SECTION 8 – 2

DO–IT–YOURSELF MAINTENANCE

Chassis

Checking the coolant level of the traction motor

Carefully remove the radiator cap and check the inside of the radiator. If you cannot see the coolant, add ethylene–glycol type coolant for a proper corrosion protection of aluminum components.

The coolant level in the reservoir will vary with the traction motor temperature. Check and add the coolant when the traction motor is cold.

Always use ethylene–glycol type coolant for a proper corrosion protection of aluminum components. 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 EV service station 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 traction motor is hot.

Coolant type selection

Use of improper coolants may damage your traction motor cooling system. Your coolant must contain ethylene–glycol type coolant for a proper corrosion protection of your traction motor that contains aluminum components. Use "TOYOTA Long Life Coolant" or equivalent.

In addition to preventing freezing and subsequent damage to the traction motor, this type of coolant will also prevent corrosion. Further supplemental inhibitors or additives are neither needed nor recommended.

Read the coolant container for information on freeze protection. Follow the manufacturer's directions for how much to mix with plain water (preferably demineralized water or distilled water). The total capacity of the cooling system is given in Section 9.

We recommend to use 50% solution for your Toyota, to provide protection down to about –35°C (–31°F). When it is extremely cold, to provide protection down to about –50°C (–58°F), 60% solution is recommended. Do not use more than 70% solution for better coolant performance.

NOTICE

Do not use alcohol type antifreeze or plain water alone.

Checking the radiator

If the radiator is extremely dirty or you are not sure of its condition, take your vehicle to EV service station.

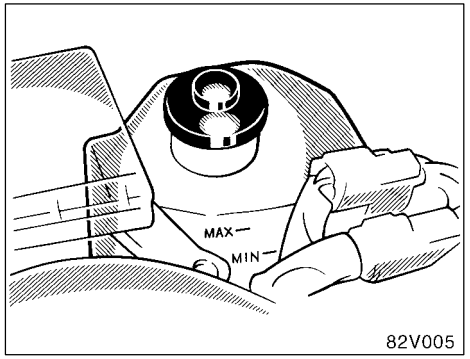
⚠ CAUTION

To prevent yourself from burning, be careful not to touch the radiator when the engine is hot.

NOTICE

To prevent damage to the radiator, do not perform the work by yourself.

Checking brake fluid



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 or when the fluid level in the accumulator is high.

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.

Refilling brake fluid:

1. Turn the motor switch off.
2. Depress the brake pedal more than 40 times.
3. Remove the reservoir cap by hand. Add brake fluid up to the "MAX" line.

If you do not follow the procedure above, the reservoir may overflow.

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.

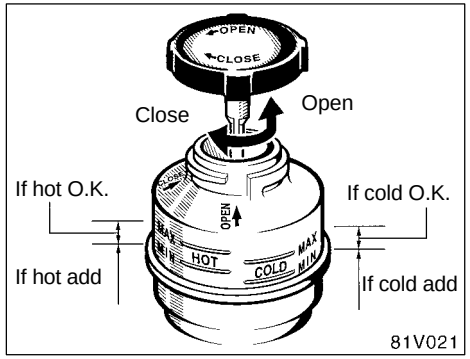
⚠ CAUTION

Take care when filling the reservoir because brake fluid can harm your hands or eyes and damage painted surfaces. If fluid gets in your eyes, flush your eyes with clean water immediately. If you still feel uncomfortable with your eyes, go to the doctor.

NOTICE

If you spill some of the fluid, be sure to wipe it off to prevent it from damaging the parts or paintwork.

Checking power steering fluid



Check the fluid level on the dipstick. If necessary, add Toyota P.S fluid EH or equivalent.

Use only Toyota P.S fluid EH or equivalent. Otherwise, you may not get expected power assist.

You may check the level when the fluid is cold (below 20°C or 68°F). If the vehicle has not been driven for over 5 hours, the fluid is cold.

The fluid will be hot (40°C – 80°C or 104°F – 178°F) if you turn the steering wheel from "LOCK" to "LOCK" 10 or more times with the vehicle stopped.

1. Clean all dirt off the outside of the reservoir.
2. Remove the reservoir cap by turning it counterclockwise and wipe the dipstick clean.
3. Reinstall the reservoir cap.
4. Remove the reservoir cap again and look at the fluid level. If the fluid is cold, the level should be in the "COLD" range on the dipstick. 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 Toyota P.S fluid EH or equivalent to bring the level within the range.
5. After replacing the reservoir cap, visually check the steering box case, vane pump and hose connections for leaks or damage.

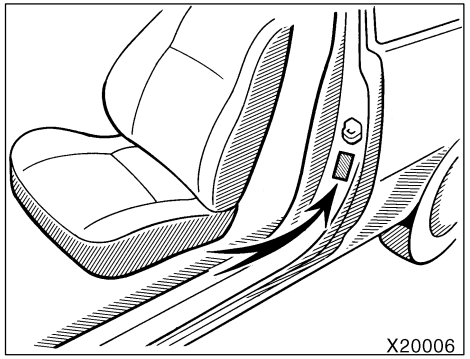
⚠ CAUTION

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



Keep your tire pressures at the proper level.

When you inspect or adjust tire pressure, please note that tire pressures on your electric vehicle are higher than those of ordinary vehicle.

The recommended cold tire pressures, tire sizes and the vehicle capacity weight are given on page 207 in Section 9. The recommended cold tire pressures and tire sizes 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 power saving, 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.

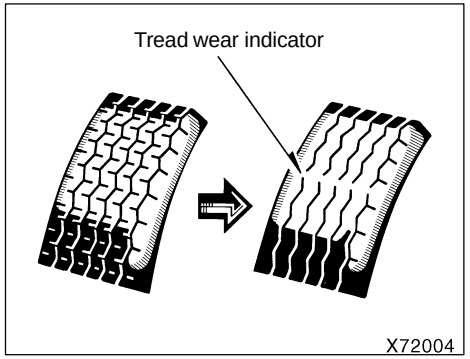
High tire pressure produces a harsh ride, handling problems, excessive wear at the center of the tire tread, and a greater possibility of tire damage from road hazards.

If a tire frequently needs refilling, have it checked by your EV service station.

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 ride and handling.
- **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.

For replacing a snow tire, see “Installing snow tires and chains” on page 189.

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 tires 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.

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

See ”If you have a flat tire” on page 149 in Section 5 for tire change procedure.

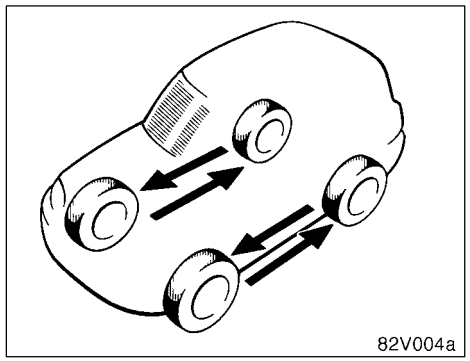
When a tire is replaced, the wheel should always be balanced.

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.

Initial adjustment of the tire pressure warning system is necessary after you have rotated your tires. See “Tire pressure warning system” on page 21 in Section 1–2.

Rotating tires



To equalize tire wear and help extend tire life, Toyota recommends that you rotate your tires according to the maintenance schedule. (For scheduled maintenance information, please refer to the "Owner's Manual Supplement"). 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" on page 149 in Section 5 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.

⚠ CAUTION

Do not include a compact spare tire when rotating the tires. It is designed for temporary use only.

Initial adjustment of the tire pressure warning system is necessary after you have rotated your tires. See "Tire pressure warning system" on page 21 in Section 1–2.

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 size and pressure described below.

Tire size	kPa (kgf/cm^2 or bar, psi)
215/70R16	180 (1.8, 26)

Make sure all the snow tires are the same brand, construction and load capacity.

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

NOTICE

Do not use tires of different brands 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.

⚠ CAUTION

- **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.

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

NOTICE

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

* RAV4 EV genuine tire chains
(Part No. 08321–11120)

Regulations regarding the use of tire chains vary according to location and type of road, so always check them before installing chains.

CHAIN INSTALLATION

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.**
- **When driving with chains installed, be sure to drive carefully. Slow down before entering the curves to avoid losing control of the vehicle. Otherwise an accident may occur.**

NOTICE

Do not attempt to use a tire chain on the compact spare tire, as it may result in damaging to the vehicle as well as the tire.

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 cause loss of handling control.

WHEEL SELECTION

When replacing wheels, use only new genuine Toyota aluminum wheels on the RAV4 EV.

Correct replacement wheels are available at your EV service station.

Any wheels other than the genuine Toyota aluminum wheels on the RAV4 EV 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.

⚠ CAUTION

To prevent damage to the front brakes:

- **Use new genuine TOYOTA aluminum wheels.**
- **Be sure to torque wheel nuts 103 N·m (10.5 kgf·m, 76 ft·lbf).**

See your EV service station when replacing any wheel.

Initial adjustment of the tire pressure warning system is necessary after you have rotated your tires. See “Tire pressure warning system” on page 21 in Section 1–2.

Aluminum wheel precautions

- When installing aluminum wheels, check that the wheel nuts are tight after driving your vehicle the first 1600 km (1000 miles)
- 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.