

# Starting and operating

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## Fuel

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### **CAUTION**

**Use of a fuel which is low in quality or use of an inappropriate fuel additive may cause engine damage.**

## ■ Fuel requirements

### ▼ 2.5 Liter models

The 2.5 Liter engine is designed to operate using unleaded gasoline with an octane rating of 87 AKI or higher.

### ▼ 3.0 Liter models

The 3.0 Liter engine is designed to operate using premium unleaded gasoline with an octane rating of 91 AKI or higher. Regular unleaded gasoline with an octane rating of 87 AKI may be used if necessary. For optimum engine performance and driveability, it is recommended that you use premium grade unleaded gasoline.

### ▼ Fuel octane rating

This octane rating is the average of the Research Octane and Motor Octane numbers and is commonly referred to as the Anti Knock Index (AKI).

Using a gasoline with a lower octane rating can cause persistent and heavy knocking, which can damage the engine. Do not be concerned if your vehicle sometimes knocks lightly when you drive up a hill or when you accelerate. See your dealer or a qualified service technician if you use a fuel with the specified octane rating and your vehicle knocks heavily or persistently.

### ▼ Unleaded gasoline

The neck of the fuel filler pipe is designed to accept only an unleaded gasoline filler nozzle. Under no circumstances should leaded gasoline be used because it will damage the emission control system and may impair driveability and fuel economy.

▼ **Gasoline for California-certified LEV**

Your vehicle was certified to California's low emission vehicle (LEV) standards as indicated on the underhood tune-up label. It is designed to optimize engine and emission performance with gasoline that meets the clean burning low-sulfur California gasoline specifications. If you live in any other state than California, your vehicle will operate on gasoline meeting Federal specifications. Gasoline sold outside California is permitted to have higher sulfur levels, which may affect the performance of your vehicle's catalytic converter and may produce a sulfur exhaust odor or smell. SUBARU recommends that you try a different brand of unleaded gasoline having lower sulfur to determine if the problem is fuel related before returning your vehicle to an authorized dealer for service.

▼ **Gasoline for cleaner air**



**CAUTION**

**Do not let fuel spill on the exterior surfaces of the vehicle. Fuels containing alcohol may cause paint damage, which is not covered under the SUBARU Limited Warranty.**

Your use of gasoline with detergent additives will help prevent deposits from forming in your engine and fuel system. This helps keep your engine in tune and your emission control system working properly, and is a way of doing your part for cleaner air. If you continuously use a high quality fuel with the proper detergent and other additives, you should never need to add any fuel system cleaning agents to your fuel tank.

Many gasolines are now blended with materials called oxygenates. Use of these fuels can also help keep the air cleaner. Oxygenated blend fuels, such as MTBE (Methyl Tertiary Butyl ether) or ethanol (ethyl or grain alcohol) may be used in your vehicle, but should contain no more than 15% MTBE or 10% ethanol for the proper operation of your SUBARU.

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In addition, some gasoline suppliers are now producing reformulated gasolines, which are designed to reduce vehicle emissions. SUBARU approves the use of reformulated gasoline.

If you are not sure what the fuel contains, you should ask your service station operators if their gasolines contain detergents and oxygenates and if they have been reformulated to reduce vehicle emissions.

As additional guidance, only use fuels suited for your vehicle as explained below.

- Fuel should be unleaded and have an octane rating no lower than that specified in this manual.
- Methanol (methyl or wood alcohol) is sometimes mixed with unleaded gasoline. Methanol can be used in your vehicle **ONLY** if it does not exceed 5% of the fuel mixture **AND** if it is accompanied by sufficient quantities of the proper cosolvents and corrosion inhibitors required to prevent damage to the fuel system. Do not use fuel containing methanol **EXCEPT** under these conditions.
- If undesirable driveability problems are experienced and you suspect they may be fuel related, try a different brand of gasoline before seeking service at your SUBARU dealer.
- Fuel system damage or driveability problems which result from the use of improper fuel are not covered under the SUBARU Limited Warranty.

## ■ Fuel filler lid and cap

### ▼ Refueling



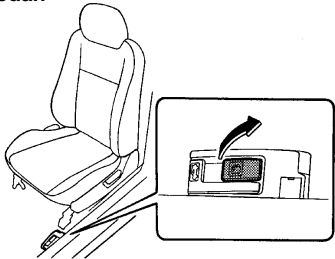
#### **WARNING**

- Gasoline vapor is highly flammable. Before refueling, always first stop the engine and make sure that there are no lighted cigarettes, open flames or electrical sparks in the adjacent area.
- When opening the cap, do not remove the cap quickly. Fuel may be under pressure and spray out of the fuel filler neck especially in hot weather, which may cause injury.

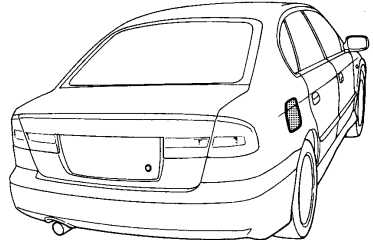
**⚠ CAUTION**

- Never add any cleaning agents to the fuel tank. The addition of a cleaning agent may cause damage to the fuel system.
- Make sure that the cap is tightened until it clicks to prevent fuel spillage in the event of an accident.
- Do not let fuel spill on the exterior surfaces of the vehicle. Fuels may cause paint damage, which is not covered under the SUBARU Limited Warranty.
- Always use a genuine SUBARU fuel filler cap. If you use the wrong cap, it may not fit or have proper venting, and your fuel tank and emission control system might be damaged.

Sedan

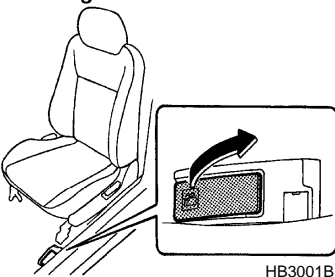


HB3000BB

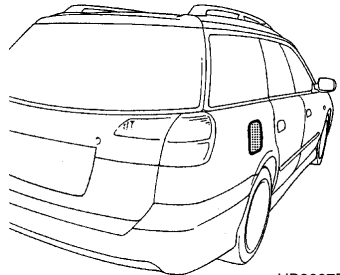


HBF013DA

Station wagon



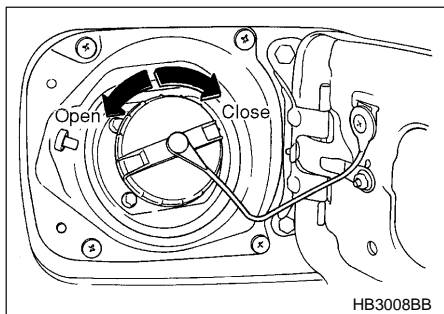
HB3001BD



HB3007BA

1. To open the fuel filler lid, pull the lid release lever up.

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2. Remove the fuel filler cap by turning it slowly counterclockwise.
3. Stop filling the tank after the fuel filler pump automatically clicks off. Do not add any more fuel.
4. Put the cap back on, turn it clockwise until you hear a clicking noise. Be certain not to catch the tether under the cap while tightening.
5. Close the fuel filler lid completely.

If you spill any fuel on the painted surface, rinse it off immediately. Otherwise, the painted surface could be damaged.

## NOTE

If the fuel filler cap is not tightened until it clicks or if the tether is caught under the cap, the **CHECK ENGINE** warning light may come on. Refer to the “Warning and indicator lights” section located in chapter 3.

## State emission testing (U.S. only)

### **WARNING**

Testing of an All-Wheel Drive vehicle must **NEVER** be performed on a single two-wheel dynamometer. Attempting to do so will result in uncontrolled vehicle movement and may cause an accident or injuries to persons nearby.



## CAUTION

**Resultant vehicle damage due to improper testing is not covered under the SUBARU Limited Warranty and is the responsibility of the state inspection program or its contractors or licensees.**

**At state inspection time, remember to tell your inspection or service station in advance not to place your Subaru AWD vehicle on a two-wheel dynamometer. Otherwise, serious transmission damage will result.**

Some states have started using dynamometers in their state inspection programs in order to meet their obligation under federal law to implement stricter vehicle emission standards to reduce air pollution from cars. A dynamometer is a treadmill or roller-like testing device that allows your car's wheels to turn while the car remains in one place. Depending on the severity of a state's air pollution problems, the states must adopt either a "basic" or "enhanced" vehicle emission inspection test. Normally, a portion of the basic emission test consists of an emission inspector inserting an analyzer probe into the exhaust pipe of an idling vehicle for a short period of time. States with more severe air pollution problems are required to adopt an enhanced vehicle emission test. This test simulates actual driving conditions on a dynamometer and permits more accurate measurement of tailpipe emitted pollution than the basic emission test.

The U.S. Environmental Protection Agency (EPA) and states using two-wheel dynamometers in their emission testing programs have **EXEMPTED** Subaru AWD vehicles from the portion of the testing program that involves a two-wheel dynamometer.

There are some states that use four-wheel dynamometers in their testing programs. When properly used, that equipment will not damage an AWD Subaru vehicle.

Under no circumstances should the rear wheels be jacked off the ground, nor should the driveshaft be disconnected for state emission testing.

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## Preparing to drive

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You should perform the following checks and adjustments every day before you start driving.

1. Check that all windows, mirrors, and lights are clean and unobstructed.
2. Check the appearance and condition of the tires. Also check tires for proper inflation.
3. Look under the vehicle for any sign of leaks.
4. Check that the hood, trunk and rear gate are fully closed.
5. Check the adjustment of the seat.
6. Check the adjustment of the inside and outside mirrors.
7. Fasten your seatbelt. Check that your passengers have fastened their seatbelts.
8. Check the operation of the warning and indicator lights when the ignition switch is turned to the "ON" position.
9. Check the gauges, indicator and warning lights after starting the engine.

### NOTE

**Engine oil, engine coolant, brake fluid, washer fluid and other fluid levels should be checked daily, weekly or at fuel stops.**

## Starting the engine

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### CAUTION

**Do not operate the starter motor continuously for more than ten seconds. If the engine fails to start after operating the starter for five to ten seconds, wait for ten seconds or more before trying again.**

### ■ Starting the engine for a manual transmission vehicle

1. Apply the parking brake.
2. Turn off unnecessary lights and accessories.



3. Press the clutch pedal to the floor and shift the shift lever into neutral. Hold the clutch pedal to the floor while starting the engine. The starter motor will only operate when the clutch pedal is pressed fully to the floor.
4. Turn the ignition switch to the "ON" position and check the operation of the warning and indicator lights. Refer to the "Warning and indicator light" section (chapter 3).
5. Turn the ignition switch to the "START" position **without** depressing the accelerator pedal. Release the key immediately after the engine has started.

If the engine does not start within ten seconds, wait a while and then turn the ignition switch to the "START" position again while depressing the accelerator pedal half way down.

6. Confirm that all warning and indicator lights have gone off after the engine has started. The fuel injection system automatically lowers the idle speed as the engine warms up.

## ■ Starting the engine for an automatic transmission vehicle



### **CAUTION**

**If you restart the engine while the vehicle is moving, shift the selector lever into the "N" position. Do not attempt to place the selector lever of a moving vehicle into the "P" position.**

1. Apply the parking brake.
2. Turn off unnecessary lights and accessories.
3. Shift the selector lever to the "P" or "N" position (preferably "P" position). The starter will only operate when the select lever is at the "P" or "N" position.
4. Turn the ignition switch to the "ON" position and check the operation of the warning and indicator lights. Refer to the "Warning and indicator lights" section (chapter 3).
5. Turn the ignition switch to the "START" position **without** depressing the accelerator pedal. Release the key immediately after the engine has started.

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If the engine does not start within ten seconds, wait a while and then turn the ignition switch to the "START" position again while depressing the accelerator pedal half way down.

6. Confirm that all warning and indicator lights have gone out after the engine has started. The fuel injection system automatically lowers the idle speed as the engine warms up.

While the engine is warming up, make sure that the selector lever is at the "P" or "N" position and that the parking brake is applied.

### ■ Starting the engine during cold weather below $-4^{\circ}\text{F}$ ( $-20^{\circ}\text{C}$ )

If the engine is difficult to start using the normal method (without depressing the accelerator pedal), turn the ignition switch to the "START" position while slightly depressing the accelerator pedal.

### ■ Starting a flooded engine

If the engine does not start, it may be flooded (excessive fuel in the engine).

In case of a flooded engine, turn the starter motor for five seconds with the accelerator pedal fully depressed. Repeat this two or three times until the engine starts. Release the ignition switch and accelerator pedal as soon as the engine starts.

## Stopping the engine

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### **WARNING**

**Do not stop the engine when the vehicle is moving. This will cause loss of power to the power steering and the brake booster, making steering and braking more difficult. It could also result in accidental activation of the "LOCK" position on the ignition switch, causing the steering wheel to lock.**

The ignition switch should be turned off only when the engine is idling.

## Manual transmission

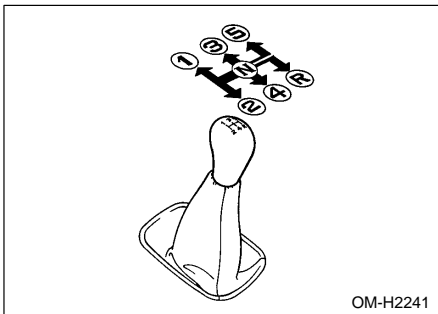
### **⚠ WARNING**

Do not drive the vehicle with the clutch disengaged (i.e., when the clutch pedal is depressed) or with the shift lever in the neutral position. Engine braking has no effect in either of these conditions and the risk of an accident is consequently increased.

### **⚠ CAUTION**

Shift into reverse **ONLY** when the vehicle has completely stopped. It may cause damage to the transmission to try shifting into reverse when the vehicle is moving.

The manual transmission is a fully synchromeshed 5-forward and 1-reverse speed transmission.



The shift pattern is shown on the shift lever knob. When shifting from 5th gear to reverse gear, first return the shift lever to the neutral position then shift into reverse gear.

To change gears, fully depress the clutch pedal, move the shift lever, and gradually let up on the clutch pedal.

If it is difficult to shift into gear, put the transmission in neutral, release the clutch pedal momentarily, and then try again.

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## ▼ Shifting speeds

### ▽ Recommended shifting speeds

The best compromise between fuel economy and vehicle performance during normal driving is ensured by shifting up at the speeds listed in the following table.

Shift up	mph (km/h)
1st to 2nd	15 (24)
2nd to 3rd	25 (40)
3rd to 4th	40 (65)
4th to 5th	45 (73)

### ▽ Maximum allowable speeds



## **WARNING**

**When shifting down a gear, ensure that the vehicle is not travelling at a speed exceeding the Maximum Allowable Speed for the gear which is about to be selected. Failure to observe this precaution can lead to engine over-revving and this in turn can result in engine damage.**

**In addition, sudden application of engine brakes when the vehicle is travelling on a slippery surface can lead to wheel locking; as a consequence, control of the vehicle may be lost and the risk of an accident increased.**

The following table shows the maximum speeds that are possible with each different gear.

Never exceed the speed limit below for each gear position except for brief acceleration in an emergency. The tachometer's needle (if so equipped) will enter the red area if these speeds are exceeded. Failure to observe this precaution can lead to excessive engine wear and poor fuel economy.

		mph (km/h)			
Vehicle type Gear	Brighton	L	GT	OUT- BACK	
1st	30 (48)	30 (49)	29 (47)	31 (50)	
2nd	50 (81)	51 (82)	49 (79)	52 (84)	
3rd	71 (115)	73 (117)	70 (112)	74 (119)	

### ▼ Driving tips

Do not drive with your foot resting on the clutch pedal and do not use the clutch to hold your vehicle at a standstill on an upgrade. Either of those actions may cause clutch damage.

Do not drive with your hand resting on the shift lever. This may cause wear on the transmission components.

When it is necessary to reduce vehicle speed due to slow traffic, turning corners, or driving up steep hills, downshift to a lower gear before the engine starts to labor.

On steep downgrades, downshift the transmission to 4th, 3rd or 2nd gear as necessary; this helps to maintain a safe speed and to extend brake pad life.

In this way, the engine provides a braking effect. Remember, if you "ride" (over use) the brakes while descending a hill, they may over-heat and not work properly.

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## Automatic transmission

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### **WARNING**

Do not shift from the “P” or “N” position into the “D”, “3”, “2”, “1” or “R” position while depressing the accelerator pedal. This may cause the vehicle to jump forward or backward.

### **CAUTION**

- Shift into the “P” or “R” position only after the vehicle is completely stopped. Shifting while the vehicle is moving may cause damage to the transmission.
- Do not race the engine for more than five seconds in any position except the “N” or “P” position when the brake is set or the tires are on blocks. This may cause the automatic transmission fluid to overheat.
- Avoid shifting from one of the forward driving positions into the “R” position or vice versa until the vehicle has completely stopped. Such shifting may cause damage to the transmission.

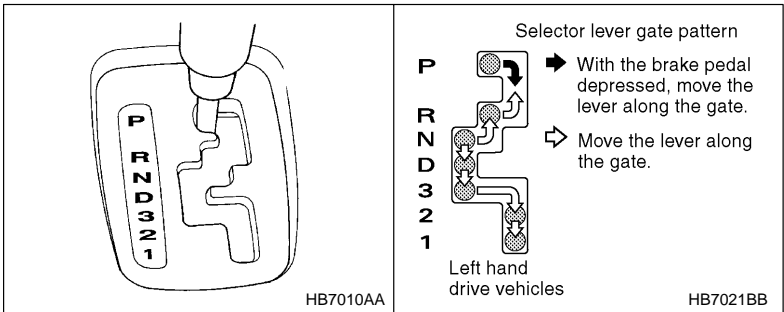
The automatic transmission is electronically controlled with 4-forward speeds and 1-reverse speed.

### **NOTE**

Immediately after a disconnected battery is reconnected or ATF (automatic transmission fluid) is replaced, you may feel that the automatic transmission operation is somewhat unusual.

This results from erasure or invalidation of data the on-board computer has collected and stored in memory to allow the transmission to shift at the most appropriate times for the current condition of your vehicle. Optimized shifting will be restored as the vehicle continues to be driven for a while.

## ■ Selector lever for automatic transmission



The selector lever has seven positions.

### ▼ P (Park)

This position is for parking the vehicle and starting the engine.

In this position, the transmission is mechanically locked to prevent the vehicle from rolling freely.

When you park the vehicle, first set the parking brake fully, then shift into the "P" position. Do not hold the vehicle with only the transmission.

A shift interlock function is employed in the automatic transmission system to ensure safe starting of the vehicle.

To shift the selector lever from the "P" to the any other position, you have to depress the brake pedal fully when the ignition switch is in the "ON" position. This prevents the vehicle from lurching when it is started.

If the shift lever does not move from the "P" position with the brake pedal depressed, refer to the "Shift lock release" section in this chapter.

### ▼ R (Reverse)

This position is for backing the vehicle.

To shift from the "N" to "R" position, first stop the vehicle completely then move the lever to the "R" position.

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## ▼ N (Neutral)

### **WARNING**

**Do not drive the vehicle with the selector lever in the “N” (neutral) position. Engine braking has no effect in this condition and the risk of an accident is consequently increased.**

This position is for restarting a stalled engine.

In this position the wheels and transmission are not locked. In this position, the transmission is neutral; the vehicle will roll freely, even on the slightest incline unless the parking brake or foot brake is on.

## ▼ D (Drive)

This position is for normal driving.

The transmission automatically shifts into a suitable gear from 1st to 4th according to the vehicle speed and the acceleration you require.

When more acceleration is required in this position, press the accelerator pedal fully to the floor and hold that position. The transmission will automatically downshift to 3rd, 2nd or 1st gear. When you release the pedal, the transmission will return to the original gear position.

### ▽ **While climbing a grade**

When driving up a hill, undesired upshift to 4th gear is prevented from taking place when the accelerator is released. This minimizes the chance of subsequent downshifting to a lower gear when accelerating again. This prevents repeated upshifting and downshifting resulting in a smoother operation of the vehicle.

## **NOTE**

**The transmission may downshift to 2nd or 1st gear, depending on the way the accelerator pedal is pressed to accelerate the vehicle again.**

### ▽ **While going down a hill**

When descending a steep hill, depressing the brake pedal will cause the transmission to downshift to 3rd gear, thus applying engine braking. Reacceleration for a short time will cause the transmission to up-



shift normally.

## **NOTE**

**In some cases, depressing the brake pedal on a downhill grade does not result in an automatic downshift to 3rd gear. This can happen when the automatic transmission fluid temperature is very low, for example, during driving shortly after the vehicle has been parked for an extended period of time. When the ATF temperature has risen to a certain level, automatic downshift normally takes place. In the meantime, downshift manually for engine braking as required.**

**Also, downshifting when braking downhill will not occur at speeds above approximately 50 mph (80 km/h).**

### **▼ 3 (Third)**

This position is for using engine braking when going down a hill or for climbing a grade.

The transmission automatically shifts into a suitable gear from 1st to 3rd according to the vehicle speed and the acceleration you require.

When more acceleration is required in this position, press the accelerator pedal fully to the floor and hold that position. The transmission will automatically downshift to 2nd or 1st gear. When you release the pedal, the transmission will return to the original gear position.

### **▼ 2 (Second)**

This position is for using engine braking when going down a hill or for climbing a steep grade.

In this position, the transmission holds in the 2nd gear.

Use this position when starting off from a standstill on slippery road surfaces such as mud or snow. It will ensure greater traction.

### **▼ 1 (First)**

This position is for driving up or down very steep grades, or driving through mud or sand, or on slippery surfaces. In this position, the transmission holds in the 1st gear.

## ▼ Maximum speeds

### **WARNING**

When shifting down a gear, ensure that the vehicle is not travelling at a speed exceeding the Maximum Allowable Speed for the gear which is about to be selected. Failure to observe this precaution can lead to engine over-revving and this in turn can result in engine damage.

In addition, sudden application of engine brakes when the vehicle is travelling on a slippery surface can lead to wheel locking; as a consequence, control of the vehicle may be lost and the risk of an accident increased.

The following tables show the maximum speeds that are possible with each different gear. The tachometer's (if so equipped) needle will enter the red area if these speeds are exceeded.

When shifting down a gear, it is important to confirm that the current vehicle speed is not in excess of the Maximum Allowable Speed of the gear which is about to be selected.

Exceeding the Maximum Allowable Speeds will result in over-revving of the engine. In addition a powerful engine brake will engage and control of the vehicle may be lost.

mph (km/h)

Vehicle type Position	Brighton, L	GT	OUTBACK	
			2.5 liter	3.0 liter
1	35 (56)	29 (47)	31 (50)	35 (57)
2	64 (103)	58 (93)	62 (100)	69 (111)
3	100 (161)	96 (154)	102 (164)	111 (178)

### **NOTE**

- In order to prevent over-revving during acceleration of the vehicle, the transmission will automatically shift to the next highest gear if the Maximum Allowable Speed for the current gear is exceeded.

- Similarly, in order to prevent over-revving during deceleration of the vehicle, the transmission will remain in the current gear if the speed of the vehicle is in excess of the Maximum Allowable Speed for the gear to which the selector lever has been moved.

### ▼ Driving tips

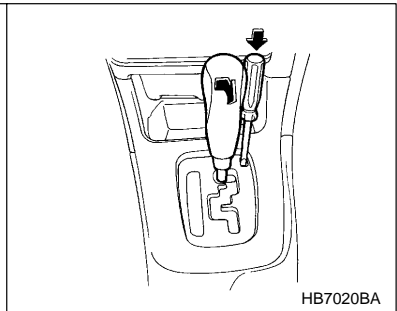
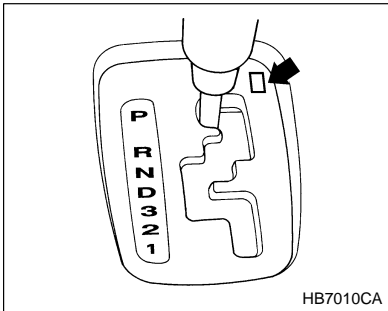
- Always apply the foot or parking brake when the vehicle is stopped in the "D", "3", "2", "1" or "R" position.
- Always set the parking brake when parking your vehicle. Do not hold the vehicle with only the transmission.
- Do not keep the vehicle in a stationary position on an uphill grade by using the "D", "3", "2", or "1" position. Use the brake instead.

### ■ Shift lock release

If the selector lever does not move from the "P" position with the brake pedal depressed and the ignition switch in the "ON" position, perform the following steps:

To override the shift lock:

1. Set the parking brake and stop the engine.
2. Take out the screwdriver from the tool bag.
3. Remove the cover by prying on the edge with the regular screwdriver.



4. Insert the screwdriver into the hole.
5. Push down on the screwdriver and move the selector lever from the "P" to the "N" position.

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6. Remove the screwdriver from the hole. Depress the brake pedal and start the engine.

Take your vehicle to the nearest SUBARU dealer immediately to have the system repaired.

## **Rear viscous limited slip differential (LSD) (if equipped)**

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### **CAUTION**

- **Never start the engine while a tire on one side is jacked up, as the vehicle may move.**
- **If one rear tire is spinning in mud, avoid continued spinning at high speed as this could adversely affect the LSD.**
- **If a different size rear tire is temporarily used (as in an emergency), it will adversely affect the LSD. Always replace it with a regular size tire as soon as possible.**

The LSD provides optimum distribution of power according to the difference in revolutions between the right and left rear wheels that may be caused by certain driving conditions, thereby improving driving stability on snow-covered, muddy or other slippery roads.

## **Power steering**

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### **CAUTION**

**Do not hold the steering wheel at the fully locked position left or right for more than five seconds. This may damage the power steering pump.**

The power steering system operates only when the engine is running. If you lose power steering assist because the engine stops or the system fails to function, you can steer but it will take much more effort.

## NOTE

Right after the engine has been started and before it has warmed up, you may hear a noise coming from areas adjacent to the power steering pump which is located at the right-front area of the engine compartment. This noise is normal. It does not indicate power steering system trouble.

## Braking

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### ■ Braking tips



#### **WARNING**

Never rest your foot on the brake pedal while driving. This can cause dangerous overheating of the brakes and needless wear on the brake pads and linings.

#### ▼ When the brakes get wet

When driving in rain or after washing the vehicle, the brakes may get wet. As a result, brake stopping distance will be longer. To dry the brakes, drive the vehicle at a safe speed while lightly depressing the brake pedal to heat up the brakes.

#### ▼ Use of engine braking

Remember to make use of engine braking in addition to foot braking. When descending a grade, if only the foot brake is used, the brakes may start working improperly because of brake fluid overheating, caused by overheated brake pads. To help prevent this, shift into a lower gear to get stronger engine braking.

#### ▼ Braking when a tire is punctured

Do not depress the brake pedal suddenly when a tire is punctured. This could cause a loss of control of the vehicle. Keep driving straight ahead while gradually reducing speed. Then slowly pull off the road to a safe place.

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## ■ Brake system

### ▼ Two separate circuits

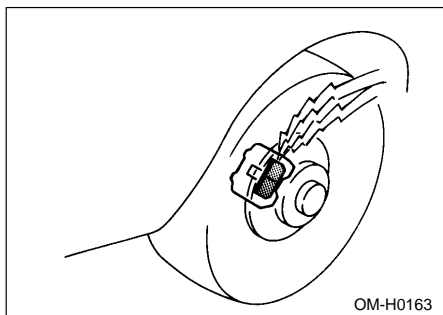
Your vehicle has two separate circuit brake systems. Each circuit works diagonally across the vehicle. If one circuit of the brake system should fail, the other half of the system still works. If one circuit fails, the brake pedal will go down much closer to the floor than usual and you will need to press it down much harder. And a much longer distance will be needed to stop the vehicle.

### ▼ Brake booster

The brake booster uses engine manifold vacuum to assist braking force. Do not turn off the engine while driving because that will turn off the brake booster, resulting in poor braking power.

The brakes will continue to work even when the brake booster completely stops functioning. If this happens, however, you will have to push the pedal much harder than normal and the braking distance will increase.

## ■ Disc brake pad wear warning indicators



The disc brake pad wear warning indicators on the disc brakes give a warning noise when the brake pads are worn.

If a squeaking or scraping noise is heard from the disc brakes while braking, immediately have your vehicle checked by your SUBARU dealer.

## ABS (Anti-lock Brake System)



### **WARNING**

**Always use the utmost care in driving – overconfidence because you are driving with an ABS equipped vehicle could easily lead to a serious accident.**



### **CAUTION**

- **The ABS system does not always decrease stopping distance. You should always maintain a safe following distance from other vehicles.**
- **When driving on badly surfaced roads, gravel roads, icy road, or over deep newly fallen snow, stopping distances may be longer for a vehicle with the ABS system than one without. When driving under these conditions, therefore, reduce your speed and leave ample distance from other vehicles.**
- **When you feel the ABS system operating, you should maintain constant brake pedal pressure. Do not pump the brake pedal since doing so may defeat the operation of the ABS system.**

The ABS system prevents the lock-up of wheels which may occur during sudden braking or braking on slippery road surfaces. This helps prevent the loss of steering control and directional stability caused by wheel lock-up.

When the ABS system is operating, you may hear a chattering noise or feel a slight vibration in the brake pedal. This is normal when the ABS operates.

The ABS system will not operate when the vehicle speed is below approximately 6 mph (10 km/h).

#### **▼ ABS system self-check**

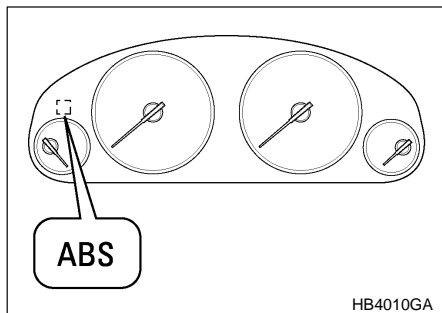
You may feel a slight shock in the brake pedal and hear the operating sound of ABS from the engine compartment just after the vehicle is

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started. This is caused by an automatic functional test of the ABS system being carried out and does not indicate any abnormal condition.

### ▼ ABS warning light



The ABS warning light comes on when the ignition switch is turned to the "ON" position and goes out after about two seconds.

This is an indication that the ABS system is working properly.

### **!** CAUTION

**If the warning light behaves as follows, the ABS system may not be working properly.**

**When the warning light is on, the ABS function shuts down; however, the conventional brake system continues to operate normally.**

- **The warning light does not come on when the ignition switch is turned to the "ON" position.**
- **The warning light comes on when the ignition switch is turned to the "ON" position, but it does not go out even when the vehicle speed exceeds approximately 8 mph (12 km/h).**
- **The warning light comes on during driving.**

**If these occur, have the ABS system repaired at the first available opportunity by your SUBARU dealer.**



## NOTE

If the warning light behavior is as described below, the ABS system may be considered normal.

- The warning light comes on right after the engine is started but goes out immediately, remaining off.
- The warning light remains on after the engine has been started, but it goes out when the vehicle speed reaches about 8 mph (12 km/h).
- The warning light comes on during driving, but it goes out immediately and remains off.

When driving with an insufficient battery voltage such as when the engine is jump started, the ABS warning light may come on. This is due to the low battery voltage and does not indicate a malfunction. When the battery becomes fully charged, the light will go out.

## VDC (Vehicle Dynamics Control) system (if equipped)

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### WARNING

Always use the utmost care in driving — overconfidence because you are driving with a VDC system equipped vehicle could easily lead to a serious accident.



### CAUTION

- Even if your vehicle is equipped with VDC, winter tires or snow chains should be used when driving on snow-covered or icy roads; in addition, vehicle speed should be reduced considerably. Simply having a VDC system does not guarantee that the vehicle will be able to avoid accidents in any situation.
- Activation of the VDC system is an indication that the road being travelled on has a slippery surface; since having VDC is no guarantee that full vehicle control will be maintained at all times and under all conditions, its activation should be seen as a sign that the speed of the vehicle should be reduced considerably.

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- **Whenever suspension components, steering components, or an axle are removed from a vehicle equipped with VDC, have an authorized SUBARU dealer perform an inspection of that system.**
  - **The following precautions should be observed in order to ensure that the VDC system is operating properly:**
    - **All four wheels should be fitted with tires of the same size, type, and brand. Furthermore, the amount of wear should be the same for all four tires.**
    - **Keep the tire pressure at the proper level as shown on the label attached to the vehicle's door pillar.**
    - **Use only the special temporary spare tire to replace a flat tire.**

When driving on slippery roads or making sudden turns to avoid obstacles in the vehicle's path, certain situations may occur where the vehicle may slip sideways or where the rear of the vehicle may swing outward. When the VDC system determines either of these circumstances is about to occur, it controls — and operates in conjunction with — the Anti-lock Brake System and the Traction Control System to suppress sudden changes in vehicle attitude and motion, thus improving directional stability during driving.

- **Anti-lock Brake System (ABS) function:**

The ABS controls the brake system electronically. It prevents locking of the wheels so that directional stability and steering wheel responsiveness can be maintained even when braking on slippery surfaces. In the unlikely event that a malfunction should occur in the ABS, it will still be possible to stop the vehicle using normal braking.

- **Traction Control System (TCS) function:**

The TCS limits spinning of the drive wheels on slippery surfaces; in this, it helps ensure that an appropriate degree of traction and steering are maintained. The VDC operation indicator light will turn on when the TCS activates.

- **Vehicle Dynamics Control**

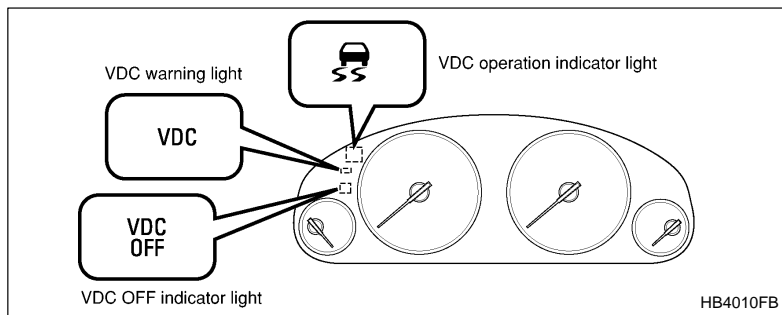
To assist in maintaining directional stability, the VDC helps suppress sideways slipping of the vehicle when the steering wheel is turned suddenly or when cornering on a slippery surface. The VDC operation

indicator light will flash on and off when this system activates.

## **NOTE**

- Slight twitching of the brake pedal may be felt when the VDC-system operates; a small degree of vehicle or steering wheel shaking may also be noticed in this situation. These are normal effects of VDC operation and are no cause for alarm.
- When driving off immediately after starting the engine, a short-lived operation noise may be noticed coming from the engine compartment. This noise is generated as a result of a check being performed on the VDC system and is normal.
- Depending on the timing of activation of the brakes, certain situations may occur just after driving off where the brake pedal seems to exhibit a jolting motion. This too is a consequence of the VDC operational check and is normal.
- Activation of the VDC system will cause operation of the steering wheel to feel slightly different compared to that for normal conditions.
- Even if the vehicle is equipped with a VDC system, it is important that winter tires be used when driving on snow-covered or icy roads. (All four wheels should be fitted with tires of the same size and brand). Furthermore, if snow chains are to be used, they should be fitted on the front wheels. When a vehicle is fitted with snow chains, however, the effectiveness of the VDC system is reduced and this should be taken into account when driving the vehicle in such a condition.
- It is always important to reduce speed when approaching a corner, even if the vehicle is equipped with VDC.
- All four wheels should be fitted with tires of the same size, type, and brand; furthermore, the amount of wear should be the same for all four tires. If these precautions are not observed and non-matching tires are used, it is quite possible that the VDC system will be unable to operate correctly as intended.
- Always turn off the engine before replacing a tire as failure to do so may render the VDC system unable to operate correctly.

## ▼ VDC system monitor



### ▽ VDC OFF indicator light

- The VDC OFF indicator light turns on initially when the ignition key is turned to the ON position; it subsequently turns off 6 seconds after the engine is started.
- This light turns on to indicate that the VDC and TCS systems are in non-operation (ready) mode. This does not constitute failure of the VDC system.

### NOTE

- **When the engine is started on cold mornings and in other similar circumstances, a certain amount of time may pass before the VDC OFF indicator light turns off. This occurs because the engine has not yet warmed up and is completely normal. The light will turn off when the engine has reached a suitable operating temperature.**
- **When an engine problem occurs and the CHECK ENGINE warning light turns on, the VDC OFF indicator light will also turn on.**
- **Depending on the type of gasoline used, it may take sometime before the light goes out after the engine has been started.**

The following two situations could indicate malfunction of the VDC system; if either should occur, have an authorized SUBARU dealer carry out an inspection of that system at the first available opportunity.

- The VDC OFF indicator light does not turn on when the ignition key is turned to the ON position.
- The VDC OFF indicator light fails to turn off after the engine is started, even when several minutes have passed to allow the engine to heat up sufficiently.

#### ▽ **VDC operation indicator light**

The VDC operation indicator light turns on when the ignition key is turned to the ON position; it turns off approximately two seconds later. It flashes on and off when the VDC is operating but stays continuously lit when only the TCS is operating.

The following two situations could indicate a malfunction of the VDC system; if either should occur, have an authorized SUBARU dealer carry out an inspection of that system at the first available opportunity.

- The VDC operation indicator light does not turn on when the ignition key is turned to the ON position.
- The VDC operation indicator light does not turn off approximately two seconds after the ignition key has been turned to the ON position.

#### ▽ **VDC warning light**

The VDC warning light turns on when the ignition key is turned to the ON position and off when the engine is started. This lighting pattern indicates that the VDC system is operating normally.

The following situations could indicate a malfunction of the VDC system; if any should occur, have an authorized SUBARU dealer carry out an inspection of the system at the first available opportunity.

- The VDC warning light does not turn on when the ignition key is turned to the ON position.
- The VDC warning light does not turn off either when the engine is started or when the vehicle reaches a speed of approximately 8 mph (12 km/h).
- The VDC warning light turns on while the vehicle is being driven.
- When a malfunction has occurred in the VDC electrical system, only the VDC warning light will turn on. In such an event, the ABS will still be operating normally.

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- The VDC warning light will also turn on when a problem occurs with the ABS or VDC electronic control systems.

Because the VDC system controls each brake through the ABS, whenever the ABS stops operating due to a malfunction in that electrical system, the VDC will also become unable to control all four brakes. Thus VDC system operation halts and the VDC warning light turns on. Although both the VDC system and the ABS will be inoperable in this situation, it will still be possible to stop the vehicle using normal braking. The VDC system and the ABS do not adversely affect operation of the vehicle in any way when they are inoperable; however should such a situation occur, drive with care and have an authorized SUBARU dealer carry out an inspection of those systems at the first available opportunity.

## **NOTE**

**When the VDC warning light turns on and off in the following way, it indicates that the VDC system is operating normally.**

- **Although turning on after the engine has been started, the warning light quickly turns off and stays off.**
- **The warning light turns on after the engine is started and does not turn off until the vehicle reaches a speed of 8 mph (12 km/h).**
- **The warning light turns on when the vehicle is being driven; it then turns off and stays off.**

## Parking your vehicle



### **WARNING**

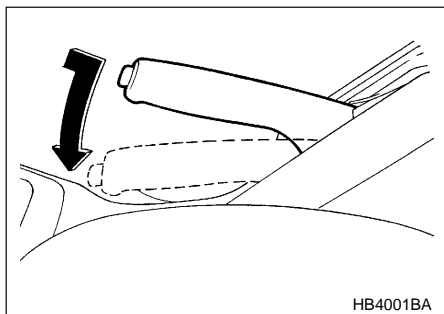
- Never leave unattended children or pets in the vehicle. They could accidentally injure themselves or others through inadvertent operation of the vehicle. Also, on hot or sunny days, the temperature in a closed vehicle could quickly become high enough to cause severe or possibly fatal injuries to them.
- Do not park the vehicle over flammable materials such as dry grass, waste paper or rags, as they may burn easily if they come near hot engine or exhaust system parts.
- Be sure to stop the engine if you take a nap in the vehicle. If engine exhaust gas enters the passenger compartment, occupants in the vehicle could die from carbon monoxide (CO) contained in the exhaust gas.



### **CAUTION**

**Never drive while the parking brake is set because this will cause unnecessary wear on the brake linings. Before starting to drive, always make sure that the parking brake has been fully released.**

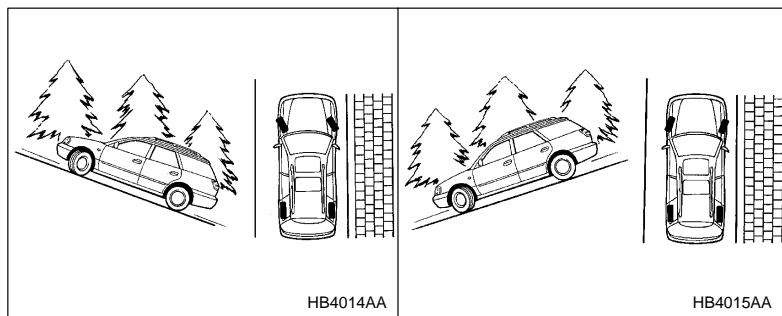
To set the parking brake, press the brake pedal firmly and hold it down while fully pulling up the parking brake lever.



To release the parking brake, pull the lever up slightly, press the release button, then lower the lever while keeping the button pressed.

When the parking brake is set while the engine is running, the parking brake warning light comes on. After starting the vehicle, be sure that the warning light has gone out before the vehicle is driven. Refer to the "Warning and indicator lights" section (chapter 3).

When parking your vehicle, always set the parking brake firmly and put the shift lever in the "1" (1st) for an upgrade or "R" (Reverse) for a down-grade for manual transmission vehicles, or in the "P" (Park) position for automatic transmission vehicles. Always set the parking brake firmly when parking your vehicle. Never rely on the transmission alone to hold the vehicle.





When parking on a hill, always turn the steering wheel. When the vehicle is headed up the hill, the front wheels should be turned away from the curb. When facing downhill, the front wheels should be turned into the curb.

## Cruise control (if equipped)



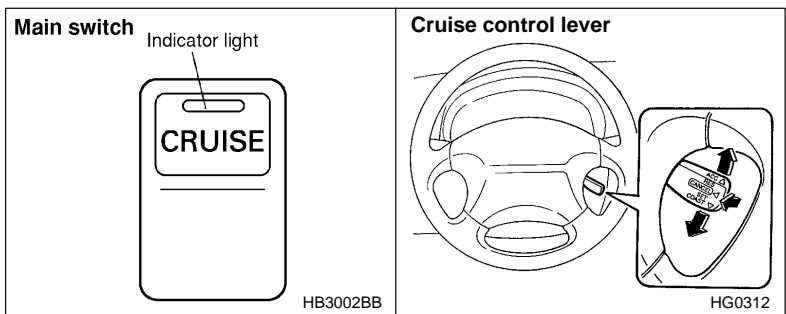
### WARNING

Do not use the cruise control under any of the following conditions. This may cause loss of vehicle control:

- driving up or down a steep grade
- driving on slippery or winding roads
- driving in heavy traffic

Cruise control enables you to maintain a constant vehicle speed without holding your foot on the accelerator pedal and it is operative when the vehicle speed is 25 mph (40 km/h) or more. Make sure the main switch is turned "OFF" when the cruise control is not in use to avoid unintentionally by setting the cruise control.

### ▼ To set cruise control



1. Push the "CRUISE" main switch.
2. Depress the accelerator pedal until the vehicle reaches to the desired speed.

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3. Push the control lever downward in the "SET, COAST" direction and release it. Then release the accelerator pedal.

The vehicle will maintain the desired speed.

Vehicle speed can be temporarily increased while driving with the cruise control activated. Simply depress the accelerator pedal to accelerate the vehicle. When the accelerator pedal is released, the vehicle will return to and maintain the previous cruising speed.

### ▼ To temporarily cancel the cruise control

There are four ways to cancel the cruise control temporarily:

- Depress the brake pedal.
- Pull the control lever in the "CANCEL" direction. (if so equipped)
- Depress the clutch pedal (manual transmission vehicles only).
- Shift the selector lever into the "N" position (automatic transmission vehicles only).

To resume the cruise control after it has been temporarily canceled and with vehicle speed of about 20 mph (32 km/h) or more, push the control lever upward in the "ACCEL, RESUME" direction to return to the original cruising speed automatically.

### ▼ To turn off the cruise control

There are two ways to turn off the cruise control:

- Push the main switch again.
- Turn the ignition switch to the "ACC" position (but only when the vehicle is completely stopped).

### ▼ To change the cruising speed

#### ▽ To increase the speed

1. Push the control lever upward in the "ACCEL, RESUME" direction and hold it until the vehicle reaches the desired speed.

When the difference between the actual vehicle speed and the set speed is less than 4 mph (6.8 km/h), the set speed can be increased 1 mph (1.6 km/h) each time by pressing the control lever upward in the "ACCEL, RESUME" direction quickly within a half second.

2. Push the control lever downward in the "SET, COAST" direction

once. Now the desired speed is set and the vehicle will keep running at that speed without depressing the accelerator pedal.

▽ **To decrease the speed**

1. Push the control lever downward in the "SET, COAST" direction and hold it until the vehicle reaches the desired speed.

When the difference between the actual vehicle speed and the set speed is less than 4 mph (6.8 km/h), the set speed can be lowered 1 mph (1.6 km/h) each time by pressing the control lever downward in the "SET, COAST" direction quickly within a half second.

2. When the speed decreases to the desired speed, press the control lever downward in the "SET, COAST" direction once. Now the desired speed is set and the vehicle will keep running at that speed without depressing the accelerator pedal.