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Introduction

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.

POWER STROKE DIESEL ENGINE

Your new diesel engine will feel, drive and function somewhat differently than a gasoline engine. Therefore it is very important that you read and thoroughly familiarize yourself and others operating the vehicle with this guide. **A special procedure for turning off the diesel engine is in the** *Driving* **chapter. It is important to read and understand this material in order to maintain the best service life for your engine.**

This guide will acquaint you with the Power Stroke diesel engine. It provides recommendations on engine care and operating procedures. For complete vehicle information, also refer to the *Owner's Guide* included with the vehicle. It also describes equipment and gives specifications for equipment that was in effect when this guide was approved for printing, and should be considered a permanent part of the vehicle.

Some aftermarket products may cause severe engine/transmission and/or exhaust system damage; refer to the *warranty information* in the *Customer Information Guide* for more information.**Your vehicle's Powertrain Control Systems can detect and store information about vehicle modifications that increase horsepower and torque output such as whether or not performance-enhancing powertrain components commonly referred to as "performance chips" have been used. This information cannot be erased and will stay in the system's memory even if the modification is removed. The Information can be retrieved by Ford Motor Company, Ford of Canada, and service and repair facilities when servicing your vehicle. This information may be used to determine if repairs will be covered by warranty.**

Ford may discontinue models or change specifications without any notice and without incurring obligations.

Important notice

Ford vehicles are suitable for producing ambulances only if equipped with the Ford ambulance preparation package. In addition, Ford urges ambulance manufacturers to follow the recommendation of the *Ford Incomplete Vehicle Manual, Ford Truck Body Builder's Layout Book* (and pertinent supplements) and the *Qualified Vehicle Modifiers Guidelines*. Using a Ford vehicle without the Ford ambulance preparation package to produce an ambulance voids the Ford warranty and could result in elevated underbody temperatures, fuel overpressurization and the risk of fuel expulsion and fires. To determine whether the vehicle is equipped with the Ford ambulance preparation package, inspect the information plate on the driver's side door pillar. Contact the manufacturer of your vehicle to determine whether the ambulance manufacturer's followed Ford's recommendations.

WARNINGS

Throughout this guide, you will find warnings identified by the symbol . Warnings remind you to be especially careful to reduce the risk of personal injury.

NEW VEHICLE BREAK-IN

Your vehicle does not need an extensive break-in. Try not to drive continuously at the same speed for the first 1,000 miles (1,600 km) of new vehicle operation. Vary your speed to allow parts to adjust themselves to other parts.

Drive your new vehicle at least 500 miles (800 km) before towing a trailer. Make sure you use the specified engine oil by checking the engine oil specification chart under *Engine oil* in the *Maintenance and Specifications* chapter.

Do not add friction modifier compounds or special break-in oils during the first few thousand miles (kilometers) of operation, since these additives may prevent piston ring seating. See *Engine oil* in the *Maintenance and Specifications* chapter of this supplement for more information on oil usage.

DIESEL ENGINE INFORMATION

The Diesel engine fuel system consists of:

- **On E-Series vehicles (6.0L engine),** a Diesel Fuel Conditioner Module (DFCM) mounted on the driver-side frame rail next to the transmission

- **On F-Super Duty vehicles (6.4L engine),** a frame-mounted Horizontal Fuel Conditioner Module (HFCM)
- an engine-mounted secondary fuel filter
- a unit injector for each cylinder

The FCM/HFCM acts as a primary fuel filter/water separator which removes both water and impurities from the fuel. The engine mounted filter filters finer impurities from the diesel fuel. The engine-mounted fuel filter and the FCM/HFCM filter should be changed at the recommended service interval. Refer to the *scheduled maintenance information* in this supplement for more information.

F-Super Duty

E-Series

The FCM/HFCM should be drained at regular intervals or when the WATER IN FUEL light illuminates in the instrument cluster.

The fuel injectors are located in the center of the combustion chambers in the cylinder head between the rocker arm assemblies. The glow plug system and fuel injection system are controlled through the Powertrain Control Module (PCM) and Fuel Injection Control Module (FICM) (6.0L engine only).

Fuel is drawn from the fuel tank by a frame-mounted electric fuel pump. The fuel pump provides pressurized fuel to the engine and is electronically controlled by the fuel pump PCM relay. The fuel pump contains a pressure relief valve for overpressure protection in the event of restricted flow.

Engine protection mode

Ford diesel engines are equipped with engine protection and emission control systems. These systems monitor critical temperatures and pressures, and modify engine operation accordingly. These features are intended to modify engine performance characteristics. If these modified engine performance characteristics persist for an extended period or the service engine soon or powertrain malfunction/reduced power/electronic throttle control light is illuminated, seek service from your authorized dealer.

Lubrication system

Extended oil change intervals can negatively affect engine performance, fuel economy and engine life. Refer to the engine oil specification chart located under *Engine oil specifications* in the *Maintenance and Specifications* chapter of this supplement.

On E-Series vehicles (6.0L engine), it is important to change the engine oil at the recommended service intervals because oil viscosity is important in maintaining the oil pressure required to actuate the fuel injectors.

On F-Super Duty vehicles (6.4L engine), it is important to change the engine oil at the recommended service intervals to maintain oil viscosity with the addition of the diesel particulate filter (DPF).

Fast start glow plug system

The glow plug system consists of:

- eight glow plugs
- the glow plug control module (GPCM)
- engine oil temperature (EOT) sensor
- barometric pressure (BARO) sensor

The glow plug system is electronically controlled by the PCM. The GPCM energizes the glow plugs immediately after the ignition is placed in the ON position, then determines how long the glow plugs will be on according to the EOT and BARO sensors. The required time for the glow plugs to be energized decreases as the engine oil temperature and barometric pressure increase.

Engine cooling system

The engine cooling system contains an engine oil cooler and an Exhaust Gas Recirculation (EGR) cooler. The oil cooler's function is to regulate engine oil temperature. The EGR cooler function is to cool exhaust gases before they are circulated back through the engine to reduce emissions. Vehicles with diesel engines typically are used to carry heavy loads and accumulate mileage rapidly. These two factors may cause the additives in the coolant to "wear out" in a shorter time. Refer to the Special Operating Conditions section for more information about coolant additives and coolant change intervals. Operating the engine with insufficient coolant and/or coolant additive can cause severe engine damage.

To determine if a coolant additive recharge is required, check the nitrite strength of the coolant using the coolant nitrate test strip kit (Acustrip 3-way Antifreeze Test Strip). If the nitrite strength is above 800 ppm no action is required. If the nitrite strength is between 800 ppm to 300 ppm add 32 fl. oz. (946 ml) of engine coolant additive, Motorcraft VC-8 or equivalent. If the nitrite strength is below 300 ppm, flush & refill the cooling system.

Fuel and turbocharger cooling system (F-Super Duty only)

The fuel and turbocharger cooling system contains a cooler which is mounted on the turbo interstage U-tube on the left side of the engine. The cooler's function is to regulate engine fuel temperature and cool the electronics that support the turbocharger. You may hear the auxiliary coolant pump running up to 10 minutes after the ignition is turned off in hot weather or if you are towing heavy loads. This is to control the temperature of the turbocharger.

Engine governed speed

The engine governor is controlled by the PCM. The PCM controls fuel input to limit maximum engine speed. It will not, however, prevent engine overspeeding resulting from downshifting at high vehicle speed or by descending steep grades at too high a vehicle speed for the selected transmission gear.

If your vehicle is equipped with a manual transmission, refer to *Manual transmission shift speeds* in the *Driving* chapter of your *Owner's Guide* for maximum vehicle shift speeds in various gears. Do not exceed 4,000 rpm. Maximum engine governed speed is 3,700 rpm. Excessive rpm can only be achieved by manually downshifting at too high of a vehicle speed.

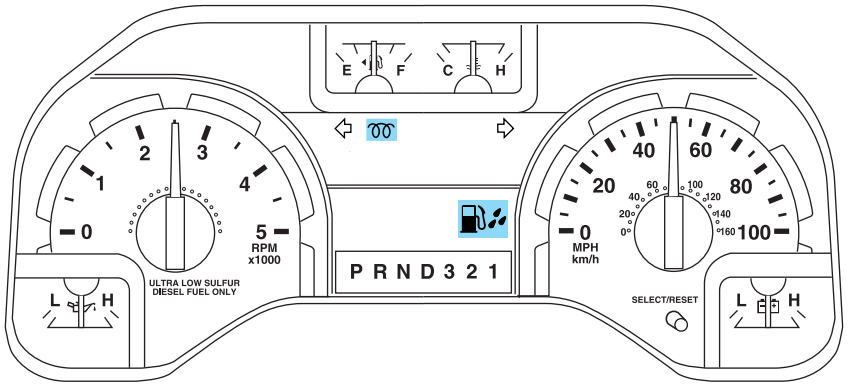
Operating the engine beyond the governed speed can cause severe engine damage.

Speed control (F-Super Duty)

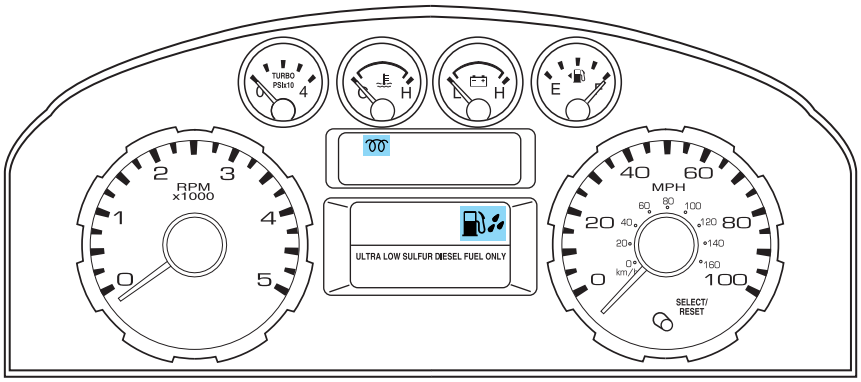
If vehicle speed goes outside a predetermined range from the set speed, the RES (Resume) function will not reset vehicle speed. Vehicle speed will need to be reset with the SET +/- button after reaching desired speed using accelerator pedal.

WARNING LIGHTS

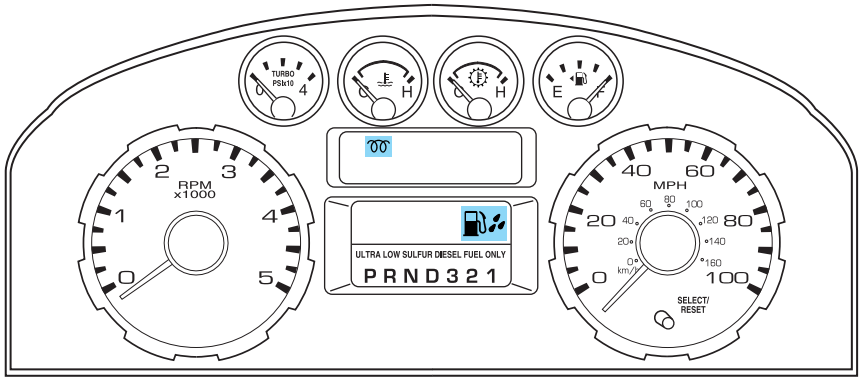
E-Series



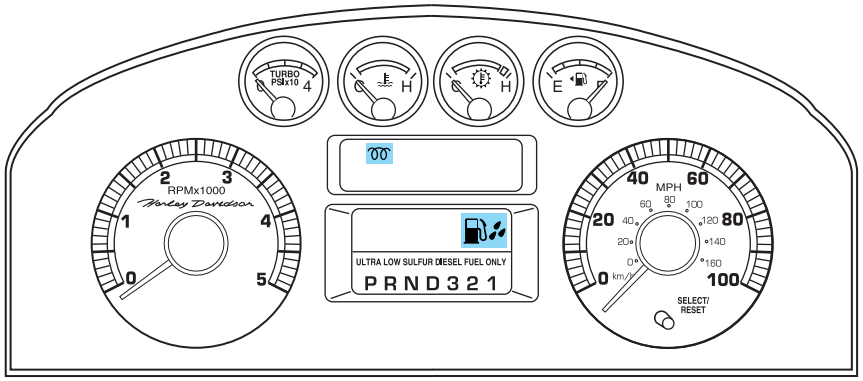
F-Super Duty w/manual transmission



F-Super Duty w/automatic transmission



Harley-Davidson



Note: Some warning lights are reconfigurable telltale (RTT) indicator lights and will illuminate in the message center display and function the same as the warning light.

Glow plug pre-heat indicator:

With the key in the on position, the  light will illuminate if glow plug heat is necessary as a starting aid. Wait until the light goes off before starting. Refer to *Cold weather starting* in the *Driving* chapter of this supplement. After the engine starts, the light should turn on. The light should always illuminate at least momentarily when the engine is cold and the ignition is turned to on. If it does not illuminate, the glow plug system should be checked and repaired promptly to avoid difficulty in cold starting.

Water in fuel:

F-Super Duty

E-Series

During refueling, it is possible for water-contaminated diesel fuel to be pumped into your tank. Your vehicle's fuel system is equipped with a fuel filter/water separator to remove water from the fuel. The water in fuel light will illuminate when the FCM/HFCM has a significant quantity of water in it.

If the light illuminates when the engine is running, stop the vehicle as soon as safely possible, shut off the engine, then drain the FCM/HFCM. Refer to *Draining the FCM/HFCM and changing the fuel filters* in the *Maintenance and Specifications* chapter of this supplement for the drain procedure. Allowing water to stay in the system could result in extensive damage to, or failure of, the fuel injection system.

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

Instrument Cluster

Engine oil pressure:

Illuminates when the oil pressure falls below the normal range. Refer to *Engine oil* in the *Maintenance and Specifications* chapter for more information.

GAUGES

Engine boost gauge (F-Super Duty only):

Indicates the amount of pressure in the engine. Driving with your pointer continuously at the high end of the scale may damage the engine.

STARTING THE ENGINE

Read all starting instructions carefully before you start your vehicle.

For temperatures below 32°F (0°C), the use of the correct grade engine oil is essential for proper operation. Refer to *Engine oil specifications* in the *Maintenance and Specifications* chapter for more information.

Your vehicle may be equipped with a cold weather starting strategy that prevents severe engine damage by assisting in engine lubrication warm-up. In extremely cold ambient temperatures, this strategy activates and prevents the accelerator pedal from being used for 30 seconds after starting the vehicle. By not allowing the accelerator pedal to be used, the engine oil is allowed to properly lubricate the bearings preventing engine damage due to lack of proper lubrication. After the 30 second warm-up period, the accelerator pedal will be operational again as long as the pedal is not being pressed when the 30 second time limit expires. When starting the engine in extremely cold temperatures (-15°F [–26°C]), it is recommended to allow the engine to idle for several minutes before driving the vehicle.

If your vehicle is equipped with a manual transmission, make sure the parking brake is fully set before you turn the key. Depress the clutch pedal and place the gearshift in the neutral position. The clutch must be fully depressed in order to operate the starter. Do not press the accelerator during starting.

If your vehicle is equipped with an automatic transmission, ensure the gearshift lever is in P (Park) and the parking brake is fully set before you turn the key. Do not press the accelerator during starting.

Engine-driven cooling fan (fan clutch)

Your vehicle is equipped with an engine driven cooling fan drive (also called a fan clutch). This fan drive changes the fan speed to match the vehicle's changing cooling air flow requirements. Fan speed, fan noise level and fuel consumption all will increase based on the driving conditions that include trailer towing, hill climbing, heavy loads, high speed and high ambient temperature, individually or in combination. The fan drive is designed to provide the minimum fan speed (and resulting fan noise and fuel consumption) required to meet the ever changing vehicle cooling air flow requirements. You will hear the amount of fan noise increasing and decreasing as the engine power requirements and vehicle driving conditions change as you drive. This is to be expected as being normal to the operation of your vehicle. High levels of fan noise might also be heard when your engine is first started, and should normally decrease after driving for a short time.

Cold weather starting

It is recommended that the engine block heater be used for starting when the temperature is -10°F (-23°C) or colder. Refer to *Engine block heater (if equipped)* in the *Driving* chapter of the *Owner's Guide*.

When operating in cold weather, use Motorcraft Cetane improvers or non alcohol-based Cetane improvers from a reputable manufacturer.

Do not crank the engine for more than 10 seconds as starter damage may occur. If the engine fails to start, turn the key to 3 (off) and wait 30 seconds before trying again.

WARNING: Do not use starting fluid, such as ether, in the air intake system (see air filter decal). Such fluid could cause immediate explosive damage to the engine and possible personal injury.

WARNING: Do not add gasoline, gasohol or alcohol to diesel fuel. This practice creates a serious fire hazard and causes engine performance problems.

1. Turn the key to on without turning the key to start. **Do not start the engine** until the glow-plug pre-heat indicator turns off.

2. When the glow plug pre-heat indicator turns off, turn the key to start, then release the key as soon as the engine starts. The glow plugs will continue to be activated for two minutes after the glow plug pre-heat indicator has turned off. If the engine is not started before the glow plug activation time ends, the glow plugs will need to be reset by turning the key to off.

3. After the engine starts, **allow it to idle for about 15 seconds**. This is to protect the engine. Do not increase engine speed until the oil pressure gauge indicates normal pressure.

ENGINE IDLE SHUTDOWN (IF EQUIPPED)

Your vehicle may be equipped with an engine idle shutdown system. This system will automatically shut down your engine when it has been idling in P (Park) or N (Neutral) for five minutes (parking brake set) or 15 minutes (parking brake not set). When the engine idle shutdown process has started:

- A chime will sound and the message center will display **ENGINE TURNS OFF IN XX** 30 seconds prior to shutdown and begins counting down to zero.
- The timer can be reset by changing the position of the accelerator pedal, brake pedal or the park brake within the final 30 seconds.
- When the timer reaches zero, the engine shuts down and the message center will display **ENGINE TURNED OFF**.
- One minute after the engine has shut down, the electrical system will simulate key off, even though the ignition is still in the on position, initiating normal accessory delay period.
- The ignition must be moved to the off position to reset the system before restarting the vehicle.

Note: The engine idle shutdown idle timer will not start if:

- The engine is operating in power take-off (PTO) mode.
- The engine coolant temperature is below 60°F (16°C).
- The exhaust emission control device (DPF) is regenerating.

STOPPING THE ENGINE

Turn the ignition to the OFF position.

On E-Series vehicles, to prolong engine life (after extended high speed or maximum GVW operation), it is recommended that a hot engine be idled for 7–10 minutes which will allow the turbocharged engine to cool down.

On F-Super Duty vehicles, to prolong engine life (especially after extended high speed, high ambient temperature, or high GVW/GCW operation), it is recommended that a hot engine be idled for 3-5 minutes which will allow the turbocharged engine to cool down.

COLD WEATHER OPERATION

Changing to a lighter grade engine oil also makes starting easier under these conditions. Refer to *Engine oil specifications* in the *Maintenance and Specifications* chapter of this supplement.

Diesel fuel is adjusted seasonally for cold temperatures. Diesel fuel which has not been properly formulated for the ambient conditions may form wax crystals which can clog the fuel filter. At temperatures below 20°F (–7°C), if the engine starts, stalls after a short time, and then will not restart, the fuel filter(s) may be clogged. For best results in cold weather, use a diesel fuel which has been formulated for the ambient conditions. If you have been using biodiesel, you may need to use a fuel with lower biodiesel content, try another brand, or discontinue using biodiesel.

Your vehicle is equipped with either an FCM or HFCM which recirculates fuel from the engine to help prevent fuel filter clogging. Your vehicle is also equipped with a bypass relief valve, located in the fuel tank pick-up boot, which provides fuel flow to the engine if the fuel pickup should become plugged. To allow the bypass valve to function and avoid engine fuel starvation during cold weather operation of 32°F (0°C) or below, it is recommended that the fuel level in your tank should not be allowed to drop below ¼ full. This will help prevent air from entering the fuel system and stalling the engine.

In cold weather below 32°F (0°C), the engine will slowly increase to a higher idle speed if left idling in P (Park). As the engine warms-up, the engine sound level will decrease due to the activation of PCM-controlled sound reduction features.

If your vehicle is operated in a heavy snow storm or blowing snow conditions, the engine air induction may become partially clogged with snow and/or ice. If this occurs, the engine may experience a significant reduction in power output. At the earliest opportunity, clear all the snow and/or ice away from inside the air filter assembly. Take the top off the assembly, leaving the air filter in, and remove any snow or ice.

In order to operate the engine in temperatures of 32°F (0°C) or lower, read the following instructions:

- Make sure that the batteries are of sufficient size and are fully charged. Check other electrical components to make sure they are in optimum condition.
- Use Motorcraft Premium Engine Coolant solution at the concentration recommended to protect the engine against damage from freezing.
- Try to keep the fuel tank full as much as possible at the end of operation to prevent condensation in the fuel system.

- Make sure you use proper cold weather engine oil and that it is at its proper level. Also, if necessary, make sure to follow the engine oil and filter change schedule found under the *Special operating conditions* section in the *scheduled maintenance guide* information.
- At temperatures of -10°F (-23°C) or below, it is recommended that you use an engine block heater to improve cold engine starting.
- If operating in arctic temperatures of -20°F (-29°C) or lower, consult your truck dealer for information about special cold weather equipment and precautions.

Note: Idling in cold weather will not heat the engine to its normal operating temperature. Long periods of idling in cold weather can cause a buildup of heavy deposits of carbon and rust on valve stems causing them to stick, which in turn, can cause valve train damage.

The following cold weather idling guidelines must be followed:

- Avoid idling the engine for more than 10 minutes at a time.
- Use Motorcraft Cetane improvers or non alcohol-based cetane improvers from a reputable manufacturer.
- Maintain the engine cooling system properly.
- Do not shut the engine down after an extensive idling period (10 minutes or more). Drive the vehicle for several miles with the engine at normal operating temperatures under a moderate load to burn off any accumulated carbon and varnish.
- Consider using an engine block heater.
- For extended idle times use an approved idle speed increase device.

Winter operating tips for Arctic operation -20°F (-29°C) and below

The following information is provided as a guideline only, and is not intended to be the only source of possible solutions in resolving extreme cold temperature issues.

Starting aids:

The use of the factory engine block heater (refer to *Engine block heater [if equipped]* in the *Driving* chapter of the *Owner's Guide*) and oil pan heaters (aftermarket) will assist in engine starting, in extreme cold ambient temperatures.

WARNING: Do not use starting fluid, such as ether, in the air intake system (see air filter decal). Such fluid could cause immediate explosive damage to the engine and possible personal injury.

Idle control:

For periods of extended idle, the throttle should be set at an rpm that is sufficient to keep the engine at normal operating temperatures. This action can reduce the amount of engine damaging deposits.

- The engine contains a unique “Cold Weather - Idle up feature” calibration strategy within the PCM. Under the appropriate conditions, the strategy will automatically elevate the engine idle speed after 130 seconds of idling in cold ambient temperatures. For this feature to be activated, the truck must be in P (Park) (for automatic transmission), in neutral (for manual transmission) with the parking brake applied and engine oil temperature below 158°F (70°C). This strategy raises the rpm to a level that reduces the potential to produce “coking” or “wet stacking”, which is common to all diesel engines when idling for extended periods during cold ambient temperatures.
- Your vehicle may have a factory option for a Stationary Elevated Idle Control (SEIC) through dash-mounted Upfitter switches will allow the operator to elevate the idle rpm for extended idle periods, as well as aftermarket equipment such as PTO operation. This feature must be configured even if ordered from the factory. See your authorized dealer for required upfitting.

Operation in snow

Vehicle operation in heavy snowfall or extreme rain conditions may feed excessive amounts of snow/water into the air intake system. This could plug/soak the air filter with snow and may cause the engine to lose power and possibly shut down.

You may not need to change the air filter and the vehicle may be driven up to 200 miles (320 km) under the following conditions:

- **Snow:** At the earliest opportunity, open the hood and clear all the snow and ice from the air filter housing inlet (do NOT remove the air filter) and reset the air filter restriction gauge.
- **Wet:** The air filter will dry after about 15–30 minutes at highway speeds. At the earliest opportunity, open the hood and reset the air filter restriction gauge.

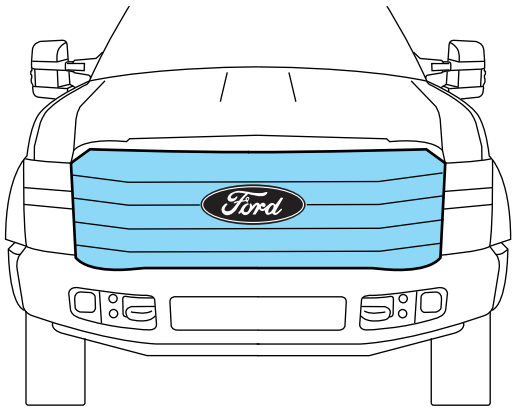
Refer to *Air filter and restriction gauge* in the *Maintenance and Specifications* chapter of this supplement for more information.

Operation in standing water

Ingestion of water into the diesel engine can result in immediate and severe damage to the engine. If driving through water, slow down to avoid splashing water into the intake. If the engine stalls, and ingestion of water into the engine is suspected, do not try to restart the engine. Consult your dealer for service immediately.

Winter grille cover (F-Super Duty only) (if equipped)

If your vehicle includes a winter grille cover, it will enhance heater performance and will reduce the amount of time it takes to warm the inside of your vehicle in extremely cold conditions (below 0°F [-18°C]). The winter grille cover installs over the outside of the grille of your vehicle and restricts the air flowing to the engine compartment by covering the radiator grille openings.



Usage guidelines

The winter grille cover should only be used while operating your vehicle in extremely cold temperatures or in heavy snow for extended periods of time. In these temperatures, the vehicle does not need a large amount of air to properly cool the engine. During periods of operation when more airflow is required to cool the vehicle, the winter grille cover should not be used. The following usage guidelines will allow adequate airflow for proper radiator and air cooler performance.

- Do not use the winter grille cover when temperatures are above 50°F (10°C). Use of the cover in these conditions could cause your vehicle to overheat. If this happens while the cover is being used, remove the cover and store properly.
- Do not use the winter grille cover above 32°F (0°C) if towing a trailer. The added power needed to tow a trailer requires the radiator grille to have full airflow under all conditions. Your vehicle may overheat if the cover is used while towing a trailer.
- Do not modify the winter grille cover. The winter grille cover does not block some sections of the front of the vehicle because these openings are needed to provide enough airflow to the radiator and air cooler in extremely cold temperatures.

Installation instructions

The "Installation Instructions" included with your winter grille cover packaging explain how to install and remove your vehicle's winter grille cover. When installing or removing the winter grille cover, refer to the *"Usage guidelines"* listed previously. When you first attempt to fit the winter grille cover, it may appear to be undersized. This is due to the nature of the special vinyl, which will stretch during installation to ensure a tight fit. For this reason, the initial installation of the winter grille cover is best performed when the cover is warm.

Engine block heater (if equipped)

Refer to the *Driving* chapter in the *Owner's Guide*.

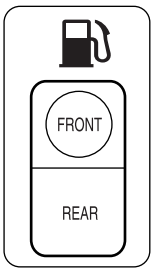
Rapid Heat supplemental heating system (if equipped)

The optional Rapid Heat feature is an electrically powered device that is designed to provide supplemental heat during engine warm up. For maximum effectiveness mid to low blower speed is recommended during initial warm up. When operating in automatic mode (when equipped) the climate control unit will determine the appropriate blower speed for existing conditions.

Note: Additional aftermarket electrical loads operated during engine warm up may impact the performance of the Rapid heat supplemental heater.

DUAL FUEL TANK SELECTOR CONTROL (IF EQUIPPED)

If your vehicle is equipped with dual fuel tanks, you will have a selector control, located to the right of the steering wheel, which allows you to draw fuel from either tank. Your fuel gauge will display the amount of fuel in the currently selected tank.



Fuel level indication is delayed for several minutes when the tank selector switch is actuated. Fuel level indication can be obtained immediately by turning off and restarting the engine.

TRAILER TOWING

Refer to your *Owner's Guide* for full details on towing a trailer.

Trailer towing tables - E-Series

Engine	Rear axle ratio	Maximum GCWR - lbs. (kg)	Maximum trailer weight - lbs. (kg)
E-350 Regular Van (9500 GVWR)			
6.0L	3.55	16000 (7257)	9500 (4309)
6.0L	4.10	20000 (9072)	10000 (4536)
E-350 Extended/RV Van (9500 GVWR)			
6.0L	3.55	16000 (7257)	9400 (4264)
6.0L	4.10	20000 (9072)	10000 (4536)
E-350 Regular Wagon (12–passenger) (8950 GVWR)			
6.0L	3.55	16000 (7257)	8900 (4037)
6.0L	4.10	20000 (9072)	10000 (4536)
138" Wheelbase 9900 GVWR E-350 Cutaway with Single Rear Wheels (SRW)			
6.0L	4.10	20000 (9072)	10000 (4536)

Engine	Rear axle ratio	Maximum GCWR - lbs. (kg)	Maximum trailer weight - lbs. (kg)
138” Wheelbase 10050 GVWR E-350 Cutaway with Single Rear Wheels (SRW)			
6.0L	4.10	20000 (9072)	10000 (4536)
138” Wheelbase 10000 GVWR E-350 Cutaway with Dual Rear Wheels (DRW)			
6.0L	4.10	20000 (9072)	10000 (4536)
138” Wheelbase 11500 GVWR E-350 Cutaway with Dual Rear Wheels (DRW)			
6.0L	4.10	20000 (9072)	10000 (4536)
158” Wheelbase 10050 GVWR E–350 Cutaway with Single Rear Wheels (SRW)			
6.0L	4.10	20000 (9072)	10000 (4536)
158” Wheelbase 10000 GVWR E–350 Cutaway with Dual Rear Wheels (DRW)			
6.0L	4.10	20000 (9072)	10000 (4536)
158” Wheelbase 11500 GVWR E–350 Cutaway with Dual Rear Wheels (DRW)			
6.0L	4.10	20000 (9072)	10000 (4536)
158” Wheelbase 12500 GVWR E–350 Cutaway with Dual Rear Wheels (DRW)			
6.0L	4.10	20000 (9072)	10000 (4536)
176” Wheelbase 10000 GVWR E–350 Cutaway with Dual Rear Wheels (DRW)			
6.0L	4.10	20000 (9072)	10000 (4536)
176” Wheelbase 12500 GVWR E–350 Cutaway with Dual Rear Wheels (DRW)			
6.0L	4.10	20000 (9072)	10000 (4536)
158” Wheelbase 13990 GVWR E–450 Cutaway with Dual Rear Wheels (DRW)			
6.0L	4.10	20000 (9072)	10000 (4536)

Engine	Rear axle ratio	Maximum GCWR - lbs. (kg)	Maximum trailer weight - lbs. (kg)
158” Wheelbase 14500 GVWR E–450 Cutaway with Dual Rear Wheels (DRW)			
6.0L	4.10	20000 (9072)	10000 (4536)
176” Wheelbase 13990 GVWR E–450 Cutaway with Dual Rear Wheels (DRW)			
6.0L	4.10	20000 (9072)	10000 (4536)
176” Wheelbase 14500 GVWR E–450 Cutaway with Dual Rear Wheels (DRW)			
6.0L	4.10	20000 (9072)	10000 (4536)

Trailer towing tables - F-Super Duty

Maximum GCWR - lb (kg.)			
Engine	**Rear axle ratio**	**Manual transmission**	**Automatic transmission**
F–250/F–350 Single Rear Wheel (SRW) Pick-up			
6.4L	3.31	—	23000 (10433)
6.4L	3.55	23000 (10433)	23000 (10433)
F–350 Single Rear Wheel (SRW) Chassis Cab			
6.4L	3.73	—	23000 (10433)
F–350 Dual Rear Wheel (DRW) Pick-up			
6.4L	3.73/4.10	23500 (10659)	—
6.4L	3.73	—	23500 (10659)
6.4L	4.10	—	26000 (11793)
F–350 Dual Rear Wheel (DRW) Chassis Cab			
6.4L	3.73/4.10	23500 (10659)	23500 (10659)
F–450 Pick-up			
6.4L	4.30	27000 (12247)	33000 (14969)
F–450 Chassis Cab			
6.4L	4.30	26000 (11793)	26000 (11793)
6.4L*	4.30	—	30000 (13608)
6.4L*	4.88	28000 (12701)	—

Maximum GCWR - lb (kg.)			
Engine	**Rear axle ratio**	**Manual transmission**	**Automatic transmission**
F–550 Chassis Cab			
6.4L	4.30/4.88	26000 (11793)	26000 (11793)
6.4L*	4.88	28000 (12701)	33000 (14969)
* With high capacity trailer tow package; see rear axle label to identify actual vehicle content.			

Integrated hitch rating

The standard integrated hitch has two ratings depending on mode of operation:

- **Weight carrying** - requires a draw bar and hitch ball. The draw bar supports all the vertical tongue load of the trailer.
- **Weight distributing** - requires an aftermarket weight distributing system which includes draw bar, hitch ball, spring bars and snap-up brackets. The vertical tongue load of the trailer is distributed between the truck and the trailer by this system.

	Hitch Type	**Maximum Gross Trailer Weight - lb (kg)**	**Maximum Tongue Weight - lb (kg)**
F–250/350 DRW Pick-ups 2.5” ID without adapter (requires 2.5” drawbar)	Weight carrying	8000 (3629)	800 (363)
	Weight distributing	15000 (6804)	1500 (680)
F–250/350 DRW Pick-ups 2.5” ID with adapter* (requires 2” drawbar)	Weight carrying	6000 (2721)	600 (272)
	Weight distributing	12500 (5670)	1250 (567)
All SRW Pick-ups 2” receiver	Weight carrying	6000 (2721)	600 (272)
	Weight distributing	12500 (5670)	1250 (567)

	Hitch Type	Maximum Gross Trailer Weight - lb (kg)	Maximum Tongue Weight - lb (kg)
F–450 DRW Pick-ups 2.5” ID without adapter (requires 2.5” drawbar)	Weight carrying	8000 (3629)	800 (363)
	Weight distributing	16000 (7258)	1600 (726)
F–450 DRW Pick-ups 2.5” ID with adapter* (requires 2” drawbar)	Weight carrying	6000 (2721)	600 (272)
	Weight distributing	12500 (5670)	1250 (567)

WARNING: Towing trailers beyond the maximum tongue weight exceeds the limit of the towing system and could result in vehicle structural damage, loss of vehicle control and personal injury.

* Trailer hitch adapter is available from Ford dealers (Part number: 5C3Z-19H282–A).

JUMP STARTING YOUR VEHICLE (E-SERIES ONLY)

The following procedure is for E-Series vehicles only. F-Super Duty vehicles equipped with the 6.4L diesel engine can be jump started using the same procedure as a gasoline engine; refer to your *Owner's Guide* **for the jump starting procedure.**

WARNING: The gases around the battery can explode if exposed to flames, sparks, or lit cigarettes. An explosion could result in injury or vehicle damage.

WARNING: Batteries contain sulfuric acid which can burn skin, eyes and clothing, if contacted.

Do not attempt to push-start your vehicle. Automatic transmissions do not have push-start capability; damage to the automatic transmission may result.

Preparing your vehicle

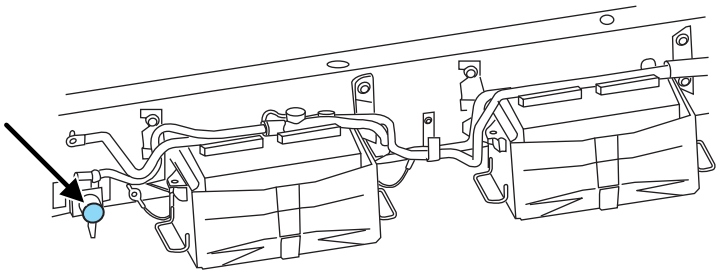
When the batteries are disconnected or new batteries are installed, the transmission must relearn its shift strategy. As a result, the transmission may have firm and/or soft shifts. This operation is considered normal and will not affect function or durability of the transmission. Over time, the adaptive learning process will fully update transmission operation.

1. **Use only a 12–volt supply to start your vehicle.**

2. Do not disconnect the batteries of the disabled vehicle as this could damage the vehicle's electrical system.

3. Park the booster vehicle close to the passenger side of the disabled vehicle making sure the two vehicles **do not** touch. Set the parking brake on both vehicles.

Note: This vehicle has two frame-mounted batteries located on the passenger side frame rail, behind the front passenger door. A battery positive (+) jumper stud is located on the frame rail behind the rear most battery box.

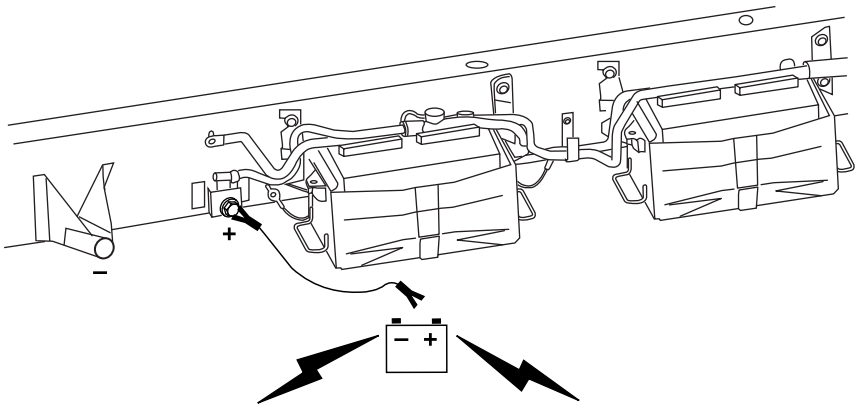


- Location of positive (+) jumper stud; remove the cap to access the jumper stud.

4. Check the assisting vehicle battery terminals and the positive (+) jumper stud and remove any excessive corrosion before you attach the battery cables. Ensure that accessible vent caps are tight and level.

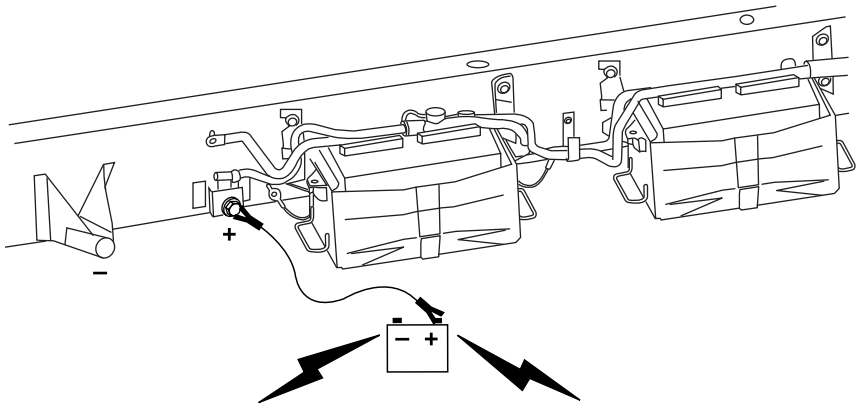
5. Turn the heater fan on in both vehicles to protect from any electrical surges. Turn all other accessories off.

Connecting the jumper cables

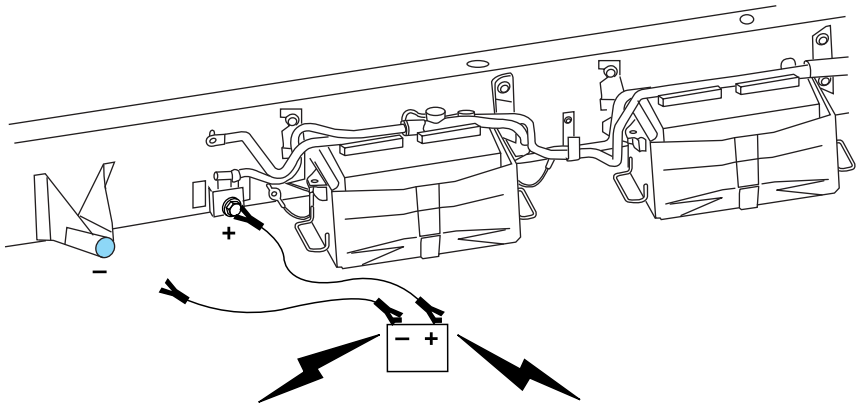


1. Connect the positive (+) jumper cable to the positive (+) jumper stud located on the passenger side frame rail of the disabled vehicle.

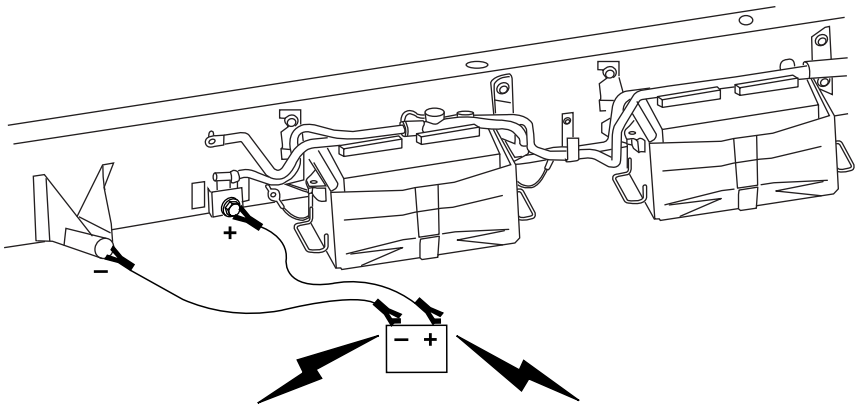
Note: In the illustrations, *lightning bolts* are used to designate the assisting (boosting) battery.



2. Connect the other end of the positive (+) cable to the positive (+) terminal of the assisting battery.



3. Connect the negative (-) cable to the negative (-) terminal of the assisting battery.



4. Make the final connection of the negative (-) cable to an exposed metal part of the disabled vehicle's frame or chassis, away from the batteries. **Do not** use fuel lines, brake lines, exhaust components or the battery trays as *grounding* points.

WARNING: 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.

5. Ensure that the cables are clear of moving parts or any fuel delivery system, brake system or exhaust system parts.

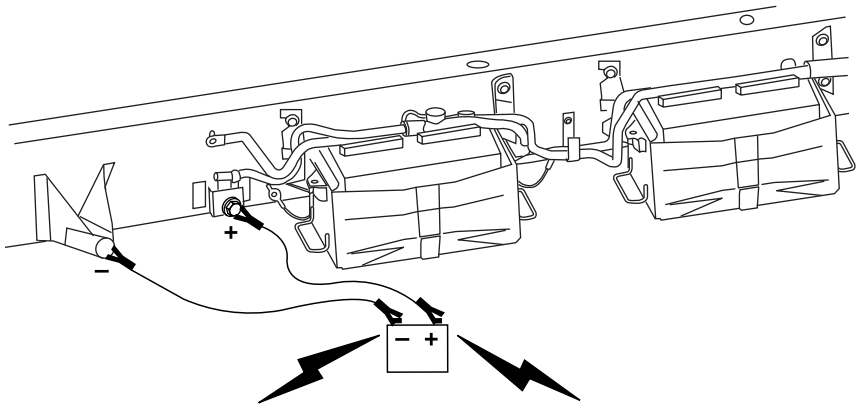
Jump starting

1. Start the engine of the booster vehicle and run the engine at moderately increased speed.

2. Start the engine of the disabled vehicle.

3. Once the disabled vehicle has been started, run both engines for an additional three minutes before disconnecting the jumper cables.

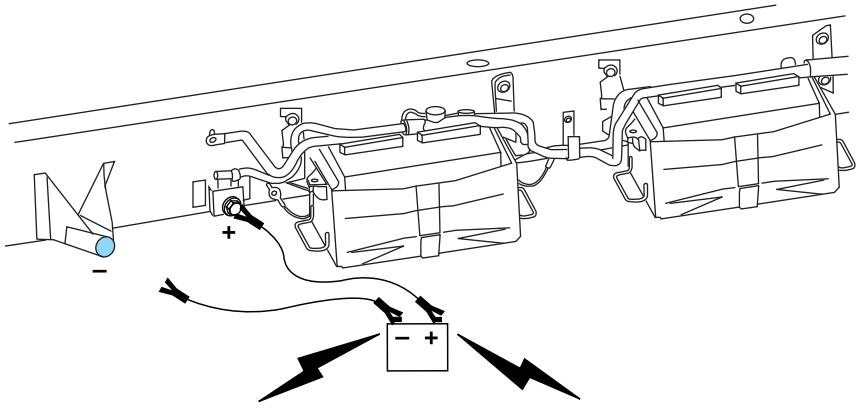
Removing the jumper cables



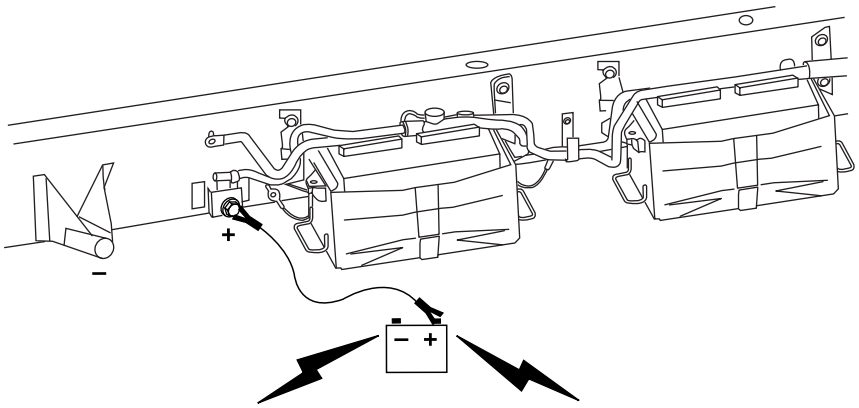
Remove the jumper cables in the reverse order that they were connected.

1. Remove the jumper cable from the *ground* metal surface.

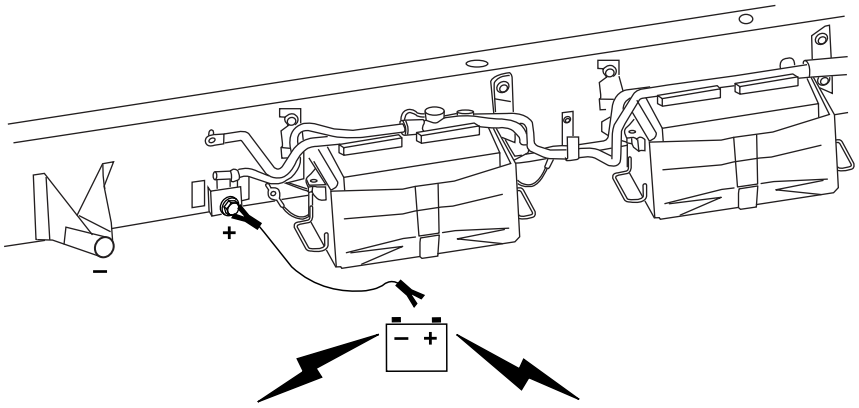
Note: In the illustrations, *lightning bolts* are used to designate the assisting (boosting) battery.



2. Remove the jumper cable on the negative (-) connection of the booster vehicle's battery.



3. Remove the jumper cable from the positive (+) terminal of the booster vehicle's battery.



4. Remove the jumper cable from the positive (+) jumper stud of the disabled vehicle. Reinstall the cap onto the jumper stud.

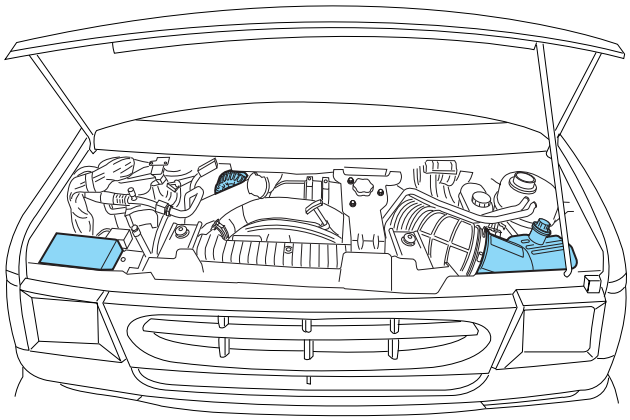
After the disabled vehicle has been started and the jumper cables removed, allow it to idle for several minutes so the engine computer can *relearn* its idle conditions.

Cleaning

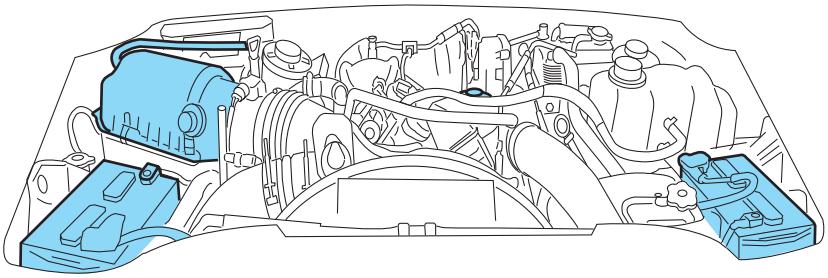
ENGINE

Engines are more efficient when they are clean because grease and dirt buildup keep the engine warmer than normal. When washing:

- Take care when using a power washer to clean the engine. The high-pressure fluid could penetrate the sealed parts and cause damage.
- Do not spray a hot engine with cold water to avoid cracking the engine block or other engine components.
- Spray Motorcraft Engine Shampoo and Degreaser (ZC-20) on all parts that require cleaning and pressure rinse clean.
- Never wash or rinse the engine while it is running; water in the running engine may cause internal damage.
- Cover the highlighted areas to prevent water damage when cleaning the engine.

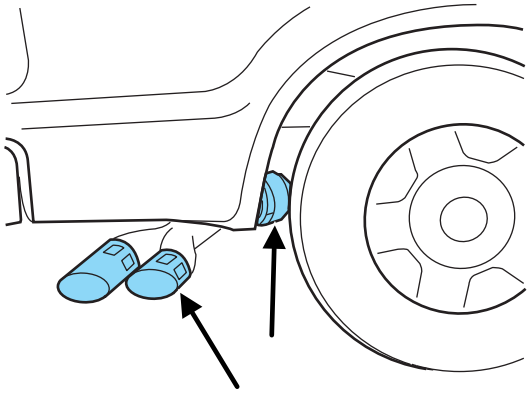


- **E–Series**



- **F–Super Duty**

EXHAUST (F-SUPER DUTY ONLY)



The visible holes in each leg of the twin tip and the holes under the shield just inboard of the right rear tire(s) are functional. The holes need to be kept clear of mud/debris or foreign material to maintain proper function of the exhaust system. Clean and remove debris or foreign material if present as needed. Spraying with a hose during regular washing of vehicle should help keep holes clean and clear of debris or foreign material.

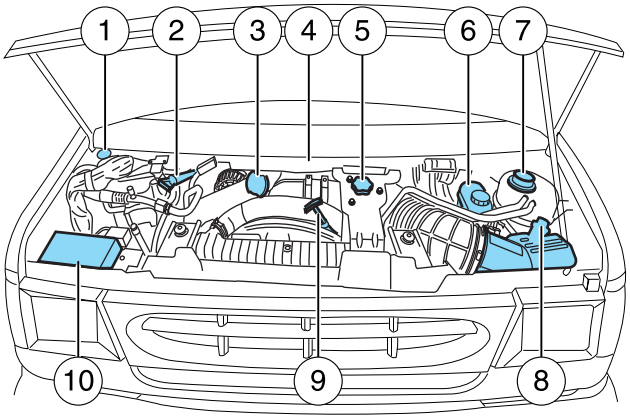
Cleaning

WARNING: Failure to maintain the functional holes, in the tailpipe section of the exhaust, clean and free of debris or foreign material may result in the holes becoming blocked or plugged. Do not modify or remove the tail-pipe section. Blocked or plugged holes or removal/modification of the system could result in elevated exhaust gas temperatures which may result in vehicle/property damage or personal injury

WARNING: The normal operating temperature of the exhaust system is very high. Never work around or attempt to repair any part of the exhaust system until it has cooled. Use special care when working around the diesel oxidation catalytic converter and/or the diesel particulate filter (DPF). The diesel oxidation catalytic converter and/or the DPF heats up to a high temperature after only a short period of engine operation and can stay hot even after the engine is turned off. Failure to follow these instructions may result in personal injury.

IDENTIFYING COMPONENTS IN THE ENGINE COMPARTMENT

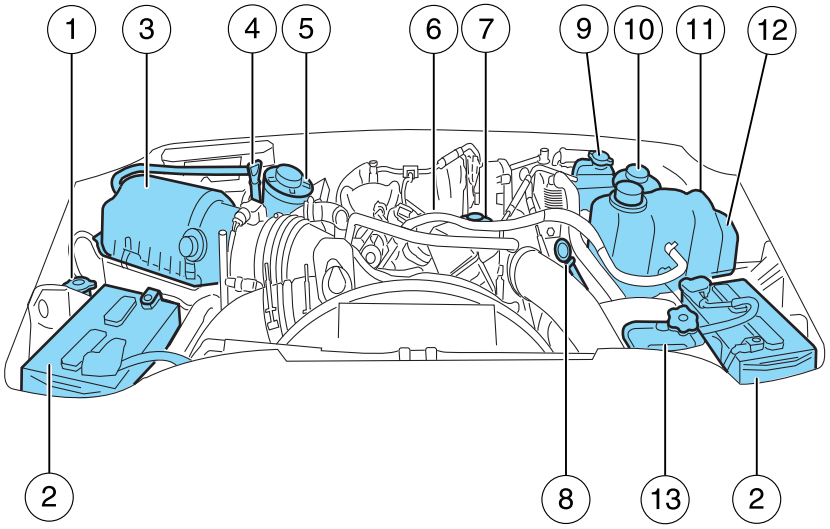
E-Series



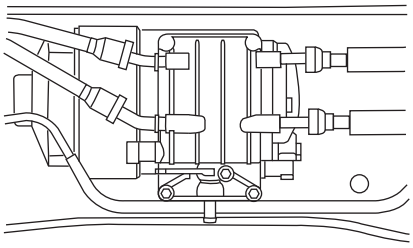
1. Windshield washer fluid reservoir
2. Automatic transmission dipstick
3. Engine oil filler cap
4. Secondary fuel filter assembly (out of view)
5. Power steering fluid reservoir
6. Brake fluid reservoir
7. Engine coolant reservoir
8. Air filter assembly
9. Engine oil dipstick
10. Power distribution box

The Fuel Conditioner Module (FCM) is located on the driver-side of the vehicle next to the transmission case.

F-Super Duty



1. Windshield washer fluid reservoir
2. Batteries
3. Air filter assembly, restriction gauge and auxiliary tube
4. Automatic transmission dipstick (if equipped)
5. Engine oil fill
6. Engine oil filter
7. Engine-mounted fuel filter assembly
8. Engine oil dipstick
9. Fuel coolant reservoir
10. Brake fluid reservoir
11. Power distribution box (behind engine coolant reservoir)
12. Engine coolant reservoir
13. Power steering fluid reservoir



The horizontal fuel conditioner module (HFCM) is located on the frame-rail under the driver-side floorboard near the transmission.

SCHEDULED MAINTENANCE

The scheduled maintenance services in the *scheduled maintenance information* of this supplement are required because they are considered essential to the life and performance of your vehicle.

Use only recommended fuel, lubricants, fluids and service parts conforming to Ford specifications. Motorcraft parts are designed and built for best performance in your vehicle.

FUEL REQUIREMENTS - CHOOSING THE RIGHT FUEL: VEHICLES OPERATED WHERE ULTRA LOW SULFUR DIESEL FUEL IS REQUIRED (UNITED STATES/CANADA/PUERTO RICO/U.S. VIRGIN ISLANDS AND OTHER LOCALES)

Use only Ultra Low Sulfur (15 ppm Sulfur Maximum) number 1-D or 2-D diesel fuel (also known as ULSD) in your 6.4L diesel engine. The engine and exhaust system were designed to only use this fuel. Look for the **ULTRA-LOW SULFUR HIGHWAY DIESEL FUEL (15 ppm Sulfur Maximum)** label on fuel pumps when purchasing your fuel.

Using low sulfur diesel fuel (16-500 ppm) or high sulfur diesel fuel (greater than 500 ppm) in a 6.4L diesel engine designed to use only Ultra Low Sulfur Diesel fuel will cause certain emission components to malfunction which may also cause the Service Engine Soon ( ) light to illuminate indicating an emissions-related concern.

Diesel fuel is adjusted seasonally for cold temperature. For best results at temperatures below 20°F (-7°C), it is recommended to use a diesel fuel which has been seasonally adjusted for the ambient conditions. See *Cold weather operation* in the *Driving* chapter of this supplement.

FUEL REQUIREMENTS - CHOOSING THE RIGHT FUEL: VEHICLES OPERATED WHERE ULTRA LOW SULFUR DIESEL FUEL IS NOT REQUIRED

For a 6.4L engine to operate reliably on low sulfur or high sulfur diesel fuel, the 6.4L engine must be a high sulfur configured engine or a ULSD fuel-configured engine that has been retrofitted for high sulfur diesel fuel use.

Use only a 6.4L diesel engine that has been configured for use with high sulfur diesel fuel in markets with diesel fuel that has sulfur content greater than 15 ppm. Using low sulfur diesel fuel (16–500 ppm) or high sulfur diesel fuel (greater than 500 ppm) in a 6.4L diesel engine designed to use only Ultra Low Sulfur Diesel fuel increases the likelihood of engine oil dilution with fuel which may lead to major engine damage. Engine damage from using the improper type of fuel is not covered under your warranty.

Vehicles with 6.4L engines configured for use with high sulfur diesel fuel will only be made available for sale in countries where ULSD fuel is not available or mandated by the government. Vehicles originally sold in a ULSD fuel market that are subsequently exported to non-ULSD fuel markets will need to be retrofitted (at the customer's expense) in order to be reliably operated on non-ULSD fuel.

Vehicles equipped with a 6.0L engine that are operated in a market that does not require ULSD fuel may be operated on higher sulfur fuel without any engine fuel system or emissions-related concerns.

Diesel fuel is adjusted seasonally for cold temperature. For best results at temperatures below 20°F (-7°C), it is recommended to use a diesel fuel which has been seasonally adjusted for the ambient. See *Cold weather operation* in the *Driving* chapter of this supplement.

BIODIESEL

Diesel fuel containing no more than 5% biodiesel may be used. To help achieve acceptable engine performance and durability, it is important to only use biodiesel of good quality in your diesel engine. At a minimum, the biodiesel should comply with ASTM D6751 or an equivalent specification.

Use of biodiesel in concentrations greater than 5% may cause damage to your vehicle, including engine and/or exhaust after-treatment hardware

(exhaust catalyst and particulate filter) failures. Concentrations greater than 5% can also cause fuel filter restrictions that may result in a lack of power and or damage to components such as fuel tank, fuel lines, fuel pump, fuel sender and fuel injectors fuel pump and fuel injector failures.

Look for a label on the fuel pump to confirm the amount of biodiesel contained in a diesel fuel. Biodiesel content is often indicated with the letter “B” followed by the percent of biodiesel in the fuel. For example, B5 indicates a fuel containing 5% biodiesel. Ask the service station attendant to confirm the biodiesel content of a diesel fuel if you do not see a label on the fuel pump.

Biodiesel should not be stored in the fuel tank for more than three months. If your vehicle will be parked or stored for more than three months, then your vehicle should be drained and filled with a diesel fuel not containing biodiesel.

During cold weather, if you have problems operating on biodiesel, you may need to use a diesel fuel with lower biodiesel content, try another brand, or discontinue the use of biodiesel.

Biodiesel use may affect the recommended oil change intervals. Refer to the *Special operating conditions* section in the *schedule maintenance guide* for more information about oil change intervals and other maintenance when operating on biodiesel.

Biodiesel fuel is a product that has been converted from renewable fuel sources, including vegetable oil, animal fat and cooking oil. Raw or refined vegetable oil, animal fat, cooking oil or recycled greases should **NOT** be used.

WARNING: Do not use home heating oil, agricultural fuel or any diesel fuel not intended for highway use. Damage to the fuel injection system, engine and exhaust catalyst can occur if an improper fuel is used. Do not add gasoline, gasohol or alcohol to diesel fuel. This practice creates a serious fire hazard and engine performance problems.

Fuel quality

It should not be necessary to add any aftermarket additives to your fuel tank if you use a properly formulated diesel fuel that meets the ASTM D 975 industry specification. Aftermarket additives can damage the injector system or engine. Repairs to correct the effects of using an aftermarket product in your fuel may not be covered by your warranty.

Do not blend used engine oil with diesel fuel under any circumstances. Blending used oil with the fuel will significantly increase your vehicle's exhaust emissions and reduce engine life due to increased internal wear.

Many of the world's automakers approved the World-wide Fuel Charter that recommends diesel fuel specifications to provide improved performance and emission control system protection for your vehicle. Diesel fuel that meets the World-wide Fuel Charter should be used when available. Ask your fuel supplier about fuel that meets the World-wide Fuel Charter.

Diesel fuel conditioner

Additives that will improve fuel cetane numbers may be used to verify/enhance fuel quality. Use Motorcraft Cetane Booster & Performance Improver, PM-22-A (U.S.) / PM-22-B (Canada) or equivalent. The customer warranty may be void from using additives that do not meet or exceed Ford specifications.

Do not use alcohol based additives to correct fuel gelling. This may result in damage to the fuel injectors/system. Use Motorcraft Anti-Gel & Performance Improver, PM-23-A (U.S.) / PM-23-B (Canada) or equivalent. The customer warranty may be void from using additives that do not meet or exceed Ford specifications.

Note: This ultra-low sulfur formulation is designed to meet the emissions standards for the 6.4L engine and is backward compatible as well (i.e., can be used in Ford 6.9L, 7.3L, and 6.0L diesel engines).

Fueling tips

If the engine fails to start in 30 seconds, turn the key to the off position and wait 30 seconds before trying again.

Truck stops have pumps and nozzles designed for larger, heavy-duty trucks. When refueling at truck stops: if the nozzle shuts off repeatedly when refueling, wait 5–10 seconds; then use a slower rate of flow (don't depress the nozzle trigger as far).

If air is allowed to enter the fuel system (during fuel filter change or if you run out of fuel) the engine will purge the trapped air as it runs. The engine may run rough and produce white smoke while air is in the system. This is normal and should correct itself in a short time.

An engine that suddenly becomes noisy or operates poorly after a fuel fill could be using substandard fuel (i.e., high water content, low cetane rating or gasoline in the fuel). Diesel fuel should be purchased from a reputable station which sells a large amount of diesel fuel.

Care should be taken whenever diesel fuel is stored. Use only clean, approved containers which will prevent the entry of dirt or water.

Diesel fuel must not be stored in a galvanized container. The fuel will dissolve the zinc in a galvanized container. The zinc will then remain in the solution until it is run through the engine where it will be deposited in the fuel injectors causing expensive-to-repair damage.

Diesel fuel dispensing nozzle fill rate

This truck is equipped with a fuel fill pipe which is able to accept fuel up to 20 gallons per minute from an 1⅛" fuel dispensing nozzle. Pumping fuel at greater flow rates may result in premature nozzle shut-off or spitback.

Fuel filler cap

Your fuel tank filler cap has an indexed design with a 1/4 turn on/off feature.

When fueling your vehicle:

1. Turn the engine off.
2. Carefully turn the filler cap counterclockwise until it spins off.
3. Pull to remove the cap from the fuel filler pipe.
4. To install the cap, align the tabs on the cap with the notches on the filler pipe.
5. Turn the filler cap clockwise 1/4 of a turn until it clicks at least once.

If you must replace the fuel filler cap, replace it with a fuel filler cap that is designed for your vehicle. The vehicle warranty may be void for any damage to the fuel tank or fuel system if the correct genuine Ford or Motorcraft fuel filler cap is not used.

WARNING: The fuel system may be under pressure. If the fuel filler cap is venting vapor or if you hear a hissing sound, wait until it stops before completely removing the fuel filler cap. Otherwise, fuel may spray out and injure you or others.

WARNING: 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 cap to disengage in a collision, which may result in possible personal injury.

FUEL FILTER/WATER SEPARATOR

Fuel Conditioner Module (FCM - E-Series)

The vehicle is equipped with a Fuel Conditioning Module (FCM) located on the driver-side of the vehicle next to the transmission case.

Water should be drained from the module assembly whenever the warning light comes on. The WATER IN FUEL light will come on when approximately 0.2 pints (100 ml) of water accumulates in the module. If water level is allowed to exceed this level, the water may be passed through to the engine and may cause FIE (Fuel Injection Equipment) damage.

Horizontal Fuel Conditioner Module (HFCM - F-Super Duty)

The vehicle is equipped with a Horizontal Fuel Conditioning Module (HFCM) located on the frame-rail under the driver-side floorboard near the transmission

Water should be drained from the module assembly whenever the warning light comes on. The WATER IN FUEL light will come on when approximately 0.13–0.16 pints (60–75 ml) of water accumulates in the module. If water level is allowed to exceed this level, the water may be passed through to the engine and may cause FIE (Fuel Injection Equipment) damage.

DRAINING THE HFCM AND CHANGING THE ENGINE AND VEHICLE FUEL FILTERS

Your vehicle is equipped with two fuel filters; one is mounted on top of the engine. **On F-Super Duty,** the second filter, inside the HFCM, is mounted inside the frame rail under the driver-side floorboard near the transmission. **On E-Series,** the second filter, inside the FCM, is mounted on the driver-side of the vehicle next to the transmission case. **On all vehicles,** both filters should be replaced at the same time. Regular fuel filter changes are an important part of engine maintenance; failing to keep with the scheduled maintenance could lead to engine performance issues and/or fuel injection system damage. Refer to the *Scheduled maintenance guide* chapter of this supplement for more information.

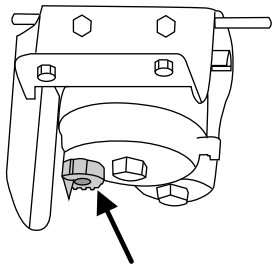
Refer to *Motorcraft part numbers* later in this chapter for the fuel filter replacement part number. This part number includes filters and seals for both the engine-mounted and frame-mounted filters.

1. Stop the vehicle and **shut off** the engine.

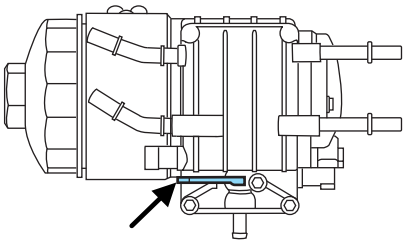
WARNING: The vehicle must be stopped with the engine off when draining the HFCM/FCM. Fuel may ignite if the separator is drained while the engine is running or vehicle is moving.

2. Locate the HFCM and place an appropriate container under the drain port (see illustration).

- **E-Series**



F-Super Duty



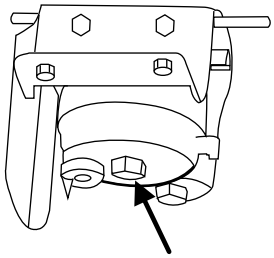
3. Rotate drain lever to the outward position. Allow the HFCM/FCM to drain for approximately 25 seconds or until clean fuel is observed. Rotate the lever towards the housing until it is firmly seated.

4. Verify that the drain valve is closed and latched, then remove the container from under the vehicle.

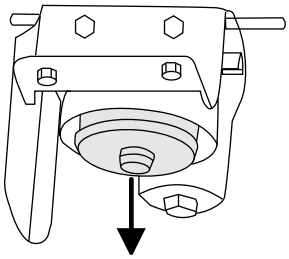
5. Restart the engine and check WATER IN FUEL indicator light; it should not be illuminated. If it continues to illuminate, have the fuel system checked and repaired.

Removal - FCM filter (E-Series)

1. Remove the fuel filter cap by turning counterclockwise.

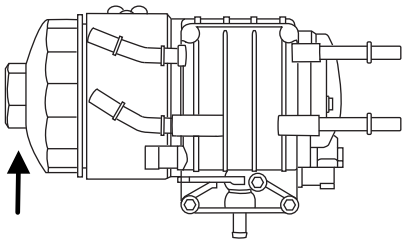


2. Remove and discard the old fuel filter element.
3. Carefully clean the mating surfaces.



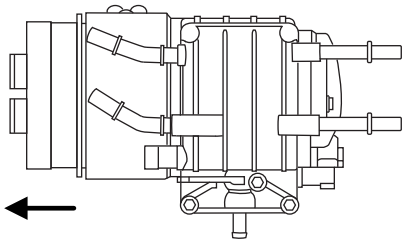
Removal - HFCM filter

1. Remove the fuel filter cap by turning counterclockwise.



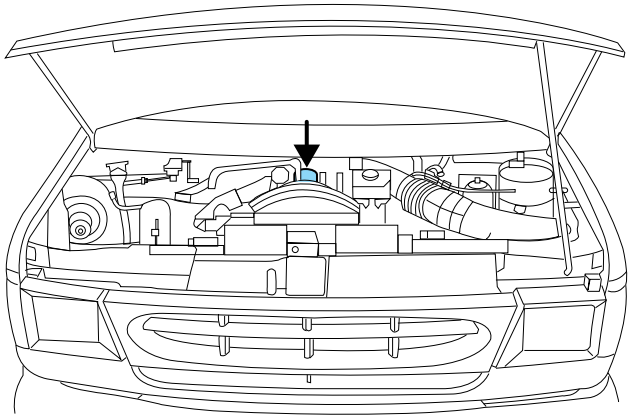
2. Remove and discard the old fuel filter element.

3. Carefully clean the mating surfaces.

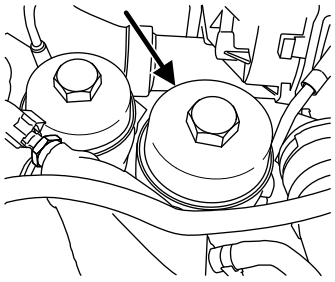


Removal - Engine-mounted fuel filter

- E-Series



- F-Super Duty



1. Remove the fuel filter cap by turning counterclockwise.

2. Remove and discard the old fuel filter element.

3. Carefully clean the mating surfaces.

Installation - both

The engine will not run properly if the fuel filter is not installed in housing.

1. Install the new fuel filter and cap seal into the fuel filter housing. Refer to *Motorcraft part numbers* later in this chapter for the fuel filter part number.

2. Tighten cap onto fuel filter housing slowly, allowing fuel to soak into the fuel filter element. Tighten cap until it contacts the housing.

Turn the ignition key to on for 30 seconds, then turn it to off. Do this a total of six times in a row to purge any trapped air from the fuel system.

Replace the filter bowl O-ring with new seal (included in filter kit) every time you service the filter.

After filter service, a no start or rough running engine may indicate that air is entering the system through the filter bowl seal or drain. Make sure the drain lever is pointing rearward and stowed against the HFCM case.

Using a fuel which has more than average impurities may require the fuel filter to be replaced more frequently than the service interval specifies.

ENGINE OIL

Checking the engine oil level

Because it is normal to add some oil between oil changes, check your engine oil level each time you stop for fuel. To check the engine oil level consistently and accurately, the following procedure is recommended:

1. Have engine at normal operating temperature (at least into the NORMAL range on the engine coolant temperature gauge).

2. Park the vehicle on a level surface, then turn off the engine and open the hood.

3. Allow at least **20 minutes** after engine shutdown to ensure that the oil contained in the upper parts of the engine has returned to the oil pan.

4. Protecting yourself from engine heat, pull out the dipstick, wipe it clean and reinsert fully.

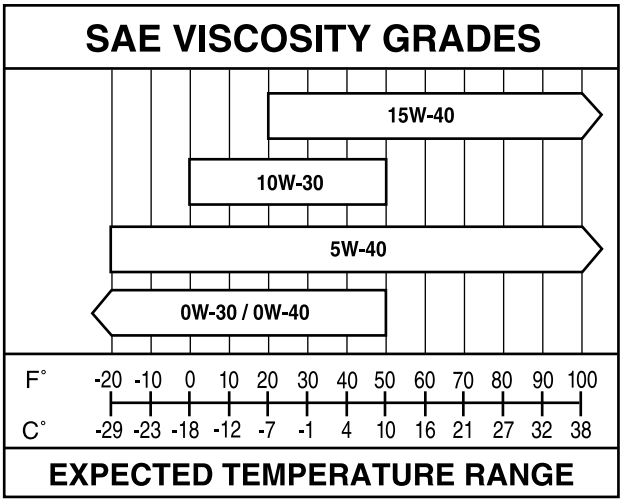
5. Read oil level on both sides of dipstick and use highest level (reading) for the actual engine oil level.

6. Maintain the oil level between MIN and MAX or the ADD and OPERATING RANGE on the dipstick by adding oil as required. The distance from MIN to MAX or ADD to OPERATING RANGE on the dipstick represents 2.0 quarts (1.9L). Do not overfill. If the oil level exceeds MAX or OPERATING RANGE, oil consumption may result.

Engine oil specifications

To help achieve acceptable engine performance and durability, it is important that only engine oils of good quality are used in your diesel engine and it is changed at the recommended interval. For normal or severe service, use Motorcraft oil or an equivalent oil conforming to Ford specification WSS-M2C171–E or API service categories CJ-4 or CJ-4/SM. It is important to use these oils because they are compatible with the emission control equipment of your vehicle to meet the more stringent emission standards.

The use of correct oil viscosities for diesel engines is important for satisfactory operation. Determine which oil viscosity best suits the temperature range you expect to encounter for the next service interval from the following SAE viscosity grade chart.



- **An engine block heater must be used at temperatures below –10°F (–23°C).**
- Use the same engine oil and filter change intervals when using synthetic engine oil.
- **Heavier SAE 15W–40 and SAE 5W–40 engine oils are recommended for temperature over 50°F (10°C) and must be used for heavy duty driving and trailer towing.**

A symbol has been developed by the American Petroleum Institute (API) to help you select the proper engine oil. It will be included on the oil container you purchase. The top section of the symbol shows the oil performance by the API designation. This should match the owner guide recommendation. The center section will show the SAE viscosity grade

Changing engine oil and filter

Change your oil and filter according to the *scheduled maintenance information* in this supplement. Change more frequently if your vehicle operation includes extended periods of idling or low-speed operation, driving for a long time in cold temperatures or driving short distances. See the following section *Engine lubrication for severe service operation* for all severe duty restrictions.

Refer to *Motorcraft part numbers* later in this chapter for the engine oil filter part number. This filter protects your engine by filtering harmful, abrasive or sludge particles and particles significantly smaller than most available "will-fit" filters.

To replace the filter,

1. Unscrew the oil filter cap and wait a few seconds for the oil to drain through the built-in drain valve. **Note:** The filter should be changed before reinstalling the oil pan drain plug.

2. Reinstall and tighten the oil filter cap.

WARNING: Do not handle a hot oil filter with bare hands.

WARNING: Continuous contact with USED motor oil has caused cancer in laboratory mice. Protect your skin by washing with soap and water.

Engine lubrication for severe service operation

The following severe service operating conditions require unique engine maintenance procedures:

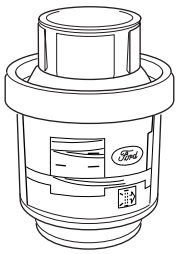
- frequent or extended idling (over 10 minutes per hour of normal driving).
- if vehicle is operated in sustained ambient temperatures below -10°F (-23°C) or above 100°F (38°C)
- frequent low speed operation, consistent heavy traffic less than 25 mph (40 km/h)
- operating in severe dust conditions.
- towing a trailer over 1,000 miles (1,600 km)
- sustained, high speed driving at Gross Vehicle Weight Rating (maximum loaded weight for vehicle operation)

- use of biodiesel, up to and including 5% Biodiesel (B5)
- use of high sulfur diesel fuel

If you are operating your vehicle under any of these conditions, change engine oil and filter every 5,000 miles (8,000 km).

AIR FILTER RESTRICTION GAUGE AND AIR FILTER REPLACEMENT

Air filter restriction gauge:



The restriction gauge, located on the upper housing of the air filter assembly, measures the vacuum inside the air filter. The more the air filter is restricted (dirty, clogged), the higher the vacuum reading

Check the air filter restriction gauge whenever the hood is raised to perform general engine maintenance at least every 7,500 miles (12,000 km). If the vehicle is operated in extremely dusty conditions, check and reset the gauge at least every 500 miles (800 km), or two weeks, whichever comes first.

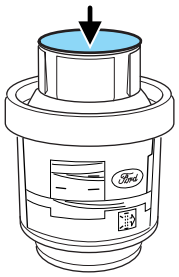
Change the air filter when the gauge reads near the “change filter” line and the chamber is filled with yellow. Engine performance and fuel economy are adversely affected when the maximum restriction is reached.

Blowing-out the air filter element with compressed air is not recommended as the compressed air may damage the filter paper.

Note: It is not possible to determine the level of filter clogging by visual appearance alone. A filter which appears to be dirty may actually have several thousand miles (kilometers) of life remaining.

Always use the underhood air filter restriction gauge to determine when the air filter element needs to be changed. The warning light on the instrument cluster should not be used exclusively for determining when the air filter element needs changing.

After installation of the new filter element, reset the gauge by pressing the reset button on top of the gauge.



Note: Vehicle operation in heavy snowfall or extreme rain conditions may feed excessive amounts of snow/water into the air intake system. This could plug/soak the air filter with snow and may cause the engine to lose power and possibly shut down.

You may not need to change the air filter and the vehicle may be driven up to 200 miles (320 km) under the following conditions:

- **Snow:** At the earliest opportunity, open the hood and clear all the snow and ice from the air filter housing inlet (do NOT remove the air filter) and reset the air filter restriction gauge.
- **Wet:** The air filter will dry after about 15–30 minutes at highway speeds. At the earliest opportunity, open the hood and reset the air filter restriction gauge.

Air filter replacement:

When replacing the air filter element, use the Motorcraft air filter element listed in *Motorcraft part numbers* later in this chapter.

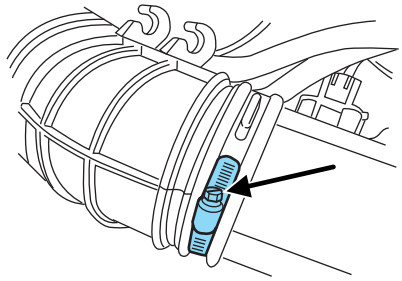
WARNING: To reduce the risk of vehicle damage and/or personal burn injuries do not start your engine with the air filter removed and do not remove it while the engine is running.

Failure to use the correct air filter element may result in severe engine damage.

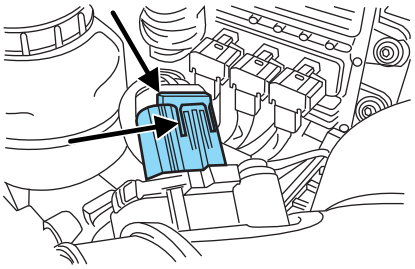
- **E-series air filter:**

1. Disconnect the hoses from the air filter outlet tube.

2. Loosen the clamp and disconnect the air filter outlet tube.

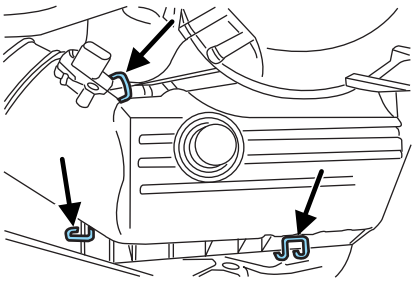


3. Disconnect the mass air flow (MAF) sensor electrical connector. (Slide out the red lock, press tab and remove the electrical connector.)



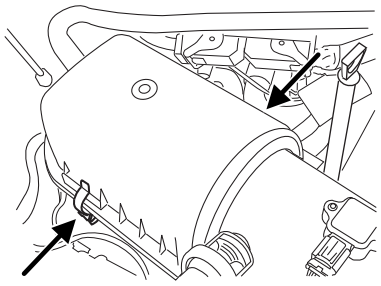
4. Disconnect the three latches and remove the air filter cover

5. Remove the air filter.

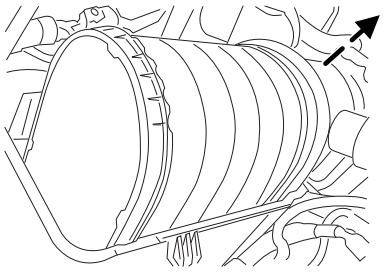


6. To install, reverse the removal procedure.

1. Release the toggle clamps and raise the air filter housing cover. It may be necessary to pull the auxiliary inlet tube away from the air filter to allow the cover to be removed.



2. Pull the top edge of the air filter out and away from the housing to release the air filter seal from the air filter housing, then remove the air filter. **Note:** DO NOT use a tool to pry the air filter from the housing. Failure to follow this instruction may result in damage to the air filter housing, air filter seal and engine.



3. When installing the air filter, first make certain the bottom of the air filter is positioned to the inboard side of the stop feature located in the bottom of the air filter housing, Then compress the air filter seal down and in towards the engine so the air filter is seated into the air filter housing. **Note:** If not installed properly, the air filter housing cover will not properly seat and the toggle clamps may not latch

4. Replace the air filter housing cover, push the auxiliary tube against the air filter and close the toggle clamps.

DIESEL EXHAUST SYSTEM: OXIDATION CATALYST/DIESEL PARTICULATE FILTER SYSTEM (F-SUPER DUTY ONLY)

Your vehicle is equipped with a diesel particulate filter (DPF), which is coupled to a diesel oxidation catalyst, that reduces the amount of harmful exhaust emitted from the tailpipe. As soot gathers in the system it begins to restrict the filter. The soot gathered inside the filter needs to be periodically cleaned. The soot can be cleaned in two different ways; passive regeneration and active regeneration. Both methods occur automatically and require no actions from the driver/operator. During either one of these regeneration methods you may notice an increase/change in exhaust noise/tone and increased engine idle speed.

At certain times, the message center will display various messages related to the DPF. See *Message center* in the *Instrument Cluster* chapter for more information.

Passive regeneration

In passive regeneration, the exhaust constituents / temperature are at an appropriate level where some soot can be reduced or oxidized (burned) thus cleaning the filter. This method occurs naturally as a result of normal engine operating conditions (at varying levels due to drive patterns).

Active regeneration

If there is not enough passive regeneration naturally occurring due to vehicle drive patterns, the engine control system will initiate an active regeneration. In an active regeneration, the filter is cleaned by raising the exhaust temperature to a point where the soot is burned away. This is accomplished through various engine actions which raise the exhaust temperature in the oxidation catalyst/DPF system to an appropriate high level where the soot is burned off. After the soot is burned off, the exhaust temperature and back-pressure (restriction) fall back to normal levels.

Filter service/maintenance

Over time a slight amount of ash will build up in the DPF which is not removed during the regeneration process. The DPF may need to be removed for ash cleaning at approximately 120,000 miles (193,000 km) or greater (actual mileage can vary greatly depending upon engine/vehicle operating conditions) and replaced with a new or remanufactured (ash cleaned) part. The filter may need to be replaced at approximately 250,000 miles (400,000 km) depending upon engine/vehicle operating conditions. In both cases the engine control system will set a service light () to inform you to bring the vehicle to the dealer for service.

If there are any issues with the oxidation catalyst/DPF system a service light ( or) will be set by the engine control system to inform you to bring the vehicle into a dealership for service.

Resonator/Tailpipe assembly maintenance

The diesel resonator tail-pipe assembly is a uniquely functioning device that accompanies the Oxidation Catalyst/DPF assembly. The assembly serves multiple functions. First it serves as an acoustic device to

attenuate exhaust noise. Second it provides an exit path for the exhaust from the vehicle. It also is designed to help control the temperature of the exhaust during DPF regeneration events. The visible holes in each leg of the twin tip and the holes under the shield just inboard of the right rear tire(s) are functional. The holes need to be kept clear of mud/debris or foreign material to maintain proper function of the exhaust system. Clean and remove debris or foreign material if present as needed. Spraying with a hose during regular washing of vehicle should help keep holes clean and clear of debris or foreign material.

Note: Additions of aftermarket devices or modifications to the exhaust system can reduce the effectiveness of the exhaust system as well as cause damage to the exhaust system and/or engine. These actions may also affect the vehicle's warranty. See the *Customer Information Guide* for more information.

WARNING: Failure to maintain the functional holes, in the tailpipe section of the exhaust, clean and free of debris or foreign material may result in the holes becoming blocked or plugged. Do not modify or remove the tail-pipe section. Blocked or plugged holes or removal/modification of the system could result in elevated exhaust gas temperatures which may result in vehicle/property damage or personal injury.

WARNING: The normal operating temperature of the exhaust system is very high. Never work around or attempt to repair any part of the exhaust system until it has cooled. Use special care when working around the diesel oxidation catalytic converter and/or the diesel particulate filter (DPF). The diesel oxidation catalytic converter and/or the DPF heats up to a high temperature after only a short period of engine operation and can stay hot even after the engine is turned off. Failure to follow these instructions may result in personal injury.

EMISSION 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 operations from unknowingly removing or rendering emission control system(s) inoperative. Further, modifications of the emission control system(s) could create liability on the part of the individual owners under the laws of some states. In Canada,

modifications of the emission control system(s) could create liability under applicable Federal or Provincial laws.

Do not remove or alter the original equipment floor covering or insulation between it and the metal floor of the vehicle. The floor covering and insulation protect occupants of the vehicle from the engine and exhaust system heat and noise. On vehicles with no original equipment floor covering insulation, do not carry passengers in a manner that permits prolonged skin contact with the metal floor. Provide adequate insulation.

NOISE EMISSIONS WARRANTY, PROHIBITED TAMPERING ACTS AND MAINTENANCE

On January 1, 1978, Federal regulation became effective governing the noise emission on trucks over 10,000 lbs. (4,536 kg) GVWR (Gross Vehicle Weight Rating). The following statements concerning prohibited tampering acts and maintenance, and the noise warranty found in the *Customer Information Guide*, are applicable to complete chassis cabs over 10,000 lbs. (4,536 kg) GVWR.

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 which the U.S. Environmental Protection Agency may presume to constitute tampering are the acts listed below:

- Removal of hood blanket, fender apron absorbers, fender apron barriers, underbody noise shields or acoustically absorptive material.
- Tampering or rendering inoperative the engine speed governor, so as to allow engine speed to exceed manufacturer's specifications.

The complexity of the diesel engine makes it so the owner is discouraged from attempting to perform maintenance other than the services described in this supplement.

If you experience difficult starting, rough idling, excessive exhaust smoke, a decrease in engine performance or excess fuel consumption, perform the following checks:

- a plugged air inlet system or engine air filter element.
- water in the fuel filter/water separator.
- a clogged fuel filter.
- contaminated fuel.
- air in the fuel system, due to loose connections.
- an open or pinched sensor hose.
- low engine oil level.
- wrong fuel or oil viscosity for climactic conditions.

If these checks do not help you correct the engine performance problem you are experiencing, consult an authorized dealer.

FUELING

WARNING: Do not use starting fluid such as ether or gasoline in the diesel air intake system. Such fluids can cause immediate explosive damage to the engine and possible personal injury.

If you fuel your vehicle at a truck stop, you may notice that the fuel nozzle may shut off every 5–10 seconds. This is due to the flow rates being designed for larger heavy duty trucks. You may have to fuel at a slower rate (don't depress the nozzle trigger fully).

Do not run your diesel vehicle out of fuel as this will allow air to enter the fuel system which will make restarting difficult. The engine is designed to run roughly as the fuel tank nears Empty. This is a warning to the driver to add fuel as soon as possible. Longer engine cranking time may be required once air is in the fuel system. If air enters the fuel system (either through running the fuel tank(s) empty or during a fuel filter change), the engine will self-purge the trapped air once it starts running. The engine may run roughly and produce white smoke while air is in the fuel system; this is normal and should stop after a short time.

MINOR TROUBLESHOOTING GUIDE

Air purge procedure

Turn the key on for 30 seconds, then turn off. Repeat procedure four or five times.

If the engine won't crank

Turn on the headlights. If the lights are dim, do not go on at all or when the ignition is turned to START the lights become dim or go out, the battery connections may be loose or corroded, or the battery may be discharged. If there is a clicking or stuttering sound coming from the engine compartment when you turn the key to START, this may also indicate a loose or corroded battery connection.

Check the battery connections at the battery posts, cable connection to the engine grounding point and at the starter connection.

If a discharged battery is suspected, have it checked and corrected.

WARNING: Battery posts, terminals and related accessories contain lead and lead compounds. **Wash hands after handling.**

- **For vehicles with manual transmissions,** the clutch pedal **must** be fully depressed in order for the starter to operate.
- **For vehicles with automatic transmissions,** the gearshift lever must be in P (Park) or N (Neutral) in order for the starter to operate.
- Try operating the starter switch several times. Should the switch be corroded, this operation may clean the contacts or make the switch temporarily operable until you can reach the dealer.
- If all electrical connections are tight and you need assistance to start, refer to *Jump starting* in the *Roadside Emergencies* chapter of your *Owner's Guide* (F-Super Duty) or refer to the *Jump starting* section in the *Roadside Emergencies* chapter of this supplement (E-Series).

If engine cranks but won't start

Prolonged starter cranking (in excess of 10 seconds) could cause damage to the starter motor.

- Check the fuel gauge. You may be out of fuel. If the gauge shows that there is fuel in the tank, the trouble may be in the electrical system or the fuel system. If equipped with an auxiliary tank, be sure that the tank control switch is set for the tank with fuel and not on an empty tank.
- Leaving the ignition key turned to on for over two minutes without starting may make starting difficult because the glow plugs will cease activation. Reset the system by turning the ignition key to off and then back to on again.

If the engine runs hot

The following could cause the engine to overheat:

- Lack of coolant.
- Dirty cooling system.
- Plugged radiator fins, charge air cooler, A/C condenser and/or oil cooler.
- Malfunctioning fan drive.
- Driving with frozen coolant.
- Sticking thermostat.
- Overloading or pulling heavy trailers during hot weather.
- Grill or radiator air blockage.
- Slipping or missing drive belt.
- Plugged or very dirty air filter.

If fuses burn out

Burned-out or blown fuses usually indicate an electrical short-circuit, although a fuse may occasionally burn out from vibration. Insert a second fuse. If this fuse immediately burns out and you cannot locate the cause, return your vehicle to your dealer for a circuit check.

WARNING: Replacement fuses and circuit breakers must always be the same rating as the original equipment shown. Never replace a fuse or circuit breaker with one of a higher rating. Higher rated fuses or circuit breakers could allow circuit overloading in the event of a circuit malfunction, resulting in severe vehicle damage or personal injury due to fire.

Refer to the *Owner's Guide* for replacement of fuses.

MOTORCRAFT PART NUMBERS

Item	Ford Part Number
Engine oil filter	FL-2016
Air filter - E-Series*	FA-1804
Air filter - F-Super Duty*	FA-1886
Fuel filter kit - E-Series (2 included - engine and frame rail mounted)	FD-4606
Fuel filter kit - F-Super Duty (2 included - engine and frame rail mounted)	FD-4609
Battery (2 Required)	BXT-65-750
* Always use the authorized Motorcraft air filter listed. **Failure to use the correct air filter may result in severe engine damage.**	

MAINTENANCE PRODUCT SPECIFICATIONS AND CAPACITIES

Item	Capacity	Ford part name	Ford part number / Ford specification
Engine coolant - E-Series[3]	27.5 quarts (26.0L)[1]	Motorcraft Premium Engine Coolant	VC-7-B / WSS-M97B51-A1
Engine coolant - F-Super Duty[3]	29.6 quarts (28.0L)[1]	Motorcraft Premium Engine Coolant	VC-7-B / WSS-M97B51-A1
Engine coolant additive	—	Diesel Cooling System Additive	VC-8 / ESN-M99B169-A
Coolant nitrite test strip	—	Acustrip 3-way Antifreeze Test Strip	—
Fuel coolant - F-Super Duty[3]	2.0 quarts (1.9L)	Motorcraft Premium Engine Coolant	VC-7-B / WSS-M97B51-A1
Engine oil (includes filter change)	15.0 quarts (14.2L)[2]	Motorcraft Motor Oil 15W40 Super Duty Motorcraft Motor Oil 10W30 Super Duty	XO-15W40-QSD, XO-10W30–QSD / WSS-M2C171–E
Cetane Booster & Performance Improver	—	Motorcraft Cetane Booster & Performance Improver	PM-22-A
Anti-Gel & Performance Improver	—	Motorcraft Anti-Gel & Performance Improver	PM-23-A
Fuel tank	Refer to *Owner's Guide*		

Item	Capacity	Ford part name	Ford part number / Ford specification
Manual transmission fluid	5 .8 quarts (5.5L)	Full Synthetic Oil	XT-M5-QS / WSS-M2C200-C
Automatic transmission fluid[4]	17.5 quarts (16.6L)[5]	Motorcraft MERCON® LV ATF	XT-10-QLV / MERCON® LV

[1] Includes heater and 5.0 quarts (4.7L) in coolant recovery.

[2] Includes 1 quart (1.0L) in oil filter.

[3] Only use coolant meeting Ford specifications for topping off and coolant changes. Using any other coolant may result in vehicle damage.

[4] Ensure the correct automatic transmission fluid is used. Transmission fluid requirements are indicated on the dipstick blade or the dipstick handle. Check the container to verify the fluid being added is of the correct type. Refer to your scheduled maintenance information to determine the correct service interval.

[5] Indicates only approximate dry-fill capacity. Some applications may vary based on cooler size and if equipped with an in-tank cooler. The amount of transmission fluid and fluid level should be set by the indication on the dipstick's normal operating range.

Scheduled Maintenance: General Information

SCHEDULED MAINTENANCE GUIDE

Vehicle Identification Number (VIN):

Owner Name: _____

Address: _____

_____

Note: Use only a 6.4L diesel engine that has been configured for use with high sulfur diesel fuel in markets with diesel fuel that has sulfur content greater than 15 ppm. Using low sulfur diesel fuel (16–500 ppm) or high sulfur diesel fuel (greater than 500 ppm) in a 6.4L diesel engine designed to use only Ultra Low Sulfur Diesel fuel increases the likelihood of engine oil dilution with fuel which may lead to major engine damage. Vehicles that are operated in high sulfur diesel fuel markets must be configured for the high sulfur fuel and require a different maintenance schedule.

***** See *Special Operating Conditions* in the *Scheduled Maintenance: F-Super Duty* chapter

GENERAL MAINTENANCE INFORMATION

Why maintain your vehicle?

This guide describes the scheduled maintenance required for your vehicle. Carefully following this schedule helps protect against major repair expenses resulting from neglect or inadequate maintenance and may also help to increase the value of your vehicle when you sell or trade it.

It is your responsibility to see that all scheduled maintenance is performed and that the materials used meet Ford engineering specifications. Failure to perform scheduled maintenance in this guide will invalidate warranty coverage on parts affected by the lack of maintenance. Be sure receipts for completed maintenance are kept with the vehicle and confirmation of the work performed is always recorded in this guide.

Scheduled Maintenance: General Information

Your Ford dealer, or Ford Quality Care Center has factory trained technicians who can perform the required maintenance using genuine Ford parts. They are committed to meeting your service needs and to assuring your continuing satisfaction.

Protecting your investment

Maintenance is an investment that will pay dividends in the form of improved reliability, durability and resale value. To ensure the proper performance of your vehicle and its emission control systems, it is imperative that scheduled maintenance be completed at the designated intervals.

Your vehicle is very sophisticated and built with multiple complex performance systems. Every manufacturer develops these systems using different specifications and performance features. That's why it's important to rely upon your Ford dealership to properly diagnose and repair your vehicle.

Ford Motor Company has recommended maintenance intervals for various parts and component systems based upon engineering testing. Ford Motor Company relies upon this testing to determine the most appropriate mileage for replacement of oils and fluids to protect your vehicle at the lowest overall cost to you and recommends against maintenance schedules that deviate from the scheduled maintenance information.

Ford strongly recommends the use of genuine Ford replacement parts. Parts other than Ford, Motorcraft or Ford authorized remanufactured parts that are used for maintenance replacement or for the service of components affecting emission control must be equivalent to genuine Ford Motor Company parts in performance and durability. It is the owner's responsibility to determine the equivalency of such parts. Please consult your *Customer Information Guide* for complete warranty information.

Non-Ford approved chemicals or additives are not required for factory recommended maintenance. In fact, Ford Motor Company recommends against the use of such additive products unless specifically recommended by Ford for a particular application.

Oils, Fluids and Flushing

In many cases, fluid discoloration is a normal operating characteristic of the chemical compound and may not necessarily demonstrate that a fluid needs to be changed. Oils and fluids identified in this guide should be changed at the specified interval or in conjunction with a repair. Flushing

is a viable way to change fluid for many vehicle sub-systems during scheduled maintenance and should only be done using the same fluid required to finish the maintenance procedure, or a Ford approved flushing chemical.

Engine Emissions label

Emissions information appears on the Engine Emissions label on the engine valve cover. This decal identifies engine displacement and provides certain engine specifications.

Any modification of the emissions control system could create liability under federal law (U.S.) if made prior to sale and registration, under the laws of some states if made thereafter. Further, 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 operations from knowingly removing or rendering an emissions control system inoperative after sale and delivery to an ultimate purchaser. In Canada, modifications of the emissions control system could create liability under applicable federal or provincial laws.

Genuine Ford Parts and Service

When planning your maintenance services, consider your Ford dealership for all your vehicle's needs.

Get the most from your service and maintenance visits

There are a lot of reasons why your Ford dealership is a great way to help keep your vehicle running great.

Convenience

To make your service visit even more convenient, in many cases, you'll find extended evening hours and Saturday hours. How's that for quality service?

Factory-trained Technicians

Ford service technicians participate in extensive factory-sponsored training to help them become the experts on the operation of your vehicle. Many participate in Ford-sponsored training to become certified. Ask your dealer about the training and certification their technicians have received.

Scheduled Maintenance: General Information

Genuine Ford and Motorcraft Replacement Parts

Ford dealerships stock Ford and Motorcraft branded replacement parts. These parts meet or exceed Ford Motor Company's specifications, and we stand behind them. Maintenance parts installed at your Ford dealership carry a nationwide, 12 months, 12,000 mile (20,000 km) parts and labor limited warranty. Your dealer can give you details.

Value Shopping for Your Vehicle's Maintenance Needs

Your dealership recognizes the competitive landscape of maintenance and light repair automotive services. With factory-trained technicians, and one-stop service from routine maintenance like oil changes and tire rotations to repairs like brake service, check out the value your Ford dealers can offer.

WHICH MAINTENANCE SCHEDULE SHOULD YOU FOLLOW?

Owner Checks and Services

Refer to Mileage Intervals for Additional Checks and Services

Certain basic maintenance checks and inspections should be performed by the owner or a service technician at the intervals indicated. Service information and supporting specifications are provided in the *Owner's Guide*.

Any adverse condition should be brought to the attention of your dealer or qualified service technician as soon as possible for the proper service advice. The owner maintenance service checks are generally not covered by warranties so you may be charged for labor, parts or lubricants used.

Maximum oil change interval (E-Series)
❑ Normal schedule: 7,500 miles (12,000 km) or 6 months, whichever occurs first.
❑ Special Operating Conditions: 5,000 miles (8,000 km), 6 months or 200 hours of engine operation, see appropriate schedule.

Maximum oil change interval (F-Super Duty)
❑ Normal schedule: 10,000 miles (16,000 km) or 6 months, whichever occurs first.
❑ Special Operating Conditions: 5,000 miles (8,000 km), 6 months or 200 hours of engine operation, see appropriate schedule.

Maximum fuel filter change interval (E-Series)
❑ Normal schedule: 15,000 miles (24,000 km) or 12 months, whichever occurs first.
❑ Special Operating Conditions: 10,000 miles (16,000 km) or 400 hours of engine operation, see appropriate schedule.

Scheduled Maintenance: General Information

Maximum fuel filter change interval (F-Super Duty)
❑ Normal schedule: 20,000 miles (32,000 km) or 24 months, whichever occurs first.
❑ Special Operating Conditions: 10,000 miles (16,000 km) or 400 hours of engine operation, see appropriate schedule.

Motorcraft engine coolant change interval (E-Series)
❑ 6 years or 105,000 miles (168,000 km) - change Motorcraft engine coolant (whichever comes first)
❑ After initial change - change Motorcraft engine coolant every 3 years or 45,000 miles (72,000 km)
❑ Use engine coolant specified in the *Owner Guide* under the *Maintenance and Specifications* chapter
❑ For special operating conditions, see *Special Operating Conditions* at the end of this section

Motorcraft engine coolant change interval (F-Super Duty)
❑ 6 years or 100,000 miles (160,000 km) - change Motorcraft engine coolant (whichever comes first)
❑ After initial change - change Motorcraft engine coolant every 3 years or 50,000 miles (80,000 km)
❑ Use engine coolant specified in the *Owner Guide* under the *Maintenance and Specifications* chapter
❑ For special operating conditions, see *Special Operating Conditions* at the end of this section

Check every month
❑ Check function of all interior and exterior lights
❑ Check tires for wear and adjust air pressure (including spare tire)
❑ Check that holes in the tail-pipe of the exhaust system are clear of debris-the holes/slots are functional (F-Super Duty)
❑ Check engine oil level
❑ Check windshield washer fluid level
❑ Check and drain fuel filter/water separator

Check every six months
❑ Check lap/shoulder belts and seat latches for wear and function
❑ Check that externally-mounted spare tire is tight (see *Owner's Guide*)
❑ Check power steering fluid level
❑ Check washer spray, wiper operation and clean all wiper blades (replace as necessary)
❑ Check parking brake for proper operation
❑ Check and lubricate all hinges, latches and outside locks
❑ Check and lubricate door rubber weatherstrips
❑ Check and clean body and door drain holes
❑ Check safety warning lamps (brake, ABS, air bag, safety belt) for operation
❑ Check engine cooling system level, coolant strength (anti-freeze & anti-corrosion) and hoses.
❑ Check fuel cooling system for fluid level and coolant strength (F-Super Duty)
❑ Check battery connections and clean if necessary
❑ Check clutch fluid level, if equipped

Retightening lug nuts
❑ On vehicles equipped with single rear wheels, retighten the lug nuts to the specified torque at 500 miles (800 km) after any wheel disturbance (tire rotation, changing a flat tire, wheel removal, etc.).
❑ On vehicles equipped with dual rear wheels, retighten the wheel lug nuts to the specified torque at 100 miles (160 km), and again at 500 miles (800 km) of new vehicle operation and after any wheel disturbance (tire rotation, changing a flat tire, wheel removal, etc.).
❑ Refer to *Wheel Lug Nut Torque Specification* in your *Owner's Guide* for the proper lug nut torque specification.

Multi-point Inspection

In order to keep your vehicle running right, it is important that you have the systems on your vehicle checked regularly. This can help identify any potential issue before there are any problems. Ford Motor Company suggests the following multi-point inspection to be performed at every scheduled maintenance interval as the way to ensure your vehicle keeps running right.

Multi-point inspection - recommended at every visit
❑ Check and top up fluid levels:
❑ brake
❑ coolant recovery reservoir
❑ fuel coolant recovery reservoir (F-Super Duty)
❑ manual and automatic transmission
❑ power steering
❑ window washer
❑ Inspect tires for wear and check air pressure, including spare.
❑ Check exhaust system for leaks, damage, loose parts and foreign materials.
❑ Check that holes in the tail-pipe of the exhaust system are clear of debris; the holes/slots are functional (F-Super Duty)
❑ Check battery performance.
❑ Check operation of horn, exterior lamps, turn signals and hazard warning lights.
❑ Check radiator, coolers and heater and air conditioning hoses.
❑ Inspect windshield washer spray and wiper operation.
❑ Check windshield for cracks, chips and pitting.
❑ Inspect for oil and fluid leaks.
❑ Inspect air filter.
❑ Check shocks and struts and other suspension components for leaks and damage.

NORMAL SCHEDULED MAINTENANCE AND LOG

The following section contains the "Normal Schedule." This schedule is presented at specific mileage intervals with exceptions noted.

Additional information available on the Web

To learn more about the importance of routine and dealer-performed maintenance on your vehicle, please visit the Ford Customer Service website. You'll also find important warranty information, customer assistance, technical expertise, frequently asked questions and much more. The website location is at: www.ford.com in the U.S. or www.ford.ca in Canada.

Then go to the vehicles and service pick at the web site.

7,500 miles (12,000 km)

- ❑ Change engine oil and replace oil filter
- ❑ Rotate tires, inspect tires for wear and measure tread depth and inspect wheel ends for endplay and noise (vehicles with dual rear wheels should only rotate if unusual wear is noted)
- ❑ Inspect air filter restriction gauge, replace filter as required
- ❑ Perform multi-point inspection (recommended)

DEALER VALIDATION:

RO#: P&A CODE:

DATE: MILEAGE:

15,000 miles (24,000 km)

- ❑ Change engine oil and replace oil filter
- ❑ Replace engine- and frame-mounted fuel filters
- ❑ Rotate tires, inspect tires for wear and measure tread depth and inspect wheel ends for endplay and noise (vehicles with dual rear wheels should only rotate if unusual wear is noted)
- ❑ Inspect air filter restriction gauge, replace filter as required
- ❑ Inspect and lubricate steering linkage, ball joints, suspension, tie rod ends, driveshaft and U-joints (lubricate if equipped with Zerk fittings)
- ❑ Check engine cooling system level, coolant strength (anti-freeze & anti-corrosion) and hoses
- ❑ Inspect brake pads, shoes, rotors, drums, brake lines and hoses and parking brake system.
- ❑ Inspect exhaust system and heat shields
- ❑ Perform multi-point inspection (recommended)

DEALER VALIDATION:

RO#: P&A CODE:

DATE: MILEAGE:

Scheduled Maintenance: E-Series

22,500 miles (36,000 km)

- ❑ Change engine oil and replace oil filter
- ❑ Rotate tires, inspect tires for wear and measure tread depth and inspect wheel ends for endplay and noise (vehicles with dual rear wheels should only rotate if unusual wear is noted)
- ❑ Inspect air filter restriction gauge, replace filter as required
- ❑ Perform multi-point inspection (recommended)

DEALER VALIDATION:

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DATE: **MILEAGE:**

30,000 miles (48,000 km)

- ❑ Change engine oil and replace oil filter
- ❑ Replace engine- and frame-mounted mounted fuel filters
- ❑ Rotate tires, inspect tires for wear and measure tread depth and inspect wheel ends for endplay and noise (vehicles with dual rear wheels should only rotate if unusual wear is noted)
- ❑ Inspect air filter restriction gauge, replace filter as required.
- ❑ Inspect and lubricate steering linkage, ball joints, suspension, tie rod ends, driveshaft and U-joints (lubricate if equipped with Zerk fittings)
- ❑ Check engine cooling system level, coolant strength (anti-freeze & anti-corrosion) and hoses
- ❑ Inspect brake pads, shoes, rotors, drums, brake lines and hoses and parking brake system
- ❑ Inspect exhaust system and heat shields
- ❑ Inspect automatic transmission fluid level
- ❑ Perform multi-point inspection (recommended)

DEALER VALIDATION:

RO#: **P&A CODE:**

DATE: **MILEAGE:**

37,500 miles (60,000 km)

- ❑ Change engine oil and replace oil filter
- ❑ Rotate tires, inspect tires for wear and measure tread depth and inspect wheel ends for endplay and noise (vehicles with dual rear wheels should only rotate if unusual wear is noted)
- ❑ Inspect air filter restriction gauge, replace filter as required
- ❑ Perform multi-point inspection (recommended)

DEALER VALIDATION:

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DATE: **MILEAGE:**

45,000 miles (72,000 km)

- ❑ Change engine oil and replace oil filter
- ❑ Replace engine- and frame-mounted fuel filters
- ❑ Rotate tires, inspect tires for wear and measure tread depth and inspect wheel ends for endplay and noise (vehicles with dual rear wheels should only rotate if unusual wear is noted)
- ❑ Inspect air filter restriction gauge, replace filter as required
- ❑ Inspect and lubricate steering linkage, ball joints, suspension, tie rod ends, driveshaft and U-joints (lubricate if equipped with Zerk fittings)
- ❑ Check engine cooling system level, coolant strength (anti-freeze & anti-corrosion) and hoses
- ❑ Inspect brake pads, shoes, rotors, drums, brake lines and hoses and parking brake system.
- ❑ Inspect exhaust system and heat shields
- ❑ Perform multi-point inspection (recommended)

Dealer Validation:

RO#: **P&A Code:**

Date: **Mileage:**

52,500 miles (84,000 km)

- ❑ Change engine oil and replace oil filter
- ❑ Rotate tires, inspect tires for wear and measure tread depth and inspect wheel ends for endplay and noise (vehicles with dual rear wheels should only rotate if unusual wear is noted)
- ❑ Inspect air filter restriction gauge, replace filter as required
- ❑ Perform multi-point inspection (recommended)

Dealer Validation:

RO#: **P&A Code:**

Date: **Mileage:**

Scheduled Maintenance: E-Series

60,000 miles (96,000 km)

- ❑ Change engine oil and replace oil filter
- ❑ Replace engine- and frame-mounted fuel filters
- ❑ Change automatic transmission fluid and filter on all vehicles equipped with the Torqshift transmission. Consult your dealer for particular requirements.
- ❑ Replace front wheel bearing grease and grease seals on 4x2 wheel bearings (if non-sealed bearings)
- ❑ Rotate tires, inspect tires for wear and measure tread depth and inspect wheel ends for endplay and noise (vehicles with dual rear wheels should only rotate if unusual wear is noted)
- ❑ Inspect air filter restriction gauge, replace filter as required
- ❑ Inspect and lubricate steering linkage, ball joints, suspension, tie rod ends, driveshaft and U-joints (lubricate if equipped with Zerk fittings)
- ❑ Check engine cooling system level, coolant strength (anti-freeze & anti-corrosion) and hoses
- ❑ Inspect brake pads, shoes, rotors, drums, brake lines and hoses and parking brake system.
- ❑ Inspect exhaust system and heat shields
- ❑ Perform multi-point inspection (recommended)

DEALER VALIDATION:

RO#: **P&A CODE:**

DATE: **MILEAGE:**

67,500 miles (108,000 km)

- ❑ Change engine oil and replace oil filter
- ❑ Rotate tires, inspect tires for wear and measure tread depth and inspect wheel ends for endplay and noise (vehicles with dual rear wheels should only rotate if unusual wear is noted)
- ❑ Inspect air filter restriction gauge, replace filter as required
- ❑ Perform multi-point inspection (recommended)

DEALER VALIDATION:

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DATE: **MILEAGE:**

75,000 miles (120,000 km)

- ❑ Change engine oil and replace oil filter
- ❑ Replace engine- and frame-mounted fuel filters
- ❑ Rotate tires, inspect tires for wear and measure tread depth and inspect wheel ends for endplay and noise (vehicles with dual rear wheels should only rotate if unusual wear is noted)
- ❑ Inspect air filter restriction gauge, replace filter as required
- ❑ Inspect and lubricate steering linkage, ball joints, suspension, tie rod ends, driveshaft and U-joints (lubricate if equipped with Zerk fittings)
- ❑ Check engine cooling system level, coolant strength (anti-freeze & anti-corrosion) and hoses
- ❑ Inspect brake pads, shoes, rotors, drums, brake lines and hoses and parking brake system.
- ❑ Inspect exhaust system and heat shields
- ❑ Perform multi-point inspection (recommended)

DEALER VALIDATION:

RO#: **P&A CODE:**

DATE: **MILEAGE:**

82,500 miles (132,000 km)

- ❑ Change engine oil and replace oil filter
- ❑ Rotate tires, inspect tires for wear and measure tread depth and inspect wheel ends for endplay and noise (vehicles with dual rear wheels should only rotate if unusual wear is noted)
- ❑ Inspect air filter restriction gauge, replace filter as required
- ❑ Perform multi-point inspection (recommended)

DEALER VALIDATION:

RO#: **P&A CODE:**

DATE: **MILEAGE:**

Scheduled Maintenance: E-Series

90,000 miles (144,000 km)

- ❑ Change engine oil and replace oil filter
- ❑ Replace engine- and frame-mounted fuel filters
- ❑ Rotate tires, inspect tires for wear and measure tread depth and inspect wheel ends for endplay and noise (vehicles with dual rear wheels should only rotate if unusual wear is noted)
- ❑ Inspect air filter restriction gauge, replace filter as required
- ❑ Inspect and lubricate steering linkage, ball joints, suspension, tie rod ends, driveshaft and U-joints (lubricate if equipped with Zerk fittings)
- ❑ Check engine cooling system level, coolant strength (anti-freeze & anti-corrosion) and hoses
- ❑ Inspect brake pads, shoes, rotors, drums, brake lines and hoses and parking brake system.
- ❑ Inspect exhaust system and heat shields
- ❑ Inspect accessory drive belt(s)
- ❑ Inspect automatic transmission fluid level
- ❑ Perform multi-point inspection (recommended)

DEALER VALIDATION:

RO#: **P&A CODE:**

DATE: **MILEAGE:**

97,500 miles (156,000 km)

- ❑ Change engine oil and replace oil filter
- ❑ Change rear axle lubricant (E-450 equipped with DANA axles only)
- ❑ Rotate tires, inspect tires for wear and measure tread depth and inspect wheel ends for endplay and noise (vehicles with dual rear wheels should only rotate if unusual wear is noted)
- ❑ Inspect air filter restriction gauge, replace filter as required
- ❑ Perform multi-point inspection (recommended)

DEALER VALIDATION:

RO#: **P&A CODE:**

DATE: **MILEAGE:**

105,000 miles (168,000 km)

- ❑ Change engine oil and replace oil filter
- ❑ Replace engine- and frame-mounted fuel filters
- ❑ Change engine coolant (see Motorcraft Coolant Change Record)
- ❑ Rotate tires, inspect tires for wear and measure tread depth and inspect wheel ends for endplay and noise (vehicles with dual rear wheels should only rotate if unusual wear is noted)
- ❑ Inspect air filter restriction gauge, replace filter as required
- ❑ Inspect and lubricate steering linkage, ball joints, suspension, tie rod ends, driveshaft and U-joints (lubricate if equipped with Zerk fittings)
- ❑ Check engine cooling system level, coolant strength (anti-freeze & anti-corrosion) and hoses
- ❑ Inspect brake pads, shoes, rotors, drums, brake lines and hoses and parking brake system.
- ❑ Inspect exhaust system and heat shields
- ❑ Perform multi-point inspection (recommended)

DEALER VALIDATION:

RO#: P&A CODE:

DATE: MILEAGE:

112,500 miles (180,000 km)

- ❑ Change engine oil and replace oil filter
- ❑ Rotate tires, inspect tires for wear and measure tread depth and inspect wheel ends for endplay and noise (vehicles with dual rear wheels should only rotate if unusual wear is noted)
- ❑ Inspect air filter restriction gauge, replace filter as required
- ❑ Perform multi-point inspection (recommended)

DEALER VALIDATION:

RO#: P&A CODE:

DATE: MILEAGE:

Scheduled Maintenance: E-Series

120,000 miles (192,000 km)

- ❑ Change engine oil and replace oil filter
- ❑ Replace engine- and frame-mounted fuel filters
- ❑ Change automatic transmission fluid and filter on all vehicles equipped with the Torqshift transmission. Consult your dealer for particular requirements.
- ❑ Replace front wheel bearing grease and grease seals on 4x2 wheel bearings (if non-sealed bearings)
- ❑ Rotate tires, inspect tires for wear and measure tread depth and inspect wheel ends for endplay and noise (vehicles with dual rear wheels should only rotate if unusual wear is noted)
- ❑ Inspect air filter restriction gauge, replace filter as required
- ❑ Inspect and lubricate steering linkage, ball joints, suspension, tie rod ends, driveshaft and U-joints (lubricate if equipped with Zerk fittings)
- ❑ Check engine cooling system level, coolant strength (anti-freeze & anti-corrosion) and hoses
- ❑ Inspect brake pads, shoes, rotors, drums, brake lines and hoses and parking brake system
- ❑ Inspect exhaust system and heat shields
- ❑ Inspect accessory drive belt(s)
- ❑ Perform multi-point inspection (recommended)

DEALER VALIDATION:

RO#: **P&A CODE:**

DATE: **MILEAGE:**

127,500 miles (204,000 km)

- ❑ Change engine oil and replace oil filter
- ❑ Rotate tires, inspect tires for wear and measure tread depth and inspect wheel ends for endplay and noise (vehicles with dual rear wheels should only rotate if unusual wear is noted)
- ❑ Inspect air filter restriction gauge, replace filter as required
- ❑ Perform multi-point inspection (recommended)

DEALER VALIDATION:

RO#: **P&A CODE:**

DATE: **MILEAGE:**

135,000 miles (216,000 km)

- ❑ Change engine oil and replace oil filter
- ❑ Replace engine- and frame-mounted fuel filters
- ❑ Rotate tires, inspect tires for wear and measure tread depth and inspect wheel ends for endplay and noise (vehicles with dual rear wheels should only rotate if unusual wear is noted)
- ❑ Inspect air filter restriction gauge, replace filter as required
- ❑ Inspect and lubricate steering linkage, ball joints, suspension, tie rod ends, driveshaft and U-joints (lubricate if equipped wit Zerk fittings)
- ❑ Check engine cooling system level, coolant strength (anti-freeze & anti-corrosion) and hoses
- ❑ Inspect brake pads, shoes, rotors, drums, brake lines and hoses and parking brake system.
- ❑ Inspect exhaust system and heat shields
- ❑ Perform multi-point inspection (recommended)

DEALER VALIDATION:

RO#: **P&A CODE:**

DATE: **MILEAGE:**

142,500 miles (228,000 km)

- ❑ Change engine oil and replace oil filter
- ❑ Rotate tires, inspect tires for wear and measure tread depth and inspect wheel ends for endplay and noise (vehicles with dual rear wheels should only rotate if unusual wear is noted)
- ❑ Inspect air filter restriction gauge, replace filter as required
- ❑ Perform multi-point inspection (recommended)

DEALER VALIDATION:

RO#: **P&A CODE:**

DATE: **MILEAGE:**

Scheduled Maintenance: E-Series

150,000 miles (240,000 km)

- ❑ Change engine oil and replace oil filter
- ❑ Replace engine- and frame-mounted fuel filters
- ❑ Replace accessory drive belt(s) (if not replaced in the last 100,000 miles [160,000 km])
- ❑ Replace front wheel bearing and wheel bearing grease seals (if non-sealed bearings)
- ❑ Change engine coolant (see Motorcraft Coolant Change Record)
- ❑ Change rear wheel drive (RWD) axle fluid - DANA axles **not** using synthetic fluid only
- ❑ Rotate tires, inspect tires for wear and measure tread depth and inspect wheel ends for endplay and noise (vehicles with dual rear wheels should only rotate if unusual wear is noted)
- ❑ Inspect air filter restriction gauge, replace filter as required
- ❑ Inspect and lubricate steering linkage, ball joints, suspension, tie rod ends, driveshaft and U-joints (lubricate if equipped with Zerk fittings)
- ❑ Check engine cooling system level, coolant strength (anti-freeze & anti-corrosion) and hoses
- ❑ Inspect brake pads, shoes, rotors, drums, brake lines and hoses and parking brake system.
- ❑ Inspect exhaust system and heat shields
- ❑ Inspect automatic transmission fluid level
- ❑ Perform multi-point inspection (recommended)

Dealer Validation:

RO#: **P&A Code:**

Date: **Mileage:**

SPECIAL OPERATING CONDITIONS

Towing a trailer or using a camper or car-top carrier	
Every 5,000 miles (8,000 km) or 6 months	Change engine oil and replace filter
Every 5,000 miles (8,000 km)	Check air filter restriction gauge (replace air filter as required or when air filter restriction gauge indicates) Rotate tires, inspect tires for wear and measure tread depth and inspect wheel ends for endplay and noise
Every 10,000 miles (16,000 km) or 400 hours of engine operation (whichever comes first)	Change engine-mounted fuel filter and chassis-mounted (FCM) fuel filter
Every 15,000 miles (24,000 km) or 600 hours of engine operation (whichever comes first)	Check nitrite level for strength (added Supplemental Coolant Additive VC-8, if required.) Refer to *Engine cooling system* in the *Introduction* chapter
Every 30,000 miles (48,000 km)	Replace wheel bearing grease and grease seals on 4x2 wheel bearings (if non-sealed bearings)
Every 45,000 miles (72,000 km) or 1800 hours of operation (whichever comes first)	Flush & refill engine coolant (refer to Motorcraft Engine Coolant Change Record) – Do not add Supplemental Coolant Additive

Note: When adding supplemental coolant additive, do not exceed the specified maximum of 32 fl. oz. (946 mL). Operating the engine with excessive supplemental coolant additive may cause overheating which could lead to severe permanent engine damage.

Scheduled Maintenance: E-Series

Extensive idling and/or low-speed driving for long distances as in heavy commercial use such as delivery, taxi, patrol or livery	
Every 5,000 miles (8,000 km), 6 months or 200 hours of engine operation (whichever comes first)	Change engine oil and replace filter
Every 5,000 miles (8,000 km)	Check air filter restriction gauge (replace air filter as required or when air filter restriction gauge indicates) Inspect brake system Rotate tires, inspect tires for wear and measure tread depth and inspect wheel ends for endplay and noise Inspect and lubricate steering and suspension ball joints
Every 10,000 miles (16,000 km) or 400 hours of engine operation (whichever comes first)	Change engine-mounted fuel filter and chassis-mounted (FCM) fuel filter
Every 15,000 miles (24,000 km) or 600 hours of engine operation (whichever comes first)	Check nitrite level for strength (added Supplemental Coolant Additive VC-8, if required.) Refer to *Engine cooling system* in the *Introduction* chapter
Every 30,000 miles (48,000 km)	Replace wheel bearing grease and grease seals on 4x2 wheel bearings (if non-sealed bearings)
Every 45,000 miles (72,000 km) or 1800 hours of operation (whichever comes first)	Flush & refill engine coolant (refer to Motorcraft Engine Coolant Change Record) – Do not add Supplemental Coolant Additive

Note: When adding supplemental coolant additive, do not exceed the specified maximum of 32 fl. oz. (946 mL). Operating the engine with excessive supplemental coolant additive may cause overheating which could lead to severe permanent engine damage.

Extensive idling if vehicle is used for stationary operation	
Every 5,000 miles (8,000 km), 3 months or 200 hours of engine operation (whichever comes first) if vehicle is used for stationary operation	Change engine oil and replace filter
Every 10,000 miles (16,000 km), 400 hours of engine operation (whichever comes first) if vehicle is used for stationary operation	Change engine-mounted fuel filter and chassis-mounted (FCM) fuel filter
Every 15,000 miles (24,000 km) or 600 hours of engine operation (whichever comes first)	Check nitrite level for strength (added Supplemental Coolant Additive VC-8, if required.) Refer to *Engine cooling system* in the *Introduction* chapter
Every 45,000 miles (72,000 km) or 1800 hours of operation (whichever comes first)	Flush & refill engine coolant (refer to Motorcraft Engine Coolant Change Record) – Do not add Supplemental Coolant Additive

Note: For vehicles that operate under severe service conditions such as frequent or extended idle (over 10 minutes per hour of normal driving), maintenance requirements need to be adjusted. This needs to be considered when determining vehicle service intervals.

Note: When adding supplemental coolant additive, do not exceed the specified maximum of 32 fl. oz. (946 mL). Operating the engine with excessive supplemental coolant additive may cause overheating which could lead to severe permanent engine damage.

Scheduled Maintenance: E-Series

Operating in dusty conditions such as unpaved or dusty roads	
Every 5,000 miles (8,000 km) or 6 months	Change engine oil and replace filter
Every 5,000 miles (8,000 km)	Check air filter restriction gauge (replace air filter as required or when air filter restriction gauge indicates) Rotate tires, inspect tires for wear and measure tread depth and inspect wheel ends for endplay and noise Inspect and lubricate steering and suspension ball joints
Every 10,000 miles (16,000 km) or 400 hours of engine operation (whichever comes first)	Change engine-mounted fuel filter and chassis-mounted (FCM) fuel filter
Every 30,000 miles (48,000 km)	Replace wheel bearing grease and grease seals on 4x2 wheel bearings (if non-sealed bearings)

Off-road operation	
Every 5,000 miles (8,000 km) or 6 months	Change engine oil and replace filter
Every 5,000 miles (8,000 km)	Check air filter restriction gauge (replace air filter as required or when air filter restriction gauge indicates) Rotate tires, inspect tires for wear and measure tread depth and inspect wheel ends for endplay and noise
Every 10,000 miles (16,000 km) or 400 hours of engine operation (whichever comes first)	Change engine-mounted fuel filter and chassis-mounted (FCM) fuel filter
Every 30,000 miles (48,000 miles)	Replace wheel bearing grease and grease seals on 4x2 wheel bearings (if non-sealed bearings)
Every 50,000 miles (80,000 km)	Change rear axle lubricant (E–450 only)
As required	Inspect and lubricate steering and suspension ball joints Inspect and lubricate U-joints

Scheduled Maintenance: E-Series

Short trip in cold operating conditions	
Every 5,000 miles (8,000 km) or 6 months	Change engine oil and replace filter
Every 5,000 miles (8,000 km)	Inspect and lubricate steering and suspension ball joints Rotate tires, inspect tires for wear and measure tread depth and inspect wheel ends for endplay and noise
Every 10,000 miles (16,000 km) or 400 hours of engine operation (whichever comes first)	Change engine-mounted fuel filter and chassis-mounted (FCM) fuel filter

Use of Biodiesel, up to and including 5% Biodiesel (B5)	
Every 5,000 miles (8,000 km) or 200 hours of operation (whichever comes first)	Change engine oil and replace filter
Every 10,000 miles (16,000 km) or 400 hours of operation (which ever comes first)	Replace engine-mounted fuel filter and chassis-mounted (FCM) fuel filter

Special Operating Conditions Log

DEALER VALIDATION: RO#: P&A CODE: DATE: MILEAGE:	DEALER VALIDATION: RO#: P&A CODE: DATE: MILEAGE:
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Special Operating Conditions Log

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Scheduled Maintenance: F-Super Duty

NORMAL SCHEDULED MAINTENANCE AND LOG

The following section contains the "Normal Schedule." This schedule is presented at specific mileage intervals with exceptions noted.

Additional information available on the Web

To learn more about the importance of routine and dealer-performed maintenance on your vehicle, please visit the Ford Customer Service website. You'll also find important warranty information, customer assistance, technical expertise, frequently asked questions and much more. The website location is at: www.ford.com in the U.S. or www.ford.ca in Canada.

Then go to the vehicles and service pick at the web site.

5,000 miles (8,000 km)

- ❑ Rotate tires, inspect tires for wear and measure tread depth and inspect wheels for endplay and noise (vehicles with dual rear wheels should only rotate if unusual wear is noted)
- ❑ Inspect air filter restriction gauge, replace filter as required
- ❑ Perform multi-point inspection (recommended)

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10,000 miles (16,000 km)

- ❑ Change engine oil and replace oil filter
- ❑ Rotate tires, inspect tires for wear and measure tread depth and inspect wheels for endplay and noise (vehicles with dual rear wheels should only rotate if unusual wear is noted)
- ❑ Inspect air filter restriction gauge, replace filter as required
- ❑ Lubricate steering linkage, ball joints, suspension, tie rod ends, drive shaft, 4x4 front axle U-joints and U-joints (lubricate if equipped with Zerk fittings)
- ❑ Perform multi-point inspection (recommended)

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20,000 miles (32,000 km)

- ❑ Change engine oil and replace oil filter
- ❑ Rotate tires, inspect tires for wear and measure tread depth and inspect wheels for endplay and noise (vehicles with dual rear wheels should only rotate if unusual wear is noted)
- ❑ Inspect air filter restriction gauge, replace filter as required
- ❑ Replace engine- and frame-mounted fuel filters
- ❑ Check engine cooling system level, coolant strength (anti-freeze & anti-corrosion) and hoses
- ❑ Inspect brake pads/shoes/rotors/drums, brakes lines & hoses, and parking brake system
- ❑ Inspect exhaust system and heat shields
- ❑ Inspect and lubricate steering linkage, ball joints, suspension, tie rod ends, drive shaft, 4x4 front axle U-joints and U-joints
- ❑ Perform multi-point inspection (recommended)

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30,000 miles (48,000 km)

- ❑ Change engine oil and replace oil filter
- ❑ Rotate tires, inspect tires for wear and measure tread depth and inspect wheels for endplay and noise (vehicles with dual rear wheels should only rotate if unusual wear is noted)
- ❑ Inspect air filter restriction gauge, replace filter as required
- ❑ Lubricate steering linkage, ball joints, suspension, tie rod ends, drive shaft, 4x4 front axle U-joints and U-joints (lubricate if equipped with Zerk fittings)
- ❑ Inspect automatic transmission fluid level on all vehicles equipped with the Torqshift transmission
- ❑ Perform multi-point inspection (recommended)

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40,000 miles (64,000 km)

- ❑ Change engine oil and replace oil filter
- ❑ Rotate tires, inspect tires for wear and measure tread depth and inspect wheels for endplay and noise (vehicles with dual rear wheels should only rotate if unusual wear is noted)
- ❑ Inspect air filter restriction gauge, replace filter as required
- ❑ Replace engine- and frame-mounted fuel filters
- ❑ Inspect fuel cooling system level, strength and hoses
- ❑ Check engine cooling system level, coolant strength (anti-freeze & anti-corrosion) and hoses
- ❑ Inspect brake pads/shoes/rotors/drums, brakes lines & hoses, and parking brake system
- ❑ Inspect exhaust system and heat shields
- ❑ Inspect and lubricate steering linkage, ball joints, suspension, tie rod ends, drive shaft, 4x4 front axle U-joints and U-joints
- ❑ Perform multi-point inspection (recommended)

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Scheduled Maintenance: F-Super Duty

50,000 miles (80,000 km)

- ❑ Change engine oil and replace oil filter
- ❑ Rotate tires, inspect tires for wear and measure tread depth and inspect wheels for endplay and noise (vehicles with dual rear wheels should only rotate if unusual wear is noted)
- ❑ Inspect air filter restriction gauge, replace filter as required
- ❑ Change rear axle fluid (DANA axles only. Refer to *Special Operating Conditions* for more information)
- ❑ Lubricate steering linkage, ball joints, suspension, tie rod ends, drive shaft, 4x4 front axle U-joints and U-joints (lubricate if equipped with Zerk fittings)
- ❑ Perform multi-point inspection (recommended)

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60,000 miles (96,000 km)

- ❑ Change engine oil and replace oil filter
- ❑ Rotate tires, inspect tires for wear and measure tread depth and inspect wheels for endplay and noise (vehicles with dual rear wheels should only rotate if unusual wear is noted)
- ❑ Inspect air filter restriction gauge, replace filter as required
- ❑ Replace engine- and frame-mounted fuel filters
- ❑ Inspect fuel cooling system level, strength and hoses
- ❑ Replace main accessory drive belt if equipped with dual alternators
- ❑ Check engine cooling system level, coolant strength (anti-freeze & anti-corrosion) and hoses
- ❑ Inspect brake pads/shoes/rotors/drums, brakes lines & hoses, and parking brake system
- ❑ Replace front wheel bearing grease and grease seals on 4x2 wheel bearings (if non-sealed bearings)
- ❑ Inspect exhaust system and heat shields
- ❑ Change automatic transmission fluid and filter on all vehicles equipped with the Torqshift transmission. Consult your dealer for particular requirements.
- ❑ Inspect and lubricate steering linkage, ball joints, suspension, tie rod ends, drive shaft, 4x4 front axle U-joints and U-joints
- ❑ Perform multi-point inspection (recommended)

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Scheduled Maintenance: F-Super Duty

70,000 miles (112,000 km)

- ❑ Change engine oil and replace oil filter
- ❑ Rotate tires, inspect tires for wear and measure tread depth and inspect wheels for endplay and noise (vehicles with dual rear wheels should only rotate if unusual wear is noted)
- ❑ Inspect air filter restriction gauge, replace filter as required
- ❑ Lubricate steering linkage, ball joints, suspension, tie rod ends, drive shaft, 4x4 front axle U-joints and U-joints (lubricate if equipped with Zerk fittings)
- ❑ Perform multi-point inspection (recommended)

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80,000 miles (128,000 km)

- ❑ Change engine oil and replace oil filter
- ❑ Rotate tires, inspect tires for wear and measure tread depth and inspect wheels for endplay and noise (vehicles with dual rear wheels should only rotate if unusual wear is noted)
- ❑ Inspect air filter restriction gauge, replace filter as required
- ❑ Replace engine- and frame-mounted fuel filters
- ❑ Inspect fuel cooling system level, strength and hoses
- ❑ Check engine cooling system level, coolant strength (anti-freeze & anti-corrosion) and hoses
- ❑ Inspect brake pads/shoes/rotors/drums, brakes lines & hoses, and parking brake system
- ❑ Inspect exhaust system and heat shields
- ❑ Inspect and lubricate steering linkage, ball joints, suspension, tie rod ends, drive shaft, 4x4 front axle U-joints and U-joints
- ❑ Perform multi-point inspection (recommended)

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90,000 miles (144,000 km)

- ❑ Change engine oil and replace oil filter
- ❑ Rotate tires, inspect tires for wear and measure tread depth and inspect wheels for endplay and noise (vehicles with dual rear wheels should only rotate if unusual wear is noted)
- ❑ Inspect air filter restriction gauge, replace filter as required
- ❑ Lubricate steering linkage, ball joints, suspension, tie rod ends, drive shaft, 4x4 front axle U-joints and U-joints (lubricate if equipped with Zerk fittings)
- ❑ Inspect automatic transmission fluid level on all vehicles equipped with the Torqshift transmission
- ❑ Perform multi-point inspection (recommended)

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Scheduled Maintenance: F-Super Duty

100,000 miles (160,000 km)

- ❑ Change engine oil and replace oil filter
- ❑ Rotate tires, inspect tires for wear and measure tread depth and inspect wheels for endplay and noise (vehicles with dual rear wheels should only rotate if unusual wear is noted)
- ❑ Inspect air filter restriction gauge, replace filter as required
- ❑ Replace engine- and frame-mounted fuel filters
- ❑ Inspect fuel cooling system hoses
- ❑ Check engine cooling system level, coolant strength (anti-freeze & anti-corrosion) and hoses
- ❑ Inspect brake pads/shoes/rotors/drums, brakes lines & hoses, and parking brake system
- ❑ Inspect exhaust system and heat shields
- ❑ Inspect accessory drive belt
- ❑ Change engine coolant and fuel coolant (refer to *Motorcraft Engine Coolant Change Record)*
- ❑ Change manual transmission fluid (refer to *Special Operating Conditions* for more information)
- ❑ Change rear axle fluid (DANA axles only. Refer to *Special Operating Conditions* for more information)
- ❑ Inspect and lubricate steering linkage, ball joints, suspension, tie rod ends, drive shaft, 4x4 front axle U-joints and U-joints
- ❑ Perform multi-point inspection (recommended)

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110,000 miles (176,000 km)

- ❑ Change engine oil and replace oil filter
- ❑ Rotate tires, inspect tires for wear and measure tread depth and inspect wheels for endplay and noise (vehicles with dual rear wheels should only rotate if unusual wear is noted)
- ❑ Inspect air filter restriction gauge, replace filter as required
- ❑ Lubricate steering linkage, ball joints, suspension, tie rod ends, drive shaft, 4x4 front axle U-joints and U-joints (lubricate if equipped with zerk fittings)
- ❑ Perform multi-point inspection (recommended)

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120,000 miles (192,000 km)

- ❑ Change engine oil and replace oil filter
- ❑ Rotate tires, inspect tires for wear and measure tread depth and inspect wheels for endplay and noise (vehicles with dual rear wheels should only rotate if unusual wear is noted)
- ❑ Inspect air filter restriction gauge, replace filter as required
- ❑ Replace engine- and frame-mounted fuel filters
- ❑ Inspect fuel cooling system level, strength and hoses
- ❑ Replace main accessory drive belt if equipped with dual alternators
- ❑ Check engine cooling system level, coolant strength (anti-freeze & anti-corrosion) and hoses
- ❑ Inspect brake pads/shoes/rotors/drums, brakes lines & hoses, and parking brake system
- ❑ Replace front wheel bearing grease and grease seals on 4x2 wheel bearings (if non-sealed bearings)
- ❑ Inspect exhaust system and heat shields
- ❑ Inspect accessory drive belt
- ❑ Change automatic transmission fluid and filter on all vehicles equipped with the Torqshift transmission. Consult your dealer for particular requirements.
- ❑ Inspect and lubricate steering linkage, ball joints, suspension, tie rod ends, drive shaft, 4x4 front axle U-joints and U-joints
- ❑ Perform multi-point inspection (recommended)

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130,000 miles (208,000 km)

- ❑ Change engine oil and replace oil filter
- ❑ Rotate tires, inspect tires for wear and measure tread depth and inspect wheels for endplay and noise (vehicles with dual rear wheels should only rotate if unusual wear is noted)
- ❑ Inspect air filter restriction gauge, replace filter as required
- ❑ Lubricate steering linkage, ball joints, suspension, tie rod ends, drive shaft, 4x4 front axle U-joints and U-joints (lubricate if equipped with Zerk fittings)
- ❑ Perform multi-point inspection (recommended)

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140,000 miles (224,000 km)

- ❑ Change engine oil and replace oil filter
- ❑ Rotate tires, inspect tires for wear and measure tread depth and inspect wheels for endplay and noise (vehicles with dual rear wheels should only rotate if unusual wear is noted)
- ❑ Inspect air filter restriction gauge, replace filter as required
- ❑ Replace engine- and frame-mounted fuel filters
- ❑ Inspect fuel cooling system level, strength and hoses
- ❑ Check engine cooling system level, coolant strength (anti-freeze & anti-corrosion) and hoses
- ❑ Inspect brake pads/shoes/rotors/drums, brakes lines & hoses, and parking brake system
- ❑ Inspect exhaust system and heat shields
- ❑ Inspect and lubricate steering linkage, ball joints, suspension, tie rod ends, drive shaft, 4x4 front axle U-joints and U-joints
- ❑ Perform multi-point inspection (recommended)

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150,000 miles (240,000 km)

- ❑ Change engine oil and replace oil filter
- ❑ Rotate tires, inspect tires for wear and measure tread depth and inspect wheels for endplay and noise (vehicles with dual rear wheels should only rotate if unusual wear is noted)
- ❑ Inspect air filter restriction gauge, replace filter as required
- ❑ Replace accessory drive belt if not replaced in the last 100,000 miles (160,000 km)
- ❑ Change engine coolant and fuel coolant (refer to *Motorcraft Engine Coolant Change Record)*
- ❑ Replace front wheel bearing and wheel bearing grease seals on 4x2 vehicles (if non-sealed bearings)
- ❑ Inspect exhaust system and heat shields
- ❑ Change transfer case fluid (4x4 vehicles) (refer to *Special Operating Conditions* for more information)
- ❑ Change front axle lubricant
- ❑ Change rear axle fluid (DANA axles only. Refer to *Special Operating Conditions* for more information)
- ❑ Lubricate steering linkage, ball joints, suspension, tie rod ends, drive shaft, 4x4 front axle U-joints and U-joints (if equipped with Zerk fittings)
- ❑ Inspect automatic transmission fluid level on all vehicles equipped with the Torqshift transmission
- ❑ Perform multi-point inspection (recommended)

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SPECIAL OPERATING CONDITIONS

Frequent or extended idling (over 10 minutes per hour of normal driving)	
Every 5,000 miles (8,000 km)	Rotate tires, inspect tires for wear and measure tread depth and inspect wheel ends for endplay and noise
Every 5,000 miles (8,000 km) or 6 months	Inspect and lubricate U-joints
Every 5,000 miles (8,000 km), 3 months or 200 hours of engine operation (whichever comes first)	Change engine oil and replace filter
Every 10,000 miles (16,000 km), 6 months or 400 hours of engine operation (whichever comes first)	Change engine-mounted fuel filter and chassis-mounted (HFCM) fuel filter
Every 20,000 miles (32,000 km) or 800 hours of engine operation (whichever comes first)	Check nitrite level for strength (added Supplemental Coolant Additive VC-8, if required.) Refer to *Engine cooling system* in the *Introduction* chapter
Every 60,000 miles (96,000 km) or 2400 hours of engine operation (whichever comes first)	Flush & refill engine coolant (refer to Motorcraft Engine Coolant Change Record) – Do not add Supplemental Coolant Additive

Note: For vehicles that operate under severe service conditions such as frequent or extended idle (over 10 minutes per hour of normal driving), maintenance requirements need to be adjusted. This needs to be considered when determining vehicle service intervals.

Note: When adding supplemental coolant additive, do not exceed the specified maximum of 32 fl. oz. (946 mL). Operating the engine with excessive supplemental coolant additive may cause overheating which could lead to severe permanent engine damage.

Scheduled Maintenance: F-Super Duty

If vehicle is operated in sustained ambient temperatures below -10°F (-23°C) or above 100°F (38°C)	
Every 5,000 miles (8,000 km)	Rotate tires, inspect tires for wear and measure tread depth and inspect wheel ends for endplay and noise
Every 5,000 miles (8,000 km), 3 months or 200 hours	Change engine oil and replace filter
	Inspect and lubricate steering and suspension ball joints and tie rod ends (if equipped with zerk fittings)
Every 10,000 miles (16,000 km), 6 months or 400 hours of engine operation (whichever comes first)	Change engine-mounted fuel filter and chassis-mounted (HFCM) fuel filter
Every 30,000 miles (48,000 km)	Replace wheel bearing grease and grease seals on 4x2 wheel bearings (if non-sealed bearings)
Every 60,000 miles (96,000 km)	Change transfer case fluid (4x4 only)

Scheduled Maintenance: F-Super Duty

Frequent low speed operation, consistent heavy traffic less than 25 mph (40 km/h) and/or long rush hour traffic	
Every 5,000 (8,000 km) miles	Rotate tires, inspect tires for wear and measure tread depth and inspect wheel ends for endplay and noise Check air filter restriction gauge (replace air filter as required or when air filter restriction gauge indicates) Inspect brake system pads and rotors Inspect and lubricate steering and suspension ball joints and tie rod ends (if equipped with zerk fittings)
Every 5,000 miles (8,000 km), 6 months or 200 hours of engine operation (whichever comes first)	Change engine oil and replace filter
Every 10,000 miles (16,000 km), 6 months or 400 hours of engine operation (whichever comes first)	Change engine-mounted fuel filter and chassis-mounted (HFCM) fuel filter
Every 20,000 miles (32,000 km) or 800 hours of engine operation (whichever comes first)	Check nitrite level for strength (added Supplemental Coolant Additive VC-8, if required.) Refer to *Engine cooling system* in the *Introduction* chapter
Every 60,000 miles (96,000 km)	Change transfer case fluid (4x4 only)
Every 60,000 miles (96,000 km) or 2400 hours of engine operation (whichever comes first)	Flush & refill engine coolant (refer to Motorcraft Engine Coolant Change Record) – Do not add Supplemental Coolant Additive

Note: When adding supplemental coolant additive, do not exceed the specified maximum of 32 fl. oz. (946 mL). Operating the engine with excessive supplemental coolant additive may cause overheating which could lead to severe permanent engine damage.

Scheduled Maintenance: F-Super Duty

Frequent low speed operation if vehicle is used for stationary operation	
Every 5,000 miles (8,000 km), 3 months or 200 hours of engine operation (whichever comes first) if vehicle is used for stationary operation	Change engine oil and replace filter
Every 20,000 miles (32,000 km) or 800 hours of engine operation (whichever comes first)	Check nitrite level for strength (added Supplemental Coolant Additive VC-8, if required.) Refer to *Engine cooling system* in the *Introduction* chapter

Note: When adding supplemental coolant additive, do not exceed the specified maximum of 32 fl. oz. (946 mL). Operating the engine with excessive supplemental coolant additive may cause overheating which could lead to severe permanent engine damage.

Note: For vehicles that operate under severe service conditions such as frequent or extended idle (over 10 minutes per hour of normal driving), maintenance requirements need to be adjusted. This needs to be considered when determining vehicle service intervals.

Operating in dusty conditions such as unpaved or dusty roads	
Every 5,000 miles (8,000 km)	Check air filter restriction gauge (replace air filter as required or when air filter restriction gauge indicates) Inspect and lubricate steering and suspension ball joints and tie rods (if equipped with zerk fittings) Inspect brake system pads and rotors Rotate tires, inspect tires for wear and measure tread depth and inspect wheel ends for endplay and noise
Every 5,000 miles (8,000 km) or 6 months	Change engine oil and replace filter Inspect and lubricate U-joints
Every 10,000 miles (16,000 km) or 400 hours of engine operation (whichever comes first)	Change engine-mounted fuel filter and chassis-mounted (HFCM) fuel filter
Every 30,000 miles (48,000 km)	Replace wheel bearing grease and grease seals on 4x2 wheel bearings (if non-sealed bearings)

Off-road operation	
Every 5,000 miles (8,000 km)	Check air filter restriction gauge (replace air filter as required or when air filter restriction gauge indicates) Rotate tires, inspect tires for wear and measure tread depth and inspect wheel ends for endplay and noise Inspect brake system pads and rotors
Every 5,000 miles (8,000 km) or 6 months	Change engine oil and replace filter Inspect and lubricate U-joints
Every 10,000 miles (16,000 km) or 400 hours of engine operation (whichever comes first)	Change engine-mounted fuel filter and chassis-mounted (HFCM) fuel filter
Every 30,000 miles (48,000 km)	Replace wheel bearing grease and grease seals on 4x2 wheel bearings (if non-sealed bearings)
Every 50,000 miles (80,000 km)	Check front axle lubricant (4x4 only) Change rear axle lubricant (if equipped with a Dana rear axle, some F-350s, all 450–550)
Every 50,000 miles (80,000 km)	Change transfer case fluid (4x4 only)
As required	Inspect and lubricate steering and suspension ball joints and tie rod ends (if equipped with zerk fittings) Check that the functional holes in each leg of the twin tip and the holes under the shield just inboard of the right rear tire are kept clean/clear of debris or foreign materials (clean/remove debris as required). Refer to the *Cleaning* chapter for more information.

Scheduled Maintenance: F-Super Duty

Towing a trailer or using a camper or car-top carrier	
Every 5,000 miles (8,000 km)	Check air filter restriction gauge (replace air filter as required or when air filter restriction gauge indicates) Rotate tires, inspect tires for wear and measure tread depth and inspect wheel ends for endplay and noise Inspect brake system pads and rotors
Every 5,000 miles (8,000 km) or 6 months	Change engine oil and replace filter Inspect and lubricate U-joints
Every 10,000 miles (16,000 km) or 400 hours of engine operation (whichever comes first)	Change engine-mounted fuel filter and chassis-mounted (HFCM) fuel filter
Every 20,000 miles (32,000 km) or 800 hours of engine operation (whichever comes first)	Check nitrite level for strength (added Supplemental Coolant Additive VC-8, if required.) Refer to *Engine cooling system* in the *Introduction* chapter
Every 30,000 miles (48,000 km)	Replace wheel bearing grease and grease seals on 4x2 wheel bearings (if non-sealed bearings)
Every 60,000 miles (96,000 km)	Change transfer case fluid (4x4 only)
Every 60,000 miles (96,000 km) or 2400 hours of engine operation (whichever comes first)	Flush & refill engine coolant (refer to Motorcraft Engine Coolant Change Record) – Do not add Supplemental Coolant Additive
As required	Change manual transmission fluid

Note: When adding supplemental coolant additive, do not exceed the specified maximum of 32 fl. oz. (946 mL). Operating the engine with excessive supplemental coolant additive may cause overheating which could lead to severe permanent engine damage.

Sustained high-speed driving at Gross Vehicle Weight Rating (maximum loaded weight for vehicle operation)	
Every 5,000 miles (8,000 km) or 6 months	Change engine oil and replace filter
Every 5,000 miles (8,000 km)	Rotate tires, inspect tires for wear and measure tread depth and inspect wheel ends for endplay and noise Inspect and lubricate steering and suspension ball joints and tie rod ends (if equipped with zerk fittings) Inspect brake system pads and rotors
Every 10,000 miles (16,000 km) or 400 hours of engine operation (whichever comes first)	Change engine-mounted fuel filter and chassis-mounted (HFCM) fuel filter
Every 20,000 miles (32,000 km) or 800 hours of engine operation (whichever comes first)	Check nitrite level for strength (added Supplemental Coolant Additive VC-8, if required.) Refer to *Engine cooling system* in the *Introduction* chapter
Every 30,000 miles (48,000 km)	Replace wheel bearing grease and grease seals on 4x2 wheel bearings (if non-sealed bearings)
Every 50,000 miles (80,000 km)	Change rear axle lubricant (if equipped with a Dana rear axle, some F-350s, all 450–550)
Every 50,000 miles (80,000 km)	Change transfer case fluid (4x4 only)
Every 60,000 miles (96,000 km) or 2400 hours of engine operation (whichever comes first)	Flush & refill engine coolant (refer to Motorcraft Engine Coolant Change Record) – Do not add Supplemental Coolant Additive

Note: When adding supplemental coolant additive, do not exceed the specified maximum of 32 fl. oz. (946 mL). Operating the engine with excessive supplemental coolant additive may cause overheating which could lead to severe permanent engine damage.

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Use of Biodiesel, up to and including 5% Biodiesel (B5)	
Every 5,000 miles (8,000 km), 6 months or 200 hours of operation (whichever comes first)	Change engine oil and replace filter
Every 10,000 miles (16,000 km), 6 months or 400 hours of operation (whichever comes first)	Replace engine-mounted fuel filter and chassis-mounted (HFCM) fuel filter

Use of non-Ultra Low Sulfur Diesel (ULSD) fuel - Vehicles operated where ultra low sulfur diesel fuel is not required/not available	
Every 2,500 miles (4,000 km) or 3 months (If using high sulfur fuel with more than 3000 ppm sulfur)	Change engine oil and replace filter
Every 5,000 miles (8,000 km) or 6 months (If using high sulfur fuel with less than 3000 ppm sulfur)	Change engine oil and replace filter

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Scheduled Maintenance: Special Information

EXCEPTIONS

In addition, there are several exceptions to the Normal Schedule. They are listed below:

Normal Vehicle Axle Maintenance

- Rear axles and power take-off (PTO) units containing synthetic lubricant and light duty trucks equipped with Ford-design axles are lubricated for life. These lubricants are not to be checked or changed unless a leak is suspected, service is required or the axle assembly has been submerged in water. The axle and PTO lubricant should be changed anytime the axle and PTO have been submerged in water. Non-synthetic rear axle lubricants should be replaced every 3,000 miles (5,000 km) or 3 months, whichever occurs first, during extended trailer tow operation above 70°F (21°C) ambient and wide open throttle for extended periods above 45 mph (72 km/h). The 3,000 mile (5,000 km) lube change interval may be waived if the axle was filled with 75W140 synthetic gear lubricant meeting Ford specification WSL-M2C192-A, part number F1TZ-19580-B or equivalent. Add four ounces (118 mL) of additive friction modifier C8AZ-19B546-A (EST-M2C118-A) or equivalent for complete refill of Traction-Lok rear axles. The axle lubricant should be changed anytime an axle has been submerged in water.

E-450, F-450 and F-550 Axle Maintenance

- Replace rear axle lubricant every 100,000 miles (160,000 km) under normal driving conditions on all F-450 and F-550 commercial applications. For F-450 and F-550 trucks operated at or near maximum Gross Vehicle Weights, the rear axle lubricant should be replaced every 50,000 miles (80,000 km). In addition, this 50,000 mile (80,000 km) schedule should be observed when the vehicles are operated under the Special Operating Conditions, where noted.

Diesel Particulate Filter (DPF)

- The DPF may need to be removed for ash cleaning at approximately 120,000 miles (192,000 km) or greater (actual mileage can vary greatly depending upon engine/vehicle operating conditions) and replaced with a new or remanufactured (ash cleaned) part. The filter may need to be replaced at approximately 250,000 miles (400,000 km) depending upon engine/vehicle operating conditions. In both cases the engine control system will set a service light () to inform you to bring the vehicle to the dealer for service. If there are any issues with the oxidation catalyst/DPF system a service light ( or ) will be set by the engine control system to inform you to bring the vehicle into a dealership for service.

Scheduled Maintenance: Special Information

MAINTENANCE AND SERVICE RECORD

See an authorized dealer

This section of the guide is designed to allow your Ford dealer, or Ford Auto Care service center or other qualified service technician to record that the recommended service was completed at the appropriate mileage intervals. Be sure to ask your service provider to record the type of service rendered (Normal or Special Operating Conditions - SOC) each time service is performed.

Date: **Odometer reading:** **R.O.#**	**Dealer's Stamp:**

See corresponding mileage in maintenance schedule for services performed.

MOTORCRAFT COOLANT CHANGE RECORD (E-SERIES ONLY)

Motorcraft Engine Coolant
❑ 6 years or 105,000 miles (170,000 km) - change Motorcraft Engine Coolant (whichever comes first)
❑ After initial change - change Motorcraft Engine Coolant every 3 years or 45,000 miles (72,000 km)
❑ Use engine coolant specified in the *Owner Guide* under the *Maintenance and Specifications* chapter

Current mileage goes here =>		**Dealer Stamp**
Add 45,000 miles to the current miles	+ 45,000	
Next change due at this mileage =>		
Or		
Today's date goes here =>		
Add 3 years	+ 00 / 00 / 03	
Date of next change =>		**P & A CODE**
whichever comes first		**R.O.#**

Current mileage goes here =>		**Dealer Stamp**
Add 45,000 miles to the current miles	+ 45,000	
Next change due at this mileage =>		
Or		
Today's date goes here =>		
Add 3 years	+ 00 / 00 / 03	
Date of next change =>		**P & A CODE**
whichever comes first		**R.O.#**

Current mileage goes here =>		**Dealer Stamp**
Add 45,000 miles to the current miles	+ 45,000	
Next change due at this mileage =>		
Or		
Today's date goes here =>		
Add 3 years	+ 00 / 00 / 03	
Date of next change =>		**P & A CODE**
whichever comes first		**R.O.#**

Current mileage goes here =>		**Dealer Stamp**
Add 45,000 miles to the current miles	+ 45,000	
Next change due at this mileage =>		
Or		
Today's date goes here =>		
Add 3 years	+ 00 / 00 / 03	
Date of next change =>		**P & A CODE**
whichever comes first		**R.O.#**

MOTORCRAFT COOLANT CHANGE RECORD (F-SUPER DUTY ONLY)

Motorcraft Engine Coolant

- ❑ 6 years or 100,000 miles (160,000 km) - change Motorcraft Engine Coolant (whichever comes first)
- ❑ After initial change - change Motorcraft Engine Coolant every 3 years or 50,000 miles (80,000 km)
- ❑ Use engine coolant specified in the *Owner Guide* under the *Maintenance and Specifications* chapter

Current mileage goes here =>		**Dealer Stamp**
Add 50,000 miles to the current miles	+ 50,000	
Next change due at this mileage =>		
Or		
Today's date goes here =>		
Add 3 years	+ 00 / 00 / 03	
Date of next change =>		**P & A CODE**
whichever comes first		**R.O.#**

Current mileage goes here =>		**Dealer Stamp**
Add 50,000 miles to the current miles	+ 50,000	
Next change due at this mileage =>		
Or		
Today's date goes here =>		
Add 3 years	+ 00 / 00 / 03	
Date of next change =>		**P & A CODE**
whichever comes first		**R.O.#**

Current mileage goes here =>		**Dealer Stamp**
Add 50,000 miles to the current miles	+ 50,000	
Next change due at this mileage =>		
Or		
Today's date goes here =>		
Add 3 years	+ 00 / 00 / 03	
Date of next change =>		**P & A CODE**
whichever comes first		**R.O.#**

Current mileage goes here =>		**Dealer Stamp**
Add 50,000 miles to the current miles	+ 50,000	
Next change due at this mileage =>		
Or		
Today's date goes here =>		
Add 3 years	+ 00 / 00 / 03	
Date of next change =>		**P & A CODE**
whichever comes first		**R.O.#**

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USA *(fus)*