

Part 7

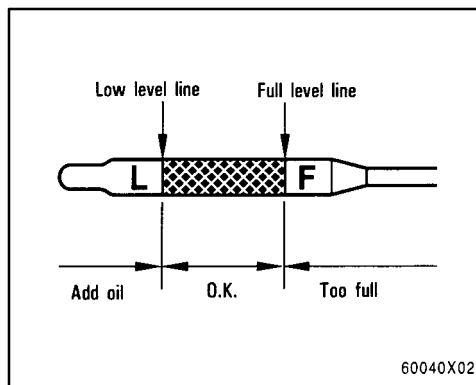
DO-IT-YOURSELF MAINTENANCE—

Chapter 7-2

Engine and Chassis

- Checking the engine oil level
- Checking the engine coolant level
- Checking brake fluid
- Checking power steering fluid
- Checking tire pressure
- Checking and replacing tires
- Rotating tires
- Installing snow tires and chains
- Replacing wheels
- Aluminum wheel precautions

Checking the engine oil level



With the engine at operating temperature and turned off, check the oil level on the dipstick.

1. To get a true reading, the vehicle should be on a level spot. After turning off the engine, wait a few minutes for the oil to drain back into the bottom of the engine.
2. Pull out the dipstick, and wipe it clean with a rag.
3. Reinsert the dipstick—push it in as far as it will go, or the reading will not be correct.
4. Pull the dipstick out and look at the oil level on the end.



Be careful not to touch the hot exhaust manifold.

If the oil level is below or only slightly above the low level line, add engine oil of the same type as already in the engine.

Remove the oil filter cap and add engine oil in small quantities at a time, checking the dipstick.

The approximate quantity of oil needed to fill between the low level line and the full level line on the dipstick is indicated below for reference.

When the level reaches within the correct range, install the filler cap hand-tight.

Oil quantity, L (qt., Imp. qt.):
1.0 (1.1, 0.9)

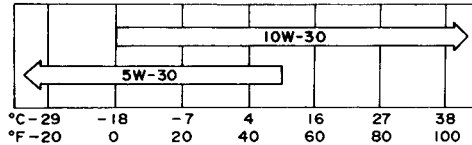
NOTICE

- ◆ **Avoid overfilling, or the engine could be damaged.**
- ◆ **Check the oil level on the dipstick once again after adding the oil.**

ENGINE OIL SELECTION

Use API SH, “Energy-Conserving II” multigrade engine oil or ILSAC multigrade engine oil.

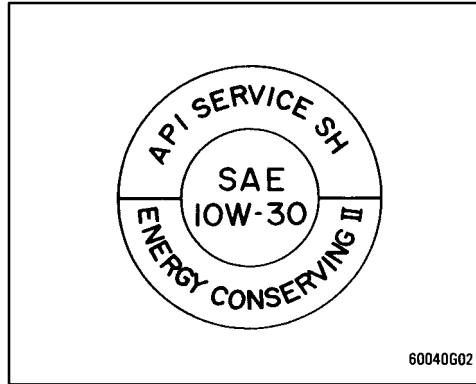
Recommended viscosity (SAE):



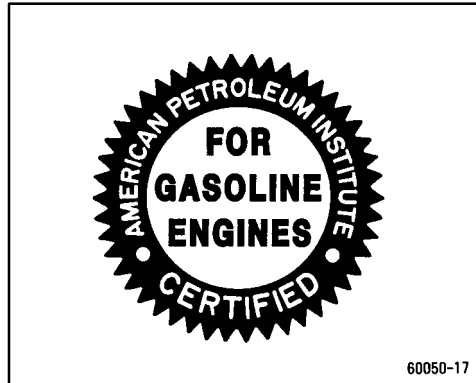
Temperature range anticipated before next oil change

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If you use SAE 10W-30 engine oil in extremely low temperatures, the engine may become difficult to start, so SAE 5W-30 engine oil is recommended.



API service symbol



ILSAC certification mark

Oil identification marks

Either or both API registered marks are added to some oil containers to help you select the oil you should use.

The API Service Symbol is located anywhere on the outside of the container.

The top portion of the label shows the oil quality by API (American Petroleum Institute) designations such as SH. The center portion of the label shows the SAE viscosity grade such as SAE 10W-30. “Energy-Conserving II” shown in the lower portion, indicates that the oil has fuel-saving capabilities. Oils marked “Energy-Conserving II” will have higher fuel-saving capabilities than oil marked “Energy-Conserving”.

The ILSAC (International Lubricant Standardization and Approval Committee) Certification Mark is displayed on the front of the container.

Checking the engine coolant level

Look at the see-through coolant reservoir when the engine is cold. The coolant level is satisfactory if it is between the “FULL” and “LOW” lines on the reservoir. If the level is low, add ethylene-glycol type coolant.

The coolant level in the reservoir will vary with engine temperature. However, if the level is on or below the “LOW” line, add coolant. Bring the level up to the “FULL” line.

Use only ethylene-glycol type coolant. See information in the next column.

If the coolant level drops within a short time after replenishing, there may be a leak in the system. Visually check the radiator, hoses, radiator cap and drain cock and water pump.

If you can find no leak, have your Toyota dealer test the cap pressure and check for leaks in the cooling system.



CAUTION

To prevent burning yourself, do not remove the radiator cap when the engine is hot.

Coolant type selection

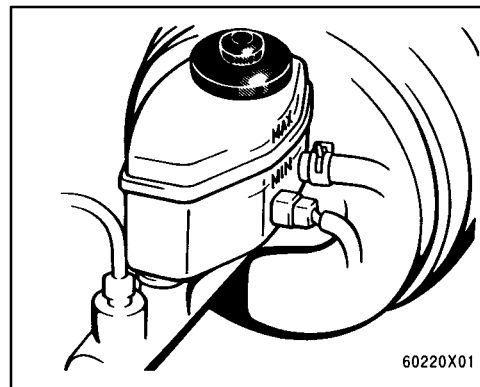
Your coolant must contain ethylene-glycol antifreeze. In addition to preventing freezing and subsequent damage to the engine, this will also prevent corrosion. Further supplemental inhibitors or additives are neither needed nor recommended.

Read the antifreeze container for information on freeze protection. Follow the manufacturer's directions for how much to mix with water. The total capacity of the cooling system is given in Part 8. We recommend 50% solution be used for your Toyota, or a sufficient quantity to provide protection to about -35°C (-31°F).

NOTICE

Do not use alcohol type antifreeze or plain water alone.

Checking brake fluid



60220X01

To check the fluid level, simply look at the see-through reservoir. The level should be between the “MAX” and “MIN” lines on the reservoir.

It is normal for the brake fluid level to go down slightly as the brake pads wear. So be sure to keep the reservoir filled.

If the reservoir needs frequent refilling, it may indicate a serious mechanical problem.

If the level is low, add SAE J1703 or FMVSS No. 116 DOT 3 brake fluid to the brake reservoir.

Remove and replace the reservoir cover by hand. Fill the brake fluid to the dotted line. This brings the fluid to the correct level when you put the cover back on.

Use only newly opened brake fluid. Once opened, brake fluid absorbs moisture from the air, and excess moisture can cause a dangerous loss of braking.



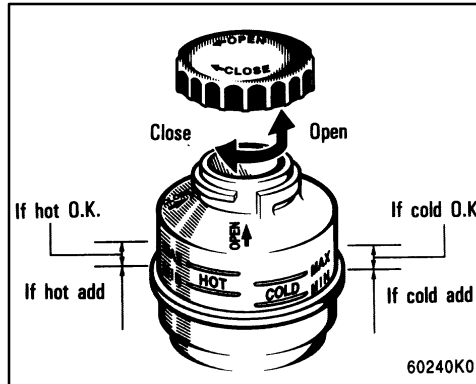
CAUTION

Take care when filling the reservoir because brake fluid can harm your eyes and damage painted surfaces. If fluid gets in your eyes, flush your eyes with clean water.

NOTICE

If you spill the fluid, be sure to wash it off with water to prevent it from damaging the parts or paint.

Checking power steering fluid



Check the fluid level through the reservoir. If necessary, add automatic transmission fluid DEXRON® II or III.

If the vehicle has been driven around 80 km/h (50 mph) for 20 minutes (a little more in frigid temperatures), the fluid is hot (60°C—80°C or 140°F—175°F). You may also check the level when the fluid is cold (about room temperature, 10°C—30°C or 50°F—85°F) if the engine has not been run for about five hours.

Clean all dirt from outside of the reservoir tank and look at the fluid level. If the fluid is cold, the level should be in the “COLD” range. Similarly, if it is hot, the fluid level should be in the “HOT” range. If the level is at the low side of either range, add automatic transmission fluid DEXRON® II or III to bring the level within the range.

To remove the filler cap, turn it counter-clockwise and lift up. To reinstall it, turn it clockwise. After replacing the filler cap, visually check the steering box case, vane pump and hose connections for leaks or damage.



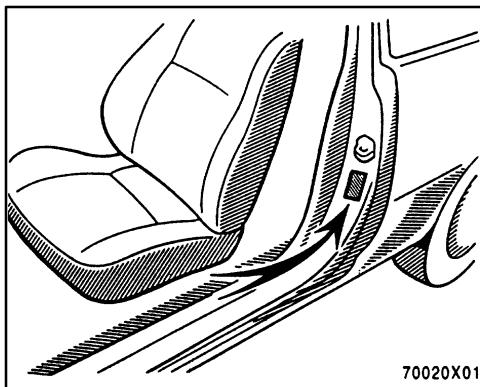
CAUTION

The reservoir tank may be hot so be careful not to burn yourself.

NOTICE

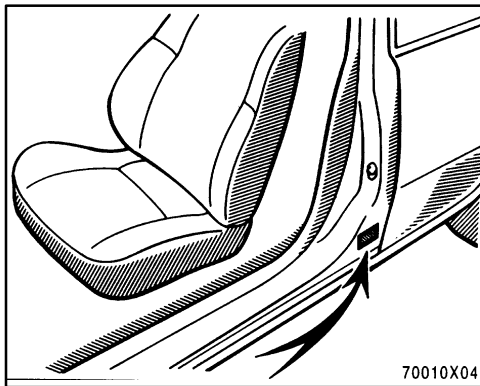
Avoid overfilling, or the power steering could be damaged.

Checking tire pressure



70020X01

2-door models



70010X04

4-door models

Keep your tire pressures at the proper level.

The recommended cold tire pressures, tire size and the vehicle capacity weight are also given in Part 8. They are also on the tire pressure label as shown.

You should check the tire pressures every two weeks, or at least once a month. And do not forget the spare!

Incorrect tire pressure can reduce tire life and make your vehicle less safe to drive.

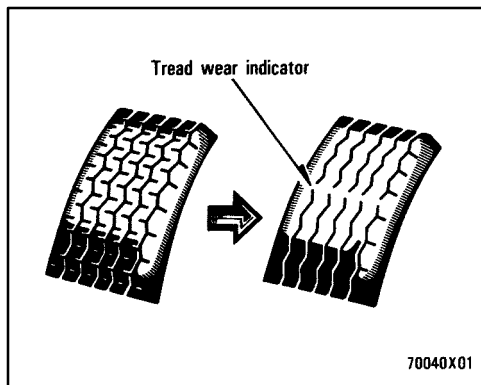
Low tire pressure results in excessive wear, poor handling, reduced fuel economy, and the possibility of blowouts from overheated tires. Also, low tire pressure can cause poor sealing of the tire bead. If the tire pressure is excessively low, there is the possibility of wheel deformation and/or tire separation.

High tire pressure produces a harsh ride, handling problems, excessive wear at the center of the tire tread, and a greater possibility of tire damage from road hazards. If a tire frequently needs refilling, have it checked by your Toyota dealer.

The following instructions for checking tire pressure should be observed:

- **The pressure should be checked only when the tires are cold.** If your vehicle has been parked for at least 3 hours and has not been driven for more than 1.5 km or 1 mile since, you will get an accurate cold tire pressure reading.
- **Always use a tire pressure gauge.** The appearance of a tire can be misleading. Besides, tire pressures that are even just a few pounds off can degrade handling and ride.
- **Take special care when adding air to the compact spare tire.** The smaller tire size can gain pressure very quickly. Add compressed air in small quantities and check the pressure often until it reaches the specified pressure.
- **Do not bleed or reduce tire pressure after driving.** It is normal for the tire pressure to be higher after driving.
- **Never exceed the vehicle capacity weight.** The passenger and luggage weight should be located so that the vehicle is balanced.
- **Be sure to reinstall the tire inflation valve caps.** Without the valve caps, dirt or moisture could get into the valve core and cause air leakage. If the caps have been lost, have new ones put on as soon as possible.

Checking and replacing tires



CHECKING YOUR TIRES

Check the tire tread for the tread wear indicators. If the indicators show, replace the tires.

The tires on your Toyota have built-in tread wear indicators to help you know when the tires need replacement. When the tread depth wears to 1.6 mm (0.06 in.) or less, the indicators will appear. If you can see the indicators in two or more adjacent grooves, the tire should be replaced. The lower the tread, the higher the risk of skidding.

The effectiveness of snow tires is lost if the tread wears down below 4 mm (0.16 in.).

Check the tires regularly for damage such as cuts, splits and cracks. If any damage is found, consult with a technician and have the tire repaired or replaced.

Even if the damage does not appear serious, a qualified technician should examine the damage. Objects which have penetrated the tire may have caused internal damage.

Any tires which are over six years old must be checked by a qualified technician even if damage is not obvious.

Tires deteriorate with age even if they have never or seldom been used.

This also applies to the spare tire and tires stored for future use.

REPLACING YOUR TIRES

When replacing a tire, use only the same size and construction as originally installed and with the same or greater load capacity.

Using any other size or type of tire may seriously affect handling, ride, speedometer/odometer calibration, ground clearance, and clearance between the body and tires or snow chains.



CAUTION

- **Do not mix radial, bias belted, or bias-ply tires on your vehicle. It can cause dangerous handling characteristics, resulting in loss of control.**

- **Do not use tire or wheels other than the manufacturer's recommended size.**

NOTICE

Do not use tires of different brands, sizes and constructions. This may damage the drive system.

Never use second-hand tires on your Toyota.

Using tires whose previous history is unknown is a risk.

Toyota recommends all four tires, or at least both of the front or rear tires be replaced at a time as a set.

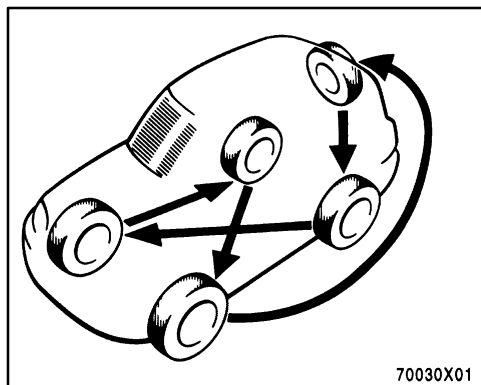
See "If you have a flat tire" in Part 4 for tire change procedure.

When a tire is replaced, the wheel should always be balanced.

An unbalanced wheel may affect vehicle handling and tire life. Wheels can get out of balance with regular use and should therefore be balanced occasionally.

When replacing a tubeless tire, the air valve should also be replaced with a new one.

Rotating tires



To equalize tire wear and help extend tire life, Toyota recommends that you rotate your tires every 5000 km (3000 miles) for 4WD models or approximately every 12000 km (7500 miles) for others. However, the most appropriate timing for tire rotation may vary according to your driving habits and road surface conditions.

See “If you have a flat tire” in Part 4 for tire change procedure.

When rotating tires, check for uneven wear and damage. Abnormal wear is usually caused by incorrect tire pressure, improper wheel alignment, out-of-balance wheels, or severe braking.

Installing snow tires and chains

WHEN TO USE SNOW TIRES OR CHAINS

Snow tires or chains are recommended when driving on snow or ice.

On wet or dry roads, conventional tires provide better traction than snow tires.

SNOW TIRE SELECTION

If you need snow tires, select tires of the same size, construction and load capacity as the original tires on your Toyota. Make sure all the snow tires are the same brand.

Do not install studded tires without first checking local regulations for possible restrictions.

NOTICE

Do not use tires of different brands, sizes and constructions. This may damage the drive system.

SNOW TIRE INSTALLATION

Snow tires should be installed on all wheels.

Installing snow tires on the front wheels only can lead to an excessive difference in road grip capability between the front and rear tires which could cause loss of vehicle control.

When storing removed tires, you should store them in a cool dry place.

Mark the direction of rotation and be sure to install them in the same direction when replacing.



- Do not drive with the snow tires incorrectly inflated.
- Never drive over 120 km/h (75 mph) with any type of snow tires.

TIRE CHAIN SELECTION

Use tire chains of the correct size.

Two-wheel drive models:

Use only genuine Toyota tire chains or equivalent for use on the RAV4.

NOTICE

If the wrong combination of tire and chain is used, the chains could damage the vehicle body.

- * RAV4 genuine tire chains
(Part No. 08329-42801)

Laws about using tire chains vary according to locality and type of road, so always check your local laws before you install tire chains.

CHAIN INSTALLATION

Four-wheel drive models:

Install the chains on the rear tires as tightly as possible. Do not use tire chains on the front tires. Retighten chains after driving 0.5—1.0 km (1/4—1/2 mile).

Two-wheel drive models:

Install the chains on the front tires as tightly as possible. Do not use tire chains on the rear tires. Retighten chains after driving 0.5—1.0 km (1/4—1/2 mile).

When installing chains on your tires, carefully follow the instructions of the chain manufacturer.

If wheel covers are used, they will be scratched by the chain band, so remove the covers before putting on the chains.



CAUTION

- **Do not exceed 50 km/h (30 mph) or the chain manufacturer's recommended speed limit, whichever is lower.**
- **Drive carefully avoiding bumps, holes, and sharp turns, which may cause the vehicle to bounce.**
- **Avoid sharp turns or locked-wheel braking, as use of chains may adversely affect vehicle handling.**

Replacing wheels

WHEN TO REPLACE YOUR WHEELS

If you have wheel damage such as bending, cracks or heavy corrosion, the wheel should be replaced.

If you fail to replace damaged wheels, the tire may slip off the wheel or they may cause loss of handling control.

WHEEL SELECTION

When replacing wheels, care should be taken to ensure that the wheels are replaced by ones with the same load capacity, diameter, rim width, and offset.

Correct replacement wheels are available at your Toyota dealer.

A wheel of a different size or type may adversely affect handling, wheel and bearing life, brake cooling, speedometer/odometer calibration, stopping ability, headlight aim, bumper height, vehicle ground clearance, and tire or snow chain clearance to the body and chassis.

Replacement with used wheels is not recommended as they may have been subjected to rough treatment or high mileage and could fail without warning. Also, bent wheels which have been straightened may have structural damage and therefore should not be used. Never use an inner tube in a leaking wheel which is designed for a tubeless tire.

NOTICE

Do not use wheels of different brands, sizes and types. This may damage the drive system.

Aluminum wheel precautions

- After driving your vehicle the first 1600 km (1000 miles), check that the wheel nuts are tight.
- If you have rotated, repaired, or changed your tires, check that the wheel nuts are still tight after driving 1600 km (1000 miles).
- When using tire chains, be careful not to damage the aluminum wheels.
- Use only the Toyota wheel nuts and wrench designed for your aluminum wheels.
- When balancing your wheels, use only Toyota balance weights or equivalent and a plastic or rubber hammer.
- As with any wheel, periodically check your aluminum wheels for damage. If damaged, replace immediately.

