
2001
DIESEL
SUPPLEMENT
GMC

The 2001 GM Diesel Engine Owner's Manual Supplement for Trucks

2-1 Features and Controls
This section explains how to start and operate your vehicle.

5-1 Problems on the Road
This section tells what to do if you have a problem while driving, such as an overheated engine, etc.

6-1 Service and Appearance Care
Here the manual tells you how to keep your vehicle running properly.

This supplement contains information that pertains to the operation of your diesel engine. The sections in this supplement correspond to the sections in your owner's manual.

Please keep this supplement with the owner's manual in your vehicle, so it will be there if you ever need it while you're on the road. If you sell your vehicle, leave the owner's manual supplement and the owner's manual with the vehicle.

This manual includes the latest information at the time it was printed. We reserve the right to make changes in the product after that time without notice.

For Canadian Owners Who Prefer a French Language Manual:

Aux propriétaires canadiens: Vous pouvez vous procurer un exemplaire de ce guide en français chez votre concessionaire ou au:

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Mississauga, Ontario L5T 1B9

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Part No. 15044200 A First Edition

Section 2 Features and Controls

Here you can learn about starting your diesel engine. Also explained are the instrument panel clusters and the warning systems that tell you if everything is working properly -- and what to do if you have a problem. Use this section along with the information in Section 2 of your owner's manual.

2-2 Starting Your Diesel Engine
2-4 Engine Coolant Heater (If Equipped)
2-6 Instrument Panel Cluster
2-9 Warning Lights, Gages and Indicators
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2-12 Service Throttle Soon Light
2-12 Wait To Start Light
2-13 Fuel Gage

Starting Your Diesel Engine

Your diesel engine starts differently than a gasoline engine.

Automatic Transmission

Move your shift lever to PARK (P) or NEUTRAL (N). Your engine won't start in any other position -- that's a safety feature. To restart when you're already moving, use NEUTRAL (N) only.

NOTICE:

Don't try to shift to PARK (P) if your vehicle is moving. If you do, you could damage the transmission. Shift to PARK (P) only when your vehicle is stopped.

Manual Transmission

Move your shift lever to NEUTRAL and hold the clutch pedal to the floor while starting the engine. Your vehicle won't start if the clutch pedal is not all the way down -- that's a safety feature.

Starting Your Engine

1. Turn your ignition key to RUN.

   Observe the WAIT TO START light. (This light may not come on if the engine is hot.)

2. As soon as the WAIT TO START light goes off, IMMEDIATELY turn the ignition key to START. When the engine starts, let go of the key.

NOTICE:

Holding your key in START for longer than 15 seconds at a time will cause your battery to be drained much sooner. And the excessive heat can damage your starter motor.

NOTICE:

If the WAIT TO START light stays on, it means that your vehicle could have one of several problems, so you should have it serviced right away.

3. If the engine does not start after 15 seconds of cranking, turn the ignition key to OFF. Wait one minute for the starter to cool, then try the same steps again.

If you're trying to start your engine after you've run out of fuel, follow the steps in "Running Out of Fuel." See "Diesel Fuel Requirements and Fuel System" in the Index.

When your engine is cold, let it run for a few minutes before you move your vehicle. This lets oil pressure build up. Your engine will sound louder when it's cold.

NOTICE:

If you're not in an idling vehicle and the engine overheats, you wouldn't be there to see the coolant temperature gage. This could damage your vehicle. Don't let your engine run when you're not in your vehicle.

Cold Weather Starting (Diesel Engine)

The following tips will help you get good starting in cold weather.

Use the recommended engine oil when the outside temperature drops below freezing. See "Engine Oil" in the Index. When the outside temperature drops below 0°F (-18°C), use your engine coolant heater.

If you park your vehicle in a garage, you shouldn't need to use the coolant heater until the garage temperature goes below 0°F (-18°C), no matter how cold it is outside. If you experience longer cranking times, notice an unusual amount of exhaust smoke or are at higher altitudes (over 7,000 ft. or 2 135 m), you may use your engine coolant heater. See "Engine Coolant Heater" in the Index.

See "Diesel Fuel Requirements and Fuel System" in the Index for information on what fuel to use in cold weather.

If Your Diesel Engine Won't Start

If you've run out of fuel, look at "Running Out of Fuel." See "Diesel Fuel Requirements and Fuel System" in the Index.

If you're not out of fuel, and your engine won't start, do this:

Turn your ignition key to RUN. IMMEDIATELY after the WAIT TO START light goes off, turn the ignition key to START.

If the light doesn't go off, wait a few seconds, then try starting your engine again. And, see your dealer as soon as you can for a starting system check.

If the light comes on and then goes off and you know your batteries are charged, but your engine still won't start, your vehicle needs service.

If the light does not come on when the engine is cold, your vehicle needs service.

If your batteries don't have enough charge to start your engine, see "Battery" in the owner's manual.

Be sure you have the right oil for your engine, and that you've changed the oil at the proper times. If you use the wrong oil, your engine may be harder to start.

If the engine starts, runs a short time, then stops, your vehicle needs service.

⚠ CAUTION:

Do not use gasoline or starting "aids," such as ether, in the air intake. They could damage your engine. There could also be a fire, which could cause serious personal injury.

Engine Coolant Heater (If Equipped)

In very cold weather, 0°F (-18°C) or colder, the engine coolant heater can help. You'll get easier starting and better fuel economy during engine warm-up. Usually, the coolant heater should be plugged in a minimum of four hours prior to starting your vehicle.

On 3500HD models, the engine coolant heater electrical cord is located on the driver's side of the engine compartment, near the power steering reservoir.

On full-size van models, the cord for the engine coolant heater is located on the driver's side of the engine compartment and is attached to the hose for the power steering reservoir.

To Use the Engine Coolant Heater

1. Turn off the engine.
2. Open the hood and unwrap the electrical cord.
3. Plug it into a normal, grounded 110-volt AC outlet.

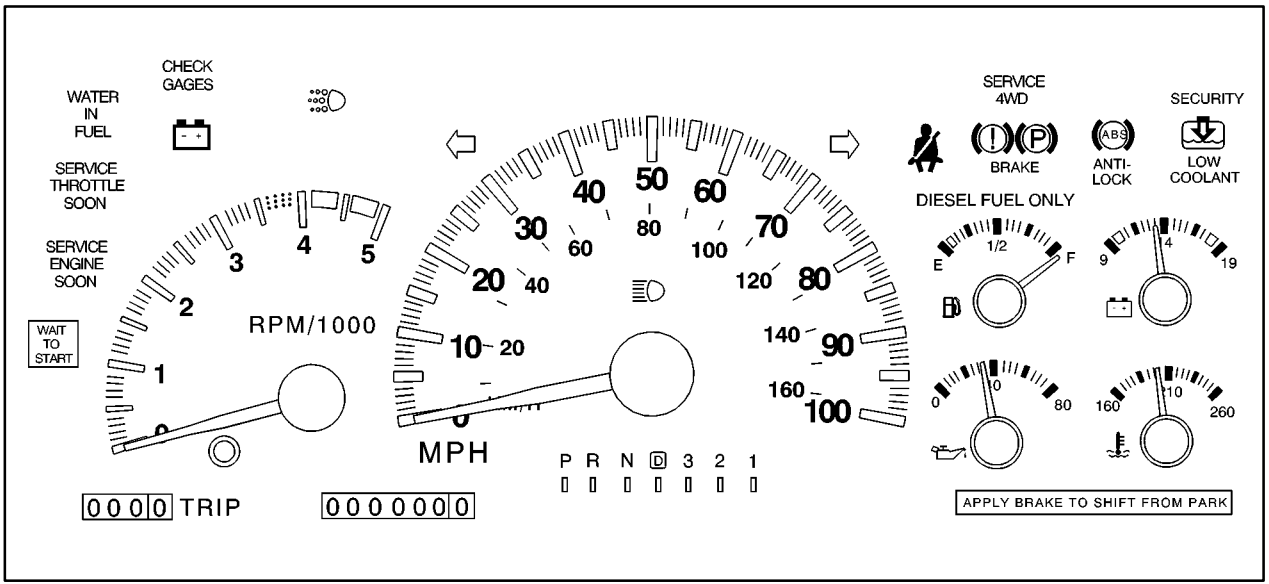
⚠ CAUTION:

Plugging the cord into an ungrounded outlet could cause an electrical shock. Also, the wrong kind of extension cord could overheat and cause a fire. You could be seriously injured. Plug the cord into a properly grounded three-prong 110-volt AC outlet. If the cord won't reach, use a heavy-duty three-prong extension cord rated for at least 15 amps.

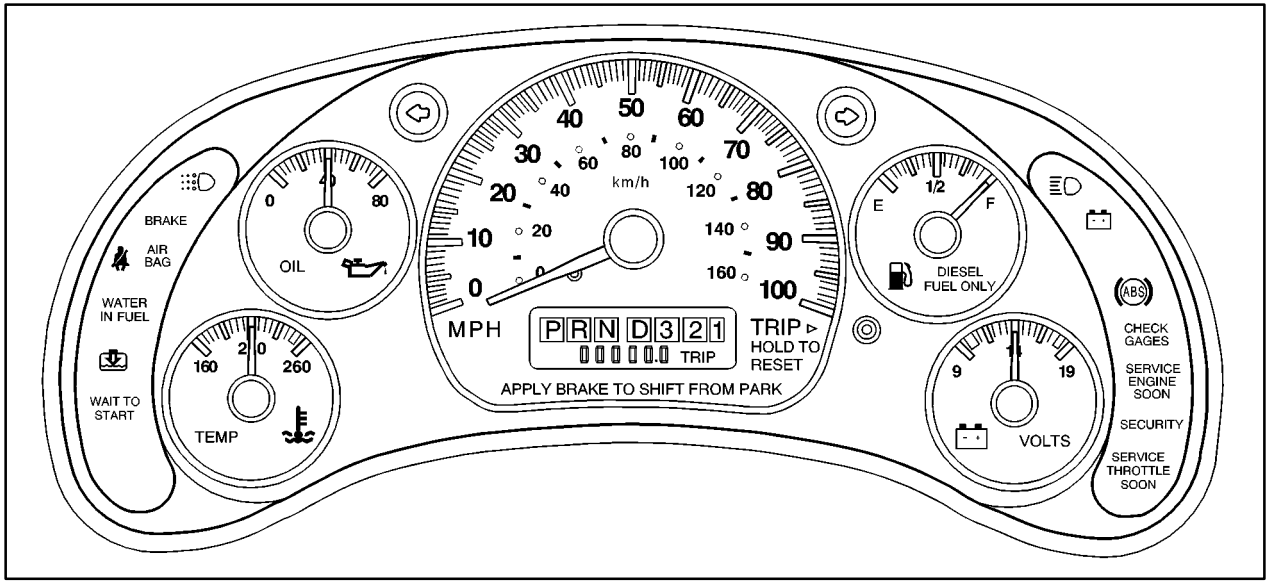
4. Before starting the engine, be sure to unplug and store the cord as it was before to keep it away from moving engine parts. If you don't, it could be damaged.

How long should you keep the coolant heater plugged in? The answer depends on the outside temperature. Above 32°F (0°C), the coolant heater is not required. From 32°F to -10°F (0°C to -23°C), keep the coolant heater plugged in at least two hours. Below -10°F (-23°C), keep the coolant heater plugged in for a minimum of eight hours or overnight. It will not harm either the coolant heater or the vehicle to leave the coolant heater plugged in longer than the times stated. Be sure to remove and store the cord before starting the engine. See "Diesel Fuel Requirements and Fuel System" in the Index for information on what fuel to use in cold weather.

Instrument Panel Cluster



3500HD model United States version shown, Canada similar



Full-Size Van model United States version shown, Canada similar

Your instrument panel cluster is designed to let you know at a glance how your vehicle is running. You'll know how fast you're going, about how much fuel you have and many other things you'll need to know to drive safely and economically.

Speedometer and Odometer

Your speedometer lets you see your speed in both miles per hour (mph) and kilometers per hour (km/h). Your odometer shows how far your vehicle has been driven, in either miles (used in the United States) or kilometers (used in Canada).

You may wonder what happens if your vehicle needs a new odometer installed. If the new odometer can be set to the mileage total of the old odometer, then it must be. But if it can't, then it's set at zero, and a label must be put on the driver's door to show the old mileage reading when the new odometer was installed.

Trip Odometer

The trip odometer can tell you how far your vehicle has been driven since you last set the trip odometer to zero.

To reset the trip odometer, fully press the reset button located near the trip odometer readout.

If the reset button is not fully pressed on 3500HD models, the trip odometer may not go all the way back to zero. If it doesn't, you may have to press the reset button again to reset the readout to zero.

Tachometer (3500HD)

Your tachometer displays the engine speed in revolutions per minute (rpm).

NOTICE:

If you operate the engine with the tachometer in the red area, your engine or other parts could be damaged.

Damage to your engine or vehicle caused by operating the engine in the red area isn't covered by your vehicle warranty. Don't operate the engine with the tachometer in the red area.

Warning Lights, Gages and Indicators

This part describes the warning lights and gages that may be on your vehicle. The pictures will help you locate them.

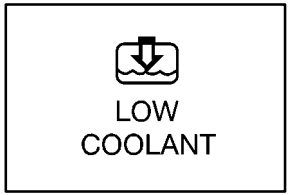
Warning lights and gages can signal that something is wrong before it becomes serious enough to cause an expensive repair or replacement. Paying attention to your warning lights and gages could also save you or others from injury.

Warning lights come on when there may be or is a problem with one of your vehicle's functions. As you will see in the details on the next few pages, some warning lights come on briefly when you start the engine just to let you know they're working. If you are familiar with this section, you should not be alarmed when this happens.

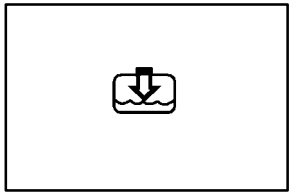
Gages can indicate when there may be or is a problem with one of your vehicle's functions. Often gages and warning lights work together to let you know when there's a problem with your vehicle.

When one of the warning lights comes on and stays on when you are driving, or when one of the gages shows there may be a problem, check the section that tells you what to do about it. Please follow this manual's advice. Waiting to do repairs can be costly -- and even dangerous. So please get to know your warning lights and gages. They're a big help.

Low Coolant Warning Light



3500HD

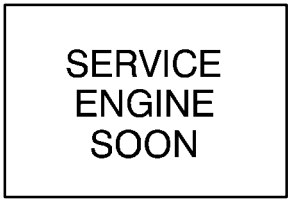


Full-Size Van

Your vehicle has a LOW COOLANT light. As a check to show you it's working, this light comes on for a few seconds after the ignition is turned on.

If this light comes on anytime the engine is running, your system is low on coolant and the engine may overheat. See "Engine Coolant" in the Index. Have your vehicle serviced as soon as you can.

Malfunction Indicator Lamp (Service Engine Soon Light)



Your vehicle is equipped with a computer which monitors operation of the fuel, timing and emission control systems.

This system is called OBD II (On-Board Diagnostics-Second Generation) and is intended to assure that emissions are at acceptable levels for the life of the vehicle, helping to produce a cleaner environment. The SERVICE ENGINE SOON light comes on to indicate when service is required. Malfunctions often will be indicated by the system before any problem is apparent. This may prevent more serious damage to your vehicle. This system is also designed to assist your service technician in correctly diagnosing any malfunction.

NOTICE:

If you keep driving your vehicle with this light on, after a while, your emission controls may not work as well, your fuel economy may not be as good and your engine may not run as smoothly. This could lead to costly repairs that may not be covered by your warranty.

NOTICE:

Modifications made to the engine, transmission, exhaust, intake or fuel system of your vehicle or the replacement of the original tires with other than those of the same Tire Performance Criteria (TPC) can affect your vehicle's emission controls and may cause the SERVICE ENGINE SOON light to come on. Modifications to these systems could lead to costly repairs not covered by your warranty. This may also result in a failure to pass a required Emission Inspection/Maintenance test.

If the Light Comes On

This light should come on, as a check to show you it is working, when the ignition is on and the engine is not running. If it doesn't, have it repaired. This light will also come on if an emission control system malfunction has been detected on your vehicle. Dealer or qualified service center diagnosis and service may be required.

You also may be able to correct the emission system malfunction by considering the following:

Did you just drive through a deep puddle of water?

If so, your electrical system may be wet. The condition will usually be corrected when the electrical system dries out. A few driving trips should turn the light off.

Are you low on fuel?

As your engine starts to run out of fuel, your engine may not run as efficiently as designed since small amounts of air are sucked into the fuel line. The system can detect this. Adding fuel should correct this condition. It will take a few driving trips to turn the light off.

If none of the above steps have made the light turn off, have your dealer or qualified service center check the vehicle. Your dealer has the proper test equipment and diagnostic tools to fix any mechanical or electrical problems that may have developed.

Emissions Inspection and Maintenance Programs

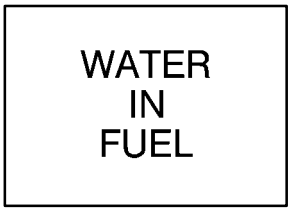
Some state/provincial and local governments have or may begin programs to inspect the emission control equipment on your vehicle. Failure to pass this inspection could prevent you from getting a vehicle registration.

Here are some things you need to know in order to help your vehicle pass an inspection.

Your vehicle will not pass this inspection if the SERVICE ENGINE SOON light is on or not working properly.

Your vehicle will not pass this inspection if the OBD (on-board diagnostic) system determines that critical emission control systems have not been completely diagnosed by the system. The vehicle would be considered not ready for inspection. This can happen if you have recently replaced your battery or if your battery has run down. The diagnostic system is designed to evaluate critical emission control systems during normal driving. This may take several days of routine driving. If you have done this and your vehicle still does not pass the inspection for lack of OBD system readiness, see your dealer or qualified service center to prepare the vehicle for inspection.

Water in Fuel Light



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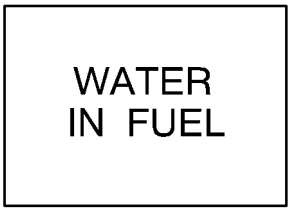


Full-Size Van

This light will come on to warn you if there is water in the diesel fuel system.

For more information on how this light works, see "Diesel Fuel Requirements and Fuel System" in the Index.

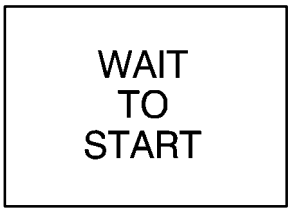
Service Throttle Soon Light



On diesel engines, a computer monitors the operation of the electronic accelerator.

As a check to show you it's working, this light comes on for a few seconds after the ignition is turned on. Normally, it will not come back on unless the ignition has been off for 30 seconds or more. If the light does not come on at all, and the ignition has been off for 30 seconds or more, have the light fixed right away. If the light stays on after the engine starts, or comes on while you are driving, the computer is indicating that your vehicle has a problem. You should take your vehicle in for service soon.

Wait To Start Light



3500HD



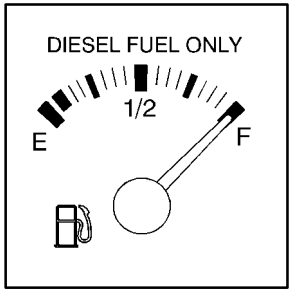
Full-Size Van

Your diesel engine has a glow plug system to aid in starting your vehicle.

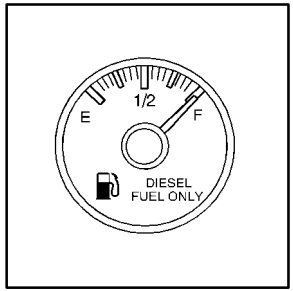
An instrument panel WAIT TO START light shows that the system is functioning properly and tells you when the engine is ready to be started.

For more details, see "Starting Your Diesel Engine" in the Index.

Fuel Gage



3500HD



Full-Size Van

The fuel gage, when the ignition is on, tells you approximately how much fuel you have left in your tank. The gage will first indicate empty before you are out of fuel, but you should get more fuel as soon as possible.

Listed are four situations you may experience with your fuel gage:

- At the gas station, the fuel pump shuts off before the gage reads full.
- It takes a little more or less fuel to fill up than the fuel gage indicated. For example, the gage may have indicated the tank was half full, but it actually took a little more or less than half the tank's capacity to fill the tank.
- The gage moves a little when you turn a corner or speed up.
- The gage doesn't go back to empty when you turn off the ignition.

None of these indicate a problem with the fuel gage.

For information on how to fill your fuel tank, see "Fuel -- Filling Your Tank" in the Index.

For your fuel tank capacity, see "Fuel -- Tank Capacity" in the owner's manual.

NOTES

NOTES

Section 5 Problems on the Road

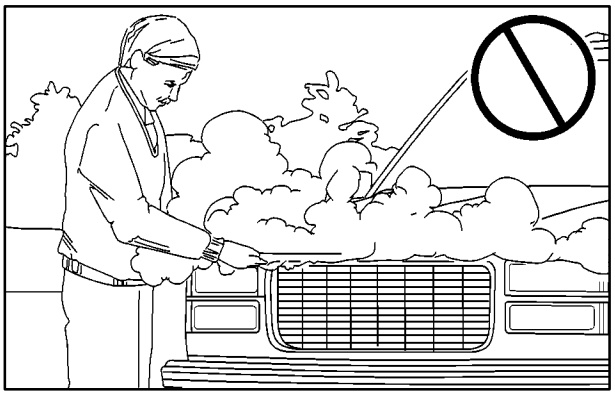
Here you'll find out what to do about some problems that can occur on the road. Use this section along with the information in Section 5 of your owner's manual.

5-2 Engine Overheating
5-2 If Steam Is Coming From Your Engine
5-3 If No Steam Is Coming From Your Engine
5-4 Cooling System
5-7 How to Add Coolant to the Coolant Surge Tank

Engine Overheating

You will find a coolant temperature gage and low coolant light on your vehicle's instrument panel.

If Steam Is Coming From Your Engine



⚠ CAUTION:

Steam from an overheated engine can burn you badly, even if you just open the hood. Stay away from the engine if you see or hear steam coming from it. Just turn it off and get everyone away from the vehicle until it cools down. Wait until there is no sign of steam or coolant before you open the hood.

If you keep driving when your engine is overheated, the liquids in it can catch fire. You or others could be badly burned. Stop your engine if it overheats, and get out of the vehicle until the engine is cool.

NOTICE:

If your engine catches fire because you keep driving with no coolant, your vehicle can be badly damaged. The costly repairs would not be covered by your warranty.

If No Steam Is Coming From Your Engine

If you get an engine overheat warning but see or hear no steam, the problem may not be too serious. Sometimes the engine can get a little too hot when you:

- Climb a long hill on a hot day.
- Stop after high-speed driving.
- Idle for long periods in traffic.
- Tow a trailer. See “Driving on Grades” in the Owner’s Manual.

If you get the overheat warning with no sign of steam, try this for a minute or so:

1. If you have an air conditioner and it’s on, turn it off.
2. Turn on your heater to full hot at the highest fan speed and open the window as necessary.
3. If you’re in a traffic jam, shift to NEUTRAL (N); otherwise, shift to the highest gear while driving
   - DRIVE (D) (Full-Size Van models) or,
   - AUTOMATIC OVERDRIVE (Ⓓ) (3500HD models with an automatic transmission).

If you no longer have the overheat warning, you can drive. Just to be safe, drive slower for about 10 minutes. If the warning doesn’t come back on, you can drive normally.

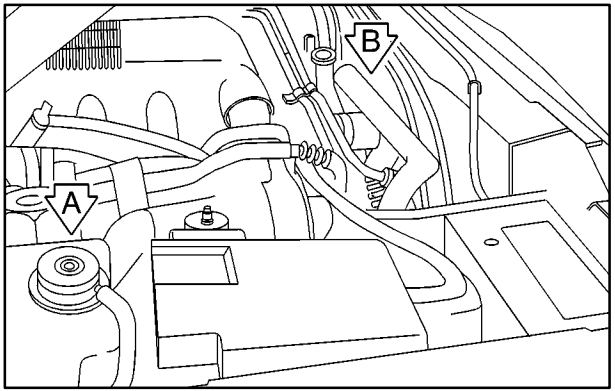
If the warning continues, pull over, stop, and park your vehicle right away.

If there’s still no sign of steam, push down the accelerator until the engine speed is about twice as fast as normal idle speed for at least three minutes while you’re parked. If you still have the warning, *turn off the engine and get everyone out of the vehicle* until it cools down.

You may decide not to lift the hood but to get service help right away.

Cooling System

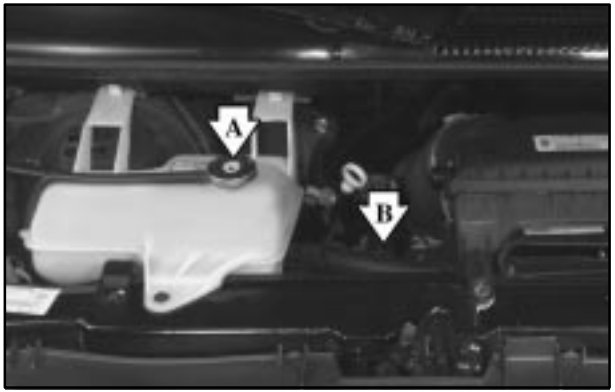
When you decide it's safe to lift the hood, here's what you'll see:



3500HD Models

A. Coolant Surge Tank

B. Engine Cooling Fan



Full-Size Van Models

A. Coolant Surge Tank

B. Engine Cooling Fan(s)

If the coolant inside the coolant surge tank is boiling, don't do anything else until it cools down.



3500HD Models



Full-Size Van Models

When the engine is cold, the coolant level should be at or above the COLD mark for 3500HD models, or at or above the FULL COLD line for Full-Size Van models. If it isn't, you may have a leak in the radiator hoses, heater hoses, radiator, water pump or somewhere else in the cooling system.

⚠ CAUTION:

Heater and radiator hoses, and other engine parts, can be very hot. Don't touch them. If you do, you can be burned.

Don't run the engine if there is a leak. If you run the engine, it could lose all coolant. That could cause an engine fire, and you could be burned. Get any leak fixed before you drive the vehicle.

NOTICE:

Engine damage from running your engine without coolant isn't covered by your warranty.

NOTICE:

When adding coolant, it is important that you use only DEX-COOL® (silicate-free) coolant.

If coolant other than DEX-COOL is added to the system, premature engine, heater core or radiator corrosion may result. In addition, the engine coolant will require change sooner -- at 30,000 miles (50 000 km) or 24 months, whichever occurs first. Damage caused by the use of coolant other than DEX-COOL® is not covered by your new vehicle warranty.

If there seems to be no leak, start the engine again. See if the engine cooling fan speed increases when idle speed is doubled by pushing the accelerator pedal down. If it doesn't, your vehicle needs service. Turn off the engine.

How to Add Coolant to the Coolant Surge Tank

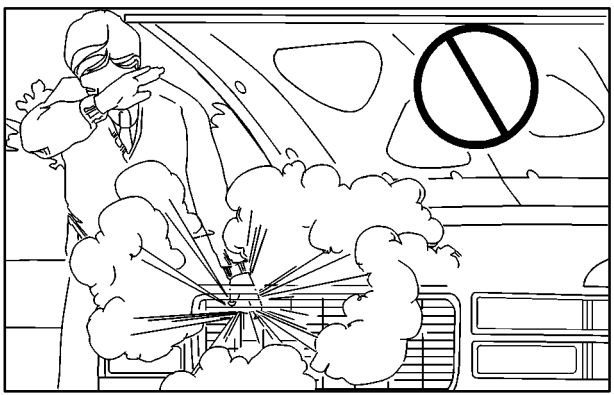
NOTICE:

The diesel engine has a specific coolant fill procedure. Failure to follow this procedure could cause your engine to overheat and be severely damaged.

If you haven't found a problem yet, but the coolant level isn't at or above the COLD mark for 3500HD models, or at or above the FULL COLD line for Full-Size Van models, add a 50/50 mixture of *clean, drinkable water* and DEX-COOL® coolant at the coolant surge tank, but be sure the cooling system, including the coolant surge tank pressure cap, is cool before you do it. See "Engine Coolant" in the Index for more information.

⚠ CAUTION:

Steam and scalding liquids from a hot cooling system can blow out and burn you badly. They are under pressure, and if you turn the coolant surge tank pressure cap -- even a little -- they can come out at high speed. Never turn the cap when the cooling system, including the coolant surge tank pressure cap, is hot. Wait for the cooling system and coolant surge tank pressure cap to cool if you ever have to turn the pressure cap.



⚠ CAUTION:

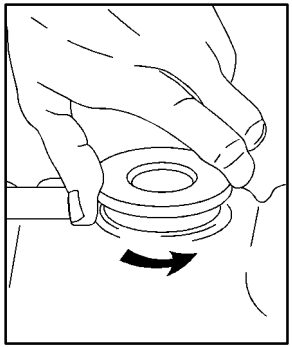
Adding only plain water to your cooling system can be dangerous. Plain water, or some other liquid like alcohol, can boil before the proper coolant mixture will. Your vehicle's coolant warning system is set for the proper coolant mixture. With plain water or the wrong mixture, your engine could get too hot but you wouldn't get the overheat warning. Your engine could catch fire and you or others could be burned. Use a 50/50 mixture of clean, drinkable water and DEX-COOL® coolant.

NOTICE:

In cold weather, water can freeze and crack the engine, radiator, heater core and other parts. So use the recommended coolant.

⚠ CAUTION:

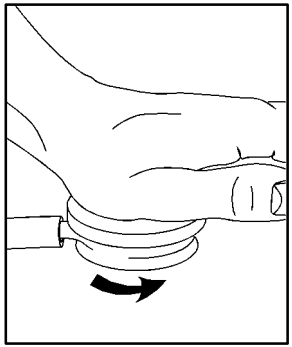
You can be burned if you spill coolant on hot engine parts. Coolant contains ethylene glycol and it will burn if the engine parts are hot enough. Don't spill coolant on a hot engine.



1. You can remove the coolant surge tank pressure cap when the cooling system, including the coolant surge tank pressure cap and upper radiator hose, is no longer hot.

Turn the pressure cap slowly counterclockwise (left) until it first stops. (Don't press down while turning the pressure cap.)

If you hear a hiss, wait for that to stop. A hiss means there is still some pressure left.



2. Then keep turning the cap, but now push down as you turn it. Remove the pressure cap.

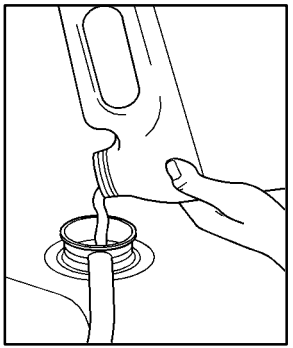
3. For All Except Full-Size Van models: After the engine cools, open the air bleed valve on the thermostat housing.

⚠ CAUTION:

You can be burned if you spill coolant on hot engine parts. Coolant contains ethylene glycol, and it will burn if the engine parts are hot enough. Don't spill coolant on a hot engine.



4. Fill with the proper mixture. Add coolant until you see a steady stream of coolant coming from the bleed valve.
5. Close the bleed valve.
6. Rinse or wipe the spilled coolant from the engine and compartment.



7. Then fill the coolant surge tank with the proper mixture, to the COLD mark for 3500HD models or the FULL COLD line for Full-Size Van models.



3500HD



Full-Size Van Models

8. With the coolant surge tank pressure cap off, start the engine and let it run until you can feel the upper radiator hose getting hot. Watch out for the engine cooling fan(s).

   By this time, the coolant level inside the coolant surge tank may be lower. If the level is lower, add more of the proper mixture to the coolant surge tank until the level reaches the COLD mark for 3500HD models or the FULL COLD line for Full-Size Van models.



3500HD Models



Full-Size Van Models

9. Then replace the pressure cap. Be sure the arrows on the pressure cap line up like this.

Section 6 Service and Appearance Care

Here you will find information about the care of your vehicle. This section begins with service and diesel fuel information, and then it shows how to check important fluid and lubricant levels. There is also technical information about your vehicle. Use this section along with the information in Section 6 of your owner's manual.

6-2 Diesel Fuel Requirements and Fuel System
6-15 Filling Your Tank
6-15 Filling a Portable Fuel Container
6-18 Cleaning Your Diesel Engine
6-18 Engine Oil (Diesel Engines)
6-23 Engine Air Cleaner/Filter
6-26 Automatic Transmission Fluid
6-30 Engine Coolant
6-34 Surge Tank Pressure Cap
6-35 Specification Charts

Diesel Fuel Requirements and Fuel System

Some states and provinces have restrictions on the purchase of diesel fuel for light-duty vehicles and require you to buy permits or pay special taxes. Some of these restrictions apply only to residents, and others apply to both residents and visitors. These restrictions can change. To learn the current restrictions in any state or province, contact your auto club, the police or other officials.

Diesel Engine Fuel

NOTICE:

Diesel fuel or fuel additives not recommended in this manual could damage your fuel system and engine. Your warranty wouldn't cover this damage. And:

- **Diesel fuel that has been mixed with engine oil could damage your engine and emission controls. Check with the service station operator to make sure the diesel fuel has not been mixed with engine oil.**
- **If you ever run out of diesel fuel, it can be difficult to restart your engine. "Running Out of Fuel," later in this section, tells you how to get it started again. To avoid all this, never let your tank get empty.**

What Fuel to Use

In the United States, for best results use Number 2-D diesel fuel year-round (above and below freezing conditions) as oil companies blend Number 2-D fuel to address climate differences. Number 1-D diesel fuel may be used in very cold temperatures (when it stays below 0°F or -18°C); however, it will produce a power and fuel economy loss. The use of Number 1-D diesel fuel in warm or hot climates may result in stalling, poor starting when the engine is hot and may damage the fuel injection system.

At a minimum, the diesel fuel you use should meet specifications ASTM D975-98a (Grade Low Sulfur) in the United States. In addition, the Engine Manufacturers Association (EMA) has identified properties of an improved diesel fuel for better engine performance and durability. Diesel fuels corresponding to the EMA Recommended Guideline on Premium Diesel Fuel (FQP-1A) could provide better starting, less noise and better vehicle performance.

If there are questions about the fuel you are using, please contact your fuel supplier.

Diesel fuel may foam when you fill your tank. This can cause the automatic pump nozzle to shut off, even though your tank isn't full. If this happens, just wait for the foaming to stop and then continue to fill your tank.

⚠ CAUTION:

Heat coming from the engine may cause the fuel to expand and force the fuel out of your tank. If something ignites the fuel, a fire could start and people could be burned. To help avoid this, fill your fuel tank only until the automatic nozzle shuts off. Don't try to "top it off."

What Fuel to Use in Canada

Canadian fuels are blended for seasonal changes. Diesel Type “A” fuel is blended for better cold weather starting (below 0°F or -18°C); however, you may notice some power and fuel economy loss. If Type “A” fuel is used in warmer temperatures, stalling and hard starting may occur. Diesel Type “B” fuel is blended for temperatures above 0°F (-18°C). The emission control system requires the use of diesel fuel with low-sulfur (.05% by weight) content. Both low- and higher-sulfur fuels will be available in Canada. Only low-sulfur diesel fuels are available in the United States. It is important that diesel-powered trucks are refueled only with low-sulfur fuel. Use of fuels with higher-sulfur content will affect the function of the emission components and may cause reduced performance, excessive smoke and unpleasant odor.

At a minimum, the diesel fuel you use should meet specifications CAN/CGSB-3.517-93 (Low Sulfur Diesel) in Canada. In addition, the Engine Manufacturers Association (EMA) has identified properties of an improved diesel fuel for better engine performance and durability. Diesel fuels corresponding to the EMA description could provide better starting, less noise and better vehicle performance. If there are questions about the fuel you are using, please contact your fuel supplier.

Very Cold Weather Operation

Follow the instructions listed previously under the heading “What Fuel to Use.”

NOTICE:

Never use home heating oil or gasoline in your diesel engine. They can cause engine damage.

In cold weather, your fuel filter may become clogged (waxed). To unclog it, move the vehicle to a warm garage area and warm the filter to between 32°F and 50°F (0°C to 10°C). You won’t need to replace it. Additional information on the fuel filter follows.

Water in Fuel

⚠ CAUTION:

Diesel fuel containing water is still flammable. You could be burned. If you ever try to drain water from your fuel, keep sparks, flames and smoking materials away from the mixture.

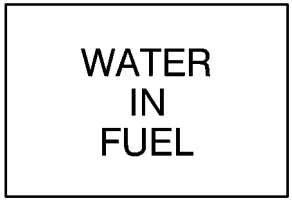
NOTICE:

If there is water in your diesel fuel and the weather is warm or humid, fungus and bacteria can grow in the fuel. They can damage your fuel system. You'll need a diesel fuel biocide to sterilize your fuel system. Your dealer can advise you if you ever need this.

If your fuel tank needs to be purged to remove water, see your dealer or a qualified technician. Improper purging can damage your fuel system.

Sometimes, water can be pumped into your fuel tank along with your diesel fuel. This can happen if a service station doesn't regularly inspect and clean its fuel tanks, or if it gets contaminated fuel from its suppliers.

If this happens, a WATER IN FUEL light will come on. If it does, the water must be drained. Your dealer can show you how to do this.



This light also should come on briefly when you start your engine, as a check. If it doesn't, have it fixed so it will be there to let you know if you ever do get water in your fuel.

On Full-size vans, the WATER IN FUEL light may temporarily come on while driving in rainy, salty or slushy road conditions. If this occurs, it may not be due to water in fuel.

If the light comes on at any other time, use this chart.

NOTICE:

If you drive when this warning light is on, you can damage your fuel injection system and your engine. If the light comes on right after you refuel, it means water was pumped into your fuel tank. Turn off your engine immediately. Then, have the water drained at once.

Water In Fuel Light Chart

Problem	Recommended Action
Light comes on intermittently.	Drain water from fuel filter.
Light stays on: • At temperatures above freezing.	Drain fuel filter immediately. If no water can be drained and light stays on, see your dealer for assistance.
• At temperatures below freezing (3500HD).	Drain fuel filter immediately. If no water can be drained -- water may be frozen in water drain system. Open the air bleed valve to check for fuel pressure. If no fuel pressure is present, water may be frozen in the fuel lines. Move the vehicle to a warm location to thaw out.
• At temperatures below freezing (Full-Size Van).	Drain fuel filter immediately. If no water can be drained -- water may be frozen in fuel filter or fuel lines. Replace fuel filter or move the vehicle to a warm location to thaw out.
• Immediately after refueling, large amount of water possibly pumped into fuel tank.	Fuel tank purging required. See your dealer for assistance.

Hard starting, hesitation or “flat” performance at high speed or during hard acceleration may be an indication of premature fuel filter plugging due to dirty or contaminated fuel. The filter element may need to be changed if this happens. See “Fuel Filter Replacement” later in this section.

To drain water in 3500HD models:

1. Stop and park the vehicle in a safe place. Turn off the engine and apply the parking brake.
2. Remove the fuel cap.
3. Place a fuel-resistant container under the filter drain hose. The filter drain hose is located on the front of the engine and is connected to the water drain valve. See “Engine Compartment Overview” in the Index for more information on location.

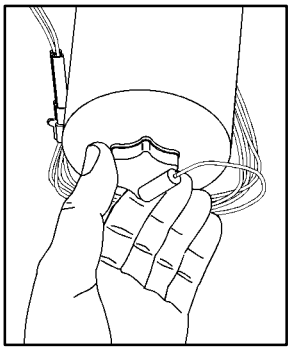


3500HD Models

4. With the engine off, open the water drain valve two to three turns. The valve is located to the left of the engine oil fill cap, when standing in front of the vehicle.
5. Start the engine and allow it to idle until clear fuel is observed. If no liquid comes out, your vehicle needs service.
6. Stop the engine and close the water drain valve.
7. Remove the fuel-resistant container and properly dispose of the contaminated fuel. To find out how to properly dispose of contaminated diesel fuel, see “What to Do with Used Oil” in the “Engine Oil (Diesel Engines)” part, later in this section.
8. Install the fuel cap.

To drain water in full-size van models:

1. Stop and park the vehicle in a safe place. Turn off the engine and apply the parking brake.
2. Remove the fuel cap.
3. Connect a 5/16 inch inside diameter hose or tube (if available) to the drain cap on the bottom of the fuel filter element canister. The fuel filter is located under your vehicle, attached to the frame near the driver's side door.
4. Place a fuel-resistant container under the hose or under the filter if no hose is available.



5. Make sure the engine is off for the following step. If the engine is running, diesel fuel could spray out of the drain cap. With the engine off, open the drain cap one or two turns. If no liquid comes out, your vehicle needs service.
6. Close the water drain valve.
7. Remove the hose and container and properly dispose of the contaminated fuel. To find out how to properly dispose of contaminated diesel fuel see "What to Do with Used Oil" in the "Engine Oil (Diesel Engines)" part, later in this section.
8. Install the fuel cap.

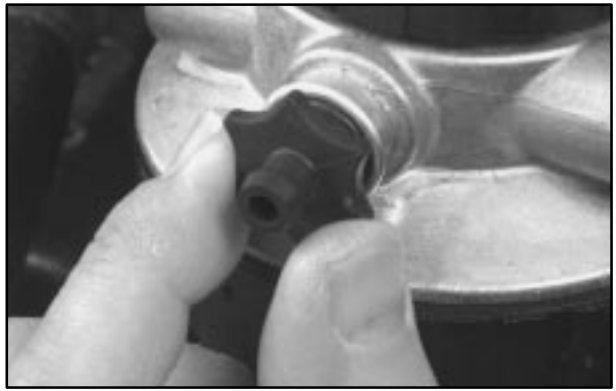
If the WATER IN FUEL light comes on again after driving a short distance or the engine runs rough or stalls -- a large amount of water has probably been pumped into the fuel tank. The fuel tank should be purged.

Running Out of Fuel (Diesel Engines)

If the engine stalls and you think that you've run out of fuel, do this:



3500HD Models



Full-Size Van Models

First, open the fuel filter air bleed valve. Briefly crank the engine and have someone watch the bleed valve. If air comes out of the bleed valve, then you are probably out of fuel.

> **⚠ CAUTION:**
>
> **Diesel fuel is flammable. It could start a fire if it gets on hot engine parts. You could be burned. Don't let too much fuel flow from the air bleed valve, and wipe up any spilled fuel with a cloth.**

To restart your engine:

1. If you're parked on a level surface, add at least two gallons of fuel. However, if you're parked on a slope, you may need to add up to five gallons of fuel.
2. With the air bleed valve open, turn your ignition key to START for 10 to 15 seconds to crank (but not start) your engine. Wait one minute between intervals of cranking to allow the starter motor to cool. Overheating the starter motor could damage it. Keep doing this until you can just see some clear fuel at the air bleed valve. (If, during this step, the engine starts, turn the ignition off and close the valve before restarting.)
3. Close the air bleed valve.
4. Turn the ignition key to START for 10 to 15 seconds at a time until your engine starts. (If the vehicle starts but runs roughly, press down slightly on the accelerator pedal.)

Fuel Filter Replacement (Diesel Engines)

If you want to change the fuel filter yourself, here's how to do it:

> **⚠ CAUTION:**
>
> **Diesel fuel is flammable. It could start a fire if something ignites it, and you could be burned. Don't let it get on hot engine parts, and keep matches or other ignition sources away.**

First, drain any water from the filter following the procedure for draining water listed previously.

Fuel Filter Replacement (3500HD Models)

Your vehicle's engine should be off until the end of the following procedure.

The fuel filter is located on the rear of the engine. To access the filter, remove the engine cover. See "Engine Compartment Overview" in the Index for more information on location.

1. Apply the parking brake.
2. Take off the fuel cap. This releases vacuum or pressure in the tank.



3. Unscrew and remove the ring nut from the top of the filter head.



4. Lift the element out of the filter head using the pull tab attached to the top of the filter. If there is any dirt on the element sealing surface of the filter head, clean it off.



5. Line up the widest slot in the top of the new element with the widest key on the top of the filter head.

   The word FRONT on the filter should face the front of the vehicle. Push the element in until the mating surfaces touch. Be sure that the seal has not been dislodged from the new element during installation.

6. Reinstall and tighten the ring nut to the top of the filter head.
7. Connect a 5/16 inch inside diameter hose or tube to the top of the air bleed valve and lead hose into a fuel-resistant container.
8. With the air bleed valve open, turn your ignition key to START for 10 to15 seconds. Wait one minute for your starter to cool. Do this until you can see clear fuel coming from the air bleed valve. If no liquid comes out, your vehicle needs service.
9. Close the air bleed valve, remove the hose and reinstall the fuel cap.
10. Start your engine and let it idle for five minutes. Check your fuel filter and air bleed valve for leaks.

Fuel Filter Replacement (Full-Size Van Models)

Your vehicle's engine should be off until the end of the following procedure.

The fuel filter is located under your vehicle. It is attached to the frame near the driver's side door.

1. Apply the parking brake.
2. Take off the fuel cap. This releases vacuum or pressure in the tank.
3. Remove the bolts from the protective shield covering the fuel filter.



4. First drain the filter using the water drain valve and open the air purge valve to let air in.



5. Disconnect the lead wire from the water sensor at the bottom of the filter.



6. Loosen and remove the ring nut from the top of the filter head.

7. Pull the element straight down and remove any dirt from the element sealing surface.



8. Unscrew the water drain valve assembly from the original filter. Remove and discard the seal attached to the water drain valve assembly from the original filter. Set the water drain valve assembly aside for use on the replacement filter.

9. Remove the shipping plug from the bottom of the new filter.
10. Using the seal that comes with the new filter, install the original water drain valve assembly on the new filter. Tighten the valve by hand, but do not over-tighten.



11. Align the widest key on the top of the filter element with the widest slot on the filter housing and push the element in until the mating surfaces touch. The arrow on the filter element should be aligned with the air purge valve.
12. Reinstall and tighten the ring nut until the alignment arrow on the ring nut aligns with the arrow on the filter. A click should be heard when the ring nut snaps into the locked position.
13. Connect the water sensor electrical connector to the water sensor on the bottom of the filter. Be sure the connector boot is sealed to the bottom of the drain cap.
14. Attach a 5/16 inch inside diameter hose to the air bleed valve and lead hose into a fuel-resistant container.
15. With the air bleed valve still open, turn the ignition key to START for 10 to 15 seconds. Wait one minute for the starter to cool. Do this until you can see clear fuel coming out of the air bleed valve. If no liquid comes out, your vehicle needs service.
16. Close the air bleed valve, remove the hose and install the fuel cap.
17. Reinstall the protective shield and bolts.
18. Start the engine and let it idle for five minutes. Check your fuel filter and air bleed valve for leaks.

Filling Your Tank

For full-size van models, the fuel cap is located behind a hinged door on the driver's side of your vehicle.

For 3500HD models, the fuel cap can be located on either or both sides of your vehicle depending on vehicle content. Refuel the front tank first, or in instances when only a partial fuel fill is desired. An automatic transfer mechanism will maintain approximately equal fuel levels in both tanks, so no switching is required by the operator.

To remove the cap, turn it slowly to the left (counterclockwise).

Be careful not to spill diesel fuel. Clean fuel from painted surfaces as soon as possible. See "Cleaning the Outside of Your Vehicle" in your owner's manual. When you put the cap back on, turn it to the right (clockwise) until you hear a clicking sound. Make sure you fully install the cap.

If you need a new cap, be sure to get the right type. Your dealer can get one for you. If you get the wrong type, it may not fit properly.

Filling a Portable Fuel Container

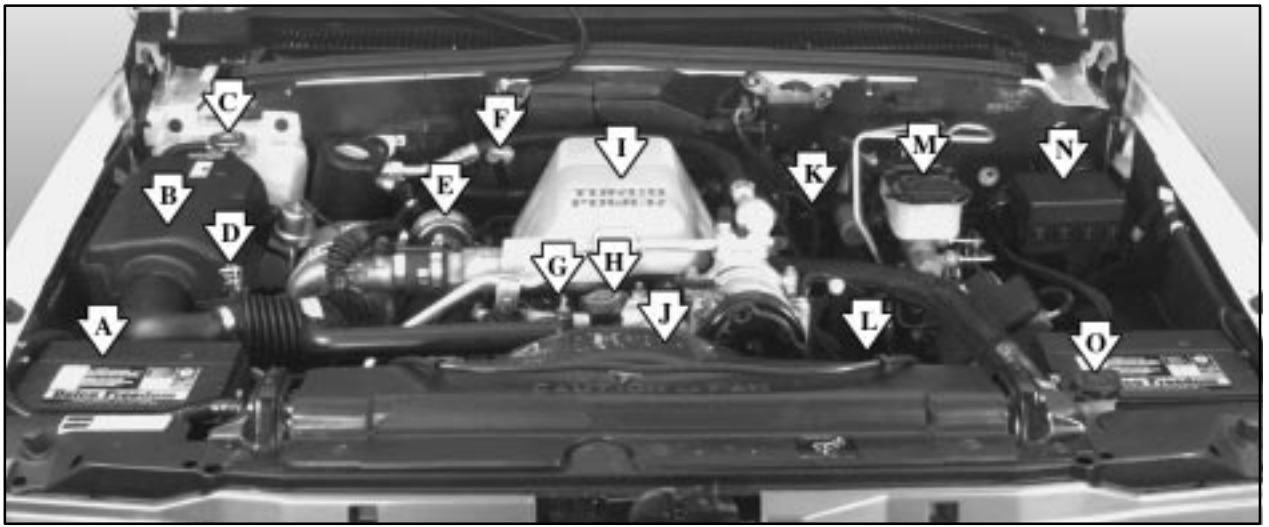
⚠ CAUTION:

Never fill a portable fuel container while it is in your vehicle. Static electricity discharge from the container can ignite the gasoline vapor. You can be badly burned and your vehicle damaged if this occurs. To help avoid injury to you and others:

- **Dispense gasoline only into approved containers.**
- **Do not fill a container while it is inside a vehicle, in a vehicle's trunk, pickup bed or on any surface other than the ground.**
- **Bring the fill nozzle in contact with the inside of the fill opening before operating the nozzle. Contact should be maintained until the filling is complete.**
- **Don't smoke while pumping gasoline.**

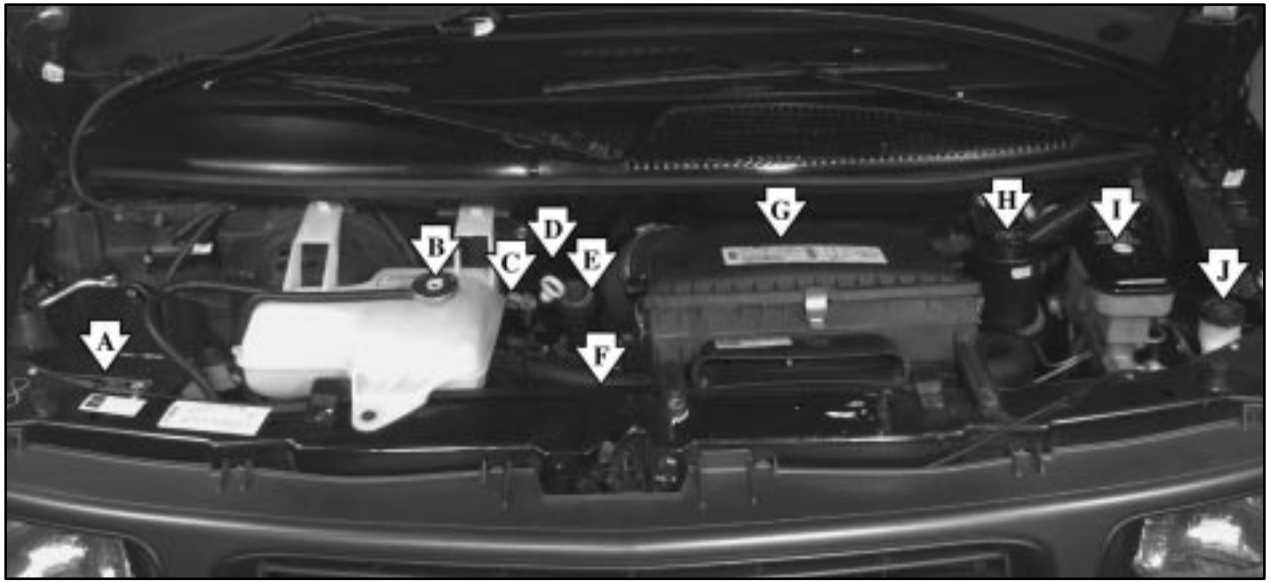
Engine Compartment Overview

When you open the hood on the 3500HD, you'll see:



A. Battery
B. Engine Air Cleaner/Filter
C. Surge Tank Pressure Cap
D. Air Cleaner Filter Restriction Indicator
E. Crankcase Depression Regulator Valve (CDRV)
F. Automatic Transmission Dipstick (If Equipped)
G. Water Drain Valve
H. Engine Oil Fill Cap
I. Fuel Filter (Under Engine Cover)
J. Engine Cooling Fan
K. Engine Oil Dipstick
L. Power Steering Fluid Reservoir
M. Brake Fluid Reservoir
N. Fuse/Relay Center
O. Windshield Washer Fluid Reservoir

When you open the hood on the Full-Size Van, you'll see:



A. Battery
B. Surge Tank Pressure Cap
C. Automatic Transmission Dipstick
D. Engine Oil Dipstick
E. Engine Oil Fill Cap
F. Engine Cooling Fan
G. Engine Air Cleaner/Filter
H. Power Steering Fluid Reservoir
I. Brake Fluid Reservoir
J. Windshield Washer Fluid Reservoir

Cleaning Your Diesel Engine

NOTICE:

If you spray or pour water or any other liquid on your engine when it is warm or hot, or when it is running, you could cause serious damage to it. If you ever clean the engine, clean it only when it is cold.

Engine Oil (Diesel Engines)

Checking Engine Oil

It's a good idea to check your engine oil level every time you get fuel. In order to get an accurate reading, the oil must be warm and the vehicle must be on level ground.



3500HD



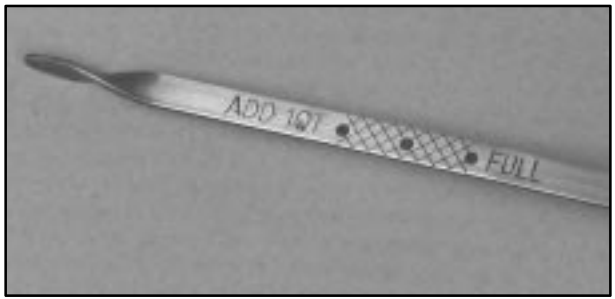
Full-Size Van

The engine oil dipstick has a yellow ring handle. The engine oil dipstick on the 3500HD is located on the driver's side of the engine compartment. The engine oil dipstick on the full-size van is located at the center of the engine compartment.

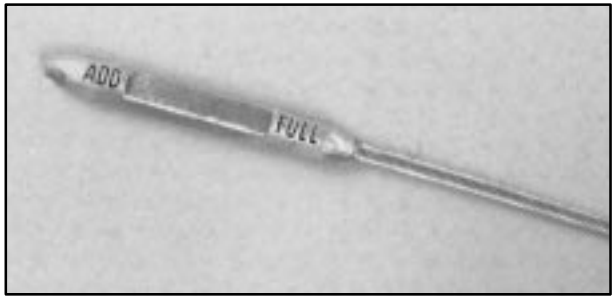
See "Engine Compartment Overview" in the Index for more information on location.

Turn off the engine and give the oil a few minutes to drain back into the oil pan. If you don't, the oil dipstick might not show the actual level.

Pull out the dipstick and clean it with a paper towel or a cloth, then push it back in all the way. Remove it again, keeping the tip down.



3500HD Models



Full-Size Van Models

When to Add Engine Oil

If the oil is at or below the ADD line, then you'll need to add at least one quart of oil. But you must use the right kind. This part explains what kind of oil to use. For crankcase capacity, see "Capacities and Specifications" in the Index.

NOTICE:

Don’t add too much oil. If your engine has so much oil that the oil level gets above the proper operating range, your engine could be damaged.

See “Engine Compartment Overview” in the Index for more information on location of the engine oil fill cap.

Be sure to fill it enough to put the level somewhere in the proper operating range. Push the dipstick all the way back in when you’re through.

What Kind of Engine Oil to Use

Look for these two things:

- CH-4 or CG-4

  Oils designated as API CH-4 or CG-4 are best for your vehicle. The CH-4 or CG-4 designations may appear either alone, together or in combination with other API designations, such as API CH-4/SJ, CG-4/SH or CH-4/CG-4/SJ.

  These letters show American Petroleum Institute (API) levels of quality.

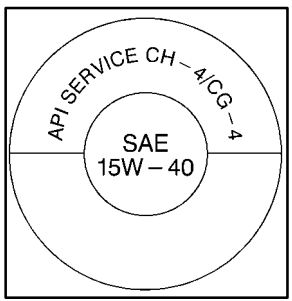
NOTICE:

If you use oils that don’t have one of these designations either CH-4 or CG-4, you can cause engine damage which is not covered by your warranty.

- SAE 15W-40

  As shown in the viscosity chart, SAE 15W-40 is best for your vehicle. However, you can use SAE 10W-30 if it's going to be colder than 32°F (0°C) before your next oil change. When it's very cold, below 0°F (-18°C), you should use SAE 10W-30 to improve cold starting. Also, SAE 30 may be used at temperatures above freezing, 32°F (0°C).

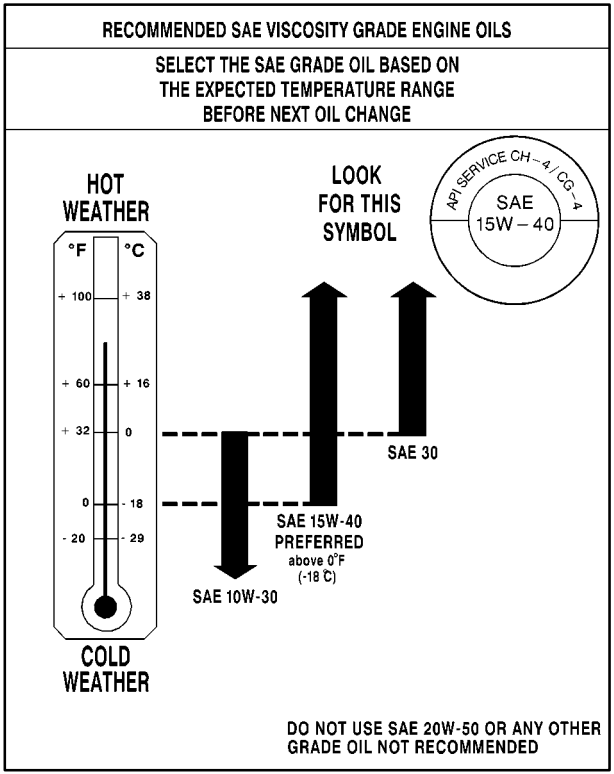
  These numbers on the oil container show its viscosity, or thickness. Do not use other viscosity oils such as SAE 10W-40 or SAE 20W-50.



This doughnut-shaped logo (symbol) is used on most oil containers to help you select the correct oil. It means that the oil has been certified by the American Petroleum Institute.

You should look for this on the oil container, and use *only* those oils that display the logo.

GM Goodwrench® oil of the recommended viscosity grades meets all the requirements for your vehicle.



Engine Oil Additives

Don't add anything to your oil. The recommended oils with the API service symbol are all you will need for good performance and engine protection.

When to Change Engine Oil

If any one of these is true for you, use the short trip/city maintenance schedule:

- Most trips are less than 5 to 10 miles (8 to 16 km). This is particularly important when outside temperatures are below freezing.
- Most trips include extensive idling (such as frequent driving in stop-and-go traffic).
- Most trips are through dusty areas.
- You frequently tow a trailer or use a carrier on top of your vehicle.

Driving under these conditions causes engine oil to break down sooner. If any of these is true for your vehicle, then you need to change your oil and filter every 3,000 miles (5 000 km) or 3 months -- whichever occurs first.

If none of them is true, use the long trip/highway maintenance schedule. Change the oil and filter every 7,500 miles (12 500 km) or 12 months -- whichever occurs first. Driving a vehicle with a fully warmed engine under highway conditions causes engine oil to break down slower.

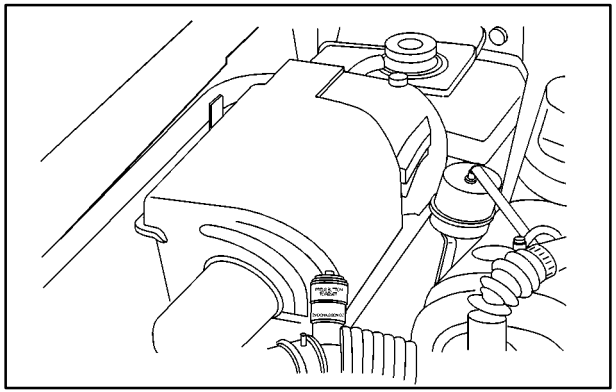
What to Do with Used Oil

Did you know that used engine oil contains certain elements that may be unhealthy for your skin and could even cause cancer? Don't let used oil stay on your skin for very long. Clean your skin and nails with soap and water, or a good hand cleaner. Wash or properly throw away clothing or rags containing used engine oil. See the manufacturer's warnings about the use and disposal of oil products.

Used oil can be a real threat to the environment. If you change your own oil, be sure to drain all free-flowing oil from the filter before disposal. Don't ever dispose of oil by putting it in the trash, pouring it on the ground, into sewers, or into streams or bodies of water. Instead, recycle it by taking it to a place that collects used oil. If you have a problem properly disposing of your used oil, ask your dealer, a service station or a local recycling center for help.

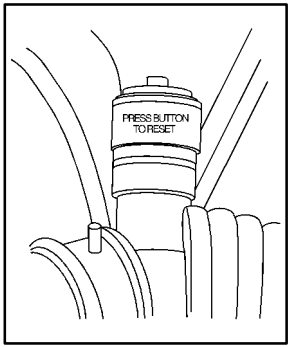
Engine Air Cleaner/Filter

To avoid the possibility of unfiltered air being drawn into the engine, make sure the engine air cleaner/filter cover is on completely and the filter box clips are properly installed.



3500HD Models

On 3500HD models, the engine air cleaner/filter is located on the passenger's side of the engine compartment, between the battery and the coolant surge tank.

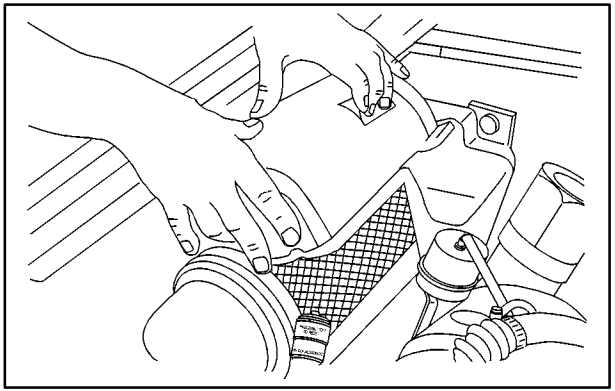


The air cleaner assembly has an indicator that lets you know when the air filter is dirty and needs to be serviced. The indicator is located between the air cleaner and the turbocharger.

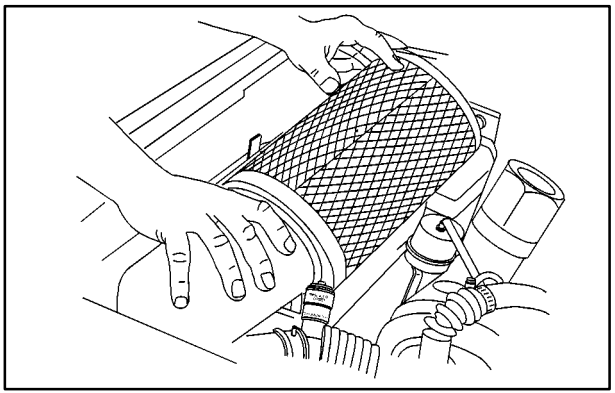
See "Engine Compartment Overview" in the Index for more information on location.

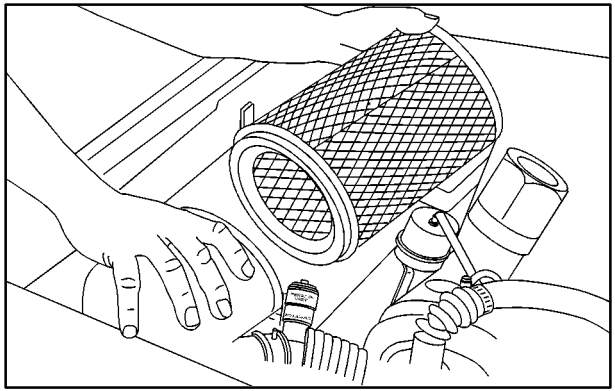
See "Owner Checks and Services" in the Index for when to check the indicator.

If the area inside the clear section of the indicator is green, no air filter service is required. When the area inside the indicator is orange and CHANGE AIR FILTER appears, the filter should be replaced.



1. To remove the engine air cleaner/filter, unhook the retaining clips and remove the cover. Lift the filter and the connected duct out of the air cleaner housing. Hold the duct and remove the filter by both pulling and twisting the filter away from the duct. Care should be taken to dislodge as little dirt as possible.
2. Clean the filter sealing surface of the duct, the interior of the filter housing and the cover.
3. Install the new filter by pushing it all the way to the stop on the duct.





4. Install the duct and the filter into the air cleaner housing. Make sure that the duct fits properly into the housing. Align the tab on the duct with the notch on the filter housing.
5. Install the cover and fasten the two retaining clips.
6. After the engine air cleaner/filter is properly serviced, the indicator should be reset. Push the button on the top of the indicator to reset it to the green (clean) filter zone.



On full-size van models, the engine air cleaner/filter is located under the hood at the center of the engine compartment.

See “Engine Compartment Overview” in the Index for more information on location.

Full Size Van Models

1. To access the engine air cleaner/ filter, remove the three air cleaner assembly bolts.
2. Then loosen the screw on the air intake hose clamp.
3. Remove the air cleaner assembly from the vehicle.
4. Slide the engine air cleaner/filter assembly outlet into the air intake hose.
5. Tighten the air intake hose clamp.
6. Install the three air cleaner assembly bolts.
7. Install the cover on the filter box and secure the cover retaining clips.

Refer to the Maintenance Schedule to determine when to replace the air filter. See “Scheduled Maintenance Services” in the Index.

Automatic Transmission Fluid

When to Check and Change

A good time to check your automatic transmission fluid level is when the engine oil is changed.

Change both the fluid and filter every 50,000 miles (83 000 km).

See “Scheduled Maintenance Services” in the Index.

How to Check

Because this operation can be a little difficult, you may choose to have this done at the dealership service department.

If you do it yourself, be sure to follow all the instructions here, or you could get a false reading on the dipstick.

NOTICE:

Too much or too little fluid can damage your transmission. Too much can mean that some of the fluid could come out and fall on hot engine parts or exhaust system parts, starting a fire. Be sure to get an accurate reading if you check your transmission fluid.

Wait at least 30 minutes before checking the transmission fluid level if you have been driving:

- When outside temperatures are above 90°F (32°C).
- At high speed for quite a while.
- In heavy traffic -- especially in hot weather.
- While pulling a trailer.

To get the right reading, the fluid should be at normal operating temperature, which is 180°F to 200°F (82°C to 93°C).

Get the vehicle warmed up by driving about 15 miles (24 km) when outside temperatures are above 50°F (10°C). If it’s colder than 50°F (10°C), drive the vehicle in THIRD (3) for 3500HD models and DRIVE (D) for full-size van models until the engine temperature gage moves and then remains steady for 10 minutes.

A cold fluid check can be made after the vehicle has been sitting for eight hours or more with the engine off, but this is used only as a reference. Let the engine run at idle for five minutes if outside temperatures are 50°F (10°C) or more. If it's colder than 50°F (10°C), you may have to idle the engine longer. Should the fluid level be low during this cold check, you *must* check the fluid hot before adding fluid. Checking the fluid hot will give you a more accurate reading of the fluid level.

Checking the Fluid Level

Prepare your vehicle as follows:

- Park your vehicle on a level place. Keep the engine running.
- With the parking brake applied, place the shift lever in PARK (P).
- With your foot on the brake pedal, move the shift lever through each gear range, pausing for about three seconds in each range. Then, position the shift lever in PARK (P).
- Let the engine run at idle for three minutes or more.

Then, without shutting off the engine, follow these steps:

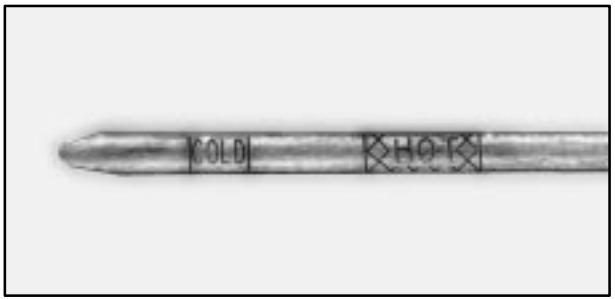


3500HD Models

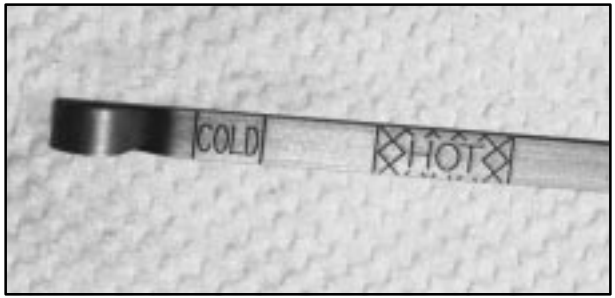


Full-Size Van Models

1. The transmission dipstick has a red handle. For 3500HD models, this dipstick is located at the rear of the engine compartment toward the passenger's side. For full-size van models, this dipstick is located near the center of the engine compartment. See "Engine Compartment Overview" in the Index for more information on location. Flip the handle up and then pull out the dipstick and wipe it with a clean rag or paper towel.
2. Push it back in all the way, wait three seconds and then pull it back out again.



3500HD Models



Full-Size Van Models

3. Check both sides of the dipstick, and read the lower level. The fluid level must be in the COLD area, below the cross-hatched area, for a cold check or in the HOT area or cross-hatched area for a hot check.
4. If the fluid level is in the acceptable range, push the dipstick back in all the way; then flip the handle down to lock the dipstick in place.

How to Add Fluid

Refer to the Maintenance Schedule to determine what kind of transmission fluid to use. See “Recommended Fluids and Lubricants” in the Index.

Add fluid only after checking the transmission fluid while it is hot. (A cold check is used only as a reference.) If the fluid level is low, add only enough of the proper fluid to bring the level up to the HOT area for a hot check. It doesn’t take much fluid, generally less than one pint (0.5 L). *Don’t overfill.*

NOTICE:

We recommend you use only fluid labeled DEXRON®-III, because fluid with that label is made especially for your automatic transmission. Damage caused by fluid other than DEXRON®-III is not covered by your new vehicle warranty.

- After adding fluid, recheck the fluid level as described under “How to Check.”
- When the correct fluid level is obtained, push the dipstick back in all the way; then flip the handle down to lock the dipstick in place.

Engine Coolant

The cooling system in your vehicle is filled with DEX-COOL® engine coolant. This coolant is designed to remain in your vehicle for 5 years or 150,000 miles (240 000 km), whichever occurs first, if you add only DEX-COOL® extended life coolant.

The following explains your cooling system and how to add coolant when it is low. If you have a problem with engine overheating, see “Engine Overheating” in the Index.

A 50/50 mixture of clean, drinkable water and DEX-COOL® coolant will:

- Give freezing protection down to -34°F (-37°C).
- Give boiling protection up to 265°F (129°C).
- Protect against rust and corrosion.
- Help keep the proper engine temperature.
- Let the warning lights and gages work as they should.

NOTICE:

When adding coolant, it is important that you use only DEX-COOL® (silicate-free) coolant.

If coolant other than DEX-COOL is added to the system, premature engine, heater core or radiator corrosion may result. In addition, the engine coolant will require change sooner -- at 30,000 miles (50 000 km) or 24 months, whichever occurs first. Damage caused by the use of coolant other than DEX-COOL® is not covered by your new vehicle warranty.

What to Use

Use a mixture of one-half *clean, drinkable water* and one-half DEX-COOL® coolant which won't damage aluminum parts. If you use this coolant mixture, you don't need to add anything else.

⚠ CAUTION:

Adding only plain water to your cooling system can be dangerous. Plain water, or some other liquid like alcohol, can boil before the proper coolant mixture will. Your vehicle's coolant warning system is set for the proper coolant mixture. With plain water or the wrong mixture, your engine could get too hot but you wouldn't get the overheat warning. Your engine could catch fire and you or others could be burned. Use a 50/50 mixture of clean, drinkable water and DEX-COOL® coolant.

NOTICE:

If you use an improper coolant mixture, your engine could overheat and be badly damaged. The repair cost wouldn't be covered by your warranty. Too much water in the mixture can freeze and crack the engine, radiator, heater core and other parts.

If you have to add coolant more than four times a year, have your dealer check your cooling system.

NOTICE:

If you use the proper coolant, you don't have to add extra inhibitors or additives which claim to improve the system. These can be harmful.

Checking Coolant



3500HD

On 3500HD models, the coolant surge tank is located on the passenger's side at the rear corner of the engine compartment.



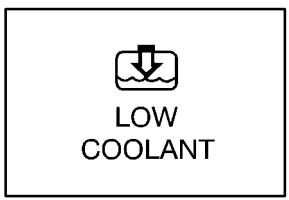
Full-Size Van

On full-size van models, the coolant surge tank is located near the center of the engine compartment. See "Engine Compartment Overview" in the Index for more information on location.

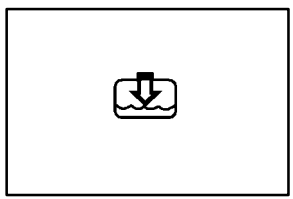
CAUTION:

Turning the surge tank pressure cap when the engine and radiator are hot can allow steam and scalding liquids to blow out and burn you badly. Never turn the surge tank pressure cap -- even a little -- when the engine and radiator are hot.

The vehicle must be on a level surface. When your engine is cold, the coolant level should be at the COLD mark for 3500HD models, or at the FULL COLD mark for full-size van models.



3500HD



Full-Size Van

If the light comes on and stays on, it means you're low on engine coolant.

Adding Coolant

If you need more coolant, add the proper DEX-COOL® coolant mixture *at the surge tank*, but only when the engine is cool. If the surge tank is empty, see "Engine Overheating" in the Index for the proper fill procedure.

CAUTION:

You can be burned if you spill coolant on hot engine parts. Coolant contains ethylene glycol, and it will burn if the engine parts are hot enough. Don't spill coolant on a hot engine.

When replacing the pressure cap, make sure it is hand-tight.

Surge Tank Pressure Cap



The surge tank pressure cap must be tightly installed with the arrows on the cap lined up with the top tube of the coolant surge tank.

See “Engine Compartment Overview” in the Index for more information on location.

NOTICE:

Your surge tank pressure cap is a unique 15 psi (105 kPa) pressure-type cap for use with surge tank cooling systems only. It must be tightly installed to prevent coolant loss and possible engine damage from overheating. Be sure the arrows on the cap line up with the top tube of the coolant surge tank.

Specification Charts

Engine Identification

Engine	6.5L
Type	V8
VIN Code	F
Fuel System	Turbo Diesel

Cooling System Capacity

Engine	6.5L
VIN	F[2]
Quarts (L)	23.5 quarts (22.2 L)
Quarts (L) -- with rear heater[1]	27.5 quarts (26.0 L)

[1] Full-Size Van Models only
[2] 3500HD and Full-Size Van Models

All quantities are approximate. After refill, the level *MUST* be checked as outlined under “Engine Cooling System” in Section 5.

Crankcase Capacity

Engine	VIN	Quantity with filter change -- Quarts (L)
6.5 L	All	8.0 quarts (7.5 L)

All quantities are approximate. After refill, the level *MUST* be checked as outlined under “Engine Oil And Filter Recommendations” in Section 6.

Oil filter should be changed at *EVERY* oil change.

Service Replacement Part and Filter Recommendations

Full-Size Van

Engine	6.5L
VIN	F
Oil Filter	PF1218*
Engine Air Cleaner/Filter**	A917C*
Fuel Filter	TP1263*
Surge Tank Cap	RC33*

** For operation in extremely dirty or dusty environments, use A1236C for full-size van models.

*ACDelco® part number

3500HD

Engine	6.5L
VIN	F
Oil Filter	PF1218*
Air Cleaner**	A1300C*
Fuel Filter	TP1256*
Surge Tank Cap	RC33*

** For operation in extremely dirty or dusty environments, use A1306C for 3500HD Models

*ACDelco® part number