

1. General Precautions

A: BEFORE STARTING SERVICE

- 1) Be sure to perform the jobs listed in the Periodic Maintenance Schedule.
- 2) When a vehicle is brought in for maintenance, carefully listen to the owner's explanations of the symptoms exhibited by the vehicle. List the problems in your notebook, and refer to them when trying to diagnose the trouble.
- 3) All jewelry should be removed. Suitable work clothes should be worn.
- 4) Be sure to wear goggles.
- 5) Use fender, floor and seat covers to prevent the vehicle from being scratched or damaged.
- 6) Never smoke while working.
- 7) Before removing underfloor bolts (including the rear differential filler plug) coated with bituminous wax, remove old wax. Re-coat with new wax after reinstallation.

B: WHILE WORKING

- 1) When jacking up the vehicle, be sure to use safety stands.
- 2) When jacking up the front or rear end of the car body, be sure to chock the tires remaining in contact with the ground.
- 3) Keep the parking brake applied when working on the vehicle. Chock the tires remaining in contact with the ground (and set the selector lever to "P" position in AT vehicle), when the parking brake cannot be applied, such as when the brakes are being worked on.
- 4) Keep the ignition key turned "OFF" if at all possible.
- 5) Be cautious while working when the ignition key is "ON"; if the engine is hot, the cooling fan may start to operate.
- 6) While the engine is in operation, properly ventilate the workshop.
- 7) While the engine is in operation, be aware of any moving parts, such as the cooling fan and the drive belt.
- 8) Keep your hands off any metal parts such as the radiator, exhaust manifold, exhaust pipe, and muffler to prevent burning yourself.
- 9) When servicing the electrical system or the fuel system, disconnect the ground cable from the battery.
- 10) When disassembling, arrange the parts in the order that they were disassembled.

11) When removing a wiring connector, do not pull the wire but pull the connector itself.

12) When removing a hose or tube, remove the clip first. Then, pull the hose or tube while holding its end fitting.

13) Replace gaskets, O-rings, snap rings, lock washers, etc. with new ones.

14) When tightening a bolt or nut, tighten it to the specified torque.

15) When performing work requiring special tools, be sure to use the designated ones.

16) After completing work, make certain that the hoses, tubes and wiring harnesses are securely connected.

17) After completing work, be sure to wash the vehicle.

C: TREATMENT FOR USED ENGINE OIL

1. ENGINE OILS

Prolonged and repeated contact with mineral oil will result in the removal of natural fats from the skin, leading to dryness, irritation and dermatitis. In addition, used engine oil contains potentially harmful contaminants which may cause skin cancer. Adequate means of skin protection and washing facilities should be provided.

2. HEALTH PROTECTION PRECAUTIONS

1) Avoid prolonged and repeated contact with oils, particularly used engine oils.

2) Wear protective clothing, including impervious gloves where practicable.

3) Do not put oily rags in pockets.

4) Avoid contaminating clothes, particularly underpants, with oil.

5) Overalls must be cleaned regularly. Discard unwashable clothing and oil impregnated footwear.

6) First aid treatment should be obtained immediately for open cuts and wounds.

7) Use barrier creams, applying them before each work period to help the removal of oil from the skin.

8) Wash with soap and water to ensure all oil is removed (skin cleansers and nail brushes will help). Preparations containing lanolin replace the natural skin oils which have been removed.

9) Do not use petrol, kerosene, diesel fuel, gas oil, thinners or solvents for washing skin.

10) If skin disorders develop, obtain medical advice.

11) Where practicable, degrease components prior to handling.

12) Where there is a risk of eye contact, eye protection should be worn, for example, chemical goggles or face shields; in addition an eye wash facility should be provided.

3. ENVIRONMENTAL PROTECTION PRECAUTIONS

It is illegal to pour used oil on to the ground, down sewers or drains, or into water courses. The burning of used engine oil in small space heaters or boilers is not recommended unless emission control equipment is fitted. If in doubt, check with the Local Authority.

Dispose of used oil through authorized waste disposal contractors, licensed waste disposal sites, or to the waste oil reclamation trade. If in doubt, contact the Local Authority for advice on disposal facilities.

D: HANDLING AN AT VEHICLE

1) The engine cannot be started by pushing the vehicle, and also the vehicle cannot be moved by operating the starter motor.

2) Be sure to release the accelerator pedal before shifting from the "R" to the "N" range and from the "N" to the "D" range, or vice versa even when the vehicle is stopped.

3) Do not maintain the vehicle in a stall operation for more than five seconds as this may over-heat the clutch excessively.

4) When the speedometer malfunctions, a vehicle-speed signal will no longer be emitted. Immediately have it repaired.

5) Use only genuine SUBARU AT fluid in the transmission.

E: FULL-TIME AWD MT MODELS

1. SPEEDOMETER TEST (Jack-up method)

WARNING:

- Secure a rope or wire to the front towing hook to prevent the lateral runout of front wheels.

- Do** not abruptly depress/release clutch pedal **or** accelerator pedal during tests even

when engine is operating at low speeds since this may cause vehicle to jump off test machine.

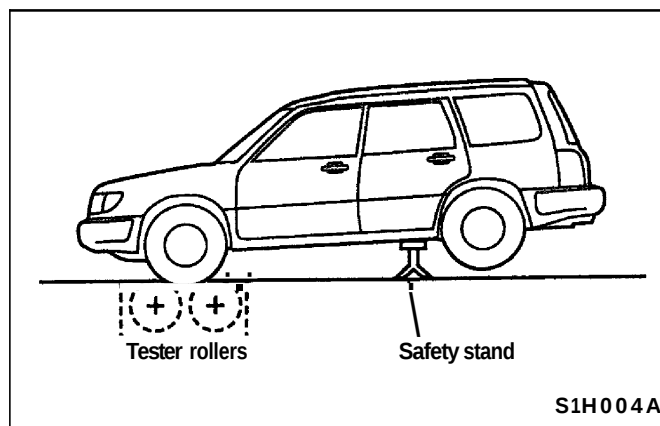
- Avoid abrupt braking after tests.

- In order to prevent the vehicle from slipping due to vibration, do not place any wooden blocks or similar items between the safety stands and the vehicle.

- Since the rear wheels will also be rotating, do not place anything near them. Also, make sure that nobody goes in front of the vehicle.

1) Position vehicle so that front wheels are placed between rollers of speedometer test machine.

2) Jack up vehicle until rear wheels clear the floor, and support with safety stands.



3) Start engine with shift lever set in 2nd gear (for safety considerations). Perform speedometer tests.

2. SPEEDOMETER TEST (Free roller method)

WARNING:

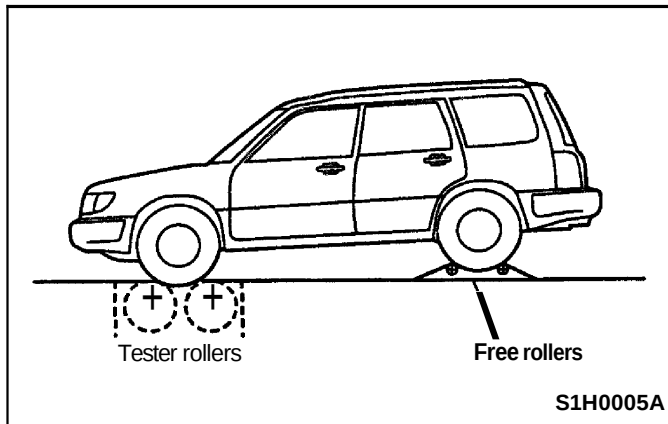
- Secure a rope or wire to the front towing hook to prevent the lateral runout of front wheels.

- Do not abruptly depress/release clutch pedal or accelerator pedal during tests even when engine is operating at low speeds since this may cause vehicle to jump off test machine.

Avoid abrupt braking after tests.

1) Position vehicle so that front wheels are placed between rollers of test machine.

2) Scribe alignment mark corresponding with centerline of rear wheels on floor.



3) Back up vehicle so that centerline of free rollers are aligned with mark scribed in step 2 above.

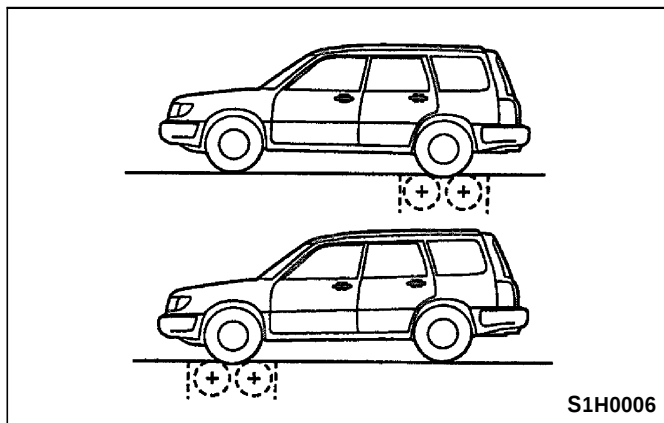
4) Drive vehicle onto free rollers.

5) Perform speedometer tests.

3. BRAKETEST

1) Drive vehicle for a distance of several kilometers (miles) to stabilize dragging force of viscous coupling.

2) Place vehicle onto brake tester.



3) Perform brake tests.

Effect of braking force on viscous coupling torque:
Approx. 245 N (25 kg, 55 lb)

NOTE:

If dragging force exceeds specifications, check brake pad or brake shoe for dragging. Abnormalities related to the viscous torque of viscous coupling unit may cause excessive dragging force. At this point, raise vehicle so that two front or rear wheels clear floor, remove cause of abnormality and check wheel rotation.

4. CHASSIS DYNAMOMETER TEST

WARNING:

- Do **not** abruptly depress/release clutch pedal or accelerator pedal during tests.
- Avoid abrupt braking tests after tests.

1) Locate vehicle onto chassis dynamometer tester.

2) Locate rear wheels onto free rollers.

3) Perform dynamic performance tests.

5. TIRE BALANCE TEST (ON-car machine)

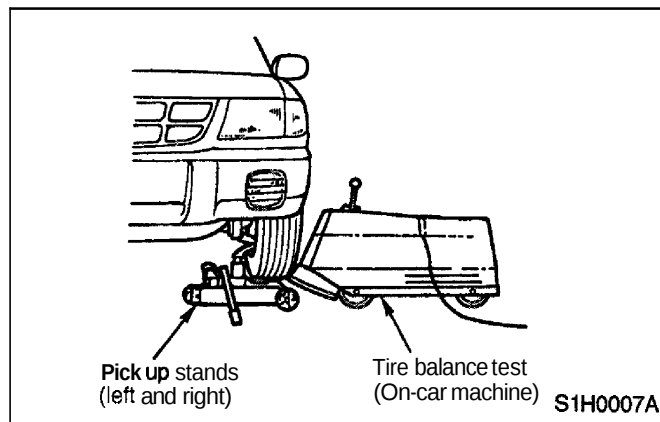
CAUTION:

- Perform tire balance tests after each tire balance has been measured.
- Locate the vehicle so that its front and rear sides are equal in height.
- Release parking brake.
- Manually rotate each tire and check for drag.
- Do not operate **clutch** and do not accelerate the engine abruptly.
- If error occurs due to engine operation, do not operate balance's motor.

1) Raise vehicle so that left and right wheels to be checked clear the floor. Support wheels using pick-up stands.

2) Raise the other two wheels off the ground and support with a safety stand.

3) Attach on-car machine to wheels to be checked.



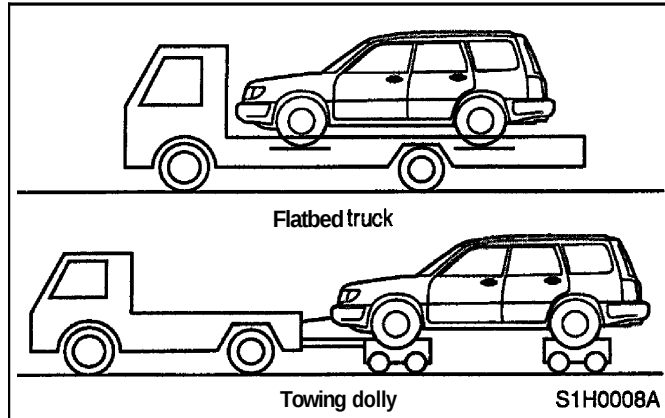
4) Drive wheel with engine and perform tire balance tests.

6. TOWING

1) Loading vehicle onto dolly or flat-bed truck

CAUTION:

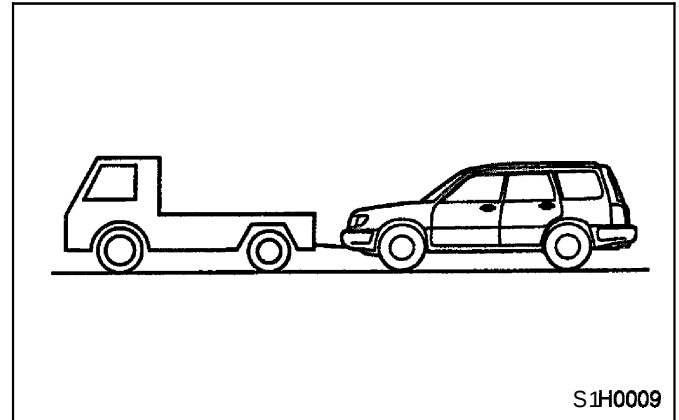
- Transport vehicle using a dolly or flat-bed truck whenever possible.
- Move **shift** lever to “**1st**” position and apply parking brake.



2) Towing with a rope

CAUTION:

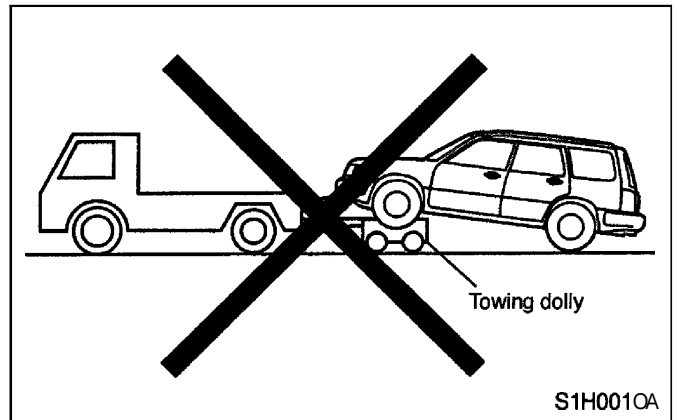
- Use a rope only when power train and all wheels are operating properly.
- The ignition switch should be in the “**ACC**” position. Never have the ignition switch on “**LOCK**” while the vehicle is being towed because steering will not be possible, since the direction of the wheels will be locked.
- Put the transmission in neutral.
- Never use the tie down hooks for towing.
- Remember that brake booster and power steering **will not work** when engine is “**OFF**”. You will have to use greater effort for the brake pedal and steering wheel.
- Before towing, check transmission oil and differential oil levels and top up to the specified level if necessary.



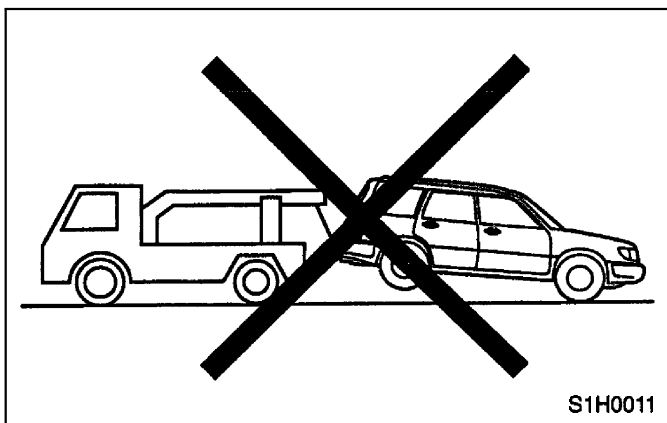
3) Towing with front or rear wheels raised

CAUTION:

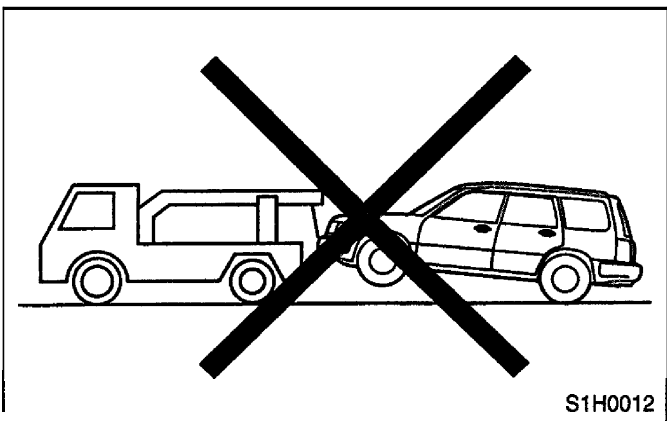
- Do not tow vehicle with only front or rear wheels placed on towing **dolly** or flat-bed truck. This may degrade viscous coupling performance or cause vehicle to jump off dolly or truck.



- Do not tow vehicle with rear wheels raised under any circumstances since this will damage bumper.



- Do not tow vehicle with front wheels raised under any circumstances since this will damage bumper.



F: FULL TIME AWD AT MODELS

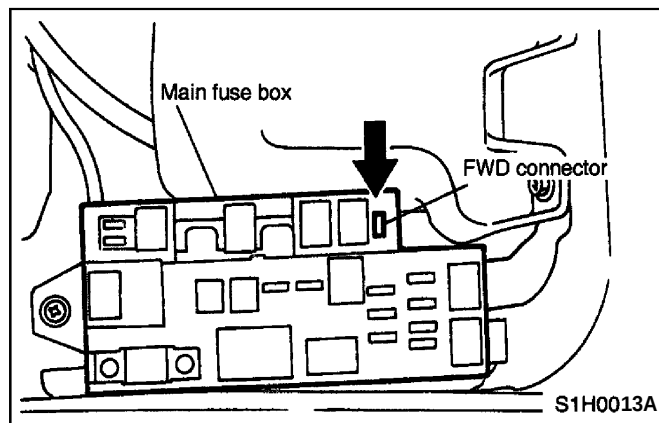
1. BEFORE CHECKING OR SERVICING CARS WITH THE FRONT WHEELS RAISED OR **ON** ROLLERS (**BRAKE** TESTER, CHASSIS DYNAMOMETER, ETC.)

CAUTION:

Ensure that the **FWD** pilot light is on. If the car is left in the AWD mode, it will surge abruptly when the wheels turn, possibly damaging the transfer clutch.

Always set the car in the FWD mode.

To set the car in the FWD mode, disconnect the AWD circuit by inserting a fuse in the FWD connector inside main fuse box. Also chock the rear wheels firmly.

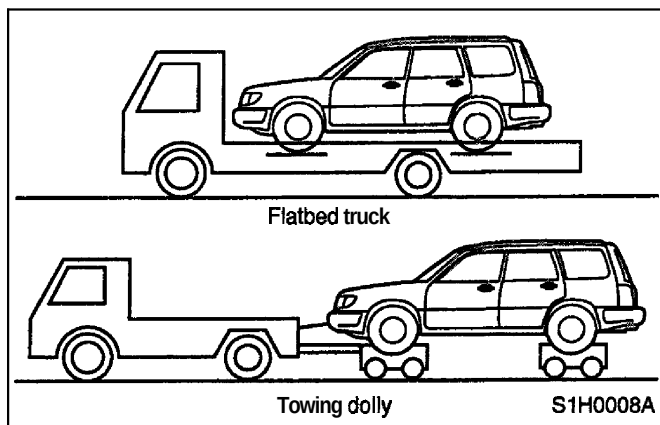


2. TOWING

1) Loading vehicle onto dolly or flat-bed truck

CAUTION:

- Transport vehicle using a dolly **or** flat-bed truck whenever possible.
- Place the selector lever in "**P**" position and apply the parking brake.



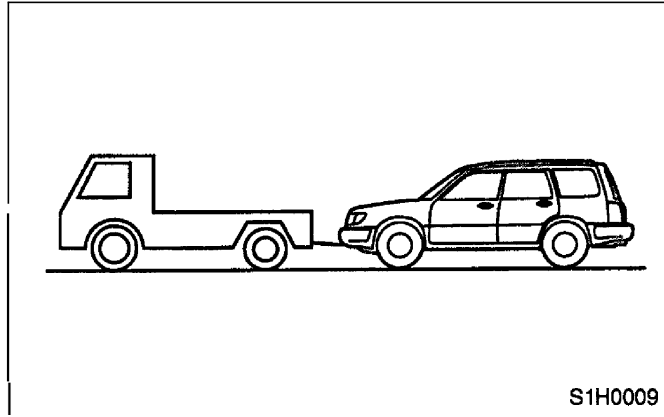
2) Towing with a rope

CAUTION:

- Tow vehicle with a rope only when power train and all wheels are operating properly.
- **Put** a spare **fuse** inside the FWD connector and never exceed **30 km/h (19 MPH)**. Also, do not **tow** for more than **50 km (31 miles)**.
- Place the selector lever in "**N**" position.
- The ignition switch should be in the "**ACC**" position while the vehicle is being towed.
- Never **use the tie down hooks** for towing.
- Remember that brake booster and power steering will not work when the engine is

“OFF”. You will have to use greater effort for the brake pedal and steering wheel.

- Before towing, check transmission oil and differential oil levels and top up to the specified level if necessary.



3) Towing with front or rear wheels raised

CAUTION:

Do not tow vehicle with front or rear wheels raised under any circumstances since this will damage bumper.

