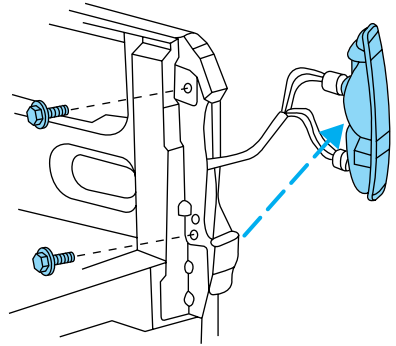
1. Remove the four screws and the lamp lens from lamp assembly.
2. Carefully pull the bulb straight out of the socket and push in the new bulb.
3. Install the lens on the lamp assembly with the four screws.



Replacing tail lamp/turn/backup lamp bulbs — F650 SuperCrewzer only

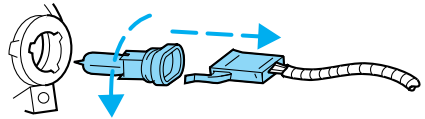
The tail lamp/backup lamp bulbs are located in the same portion of the tail lamp assembly, one just below the other. Follow the same steps to replace either bulb:

1. Remove the two screws holding the light cover to the light housing.
2. Carefully pull away the lamp cover.
3. Twist the bulb 1/8 of a turn counter clockwise and remove it from the socket.
4. Pull the bulb straight out and push the new bulb in.
5. Turn the bulb clockwise to secure in place.
6. Replace the tail lamp cover and secure with the two screws.



Replacing foglamp bulbs (if equipped)

1. Remove the bulb socket from the foglamp by turning counterclockwise.
2. Disconnect the electrical connector from the foglamp bulb.
3. Connect the new foglamp bulb to the electrical connector.
4. Install the bulb socket in the foglamp by turning clockwise.



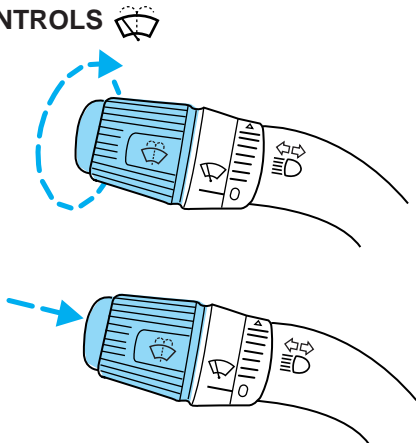
Driver Controls

WINDSHIELD WIPER/WASHER CONTROLS

Rotate the windshield wiper control to the desired interval, low or high speed position.

The bars of varying length are for intermittent wipers. When in this position rotate the control upward for fast intervals and downward for slow intervals.

Push the control on the end of the stalk to activate washer. Push and hold for a longer wash cycle. The washer will automatically shut off after ten seconds of continuous use.



Windshield wiper blades

Check the wiper blades at least twice a year or when they seem less effective. Substances such as tree sap and some hot wax treatments used by commercial car washes reduce the effectiveness of wiper blades.

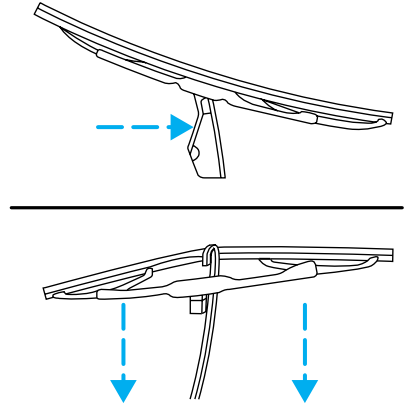
Checking the wiper blades

If the wiper blades do not wipe properly, clean both the windshield and wiper blades using undiluted windshield wiper solution or a mild detergent. Rinse thoroughly with clean water. To avoid damaging the blades, do not use fuel, kerosene, paint thinner or other solvents.

Changing the wiper blades

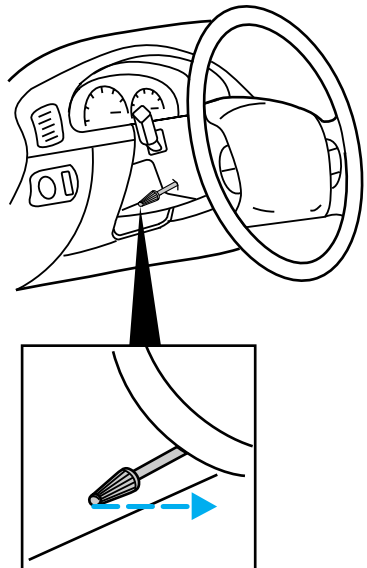
To replace the wiper blades:

1. Pull the wiper arm away from the windshield and lock into the service position.
2. Turn the blade at an angle from the wiper arm. Push the lock pin manually to release the blade and pull the wiper blade down toward the windshield to remove it from the arm.
3. Attach the new wiper to the wiper arm and press it into place until a click is heard.



TILT STEERING WHEEL

Pull the tilt steering control toward you to move the steering wheel up or down. Hold the control while adjusting the wheel to the desired position, then release the control to lock the steering wheel in position.



Driver Controls



Never adjust the steering wheel when the vehicle is moving.

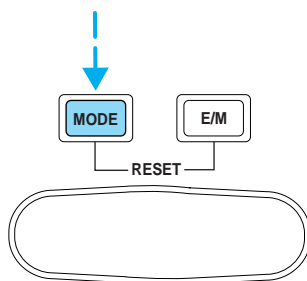
OVERHEAD CONSOLE (IF EQUIPPED)

The overhead console will show the outside temperature and compass display.

Electronic compass/temperature display — SuperCrewzzer only

Mode control

Press the MODE control to turn the display on/off.

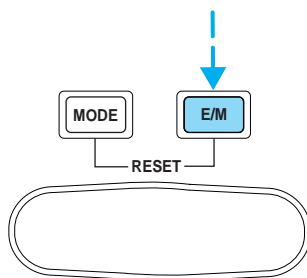


Outside air temperature

The outside temperature display is contained in the overhead console.

The temperature can be displayed in Centigrade or Fahrenheit by pressing the E/M control.

If the outside temperature falls below 3°C (38°F), the display will alternate from “ICE” to the outside temperature at a two second rate for one minute.



Compass

The compass display is contained in the overhead console. The vehicle heading is displayed as one of N, NE, E, SE, S, SW, W and NW.

The compass reading may be affected when you drive near large buildings, bridges, power lines and powerful broadcast antenna. Magnetic or metallic objects placed in or on the vehicle may also affect compass

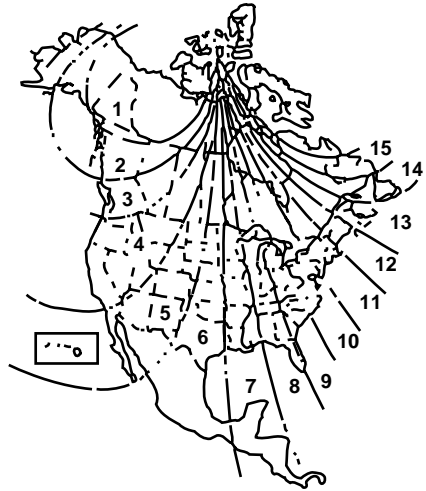
accuracy. Adjustments may need to be made to the zone and calibration of the compass.

Usually, when something affects the compass readings, the compass will correct itself after a few days of operating your vehicle in normal conditions. If the compass still appears to be inaccurate, a manual calibration may be necessary. Refer to *Compass calibration adjustment*.

Most geographic areas (zones) have a magnetic north compass point that varies slightly from the northerly direction on maps. This variation is four degrees between adjacent zones and will become noticeable as the vehicle crosses multiple zones. A correct zone setting will eliminate this error. Refer to *Compass zone adjustment*.

Compass zone adjustment

1. Determine which magnetic zone you are in for your geographic location by referring to the zone map.
2. Locate the controls on the overhead console.
3. Turn ignition to the ON position.

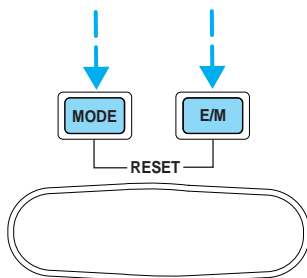


Driver Controls

4. Press and hold both controls. After approximately four seconds, the compass will enter zone setting mode. Zone setting mode is indicated when the display lights the “ZONE” indicator.

5. Release both controls. Subsequent pressing of either control will increment the zone. Press the control repeatedly until the correct zone setting for your geographic location is displayed on the trip computer.

6. To exit the zone setting mode and save the displayed zone in memory, release both controls for greater than five seconds.



Compass calibration adjustment

Perform this adjustment in an open area free from steel structures and high voltage lines.

For optimum calibration, turn off all electrical accessories (heater/air conditioning, wipers, etc.) and make sure all vehicle doors are shut.

1. Locate the controls located in the overhead console.

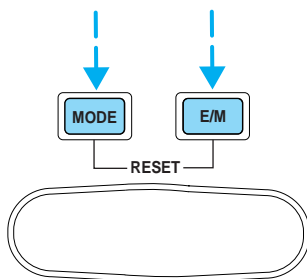
2. Start the vehicle.

3. Press and hold both controls. After approximately eight seconds, the compass will enter CAL mode. CAL mode is indicated when the display lights the “CAL” indicator.

4. Release both controls. The display will return to normal, except that the CAL indicator will remain lit until the compass is successfully calibrated.

5. Slowly drive the vehicle in a circle (less than 5 km/h [3 mph]) until the CAL indicator turns off. It may take up to five circles to complete calibration.

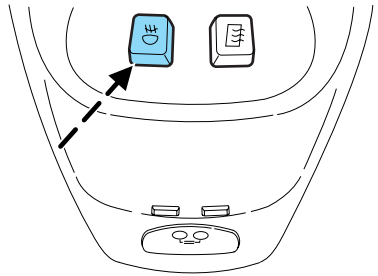
6. The compass is now calibrated.



Trailer hook up lamps — F650 SuperCrewzer only

Press the control to activate the trailer lamps.

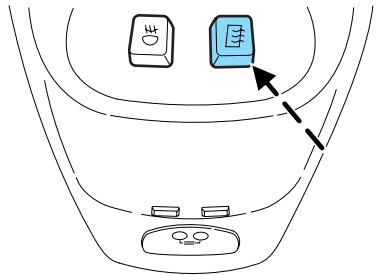
Press the control to deactivate the trailer lamps.



Heated Mirrors — F650 SuperCrewzer only

Press this control to remove ice, mist and fog from the mirrors. This feature will automatically turn off after 8 minutes.

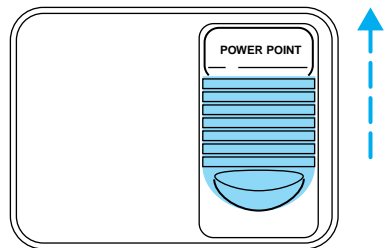
Do not remove ice from the mirrors with a scraper or attempt to readjust the mirror glass if it is frozen in place. These actions could cause damage to the glass and mirrors.



AUXILIARY POWER POINT 12V

Power outlets are designed for accessory plugs only. Do not hang any type of accessory or accessory bracket from the plug. Improper use of the power outlet can cause damage not covered by your warranty.

The auxiliary power point is located on the instrument panel.



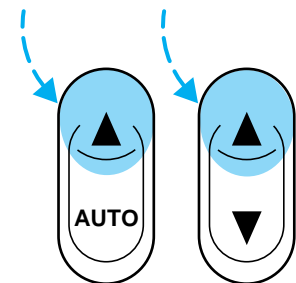
Do not plug optional electrical accessories into the cigarette lighter. Use the power point.

Driver Controls

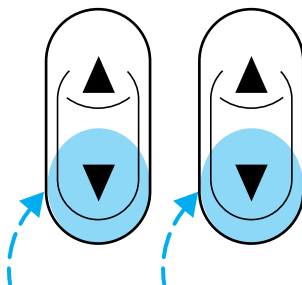
POWER WINDOWS (IF EQUIPPED)

Press and hold the rocker switches to open and close windows.

- Press the top portion of the rocker switch to close.

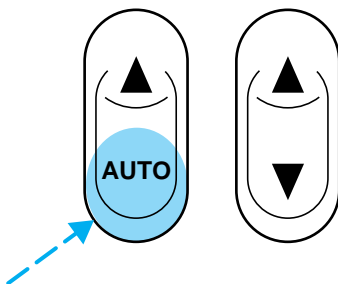


- Press the bottom portion of the rocker switch to open.



One touch down

- Press AUTO completely down and release quickly. The driver's window will open fully. Depress again to stop window operation.

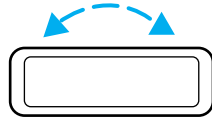


Driver Controls

Window lock (if equipped)

The window lock feature allows only the driver to operate the power windows.

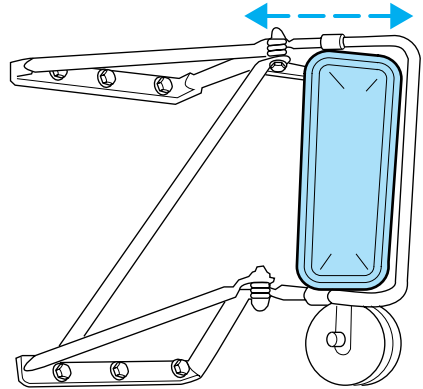
To lock out all the window controls except for the driver's press the left side of the control. Press the right side to restore the window controls.



MIRRORS

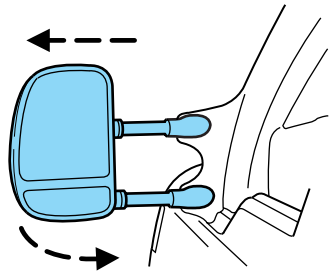
With the doors closed and the seat adjusted for proper comfort, move the mirrors to maximize rear viewing area by adjusting the western mirrors left or right as required.

Adjust the auxiliary convex mirrors. Convex mirrors are a ball-stud design for precise adjustment to maximize viewing area.



Heated telescoping trailer tow mirrors (Supercrewzer only)

Manually pull the mirror outward or inward as desired. Pull the mirrors inward carefully when driving through a narrow space.



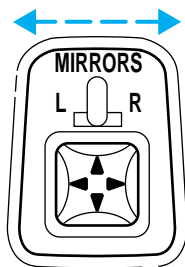
Driver Controls

Power side view mirrors (if equipped)

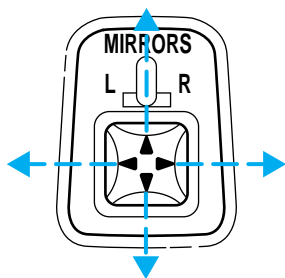
The ignition can be in any position to adjust the power side view mirrors.

To adjust your mirrors:

1. Select L to adjust the left mirror or R to adjust the right mirror.



2. Move the control in the direction you wish to tilt the mirror.



3. Return to the center position to lock mirrors in place.

4. Adjust spotter mirrors (if equipped) manually.

SPEED CONTROL (IF EQUIPPED)

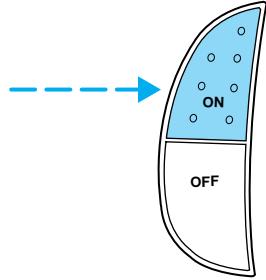
To turn speed control on

7.3L Power Stroke engine

- Press ON.

Vehicle speed cannot be controlled until the vehicle is traveling at or above 48 km/h (30 mph).

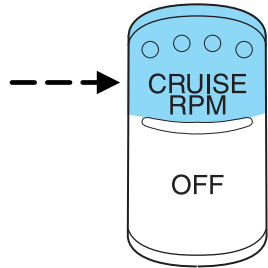
Do not shift the gearshift lever into N (Neutral) with the speed control on.



Do not use the speed control in heavy traffic or on roads that are winding, slippery, or unpaved.

Caterpillar/Cummins engines

Press CRUISE RPM. If the vehicle is moving, speed control will be enabled; if the vehicle is stationary, engine RPM can be controlled.



Do not use the speed control in heavy traffic or on roads that are winding, slippery, or unpaved.

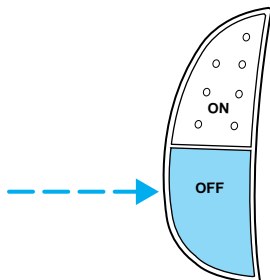
Driver Controls

To turn speed control off

7.3L Power Stroke engine

- Press OFF or
- Turn off the vehicle ignition.

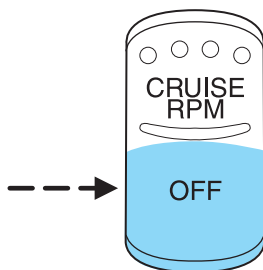
Once speed control is switched off, the previously programmed set speed will be erased.



Caterpillar/Cummins engines

- Press OFF or
- Turn off the vehicle ignition.

Once speed control is switched off, the previously programmed engine RPM will be erased.

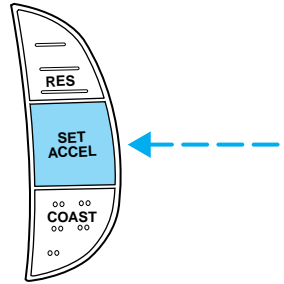


Do not use the speed control in heavy traffic or on roads that are winding, slippery, or unpaved.

To set a speed

7.3L Power Stroke engine

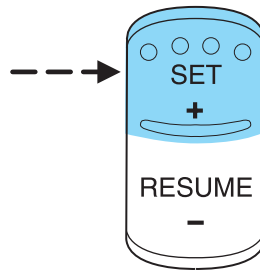
- Press SET ACCEL. For speed control to operate, the speed control must be ON and the vehicle speed must be greater than 48 km/h (30 mph).



Do not use the speed control in heavy traffic or on roads that are winding, slippery, or unpaved.

Caterpillar/Cummins engines

Press SET +. If the vehicle is moving, this will set the vehicle speed. If the vehicle is stationary, this will set the vehicle idle RPM.



If you drive up or down a steep hill, your vehicle speed may vary momentarily slower or faster than the set speed. This is normal.

Speed control cannot reduce the vehicle speed if it increases above the set speed on a downhill. If your vehicle speed is faster than the set speed while driving on a downhill, you may want to shift to the next lower gear or apply the brakes to reduce your vehicle speed.

If the vehicle speed falls below 48 km/h (30 mph) or engine RPM falls below 1 000 RPM, your speed control will disengage. This is normal. Pressing RESUME - will re-engage it.

Driver Controls

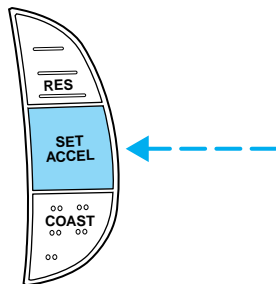


Do not use the speed control in heavy traffic or on roads that are winding, slippery, or unpaved.

To set a higher set speed

7.3L Power Stroke engine

- Press and hold SET ACCEL. Release the control when the desired vehicle speed is reached or
- Press and release SET ACCEL to operate the Tap-Up function. Each press will increase the set speed by 1.6 km/h (1 mph) or
- Accelerate with your accelerator pedal. When the desired vehicle speed is reached, press and release SET ACCEL.

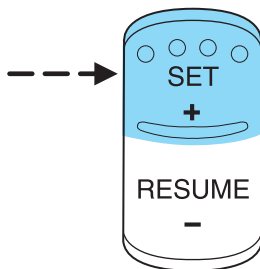


You can accelerate with the accelerator pedal at any time during speed control usage. Releasing the accelerator pedal will return your vehicle to the previously programmed set speed.

Caterpillar/Cummins engines

Press and hold SET +. If the vehicle is moving, this will increase vehicle speed; if the vehicle is stationary, this will increase engine RPM. Release the control when the desired vehicle speed/engine RPM is reached.

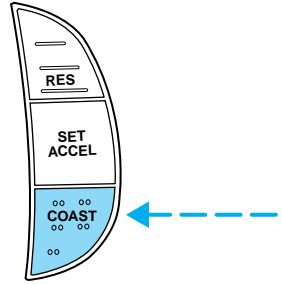
Press and release SET + to operate the Tap-Up function. Each press will increase the set speed by 1.6 km/h (1 mph) or engine RPM in idle mode.



To set a lower set speed

7.3L Power Stroke engine

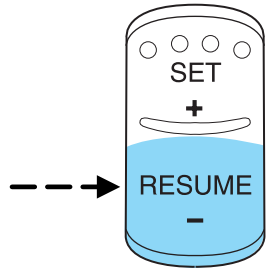
- Press and hold COAST. Release the control when the desired speed is reached or
- Press and release COAST to operate the Tap-Down function. Each press will decrease the set speed by 1.6 km/h (1 mph) or



Caterpillar/Cummins engine

Press and hold RESUME -. If the vehicle is moving, this will decrease vehicle speed by 1.6 km/h (1 mph) increments; if the vehicle is stationary, this will decrease engine RPM. Release the control when the desired vehicle speed/engine RPM is reached.

Press and release RESUME - to operate the Tap-Down function. Each press will decrease the set speed by 1.6 km/h (1 mph) or engine RPM in idle mode.



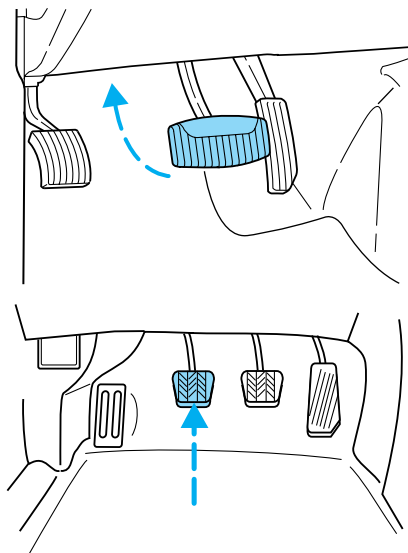
Driver Controls

To disengage speed control

- Depress the brake pedal or

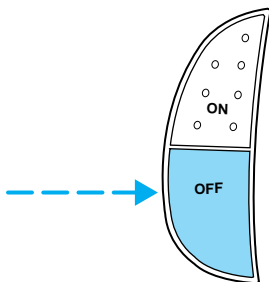
- Depress the clutch pedal (if equipped).

Disengaging the speed control will not erase the previously programmed set speed or engine RPM.



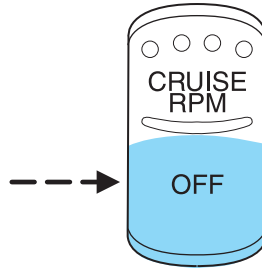
7.3L Power Stroke engine

Pressing OFF will erase the previously programmed set speed.



Caterpillar/Cummins engines

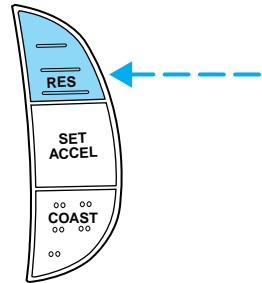
Pressing OFF will erase the previously programmed engine RPM.



To return to a previously set speed

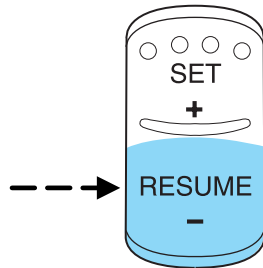
7.3L Power Stroke engine

- Press RES. For RES to operate, the vehicle speed must be faster than 48 km/h (30 mph).



Caterpillar/Cummins engines

Press RESUME -. For RESUME - to operate, the vehicle speed must be above 48 km/h (30 mph) or engine speed must be above 1 000 RPM.

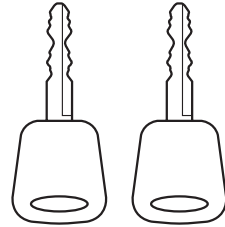


Locks and Security

KEYS

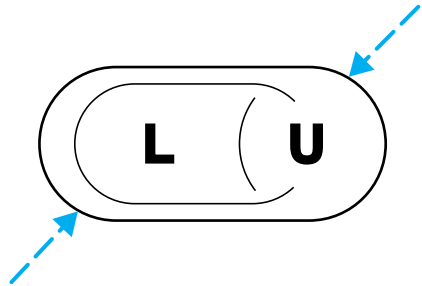
The key operates all locks on your vehicle. In case of loss, replacement keys are available from your dealer.

You should always carry a second key with you in a safe place in case you require it in an emergency.



POWER DOOR LOCKS (IF EQUIPPED)

Press U to unlock all doors and L to lock all doors.



REMOTE ENTRY SYSTEM (IF EQUIPPED)

This device complies with part 15 of the FCC rules and with RS-210 of Industry Canada. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

The remote entry system allows you to lock or unlock all vehicle doors without a key.

The remote entry features only operate with the ignition in the LOCK position.

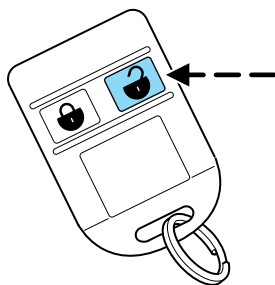
If there is any potential remote keyless entry problem with your vehicle, ensure **ALL key fobs** (remote entry transmitters) are brought to the dealership, to aid in troubleshooting.

Locks and Security

Unlocking the doors

Press this control to unlock the driver's door. The interior lamps will illuminate.

Press the control a second time within five seconds to unlock all doors.

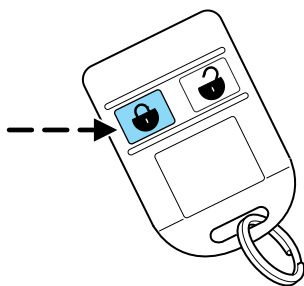


Locking the doors

Press this control to lock all doors.

To confirm all doors are closed and locked, press the control a second time within five seconds. The doors will lock again, the horn will chirp and the lamps will flash.

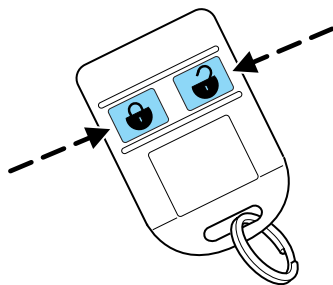
If any of the doors are ajar, the horn will make two quick chirps, reminding you to properly close all doors.



Sounding a panic alarm

Press both controls to activate the alarm. The horn will sound and the lights will flash.

To deactivate the alarm, press both controls again or turn the ignition to ACC or ON.



Locks and Security

Replacing the battery

The remote transmitter is powered by one coin type three-volt lithium battery CR2032 or equivalent. Typical operating range will allow you to be up to 10 meters (33 feet) away from your vehicle. A decrease in operating range can be caused by:

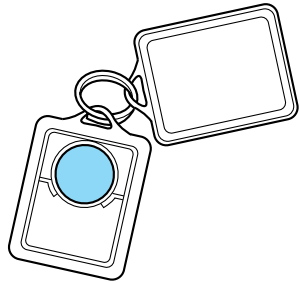
- weather conditions
- nearby radio towers
- structures around the vehicle
- other vehicles parked next to the vehicle

To replace the battery:

1. Twist a thin coin between the two halves of the transmitter near the key ring. **DO NOT TAKE THE FRONT PART OF THE TRANSMITTER APART.**

2. Place the positive (+) side of new battery in the same orientation. Refer to the diagram inside the transmitter unit.

3. Snap the two halves back together.

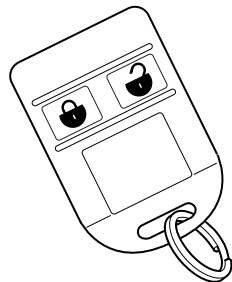


Replacement of the battery will **not** cause the remote transmitter to become deprogrammed from your vehicle. The remote transmitter should operate normally after battery replacement.

Replacing lost transmitters

If a remote transmitter has been lost and you would like to remove it from the vehicle's memory, or you would like to purchase additional remote transmitters and have them programmed to your vehicle:

- Take **all** your vehicle's transmitters to your dealer for programming, or
- Perform the programming procedure yourself



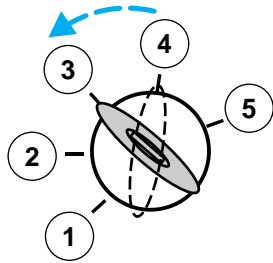
Locks and Security

Programming remote transmitters

It is necessary to have **all** (maximum of four — original and/or new) of your remote transmitters available prior to beginning this procedure.

To program the transmitters yourself:

- Place the key in the ignition and turn from 2 (LOCK) to 3 (OFF) and cycle between 3 (OFF) and 4 (ON) eight times in rapid succession (within 10 seconds) with the eighth turn ending in the 4 (ON) position. The doors will lock/unlock to confirm that programming mode has been entered.
- Within 20 seconds, program a remote transmitter by pressing any button on a transmitter. The doors will lock/unlock to confirm that the remote transmitter has been programmed. (If more than 20 seconds pass before pressing a remote transmitter button, the programming mode will exit and the procedure will have to be repeated.)
- Repeat the previous step to program additional remote transmitters. The doors will lock/unlock to confirm that each remote transmitter has been programmed.
- When you have completed programming the remote transmitters, turn the ignition to 3 (OFF) or wait 20 seconds. Again the doors will lock/unlock to confirm programming has been completed.



Illuminated entry

The illuminated entry system will turn on the interior lights when the remote transmitter unlock control is pressed.

The illuminated entry system will turn off the interior lights if the ignition switch is turned to the ON position, or if the remote transmitter lock control is pressed, or after 25 seconds of illumination.

The inside lights will not turn off if:

- they have been turned on with the dimmer control or
- any door is open

The battery save feature will turn off the interior lights 45 minutes after the last door is closed, even if the dimmer control is on.

Seating and Safety Restraints

SEATING

Driver's seat adjustment



Never adjust the driver's seat or seatback when the vehicle is moving.



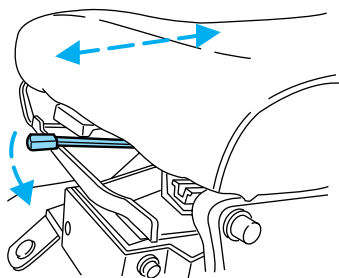
Always drive and ride with your seatback upright and the lap belt snug and low across the hips.



Reclining the seatback can reduce the effectiveness of the seat's safety belt in the event of a collision.

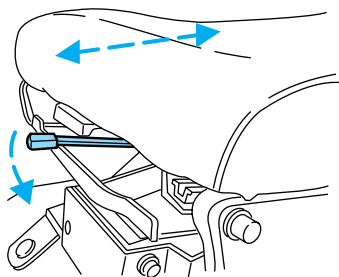
Fixed-back seat

Move handle to the left to move seat forward or backward.



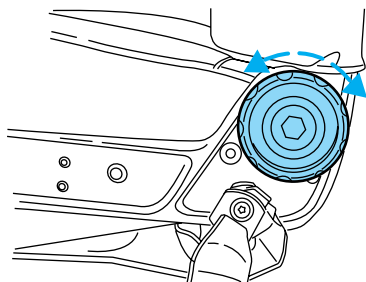
Recline seat (if equipped)

Move handle to the left to move seat forward or backward.



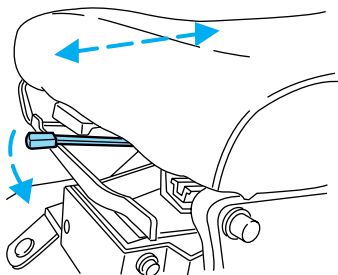
Seating and Safety Restraints

Rotate control to adjust seatback.

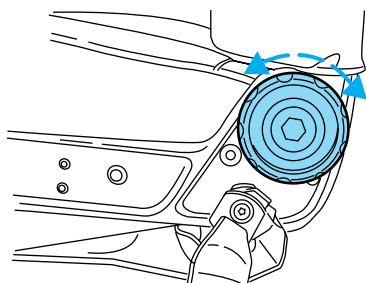


Easy-Aire seat (if equipped)

Move handle to the left to move seat forward or backward.

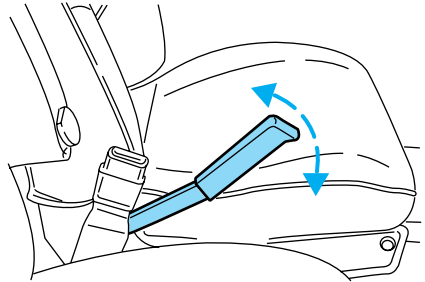


Rotate control to adjust seatback.



Seating and Safety Restraints

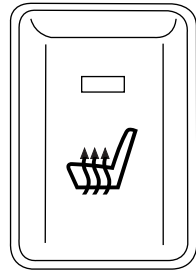
Pump handle to raise seat height.
Push handle full down to lower.
Always adjust the seat height
before fastening seatbelt.



Heated seats (if equipped)

To operate the heated seats:

- Push control to activate.
- Push again to deactivate.



The indicator light on the control will illuminate when activated.

Adjusting the front power seat (if equipped)



Never adjust the driver's seat or seatback when the vehicle is moving.



Do not pile cargo higher than the seatbacks to avoid injuring people in a collision or sudden stop.



Always drive and ride with your seatback upright and the lap belt snug and low across the hips.

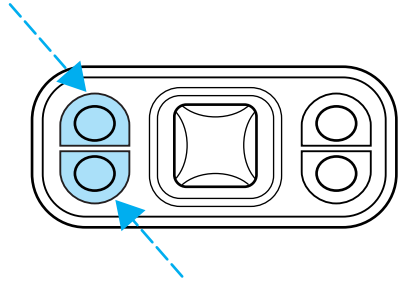
Seating and Safety Restraints



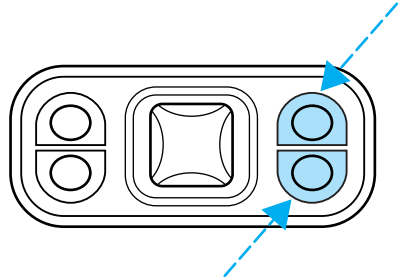
Reclining the seatback can reduce the effectiveness of the seat's safety belt in the event of a collision.

The control is located on the outboard side of the seat cushion.

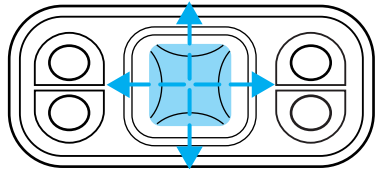
Press to raise or lower the front portion of the seat cushion.



Press to raise or lower the rear portion of the seat cushion.



Press the control to move the seat forward, backward, up or down.



Seating and Safety Restraints

REAR FOLDING BENCH SEAT (IF EQUIPPED)

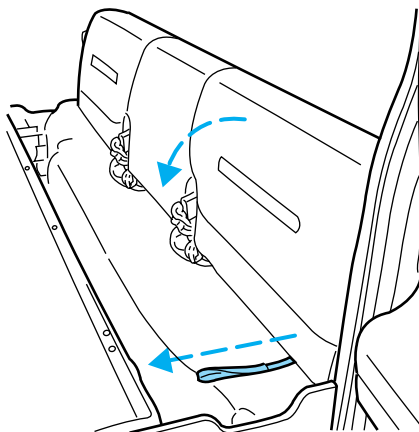
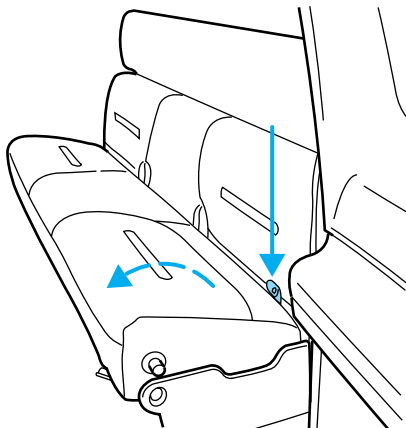
FOLDING DOWN THE REAR SEATS



All safety belts should be properly stowed in the seat pockets before folding down the rear seat.

Make sure that no objects such as books, purses or briefcases are on the floor in front of the second row seats before folding them down.

1. Locate the strap on the rear of the lower seat cushion.
2. Lift the strap and rotate the lower seat cushion toward the front of the vehicle.
3. Locate the strap below the seatback.
4. Pull downward on the strap to release the seatback.
5. Rotate the seatback forward.



Seating and Safety Restraints

RETURNING THE SEAT TO UPRIGHT



Always latch the vehicle seat to the floor, whether the seat is occupied or empty. If not latched, the seat may cause injury during a sudden stop.

1. Lift/rotate the seatback toward the rear of the vehicle and make sure it latches securely.
2. Lift/rotate the lower seat cushion to its seating position.

SAFETY RESTRAINTS

Safety restraints precautions



Always drive and ride with your seatback upright and the lap belt snug and low across the hips.



To reduce the risk of injury, make sure children sit where they can be properly restrained.



All occupants of the vehicle, including the driver, should always properly wear their seat belts.



Never let a passenger hold a child on his or her lap while the vehicle is moving. The passenger cannot protect the child from injury in a collision.



It is extremely dangerous to ride in a cargo area, inside or outside of a vehicle. In a collision, people riding in these areas are more likely to be seriously injured or killed. Do not allow people to ride in any area of your vehicle that is not equipped with seats and safety belts. Be sure everyone in your vehicle is in a seat and using a safety belt properly.



In a rollover crash, an unbelted person is significantly more likely to die than a person wearing a seat belt.

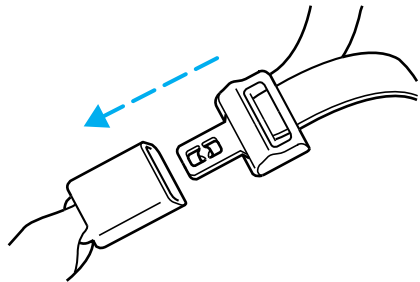
Seating and Safety Restraints



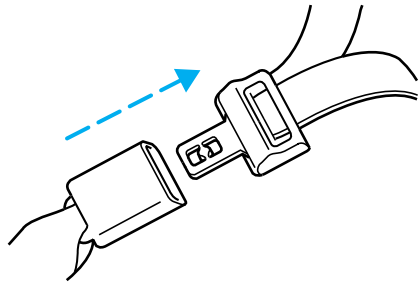
Each seating position in your vehicle has a specific safety belt assembly which is made up of one buckle and one tongue that are designed to be used as a pair. 1) Use the shoulder belt on the outside shoulder only. Never wear the shoulder belt under the arm. 2) Never swing the safety belt around your neck over the inside shoulder. 3) Never use a single belt for more than one person.

Combination lap and shoulder belts

1. Insert the belt tongue into the proper buckle (the buckle closest to the direction the tongue is coming from) until you hear a snap and feel it latch. Make sure the tongue is securely fastened in the buckle.



2. To unfasten, push the release button and remove the tongue from the buckle.



The front and rear outboard safety restraints in the vehicle are combination lap and shoulder belts. The front and rear seat passenger outboard safety belts have vehicle sensitive emergency locking retractors.

Seating and Safety Restraints

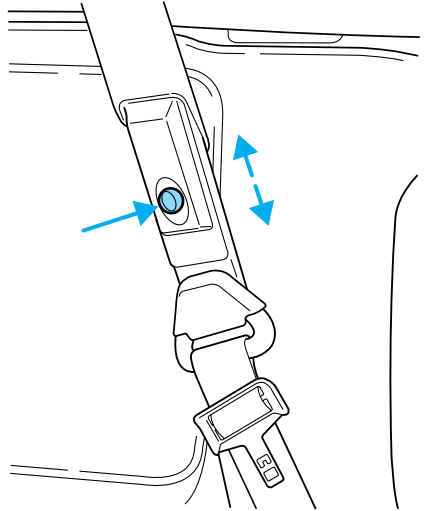
Vehicle sensitive retractor

The vehicle sensitive retractor allows free shoulder belt length adjustment to your movements and locks in response to vehicle movement. For example, if the driver brakes suddenly or turns a corner sharply, or the vehicle receives an impact of approximately 8 km/h (5 mph) or more, the combination safety belts will lock to help reduce forward movement of the driver and passengers.

Front safety belt height adjustment

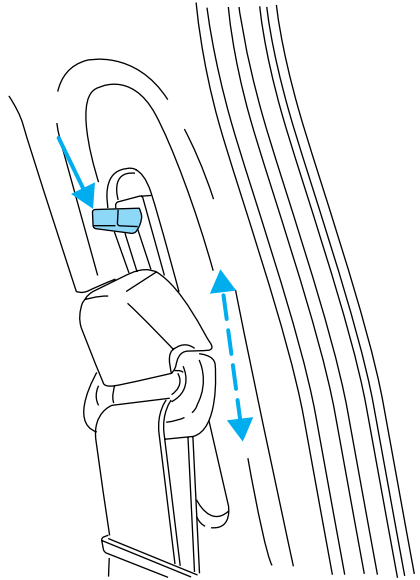
SuperCab and CrewCab vehicle has safety belt height adjustments for the driver and front passenger. Adjust the height of the shoulder belt so the belt rests across the middle of your shoulder.

- 4-door SuperCab



Seating and Safety Restraints

- 4-door CrewCab



To lower the shoulder belt height, push the button and slide the height adjuster down. To raise the height of the shoulder belt, slide the height adjuster up. Pull down on the height adjuster to make sure it is locked in place.



Position the shoulder belt height adjusters so that the belt rests across the middle of your shoulder. Failure to adjust the safety belt properly could reduce the effectiveness of the seat belt and increase the risk of injury in a collision.

Seating and Safety Restraints

Lap belts

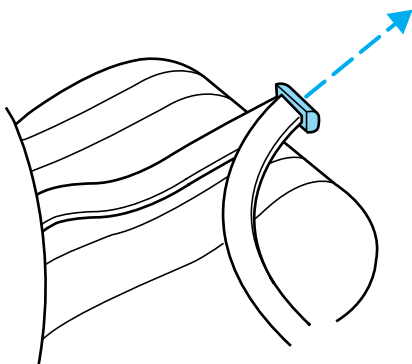
Adjusting the center lap belt

The lap belt does not adjust automatically.

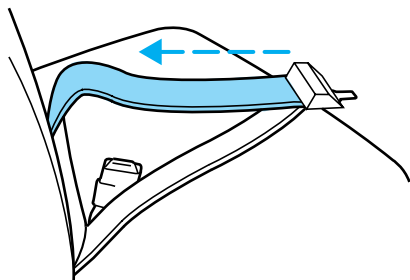


The lap belt should fit snugly and as low as possible around the hips, not across the waist.

Insert the tongue into the correct buckle (the buckle closest to the direction the tongue is coming from). To lengthen the belt, turn the tongue at a right angle to the belt and pull across your lap until it reaches the buckle. To tighten the belt, pull the loose end of the belt through the tongue until it fits snugly across the hips.



Shorten and fasten the belt when not in use.



Safety belt warning light and indicator chime

The seat belt warning light illuminates in the instrument cluster and a chime sounds to remind the occupants to fasten their safety belts.

Seating and Safety Restraints

Conditions of operation

If...	Then...
The driver's safety belt is not buckled before the ignition switch is turned to the ON position...	The safety belt warning light illuminates 1-2 minutes and the warning chime sounds 4-8 seconds.
The driver's safety belt is buckled while the indicator light is illuminated and the warning chime is sounding...	The safety belt warning light and warning chime turn off.
The driver's safety belt is buckled before the ignition switch is turned to the ON position...	The safety belt warning light and indicator chime remain off.

BeltMinder

The BeltMinder feature is a supplemental warning to the safety belt warning function. This feature provides additional reminders to the driver that the driver's safety belt is unbuckled by intermittently sounding a chime and illuminating the safety belt warning lamp in the instrument cluster.

If...	Then...
The driver's safety belt is not buckled before the vehicle has reached at least 5 km/h (3 mph) and 1-2 minutes have elapsed since the ignition switch has been turned to ON...	The BeltMinder feature is activated - the safety belt warning light illuminates and the warning chime sounds for 6 seconds every 30 seconds, repeating for approximately 5 minutes or until safety belt is buckled.
The driver's safety belt is buckled while the safety belt indicator light is illuminated and the safety belt warning chime is sounding...	The BeltMinder feature will not activate.
The driver's safety belt is buckled before the ignition switch is turned to the ON position...	The BeltMinder feature will not activate.

The purpose of the BeltMinder is to remind occasional wearers to wear safety belts all of the time.

Seating and Safety Restraints

The following are reasons most often given for not wearing safety belts:
(All statistics based on U.S. data)

Reasons given...	Consider...
“Crashes are rare events”	36 700 crashes occur every day. The more we drive, the more we are exposed to “rare” events, even for good drivers. <i>1 in 4 of us will be seriously injured in a crash during our lifetime.</i>
“I’m not going far”	3 of 4 fatal crashes occur within 25 miles of home.
“Belts are uncomfortable”	We design our safety belts to enhance comfort. If you are uncomfortable - try different positions for the safety belt upper anchorage and seatback which should be as upright as possible; this can improve comfort.
“I was in a hurry”	Prime time for an accident. BeltMinder reminds us to take a few seconds to buckle up.
“Seat belts don’t work”	Safety belts , when used properly, reduce risk of death to front seat occupants by 45% in cars , and by 60% in light trucks .
“Traffic is light”	Nearly 1 of 2 deaths occur in single-vehicle crashes , many when no other vehicles are around.
“Belts wrinkle my clothes”	Possibly, but a serious crash can do much more than wrinkle your clothes, particularly if you are unbelted.
“The people I’m with don’t wear belts”	Set the example, teen deaths occur 4 times more often in vehicles with TWO or MORE people. Children and younger brothers/sisters imitate behavior they see.
“I have an air bag”	Air bags offer greater protection when used with safety belts. Frontal airbags are not designed to inflate in rear and side crashes or rollovers.
“I’d rather be thrown clear”	Not a good idea. People who are ejected are 40 times more likely to DIE . Safety belts help prevent ejection, WE CAN’T “PICK OUR CRASH”.



Do not sit on top of a buckled safety belt to avoid the Belt Minder chime. Sitting on the safety belt will increase the risk of injury in an accident. To disable (one-time) or deactivate the Belt Minder feature please follow the directions stated below.

Seating and Safety Restraints

One time disable

Any time the safety belt is buckled and then unbuckled during an ignition ON cycle, BeltMinder will be disabled for that ignition cycle only.

Deactivating/activating the BeltMinder feature

Read steps 1 - 9 thoroughly before proceeding with the deactivation/activation programming procedure.

The BeltMinder feature can be deactivated/activated by performing the following procedure:

Before following the procedure, make sure that:

- The parking brake is set.
- The gearshift is in P (Park) (automatic transmission) or the neutral position (manual transmission).
- The ignition switch is in the OFF position.
- All vehicle doors are closed.
- The driver's safety belt is unbuckled.
- The parklamps/headlamps are in OFF position (If vehicle is equipped with Autolamps, this will not affect the procedure).



To reduce the risk of injury, do not deactivate/activate the Belt Minder feature while driving the vehicle.

1. Turn the ignition switch to the RUN (or ON) position. (DO NOT START THE ENGINE.)
2. Wait until the safety belt warning light turns off. (Approximately 1–2 minutes.)
 - Steps 3–5 must be completed within 60 seconds or the procedure will have to be repeated.
3. Buckle then unbuckle the safety belt three times, ending with the safety belt unbuckled. This can be done before or during BeltMinder warning activation.
4. Turn on the parklamps/headlamps, turn off the parklamps/headlamps.
5. Buckle then unbuckle the safety belt three times, ending with the safety belt unbuckled.
 - After step 5 the safety belt warning light will be turned on for three seconds.

Seating and Safety Restraints

6. Within seven seconds of the safety belt warning light turning off, buckle then unbuckle the safety belt.

- This will disable BeltMinder if it is currently enabled, or enable BeltMinder if it is currently disabled.

7. Confirmation of disabling BeltMinder is provided by the safety belt warning light flashing four times per second for three seconds.

8. Confirmation of enabling BeltMinder is provided by:

- The safety belt warning light flashing four times per second for three seconds.
- Followed by three seconds with the safety belt warning light off.
- Once again, the safety belt warning light will flash four times per second for three seconds.

9. After receiving confirmation, the deactivation/activation procedure is complete.

Safety belt extension assembly

If the safety belt is too short when fully extended, there is a 20 cm (8 inch) safety belt extension assembly that can be added (part number 611C22). This assembly can be obtained from your dealer at no cost.

Use only extensions manufactured by the same supplier as the safety belt. Manufacturer identification is located at the end of the webbing on the label. Also, use the safety belt extension only if the safety belt is too short for you when fully extended. Do not use extensions to change the fit of the shoulder belt across the torso.

Safety belt maintenance

Inspect the safety belt systems periodically to make sure they work properly and are not damaged. Inspect the safety belts to make sure there are no nicks, tears or cuts. Replace if necessary. All safety belt assemblies, including retractors, buckles, front seat belt buckle assemblies, buckle support assemblies (slide bar-if equipped), shoulder belt height adjusters (if equipped), shoulder belt guide on seatback (if equipped), child safety seat tether bracket assemblies (if equipped), LATCH child seat tether anchors and lower anchors (if equipped), and attaching hardware, should be inspected after a collision. Ford Motor Company recommends that all safety belt assemblies used in vehicles involved in a collision be replaced. However, if the collision was minor and a qualified technician finds that the belts do not show damage and

Seating and Safety Restraints

continue to operate properly, they do not need to be replaced. Safety belt assemblies not in use during a collision should also be inspected and replaced if either damage or improper operation is noted.



Failure to inspect and if necessary replace the safety belt assembly under the above conditions could result in severe personal injuries in the event of a collision.

Refer to *Cleaning and maintaining the safety belts* in the *Cleaning* chapter.

SAFETY RESTRAINTS FOR CHILDREN

Important child restraint precautions

You are required by law to use safety restraints for children in the U.S. and Canada. If small children ride in your vehicle (generally children who are four years old or younger and who weigh 18 kg [40 lbs] or less), you must put them in safety seats made especially for children. Check your local and state or provincial laws for specific requirements regarding the safety of children in your vehicle.



Never let a passenger hold a child on his or her lap while the vehicle is moving. The passenger cannot protect the child from injury in a collision.

Always follow the instructions and warnings that come with any infant or child restraint you might use.

When possible, always place children under age 12 in the rear seat of your vehicle. Accident statistics suggest that children are safer when properly restrained in the rear seating positions than in the front seating position.

Children and safety belts

If the child is the proper size, restrain the child in a safety seat.

Children who are too large for child safety seats (as specified by your child safety seat manufacturer) should always wear safety belts.

Follow all the important safety restraint precautions that apply to adult passengers in your vehicle.

Seating and Safety Restraints

If the shoulder belt portion of a combination lap and shoulder belt can be positioned so it does not cross or rest in front of the child's face or neck, the child should wear the lap and shoulder belt. Moving the child closer to the center of the vehicle may help provide a good shoulder belt fit.



Do not leave children, unreliable adults, or pets unattended in your vehicle.

To improve the fit of lap and shoulder belts on children who have outgrown child safety seats, Ford recommends use of a belt-positioning booster seat that is labelled as conforming to all applicable Federal motor vehicle safety standards. Belt-positioning booster seats raise the child and provide a shorter, firmer seating cushion that encourages safer seating posture and better fit of lap and shoulder belts on the child.

A belt-positioning booster should be used if the shoulder belt rests in front of the child's face or neck, or if the lap portion of the belt does not fit snugly on both thighs, or if the thighs are too short to let the child sit all the way back on the seat cushion when the lower legs hang over the edge of the seat cushion. You may wish to discuss the special needs of your child with your pediatrician.

SAFETY SEATS FOR CHILDREN



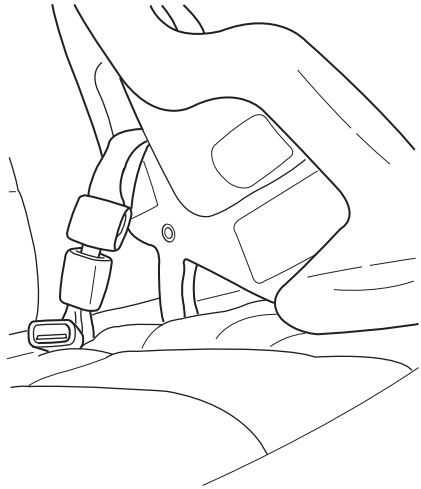
Child and infant or child safety seats

Use a safety seat that is recommended for the size and weight of the child. Carefully follow all of the manufacturer's instructions with the safety seat you put in your vehicle. If you do not install and use the safety seat properly, the child may be injured in a sudden stop or collision.

Seating and Safety Restraints

When installing a child safety seat:

- Use the correct safety belt buckle for that seating position.
- Insert the belt tongue into the proper buckle until you hear a snap and feel it latch. Make sure the tongue is securely fastened in the buckle.
- Keep the buckle release button pointing up and away from the safety seat, with the tongue between the child seat and the release button, to prevent accidental unbuckling.



- Place seat back in upright position.

Ford recommends the use of a child safety seat having a top tether strap. Install the child safety seat in a seating position which is capable of providing a tether anchorage. For more information on top tether straps, refer to *Attaching safety seats with tether straps*.

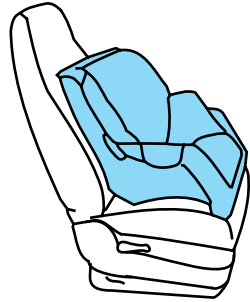


Carefully follow all of the manufacturer's instructions included with the safety seat you put in your vehicle. If you do not install and use the safety seat properly, the child may be injured in a sudden stop or collision.

Seating and Safety Restraints

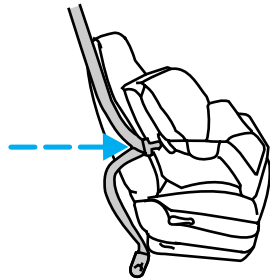
Installing child safety seats in combination lap and shoulder belt seating positions

1. Position the child safety seat in a seat with a combination lap and shoulder belt.



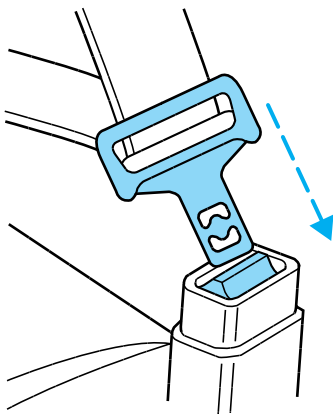
Children are safer restrained in the rear seat when possible.

2. While holding the shoulder and lap belt portions together, route the tongue through the child seat according to the child seat manufacturer's instructions. Be sure the belt webbing is not twisted.

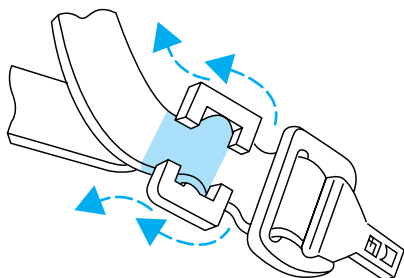


Seating and Safety Restraints

3. Buckle the seat belt. Push down on the shoulder portion of the belt to snug the lap belt. Hold the lap and shoulder belts next to the tongue and unbuckle the belt.



4. Install a locking clip over both lap and shoulder belt portions next to the sliding tongue. Rebuckle the belt. Obtain the locking clip kit (Part Number FO3Z-5461248-A) at no charge from an authorized Ford or Lincoln-Mercury dealer.



5. Before placing the child in the seat, forcibly tilt the seat forward and back to make sure the seat is securely held in place. To check this, grab the seat at the belt path and attempt to move it side to side and forward and back. There should be no more than one inch of movement for proper installation.

6. If the child seat is not tight enough, unbuckle the seat belt, move the tongue and locking clip to shorten the lap portion and push down hard on the childseat while you rebuckle the belt.

7. Check to make sure the child seat is properly secured before each use.

Seating and Safety Restraints

Attaching safety seats with tether straps

Most forward-facing child safety seats include a tether strap which goes over the back of the seat and hooks to an anchoring point. Tether straps are available as an accessory for many older safety seats. Contact the manufacturer of your child safety seat for information about ordering a tether strap.

Tether anchorage hardware

A tethered seat can be installed in the front seat. Put the tether strap over the seatback and attach it to an anchor bracket.

An anchor bracket can be installed to the inside of the back panel of your vehicle.

The anchor bracket must be installed using the instructions provided with the tether anchorage hardware kit.

Tether anchorage hardware kits (part number 613D74) including instructions, may be obtained at no charge from any Ford or Lincoln/Mercury dealer.

If you have a Super Cab or Crew Cab, Ford recommends you attach tether safety seats in the rear seating position (if possible) with the tether strap attached to the tether anchorage bracket as shown in the instructions provided with the tether anchor kit.



Tighten the anchor according to specifications. Otherwise, the safety seat may not be properly secured and the child may be injured in a sudden stop or collision.

Driving

STARTING PROCEDURES

Operating precautions

- Always shift to a lower gear at high altitudes to prevent engine smoking.
- Avoid extended and unnecessary idling.



Diesel engine vapors are combustible. Do not operate the engine in an enclosed area. These vapors can be sucked through the air intake system and cause engine acceleration and overspeeding, which may result in bodily injury and extensive property damage. The equipment owner and operator are responsible for safe operation in a hostile environment.

Starting the engine

1. Ensure headlamps and all accessories are turned off, the parking brake is applied and the transmission is in the neutral position (or P [Park] for Allison 2400 transmissions).

If your vehicle is equipped with an air intake heater, the heater will activate in cooler weather. If the *Wait to start* light illuminates, **do not** crank the engine until the light goes off.

**WAIT
TO
START**



If equipped with an air intake heater, DO NOT use ether or any other starting fluids. The use of starting fluids (ether) in an engine equipped with an air intake heater could cause an explosion and result in vehicle damage, property damage and/or personal injury.

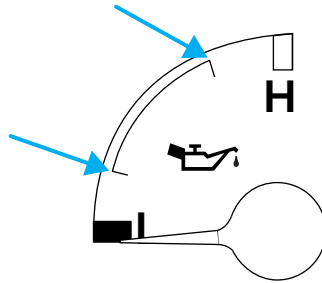
2. Do not depress the accelerator during starting the engine.
3. Start the engine.

If the engine does not start after 30 seconds of cranking, allow two minutes for the starter to cool before trying again. Excessive cranking may damage the starter.

After the engine starts:

- On some engines, the *Wait to start* light should illuminate after the engine starts. Allow the engine to idle about three minutes or until the engine coolant temperature gauge begins to rise. Maintain idle speed until the *Wait to start* light cycles off to indicate the air intake heater has shut off (approximately six minutes). Operating the engine at higher speeds will reduce the effectiveness of the air inlet heater.
- Do not increase engine speed until the oil pressure gauge indicates normal pressure.
- Ensure engine oil pressure is indicated on the gauge within 15 seconds after starting.
- Idle the engine for three to five minutes before operating with a full load.
- Try to limit engine idle to 10 minutes. Excessive idling reduces fuel economy.
- When starting a cold engine, increase the engine speed (RPM) slowly to make sure adequate lubrication is available to the bearings.

**WAIT
TO
START**



Restarting after running out of fuel

The fuel system may need to be purged of air, refer to *Running out of fuel* in the *Maintenance and specifications* chapter.

Cold weather starting

Perform the following to assure efficient starting in cold weather:

- Use the proper grade oil for your climate. Refer to your engine operator's manual for proper grade oil.
- Test the battery more frequently to assure ample power for starting.
- All electrical connections should be tight and in good condition to prevent losses through loose or corroded connections.

Driving

Using the engine block heater (if equipped)

An engine block heater warms the engine coolant, which improves starting, warms up the engine faster and allows the heater-defroster system to respond quickly. Use of an engine block heater is strongly recommended if you live in a region where temperatures reach -23°C (-10°F) or below.

For best results, plug the heater in at least three hours before starting the vehicle. Using the heater for longer than three hours will not harm the engine, so the heater can be plugged in the night before starting the vehicle.



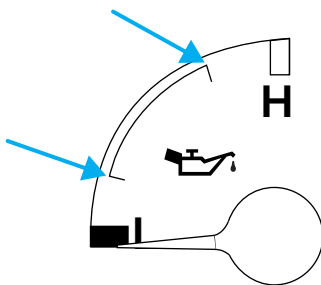
To prevent electrical shock, do not use your heater with ungrounded electrical systems or two-pronged (cheater) adapters.

Operating the engine

Do not operate the engine at full throttle below peak torque engine speed (RPM) for more than one minute at a time (peak torque RPM varies from 1200-1500 RPM depending on engine rated speed).

Monitor the oil pressure and coolant temperature gauges frequently.

If the gauges indicate any reading is not in the normal operating range, stop your vehicle as soon as possible, shut the engine off and check the appropriate fluid level. If an overheating condition starts to occur, release the throttle pressure or shift the transmission into a lower gear, or both, until the temperature returns to normal operating range.



Continuous operation with low coolant temperature, below 60°C (140°F) or high coolant temperature 100°C (212°F) can damage the engine.

Most failures give some kind of early warning. Look and listen for changes in performance, sound or engine appearance that can indicate service or engine repair is needed. Some changes to look and/or listen for:

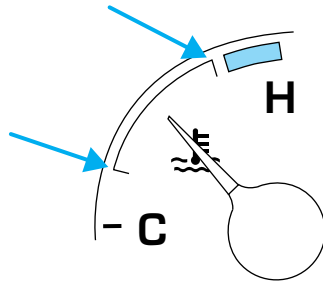
- Engine misfires
- Loss of power
- Sudden changes in engine operating temperature or oil pressure
- Excessive smoke
- Fuel, oil or coolant leaks
- Vibration
- Increased oil or fuel consumption

Excessive full throttle operation below peak torque RPM will shorten engine life to overhaul and can cause serious engine damage. Operation of the engine below peak torque RPM can occur during gear shifting due to difference of gear ratios.

Engine shutdown system (if equipped)

This system is designed to help prevent engine damage that could result from operating the engine during a prolonged period of low engine oil pressure, high engine coolant temperature or low coolant level. If any of these conditions occur, a warning light will illuminate and a chime will sound warning the operator that the engine will shutdown in 30 seconds. This is to allow time for the operator to move the vehicle off the road. If additional time is required, the engine can be restarted and run each time for approximately 30 seconds.

Do not attempt to use this restarting feature to drive the vehicle, serious engine damage could result.



Driving

Exhaust fumes



Never idle the engine in closed areas. Never sit in a parked or stopped vehicle for any amount of time with engine running.



If you ever smell exhaust fumes of any kind inside your vehicle, have your dealer inspect and fix your vehicle immediately. Do not drive if you smell exhaust fumes. These fumes are harmful and could kill you.

In order to guard against fumes entering your vehicle, the exhaust system and body ventilation system should be checked by a qualified technician:

- Each time the vehicle is raised for service.
- Whenever a change in exhaust system noise is noted.
- Whenever the vehicle has been damaged by impact from another vehicle, object or road obstruction.

In order to afford proper operation, all air inlet vents should be kept clear of snow, leaves and other debris.

If you run the engine while stopped (idled) in an unconfined area, open the windows at least 2.5 cm (one inch) and adjust the heating or air conditioning to draw outside air into the vehicle as follows:

- If your vehicle has outside air control vents, open them fully.
- Set fan speed on high with function control to any position except OFF or MAX A/C and the temperature control on any desired position.
- Adjust air control system to force outside air into the vehicle.

Winter fronts

If using an aftermarket winter front (not recommended), it must have a permanent opening directly in line with the center of the fan drive. The minimum opening size must be at least 774 square cm (120 square inches).

The use of an aftermarket winter front or other air flow restriction device mounted in front of the radiator is not recommended on this vehicle. Air flow restriction will cause high exhaust temperatures, power loss, excessive fan usage and a reduction in fuel economy.

HYDRAULIC BRAKES (IF EQUIPPED)

Your service brakes are self-adjusting. Refer to the Scheduled maintenance guide for scheduled maintenance.

Occasional brake noise is normal and often does not indicate a performance concern with the vehicle's brake system. In normal operation, automotive brake systems may emit occasional or intermittent squeal or groan noises when the brakes are applied. Such noises are usually heard during the first few brake applications in the morning; however, they may be heard at any time while braking and can be aggravated by environmental conditions such as cold, heat, moisture, road dust, salt or mud. If a "metal-to-metal," "continuous grinding" or "continuous squeal" sound is present while braking, the brake linings may be worn-out and should be inspected by a qualified service technician.



If you are driving down a long or steep hill, shift to a lower gear. Do not apply your brakes continuously, as they may overheat and become less effective.

HYDRAULIC BRAKE BOOSTER SYSTEM (HYDROMAX)

The Hydromax systems receive fluid pressure from the power steering pump to provide power assist during braking.

The Hydromax booster receives backup pressure from the reserve system electric pump whenever the fluid in the power steering system is not flowing. When the engine is OFF, the pump will turn on if the brake pedal is applied, or if the ignition is turned to the ON position.

The sound of the pump operating may be heard by the driver, but this is a normal characteristic of the system.

The reserve system provides reduced braking power, so the vehicle should be operated under these conditions with caution, and only to seek service repair and remove the vehicle from the roadway.

For Hydromax under normal operating conditions noise of the fluid flowing through the booster may be heard whenever the brake is applied. This condition is normal. Vehicle service is not required.

If braking performance or pedal response becomes very poor, even when the pedal is strongly applied, this may indicate the presence of air in the hydraulic system or fluid leakage. Stop the vehicle safely as soon as possible and seek service immediately.

Driving

If the red BRAKE warning lamp in the instrument cluster remains illuminated after engine start up, this indicates a system failure in the master cylinder of the brake system. Stop the vehicle safely as soon as possible and seek service immediately.



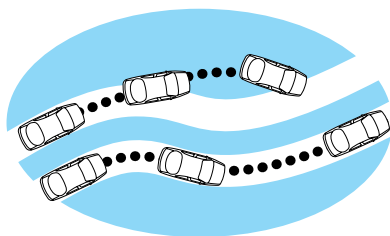
If the yellow BRAKE RESERVE (E-motor) warning light remains on while the engine is running, this indicates inadequate hydraulic booster pressure or reserve pump system failure. Stop the vehicle safely as soon as possible and seek service immediately.




Four-wheel anti-lock brake system (ABS) (if equipped)

On vehicles equipped with an anti-lock braking system (ABS), a noise from the hydraulic pump motor and pulsation in the pedal may be observed during ABS braking events. Pedal pulsation coupled with noise while braking under panic conditions or on loose gravel, bumps, wet or snowy roads is normal and indicates proper functioning of the vehicle's anti-lock brake system. If the vehicle has continuous vibration or shudder in the steering wheel while braking, the vehicle should be inspected by a qualified service technician.

The ABS operates by detecting the onset of wheel lockup during brake applications and compensating for this tendency. The wheels are prevented from locking even when the brakes are firmly applied. The accompanying illustration depicts the advantage of an ABS equipped vehicle (on bottom) to a non-ABS equipped vehicle (on top) during hard braking with loss of front braking traction.



ABS warning lamp

The  warning lamp in the instrument cluster momentarily illuminates when the ignition is turned on and the engine is off. If the light does not illuminate momentarily at start up, remains on after the vehicle reaches 10 to 15 km/h (5 to 10 mph), or continues to flash, the ABS needs to be serviced.

With the ABS light on, the anti-lock brake system is disabled and normal braking is still effective unless the brake warning light also remains illuminated. (If your parking brake warning lamp illuminates, have your vehicle serviced immediately).

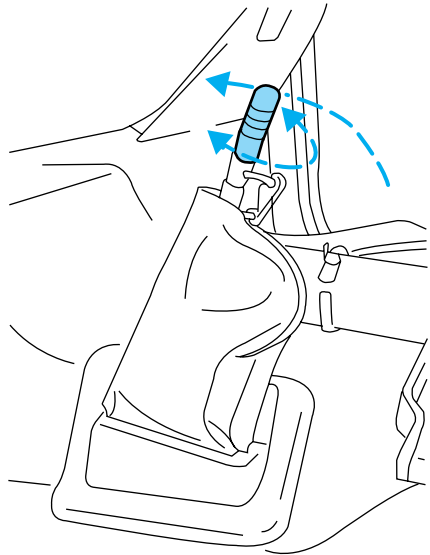
Using ABS

- In an emergency or when maximum efficiency from the ABS is required, apply continuous full force on the brake. The ABS will be activated immediately, thus allowing you to retain full steering control of your vehicle and, providing there is sufficient space, will enable you to avoid obstacles and bring the vehicle to a controlled stop.
- The Anti-Lock system does not decrease the time necessary to apply the brakes or always reduce stopping distance. Always leave enough room between your vehicle and the vehicle in front of you to stop.
- We recommend that you familiarize yourself with this braking technique. However, avoid taking any unnecessary risks.

Parking brake

Apply the parking brake whenever the vehicle is parked. To set the parking brake, pull handle up until it snaps into the locked position.

A properly adjusted parking brake requires approximately 116 Nm (90 lb-ft) to activate. For maximum parking brake effectiveness turn handle clockwise to adjust for wear. When the parking brake is out of adjustment, seek service immediately.



Driving

The parking BRAKE warning lamp in the instrument cluster illuminates and remains illuminated (when the ignition is turned ON) until the parking brake is released.



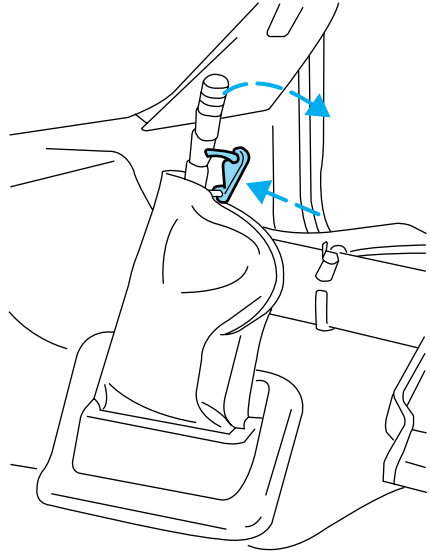
Do not use the gearshift selector in place of the parking brake. Always set the parking brake fully AND make sure the gearshift selector is in R (Reverse) for vehicles equipped with manual transmission, P (Park) (**if equipped**) or N (Neutral) for vehicles with automatic transmission. Use of wheel chocks is also recommended in hilly or off-road usage.



Unexpected and possible sudden vehicle movement may occur if these precautions are not taken.

The parking brake is not recommended to stop a moving vehicle. However, if the normal brakes fail, the parking brake can be used to stop your vehicle in an emergency. Since the parking brake only applies retardation to the rear wheels, the vehicle's stopping distance will increase greatly and the handling of your vehicle will be adversely affected.

Push the palm release lever on the parking brake handle and push down as far as possible to release the brake. Driving with the parking brake on will cause the brakes to wear out quickly and reduce fuel economy.



Parking brake — F650 SuperCrewzer only

Pull the parking brake knob out to apply the parking brake. Push the knob in to release the parking brake.




Parking brake warning chime — F650 SuperCrewzer

If a chime sounds when pulling the knob out, your parking brake is not functioning properly, seek service immediately. This chime will sound until the yellow knob is pushed in or eight minutes have passed. If the yellow knob is pulled out again, the chime sounds as a reminder that immediate service is required to the parking brake system.

Driving

Releasing spring brake manually — F650 SuperCrewzer

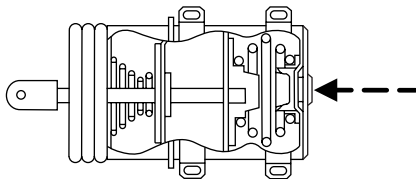
 Do not attempt to disassemble the parking brake chamber under any circumstances. The high spring load may cause serious injury if the chamber clamps are removed.

If air pressure is released from the spring brake chamber the power spring applies the brake and, unless air pressure can be re-established, the spring brake must be released as follows in order to move the vehicle.

 Block the wheels to prevent the vehicle from moving.

 Unexpected and possibly sudden vehicle movement may occur if these precautions are not taken.

Remove the clevis which is attached to the end of the spring chamber rod. This can be done by using a wrench on the flats of the rod to thread it out of the clevis. There is sufficient thread length in the clevis to fully release the parking brake.



Burnish procedure — All except F650 SuperCrewzer

For optimal performance of a new parking brake system/new linings perform the following procedure:

1. While driving the vehicle at 40 km/h (20 mph) apply the parking brake (with applicable force to set to approximately 18kg [40 lbs.]). Allow the vehicle to come to a complete stop.
2. Release the parking brake, drive 16.8 km (1.5 miles) to cool the brakes.
3. Repeat steps 1 through 2 ten times.

AIR BRAKES (IF EQUIPPED)

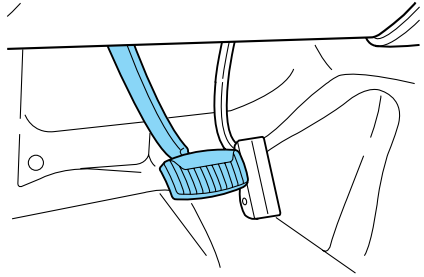
Foot service brakes

Air brakes are operated by a standard dash-mounted foot pedal.

All standard equipment brakes are designed to be self-adjusting. Automatic adjustment, when required, occurs whenever the brakes are applied and released during forward or reverse operation.

Know the required stopping distances for all driving conditions that may be encountered. For longer brake lining life, take full advantage of engine braking power when coming to a stop.

Before descending a long or steep hill, shift to a lower gear and avoid continuous application of the brakes.



Do not drive with your foot resting on the brake pedal. This will result in abnormally high brake temperatures, excessive lining wear and increased stopping distances.



Continuous application of the brakes will cause the brakes to overheat, resulting in a temporary loss of braking.

Occasional or intermittent brake squeal may result from environmental conditions such as cold, hot, wet, snow, salt, mud, etc. This condition will not affect braking effectiveness. The brakes should be checked only if squeal occurs continuously with every application.

If brakes do not grip well

- If you have been driving through deep water, gently apply the brakes several times while the vehicle is moving slowly.
- Let the brakes cool if you have been using them excessively, as in mountain driving or after several fast, high speed stops.
- Check brake adjustment.
- Check brake linings for excessive wear.
- Check system air pressure.

Driving

Air brakes

After starting the engine, give the air compressor time to build up the air pressure to 414 kPa (60 psi) before moving the vehicle.

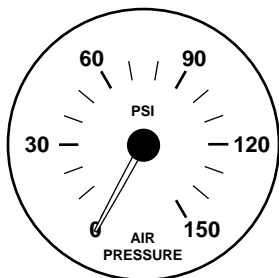


Do not drive or continue to drive if the low air pressure buzzer is sounding or the brake warning light is lit. These warnings indicate that air pressure is not to normal operating level. Continued use of the vehicle could result in loss of braking ability.



Avoid repeated light application of the brake pedal. This will deplete air pressure faster and could result in loss of braking capability.

Periodically check the air pressure gauge while driving. Pressure should range between approximately 724 to 930 kPa (105-135 psi). The air compressor governor cut-in and cut-out pressure settings are preset at the factory and are not adjustable.



When air pressure is insufficient (below 414 kPa [60 psi]), a warning light illuminates and a buzzer sounds when the ignition is in the ON position.

BRAKE



This condition may be caused by excessive brake applications depleting the system air pressure. If this condition occurs, stop driving the vehicle until the compressor has fully recharged the air system. Do not move the vehicle in this condition because the brake system may be inoperative.

Select a gear ratio to help slow your vehicle before descending grades. Supplement with brakes as required to safely slow the vehicle and avoid overspeeding the engine.

Air chamber stroke indication

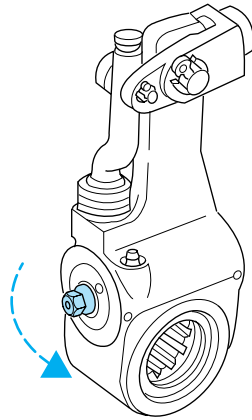
All Ford air chamber push rods have orange stroke indicator stripes that alert the operator when the braking system requires adjustment or

repair. The orange stripe is painted on the air chamber push rod at the slack adjuster readjustment stroke dimension.

Air brake inspection and adjustment should be performed by a qualified service technician in accordance with the instructions in the Ford Truck Service Manual.

Cam brakes—automatic slack adjusters

Standard air brakes (cam) are equipped with automatic brake adjusters. Automatic adjustment occurs during forward and reverse brake applications. Inspect brakes for proper adjustment at the intervals listed in the vehicle Service Maintenance Guide.



Emergency air brake

All vehicles are equipped with a dual brake system. In the unlikely event of a failure of one system, the second system will function for emergency stopping. These systems are all controlled by the brake pedal in the same manner as for normal stops.



Do not continue to operate the vehicle with a failure of one of the systems. Take the vehicle to your dealer for service immediately.

Anti-lock braking system (if equipped)

For information on the anti-lock braking system (ABS), refer to *Hydraulic brakes* in this chapter.

Driving with ABS

Maintain a steady brake pedal application; you do not need to pump or remove your foot from the pedal. The ABS keeps the wheels rolling

Driving

during braking to maintain control and reduce stopping distances. For information on the anti-lock braking system (ABS), refer to *Hydraulic brakes* in this chapter.

Parking brake



Do not use the gearshift selector in place of the parking brake. Always set the parking brake fully AND make sure the gearshift selector is in R (Reverse) for vehicles equipped with manual transmission or N (Neutral) for vehicles with automatic transmission.



Unexpected and possible sudden vehicle movement may occur if these precautions are not taken.

If the service brakes should fail to operate while the vehicle is in motion, you can make an emergency stop with the parking brake. The stopping distance, however, will be much greater than normal. Repairs should be made immediately to an inoperative air brake system circuit.

Parking brake control

Pull the yellow parking brake knob out to apply the parking brake. Push the knob in to release the parking brake.



This control is used for parking only. Do not leave the vehicle unattended after setting the parking brake without placing the transmission in R (Reverse) for manual transmission or N (Neutral) for automatic transmission. Use of wheel chocks is also recommended in hilly or off-road usage.



Releasing spring brake with air pressure

The air system in all vehicles with spring-actuated rear wheel parking brakes is equipped with a tank valve located on the supply or service air

tank for connection to an outside air supply. The valve permits the system to be recharged with air from an outside source, releasing the spring-actuated parking brakes. The vehicle may then be towed in an emergency.

An outside air source can be used only if the protected system is in operating condition. If air pressure cannot be restored in the protected air system, the spring-actuated brakes must be released manually.

Releasing spring brake manually



Do not attempt to disassemble the parking brake chamber under any circumstances. The high spring load may cause serious injury if the chamber clamps are removed.

If air pressure is released from the spring brake chamber the power spring applies the brake and, unless air pressure can be re-established, the spring brake must be released as follows in order to move the vehicle.



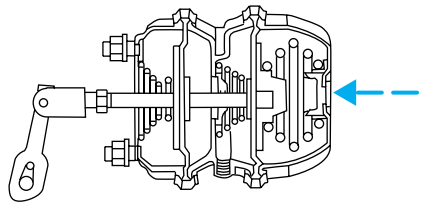
Block the wheels to prevent the vehicle from moving.



Unexpected and possibly sudden vehicle movement may occur if these precautions are not taken.

Impact wrenches should not be used as they may damage the piston and prevent proper caging of the spring. Do not apply more than 68 Nm (50 lb-ft) torque to the release bolt nut.

1. Remove the stud tool and nut from the carrying pocket on the brake chamber assembly.
2. Remove the access plug from the end of the spring chamber.
3. Insert the release stud through the opening in the chamber and into the spring pressure plate.

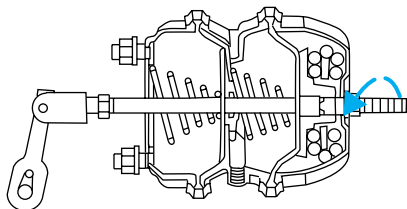


Driving

4. Turn the release stud one-quarter turn to engage the stud tangs with the slot in the pressure plate. Keep the stud engaged and install the nut on the release stud.

5. Tighten the nut until the spring is fully caged and the brakes are released. Do not loosen or remove the release stud and nut unless the brake chamber is completely assembled and is securely clamped.

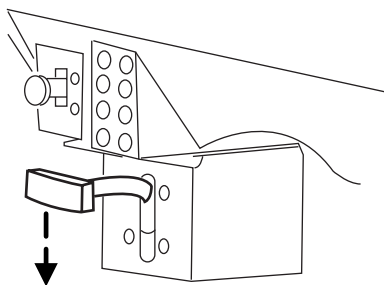
6. When the air pressure is restored, unscrew and remove the release stud and install in the carrying pocket. Install the access plug.



Trailer brake (if equipped)

During normal operation, the trailer brakes operate whenever the tractor brakes are applied. A manual control lever is provided so the trailer brakes can be applied separately, if required. To apply the trailer brakes, pull the trailer brake control downward to the APPLIED position.

Do not use the trailer brake manual control lever for parking.



Trailer air supply control (MV-3) (Tractor package)

The MV-3 control module is a two-button, push-pull control valve housed in a single body which includes a dual circuit supply valve and a check valve.

Operation

During initial charge, with the system completely discharged, both buttons are out.

When a trailer is hooked-up correctly and system pressure reaches 448 kPa (65 psi), the red control (trailer supply) may be pushed in and should stay in, charging the trailer system and releasing the trailer brakes.



The yellow control (parking brake) may now be pushed in, which will supply air to the tractor spring brakes, releasing them.



Normal operating position

With both controls pushed in, air is supplied to the trailer and to the tractor spring brakes; all brakes are released.

Actuation of trailer parking or emergency brakes

To actuate the trailer brakes only, pull out the red control (trailer air supply), exhausting the trailer supply line. The trailer brakes are now applied either by air emergency or spring brakes, depending on the type of trailer system. This mode would be used to uncouple from the trailer during bob-tail operation.



Driving

System park

With both controls in for normal run modes, the parking brakes on both tractor and trailer may be actuated by pulling the yellow control (parking brake) out, which exhausts the air from the tractor spring brakes and simultaneously causes the red control (trailer supply) to pop out, applying the trailer brakes. This complies with federal regulations stating one control must apply all the parking brakes on the vehicle.

Trailer charge

If both controls are out when parking the combination vehicle and it is desired to recharge the trailer (leaving the tractor spring brakes applied), the trailer air supply control may be pushed in, repressurizing the trailer supply line. This mode could also be used to park a combination vehicle with air actuated emergency brakes on the trailer to provide demonstrated parking capability with tractor spring brakes only.

Automatic application

With both controls in (in the normal run configuration), if the supply pressure to the push-pull valves is reduced to approximately 240 to 310 kPa (35-45 psi), the red control (trailer supply valve) must pop out, applying the emergency or parking brakes on the trailer. If the red control is held in manually and the pressure decreases to approximately 172 to 240 kPa (25-35 psi), a tripper piston within the MV-3 valve will move upward. This will exhaust the trailer supply, causing the required non-override feature. The yellow control (parking brake) will pop out at approximately 138 to 207 kPa (20-30 psi).

Reservoir selection

The number one service reservoir will at all times be selected as the primary supply source for the MV-3. This is accomplished automatically by the function of the dual circuit supply valve contained in the body of the MV-3. Only in the event of a pressure drop of more than 207 kPa (30 psi) below that of the number two service reservoir will the dual circuit supply valve shuttle and establish the front service reservoir as the supply.

Exhaust brake (if equipped)

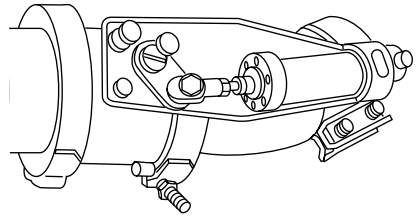
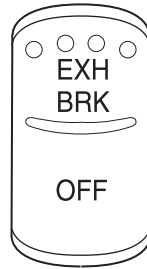
An exhaust brake is an optional auxiliary braking system that assists but does not replace the primary service brake system. An on-off switch on the instrument panel, in combination with the accelerator and clutch pedal switches, allows the operator to make maximum use of the exhaust brake in the following conditions:

- off-highway driving
- mountain driving
- heavy traffic
- high speed highway driving

It is not available with automatic transmissions.

The exhaust brake is a butterfly type valve mounted in the exhaust pipe. When the operator's foot is not on the accelerator pedal and the exhaust brake switch is in the ON position, an air cylinder shuts the butterfly valve, restricting the flow of exhaust gases and retarding the engine. This retarding action is carried through the engine and drivetrain, slowing the vehicle and reducing the need for frequent service brake applications.

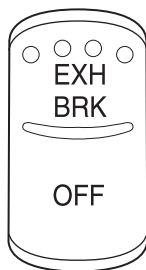
Exhaust brakes are not intended for use as the primary braking system during vehicle operation.



Driving

Operation

Push the rocker switch up to turn the exhaust brake on. The switch will illuminate in the ON position. Push the switch down to turn the brake off.



Starting engine

Before starting the engine, make sure that the exhaust brake switch is in the OFF position. Do not turn the exhaust brake on until the engine has reached normal operating temperatures.

Driving downhill

While approaching a steep grade, make sure that the exhaust brake switch is in the ON position. The exhaust brake actuates as soon as you remove your foot from the accelerator pedal. While going down the grade, use a low enough gear to descend safely with a minimum application of the service brakes. As a general guideline, use the same gear as you would to ascend the hill.

Before descending a hill or steep grade always select the proper gear. If the transmission is taken out of gear while descending it is possible that you will not be able to select another gear because of maximum RPM being governed.

Make sure the engine speed does not exceed the maximum allowable engine RPM. Exceeding the maximum allowable engine RPM will result in damage to the engine. Apply the service brakes to reduce the engine RPM or make a slower descent by using a lower gear.



The exhaust brake is not recommended for use on slippery or low traction road surfaces. Under these conditions a loss of vehicle control could possibly occur.

Exhaust brake operating characteristics

When you remove your feet from both the accelerator and clutch pedals and the exhaust brake switch is in the ON position, the exhaust brake is activated. The following conditions should exist if the brake is operating properly:

- A slight change in the sound of the engine when the exhaust brake is activated.
- Exhaust smoke appears normal.
- Engine temperature remains in the normal operating range.
- Road speed usually decreases when the exhaust brake is applied during a descent, except when the vehicle is carrying a heavy load or the grade is extremely steep. In these instances, you may need to apply the service brakes occasionally.
- During a descent, the tachometer usually shows a drop in RPM depending on the grade and the vehicle load.
- Do not expect a retarding effect similar to sudden hard application of the service brakes. The exhaust brake retards the vehicle with a smooth braking effect.
- Depending on the grade and vehicle load, you may or may not feel the retarding force acting against your body when the brake is applied. The brake's retarding force is actually preventing the vehicle from going much faster.

Make sure the exhaust brake is turned off before shutting off the engine.



Installing an exhaust or auxiliary brake should never allow the engine to exceed maximum governed speeds under any conditions.

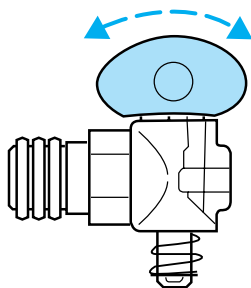
Air brake reservoir draining



Failure to drain air brake reservoirs can result in a reduction or loss of braking ability due to fluid accumulation in the reservoir and/or possible freeze-up during cold weather.

Driving

Drain all the air brake reservoirs daily, completely to 0 kPa/psi, by opening the draincock at the bottom of the tanks. Close draincock after complete draining. Air tanks equipped with automatic moisture ejector valves may also be drained manually as required to maintain a dry air system. Contact your dealer if you are unsure of the air reservoir locations or the draining procedure.



STEERING

Your vehicle is equipped with power steering. Power steering uses energy from the engine to help steer the vehicle.

Never hold the steering wheel to the extreme right or the extreme left for more than a few seconds when the engine is running. This action could damage the power steering pump.

Suspension and steering

The suspension and steering linkage in your vehicle should be inspected periodically for the following:

- Spring leaf damage
- Spring sag
- Abnormal looseness
- Damaged seals

The following changes indicate a need to inspect and service your vehicle:

- Changes in steering action
- Hard steering
- Excessive free play
- Unusual sounds when turning or parking

If the steering wanders or pulls

This condition can be caused by any of the following conditions:

- Underinflated tire(s) on any wheel(s)

- Front end out of alignment
- Total vehicle out of alignment (i.e. rear axle[s] out of alignment with front axle)
- Improper adjustment in the steering gear
- Vehicle overloaded or unevenly loaded
- High crosswinds
- High crown in center of road
- Components in steering linkage loose or worn
- Wheel bearings improperly adjusted
- Excessive lash in steering shaft or universal joints

If the vehicle steers hard

Hard steering can be caused by any of the following conditions:

- Underinflated tire(s) on any wheel(s)
- Vehicle overload
- Misalignment of the front tires
- Lack of lubricant in the front spindle bearings or linkage components
- Low oil level in the power steering system
- Broken or loose power steering pump direct drive connection
- Malfunctioning relief valve in power steering gear or steering pump
- Malfunctioning power steering pump
- Restriction in power steering lines
- Improperly set turn stops
- Air entrapped in power steering system fluid

AIR SUSPENSION SYSTEM (IF EQUIPPED)

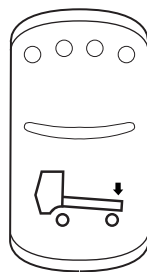
The on-highway air suspension system is designed to provide a superior ride, outstanding driver comfort while minimizing wear on the cab, frame and payload.

The height control valve automatically keeps the vehicle at a constant level due to load changes and uneven road surfaces.

Driving

Air suspension dump valve

The dump valve switch activates the dump valve. The dump valve releases air from the air springs and lowers the rear suspension, allowing you to back under a low trailer when necessary.



DRIVING WITH AN AUTOMATIC TRANSMISSION (IF EQUIPPED)

Allison automatic transmission



Do not allow your vehicle to coast in N (Neutral). Transmission braking is not available in N (Neutral). Allowing the vehicle to coast in N (Neutral) could result in loss of vehicle control and severe transmission damage.

The Allison automatic transmissions are a torque converter type, full power shifting and fully automatic. They also have the added flexibility of manually selecting and holding in the lower drive ranges which permit the drive selection of the most suitable gear range to match varying road and load conditions. To prevent destructive overspeeding of the engine, the hold feature is not infinite, resulting in upshifts from the hold range to the next higher range at some speed above the no-load governed speed of the engine.

Allison AT-545



These transmissions have no P (Park) position. Before leaving the driver's seat, always shift into N (Neutral) and set the parking brake. Shut off the engine and remove your ignition key. Always use wheel chocks for hilly or off-road parking. Unexpected and possibly sudden vehicle movement may occur if these precautions are not taken.

This transmission provides four forward speeds and one reverse range.

R (Reverse)

Use this position to back the vehicle. Completely stop the vehicle before shifting from R (Reverse) to any forward gear (1, 2, 3 or D). The reverse warning signal will sound when the selector is in R (Reverse). Reverse has only one gear and provides the greatest gear reduction.

N (Neutral)

Place the selector in N (Neutral) before starting the engine. Shift to N (Neutral) and set the parking brake any time the engine is to be running while the operator is not at the controls. The engine should be at idle speed when any shift from N (Neutral) to a drive range is made.

D (Drive-Normal driving position)

The transmission starts in first gear and automatically shifts through second, third and fourth depending on load and speed demands. This range is used for highway driving under normal conditions.

3 and 2 (Third and Second)

Use these ranges when road, load or traffic conditions require a lower gear. These ranges provide greater engine braking than D (Drive). When conditions are improved that no longer require these lower gears, shift back to D (Drive).

1 (First)

The transmission has to be manually shifted into 1 (First) and will not shift into a higher gear. This range is used for extra heavy loads or where maximum reduction is required.

Allison MD Series transmissions



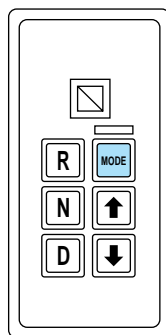
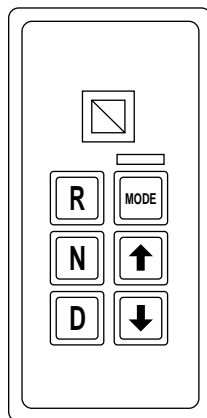
These transmissions have no P (Park) position. Before leaving the driver's seat, always shift into N (Neutral) and set the parking brake. Shut off the engine and remove your ignition key. Always use wheel chocks for hilly or off-road parking. Unexpected and possibly sudden vehicle movement may occur if these precautions are not taken.

These transmissions are electronically controlled and have a push button shifter. MD transmissions are available in five- or six-speed driving ranges.

Driving

The push button shifter has a R (Reverse), N (Neutral) and D (Drive) selections as well as a MODE button, up arrow (for upshifts) and a down arrow (downshift) and a digital display. When a range button is pressed, a tone will sound, the SELECT indicator displays a chosen operation (if the electronic control unit determines the shift is acceptable) and the transmission will shift to the starting range. In D (Drive), selection of a specific gear can be accomplished by pressing the up or down arrow button. If the CHECK TRANS light (located on the instrument panel) is illuminated, the shifter control pad may be disabled, tones will not be heard, shifts may not occur and directional shift changes will not be able to be performed.

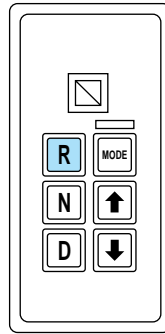
The MODE button may be used to activate a second shift schedule (this is typically programmed for **Economy** which will enable the transmission to shift at a lower RPM to conserve fuel).



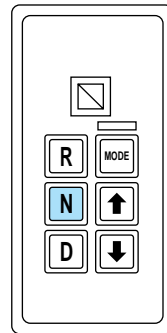
These transmissions incorporate a hold feature to prohibit upshifting above the gear selected during normal driving. During downhill operation, the transmission may upshift from the selected gear if the electronic control unit detects the possibility of engine damage from exceeding the governed engine speed.

Gearshift positions

R (Reverse) - Use this position to back the vehicle. Completely stop the vehicle before shifting from R (Reverse) to any forward gear. The reverse warning signal will sound when the selector is in R (Reverse). Reverse has only one gear and provides the greatest reduction. The Select and Monitor indicators will display R when reverse is attained.



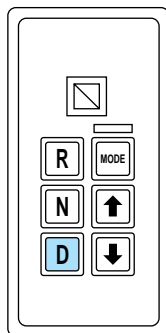
N (Neutral) - Use N (Neutral) for starting the engine. If the engine starts in any gear other than N (Neutral), the start circuit should be serviced immediately. Shift to N (Neutral) and set the parking brake any time the engine is to be running while the operator is not at the controls. The engine should be at idle speed when any shift from N (Neutral) to a drive range is made. The Select and Monitor indicators will display N.



Do not allow your vehicle to coast in N (Neutral). Transmission braking is not available in N (Neutral). This practice can also result in transmission damage.

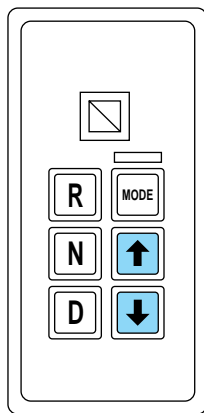
Driving

D (Drive) - The vehicle will attain first gear, and as the speed increases, the transmission will automatically upshift through each gear. As the vehicle slows down, the transmission will automatically downshift. The Select indicator will display the highest gear available.



5th or 4th- 2nd gears (depending on application) - Road conditions, load or traffic can make it desirable to restrict the automatic shifting to a lower gear. These positions also provide progressively greater engine braking for descending grades (the lower the gear, the greater the braking effect).

The push button selector uses up and down arrow buttons to select the desired gear. The select indicator will display your choice and the monitor will display the gear selected.



1st gear - Use for pulling through mud or deep snow, when maneuvering in tight spaces or when driving up or down steep grades. 1st gear provides maximum driving power and engine braking.

In case of engine shutdown (i.e - running out of fuel), while the transmission is in gear, the transmission will remain in gear until the ignition key is turned to the OFF position. After the ignition is turned off, the transmission will automatically shift to N (Neutral) and the

monitor on the shift pad will display N (Neutral) when the ignition key is turned to the ON position.

Allison 2000 series



These transmissions have no P (Park) position. Before leaving the driver's seat, always shift into N (Neutral) and set the parking brake. Shut off the engine and remove your ignition key. Always use wheel chocks for hilly or off-road parking. Unexpected and possibly sudden vehicle movement may occur if these precautions are not taken.

This transmission provides five forward speeds in four ranges and one reverse range.

R (Reverse)

Use this position to back the vehicle. Completely stop the vehicle before shifting from R (Reverse) to any forward gear (1, 2, 4 or D). The reverse warning signal will sound when the selector is in R (Reverse). Reverse has only one gear and provides the greatest gear reduction.

N (Neutral)

Place the selector in N (Neutral) before starting the engine. Shift to N (Neutral) and set the parking brake any time the engine is to be running while the operator is not at the controls. The engine should be at idle speed when any shift from N (Neutral) to a drive range is made.



Do not allow your vehicle to coast in N (Neutral). Engine braking is not available in N (Neutral). Allowing your vehicle to coast in N (Neutral) may result in loss of vehicle control and severe internal transmission damage.

D (Drive-Normal driving position)

In this position, the transmission starts in first gear and automatically shifts through second, third, fourth and fifth depending on load and speed demands. When the vehicle is slowing down, the transmission will automatically downshift. This range is used for highway driving under normal conditions.

Driving

4 and 2 (Fourth and Second)

Use these ranges when road, load or traffic conditions require a lower gear. These ranges provide greater engine braking than D (Drive). When conditions are improved that no longer require these lower gears, shift back to D (Drive).

1 (First)

The transmission has to be manually shifted into 1 (First) and will not shift into a higher gear. Use this position when pulling through mud or snow, driving up steep grades, hauling extra heavy loads or where maximum reduction is required.

Allison 2400 series

This transmission provides five forward speeds in four ranges and one reverse range.

P (Park)

Use this position when you start the engine. The engine is designed to start in the P (Park) or N (Neutral) position only.

Always come to a complete stop before shifting into P (Park). Make sure the gearshift is securely latched in P (Park). This position locks the transmission and prevents the rear wheels from turning.



Always set the parking brake fully and make sure the gearshift lever is latched in P (Park). Turn off the ignition whenever you leave your vehicle.

When parking on hilly or off-road terrains, be sure to set the parking brake fully and chock the wheels to prevent unexpected and possibly sudden vehicle movement.

R (Reverse)

Use this position to move the vehicle backwards. Completely stop the vehicle before shifting from a forward gear (1, 2, 4 or D) to R (Reverse), or from R (Reverse) to any forward gear. The reverse warning signal will sound when the selector is in R (Reverse). Reverse has only one gear and provides the greatest gear reduction.

N (Neutral)

This position can be used when starting the engine. The engine is designed to start in the P (Park) or N (Neutral) position only. The

engine should be at idle speed when any shift from N (Neutral) to a drive range is made.

The N (Neutral) position may also be used during stationary operation of the Power Take-Off (PTO), if equipped.



Do not allow your vehicle to coast in N (Neutral). Engine braking is not available in N (Neutral). Allowing your vehicle to coast in N (Neutral) may result in loss of vehicle control and severe internal transmission damage.

D (Drive—Normal driving position)

In this position, the transmission starts in first gear and automatically shifts through second, third, fourth and fifth depending on load and speed demands. When the vehicle is slowing down, the transmission will automatically downshift. This range is used for highway driving under normal conditions.

4 and 2 (Fourth and Second)

Use this position when road, load or traffic conditions make it desirable to restrict the automatic shifting to a lower range. These ranges provide greater engine braking than D (Drive). When conditions no longer require these lower gears, shift back to D (Drive).

1 (First)

The transmission has to be manually shifted into 1 (First) and will not shift into a higher gear. Use this position when pulling through mud or snow, driving up steep grades, hauling extra heavy loads or where maximum reduction is required.

Power take-off (PTO) operation with an Allison automatic transmission (except MD applications and vehicles equipped with a Caterpillar 3126E engine)

The power take-off can be operated while the vehicle is standing or moving.

To engage the PTO, apply the brakes and shift to any gear other than N (Neutral) - this stops the rotation of the PTO drive gear in the transmission - then engage the PTO.

If engagement is prevented by the gear teeth not meshing properly, release the brakes and allow the vehicle to creep slightly - or shift the selector to N (Neutral) and then back in gear. The PTO should never be

Driving

engaged by clashing the gear teeth. This may damage the PTO unit and the transmission PTO drive gear teeth. This could result in further damage to the transmission and PTO.

PTO operation with vehicle stationary

To operate the power take-off, stop the vehicle, idle the engine and set the parking brake. Make sure the gear selector is in any forward drive range, then engage the PTO. After the PTO is engaged for stationary vehicle operation, move the range selector to N (Neutral). Increase the engine speed until the desired power take-off operation speed is obtained. To disengage the PTO after operation with the vehicle standing, release the throttle, allow the drive equipment to come to a stop, and then disengage the PTO.



When the PTO is operated with the vehicle stationary, the transmission must be placed in N (Neutral). If the transmission is not in N (Neutral) and is equipped with a remote throttle control, an increase in engine speed can overpower the parking brake and cause the vehicle to move, possibly resulting in personal and/or property damage.

PTO operation while vehicle is moving

After the PTO is engaged for driven vehicle operation, shift to the desired range and drive the vehicle. The speed of the PTO, during this period of operation, will always maintain direct relation to vehicle speed. PTO speed will decrease in relation to vehicle (transmission output) speed as shifts to a higher gear occur. When operating the PTO while the vehicle is moving, the PTO may be disengaged whenever it is no longer required. When there is no load on the PTO gear, it can be pulled out of engagement.

Power take-off (PTO) operation with an Allison automatic transmission (MD applications)

The PTO drive gear is engine driven and provides direct engine power. The PTO can be operated when the vehicle is either stationary or moving.

The PTO gear is in constant mesh with the drive gear in the torque converter housing. A friction clutch or constant drive is used to transmit power to the PTO.

Power take-off (PTO) operation on vehicles equipped with a Caterpillar 3126E engine

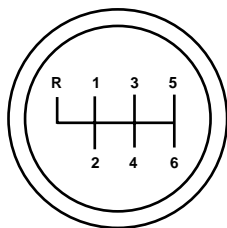
If your vehicle is equipped with a Caterpillar 3126E engine, the PTO will only operate if the vehicle is in Neutral. This feature can be overridden by a special service tool; see your dealer or service representative for more information.

DRIVING WITH A MANUAL TRANSMISSION (IF EQUIPPED)

Continued use of a damaged or worn clutch, prolonged clutch slippage or downshifting at excessive speeds can result in a failure of the engine, transmission or clutch components.

To avoid premature clutch wear and failure, do not drive with your foot resting on the clutch pedal or use it to hold the vehicle at a standstill on an upgrade as when waiting for a traffic light.

Manual transmission shift patterns are displayed on the shift lever knob.



Study this information carefully before you drive the vehicle even though you may be familiar with similar units. Do not attempt to drive the vehicle without knowing the exact shift pattern of the transmission. Consult your authorized dealer if any questions exist as to the shifting instructions posted in your vehicle.



Do not coast the vehicle with the clutch pedal depressed or with the transmission in neutral. This practice could result in loss of vehicle control.

Always use a gear ratio low enough to allow the engine to operate above the minimum engine operation speed range. Do not lug the engine. When more power is required, shift to a lower gear and accelerate the engine near the governed speed.

Driving

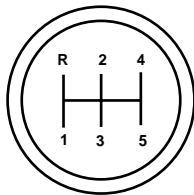
Driving hints

The following driving hints are provided as a brief, general guide in operating the different manual transmissions used in your vehicle.

- Always use the lowest gear to start the vehicle.
- Do not slam or jerk lever into gear.
- When shifting into 1 (First) or R (Reverse) with vehicle standing still, quickly release and depress the clutch pedal (if necessary to complete gear engagement).

Operating the Eaton FS-4205A and FS-5205A 5-speed transmissions

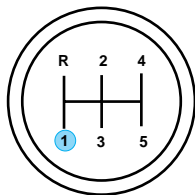
The 5-speed transmission is equipped with five forward gears and one reverse. The 2nd, 3rd, 4th and 5th gears are synchronized. The shift pattern is embossed on the gear shift knob.



Do not shift the transmission into R (Reverse) while the vehicle is moving as this could damage the transmission.

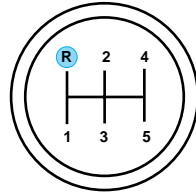
To go forward

With the engine idling, depress the clutch pedal and shift into 1 (First). Engage the clutch while pressing the accelerator to start forward. Operate the clutch and upshift as required by driving conditions.



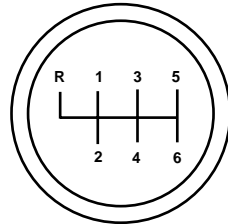
To go backward

Reverse is obtained by putting the gearshift lever in R (Reverse) and engaging the clutch while pressing lightly on the accelerator.



Operating the Eaton FS-5306A and FS-6306A 6-speed transmissions

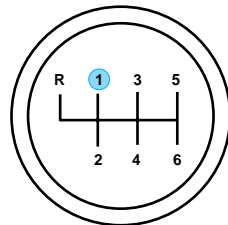
These 6-speed transmissions are equipped with six forward gears and one reverse. All the forward gears are synchronized. The shift pattern is embossed on the gear shift knob.



Do not shift the transmission into 1 (First) or R (Reverse) while the vehicle is moving as this could damage the transmission.

To go forward

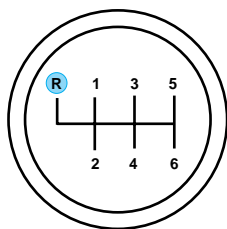
With the engine idling, depress the clutch pedal and shift into 1 (First). Engage the clutch while pressing the accelerator to start forward. Operate the clutch and upshift as required by driving conditions.



Driving

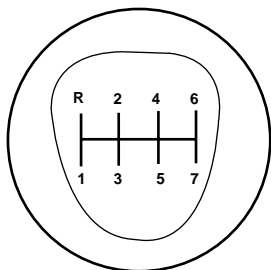
To go backward

Reverse is obtained by putting the gearshift lever in R (Reverse) and engaging the clutch while pressing lightly on the accelerator.



Operating the Spicer ES52-7B and ES066-7B 7-speed transmissions

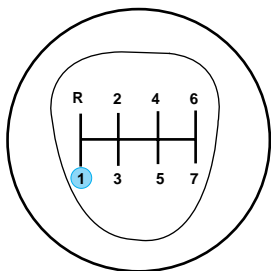
These 7-speed transmissions are equipped with seven forward gears and one reverse. The 2nd, 3rd, 4th, 5th, 6th and 7th gears are synchronized. The shift pattern is embossed on the gear shift knob.



Do not shift the transmission into 1 (First) or R (Reverse) while the vehicle is moving as this could damage the transmission.

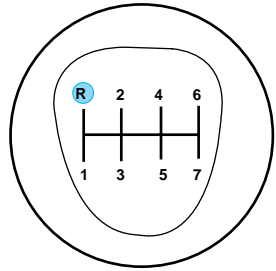
To go forward

With the engine idling, depress the clutch pedal and shift into 1 (First). Engage the clutch while pressing the accelerator to start forward. Operate the clutch and upshift as required by driving conditions.



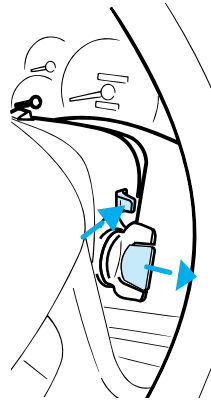
To go backward

Reverse is obtained by putting the gearshift lever in R (Reverse) and engaging the clutch while pressing lightly on the accelerator.



Removing key from ignition

- Turn the ignition key to position 2.
- Push the release lever forward and rotate the key towards you and remove.



Power-take off operation (PTO) with a manual transmission

Transmission-mounted power take-off units are available for local installation on Ford vehicles. See your Body Builder's Layout Book for restrictions on use and installation of power take-off units.

To engage the PTO unit, stop the vehicle and place the transmission control in neutral. Depress the clutch and allow the gears to stop rotating, then engage the PTO unit. The PTO can also be selected with the transmission in gear as long as the clutch is depressed.

When operating the PTO unit with the vehicle stationary, first set the parking brake (chock the wheels if the vehicle is on a hill or other unlevel surface).

Driving

BACKING UP



To avoid the possibility of personal injury while backing the vehicle, always be sure your vehicle's path is clear.

Before backing your vehicle, be sure you can do so safely. If anything behind the cab limits your view, do not rely on mirrors alone to assure that your intended path is clear. If other persons are in the vicinity, have someone standing well behind the vehicle and outside your intended path - visible through an exterior mirror - guide you as you back up.

Although OSHA or other governmental regulations may require use of an electrical or mechanical back-up alarm to warn bystanders, such an alarm does not assure that the intended path is clear.

An electrical back-up alarm, if installed, is connected to the back-up lamp circuit.

TWO SPEED REAR AXLE

General Information

A 2-speed axle allows the vehicle operator to select *Low Range* for good starting and pulling power. The operator may also select *High Range* which allows for greater road speed and economy.

High or Low Range can also be used to provide additional steps between transmission gear ratios when either gradeability or economy are a driving factor.

Axle upshift

Brake Torque

In any type of shift, you must brake torque your vehicle. This is done by releasing the accelerator, because torque creates a binding action on the sliding clutch gear. This binding must be relieved in order for the shift to take place.

Axle upshifts transmission gears may be abrupt, causing the truck to jerk. Using the clutch with the accelerator will smooth the shift.

In order to shift from LOW to HIGH,

- Pull the axle shift accelerator up.
- Release the accelerator.

Axle downshift

In order to shift from HIGH to LOW,

- Push the axle shift control down.
- Release the accelerator (while pushing the axle shift control down).
- Depress the accelerator to resume driving.

Split upshift

A split upshift is when there is an axle downshift with a transmission upshift.

A split upshift can be done as follows:

- Depress the clutch.
- Shift the transmission, while keeping the axle shift control up in HIGH.
- After the transmission lever movement has ended, push the axle shift control down.
- Release the clutch.
- Depress the accelerator.

When split shifting, the axle shift control must stay UP in the HIGH range until after any transmission lever movement.

Split downshift

A split downshift is when there is an axle upshift with a transmission downshift.

A split downshift can be done as follows:

- Pull the axle shift control up.
- Depress the clutch.
- Shift the transmission, while keeping the axle shift control up in HIGH.
- Release the clutch.

Split shift sequence										
1	2	3	4	5	6	7	8	9	10	11
1st	1st	2nd	2nd	3rd	3rd	4th	4th	5th	6th	6th
LO	HI	LO	HI	LO	HI	LO	HI	LO	LO	HI

Driving

When split shifting, the axle shift control must stay UP in the HIGH range until after any transmission lever movement.

A 2-speed axle should NEVER be shifted on a downgrade.

To downshift the axle from HIGH to LOW range, either the ring gear has to speed up by one-third, or the wheels have to slow down by one-third to allow for synchronization. When you are on a down grade, the wheels will not slow down, but will tend to speed up. As a result, the ring gear must be accelerated to synchronize speeds. You are however limited in doing so by your engine governed speed, and may not be able to reach synchronization to allow the shift to take place. If the shift is not completed, the axle will be in neither HIGH nor LOW range and all driveline retardation will be lost.

Ratio extender use

Low End

A 2-speed axle can be used as a ratio-extender when split shifting is not necessary. For low end use, just shift the axle into the LOW to start out, and shift to HIGH when the extra torque is no longer needed.

Transmission (5-speed)	1st	1st	2nd	3rd	4th	5th	6th
2-speed Axle	Axle Low	Axle High					

High End

To use the 2-speed axle as a high end ratio-extender, stay in the LOW range for normal upshifts and only shift the axle to HIGH on the freeway for greater road speed.

Transmission (5-speed)	1st	2nd	3rd	4th	5th	6th
2-Speed Axle	Low for Gradeability					Speed Axle High

DRIVING THROUGH WATER

Do not drive quickly through standing water, especially if the depth is unknown. Traction or brake capability may be limited and if the ignition system gets wet, your engine may stall. Water may also enter your engine's air intake and severely damage your engine.

If driving through deep or standing water is unavoidable, proceed very slowly. Never drive through water that is higher than the bottom of the


hubs (for trucks) or the bottom of the wheel rims (for cars).

Once through the water, always try the brakes. Wet brakes do not stop the vehicle as effectively as dry brakes. Drying can be improved by moving your vehicle slowly while applying light pressure on the brake pedal.

Driving through deep water where the transmission vent tube is submerged may allow water into the transmission and cause internal transmission damage.

MAXIMUM VEHICLE LOADING

Every vehicle manufactured by Ford Motor Company is supplied with information on the Vehicle Rating Decal listing the maximum loading for the vehicle (GVWR), and its axle systems (GAWR) at the tire to ground interface.

MFD. BY FORD MOTOR CO. IN U.S.A.						
DATE: XXXXX		GVWR: XXXXX LB/ XXXXX KG				
FGAWR: XXXXX/XXXXXXXX		RGAWR: XXXXX/XXXXXXXX				
XXXXXXXXXXXX W/TIRES		XXXXXXXXXXXX W/TIRES				
XXXXXXXXXX RIMS		XXXXXXXXXX RIMS				
AT XXX PSI COLD		AT XXX PSI COLD				
THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR VEHICLE SAFETY STANDARDS IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE.						
VIN: XXXXXXXXXXXXXXXXX				REAR REAR GAWR		
TYPE: XXXXXXXXXXXXXXXXX				XXXXXXXX/XXXXXXXX		
						
WB	TYPE/GVV	BODY	TRANS	AXLE	EXT PNT	DSO
XXX	XXXXXX	XXX	XXX	XXX	XXXX	XXXXXX
VFOHT-15294A10-GA						

Under no circumstances should your vehicle be loaded in excess of the GVWR or GAWR. It is the operator's responsibility to assure that neither the axle capacities, spring capacities, tire capacities nor the vehicle rated GVWR is exceeded. For tire capacities, refer to *Maintenance and specifications* chapter.

Unloaded or lightly loaded vehicles

The braking system has been designed to safely stop your vehicle when fully loaded to its GVWR.



When operating empty or lightly loaded, sudden or hard braking may induce wheel lockup with loss of vehicle control and the possibility of accident and serious injury, especially on wet or slippery road surfaces.

Roadside Emergencies

GETTING ROADSIDE ASSISTANCE

To fully assist you should you have a vehicle concern, Ford offers a complimentary roadside assistance program. This program is separate from the New Vehicle Limited Warranty. The service is available:

- 24-hours, seven days a week
- for the New Vehicle Limited Warranty period (U.S.) of two years (unlimited miles)

Roadside assistance will cover:

- jump-starts
- lock-out assistance
- towing to the nearest Ford Motor Company dealership, or towing to your selling dealership if within 56 km (35 miles). Even non-warranty related tows, like accidents or getting stuck in the mud or snow, are covered (some exclusions apply, such as impound towing or repossession).

USING ROADSIDE ASSISTANCE

Complete the roadside assistance identification card and place it in your wallet for quick reference. This card is found in the Owner Guide portfolio in the glove compartment.

To receive roadside assistance in the United States, call 1-800-241-3673.

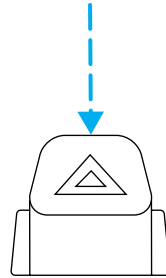
If you need to arrange roadside assistance for yourself, Ford will reimburse a reasonable amount. To obtain information about reimbursement, call 1-800-241-3673.

HAZARD FLASHER

Use only in an emergency to warn traffic of vehicle breakdown, approaching danger, etc. The hazard flashers can be operated when the ignition is off.

Roadside Emergencies

- The hazard lights control is located on top of the steering column.
- Depress hazard lights control to activate all hazard flashers simultaneously.
- Depress control again to turn the flashers off.

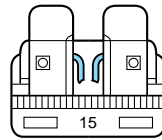


FUSES AND RELAYS

Fuses

If electrical components in the vehicle are not working, a fuse may have blown. Blown fuses are identified by a broken wire within the fuse. Check the appropriate fuses before replacing any electrical components.

Note: Always replace a fuse with one that has the specified amperage rating. Using a fuse with a higher amperage rating can cause severe wire damage and could start a fire.



Roadside Emergencies

Standard fuse amperage rating and color

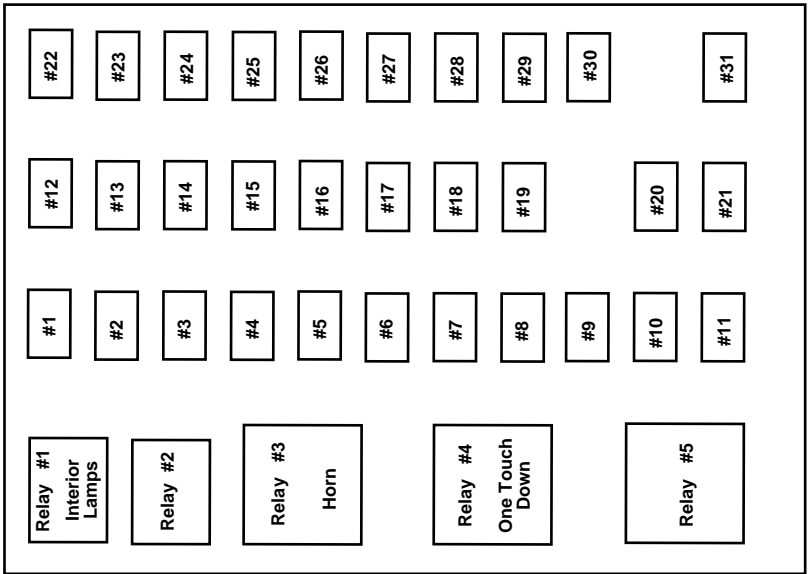
COLOR					
Fuse rating	Mini fuses	Standard fuses	Maxi fuses	Cartridge maxi fuses	Fuse link cartridge
2A	Grey	Grey	—	—	—
3A	Violet	Violet	—	—	—
4A	Pink	Pink	—	—	—
5A	Tan	Tan	—	—	—
7.5A	Brown	Brown	—	—	—
10A	Red	Red	—	—	—
15A	Blue	Blue	—	—	—
20A	Yellow	Yellow	Yellow	Blue	Blue
25A	Natural	Natural	—	—	—
30A	Green	Green	Green	Pink	Pink
40A	—	—	Orange	Green	Green
50A	—	—	Red	Red	Red
60A	—	—	Blue	—	Yellow
70A	—	—	Tan	—	Brown
80A	—	—	Natural	—	Black

Passenger compartment fuse panel

The fuse panel is located below and to the left of the steering wheel by the brake pedal. Remove the panel cover to access the fuses.

To remove a fuse use the fuse puller tool provided on the fuse panel cover.

Roadside Emergencies



The fuses are coded as follows:

Fuse/Relay Location	Fuse Amp Rating	Passenger Compartment Fuse Panel Description
1	20A	Horn
2	15A	Turn/Hazard Lamps
3	20A	Cigar Lighter
4	10A	Diagnostic Connectors
5	15A	Back-Up Lamps, DRL Relays, Blend Door Actuator, Heated Seat Module (SuperCrewzer only), On/Off Fan Clutch (SuperCrewzer only), Warning Chime Module (SuperCrewzer only)
6	—	Not Used
7	—	Not Used
8	5A	Radio, GEM

Roadside Emergencies

Fuse/Relay Location	Fuse Amp Rating	Passenger Compartment Fuse Panel Description
9	5A	Switch Illumination (Headlamp, Power Windows, Power Door Locks), Power Window Relay, Trailer Hook Up Lamps (SuperCrewzer only)
10	—	Not Used
11	30A	Wiper Motor, Washer Pump Relay
12	10A	Stoplamp Switch (Hydraulic Vehicles Only)
13	20A	Radio, Cluster, 7.3L Power Stroke Powertrain Control Module (PCM), Keep Alive Memory
14	10A	Interior Lamps, Runningboard lamps (SuperCrewzer only)
15	10A	GEM, Interior Lamp Relay, Map Lamps, Glove Box Lamps (SuperCrewzer only), Power Mirrors (SuperCrewzer only), Warning Chime Module (SuperCrewzer only)
16	15A	Highbeams
17	—	Not Used
18	5A	Headlamp switch, GEM
19	15A	Engine, Cluster, Cummins PC M, CAT PCM, 7.3L Power Stroke PCM (Idle Valid Switch Input)
20	15A	Starter Relay, GEM
21	10A	Daytime Running Lamps (DRL)
22	15A	Exhaust Brake (SuperCrewzer only), Heated Mirrors (SuperCrewzer only), Rear Air Suspension (SuperCrewzer only)
23	10A	Electronic Flasher
24	15A	Vacuum Pump, Air Dryer, ABS, Fuel Heater Relay
25	10A	Blower Motor Relay
26	10A	Right Low Beam Headlamp
27	—	Not Used

Roadside Emergencies

Fuse/Relay Location	Fuse Amp Rating	Passenger Compartment Fuse Panel Description
28	10A	Left Low Beam Headlamp
29	10A	Cluster, GEM, 7.3L Power Stroke PCM (clutch switch input), APCM (7.3L Power Stroke only), Overhead Console (SuperCrewzer only), Keyless Entry Module (SuperCrewzer only), Traxx (Fuel) Module (SuperCrewzer only)
30	30A	7.3L Power Stroke PCM Diode, 7.3L Power Stroke Fuel Heater
31	15A	Allison MD Transmission, Neutral Start Relay and PCM (7.3L Power Stroke only)
Relay 1	—	Interior Lamps
Relay 2	—	Not Used
Relay 3	—	Horn
Relay 4	—	One Touch Down
Relay 5	—	Not Used

Power distribution box

The power distribution box is located in the engine compartment. The power distribution box contains high-current fuses that protect your vehicle's main electrical systems from overloads.

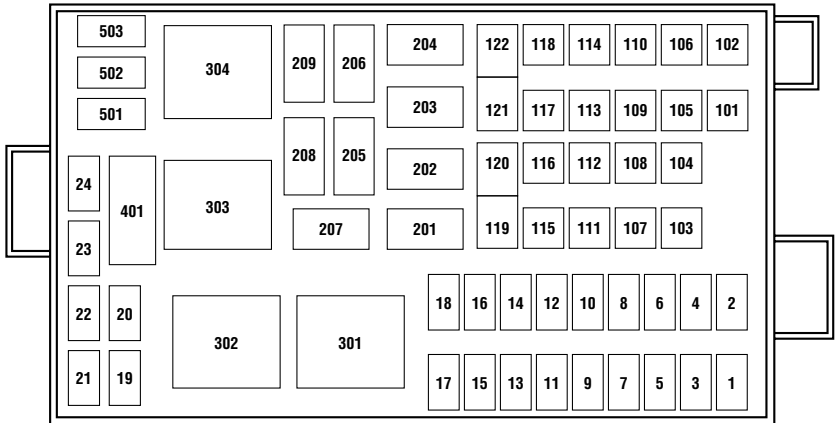


Always disconnect the battery before servicing high current fuses.

Always replace the cover to the power distribution box before reconnecting the battery or refilling fluid reservoirs

If the battery has been disconnected and reconnected, refer to the *Battery* section of the *Maintenance and specifications* chapter.

Roadside Emergencies



The high-current fuses and relays are coded as follows.

Fuse/Relay Location	Fuse Amp Rating	Power Distribution Box Description
1	15A*	Park Lamps, Roof Lamps
2	25A*	Cummins Powertrain Control Module (PCM)
	15A*	Foglamps (SuperCrewzer only)
3	10A*	Generator
4	15A*	Washer Pump
5	15A*	Air Intake Heater Relay (CAT), Cummins PCM
6	20A*	CAT PCM, Cummins PCM
7	15A*	Stop Lamps
8	25A*	C AT Fuel Heater
9	30A*	Trailer Hook Up lamps (SuperCrewzer only)
10	15A*	Shift Modulator (Allison AT trans only) (Except for f650 SuperCrewzer and Caterpillar/Cummins)
11	20A*	Allison MD Trans, Allison 2000/2400 Trans

Roadside Emergencies

Fuse/Relay Location	Fuse Amp Rating	Power Distribution Box Description
12	10A*	Keyless Entry Module (SuperCrewzer only)
13	10A*	Park Brake Adjustment Module (SuperCrewzer only)
14	—	Not Used
15	7.5A*	Body Builder Prep (Hydraulic Vehicles Only)
16	10A*	Allison 2000/2400 Trans (Except F650 SuperCrewzer)
17	5A*	Radio (SuperCrewzer only)
18	—	Not Used
19	—	Not Used
20	—	Not Used
21	10A*	GEM (Hydraulic Vehicles Only)
22	—	Not Used
23	—	Not Used
24	—	Not Used
101	40A**	ABS (Air Only)
102	20A**	Body Builder Prep Run Feed
103	50A**	Ignition Switch (JB fuses 8, 9, 11, 19, 20, 22, 23, 24, 25, 29, 30, 31)
104	20A**	Power Point
105	20A**	Power Door Locks
106	30A**	Headlamps
107	50A**	Junction Box Battery Feed (fuses 1, 2, 3, 4, 12, 13, 14, 15)
108	40A**	Cummins Fuel Heater
109	40A**	Power Windows
110	30A**	Power Seats (SuperCrewzer only)
111	30A**	Body Builder Prep
112	40A**	Blower Motor
113	30A**	Heated Seats (SuperCrewzer only)
114	30A**	E-Brake (SuperCrewzer only)

Roadside Emergencies

Fuse/Relay Location	Fuse Amp Rating	Power Distribution Box Description
115	40A**	Ignition Switch (JB fuses 5, 8, 9, 11, 21)
116	30A**	Body Builder Prep
117	20A**	7.3L Power Stroke PCM
118	30A**	IDM (7.3L Power Stroke only)
119/120	60A**	Hydraulic ABS, Air Brake Trailer Tow Fuse Block
121/122	60A**	Hydromax Motor, Air Brake Trailer Tow Fuse Block
201	—	Washer Pump Relay
202	—	Wiper Speed Relay
203	—	Wiper Run/Park Relay
204	—	7.3L Power Stroke Neutral Start Relay, Stoplamp Relay (CAT and Cummins only)
205	—	Right Hand Stop/Turn Relay
206	—	Left Hand Stop/Turn Relay
207	—	Shift Modulator Relay (CAT and Power Stroke only), Cummins VP-44 Relay, A/C High Pressure Relay (SuperCrewzer only)
208	—	Backup Lamps Relay
209	—	Stop Lamps Relay, Foglamps Relay (SuperCrewzer only)
301	—	Fuel Heater Relay (CAT and Cummins only)/7.3L Power Stroke PCM Relay
302	—	Park Lamps Relay
303	—	Blower Motor Relay
304	—	Air ABS Relay
401	—	Not Used
501	—	Not Used
502	—	Not Used
503	Diode	7.3L Power Stroke PCM Diode
* Mini Fuses ** Maxi Fuses		

Roadside Emergencies

Relays

The relay box is located on the rear crossmember.

Air Brake Trailer Tow Relays (if equipped)

R1 TRLR RUN RELAY	R3 TRLR MARKER LP RELAY	R5 NOT USED	R6 NOT USED	1 30A
R2 TRLR STOP LP RELAY	R4 TRLR TAIL LAMP RELAY	R7 LH TURN	R8 RH TURN	2 30A
				3 30A
				4 30A
				5 NOT USED

The relays are coded as follows:

Fuse/Relay Location	Fuse Amp Rating	Description
1	30A**	Trailer Tow Run Feed
2	30A**	Trailer Tow Park/Marker Lamps
3	30A**	Trailer Tow Stop Lamps
4	30A**	Trailer Tow Turn/Stop Lamps
5	—	Not Used
R1	—	Trailer Tow Run Relay
R2	—	Trailer Tow Stop Lamp relay
R3	—	Trailer Tow Park/Marker Lamp Relay
R4	—	Trailer Tow Park/Marker Lamp Relay
R5	—	Not Used
R6	—	Not Used
R7	—	Trailer Tow Left Turn/Stop Lamp Relay
R8	—	Trailer Tow Right Turn/Stop Lamp Relay

** Maxi Fuse

Roadside Emergencies

SuperCrewzer (if equipped)

R1 HOOK LAMP RELAY	R3 EXHAUST BRAKE RELAY#1	R5 NOT USED	R6 NOT USED	1 N.U.
R2 N.U.	R4 EXHAUST BRAKE RELAY#2	R7 NOT USED	R8 NOT USED	2 N.U.
				3 N.U.
				4 N.U.
				5 N.U.

The relays are coded as follows:

Fuse/Relay Location	Fuse Amp Rating	Description
1	—	Not Used
2	—	Not Used
3	—	Not Used
4	—	Not Used
5	—	Not Used
R1	—	Trailer Hookup Lamps Relay
R2	—	Exhaust Brake Relay
R3	—	Exhaust Brake Relay
R4	—	Not Used
R5	—	Not Used
R6	—	Not Used
R7	—	Not Used
R8	—	Not Used

Roadside Emergencies

JUMP STARTING YOUR VEHICLE



The gases around the battery can explode if exposed to flames, sparks, or lit cigarettes. An explosion could result in injury or vehicle damage.



Batteries contain sulfuric acid which burns skin, eyes, and clothing.

Preparing your vehicle

Also see the label on the battery.

1. Use only a 12-volt supply to start your vehicle. If you connect your battery to a 24-volt power supply you can damage your starter, ignition system and other electrical components. Do not attach the jumper cables to the glow plug relay as this could severely damage the glow plugs, injector driver module and PCM.
2. Do not disconnect the battery of the disabled vehicle as this could damage the vehicle's electrical system.
3. Park the booster vehicle close to the disabled vehicle making sure they **do not** touch. Set the parking brake on both vehicles and stay clear of the engine cooling fan and other moving parts.
4. Check all battery terminals and remove any excessive corrosion before you attach the battery cables. Ensure the vent caps are tight and level.
5. Turn the heater fan on in both vehicles to protect any electrical surges. Turn all other accessories off.

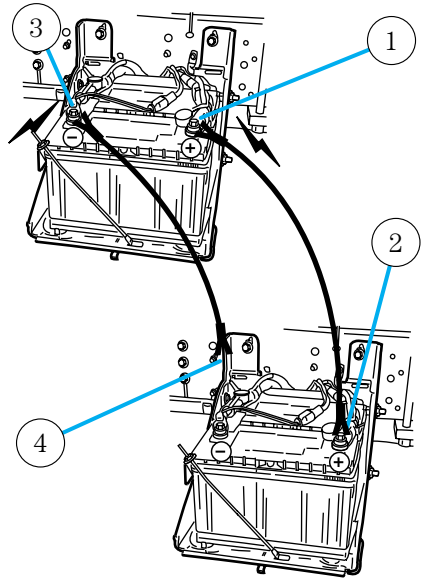
Roadside Emergencies

Connecting the jumper cables

1. Position the vehicles so that they do not touch one another.
2. Apply the parking brakes.
3. Switch off the engine and any unnecessary electrical equipment.
4. Find the positive (+) terminal of the discharged battery.
5. Using the jumper cables, connect the positive (+) terminal of the discharged battery to the positive (+) terminal of the booster battery.

NOTE: In the illustration, lightning bolts are used to designate the assisting (boosting) battery.

6. Connect one end of the cable to the negative (-) terminal of the booster battery and the other end to a ground at least 12 inches from the battery of the discharged vehicle. The vehicle frame is usually a good ground.
7. Ensure that the jump leads are clear of moving parts of the engine, and that the clamps from one cable do not touch the clamps on the other cable.
8. Do not lean over the batteries when making the connections.



Do not connect the end of the second cable to the negative (-) terminal of the battery to be jumped. A spark may cause an explosion of the gases that surround the battery.

Jump starting

1. Start the booster vehicle and run the engine at moderately increased speed.
2. After a few minutes, start the engine of the vehicle with the discharged battery.

Roadside Emergencies

3. After starting, run the engine at about 1,000 RPM for 3–5 minutes.

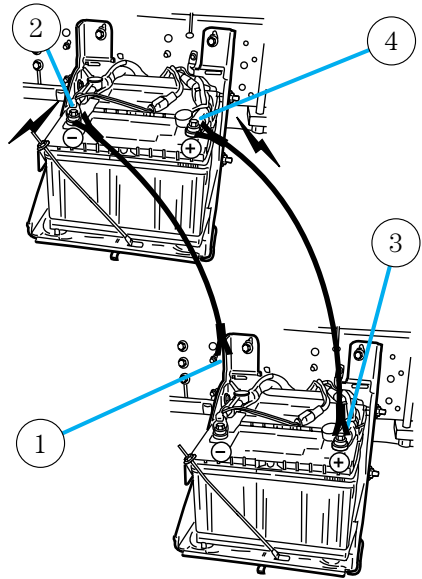
Do not operate the starter longer than 30 seconds. Wait at least two minutes between starting attempts to allow the starter to cool. If the engine does not start after several attempts, call for road service.

Removing the jumper cables

1. Remove the ground connection from the disabled vehicle first, followed by the cable on the negative (-) battery terminal of the booster vehicle.

2. Remove the cable from the positive (+) terminal of the discharged battery and then from the positive (+) terminal of the booster battery.

3. After the disabled vehicle has been started, allow it to idle for a while so the engine can “relearn” its idle conditions.



WRECKER TOWING

Always unload your vehicle before towing it. The recommended method of towing is with the drive wheels off the ground.

Before towing, make sure:

- the parking brake is released.
- if air pressure has been lost, to release the brakes manually.

Improper towing of the vehicle will not allow sufficient lubrication of the transmission which may cause serious damage to internal transmission components. Always follow the outlined towing procedures.

Roadside Emergencies

- **To tow a vehicle on the front wheels**, the steering wheel must be in the straight ahead position. Secure the steering wheel with a holding device (such as provided by a towing company).
- **To tow a vehicle on the rear wheels**, it will be necessary to remove the drive axles or disconnect the driveshaft. If the drive axles are removed, the ends of the axle housing must be sealed to prevent the loss of axle lubricant during towing.
- **To tow a vehicle with an inoperative rear axle**, the rear wheels must be raised onto a dolly or tow the vehicle on the front wheels.
- **If your vehicle is equipped with tow hooks**, chains must be fastened directly to the tow hooks on the vehicle.
- **If your vehicle is not equipped with tow hooks**, chains must be routed under the bottom edge of the bumper with a protection bar to protect the bumper, and attached to the vehicle chassis. Under no circumstances is the vehicle to be lifted or towed by attaching chains directly to the bumper.

Raising the vehicle

Never lift the vehicle by the bumper. When raising the vehicle, attach chains to or place the jack(s) directly beneath the main structural members of the vehicle.

Push-starting your vehicle

Avoid attempting to start a vehicle by pushing. Instead, use jumper cables as described under *Jump starting your vehicle* in this chapter. Vehicles with an automatic transmission cannot be started by pushing.

GETTING THE SERVICES YOU NEED

At home

Ford Motor Company and Ford of Canada have authorized dealerships to service your vehicle. It is preferred that you return to the Ford dealer where your vehicle was purchased when warranty repairs are needed. However, you may also take your vehicle to another Ford Motor Company or Ford of Canada dealership authorized for warranty repairs. Certain warranty repairs require special training though, so not all dealers are authorized to perform all warranty repairs. That means that depending on the warranty repair needed, the vehicle may need to be taken to another dealer. If a particular dealership can not assist you, then contact the Customer Relationship Center.

If you have questions or concerns, or are unsatisfied with the service you are receiving, follow these steps:

1. Contact your Sales Representative or Service Advisor at your selling/servicing dealership.
2. If your inquiry or concern remains unresolved, contact the Sales Manager or Service Manager at the dealership.
3. If the inquiry or concern cannot be resolved at the dealership level, please contact the Ford Customer Relationship Center.

Away from home

If you own a Ford or Mercury vehicle and are away from home when your vehicle needs service, or if you need more help than the dealership could provide, after following the steps described above, contact the Ford Customer Relationship Center to find an authorized dealership to help you. In the United States:

Ford Motor Company
Customer Relationship Center
16800 Executive Plaza Drive
P.O. Box 6248
Dearborn, Michigan 48121
1-800-392-3673 (FORD)
(TDD for the hearing impaired: 1-800-232-5952)

Customer Assistance

In Canada:

Customer Relationship Centre
Ford Motor Company of Canada, Limited
P.O. Box 2000
Oakville, Ontario L6J 5E4
1-800-565-3673 (FORD)

If you own a Lincoln vehicle and are away from home when your vehicle needs service, or if you need more help than the dealership could provide, after following the steps described above, contact the Ford Customer Relationship Center to find an authorized dealership to help you.

In the United States:

Ford Motor Company
Customer Relationship Center
16800 Executive Plaza Drive
P.O. Box 6248
Dearborn, Michigan 48121
1-800-521-4140
(TDD for the hearing impaired: 1-800-232-5952)

In Canada:

Customer Relationship Centre
Ford Motor Company of Canada, Limited
P.O. Box 2000
Oakville, Ontario L6J 5E4
1-800-565-3673 (FORD)

In order to help you service your Ford or Lincoln Mercury vehicle, please have the following information available when contacting a Customer Relationship Center:

- Your telephone number (home and business).
- The name of the dealer and the city where the dealership is located.
- The year and make of your vehicle.
- The date of vehicle purchase.
- The current odometer reading.
- The vehicle identification number (VIN).

If you still have a complaint involving a warranty dispute, you may wish to contact the Dispute Settlement Board (U.S.).

Customer Assistance

In some states (in the U.S.) you must directly notify Ford in writing before pursuing remedies under your state's warranty laws. Ford is also allowed a final repair attempt in some states.

In the United States, a warranty dispute must be submitted to the Dispute Settlement Board before taking action under the Magnuson-Moss Warranty Act, or to the extent allowed by state law, before pursuing replacement or repurchase remedies provided by certain state laws. This dispute handling procedure is not required prior to enforcing state created rights or other rights which are independent of the Magnuson-Moss Warranty Act or state replacement or repurchase laws.

THE DISPUTE SETTLEMENT BOARD (U.S. ONLY)

The Dispute Settlement Board is:

- an independent, third-party arbitration program for warranty disputes
- available free to owners and lessees of qualifying Ford Motor Company vehicles

The Dispute Settlement Board may not be available in all states. Ford Motor Company reserves the right to change eligibility limitations, modify procedures and/or to discontinue this service without notice and without incurring obligations per applicable state law.

What kinds of cases does the Board review?

Unresolved warranty repair concerns or vehicle performance concerns as on Ford and Lincoln Mercury cars and Ford and Lincoln Mercury light trucks which are within the terms of any applicable written new vehicle warranty are eligible for review, except those involving:

- a non-Ford product
- a non-Ford dealership
- sales disputes between customer and dealer except those associated with warranty repairs or concerns with the vehicle's performance as designed
- a request for reimbursement of consequential expenses unless a service or product concern is being reviewed
- items not covered by the New Vehicle Limited Warranty (including maintenance and wear items)
- alleged personal injury/property damage claims
- cases currently in litigation

Customer Assistance

- vehicles not used primarily for family, personal or household purposes (except in states where the Dispute Settlement Board is required to review commercial vehicles)
- vehicles with non-U.S. warranties

Concerns are ineligible for review if the New Vehicle Limited Warranty has expired at receipt of your application and, in certain states eligibility is dependent upon the customer's possession of the vehicle.

Eligibility may differ according to state law. For example, see the unique brochures for California, West Virginia, Georgia and Wisconsin purchasers/lessees.

Board membership

The Board consists of:

- three consumer representatives
- a Ford or Lincoln Mercury dealership representative

Consumer candidates for Board membership are recruited and trained by an independent consulting firm. The dealership Board member is chosen from Ford and Lincoln Mercury dealership management, recognized for their business leadership qualities.

What the Board needs

To have your case reviewed you must complete the application in the DSB brochure and mail it to the address provided on the application form. Some states will require you to use certified mail, with return receipt requested.

Your application is reviewed and, if it is determined to be eligible, you will receive an acknowledgment indicating:

- The file number assigned to your application.
- The toll-free phone number of the DSB's independent administrator.

Your dealership and a Ford Motor Company representative will then be asked to submit statements.

To properly review your case, the Board needs the following information:

- Legible copies of all documents and maintenance or repair orders relevant to the case.
- The year, make, model, and Vehicle Identification Number (VIN) listed on your vehicle ownership license.

Customer Assistance

- The date of repair(s) and mileage at the time of occurrence(s).
- The current mileage.
- The name of the dealer(s) who sold or serviced the vehicle.
- A brief description of your unresolved concern.
- A brief summary of the action taken by the dealer(s) and Ford Motor Company.
- The names (if known) of all the people you contacted at the dealership(s).
- A description of the action you expect to resolve your concern.

You will receive a letter of explanation if your application does not qualify for Board review.

Oral presentations

If you would like to make an oral presentation, indicate YES to question 6 on the application. While it is your right to make an oral presentation before the Board, this is not a requirement and the Board will decide the case whether or not an oral presentation is made. An oral presentation may be requested by the Board as well.

Making a decision

Board members review all available information related to each complaint, including oral presentations, and arrive at a fair and impartial decision. Board review may be terminated at any time by either party.

Every effort is made to decide the case within 40 days of the date that all requested information is received by the Board. Since the Board generally meets once a month, it may take longer for the Board to consider some cases.

After a case is reviewed, the Board mails you a decision letter and a form on which to accept or reject the Board's decision. The decisions of the Board are binding on Ford (and, in some cases, on the dealer) but not on consumers who are free to pursue other remedies available to them under state or federal law.

Customer Assistance

To Request a DSB Brochure/Application

For a brochure/application, speak to your dealer or write/call to the Board at the following address/phone number:

Dispute Settlement Board
P.O. Box 5120
Southfield, MI 48086-5120
1-800-428-3718

You may also contact the North American Customer Relationship Center at 1-800-392-3673 (Ford), TDD for the hearing impaired: 1-800-232-5952 or by writing to the Center at the following address:

Ford Motor Company
Customer Relationship Center
16800 Executive Plaza Drive
P.O. Box 6248
Dearborn, Michigan 48121

GETTING ASSISTANCE OUTSIDE THE U.S. AND CANADA

Before exporting your vehicle to a foreign country, contact the appropriate foreign embassy or consulate. These officials can inform you of local vehicle registration regulations and where to find unleaded fuel.

If you cannot find unleaded fuel or can only get fuel with an anti-knock index lower than is recommended for your vehicle, contact a district or owner relations/customer relationship office.

The use of leaded fuel in your vehicle without proper conversion may damage the effectiveness of your emission control system and may cause engine knocking or serious engine damage. Ford Motor Company/Ford of Canada is not responsible for any damage caused by use of improper fuel.

In the United States, using leaded fuel may also result in difficulty importing your vehicle back into the U.S.

Customer Assistance

If your vehicle must be serviced while you are traveling or living in Central or South America, the Caribbean, or the Middle East, contact the nearest Ford dealership. If the dealership cannot help you, write or call:

FORD MOTOR COMPANY
WORLDWIDE DIRECT MARKET OPERATIONS
1555 Fairlane Drive
Fairlane Business Park #3
Allen Park, Michigan 48101
U.S.A.
Telephone: (313) 594-4857
FAX: (313) 390-0804

If you are in another foreign country, contact the nearest Ford dealership. If the dealership employees cannot help you, they can direct you to the nearest Ford affiliate office.

If you buy your vehicle in North America and then relocate outside of the U.S. or Canada, register your vehicle identification number (VIN) and new address with Ford Motor Company Worldwide Direct Market Operations.

ORDERING ADDITIONAL OWNER'S LITERATURE

To order the publications in this portfolio, contact Helm, Incorporated at:

HELM, INCORPORATED
P.O. Box 07150
Detroit, Michigan 48207

Or call:

For a free publication catalog, order toll free: 1-800-782-4356

Monday-Friday 8:00 a.m. - 6:00 p.m. EST

(Items in this catalog may be purchased by credit card holders only.)

Obtaining a French owner's guide

French Owner's Guides can be obtained from your dealer or by writing to Ford Motor Company of Canada, Limited, Service Publications, P.O. Box 1580, Station B, Mississauga, Ontario L4Y 4G3.

Customer Assistance

IN CALIFORNIA (U.S. ONLY)

California Civil Code Section 1793.2(d) requires that, if a manufacturer or its representative is unable to repair a motor vehicle to conform to the vehicle's applicable express warranty after a reasonable number of attempts, the manufacturer shall be required to either replace the vehicle with one substantially identical or repurchase the vehicle and reimburse the buyer in an amount equal to the actual price paid or payable by the consumer (less a reasonable allowance for consumer use). The consumer has the right to choose whether to receive a refund or replacement vehicle.

California Civil Code Section 1793.22(b) presumes that the manufacturer has had a reasonable number of attempts to conform the vehicle to its applicable express warranties if, within the first 18 months of ownership of a new vehicle or the first 29 000 km (18 000 miles), whichever occurs first:

1. Two or more repair attempts are made on the same nonconformity likely to cause death or serious bodily injury OR
2. Four or more repair attempts are made on the same nonconformity (a defect or condition that substantially impairs the use, value or safety of the vehicle) OR
3. The vehicle is out of service for repair of nonconformities for a total of more than 30 calendar days (not necessarily all at one time)

In the case of 1 or 2 above, the consumer must also notify the manufacturer of the need for the repair of the nonconformity at the following address:

16800 Executive Plaza Drive
Mail Drop 3NE-B
Dearborn, MI 48126

REPORTING SAFETY DEFECTS (U.S. ONLY)

If you believe that your vehicle has a defect which could cause a crash, or could cause injury or death, you should immediately inform the National Highway Traffic Safety Administration (NHTSA) in addition to notifying Ford Motor Company.

Ford Motor Company

Customer Assistance

If NHTSA receives similar complaints, it may open an investigation, and if it finds that a safety defect exists in a group of vehicles, it may order a recall and remedy campaign. However, NHTSA cannot become involved in individual problems between you, your dealer or Ford Motor Company.

To contact NHTSA, you may either call the Auto Safety Hotline toll-free at 1-800-424-9393 (202-366-0123 in the Washington D.C. area) or write to:

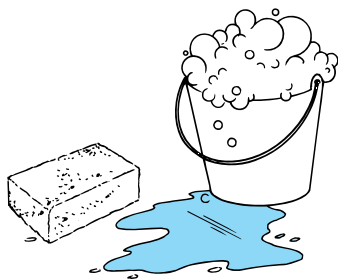
NHTSA
U.S. Department of Transportation
400 Seventh Street
Washington, D.C. 20590

You can also obtain other information about motor vehicle safety from the Hotline.

Cleaning

WASHING THE EXTERIOR OF YOUR VEHICLE

Never wash a vehicle that is “hot to the touch” or during exposure to strong, direct sunlight. It is recommended that you wash your vehicle regularly with cool or lukewarm water and a neutral Ph shampoo, such as Detail Wash (ZC-3-A), which is available from your authorized Ford, Lincoln or Mercury dealer. Always use a clean sponge or carwash mitt with plenty of water for best results. Dry the vehicle with a chamois or soft terry cloth towel in order to eliminate water spotting.



Never use strong household detergents or soap, such as dish washing or laundry liquid. These products can discolor and spot painted surfaces.

It is especially important to wash the vehicle regularly during winter months, as dirt and road salt are difficult to remove and do cause damage to the vehicle.

Items such as gasoline, diesel fuel, bird droppings and insect deposits should be washed and sponged off as soon as possible. Deposits not removed promptly can cause damage to the vehicle's paintwork and trim over time.

Remove any exterior accessories, such as antennas, before entering a car wash.

PROTECTING THE PAINT FINISH OF YOUR VEHICLE

Applying a polymer paint sealant to your vehicle on a regular basis will assist in reducing minor scratches and paint damage.

A typical paint sealant lasts approximately six months to a year, depending on local weather conditions and the cleaning soap that is used in washing the vehicle.

Do not use a wax that beads excessively.

Do not allow paint sealant to come in contact with any non-body (low-gloss black) colored trim, such as grained door handles, roof racks, bumpers, side moldings, mirror housings or the windshield cowl area. The paint sealant will “gray” or stain the parts over time.

REPAIRING PAINT CHIPS

Remove particles such as bird droppings, tree sap, insect deposits, tar spots, road salt and industrial fallout before repairing paint chips.

Minor scratches or paint damage from road debris may be repaired using the Ultra Touch Prep and Finishing Kit (F7AZ-19K507-BA), which is available at your authorized Ford, Lincoln or Mercury dealer. This kit contains:

- Lacquer Touch-Up Paint (ALBZ-19500-XXXXA)
- Exterior Acrylic Spray Lacquer (ALAZ-19500-XXXXA)

Please note that the part numbers (shown as XXXX above) will vary with your vehicle's specific coloring. **Carefully observe the application instructions on the products.**

CLEANING THE WHEEL RIMS AND COVERS

Aluminum wheel rims or covers are coated with a clearcoat paint finish.

Some automatic car washes may cause damage to the finish on your wheel rims or covers. Chemical-strength cleaners, or cleaning chemicals, in combination with brush agitation to remove brake dust and dirt, could wear away the clearcoat finish over time.

Do not use hydrofluoric acid-based or high caustic-based wheel cleaners, steel wool, fuels or strong household detergents for soiled wheel rims and covers.

Never apply any cleaning chemical to hot or warm wheel rims or covers.

Clean wheel rims and covers with Detail Wash (ZC-3-A), which is available from your authorized Ford, Lincoln or Mercury dealer. Spray cleaner on cool wheel rims or covers and allow to set for 2-5 minutes. Agitate the area with a sponge and rinse off with plenty of water.

Use Extra Strength Tar and Road Oil Removal (B7A-19520-AA), available from your authorized Ford, Lincoln or Mercury dealer, in order to remove tar and grease from wheel rims and covers.

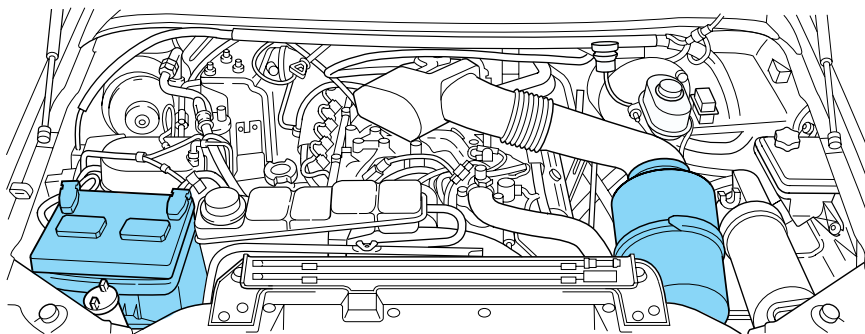
Cleaning

CLEANING THE ENGINE

Engines are more efficient when they are clean because grease and dirt buildup keep the engine warmer than normal. When washing:

- The engine must be cool to the touch before spraying with water.
- **Never spray a hot engine with cold water, as damage to the engine block or engine components may occur.**
- Use caution when using a self-serve power washer (1000psi maximum pressure) to clean the engine, as the high-pressure fluid could penetrate the sealed parts and cause damage.
- **Never apply anything to any exposed belts in the engine compartment, including belt dressing.**

For general cleaning of the engine and engine compartment, spray Engine Shampoo and Degreaser (F4AZ-19A536-A) on all parts that require cleaning and pressure rinse the area with cool water.



- Cover the highlighted areas to prevent water damage when cleaning the engine.
- **Never wash or rinse the engine while it is running; water in the running engine may cause internal damage.**

WASHING NON-PAINTED PLASTIC EXTERIOR PARTS

Use Detail Wash (ZC-3-A) for routine cleaning.

If tar or grease spots are present, clean with Extra Strength Tar and Road Oil Removal (B7A-19520-AA).

Use only approved products to clean plastic parts. These products are available from your authorized Ford, Lincoln or Mercury dealer.

WASHING THE EXTERIOR LAMPS

In order to avoid scratching the plastic lamps, do not use dry paper towels, non-approved chemical solvents or abrasive cleaners.

Use a soft cloth and a solution of Triple Clean (EOAZ-19526-AA), mixed properly with water, in order to remove bug residue. If tar or grease spots are present, clean with Extra Strength Tar and Road Oil Removal (B7A-19520-AA).

CLEANING THE WINDSHIELD, WIPER BLADES AND REAR WINDOW

If the wiper does not wipe properly, substances on the windshield, rear window or the wiper blades may be the cause. These may include hot wax treatments used by commercial car washes, tree sap, or other organic contamination.

Do not clean the windshield or rear window glass with abrasives, as they may cause scratches.

Do not use fuel, kerosene, or paint thinner to clean the windshield, rear window or the wiper blades as damage may occur.

Clean the outside of the windshield or rear window with a non-abrasive cleaner such as Ultra Clear Spray Glass Cleaner (E4AZ-19C507-AA), available from your authorized Ford, Lincoln or Mercury dealer. If after cleaning the glass surface, the water sheets from the glass (e.g., does not bead), then the window is clean.

The windshield, rear window and wiper blades should be cleaned regularly. Wiper blades can be cleaned with isopropyl (rubbing) alcohol or windshield washer solution. Be sure to replace wiper blades when they appear worn or do not function properly.

CLEANING THE INSTRUMENT PANEL

Clean the instrument panel with a damp cloth, then dry with a dry cloth. Avoid cleaners or polish that increase the gloss of the upper portion of the instrument panel. The dull finish in this area helps protect the driver from undesirable windshield reflection.

Cleaning



Do not use chemical solvents or strong detergents when cleaning the steering wheel or instrument panel to avoid contamination of the air bag system.

Cleaning the instrument cluster lens

Wipe the cluster area with a soft, damp cotton towel. Dry the area with a clean, dry towel.

CLEANING THE INTERIOR FABRIC, CARPETS AND CLOTH SEATS

Remove dust and loose dirt with a vacuum cleaner. Remove light stains and soil with Extra Strength Upholstery Cleaner (E8AZ-19523-AA).

Never saturate the seat covers with cleaning solution.

Do not use household cleaning products or glass cleaners, which can stain and discolor the fabric and affect the flame retardant abilities of the seat materials.

If grease or tar is present on the material, spot-clean the area first with Spot and Stain Remover (F3AZ-19521-WA). Follow up by recleaning the area with Extra Strength Upholstery Cleaner (E8AZ-19523-AA).

CLEANING LEATHER SEATS (IF EQUIPPED)

All Ford, Lincoln and Mercury vehicles with leather seating surfaces have a clear, protective coating over the leather.

To clean the leather seats, simply use a soft cloth with Deluxe Leather and Vinyl Cleaner (F2AZ-19521-WA). Dry the area with a soft cloth.

It is recommended that you use the Deluxe Leather Care Kit (F8AZ-19G253-AA), available from your authorized Ford, Lincoln or Mercury dealer. The mild cleaner and special pad available in the kit cleans the leather and maintains its natural beauty. For best results, follow the instructions printed on the cleaner label. Regular cleaning of your leather upholstery helps maintain its resiliency and color.

Do not use household cleaning products, alcohol solutions, solvents or cleaners intended for rubber, vinyl and plastics, or oil/petroleum-based leather conditioners. These products may cause premature wearing of the clear, protective coating.

CLEANING THE INSIDE WINDOWS

Use Ultra Clear Spray Glass Cleaner (E4AZ-19C507-AA) for the inside windows if they become fogged.

To clean, use two lint-free, soft towels, folded into a pad-shape. Mist the glass completely with cleaner, and use one of the towels to evenly agitate the surface. Use the other towel to remove the residue.

WASHING MIRRORS, MIRROR HOUSINGS AND REFLECTIVE SURFACES

Do not clean mirrors, mirror housings or reflective surfaces with abrasive materials or a dry cloth.

Use a soft cloth and Detail Wash (ZC-3-A) mixed with water in order to clean the mirror housing. Use Glass Cleaner (E4AZ-19C507-AA) in order to clean the reflective mirror surface.

Use care when removing ice from outside mirrors as you may damage the reflective surface.

CLEANING AND MAINTAINING THE SAFETY BELTS

Clean the safety belts with Extra Strength Upholstery Cleaner (E8AZ-19523-AA), available from your authorized Ford, Lincoln or Mercury dealer.

Do not use bleach, dye or any other solvent to clean the belts, as these actions may weaken the belt webbing.

UNDERBODY

Flush the complete underside of your vehicle frequently. Keep body and door drain holes free from packed dirt.

Cleaning

FORD, LINCOLN AND MERCURY CAR CARE PRODUCTS

Your Ford, Lincoln or Mercury dealer has many quality products available to clean your vehicle and protect its finishes. These quality products have been specifically engineered to fulfill your automotive needs; they are custom designed to complement the style and appearance of your vehicle. Each product is made from high quality materials that meet or exceed rigid specifications. For best results, use the following or products of equivalent quality:

Ford Custom Clearcoat Polish*

Ford Custom Silicone Gloss Polish

Ford Custom Vinyl Protectant* (not available in Canada)

Motorcraft Vinyl Conditioner (Canada only)

Ford Deluxe Leather and Vinyl Cleaner (not available in Canada)

Motorcraft Vinyl Cleaner (Canada only)

Ford Extra Strength Tar and Road Oil Remover* (not available in Canada)

Ford Extra Strength Upholstery Cleaner (not available in Canada)

Ford Custom Bright Metal Cleaner

Motorcraft Premium Car Wash Concentrate

Motorcraft Carlite Glass Cleaner (Canada only)

Ford Spot and Stain Remover*

Ford Super Premium Tire and Trim Dressing

Ford Triple Clean

Ford Ultra-Clear Spray Glass Cleaner (not available in Canada)

Ford Engine Shampoo and Degreaser

* May be sold with the Motorcraft name

Maintenance and Specifications

OPENING THE HOOD

The hood and fenders are held in position by a latch located on each fender.



The parking brake must be fully set before opening the hood or possible personal injury may occur.

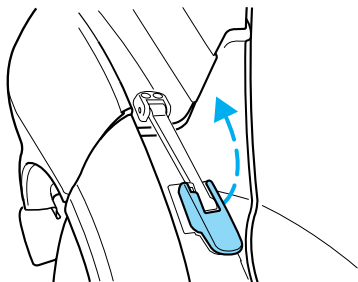


If you must leave the engine running while checking under the hood, do not allow any loose clothing, jewelry, hair or other items to get near moving engine components or possible personal injury may occur.

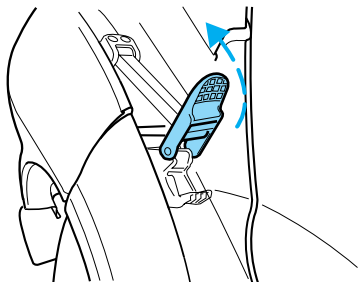
To open the hood:

1. Set the parking brake, shift into N (Neutral) (automatic transmission) or 1 (First) (manual transmission) and turn the engine off.

2. Lift upward on the bottom of each latch.

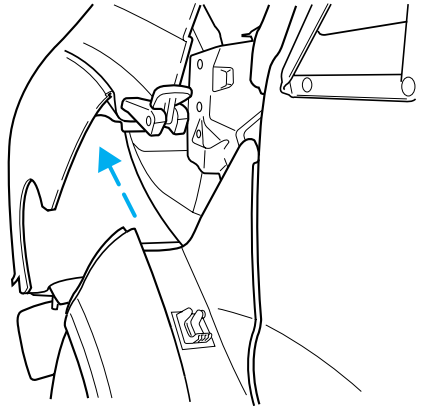


3. Pull the bottom of each latch away from the fender.



Maintenance and Specifications

4. Tilt the hood forward until stopped by the retaining cables.



To lower the hood:

1. Push the hood rearward at the top center of the hood above the grille until closed.
2. Engage the latch on each fender.
3. Push down on the bottom of each latch until locked.



To avoid the possibility of personal injury, never stand beneath the hood when it is being raised or lowered.

Maintenance and Specifications

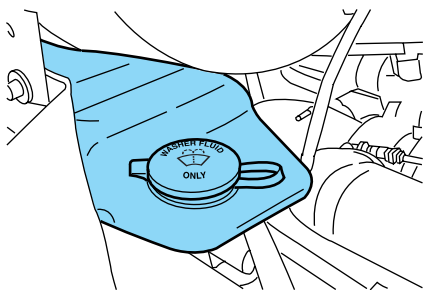
WINDSHIELD WASHER FLUID

Checking and adding washer fluid

Inspect the solution level in the washer reservoir when insufficient solution is sprayed.

Use 3.8L (4.0 quarts) of Ultra—Clear Windshield Washer Concentrate or a washer fluid that meets the Ford specification listed. Refer to *Lubricant specifications* in this chapter.

State or local regulations on volatile organic compounds may restrict the use of methanol, a common windshield washer antifreeze additive. Washer fluids containing non-methanol antifreeze agents should be used only if they provide cold weather protection without damaging the vehicle's paint finish, wiper blades or washer system.



Do not put engine coolant or antifreeze in the washer fluid reservoir. Engine coolant or antifreeze can severely reduce visibility if sprayed on the windshield.

ENGINE OIL

Checking engine oil level—Cummins B and Caterpillar 3126 B engines

Refer to the appropriate engine operator's manual for information on the engine oil.

Checking engine oil level—7.3L Power Stroke engine

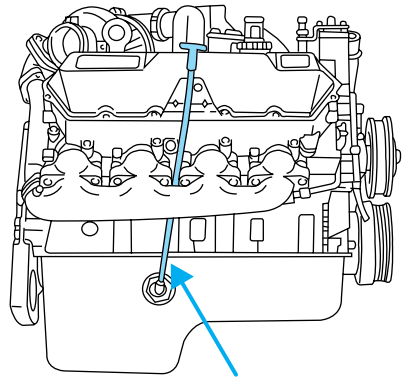
Refer to the Scheduled Maintenance Guide for the appropriate intervals for checking the engine oil.

Check the engine oil level consistently and accurately. The following procedure is recommended:

1. Start the engine and let it run until it reaches normal operating temperature (the engine coolant temperature gauge indicator will be near the center of the normal area between H and C).

Maintenance and Specifications

2. Park the vehicle on level ground.
3. Set the parking brake and shift into N (Neutral) (automatic transmission) or 1 (First) (manual transmission).
4. Turn off the engine and wait a few minutes for the oil to drain completely into the oil pan.
5. Open the hood. Protect yourself from engine heat.
6. Locate and carefully remove the engine oil level indicator (dipstick).



7. Wipe the indicator clean. Insert the indicator fully, then remove it again.

- If the oil level is **between FULL and OPERATING RANGE**, the oil level is acceptable. **DO NOT ADD OIL.**
 - Maintain the oil level between ADD and OPERATING RANGE on the dipstick by adding oil as required.
 - The distance from ADD to OPERATING RANGE on the dipstick represents 1.9L (2 quarts).
 - Oil levels above OPERATING RANGE may cause engine damage. Some oil must be removed from the engine by a qualified service technician.
8. Put the indicator back into the engine and ensure it is fully seated.

Engine oil and filter recommendations—Cummins B and Caterpillar 3126 B engines

Refer to the appropriate engine operator's manual for information on the engine oil.

Maintenance and Specifications

Engine oil and filter recommendations—7.3L Power Stroke engine

To help achieve proper engine performance and durability, it is important that you:

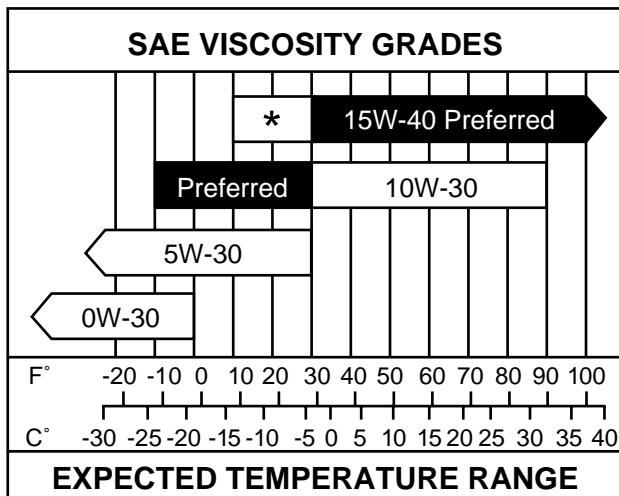
- Use only engine lubricating oils and oil filters of the proper quality.
- Change the engine oil and filter **no later** than the recommended service interval. Refer to the Scheduled Maintenance Guide for the appropriate intervals for changing the engine oil and filter.
- Change your engine oil and filter more frequently if your vehicle operation includes extended periods of idling or low-speed operation, driving for a long time in cold temperatures or short driving distances.

Diesel engines require specially formulated oil to resist contamination. Proper quality oils also provide maximum efficiency of the crankcase ventilation system which reduces air pollution.

For normal or severe service, use Motorcraft oil or an equivalent oil conforming to Ford Specification WSS-M2C171-C or API Service categories CH-4, CH-4/SJ or CH-4/SL. If CH-4 oil is not available, CG-4 is acceptable.

Diesel engine oils with improved fuel economy properties (energy conserving) are currently available. If you use an energy conserving oil, be sure it meets Ford specification WSS-M2C171-C or API service category designation CH-4/SJ and is of the proper viscosity grade for the temperature range in which you expect to operate your vehicle. Some energy conserving oils do not meet the requirements necessary for your diesel engine.

Maintenance and Specifications



Using the chart, determine which SAE viscosity grade best suits the temperature range in which you expect to operate your vehicle. The use of the correct oil viscosity grade for diesel engines is important for satisfactory engine operation.

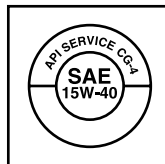
A symbol has been developed by the American Petroleum Institute (API) to help you select the proper engine oil. The symbol will be included on the oil container you purchase.

The top section of the symbol shows the API service category designation. This should be CH-4/SJ.

The center section of the API symbol shows the SAE viscosity grade.

The lower section of the API symbol will state *energy conserving* if the engine oil has been proven to have fuel savings capabilities.

Use a Ford engine oil filter, part number FL-1995 or equivalent. This filter protects your engine by filtering harmful, abrasive or sludge particles.

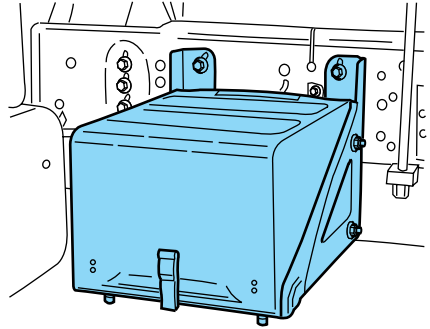


Maintenance and Specifications

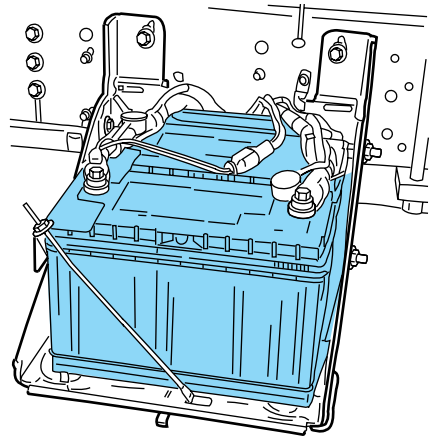
BATTERY

Your vehicle is equipped with two Motorcraft maintenance-free batteries which are mounted in a covered tray and located on the left frame rail. The covered battery tray, depending upon application, may also have one or two steps attached.

- Covered battery tray shown.
Battery tray with steps similar.



- Battery tray with cover removed.



To access the battery, follow these steps:

1. Open the fairing storage door on the driver's side.
2. Lift and remove the rubber mat.
3. Remove the four screws on the storage floor and remove the plate for access to the battery tray.

Maintenance and Specifications

Motorcraft maintenance-free batteries do not normally require adding additional water. However, for severe usage or in high temperature climates, check the battery electrolyte levels. Refer to the Scheduled Maintenance Guide for the service interval schedules.

Keep the electrolyte level in each cell up to the “level indicator”. Do not overfill the battery cells.

If the electrolyte level in the battery is low, you can add plain tap water to the battery, as long as you do not use hard water (water with a high mineral or alkali content). If possible, however, try to only fill the battery cells with distilled water. If the battery needs water often, have the charging system checked.

Make sure the battery cover/shield is reinstalled after the battery has been cleaned or replaced.

For longer, trouble-free operation, keep the top of the batteries clean and dry. Also, make certain the battery cables are always tightly fastened to the battery terminals.

If you see any corrosion on the battery or terminals, remove the cables from the terminals and clean with a wire brush. You can neutralize the acid with a solution of baking soda and water.



Batteries normally produce explosive gases which can cause personal injury. Therefore, do not allow flames, sparks or lighted substances to come near the battery. When working near the battery, always shield your face and protect your eyes. Always provide proper ventilation.



When lifting a plastic-cased battery, excessive pressure on the end walls could cause acid to flow through the vent caps, resulting in personal injury and/or damage to the vehicle or battery. Lift the battery with a battery carrier or with your hands on opposite corners.

Maintenance and Specifications



Keep batteries out of reach of children. Batteries contain sulfuric acid. Avoid contact with skin, eyes or clothing. Shield your eyes when working near the battery to protect against possible splashing of acid solution. In case of acid contact with skin or eyes, flush immediately with water for a minimum of 15 minutes and get prompt medical attention. If acid is swallowed, call a physician immediately.



Battery posts, terminals and related accessories contain lead and lead compounds. Wash hands after handling.

ENGINE COOLANT

Checking engine coolant

The concentration and level of engine coolant should be checked at the mileage intervals listed in the scheduled maintenance guide. The coolant concentration should be maintained at 50/50 coolant and water, which equates to a freeze point of -36°C (-34°F). Coolant concentration testing is possible with a hydrometer or antifreeze tester (such as the Rotunda Battery and Antifreeze Tester, 014-R1060). The level of coolant should be maintained at the “cold full” or “cold fill range” level in the coolant reservoir. If the level falls below, add coolant per the instructions in the *Adding Engine Coolant* section.

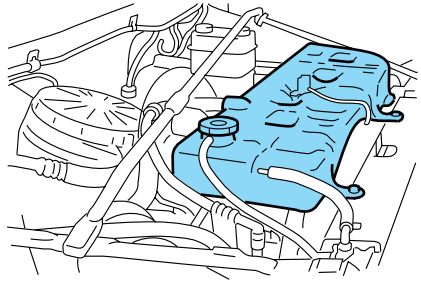
Your vehicle was factory-filled with a 50/50 engine coolant and water concentration. If the concentration of coolant falls below 40% or above 60%, the engine parts could become damaged or not work properly. **A 50-50 mixture of coolant and water provides the following:**

- **freeze protection down to -36°C (-34°F).**
- **boiling protection up to 129°C (265°F).**
- **protection against rust and other forms of corrosion.**
- **enables calibrated gauges to work properly.**

When the engine is cold, check the level of the engine coolant in the reservoir.

Maintenance and Specifications

When the engine is cold, check the level of the engine coolant in the reservoir.



- The engine coolant should be at the “cold fill level” or within the “cold fill range” as listed on the engine coolant reservoir (depending upon application).
- Refer to the Scheduled Maintenance Guide for service interval schedules.
- Be sure to read and understand *Precautions when servicing your vehicle* in this chapter.

If the engine coolant has not been checked at the recommended interval, the engine coolant reservoir may become low or empty. If the reservoir is low or empty, add engine coolant to the reservoir. Refer to *Adding engine coolant* in this chapter.

Note: Automotive fluids are not interchangeable; do not use engine coolant, antifreeze or windshield washer fluid outside of its specified function and vehicle location.

Vehicles with diesel engines typically are used to carry heavy loads and accumulate mileage rapidly. These two factors cause the additives in the coolant to “wear out” in a shorter time. Ford recommends an interim service interval performed at 12 months or 24 000 km (15 000 miles), whichever occurs first. Add 237–295 ml (8–10 oz.) of supplemental coolant additive FW-16 to the cooling system. For vehicles with extensive idling time, add 237–295 ml (8–10 oz.) of coolant additive FW-16 after every 500 hours of operation. (see scheduled maintenance guide)

Adding engine coolant — 7.3L Power Stroke

When adding coolant, make sure it is a 50/50 mixture of engine coolant and distilled water. Add the mixture to the coolant reservoir, **when the engine is cool**, until the appropriate fill level is obtained.

Maintenance and Specifications



Do not add engine coolant when the engine is hot. Steam and scalding liquids released from a hot cooling system can burn you badly. Also, you can be burned if you spill coolant on hot engine parts.



Do not put engine coolant in the windshield washer fluid container. If sprayed on the windshield, engine coolant could make it difficult to see through the windshield.

The cooling system in your vehicle is filled with either green-colored Motorcraft Premium Engine Coolant meeting Ford specification ESE-M97B44-A or yellow-colored Motorcraft Premium Gold Engine Coolant meeting Ford Specification WSS-M97B51-A1. To determine your vehicle's coolant type (color), check your coolant reservoir.

- **Add Motorcraft Premium Engine Coolant (green-colored), VC-4-A (U.S.) or CXC-10 (Canada) or Motorcraft Premium Gold Engine Coolant (yellow-colored), VC-7-A, depending on the type of coolant originally equipped in your vehicle.** If you are unsure which type of coolant your vehicle requires, check your coolant reservoir or contact your local dealer.

Note: Use of Motorcraft Cooling System Stop Leak Pellets, VC-6, darkens the color of Motorcraft Premium Gold Engine Coolant from yellow to golden tan.

- **Do not add/mix an orange-colored, extended life coolant such as Motorcraft Speciality Orange Engine Coolant, VC-2 (US) or CXC-209 (Canada), meeting Ford specification WSS-M97B44-D with the factory-filled coolant.** Mixing Motorcraft Speciality Orange Engine Coolant or any orange-colored extended life product with your factory filled coolant can result in degraded corrosion protection.
- A large amount of water without engine coolant may be added, in case of emergency, to reach a vehicle service location. In this instance, the cooling system must be drained and refilled with a 50/50 mixture of engine coolant and distilled water as soon as possible. Water alone (without engine coolant) can cause engine damage from corrosion, overheating or freezing.
- **Do not use alcohol, methanol or brine or any engine coolants mixed with alcohol or methanol antifreeze (coolant).** Alcohol and other liquids can cause engine damage from overheating or freezing.

Maintenance and Specifications

- **Do not add extra inhibitors or additives to the coolant.** These can be harmful and compromise the corrosion protection of the engine coolant.
- **Do not mix with recycled coolant unless from a Ford-approved recycling process (see *Use of Recycled Engine Coolant* section).**

For vehicles with overflow coolant systems with a non-pressurized cap on the coolant recovery system, add coolant to the coolant recovery reservoir when the engine is cool. Add the proper mixture of coolant and water to the “cold full” level. For all other vehicles, which have a coolant degas system with a pressurized cap, or if it is necessary to remove the coolant pressure relief cap on the radiator of a vehicle with an overflow system, follow these steps to add engine coolant.



To avoid personal injury, make sure the engine is cool before unscrewing the coolant pressure relief cap. The cooling system is under pressure; steam and hot liquid can come out forcefully when the cap is loosened slightly.

1. Before you begin, turn the engine off and let it cool.
2. When the engine is cool, wrap a thick cloth around the coolant pressure relief cap on the coolant reservoir (an opaque plastic bottle). Slowly turn cap counterclockwise (left) until pressure begins to release.
3. Step back while the pressure releases.
4. When you are sure that all the pressure has been released, use the cloth to turn it counterclockwise and remove the cap.
5. Fill the coolant reservoir slowly with the proper coolant mixture (see above), to within the “cold fill range” or the “cold full” level on the reservoir. If you removed the radiator cap in an overflow system, fill the radiator until the coolant is visible and radiator is almost full.
6. Replace the cap. Turn until tightly installed. (Cap must be tightly installed to prevent coolant loss.)

After any coolant has been added, check the coolant concentration see Checking Engine Coolant section). If the concentration is not 50/50 (protection to $-34^{\circ}\text{F}/-36^{\circ}\text{C}$), drain some coolant and adjust the concentration. It may take several drains and additions to obtain a 50/50 coolant concentration.

Whenever coolant has been added, the coolant level in the coolant reservoir should be checked the next few times you drive the vehicle. If

Maintenance and Specifications

necessary, add enough 50/50 concentration of engine coolant and distilled water to bring the liquid level to the proper level.

If you have to add more than 1.0 liter (1.0 quart) of engine coolant per month, have your dealer check the engine cooling system. Your cooling system may have a leak. Operating an engine with a low level of coolant can result in engine overheating and possible engine damage.

Replacing coolant

A coolant mixture of 50% coolant concentrate and 50% water is recommended to maintain best overall performance. To avoid damaging the engine and radiator, the coolant concentrate should not exceed 60%. When refilling the coolant system either as part of the regular maintenance (refer to the scheduled maintenance guide), or due to service performed, adhere to the following instructions:

1. Drain and flush the cooling system to remove dirt deposits, oil, rust particles.

Note: When filling the system with Motorcraft Premium Engine Coolant (green-colored) or equivalent meeting Ford specification ESE-M97B44-A, a supplemental coolant additive is required. Refer to *Adding Coolant* section to determine the coolant type in your vehicle. Add 1.89L (4 pints) of Motorcraft Heavy Duty Cooling System Additive FW-16 or equivalent meeting Ford specification ESN-M99B169-A, directly to the cooling system. An additional 237–295 ml (8–10 oz.) of supplemental coolant additive FW-16 should be added at 24 000 km (15 000 mile) intervals to maintain proper concentration. **Do not use this additive with yellow-colored coolant meeting Ford specification WSS-M97B51-A1.**

2. Fill the coolant reservoir with the specified coolant/water mixture until the level stabilizes at the top hose fitting. Replace and tighten cap. Fill the coolant bottle to the cold fill mark.

3. Reinstall the coolant bottle cap.

4. Start and idle engine until the radiator upper hose is warm (approximately 10–15 minutes). If the hose does not get warm then repeat at a higher engine speed.

5. Immediately shut off engine. Cautiously remove coolant bottle cap and add coolant to Cold Fill mark.

Maintenance and Specifications

Engine Coolant

Refer to the engine operator's manual for additional engine cooling system information.

Recycled engine coolant

Ford Motor Company recommends the use of a recycled engine coolant produced by Ford-approved processes in vehicles originally equipped with Motorcraft Premium Engine Coolant (green-colored). However, not all coolant recycling processes produce coolant that meets Ford specification ESE-M97B44-A. Use of such coolant may harm the engine and cooling system components.

Ford Motor Company does NOT recommend the use of recycled engine coolant in vehicles originally equipped with Motorcraft Premium Gold Engine Coolant since a Ford-approved recycling process is not yet available.



Used engine coolant should be disposed of in an appropriate manner. Follow your community's regulations and standards for recycling and disposing of automotive fluids.

Coolant refill capacity

To find out how much fluid your vehicle's cooling system can hold, refer to *Refill capacities* in this chapter.

Fill your engine coolant reservoir as outlined in *Adding engine coolant* in this chapter.

Severe climates

If you drive in extremely cold climates (less than -36°C [-34°F):

- **It may be necessary to increase the coolant concentration above 50%.**
- **NEVER increase the coolant concentration above 60%.**
- **Increased engine coolant concentrations above 60% will decrease the overheat protection characteristics of the engine coolant and may cause engine damage.**
- **Refer to the chart on the coolant container to ensure the coolant concentration in your vehicle will provide adequate freeze protection at the temperatures in which you drive in the winter months.**

Maintenance and Specifications

If you drive in extremely hot climates:

- **It is still necessary to maintain the coolant concentration above 40%.**
- **NEVER decrease the coolant concentration below 40%.**
- **Decreased engine coolant concentrations below 40% will decrease the corrosion protection characteristics of the engine coolant and may cause engine damage.**
- **Decreased engine coolant concentrations below 40% will decrease the freeze protection characteristics of the engine coolant and may cause engine damage.**
- **Refer to the chart on the coolant container to ensure the coolant concentration in your vehicle will provide adequate protection at the temperatures in which you drive.**

Vehicles driven year-round in non-extreme climates should use a 50/50 mixture of engine coolant and distilled water for optimum cooling system and engine protection.

Coolant conditioner (liquid)

For engines filled with green-colored Motorcraft Premium Engine Coolant, a supplemental coolant additive FW-16 meeting Ford specification ESN-M99B169-A has been added to the coolant in this engine.

This additive aids in the prevention of rust and scale buildup on the internal parts of the cooling system. Prevention of rust and scale buildup allows for proper dissipation of heat generated by combustion.

See the “scheduled maintenance guide” for recommended intervals.

Fan clutches

Your vehicle’s cooling system is equipped with a viscous variable speed fan clutch.

- The fan clutch helps control cooling, increase performance, improve fuel economy and reduce noise.
- The fan clutch is controlled by bimetallic spring sensors. Do not tamper with these sensors as this may change their calibration or keep the fan clutch from operating at all.

Maintenance and Specifications



Stay clear of the fan/fan area while the engine is running or possible personal injury may occur.

FUEL INFORMATION

Important safety precautions



Do not overfill the fuel tank. The pressure in an overfilled tank may cause leakage and lead to fuel spray and fire.



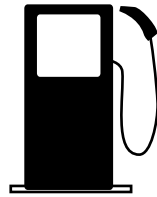
The fuel system may be under pressure. If the fuel cap is venting vapor or if you hear a hissing sound, wait until it stops before completely removing the cap.



Automotive fuels can cause serious injury or death if misused or mishandled.

Observe the following guidelines when handling fuel:

- Extinguish all smoking materials and any open flames before fueling your vehicle.
- Always turn off the vehicle before fueling.
- Automotive fuels can be harmful or fatal if swallowed. If fuel is swallowed, call a physician immediately, even if no symptoms are immediately apparent. The toxic effects of fuel may not be visible for hours.
- Avoid inhaling fuel vapors. Inhaling too much fuel vapor of any kind can lead to eye and respiratory tract irritation. In severe cases, excessive or prolonged breathing of fuel vapor can cause serious illness and permanent injury.
- Avoid getting fuel liquid in your eyes. If fuel is splashed in the eyes, remove contact lenses (if worn), flush with water for 15 minutes and seek medical attention. Failure to seek proper medical attention could lead to permanent injury.



Maintenance and Specifications

- Fuels can also be harmful if absorbed through the skin. If fuel is splashed on the skin and/or clothing, promptly remove contaminated clothing and wash skin thoroughly with soap and water. Repeated or prolonged skin contact with fuel liquid or vapor causes skin irritation.

If you must replace the fuel filler cap, replace it with a genuine Ford or Motorcraft part. The customer warranty may be void for any damage to the fuel tank or fuel system if a genuine Ford or Motorcraft fuel filler cap is not used.



If you do not use the proper fuel filler cap, excessive pressure or vacuum in the fuel tank may damage the fuel system or cause the fuel system to work improperly in a collision, which may result in possible personal injury.

Choosing the right fuel

At operating temperatures below 0°C (32°F), use a blend of No. 1D and No. 2D Diesel fuels, also known as winterized No. 2D.

Do not use diesel fuel blended with waste oil in engines equipped with a catalytic converter-muffler. Blending waste oil in with the fuel will plug the catalytic converter-muffler, resulting in a significant loss of engine power. Your emissions warranty will be voided if blending waste oil with diesel fuel is practiced.

Use low sulfur (less than 0.05% by weight) fuel as required by the EPA for emission compliance.



Do not mix diesel fuel with gasoline, gasohol or alcohol. This could cause an explosion resulting in personal injury.



Do not use starting fluid such as ether or gasoline. Such fluids can cause immediate explosive damage to the engine and possible personal injury.

Maintenance and Specifications

Running out of fuel

Avoid running out of fuel as this will allow air to enter the fuel system, which will make restarting the vehicle difficult.

If you have run out of fuel:

- **If your vehicle is equipped with dual fuel tanks**, add at least 15–19 liters (4–5 gallons) of fuel to each tank before attempting to restart the engine.
- **If your vehicle is equipped with the Caterpillar 3126 B engine**, the fuel system must be primed before attempting to restart the engine. Refer to the engine operator's manual for instructions on priming the engine.
- **Use caution not to overheat and damage the starter** by cranking the engine for an excessive period of time. You may need to crank the engine for a longer time than normal. If the engine fails to start in 30 seconds, turn the ignition to the OFF position and wait for two minutes before cranking the engine again.
- Any remaining trapped air will self-purge from the fuel system once the engine starts running.
- The engine may run rough and produce white smoke while air is in the fuel system. This is normal and should stop after a short period of time.

Fuel filter/water separator



Do not drain water separator while engine is running. Fuel may ignite if separator is drained while engine is running or vehicle is moving.

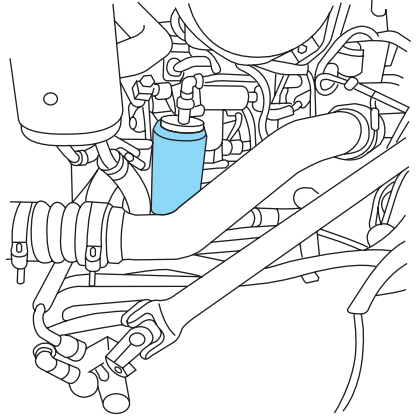
The fuel filter/water separator removes any contaminated particles and/or water from the fuel before the fuel enters the engine.

The fuel filter/water separator should be drained as recommended in the Scheduled Maintenance Guide.

Maintenance and Specifications

Draining the fuel filter/water separator—Caterpillar 3126 B engine

1. With the engine off, open the drain valve located at the bottom of the fuel filter/water separator by turning it counterclockwise.

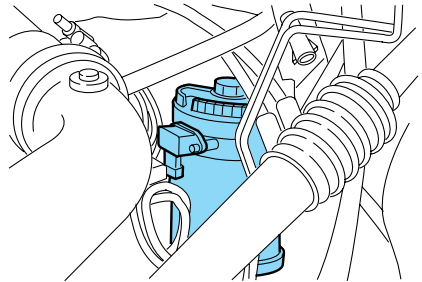


2. Drain the filter until clear fuel is visible.

3. Turn the drain valve clockwise to close the valve. Do not overtighten the drain valve as this could cause damage to the fuel filter/water separator.

Draining the fuel filter/water separator—7.3L Power Stroke engine

1. With the engine off, open the drain valve located on the side of the fuel filter/water separator using your hand.



2. Drain the filter until clear fuel is visible.

3. Close the drain valve completely.

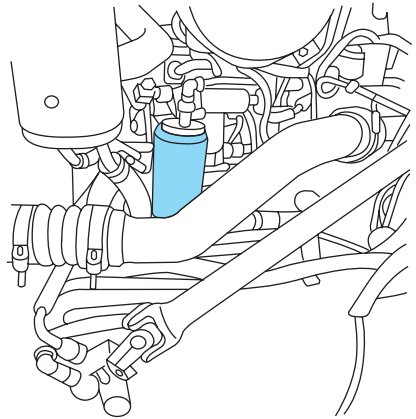
Draining the fuel filter/water separator—Cummins B engine

Refer to your engine operator's manual for service procedures.

Maintenance and Specifications

Fuel filter replacement—Caterpillar 3126 B engine

The fuel filter/water separator is located on the left side of the engine. Replace the fuel filter/water separator as recommended in the Scheduled Maintenance Guide, or sooner if it becomes plugged. Vehicles operated on fuel with more than average impurities may require replacement of the fuel filter more frequently. The spin-on filter has a water drain valve built into the bottom of the filter canister.



Removal

1. Using an oil filter wrench, remove the filter.
2. Carefully clean the mating surfaces.

Installation

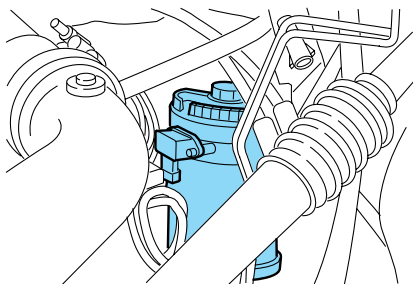
1. Fill the filter with clean, fresh diesel fuel.
2. Coat the filter seal with clean, fresh diesel fuel.
3. Hand-tighten the filter until it seats firmly against the mount, then tighten (by hand) an additional $\frac{1}{3}$ to $\frac{1}{2}$ turn.
4. Start the engine and check for fuel leaks.

Maintenance and Specifications

Fuel filter replacement—7.3L Power Stroke engine

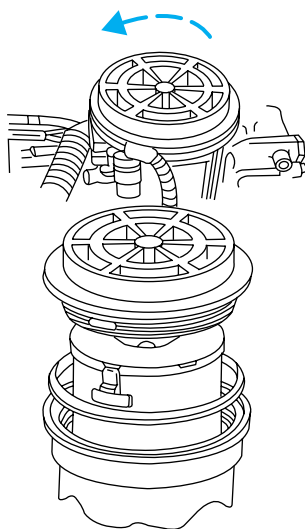
The fuel filter/water separator is located on the right side of the engine. Replace the fuel filter/water separator as recommended in the Scheduled Maintenance Guide, or sooner if it becomes plugged.

Vehicles operated on fuel with more than average impurities may require replacement of the fuel filter more frequently. The filter has a water drain valve built into the bottom of the filter housing.



Removal

1. Remove the fuel filter cap by turning counterclockwise. The fuel filter element will come out with the cap.



2. Remove and discard the bevel gasket. Carefully clean the mating surfaces.

3. Press in on the fuel filter element locking tabs to separate the element from the cap.

Maintenance and Specifications

Installation

Note: The engine will not run properly if the fuel filter is not installed in housing.

1. Apply a coating of clean diesel fuel to the new bevel gasket and install it onto the fuel filter housing.
2. Install the new fuel filter element onto the cap. Place the new fuel filter element and cap into the fuel filter housing. Allow fuel to soak into the fuel filter element.
3. Tighten cap onto the fuel filter housing until cap contacts the housing.
4. Start the engine and check for fuel leaks.

After changing the fuel filter, the engine will purge the trapped air as it runs. Engine may run roughly and smoke until the air is completely eliminated.

Fuel filter replacement—Cummins B engine

Refer to your engine operator's manual for service intervals and procedures.

ESSENTIALS OF GOOD FUEL ECONOMY

Measuring techniques

Your best source of information about actual fuel economy is you, the driver. You must gather information as accurately and consistently as possible. Fuel expense, frequency of fillups or fuel gauge readings are NOT accurate as a measure of fuel economy. We do not recommend taking fuel economy measurements during the first 1 600 km (1 000 miles) of driving (engine break-in period). You will get a more accurate measurement after 3 000 km–5 000 km (2 000 miles–3 000 miles).

The advertised fuel capacity of the fuel tank(s) on your vehicle is equal to the rated refill capacity of the fuel tank(s) as listed in *Fuel Tank Capacities* in this chapter. The advertised capacity is the amount of the Indicated Capacity and the Empty Reserve combined. Indicated Capacity is the difference in the amount of fuel in a full tank and a tank when the fuel gauge indicates empty. Empty Reserve is the small amount of usable fuel remaining in the fuel tank after the fuel gauge indicates empty.

The amount of Empty Reserve varies and should not be relied upon to increase driving range. When refueling your vehicle after the fuel gauge indicates empty, you might not be able to refuel

Maintenance and Specifications

the full amount of the advertised capacity of the fuel tank due to the empty reserve still present in the tank.

Your vehicle may be equipped with dual fuel tanks. If so, you will have a selector control. For information on the Dual Fuel Tank Selector Control refer to the *Driving Tips* section in the *7.3 Liter Power Stroke Direct Injection Turbo Diesel Owner's Guide Supplement*.

Filling the tank

For consistent results:

- Use the same fill rate setting (low — medium — high) each time during filling.
- Allow three automatic click-offs when filling.
- Always use fuel of a known quality, preferably a national brand.
- Have the vehicle loading and distribution the same every time.
- When refueling a vehicle equipped with dual fuel tanks, if the two tanks are not filled equally, the fuel gauge reading may fluctuate slightly until the fuel level between the two tanks balance out and become equal.

Your results will be most accurate if your filling method is consistent.

Note: For vehicles equipped with dual fuel tanks, engine performance may degrade if fuel is not added to both tanks when refueling.

Calculating fuel economy

1. Fill the fuel tank(s) completely and record the initial odometer reading (in kilometers or miles).
2. Each time you fill the tank(s), record the amount of fuel added (in liters or gallons).
3. After at least three to five tank fill-ups, fill the fuel tank(s) and record the current odometer reading.
4. Subtract your initial odometer reading from the current odometer reading.
5. Follow one of the simple calculations in order to determine fuel economy:
 - Multiply liters used by 100, then divide by total kilometers traveled.
 - Divide total miles traveled by total gallons used.

Maintenance and Specifications

Keep a record for at least one month and record the type of driving (city or highway). This will provide an accurate estimate of the vehicle's fuel economy under current driving conditions. Additionally, keeping records during summer and winter will show how temperature impacts fuel economy. In general, lower temperatures give lower fuel economy.

Driving style — good driving and fuel economy habits

Give consideration to the lists that follow and you may be able to change a number of variables and improve your fuel economy.

Habits

- Smooth, moderate operation can yield up to 10% savings in fuel.
- Steady speeds without stopping will usually give the best fuel economy.
- Anticipate stopping; slowing down may eliminate the need to stop.
- Sudden or hard accelerations may reduce fuel economy.
- Slow down gradually.
- Driving at reasonable speeds (traveling at 88 km/h [55 mph] uses 15% less fuel than traveling at 105 km/h [65 mph]).
- Using the air conditioner or defroster may reduce fuel economy.
- Resting your foot on the brake pedal while driving may reduce fuel economy.

Conditions

- Carrying unnecessary weight may reduce fuel economy.
- Fuel economy may decrease with lower temperatures during the first 12–16 km (8–10 miles) of driving.
- Flat terrain driving improves fuel economy over hilly roads.
- Transmissions give their best fuel economy when operated in the top cruise gear and with steady pressure on the accelerator.
- Close windows for highway driving.

FUEL CONSUMPTION IMPROVEMENT MEASURES

There are two important factors you can control to improve fuel economy: the mechanical condition of your vehicle and how you drive it.

A properly maintained vehicle will deliver better performance than a neglected vehicle. Always follow your maintenance schedule to keep your vehicle in top operating condition.

Maintenance and Specifications

Also, your driving habits have a significant influence on use of fuel. By following these suggestions, you can stretch your fuel use:

- Avoid changes in speed as much as possible.
- Anticipate changing traffic conditions. Sudden stops and fast acceleration waste fuel.
- Avoid extensive idling.
- Do not drive with your foot resting on the brake pedal.

CHECKING AND ADDING POWER STEERING FLUID

Checking power steering fluid level

Check the power steering fluid level using the following procedure. Refer to the scheduled maintenance guide for the recommended service intervals. If adding fluid is necessary, use only MERCON® ATF.

1. Set the parking brake, shift into N (Neutral) (automatic transmission) or 1 (First) (manual transmission) and turn the engine off.

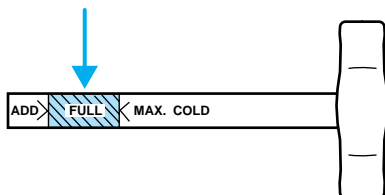
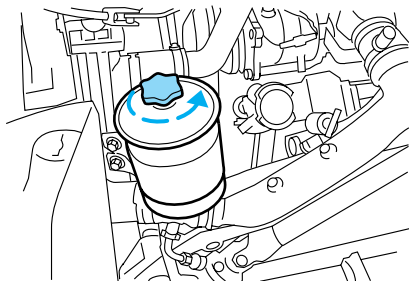
2. Open the hood.

3. Clean the top of the power steering fluid reservoir.

4. Remove the dipstick from the reservoir and wipe the dipstick clean.

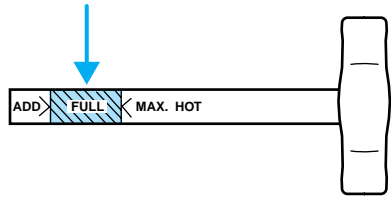
5. Reinstall the dipstick. Remove it again and check the fluid level.

- If the fluid temperature is at approximately 20°C - 49°C (68°F - 120°F) (**fluid cool or warm to the touch**), check the COLD side of the dipstick. The fluid level should be within the FULL range
- If the fluid level is below the ADD line, add fluid in small amounts, continuously checking the level until it reaches the proper level.



Maintenance and Specifications

- If the fluid temperature is at approximately 80°C - 110°C (176°F - 230°F) (**fluid too hot to touch**), check the HOT side of the dipstick. The fluid level should be within the FULL range.
- If the fluid level is below the ADD line, add fluid in small amounts, continuously checking the level until it reaches the proper level.



A low fluid level may indicate a leak in the power steering system. Inspect the power steering system and repair the leak. If necessary, see your dealer or a qualified service technician.

To avoid damage to the power steering system, **do not** operate the vehicle with a low power steering fluid level.

Whenever the dipstick is installed, make sure it is properly seated and tightened securely.

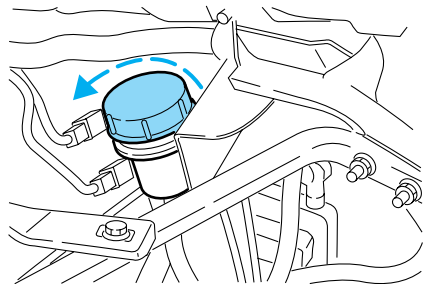
CLUTCH FLUID (IF EQUIPPED)

Check the clutch fluid level. Refer to the Scheduled Maintenance Guide for the service interval schedules.

During normal operation, the fluid level in the clutch reservoir should remain constant. If the fluid level drops, maintain the fluid level at the step in the reservoir.

Use only a DOT 3 brake fluid designed to meet Ford specifications. Refer to *Lubricant Specifications* in this chapter.

1. Set the parking brake, shift into 1 (First) and turn the engine off.
2. Open the hood.
3. Clean the reservoir cap before removal to prevent dirt and water from entering the reservoir.
4. Remove cap and rubber diaphragm from reservoir.
5. Add fluid until the level reaches the step in the reservoir.
6. Reinstall rubber diaphragm and cap onto reservoir.



Maintenance and Specifications

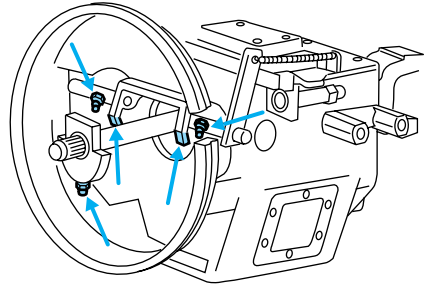
Clutch (if equipped)—linkage lubrication

Lubricate the clutch linkage using the following procedure. Refer to the Scheduled Maintenance Guide for the service interval schedules.

Use a grease which meets Ford specifications. Refer to *Lubricant Specifications* in this chapter.

1. Set the parking brake, shift into 1 (First) and turn the engine off.
2. Remove the inspection cover from the clutch housing.

- **Transmission and clutch removed for clarity.**



3. With a grease gun, lubricate the clutch release bearing (at one location) and the clutch release shaft (at two locations) using the grease fittings provided.
4. Lubricate clutch release wear pads at the two locations where they contact the clutch release bearing using a brush or similar tool.
5. Install the inspection cover onto the clutch housing.

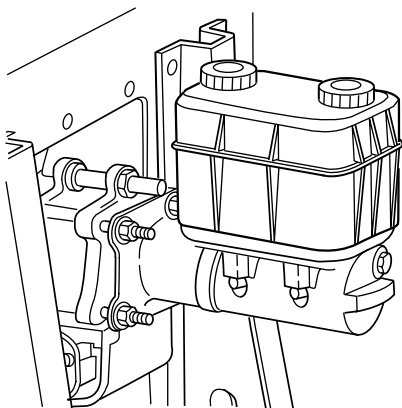
Maintenance and Specifications

BRAKE FLUID (⚠)

Checking and adding brake fluid

Check and refill the Hydromax brake fluid reservoir using the following procedure. Refer to the scheduled maintenance guide for the service interval.

1. Clean the reservoir caps before removal to prevent dirt or water from entering the reservoir.
2. Visually inspect the fluid level.
3. If necessary, add brake fluid from a clean un-opened container until the level reaches MAX. Do not fill above this line.
4. Use only a DOT 3 brake fluid certified to meet Ford specifications. Refer to *Lubricant specifications* in this chapter.



Brake fluid is toxic. If brake fluid contacts the eyes, flush eyes with running water for 15 minutes. Seek medical attention if irritation persists. If taken internally, drink water and induce vomiting. Seek medical attention immediately.



If you use a brake fluid that is not DOT 3, you will cause permanent damage to your brakes.




Do not let the reservoir for the master cylinder run dry. This may cause the brakes to fail.

AVOID MIXING LUBRICANTS

In some cases, different brands of lubricants are not compatible with each other and deteriorate when mixed. It is best to stick with one brand during a maintenance interval.

Maintenance and Specifications

TRANSMISSION FLUID

 Always dispose of used automotive fluids in a responsible manner. Follow your community's standards for disposing of these types of fluids. Call your recycling center to find out about recycling automotive fluids.

Automatic transmission fluid

Refer to your Allison Automatic Transmission Operator's Manual for scheduled intervals for transmission fluid checks and changes. Your transmission does not consume fluid. However, the fluid level should be checked if the transmission is not working properly, i.e., if the transmission slips or shifts slowly or if you notice some sign of fluid leakage.

Transmission fluid level should be checked by your dealer or a qualified service technician.

If you must add transmission fluid, make sure the correct type of fluid is being used. The type of fluid used is indicated in your Allison Automatic Transmission Operator's Manual.

Use of a non-approved automatic transmission fluid may cause internal transmission component damage.

Manual transmission fluid

Refer to your scheduled maintenance guide for transmission fluid level checks and fluid change intervals.

Your manual transmission may be filled with an optional synthetic fluid which allows the use of extended service intervals. A tag on the filler plug will identify the use of the synthetic fluid.

Use only fluid that meets Ford specifications (refer to *Lubricant specifications* in this chapter).

Use of a non-approved transmission fluid may cause internal transmission component damage.

For location of the transmission filler plug, refer to your transmission operator's manual or *Transmission refill capacities* in this chapter.

Check your transmission fluid level using the following procedure:

1. Park the vehicle on level ground.
2. Set the parking brake and shift into 1 (First) and turn the engine off.
3. Clean any dirt from around the filler plug.

Maintenance and Specifications

4. Remove the filler plug and inspect the fluid level.
5. The fluid level should be up to the bottom of the filler plug opening.
6. If necessary, add enough fluid through the filler plug opening so that the fluid level is at the bottom of the opening.
7. Clean and install the filler plug securely.

Drain and refill your transmission fluid using the following procedure:

1. Drain the transmission while the fluid is warm.
2. Park the vehicle on level ground.
3. Set the parking brake and shift into 1 (First) and turn the engine off.
4. Clean any dirt from around the filler and drain plugs.
5. Remove the filler and drain plugs and drain the fluid into a suitable container. Dispose all used automotive fluids in a responsible manner following your local authorized standards.
6. Clean and install the drain plug securely.
7. Add enough fluid through the filler plug opening so that the fluid level is up to the bottom of the opening.
8. Clean and install the filler plug securely.

REAR AXLE LUBRICANT

Refer to your Scheduled Maintenance Guide for rear axle lubricant level checks and lubricant change intervals.

Your rear axle may be filled with an optional synthetic lubricant which allows the use of extended service intervals. A tag on the filler plug will identify the use of the synthetic lubricant.

Use only a lubricant that meets Ford specifications (refer to *Lubricant specifications* in this chapter).

Use of a non-approved rear axle lubricant may cause internal axle component damage.

Check your rear axle lubricant level using the following procedure:

1. Park the vehicle on level ground.
2. Set the parking brake and shift into N (Neutral) (automatic transmission) or 1 (First) (manual transmission) and turn the engine off.
3. Clean any dirt from around the rear axle filler plug.
4. Remove the filler plug and inspect the lubricant level.

Maintenance and Specifications

5. The lubricant level should be up to the bottom of the filler plug opening.
 6. If necessary, add enough lubricant through the filler plug opening so that the lubricant level is at the bottom of the opening.
 7. Clean and install the filler plug securely.
- Drain and refill your rear axle lubricant using the following procedure:
1. Drain the rear axle while the lubricant is warm.
 2. Park the vehicle on level ground.
 3. Set the parking brake and shift into N (Neutral) (automatic transmission) or 1 (First) (manual transmission) and turn the engine off.
 4. Clean any dirt from around the rear axle filler and drain plugs.
 5. Remove the filler and drain plugs and drain the lubricant into a suitable container. Dispose all used automotive fluids in a responsible manner following your local authorized standards.
 6. Clean and install the drain plug securely.
 7. Add enough lubricant through the filler plug opening so that the lubricant level is up to the bottom of the opening.
 8. Clean and install the filler plug securely.

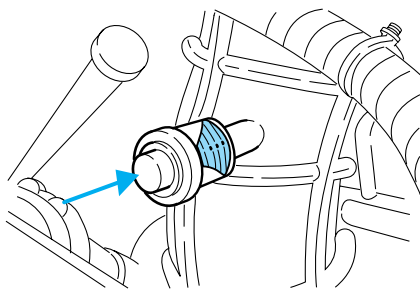
AIR FILTER

When to service

Your vehicle is equipped with an air filter restriction gauge to determine when to replace the air filter element. It is not possible to determine the need for service by visually inspecting the air filter.

When the yellow indicator on the air filter restriction indicator reaches the red line, the air filter element should be replaced.

Each time the air filter element is replaced, reset the air filter restriction indicator by pressing the red button.

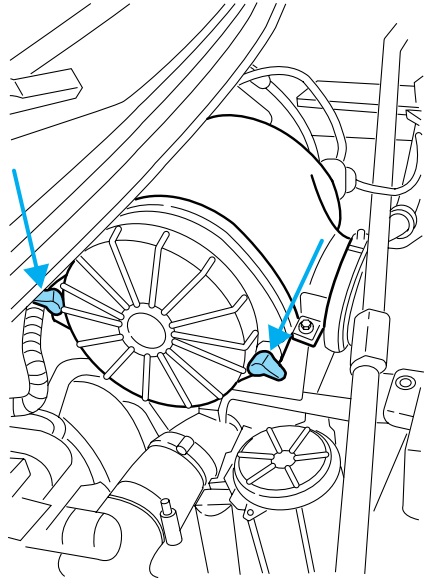


Maintenance and Specifications

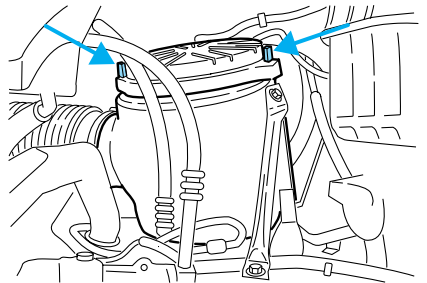
Servicing the air filter

Your vehicle is equipped with a dry-type air cleaner element. When the yellow indicator on the air filter restriction indicator reaches the red line the air filter element should be replaced.

- 7.3L Power Stroke engine

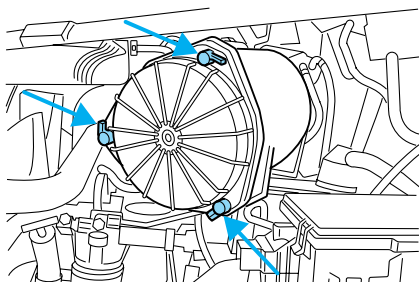


- Cummins B engine



Maintenance and Specifications

- Caterpillar 3126 B engine

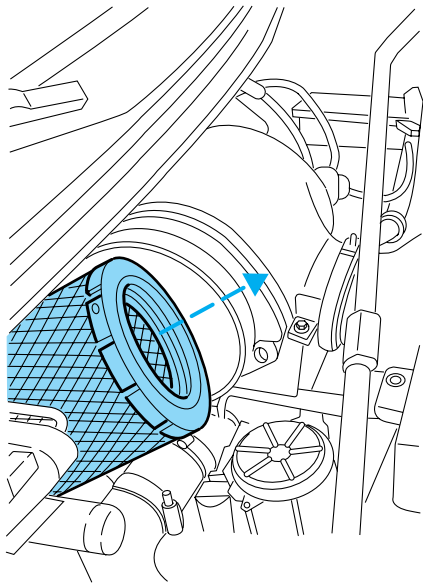


Replace the air filter element using the following procedure:

1. Set the parking brake and shift into N (Neutral) (automatic transmission) or 1 (First) (manual transmission) and turn the engine off.
2. Open the hood. Protect yourself from engine heat.
3. Push in and turn the latches that retain the air filter housing cover counterclockwise 90 degrees, then carefully remove the cover.
4. Carefully remove the air filter element. **Use caution to keep dirt and debris from falling into the engine.** A twisting rocking motion may be needed to break the seal between the filter element and the filter housing.

Maintenance and Specifications

- **If your vehicle is equipped with the 7.3L Power Stroke engine**, it will be necessary to remove the air filter element from the filter housing by moving the exposed end of the filter element down and to the rear of the vehicle, then lifting the other end of the filter element up and out of the engine compartment.



- **If your vehicle is equipped with the Cummins B engine**, a secondary air filter is located the bottom of the air filter housing to keep dirt and debris from falling into the engine when the air filter element is being removed. This secondary filter needs to be replaced only after the primary air filter element has been replaced several times. If necessary replace the secondary air filter.
5. Reach inside the air filter housing and clean the outlet tube where it extends into the housing. Be sure not to damage the tube because the air filter element seals around this surface.
 6. Check to be sure that the drain hole in the air filter housing is open and clear of any dirt and debris.
 7. Check to be sure the new air filter element is not damaged, then install it. Make sure there is a tight seal (apply pressure at the outer rim of the element, not the flexible center).
 8. Align the air filter cover latches with the holes in the air filter housing and install the cover.
 9. Push in on the cover latches, then turn the latches clockwise 90 degrees. Make sure that all air filter cover latches are fully engaged.

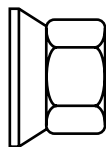
Maintenance and Specifications

10. Reset the air filter restriction indicator.
11. Inspect the air induction system for loose fitting, damaged or missing components and repair as necessary.

SERVICING YOUR WHEELS AND TIRES

Wheel assembly

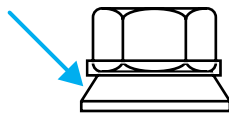
Your vehicle is fitted with hub piloted wheels and two-element swiveling lug nuts (20 & 22 mm). Do not use taper type wheels or ball seat wheel nuts.



- Do not paint the mating face of the hub/drum.
- Do not paint the two-element swiveling lug nuts or wheel stud.
- Do not allow an excessive thickness of paint to build between the disc wheel mounting surfaces.
- Do not install disc wheels where the paint has not fully cured.
- At wheel changes, ensure mounting faces are clean and free of rust, dirt and excess paint.

If fasteners are needed, use only Ford recommended replacement parts.

- To maintain the desired torque/tension relation between nut body and flange, it is necessary to use clean engine oil meeting Ford specification WSS-M2C153-G between nut body and flange. Lubricate the nut body and flange any time a wheel is removed.



Maintenance and Specifications

The M20 & M22 wheel nuts are right-hand threads. Refer to the following chart for approved wheel lug nut torque.

Wheel type	Bolt size	Wheel nut torque
10-hole disc 285.75 mm bolt circle	M22 (22 by 1.5 mm)	610-677 Nm (450-500 lb-ft)
8-hole disc 19.5x6.75 mm bolt circle	M20 (20 by 1.5 mm)	610-677 Nm (450-500 lb-ft)

The disc wheel nuts on your vehicle were tightened before delivery. Recheck torque of nuts at 160 km (100 miles) and 800 km (500 miles) of new vehicle operation or any time a wheel is removed. Reset to recommended torque levels.



Tires are one of the weaker weight carrying components of the vehicle. Do not overload the vehicle beyond safe load carrying capacity.



Avoid hammering rim with steel hammers.



Never run the engine with one wheel off the ground.



Failure to retighten wheel lug nuts as required could allow the wheel to come off while the vehicle is in motion, possibly causing loss of vehicle control and collision. Loose wheel studs may also cause shimmy and vibration.



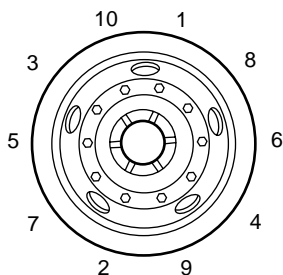
Use of aftermarket wheel assemblies is not recommended; they may be incompatible with your vehicle and may result in equipment failure and possible injury. Replacement with used wheels is not advised; they may have been treated harshly or have high mileage and could fail without warning.

Maintenance and Specifications



A wheel or tire of the wrong size or type may adversely affect such things as load carrying capacity, wheel and bearing life, brake cooling, speedometer/odometer calibration, stopping ability, headlight aim, bumper height, vehicle ground clearance and tire or tire chain clearance to the body and chassis.

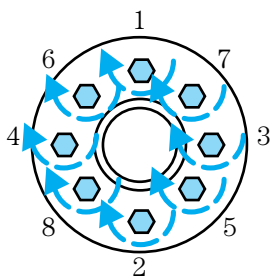
- 10-hole disc



- 8-hole disc

Always tighten wheel lug nuts alternately in the sequence shown. Make sure the wheel is drawn evenly against the hub or drum.

Check for damage that would affect the runout of the wheels. Wobble or shimmy caused by a damaged wheel will eventually damage the wheel bearings. Stones or lumps of mud wedged between a wheel and drum or between dual wheels can unbalance a wheel and tire.



Servicing your tires

Inspect the tire treads and remove stones, nails, glass or other objects that may be wedged in the tread grooves. Check for holes or cuts that may permit air leakage from the tire and make the necessary repairs.

Inspect the tire sidewalls for cuts, bruises and other damage. If internal damage to the tire is suspected, have the tire removed from wheel and inspected.

Check the pressure regularly. Maintain the recommended air pressure for your vehicle, load, tires and rims or wheels. Check the tire valve for air leaks and replace the valve if necessary. If the valve cap is missing,

Maintenance and Specifications

install a new cap. Refer to *Tire/Wheel Rim Selection and Inflation Pressures* or the *Vehicle Certification Label* in this chapter.



An inflated tire and rim can be very dangerous if improperly used, serviced or maintained. To avoid serious injury, never attempt to re-inflate a tire which has been run flat or seriously under-inflated without first removing the tire from the wheel assembly for inspection. Do not attempt to add air to tires or replace tires or wheels without first taking precautions to protect persons and property.

Refer to the Ford Service Manual or the regulations of the Occupational Safety and Health Administration (OSHA) for appropriate procedures and cautions.



Tire inflation pressure must not exceed the recommendations of the axle, tire and/or wheel rim manufacturer for the specific load, speed and application. The inflation pressures on the tire sidewall do not take the wheel rim capabilities into consideration.



Never use a rim of different manufacture or any different size or type than original rims.

Try to replace tires in pairs on the same axle shaft. Tires larger or smaller than originally installed may affect the accuracy of the speedometer. Consult your dealer about the need to change the switch setting on the back of the speedometer.

Front wheel alignment

If abnormal tire wear or ride and handling characteristics such as vehicle lead or wander are experienced with properly inflated tires, the front end alignment should be checked.

Wheel bearing care

Front and rear wheel bearings are adjustable to correct for bearing and spindle wear. Long bearing life depends upon proper adjustment and correct lubrication. If bearings are adjusted too tightly (preloaded) they will overheat and wear rapidly. Loose adjustment will cause pounding and will contribute to uneven tire wear, steering difficulties and inefficient brake operation.

Maintenance and Specifications

Refer to the Ford Service Manual applicable to your vehicle for proper tightening procedures and torque specifications.

Periodically check the oil level on oil filled front bearing hubs. If necessary, add oil through the filler plug so the oil level is between the ADD and FULL marks indicated on the hub. Do not overfill. Overfilling can result in oil on brake linings.

Refer to your Scheduled Maintenance Guide for fluid level checks and change intervals for the front hubs.

Your front hubs may be filled with an optional synthetic fluid which allows use of the extended service intervals. A green colored filler plug identifies use of the synthetic fluid.

Tire/wheel rim selection and inflation pressures

Tire Size, Load Range (PR)	Wheel Width (in.) and Type	Single Rear Axle: Max. Tire and Wheel Capacity kg. (lb.) kPa @ (psi) (cold) by Axle	
		Front	Rear
10R22.5 F (12)	7.50 10H (I.S.O.)	10 300 (4 671) 698 100	19 280 (8 745) 698 100
10R22.5 G (14)	7.50 10H (I.S.O.)	10 300 (4 671) 698 100	21 000 (9 525) 711 115
11R22.5 G (14)	8.25 10H (I.S.O.)	12 080 (5 478) 703 105	22 520 (10 213) 703 105
245/70R19.5	6.75 8H (I.S.O.)	10 300 (4 671) 698 100	19 280 (8 745) 698 100
11X20 (16)	7.50 10H (I.S.O.)	12 080 (5 478) 703 105	22 520 (10 213) 703 105

MINOR TROUBLESHOOTING GUIDE

Diesel engine

For troubleshooting information, refer to the diesel engine operator's manual.

If engine won't crank

For troubleshooting information, refer to the engine operator's manual.

Maintenance and Specifications

If engine cranks but won't start

For troubleshooting information, refer to the engine operator's manual.

If engine runs hot

For troubleshooting information, refer to the engine operator's manual.

If fuses burn out

Burned-out or "blown-out" fuses or circuit breaker tripping (if equipped) usually indicate an electrical short circuit, although a fuse may occasionally fail from vibration. Insert a second fuse or reset the breaker (if equipped). If this fuse immediately burns out or the breaker (if equipped) trips and you cannot locate the fuse, return your vehicle to your dealer for a circuit check.

If lamp bulbs burn out

Repeated lamp burn-out usually indicates a loose connection, either at the lamp socket, the system ground or a malfunctioning voltage regulator. If examination does not indicate the cause of the trouble, return your vehicle to your dealer for inspection.

If headlamps flash on and off

If headlamps flash on and off at regular intervals, the system circuit breaker (if equipped) is operating, indicating a short circuit or overload. Take your vehicle to your dealer for a circuit check.

ENGINE COOLANT AND OIL REFILL CAPACITIES

Engine	Engine coolant (approximate capacity)	Engine oil (approximate capacity)
Caterpillar 3126 B	23.7L (25.0 quarts)	¹
Cummins B 5.9L	23.1L (24.4 quarts)	¹
Power Stroke 7.3L	18.0L (19.0 quarts)	18.0L (19.0 quarts) ²

¹Refer to the engine operator's manual for engine oil refill capacities.

²Engine oil and filter change.

Maintenance and Specifications

POWER STEERING FLUID CAPACITIES

GVWR	Axle application	System capacity
11 794/13 608 kg (26 000/30 000 lb.)	3 856/4 082 kg (8 000/9 000 lb.)	4.3L (4.5 quarts)
14 969 kg (33 000 lb.)	5 443 kg (12 000 lb.)	4.5L (4.7 quarts)

TRANSMISSION REFILL CAPACITIES

Type and make	Approximate capacity
5-speed (Eaton FS-4205A) ^{1, 2}	5.4L (5.75 quarts)
5-speed (Eaton FS-5205A) ^{1, 2}	5.9L (6.25 quarts)
6-speed (Eaton FS-5306A and FS-6306A) ^{1, 2}	9.2L (9.75 quarts)
7-speed (Spicer ES52-7B and ES066-7B) ^{1, 2}	10.4L (11.0 quarts)
Allison AT-545 ³	18.9L (20.0 quarts)
2000/2400 Series-Standard sump	10.0L (10.6 quarts) ⁴
2000/2400 Series-Shallow sump	7.0L (7.4 quarts) ⁵
MD series ³	27.4L (29.0 quarts)

¹Quantity shown is nominal; fluid level should be at lower edge of fill hole.

²Fill plug is located on the right side of the transmission and the drain plug on the rear of the transmission.

³Fluid level should be checked by your dealer or a qualified service technician.

⁴Approximate quantities only, does not include external lines and cooler hose.

⁵Approximate quantities only, does not include external lines and cooler hose.

Maintenance and Specifications

REAR AXLE REFILL CAPACITIES

Make and model	Approximate capacity
Rockwell RS-17-144 ¹	16.6L (35 pints)
Rockwell RS-17-145 ^{1, 2}	16.6L (35 pints)
Rockwell RS-21-145 ^{1, 2}	16.6L (35 pints)
Rockwell RS-23-160 ^{1, 2}	18.9L (40 pints)

¹Quantities listed are approximate. Fill axle until the lubricant level is at bottom of filler hole, with vehicle on level ground.

²If hubs have been removed, add an additional 0.75 liter (1.6 pints) of axle lubricant. Add lubricant through the axle vent.

FUEL TANK CAPACITIES

Type	Approximate capacity
Single tank	246.09L (65 gallons)
Dual tank	492.18L (130 gallons)

LUBRICANT SPECIFICATIONS

Item	Ford Part Name	Ford Part Number	Ford Specification
Brake and clutch fluid (if equipped)	Motorcraft High Performance DOT 3 Motor Vehicle Brake Fluid	PM-1	ESA-M6C25-A and DOT 3
Body hinges, hood hinges and latches.	Multi-Purpose Grease	XG—4 or F5AZ-19G209-AA	ESR-M1C159-A
Lock cylinders	Penetrating Lubricant	XL-1	N/A

Maintenance and Specifications

Item	Ford Part Name	Ford Part Number	Ford Specification
Front axle spindle pins, steering linkage, front and rear spring shackle pins, steering column U-joints, steering shaft slip yoke and universal joint, steering shaft pillow block bearing, clutch linkage fittings.	Premium Long Life Grease	XG-1-C or XG-1-K	ESA-M1C75-B

Maintenance and Specifications

Item	Ford Part Name	Ford Part Number	Ford Specification
Bushings, front wheel bearings (grease packed type) and seals, fuel shut-off solenoid linkage, air brake control valve, linkage, treadle hinge and roller, transmission and transmission cables, clutch release bearing hub, transmission shift lever pivot.	Premium Long Life Grease	XG-1-C or XG-1-K	ESA-M1C75-B
Door weatherstrips	Silicone Lubricant	F7AZ-19G208-BA and F5AZ-19553-AA	ESR-M13P4-A
Driveshaft U-joints and slip splines, power steering gear output shaft.	High Temperature 4 x 4 Front Axle and Wheel Bearing Grease	E8TZ-19590-A	ESA-M1C198-A

Maintenance and Specifications

Item	Ford Part Name	Ford Part Number	Ford Specification
Spring leaves, transmission linkage pivots, brake and clutch pedal pivots and clevises, transmatic detent stop, starter motor.	Motorcraft SAE 10W30 Super Duty Motor Oil	XO-10W30-QSD	WSS-M2C171-C
Automatic transmission	Refer to the Allison Automatic Transmission Operator's manual.		
Rear axle and front wheel bearings (oil filled) ¹	Motorcraft SAE 80W-90 Premium Rear Axle Lubricant	XY-80W90-QL	WSP-M2C197-A
	Motorcraft SAE 75W-140 High Performance Rear Axle Lubricant	XY-75W-140-QL	WSL-M2C192-A
Manual transmission ¹	Motor oil SAE 50 (above -18°C [0°F])	²	WSE-M2C908-A
	Motorcraft SAE 30 Super Duty Motor oil (below -18°C [0°F])	XO-30-QSD ³	WSS-M2C171-C
Engine oil -7.3L Power Stroke engine ^{1,4}	Motorcraft Super Duty Motor oil	XO-15W40-QSD ³ XO-10W30-QSD ³	WSS-M2C171-C
	Motorcraft SAE 0W-30 Super All Season Motor oil (synthetic)	XO-0W30-LAS	

Maintenance and Specifications

Item	Ford Part Name	Ford Part Number	Ford Specification
Engine oil -Cummins B and Caterpillar 3126 B engines	Refer to the appropriate engine operator's manual.		
Engine coolant -7.3L Power Stroke ⁵	Motorcraft Premium Engine Coolant (green-colored)	VC-4-A (US) or CXC-10 (Canada)	ESE-M97B44-A
	Motorcraft Premium Gold Engine Coolant (yellow-colored)	VC-7-A	WSS- M97B51-A1
Engine coolant additive ⁶	Motorcraft Heavy Duty Cooling System Additive	FW-16	ESN- M99B169-A
Engine coolant -Caterpillar 3126 B engine and Cummins B engine	Refer to the engine operator's manual.		
Power steering	Motorcraft MERCON® ATF	XT-2-QDX	MERCON®
Windshield washer fluid	Ultra-Clear Windshield Washer Concentrate	C9AZ-19550-AC	ESR-M17P5-A

¹Refer to your scheduled maintenance guide to determine the correct service interval for the lubricant which you are using.

²Ford Motor Company currently does not offer a SAE 50 Motor oil.

³Ford Motor Company currently does not offer a synthetic based lubricant for this viscosity grade. Select the correct SAE viscosity grade

Maintenance and Specifications

lubricant and API service category for your vehicle's operating conditions.

⁴Refer to *Engine oil and filter recommendations—7.3L Power Stroke engine* in the *Maintenance and care* chapter to select the correct SAE viscosity grade and API service category for your vehicle's operating conditions.

⁵Add the coolant type originally equipped in your vehicle.

⁶Use only when filling with Motorcraft Premium Engine Coolant (green-colored).

VEHICLE IDENTIFICATION NUMBER (VIN/SERIAL NUMBER)

The Vehicle Identification Number (VIN) is printed on the Vehicle Rating Decal attached to the vehicle. The VIN also serves as the warranty number. The rating decal is attached to the front door latch pillar (B-pillar) on the driver's side.

If you ever find it necessary to communicate with Ford Motor Company about your vehicle, always include the VIN in your communication.

CERTIFICATION LABEL

THIS CHASSIS CAB CONFORMS TO FEDERAL MOTOR VEHICLE SAFETY STANDARD NOS. 101, 102, 103, 104, 106, 107, 111, 113, 115, 116, 124, 205, 206, 207, 208, 209, 210, AND 302. THIS VEHICLE WILL CONFORM TO STANDARD NOS. 108, 120, AND 105 OR 121 (AS APPLICABLE) IF IT IS COMPLETED IN ACCORDANCE WITH THE INSTRUCTIONS CONTAINED IN THE INCOMPLETE VEHICLE DOCUMENT FURNISHED PURSUANT TO 49 CFR PART 568. CONFORMITY TO THE OTHER SAFETY STANDARDS APPLICABLE TO THIS VEHICLE WHEN COMPLETED IS NOT SUBSTANTIALLY AFFECTED BY THE DESIGN OF THE CHASSIS CAB. CHASSIS CAB MANUFACTURED BY FORD MOTOR COMPANY IN U.S.A.

ESHT-19A349-AA

Maintenance and Specifications

Incomplete Vehicle Label

**INCOMPLETE VEHICLE MANUFACTURED BY
FORD MOTOR COMPANY**

MADE IN U.S.A.

GVWR: XXXXX LB/XXXXX KG

VEHICLE IDENTIFICATION NUMBER



YG EXTERIOR PAINT COLORS		71 DISTRICT		0064 DSO	
WB XXX	TYPE-GVW XXXXXX	BODY XXX	TRANS XX	AXLE XX	
FGAWR			RGAWR		

Vehicle Rating Decal - Sample

MFD. BY FORD MOTOR CO. IN U.S.A.						
DATE: XXXXX GVWR: XXXXX LB/ XXXXX KG						
FGAWR: XXXXXX/XXXXXXXX			RGAWR: XXXXXX/XXXXXXXX			
XXXXXXXXXXXXX W/TIRES		XXXXXXXXXXXXX W/TIRES				
XXXXXXXXXXXXX RIMS		XXXXXXXXXXXXX RIMS				
AT XXX PSI COLD		AT XXX PSI COLD				
THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR VEHICLE SAFETY STANDARDS IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE.						
VIN: XXXXXXXXXXXXXXXXX			REAR REAR GAWR			
TYPE: XXXXXXXXXXXXXXXXX			XXXXXXXXXXXXXXX			
WB XXX	TYPE/GVW XXXXXX	BODY XXX	TRANS XXX	AXLE XXX	EXT PNT XXXX	DSO XXXXXX
VFOHT-15294A10-GA						

The National Highway Traffic Safety Administration Regulations require that a Certification Label be affixed to a vehicle and prescribe where the Certification Label may be located. Where Ford Motor Company is the sole manufacturer of the vehicle, the Certification Label is located on the front door latch pillar on the driver's side. In many instances, the vehicle is sold by Ford Motor Company to an intermediate or final stage manufacturer who is required to affix the Compliance Label. In these cases, the completed vehicle is manufactured in two (or more) stages by two (or more) separate manufacturers, with the manufacture of the completed vehicle occurring at a later date than the manufacture of the chassis or incomplete vehicle. Consequently, the model year of the completed vehicle may be later than the model year of the incomplete vehicle or chassis.

FORD ACCESSORIES FOR YOUR VEHICLE

A wide selection of genuine Ford accessories are available for your vehicle through your local authorized Ford, Lincoln Mercury or Ford of Canada dealer. These quality accessories have been specifically engineered to fulfill your automotive needs; they are custom designed to complement the style and aerodynamic appearance of your vehicle. In addition, each accessory is made from high quality materials and meets or exceeds Ford's rigorous engineering and safety specifications. Ford Motor Company will repair or replace any properly dealer-installed Ford accessory found to be defective in factory-supplied materials or workmanship during the warranty period, as well as any component damaged by the defective accessory. The accessory will be warranted for whichever provides you the greatest benefit:

- 12 months or 20 000 km (12 000 miles) (whichever occurs first), or
- The remainder of your new vehicle limited warranty.

This means that genuine Ford accessories purchased along with your new vehicle and installed by the dealer are covered for the full length of your New Vehicle's Limited Warranty — 3 years or 60 000 km (36 000 miles) (whichever occurs first). Contact your dealer for details and a copy of the warranty.

Not all accessories are available for all models.

General Maintenance Information

GENERAL MAINTENANCE INFORMATION

The Scheduled Maintenance Services listed in this section are required because they are considered essential to the life and performance of your vehicle.

Ford Motor Company recommends you perform the Owner Maintenance Services listed in this section. These services are matters of day-to-day care that are important to the proper operation of your vehicle. In addition to the conditions described in the Owner Maintenance Checklist, be alert for any unusual noise, vibration or other indication that your vehicle may need service and attend to it promptly.

Use only recommended fuels, lubricants, fluids and service parts conforming to Ford specifications. Motorcraft parts are designed and built for best performance in your vehicle. Using these parts for replacement is your assurance that Ford-Built quality stays in your vehicle.

SCHEDULED MAINTENANCE

The maintenance or replacement of the emission control devices (or systems) in your new Ford Motor Company vehicle (or engine) may be performed at your expense. These services may be performed by any automotive repair establishment or individual using automotive parts equivalent to those with which your vehicle or engine was originally equipped. If any parts other than Ford, Motorcraft, or Ford authorized, remanufactured parts are used for maintenance replacements (or for the service) of components effecting the emission control, the owner should be assured that such parts are warranted by their manufacturer to be equivalent to genuine Ford Motor Company Parts in performance and durability. Please consult your warranty information booklet for complete warranty information.

Authorized dealer maintenance

Your authorized dealer specializes in knowing all about Ford Motor Company vehicles rather than knowing a little about all makes.

There are Ford or Ford of Canada dealer service shops ready to serve you wherever you drive in the U.S. or Canada. They stock Ford and Motorcraft parts, and Ford Chemicals and lubricants. You can be confident that these meet the same exacting design and quality standards as those used to build the vehicle originally. Dealer Service Technicians have available training in the latest product developments and service techniques.

General Maintenance Information

OWNER MAINTENANCE

You can do much of the maintenance your vehicle requires yourself, if you have the time and a reasonable amount of mechanical ability. If you prefer to have this work done professionally, your authorized dealer stands ready to help you.

All mechanical components and attachments are important in that they could affect the performance of vital components and systems. If replacement becomes necessary, they must be replaced with parts having the same part number or with equivalent parts. Torque values of the attaching parts must be used as specified during any reassembly procedure to assure proper retention.

EMISSIONS CONTROL SYSTEM

To assure the emissions control systems operate effectively, you should have the services listed in the maintenance schedule performed at the specified time and km/mileage intervals. You should avoid running out of fuel or turning off the ignition while the vehicle is in motion, especially at high speeds.



Because of high engine compartment and exhaust system temperatures resulting from emissions equipment, do not park, idle or operate your vehicle in dry grass or other dry ground cover where the possibility of ground fire exists.

Do not make unauthorized modifications to the engine or vehicle. Modifications causing increased amounts of unburned fuel to reach the exhaust system can significantly increase the temperature of the engine compartment and/or the exhaust system.

Avoid driving your vehicle if it does not operate properly. If the engine diesels (more than five seconds of engine run-on after shut-off), misfires, surges, stalls or backfires, see your dealer. Be alert for fluid leakage, odor, smoke, loss of oil pressure, or charge indicator or over temperature warning.

Do NOT use diesel fuel blended with waste oil in engines equipped with a CATALYTIC CONVERTER-MUFFLER. Waste lube oil blending in fuel will plug the CATALYTIC CONVERTER-MUFFLER, resulting in a significant loss of engine power.

General Maintenance Information

Emissions control system(s) laws

Federal law prohibits vehicle manufacturers, dealers and other persons engaged in the business of repairing, servicing, selling, leasing or trading motor vehicles, as well as fleet operators from knowingly removing or rendering an emissions control device or system inoperative. Further, modifications of the emissions control system(s) could create liability on the part of individual owners under the laws of some states. In Canada, modification of the emissions control system could create liability under applicable Federal or Provincial laws.

NOISE EMISSIONS WARRANTY, PROHIBITED TAMPERING ACTS AND MAINTENANCE

On January 1, 1978, Federal regulations became effective governing the noise emissions on trucks over 4 535 kgs. (10 000 lbs.) GVWR. The following statements concerning prohibited tampering acts and maintenance and the noise warranty are found in the Warranty Guide, and are applicable to completed trucks.

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 following acts listed:

Vehicle System	Acts
Acoustical Shielding	Removal of noise shields, hood blanket, tunnel liner or acoustical absorptive material.
Engine	Removal or rendering inoperative the engine speed governor so as to allow engine speed to exceed manufacturer specifications. Removal of engine mounted noise shield or oil pan enclosure.

General Maintenance Information

Vehicle System	Acts
Engine Air Induction System	Removal of the air duct, silencer, air cleaner, and/or air cleaner element and baffle in air cleaner; re-indexing of air cleaner.
Exhaust System	Removal or rendering inoperative exhaust system components including the catalytic converter - muffler assembly, inlet pipe, outlet pipe, resonator and flexpipe. Rotation of horizontal exhaust system directional outlet pipe to cause the exhaust to be emitted in a direction other than downward.
Engine Cooling System	Removal or rendering inoperative the fan clutch. Removal or modification of the fan shroud. Replacing a fixed fan with a fan of increased diameter, different number of blades or different pitch width.

MAINTENANCE

Instructions for maintenance and service of the noise control system have been included in the Required Maintenance Services and in the General Maintenance Checklist. To further help minimize noise emissions degradation throughout the life of the vehicle, Ford Motor Company recommends that this vehicle should be operated in the manner described within the Owner Guide. Caution should be exercised by the owner when installing replacement parts to be sure that a tampering act (as outlined above) is not committed. Note any inspection and service performed in the Maintenance Record.

EMISSIONS INFORMATION LABEL

Emissions information appears on the Important Engine Information Decal located on or near the engine.

SCHEDULED MAINTENANCE SERVICES

Maintenance service adjustments must conform to specifications contained in this manual, and those shown on the Important Engine Information Decal. The following services are to be performed at

General Maintenance Information

scheduled intervals because they are considered essential to the life and performance of your vehicle. Ford recommends that you perform maintenance on all designated items to achieve best vehicle operation.

Scheduled maintenance beyond 160 930 km (100 000 miles) should be continued as before 160 930 km (100 000 miles).

SPECIAL OPERATING CONDITIONS

If your driving habits **frequently** include one or more the following conditions:

- Short trips of **less** than 16 km (ten miles) when outside temperatures remain below freezing.
- Operating during **hot weather** in stop-and-go “rush hour” traffic.
- Operating in severe dust conditions.
- Extensive idling, or low speed operation such as door-to-door delivery service.
- High speed operation with a fully loaded vehicle (max. GVW).
- Snowplowing.

Perform the following:

- Change engine oil and oil filter every three months, 8 000 km (5 000 miles) or 125 hours of engine service.
- If operating in severe dust conditions, replace the air cleaner filter more often than regular intervals as determined by the air filter restriction indicator. Make sure that the air filter restriction indicator is in good working order.
- Lube the manual transmission and the rear axle every 48 279 km (30 000 miles) or 6 months, whichever comes first.
- See the Allison, Cummins and Caterpillar Operator’s Manual.

AIR BRAKE ADJUSTMENT



Failure to maintain proper air brake adjustment can result in reduction or loss of braking ability.

Air brake inspection and adjustment should be performed by a qualified service technician in accordance with the instructions in the Ford Truck Service Manual.

General Maintenance Information

Cam brakes - automatic slack adjusters

Inspect standard air brakes equipped with automatic slack adjusters for proper brake adjustment every four months or 32 000 km (20 000 miles) whichever occurs first.

However, more frequent inspection is required if your vehicle's brakes are subjected to heavy use or adverse operating conditions such as:

- Frequent brake applications while fully loaded.
- Operation on hilly or mountainous terrain.
- Frequent operation on dirt, gravel or mud.

Some aftermarket brake linings also require more frequent inspections.

General Maintenance Information

SCHEDULED MAINTENANCE GUIDE

MAINTENANCE SERVICES AND RECORD RETENTION

The maintenance record form which follows is for your convenience. In addition to recording the services performed, you should retain copies of your receipts for the services. You also should keep records of any emission control systems maintenance services performed on your vehicle.

Maintenance Record

Warranty _____
Start Date _____ Engine Displacement _____
Vehicle _____
Identification _____
Number _____ Owner Name _____

IMPORTANT — This document should remain with the vehicle at all times.

General Maintenance Information

Daily Owner Checks	Engine system
	Check the air filter restriction indicator
	Check the engine oil
	Inspect the coolant level - for Powerstroke engine (for Caterpillar and Cummins engines, refer to the Owner's Manual)
	Brake system
	Drain the air brake system reservoir - manual valve
	Check the air brake system reservoir automatic drain valve operation
	Transmission system
	Visually check the automatic transmission for fluid leakage
	Steering system
	Check the power steering pump fluid level and check the system for leaks
	Check the entire vehicle for evidence of fluid leaks
	U.S. Department of Transportation, Federal Highway Administration requirements (ensure that the entire system is functioning properly)
	Check the service brakes
	Check the parking brake
	Check the steering mechanism
	Check the lighting devices and reflectors
	Check the tires
	Check the horn
	Check the windshield wipers
Check the rear vision mirrors	
Check the wheels and rims	
Check the emergency equipment	

General Maintenance Information

<p>Check every oil change Oil change intervals are as follows: Powerstroke - 10 000 ; Caterpillar - 15 000 ; Cummins - 15 000 (refer to the Caterpillar and Cummins service manuals for further instructions and information)</p>	<p>Engine system</p>
	<p>Check the engine cooling system - hoses, clamps and protection</p>
	<p>Inspect the drive belts</p>
	<p>Exhaust system</p>
	<p>Inspect the entire exhaust system (including the inlet pipe(s), muffler(s), outlet pipe(s), clamps and fasteners) for holes, leakage, breakage, corrosive damage and separation from other components. Adjust, service or replace with the same or the equivalent part. (Also a noise emission control service)</p>
	<p>Suspension system</p>
	<p>Lubricate the front and rear spring pins</p>
	<p>Tighten the front and rear spring U-bolts to the specified torque</p>
	<p>Driveline and rear axle system</p>
	<p>Lubricate the U-joints and the slip yoke</p>
	<p>Brake system</p>
	<p>Lube the air brake foot control valve, hinge and roller</p>
	<p>Inspect the drum brake linings through the inspection holes</p>
	<p>Lubricate the brake camshafts (air brakes)</p>
	<p>Lubricate the brake slack adjuster (air brakes)</p>
	<p>Lubricate rear caliper slide rails (F650 SuperCrewzer only)</p>
	<p>Inspect the disc brake pads and the piston boots (hydraulic brakes)</p>
	<p>Clutch system</p>
<p>Lubricate the clutch release cross shaft and all linkages</p>	
<p>Check the clutch fluid</p>	

General Maintenance Information

Check every oil change Oil change intervals are as follows: Powerstroke - 10 000 ; Caterpillar - 15 000 ; Cummins - 15 000 (refer to the Caterpillar and Cummins service manuals for further instructions and information)	Fuel system
	Drain the accumulated water or sediment from the fuel tank(s)
	Steering system
	Lubricate the steering shaft(s), U-joints and splines when equipped with grease fittings
	Lubricate the front axle spindle pins
	Lubricate the steering linkage when equipped with grease fittings
	Grease the power steering gear output shaft
<p>* Coolant protection checks should be made just prior to the onset of freezing weather, where applicable. If coolant is dirty or rusty in appearance, the system should be drained, flushed and refilled with the prescribed solution of cooling system fluid and water. Use only permanent type coolant that meets Ford specifications ESE-M97B18-C. See the engine manufacturer's operating guide for supplemental corrosion inhibitor specifications.</p>	

In addition to the items to be performed daily or at each oil change, the following need to be completed as specified:

8 000KM / 5 000 MILES

- Initial change — change the lubricant in the manual shift transmission – 5 speed and 6 speed Eaton manual transmission. (Not required when equipped with optional synthetic lubricant.)

32 000 KM / 20 000 MILES

- Replace the fuel filter.*

50 000 KM / 30 000 MILES

- Replace the engine spin-on coolant filter.*
- Repack and adjust the front wheel bearings — grease-filled hubs.

65 000 KM / 40 000 MILES

- Replace the fuel filter.*

General Maintenance Information

80 000 KM / 50 000 MILES

- Disassemble the single check valve (SC-2) and the automatic drain valve (DB-2) — clean and inspect the valve for wear and deterioration.

100 000 KM / 60 000 MILES

- Replace the engine spin-on coolant filter.*
- Oil filled front hubs— drain oil, adjust bearings and refill the front hubs with oil. (Not required when equipped with optional synthetic lubricant.)
- Drain the oil, adjust the bearing and refill with axle lubricant — oil filled hubs.
- Replace the fuel filter.*
- Change the manual transmission oil — Eaton 5 and 6 speeds only. (Not required when equipped with optional synthetic lubricant.)

110 000 KM / 70 000 MILES

- Replace the engine spin-on coolant filter.*
- Replace the engine coolant.* See the engine manufacturer's operating guide for supplemental corrosion inhibitor specifications.

130 000 KM / 80 000 MILES

- Replace the fuel filter.*

150 000 KM / 90 000 MILES

- Replace the engine spin-on coolant filter*.
- Repack and adjust the front wheel bearings — grease-filled hubs.
- Change the lubricant in the manual shift transmission – 7 speed Spicer. (Not required when equipped with optional synthetic lubricant.)
- Change the power steering fluid and filter.

General Maintenance Information

160 000 KM / 100 000 MILES

- Disassemble the single check valve (SC-3) and the automatic drain valve (DB-2) — clean and inspect the valves for wear and deterioration.
- Lube the clutch release and the cross shaft lever.
- Replace the fuel filter.*
- Change the rear axle lubricant. (Not required when equipped with optional synthetic lubricant.)

400 000 KM / 250 000 MILES

- Change the rear axle lubricant when equipped with optional synthetic lubricant.

500 000 KM / 300 000 MILES

- Disassemble the air dryer, replace the desiccant and check the mounting of the dryer to the vehicle (if equipped).

Please continue with these scheduled maintenance intervals for your vehicle.

* Shown intervals are for Powerstroke engine only. Refer to Caterpillar and Cummins Owner Manuals for intervals for their respective engines.

800 000 KM / 500 000 MILES

- Change the lubricant in the manual shift transmission (all applications) when equipped with optional synthetic lubricant.

General Maintenance Information

GENERAL MAINTENANCE SERVICES

Listed below are vehicle checks that should be made periodically either by the owner or a qualified technician. It is recommended that deficiencies be brought to the attention of your dealer or another qualified service outlet as soon as possible in order that advice regarding the need for service or replacement can be obtained.

Maintenance Operation	Frequency — Observation
Clean body/door drain holes.	At least twice annually.
Clean windshield wiper blades.	As required.
Replace windshield wiper blades.	If wiping the blades with a clean cloth and mild detergent and washing the windshield with a cleaner does not restore a clean wipe.
Lubricate body lock cylinders, door and hood hinges.	Difficult to operate or noisy.
Check headlamp alignment.	Lamp beams in wrong position when vehicle operating loaded.
Check windshield washer fluid level. Add fluid if required.	If washers do not spray fluid when operated.

General Maintenance Information

Maintenance Operation	Frequency - Observation
Inspect the automatic slack adjuster function	Insufficient power shown in loaded practice stop
Check the operation of the brakes, the clutch, and the steering (*b,a)	Vehicle handling qualities not up to par
Inspect the vehicle for missing, damaged, or mislocated noise shields	Excessive noise emanates from under the cab or engine compartment
Check the engine performance and the engine governor	Excessive engine noise
Inspect the fan, the fan shroud, and the fan clutch	Engine overheats, fans runs at high speed constantly, excessive fan noise, or fan wobble due to worn bearings
Check for operation of ABS warning lamp	At each engine start up
Inspect the entire exhaust system (including inlet pipe, muffler, outlet pipe and all exhaust clamps and fasteners) for holes, leakage, breakage, looseness and corrosive damage	Excessive noise or the smell of fumes is experienced
Inspect the engine air induction system (including the air ducts, the air cleaner, and the air cleaner element) for loose fitting, damaged or missing components	Excessive noise emanates from the engine compartment
Inspect the tires and check the air pressure (*c)	Poor steering, wandering or excessive tire wear
Balance the wheels and the tires	Vibration or abnormal tire wear indicates imbalance
Check the front end alignment (*c)	Poor steering, wandering or excessive tire wear

General Maintenance Information

Maintenance Operation	Frequency - Observation
Check the transmission and engine mountings (*b)	Hard shifting or excessive vibration
Check and adjust transmission controls (*b)	High effort to shift or noisy transmission
Check fuel pump pressure	Insufficient full-throttle power or backfiring
Clean radiator cap seal. Clean and inspect the cap surface on the radiator	When the cap does not hold pressure
Check the battery terminals for corrosion	Whenever electrical power supply has diminished
Tighten the wheel mounting nuts to the specified torque. Refer to <i>Servicing your wheels and tires</i>	Required initially at 804 and 1 609 km (500 and 1 000 miles). Perform again at 804 and 1 609 km (500 and 1 000 mile) intervals after each tire removal/replacement.
*a During maintenance and repair, protect the fuel tube and the hose assemblies, the power steering lines, and the brake lines from the external heat, the acids and the abrasion that could damage the lines.	
*b Check for (free) linkage action and ensure that (return) spring force is adequate to maintain pedal free play.	
*c Adjust, repair or replace as required with the same or equivalent parts.	

General Maintenance Information

Maintenance Record

Maintenance Intervals/ Service Performed	Date Service Performed	Mileage	Service Shop Name and Address

General Maintenance Information

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General Maintenance Information

Maintenance Record

Maintenance Intervals/ Service Performed	Date Service Performed	Mileage	Service Shop Name and Address

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