

1. Foreword

A: FOREWORD

These manuals are used when performing maintenance, repair or diagnosis of the Subaru IMPREZA.

Applied model: GG***** and GD***** from 2003MY.

The manuals contain the latest information at the time of publication. Changes in the specifications, methods, etc. may be made without notice.

1. How to Use This Manuals

A: HOW TO USE THIS MANUALS

1. STRUCTURE

Each section consists of SCT that are broken down into SC that are divided into sections for each component. Specifications, maintenance and other information for the components are included, and diagnosis information are also added where necessary.

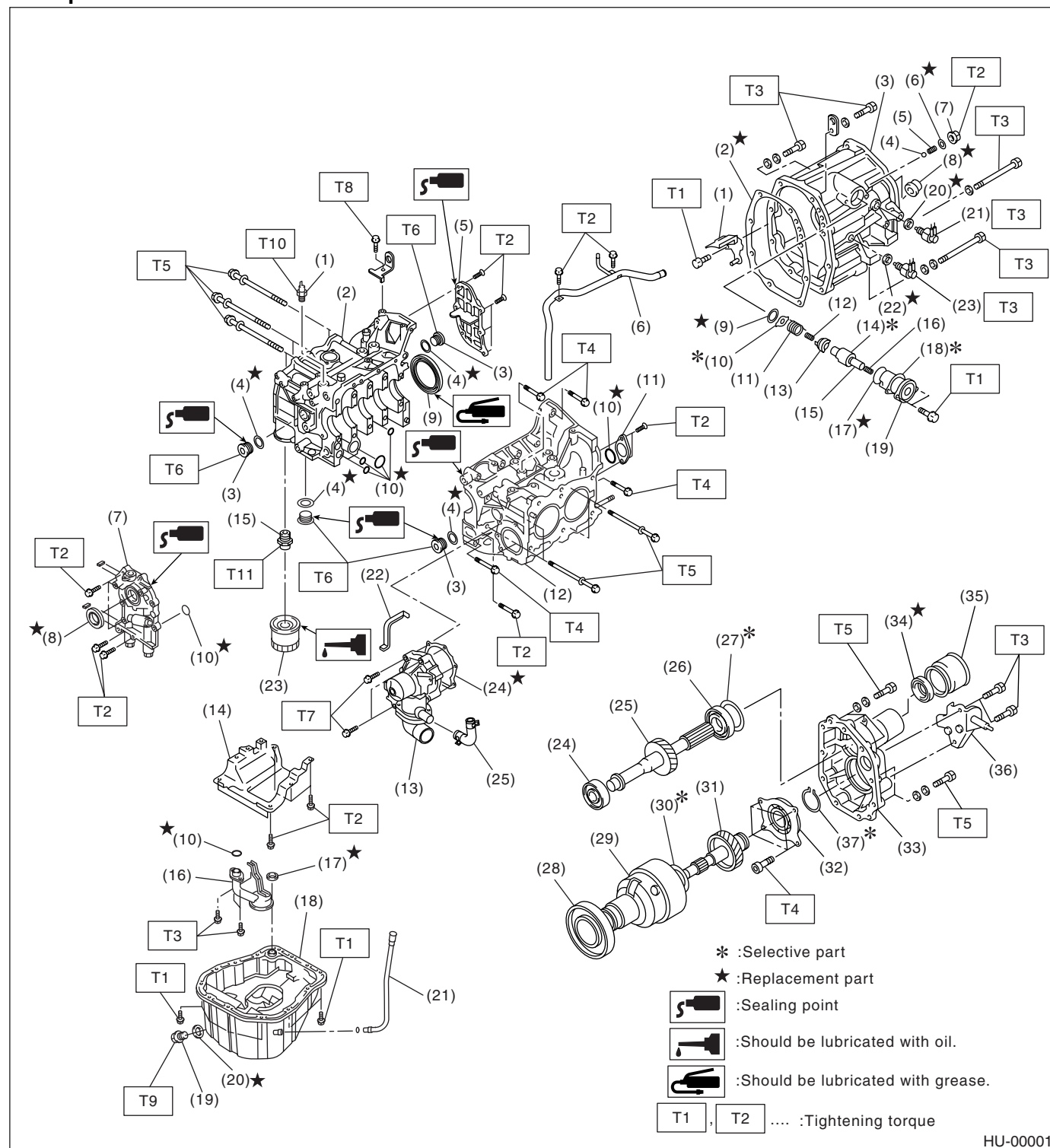
2. INDEX

The first page has an index with tabs.

3. COMPONENTS

Illustrations are given for each component. Additional information necessary for repair work (tightening torque, grease up points, etc.) are included in these illustrations. Such information are indicated by symbols. To order parts, refer to the parts catalogue.

Example:



HU-00001

HOW TO USE THIS MANUALS

HOW TO USE THIS MANUALS

4. SPECIFICATIONS

If necessary, specifications are also included.

5. INSPECTION

Inspections to be carried out before and after maintenance are included.

6. MAINTENANCE

- Maintenance instructions for serviceable parts describe work areas and detailed steps with illustrations. They also describe the use of special tools, tightening torques, cautions for each procedure.
- If more than one serviceable part are included in one service procedure, appropriate reference are provided for each part.

Example:

15.Main Shaft Assembly for Sin- (A) gle-Range

A: REMOVAL (B)

1) Remove the manual transmission assembly from vehicle. <Ref. to MT-33, REMOVAL, Manual Transmission Assembly.> (C)

11) Tighten the lock nuts to the specified torque using ST1 and ST2.

NOTE: (D)

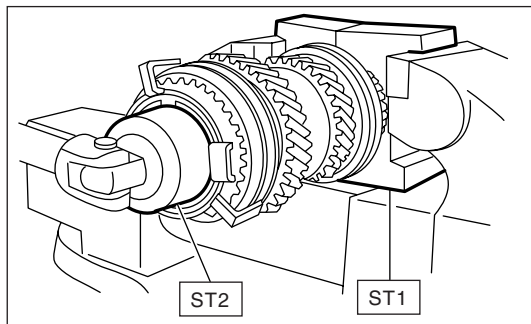
Secure the lock nuts in two Places after tightening.

ST2 499987003 SOCKET WRENCH

ST1 498937000 (E) TRANSMISSION HOLDER (F)

Tightening torque:

118 N·m (12.0 kgf-m, 86.8 ft-lb) (G)



HU-00002

- (A) Component
(B) Process
(C) Reference

- (D) Caution
(E) Tool number of special tool
(F) Name of special tool

- (G) Tightening torque
(H) Illustration

7. DIAGNOSIS

Tables showing a step-by-step process make it easy to conduct diagnosis.

8. SI UNITS

Measurements in these manuals are according to the SI units. Metric and yard/pound measurements are also included.

Example:

Tightening torque:

44 N·m (4.5 kgf-m, 33 ft-lb)

HOW TO USE THIS MANUALS

HOW TO USE THIS MANUALS

IMPREZA

SPECIFICATIONS

1. Impreza

A: DIMENSIONS

Model			Sedan	Wagon	OUTBACK
Overall length		mm (in)	4,405 (173.4)		
Overall width		mm (in)	1,730 (68.1)	1,695 (66.7)	1,710 (67.3)
Overall height (at CW)		mm (in)	1,440 (56.7)	1,465 (57.7), 1,485 (58.5)★2	1,475 (58.1), 1,530 (60.2)★3
Compartment	Length	mm (in)	1,890 (74.4)	1,845 (72.6)	
	Width	mm (in)	1,380 (54.3)		
	Height	mm (in)	1,180 (46.5)	1,200 (47.2)	1,200 (47.2)
Wheelbase		mm (in)	2,525 (99.4)		
Tread	Front	mm (in)	1,485 (58.5)	1,465 (57.7)	1,460 (57.5)
	Rear	mm (in)	1,475 (58.1), 1,480 (58.3)★1	1,455 (57.3)	1,455 (57.3)
Minimum road clearance		mm (in)	150 (5.9), 155 (6.1)★1	150 (5.9), 155 (6.1)★1	160 (6.3)

★1: WRX

★2: With roof rail

★3: With roof rack

B: ENGINE

Model			Turbo 2.0 L	2.5 L
Engine type			Horizontally opposed, liquid cooled, 4-cylinder, 4-stroke gasoline engine	
Valve arrangement			Overhead camshaft type	
Bore × Stroke		mm (in)	92 × 75 (3.62 × 2.95)	99.5 × 79.0 (3.917 × 3.110)
Displacement		cm ³ (cu in)	1,994 (121.67)	2,457 (149.9)
Compression ratio			8.0	10.0
Firing order			1 — 3 — 2 — 4	
Idle speed at Park/Neutral position (A/C OFF)		rpm	750	650 (MT) 700 (AT)
Maximum output		kW (HP)/rpm	169 (227)/6,000	123 (165)/5,600
Maximum torque		N·m (kgf-m, ft-lb)/rpm	294 (30.0, 217)/4,000	226 (23.0, 166)/4,000

C: ELECTRICAL

Model		Turbo 2.0 L	2.5 L
Ignition timing at idling speed BTDC/rpm		12°±10°/750	MT: 10°±8°/650 AT: 15°±8°/700
Spark plug		NGK: PFR6G	CHAMPION: RC10YC4(Standard) NGK: BKR5E-11 NGK: BKR6E-11
Generator		12V — 75A	12V — 90A
Battery	Type	MT: 12V — 48AH (55D23L) AT: 12V — 52AH (65D23L)	MT: 12V — 48AH (55D23L) AT: 12V — 52AH (75D23L)
	Reserve capacity min	MT: 99 AT: 111	MT: 99 AT: 118
	Cold cranking amperes amp	MT: 356 AT: 420	MT: 356 AT: 520

D: TRANSMISSION

Model			Turbo 2.0 L	
Transmission type			5MT★1	4AT★2
Clutch type			DSPD	TCC
Gear ratio	1st	2nd	3.454	2.785
		3rd	1.947	1.545
		4th	1.366	1.000
		5th	0.972	0.694
		Reverse	0.738	—
		Reverse	3.333	2.272
Reduction gear (Front drive)	1st reduction	Type of gear	—	Helical
		Gear ratio	—	1.000
	Final reduction	Type of gear	Hypoid	Hypoid
		Gear ratio	3.900	4.111
Reduction gear (Rear drive)	Transfer reduction	Type of gear	Helical	—
		Gear ratio	1.100	—
	Final reduction	Type of gear	Hypoid	Hypoid
		Gear ratio	3.545	4.111

5MT★1: 5 forward speeds with synchromesh and 1-reverse

4AT★2: Electronically controlled fully-automatic, 4-forward speeds and 1-reverse

DSPD: Dry Single Plate Diaphragm

TCC: Torque Converter Clutch

IMPREZA

SPECIFICATIONS

Model			2.5 L			
			RS		Others	
Transmission type			5MT★1	4AT★2	5MT★1	4AT★2
Clutch type			DSPD	TCC	DSPD	TCC
Gear ratio	1st		3.454	3.027	3.454	2.785
	2nd		2.062	1.619	2.062	1.545
	3rd		1.448	1.000	1.448	1.000
	4th		1.088	0.694	1.088	0.694
	5th		0.780	—	0.780	—
	Reverse		3.333	2.272	3.333	2.272
	Dual range		—	—	—	—
Reduction gear (Front drive)	1st reduction	Type of gear	—	Helical	—	Helical
		Gear ratio	—	1.000	—	1.000
	Final reduction	Type of gear	Hypoid	Hypoid	Hypoid	Hypoid
		Gear ratio	4.111	4.444	3.900	4.111
Reduction gear (Rear drive)	Transfer reduction	Type of gear	Helical	—	Helical	—
		Gear ratio	1.000	—	1.000	—
	Final reduction	Type of gear	Hypoid	Hypoid	Hypoid	Hypoid
		Gear ratio	4.111	4.444	3.900	4.111

5MT★1: 5 forward speeds with synchromesh and 1-reverse

4AT★2: Electronically controlled fully-automatic, 4-forward speeds and 1-reverse

DSPD: Dry Single Plate Diaphragm

TCC: Torque Converter Clutch

E: STEERING

Model			TS	OTHERS
Type			Rack and Pinion	
Turns, lock to lock			3.2	3
Minimum turning circle m (ft)	Curb to curb		10.2 (33.5)	10.8 (35.4)
	Wall to wall		11.1 (36.3)	11.7 (38.3)

F: SUSPENSION

Front	Macpherson strut type, Independent, Coil spring
Rear	Dual-link strut type, Independent, Coil spring

G: BRAKE

Model	SEDAN	WAGON
Service brake system	Dual circuit hydraulic with vacuum suspended power unit	
Front	Ventilated disc brake	
Rear	Disc brake	Drum brake, Disc brake★1
Parking brake	Mechanical on rear brakes	

★1: WRX

H: TIRE

Model	TS	RS,OBK	WRX
Rim size	15 × 6JJ	16 × 6 ¹ / ₂ JJ	16 × 6 ¹ / ₂ JJ, 17 × 7JJ★2
Tire size	P195/60R15 87H	P205/55R16 89V	P205/55R16 89V, 215/45R17 87W★2
Type	Steel belted radial, Tubeless		

★2: Option

I: CAPACITY

Model		Turbo 2.0 L		2.5 L	
		5MT	4AT	5MT	4AT
Fuel tank	ℓ (US gal, Imp gal)	60 (15.9, 13.2)		60 (15.9, 13.2)	
Engine oil (when replaced)	ℓ (US qt, Imp qt)	4.5 (4.8, 4.0)		4.0 (4.2, 3.5)	
Transmission gear oil	ℓ (US qt, Imp qt)	3.5 (3.7, 3.1)	—	3.5 (3.7, 3.1)	—
Automatic transmission fluid	ℓ (US qt, Imp qt)	—	9.3 — 9.6 (9.8 — 10.1, 8.2 — 8.4)	—	9.3 — 9.6 (9.8 — 10.1, 8.2 — 8.4)
AT differential gear oil	ℓ (US qt, Imp qt)	—	1.2 (1.3, 1.1)	—	1.2 (1.3, 1.1)
AWD rear differential gear oil	ℓ (US qt, Imp qt)	0.8 (0.8, 0.6)			
Power steering fluid	ℓ (US qt, Imp qt)	0.7 (0.7, 0.6)			
Engine coolant	ℓ (US qt, Imp qt)	7.7 (8.1, 6.8)	7.6 (8.0, 6.7)	7.0 (7.4, 6.2)	6.9 (7.3, 6.1)

J: WEIGHT

1. U.S. SPEC. VEHICLE

Sedan

Model			AWD			
			Turbo 2.0 L		2.5 L	
			WRX		RS	
			5MT	4AT	5MT	4AT
Curb weight (C.W.)	Front	kg (lb)	826 (1,820)	851 (1,875)	778 (1,715)	803 (1,770)
	Rear	kg (lb)	569 (1,255)	569 (1,255)	567 (1,250)	567 (1,250)
	Total	kg (lb)	1,395 (3,075)	1,420 (3,130)	1,345 (2,965)	1,370 (3,020)
Gross axle weight (G.A.W.)	Front	kg (lb)	998 (2,200)	998 (2,200)	939 (2,070)	939 (2,070)
	Rear	kg (lb)	857 (1,890)	857 (1,890)	857 (1,890)	857 (1,890)
Gross vehicle weight (G.V.W.)	Total	kg (lb)	1,837 (4,050)	1,837 (4,050)	1,778 (3,920)	1,778 (3,920)
Option	Power window		○	○	○	○
	Power door lock		○	○	○	○
	Cruise control		○	○	○	○
	ABS		○	○	○	○
	Roof rail		—	—	—	—
	Air conditioning		○	○	○	○
	Dual air bag		○	○	○	○
	Side air bag		—	—	—	—
	Rear spoiler		—	—	—	—

IMPREZA

SPECIFICATIONS

Wagon

Model			AWD	
			Turbo 2.0 L	
			WRX	
			5MT	4AT
Curb weight (C.W.)	Front	kg (lb)	825 (1,820)	850 (1,875)
	Rear	kg (lb)	606 (1,335)	606 (1,335)
	Total	kg (lb)	1,431 (3,155)	1,456 (3,210)
Gross axle weight (G.A.W.)	Front	kg (lb)	998 (2,200)	998 (2,200)
	Rear	kg (lb)	925 (2,040)	925 (2,040)
Gross vehicle weight (G.V.W.)	Total	kg (lb)	1,901 (4,190)	1,901 (4,190)
Option	Power window		○	○
	Power door lock		○	○
	Cruise control		○	○
	ABS		○	○
	Roof rail		○	○
	Air conditioning		○	○
	Dual air bag		○	○
	Side air bag		—	—
	Rear spoiler		—	—

Model			AWD			
			2.5 L			
			TS		OUTBACK	
			5MT	4AT	5MT	4AT
Curb weight (C.W.)	Front	kg (lb)	778 (1,715)	801 (1,765)	783 (1,725)	805 (1,775)
	Rear	kg (lb)	603 (1,330)	605 (1,335)	601 (1,325)	603 (1,330)
	Total	kg (lb)	1,381 (3,045)	1,406 (3,100)	1,384 (3,050)	1,408 (3,105)
Gross axle weight (G.A.W.)	Front	kg (lb)	939 (2,070)	939 (2,070)	939 (2,070)	939 (2,070)
	Rear	kg (lb)	925 (2,040)	925 (2,040)	925 (2,040)	925 (2,040)
Gross vehicle weight (G.V.W.)	Total	kg (lb)	1,833 (4,040)	1,833 (4,040)	1,833 (4,040)	1,833 (4,040)
Option	Power window		○	○	○	○
	Power door lock		○	○	○	○
	Cruise control		—	—	○	○
	ABS		○	○	○	○
	Roof rail		○	○	○	○
	Air conditioning		○	○	○	○
	Dual air bag		○	○	○	○
	Side air bag		—	—	—	—
	Rear spoiler		—	—	—	—

2. CANADA SPEC. VEHICLE

Sedan

Model			AWD			
			Turbo 2.0 L		2.5 L	
			WRX		RS	
			5MT	4AT	5MT	4AT
Curb weight (C.W.)	Front	kg (lb)	826 (1,820)	850 (1,875)	778 (1,715)	803 (1,770)
	Rear	kg (lb)	573 (1,265)	574 (1,265)	567 (1,250)	567 (1,250)
	Total	kg (lb)	1,399 (3,085)	1,424 (3,140)	1,345 (2,965)	1,370 (3,020)
Gross axle weight (G.A.W.)	Front	kg (lb)	998 (2,200)	998 (2,200)	939 (2,070)	939 (2,070)
	Rear	kg (lb)	857 (1,890)	857 (1,890)	857 (1,890)	857 (1,890)
Gross vehicle weight (G.V.W.)	Total	kg (lb)	1,837 (4,050)	1,837 (4,050)	1,778 (3,920)	1,778 (3,920)
Option	Power window		○	○	○	○
	Power door lock		○	○	○	○
	Cruise control		○	○	○	○
	ABS		○	○	○	○
	Roof rail		—	—	—	—
	Air conditioning		○	○	○	○
	Dual air bag		○	○	○	○
	Side air bag		○	○	—	—
	Rear spoiler		—	—	—	—

Wagon

Model			AWD					
			Turbo 2.0 L		2.5 L			
			WRX		TS		OUTBACK	
			5MT	4AT	5MT	4AT	5MT	4AT
Curb weight (C.W.)	Front	kg (lb)	826 (1,820)	851 (1,875)	778 (1,715)	801 (1,765)	783 (1,725)	805 (1,775)
	Rear	kg (lb)	610 (1,345)	610 (1,345)	601 (1,325)	603 (1,330)	601 (1,325)	603 (1,330)
	Total	kg (lb)	1,436 (3,165)	1,461 (3,220)	1,379 (3,040)	1,404 (3,095)	1,384 (3,050)	1,408 (3,105)
Gross axle weight (G.A.W.)	Front	kg (lb)	998 (2,200)	998 (2,200)	939 (2,070)	939 (2,070)	939 (2,070)	939 (2,070)
	Rear	kg (lb)	925 (2,040)	925 (2,040)	925 (2,040)	925 (2,040)	925 (2,040)	925 (2,040)
Gross vehicle weight (G.V.W.)	Total	kg (lb)	1,901 (4,190)	1,901 (4,190)	1,833 (4,040)	1,833 (4,040)	1,833 (4,040)	1,833 (4,040)
Option	Power window		○	○	○	○	○	○
	Power door lock		○	○	○	○	○	○
	Cruise control		○	○	○	○	○	○
	ABS		○	○	○	○	○	○
	Roof rail		○	○	—	—	○	○
	Air conditioning		○	○	○	○	○	○
	Dual air bag		○	○	○	○	○	○
	Side air bag		○	○	—	—	—	—
	Rear spoiler		—	—	—	—	—	—

1. Precaution

A: PRECAUTION

Please clearly understand and adhere to the following general precautions. They must be strictly followed to avoid minor or serious injury to the person doing the work or people in the area.

1. ABS

Handle the ABS as a total system. Do not disassemble or attempt to repair individual parts. Doing so could prevent the ABS system from operating when needed or cause it to operate incorrectly and result in injury.

2. BRAKE FLUID

If brake fluid gets in your eyes or on your skin, do the following:

- Wash out your eyes and seek immediate medical attention.
- Wash your skin with soap and then rinse thoroughly with water.

3. ELECTRIC FAN

The electric fan may rotate without warning, even when the engine is not on. Do not place your hand, cloth, tools, or other items near the fan at any time.

4. ROAD TESTS

Always conduct road tests in accordance with traffic rules and regulations to avoid bodily injury and interrupting traffic.

5. AIRBAG

To prevent bodily injury from unexpected deployment of airbags and unnecessary maintenance, follow the instructions in this manual when performing maintenance on airbag components or nearby, and airbag wiring harnesses or nearby.

To prevent unexpected deployment, perform one of the steps below and then wait at least 20 seconds to discharge electricity before beginning work.

- Step 1: Turn the ignition switch to OFF.
- Step 2: Disconnect the ground cable from battery.

6. AIRBAG DISPOSAL

To prevent bodily injury from unexpected airbag deployment, do not dispose airbag modules in the same way as other refuse. Follow all government regulations concerning disposal of refuse.

7. AIRBAG MODULE

Adhere to the following when handling and storing the airbag module to prevent bodily injury from unexpected deployment:

- Do not hold the harnesses or connectors to carry a module.
- Do not face the bag in the direction that it deploys towards yourself or other people.
- Do not face the bag in the direction that it deploys towards the floor or walls.

8. AIRBAG SPECIAL TOOLS

To prevent unexpected deployment, only use special tools.

9. WINDOW

Always wear safety glasses when working around any glass to prevent glass fragments from damaging your eyes.

10. WINDOW ADHESIVE

Always use the specified urethane adhesive when attaching glass to prevent it from coming loose and falling, resulting in accidents and injury.

11. HOSE REMOVAL/INSTALLATION PROCEDURES

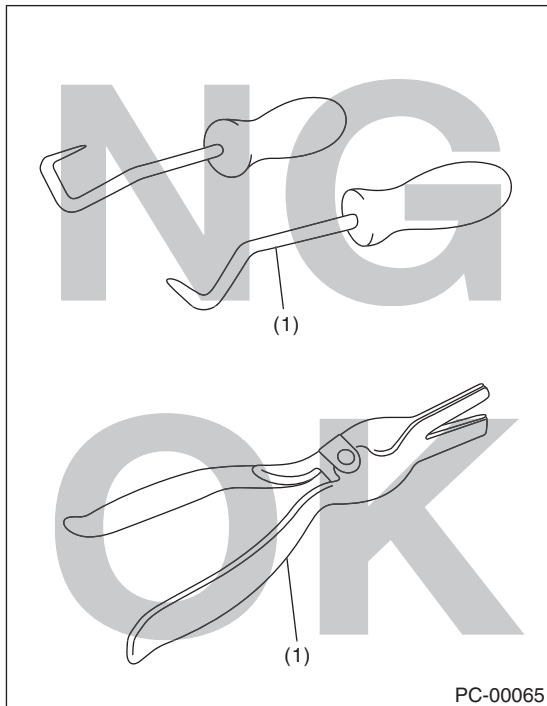
1. Hose Removal/Installation Pre-Procedures

- Be careful to inspect hoses so as not to use damaged or deformed hoses. Using such hoses could cause leakage or loss of oil, with leaked oil splashing on exhaust pipes or other hot parts, resulting in smoke or fire.
- Always remove hoses when performing work. Not removing the hoses and moving parts out of the way when performing procedures may damage the inside of hoses and cause other negative affects.

2. Hose Removal/Installation Procedures and Inspection

• Remove hoses according to the following instructions.

- If using the hose remover (general tool), do not use the sharp-pointed hose remover (hose plucker) as it may damage pipe surfaces or hoses.



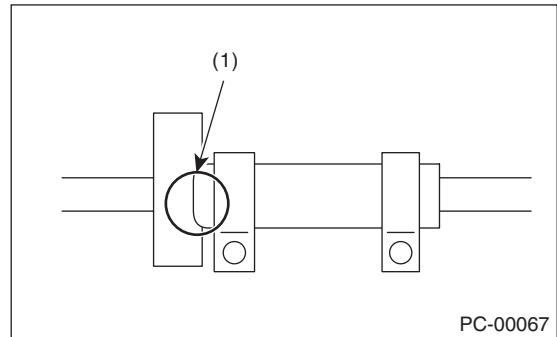
PC-00065

(1) Hose remover

- When using pliers to make hose removal easier, always be sure to use a cloth to protect the hose, slightly rotate the hose, and then pull straight out by hand.

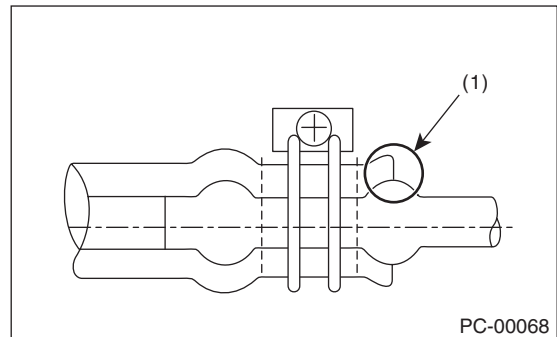
- Inspect the following points in continuous use, and replace any hoses that are damaged or defective with new parts.

- Replace any hoses that are riding over the stay or spool with new parts.



PC-00067

(1) Hose riding over a stay



PC-00068

(1) Hose riding over a spool

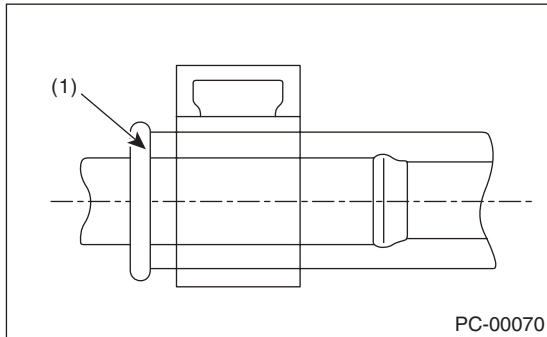
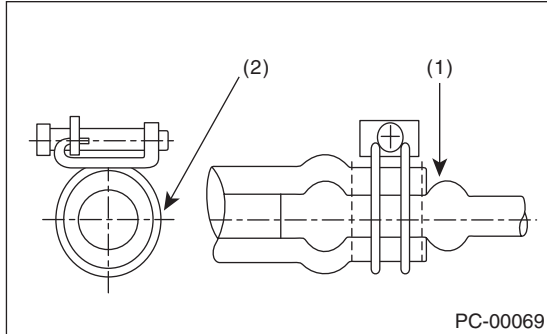
- Check the inner and outer surfaces of the hose for damage, cracks, breakage, hardening/softening/swelling of rubber, internal peeling, and that there are no deformations caused by infiltration/adhesion of foreign matter, and no twisted hoses. Replace any defective hoses with new parts.

PRECAUTION

PRECAUTION

- **Install hoses according to the following instructions.**

- Carefully check the installation positions.
- Do not use any lubricants.
- Securely insert until the specified positions (until contacting spool).



- (1) Contacting the spool. (Do not excessively insert the hose to prevent the hose from becoming wrinkled up.)
- (2) Apply an equal clamping force all around the hose periphery.

- Check that the position and orientation of hose clamps, and the hose layout are correct. (Check that the position and orientation are matching, they are not excessively short/long, there are no differences with before performing the procedures, and that there is clearance between hoses and surrounding parts.)
- After installing, check that there are no disconnection of hoses or leakage from hoses. (Check that hoses are securely fixed by the clamps.)
- **Inspect the hose clips and clamps according to the following points, and replace any parts that are damaged or defective with new parts.**
 - Check for deformations, rust, damage, and adhering of foreign matter.
 - For clips, check that the spring functions and has clamping force.
 - For clamps, check that the screw can clinch, the clamp has not become oval shaped, and the screw is not damaged.

- **Inspect the pipes according to the following points, and replace any parts that are damaged or defective with new parts.**

Check that the pipes do not have any damage, rust, peeling (including peeling plating), foreign matter adhering, twisting, crushing, bending, or cracks.

- **Replace the following parts with new parts if the hoses have been removed or their installation positions have been changed.**

ATF cooler hose, engine oil cooler hose, MT oil cooler hose, power steering suction hose, and power steering return hose.

1. Note

A: NOTE

This is the information that can improve the efficiency of maintenance and assure the sound work.

1. FASTENER NOTICE

Fasteners are used to prevent the parts from damage and dislocation due to looseness. Fasteners must be tightened to the specified torque.

Do not apply paint, lubricant, rust retardant or other substances to the surface around bolts, fasteners, etc. Doing so will make it difficult to obtain the correct torque and result in looseness and other problems.

2. STATIC ELECTRICITY DAMAGE

Do not touch the ECM, connectors, logic boards and other such parts when there is a risk of static electricity. Always use a static electricity prevention cord or touch grounded metal before conducting work.

3. IGNITION OFF BATTERY

When removing the battery cables, always be sure to turn the ignition off to prevent electrical damage to the ECM from rush current.

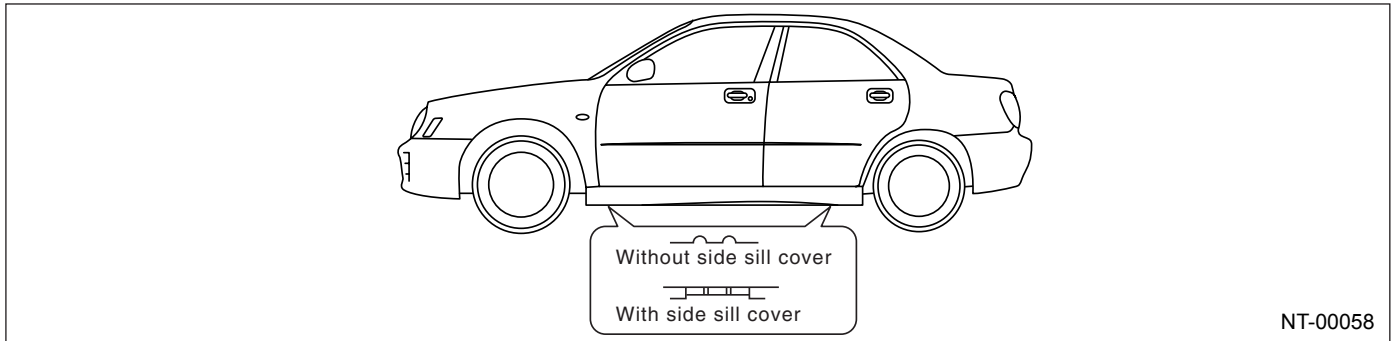
4. SERVICE PARTS

Use authentic service parts for maximum performance and maintenance, when conducting repairs. Subaru/FHI will not be responsible for poor performance resulting from the use of parts not specified by a genuine dealer.

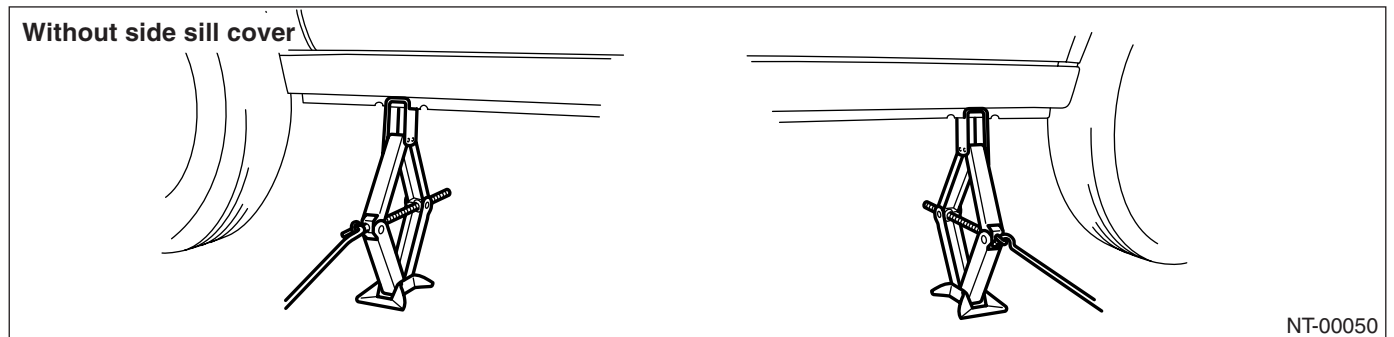
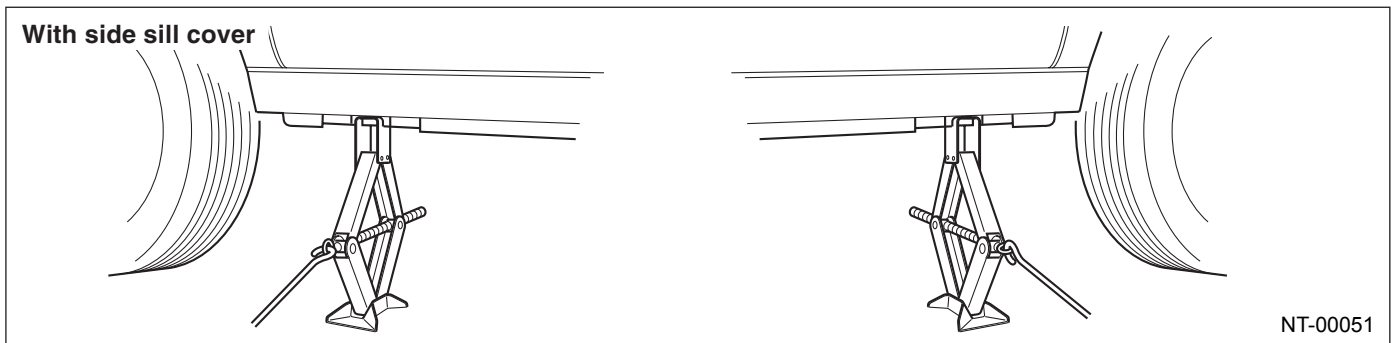
5. LIFTS AND JACKS

When using a lift or jack-ridged rack to raise a vehicle, always follow the instructions concerning jack-up points and weight limits to prevent the vehicle from falling, which could result in injury. Be especially careful to make sure the vehicle is balanced before raising it.

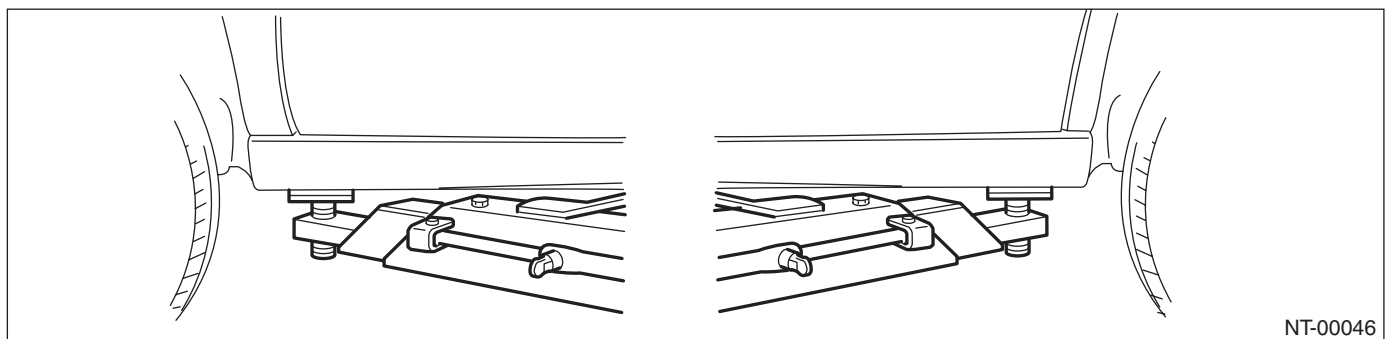
• Support locations



• Pantograph jack



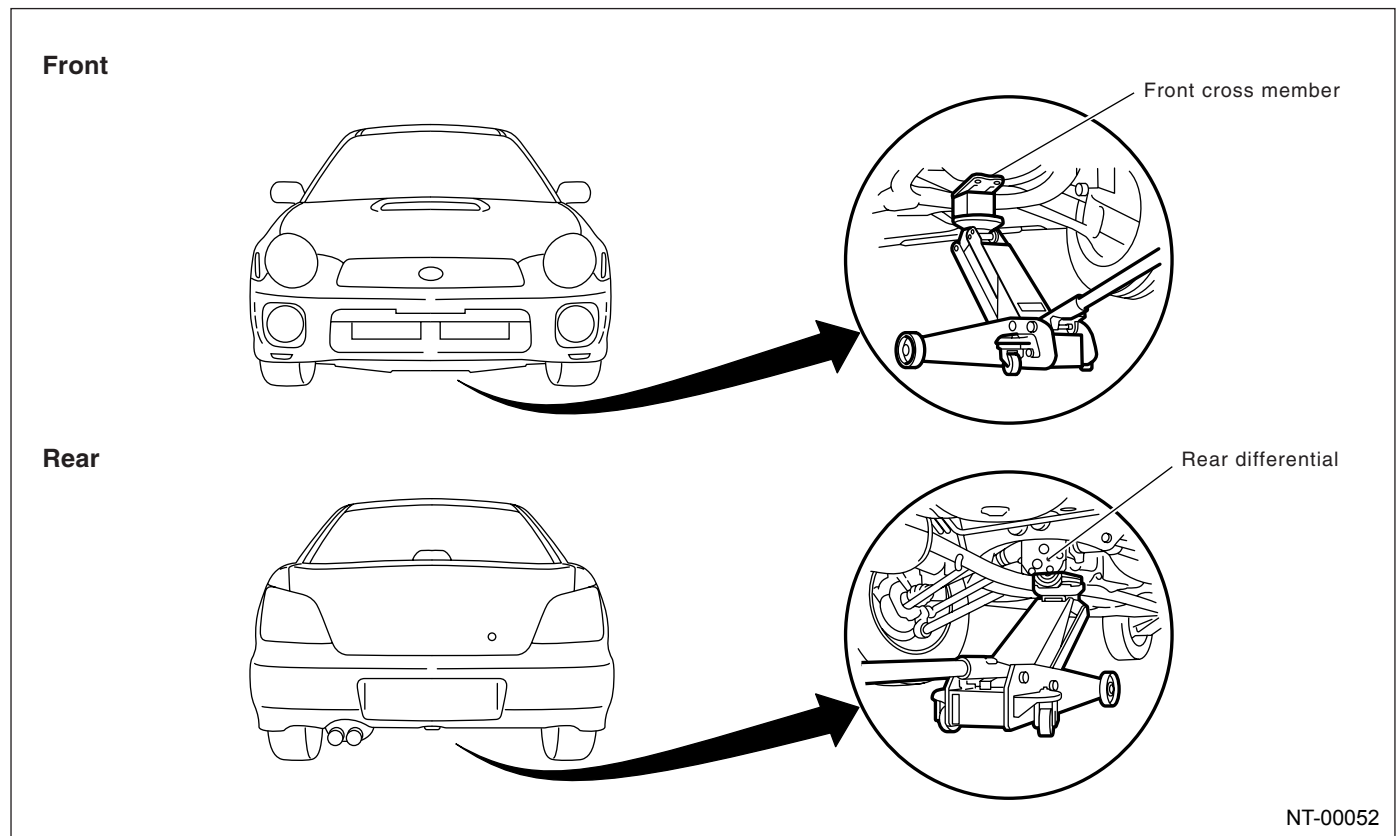
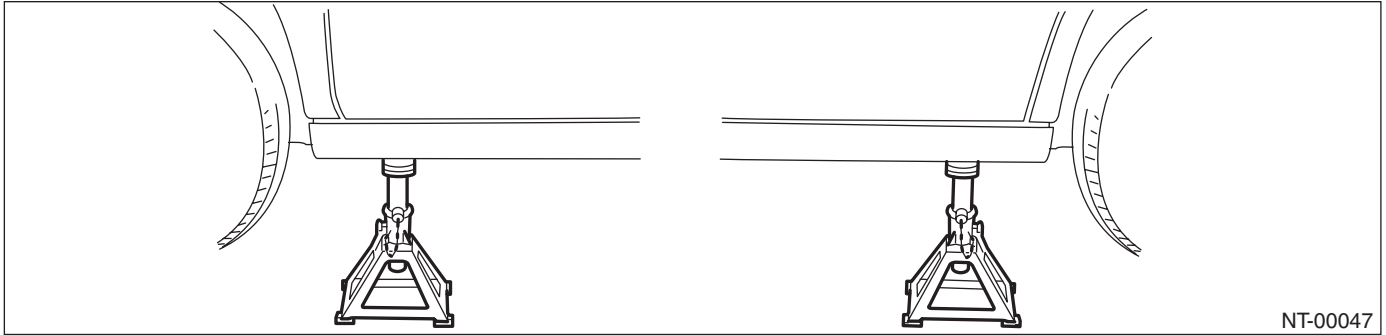
• Lift



NOTE

NOTE

- Safety stand

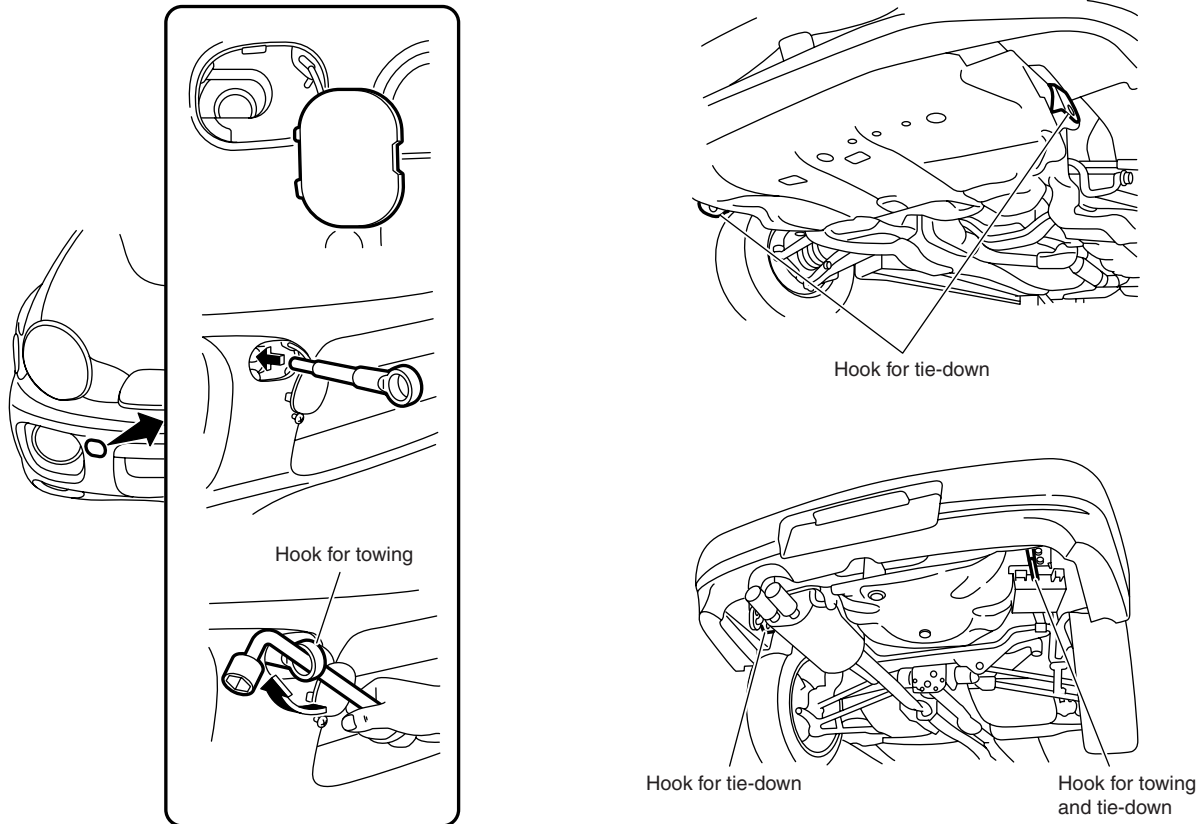


6. TIE DOWNS

Tie downs are used when transporting vehicles and when using the chassis dynamo. Attach tie downs only to the specified points on the vehicle.

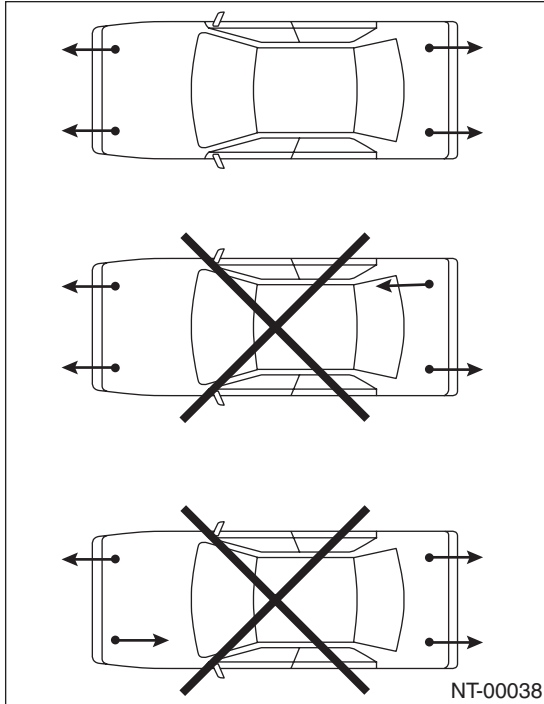
• Tie down locations

Attach only to the specified points on the vehicle.

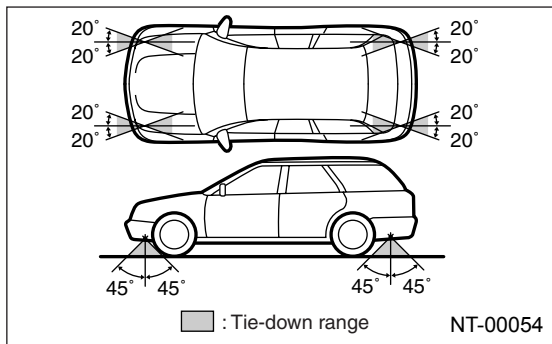


NT-00053

• Chain directions for tie-down

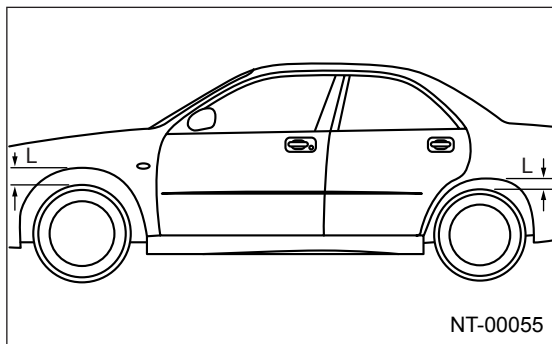


• Chain angles for tie-down



• Vehicle height sink at tie-down

Measure the distance from the top of the tire to the top of the wheel arch before and after tie-down. The vehicle must be securely fastened with the difference in distance (sink) within 50 mm (2 in).



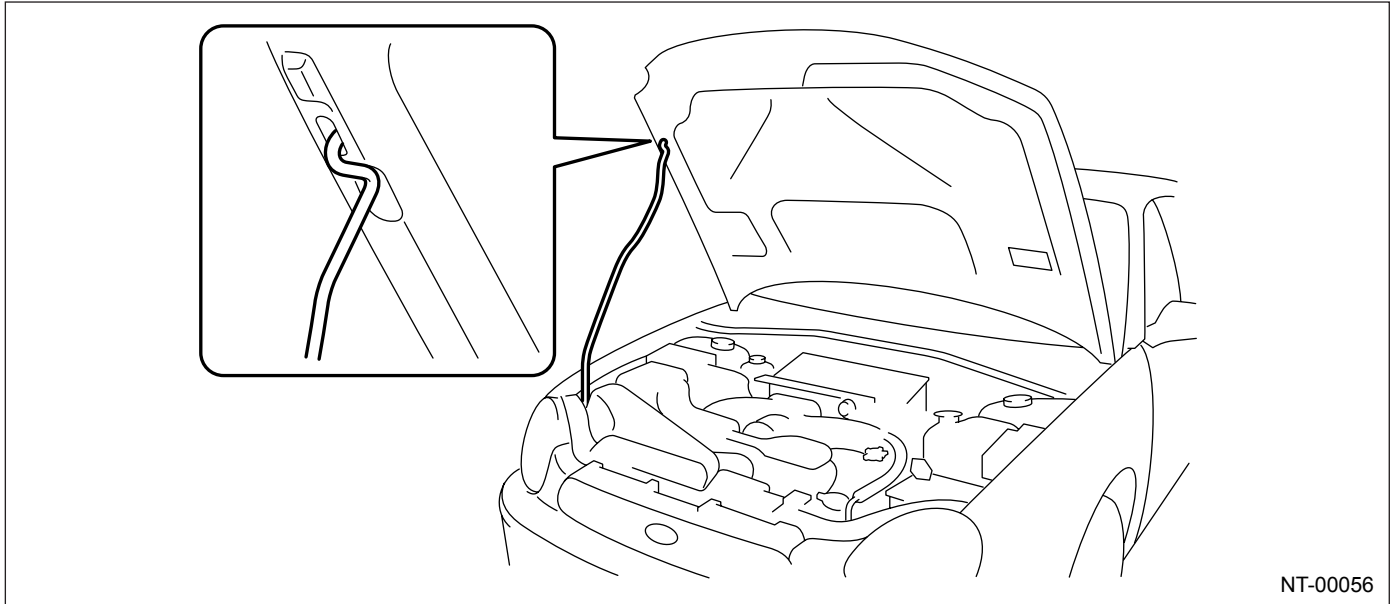
7. TOWING

Avoid towing vehicles except when the vehicle cannot be driven. For vehicles with AWD, AT or VTD, use a loader instead of towing. When towing other vehicles, to prevent excessive weight from damaging the hook or vehicle:

- Do not tow other vehicles with a front towing hook.
- Make sure the vehicle towing is heavier than the vehicle being towed.

8. FRONT HOOD STAY INSTALLATION

- At the check and general maintenance

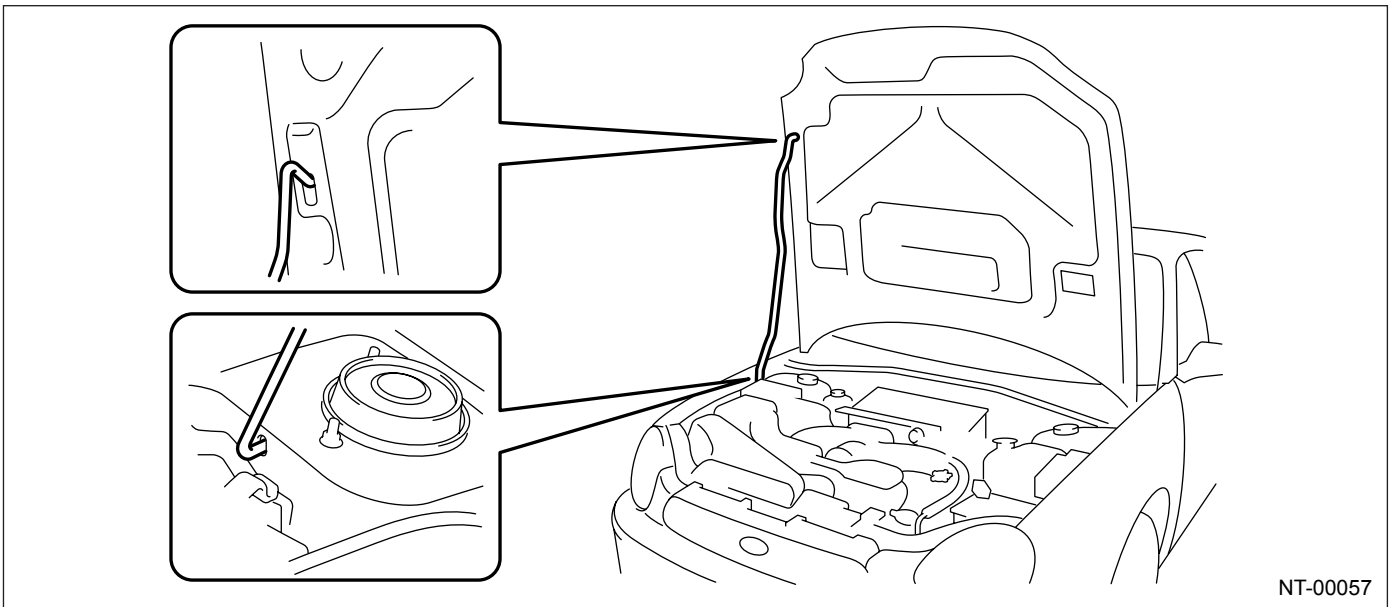


- When wider hood opening is necessary

Set stay into the hole of hood inner as shown in the figure below.

NOTE:

Before setting the stay in this position, remove the rubber plug used for closing the hole in front wheel apron. Also, remove the windshield washer hose attaching clip from the hood.



9. TRAINING

For an information about training, contact a dealer or agent.

10. GENERAL SCAN TOOL

Using general scan tools will greatly improve the efficiency of repairing engine electronic controls. The Subaru Select Monitor can be used to diagnose the engine and also the ABS, the air conditioner and other parts.

IDENTIFICATION

IDENTIFICATION

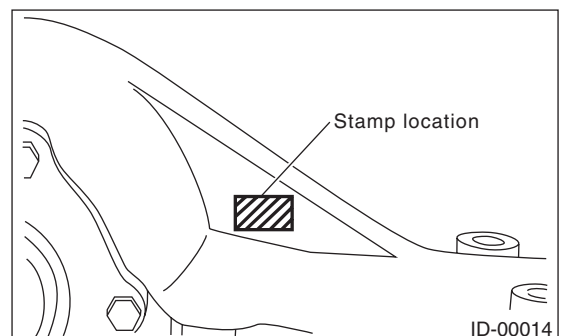
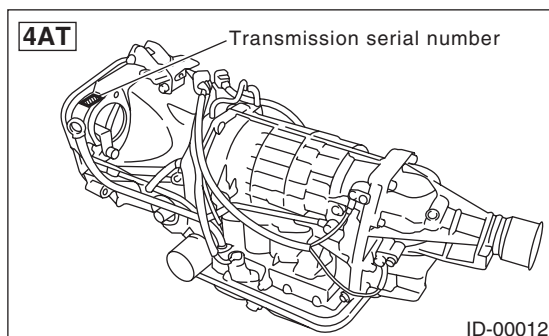
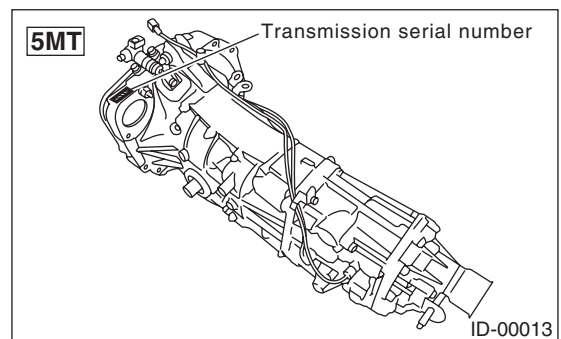
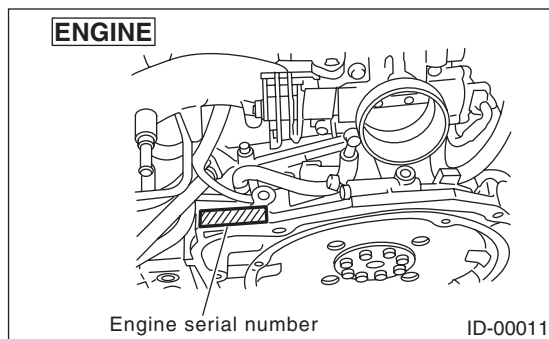
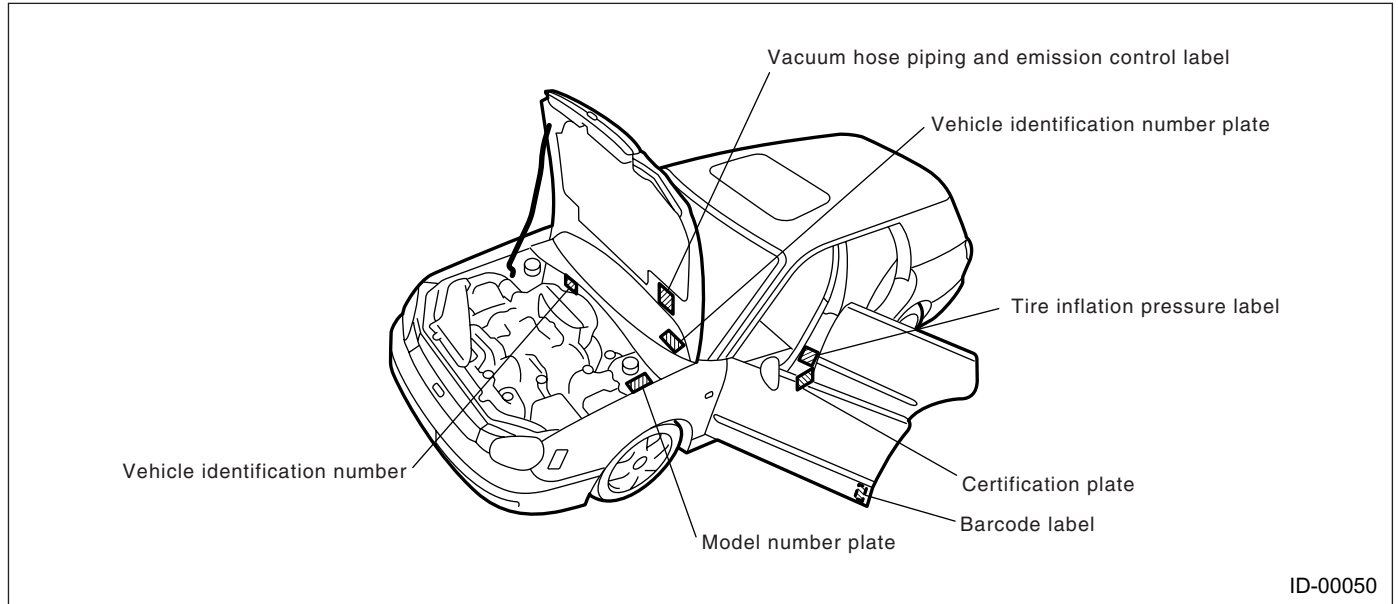
1. Identification

A: IDENTIFICATION

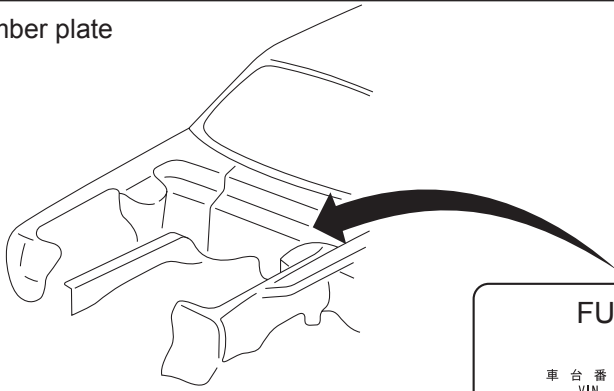
1. IDENTIFICATION NUMBER AND LABEL LOCATIONS

The VIN (Vehicle Identification Numbers) is used to classify the vehicle.

Positioning of the plate label for identification



Model number plate



FUJI HEAVY INDUSTRIES LTD.																							
										型 式													
車 台 番 号												JF1GD675X3G500001											
VIN												JF1GD675X3G500001											
○ アプライトモデル												GDEBY6J				オプションコード				E0		○	
applied model												GDEBY6J				option code				E0			
トリムコード												410				エンジン型式				EJ251BW4AB			
trim code												410				engine type				EJ251BW4AB			
外装飾コード												230				ミッション型式				TY754VC2AA			
Color code												230				transmission type				TY754VC2AA			
 富士重工業株式会社																							

ID-00051

IDENTIFICATION

IDENTIFICATION

2. MEANING OF V.I.N.

The meaning of the VIN is as follows:

JF1GD675X3G500001

The starting and ending brackets ([]) are stop marks.

Digits	Code	Meaning	Details
1 to 3	JF1	Manufacturer body area	JF1: Passenger car, FHI made
4	G	Car line	G: IMPREZA
5	D	Body type	D: 4 Door Sedan G: Wagon
6	6	Displacement	2: 2.0 L AWD Turbo 6: 2.5 L AWD
7	7	Grade	5: TS 7: RS 8: OUTBACK 9: WRX
8	5	Restraint	5: Manual belts, dual airbag. 6: Manual belts, dual airbag, side airbag.
9	X	Check digit	0-9 & X
10	3	Model year	3: 2003MY 4: 2004MY 5: 2005MY
11	G	Transmission type	G: Full-time AWD 5-speed MT H: Full-time AWD 4-speed AT
12 to 17	500001	Serial number	500001-up: 4 Door Sedan 800001-up: Wagon

3. MODEL NUMBER PLATE

The model number plate indicates: the applied model, the option code, the trim code, the engine type, the transmission type, and the exterior color code. This information is helpful when placing orders for parts.

GDEBY6J

Digits	Code	Meaning	Details
1	G	Series	G: IMPREZA
2	D	Body style	D: 4 Door Sedan G: Wagon
3	E	Engine displacement Drive system Suspension system	A: 2.0 L AWD Turbo E: 2.5 L AWD
4	B	Minor change	B: Initial
5	Y	Destination	Y: Left-hand drive for United States and Canada
6	6	Grade	4: TS 6: RS 7: OUTBACK 8: WRX
7	J	Transmission, fuel feed system	R: SOHC MPI 4-speed AT P: DOHC B MPI 4-speed AT J: SOHC MPI 5-speed MT AWD D: DOHC B MPI 5-speed MT AWD

The engine and transmission type are as follows:

• Engine

EJ251BW4AB

Digits	Code	Meaning	Details
1 and 2	EJ	Engine type	EJ: 4 cylinders
3 and 4	25	Displacement	20: 2.0 L 25: 2.5 L
5	1	Fuel feed system	1: D-MPI SOHC-A 5: MPI Turbo
6	B	Exhaust regulations	—
7	W	Transmission	W: MT X: AT
8	4	Minor change	4: 4 is applied for this vehicle.
9 to 10	AB	Detailed specifications	Used when ordering parts. See the parts catalog for details.

IDENTIFICATION

IDENTIFICATION

• Transmission

TY754VC2AA

Digits	Code	Meaning	Details	
1	T	Transmission	T: Transmission	
2	Y	Transmission type	Y: Full-time AWD MT center differential V: Full-time AWD AT center differential Z: Full-time AWD AT MPT	
3 and 4	75	Classification	75: MT 1A: AT	
5	4	Series	MT	4: 5 MT
			AT	4: AT
6	V	Transmission specifications	V: Full-time AWD 5-speed MT with viscous coupling center differential single range Z: Full-time AWD 4-speed AT with MPT Y: Full-time AWD 4-speed AT with VTD	
7	C	Engine type	V,N: 920 DOHC TURBO C,F: 925 SOHC	
8 to 10	2AA	Detailed specifications	Used when ordering parts. See the parts catalog for details.	

• Rear differential

EH

Code	Reduction gear ratio	LSD
EG	3.900	No
EH	4.111	No
EL	4.444	No
EJ	4.111	Viscous
EF	3.545	Viscous

• Option code

U4FL

Digits	Code	Meaning	Details
1 and 2	U4	Destination	U4: North America CO: Canada
3 and 4	FL	Main option of vehicle	—

1. Recommended Materials

A: RECOMMENDED MATERIALS

1. GENERAL

To insure the best performance, always use the specified oil, gasoline, adhesive, sealant, etc. or that of equivalent quality.

2. FUEL

Always use a gasoline of the same or higher octane value than specified in the owner's manual. Ignoring the specifications below will result in damage or poor operation of the engine and fuel injection system. Use the specified gasoline to correct performance.

- **Unleaded gasoline**

Use unleaded gasoline and not leaded gasoline on vehicles with a catalytic converter installed to reduce air pollution. Using leaded gasoline will damage the catalytic converter.

RECOMMENDED MATERIALS

Use either the lubricants in the table below or equivalent lubricants. See the table below to choose the correct SAE viscosity.



SAE
5W-30

API SERVICE SL

ENERGY CONSERVING

RM-00001



RM-00002

SAE viscosity No. and applicable temperature								
Engine oil								
(°C)	-30	-20	-10	0	10	20	30	40
(°F)	-22	-4	14	32	50	68	86	104
		10W-30 or 10W-40						
		5W-30 Recommend						

RM-00003

RM-00003

RECOMMENDED MATERIALS

RECOMMENDED MATERIALS

SAE viscosity No. and applicable temperature								
Manual transmission oil and rear differential gear oil								
(°F)	-30	-20	-10	0	10	20	30	40
(°C)	-22	-4	14	32	50	68	86	104
90								
85W								
80W								
75W-90								
RM-00004								
AT front differential gear oil								
(°C)	-30	-20	-10	0	10	20	30	40
(°F)	-22	-4	14	32	50	68	86	104
90								
85W								
80W								
80W-90								
RM-00005								

4. FLUID

Use the fluids specified in the table below. Do not mix two different kinds or makes of fluid.

Fluid	Recommended	Alternative	Remarks
Automatic transmission fluid	DEXRON III	—	
Power steering fluid	DEXRON III	—	
Brake fluid	FMVSS No. 116 DOT3	FMVSS No. 116 DOT4	
Clutch fluid	FMVSS No. 116 DOT3	FMVSS No. 116 DOT4	

RECOMMENDED MATERIALS

RECOMMENDED MATERIALS

5. COOLANT

Use the genuine coolant to protect the engine.

Coolant	Recommended	Item number	Alternative
Coolant	SUBARU coolant	000016218	None
Water for dilution	Distilled water	—	Tap water

6. REFRIGERANT

Standard air conditioners on Subaru vehicles use HFC134a refrigerant. Do not mix it with other refrigerants. Also, do not use any air compressor oil except for DH-PR.

Air conditioner	Recommended	Item number	Alternative
Refrigerant	HFC134a	—	None
Compressor oil	DH-PR	—	None

7. GREASE

Use the grease and supplementary lubricants shown in the table below.

Grease	Application point	Recommended	Item number	Alternative
Supplementary lubricants	- O₂ sensor - Bolts, etc.	SUBARU CRC	004301003	—
Grease	MT main shaft	NICHIMOLY N-130	—	—
	Clutch master cylinder push rod	Slicolube G-40M	004404003	—
	- Gear shift lever - Select lever - Clutch operating cylinder - Accelerator pedal - Clutch pedal - Brake pedal - Clutch bearing - Clutch release lever	KOPR-KOTE	003603001	—
	Steering gear box	Valiant grease M-2	003608001	—
	Disc brake	Niglube RX-2	K0779GA102	—
	- Drum brake - Brake shoe	Molykote No. 7439	003602001	—
	Brake pad	Molykote AS-880N	K0777YA010	—
	Front axle SFJ	SSG-6003	28093TA000	—
	Front axle EBJ	NTG 2218	28093AA000	—
	Rear axle EBJ (Turbo model)	NTG 2218	28093AA000	—
	Rear axle BJ (Non-turbo model)	Molyflex No. 2	723223010	—
	Rear axle DOJ	VU-3A702	23223GA050	—
	- Throttle linkage - Water pump - Door latch - Door striker	Slicolube G-30M	004404002	—

RECOMMENDED MATERIALS

RECOMMENDED MATERIALS

8. ADHESIVES

Use the adhesives shown in the table below, or equivalent.

Adhesive	Application point	Recommended	Item number	Alternative
Adhesive	Windshield and body	Essex Chemical Crop's Urethane E	—	Sunstar 580
	Soft vinyl	Cemedine 540	—	3M's EC-776 EC-847 or EC-1022 (Spray type)
	Momentary sealant	Cemedine 3000	—	Armstrong's Eastman 910

9. SEAL MATERIAL

Use the seal material shown in the table below, or equivalent.

Seal material	Application point	Recommended	Item number	Alternative
	Engine case Torque converter clutch case	Three Bond 1215	004403007	Dow Corning's No. 7038
	Transmission oil pan	Three Bond 1217B	K0877YA020	—
	Rear differential	Three Bond 1324	004403042	—
	Rear differential	Three Bond 1105	004403010	—
	Steering adjusting screw	Three Bond 1141	004403006	—
	Camshaft cap (SOHC)	Three Bond 1280B	K0877YA018	—
	• Front sealing cover • Rear sealing cover	3M 8626	—	—

1. Pre-delivery Inspection

A: GENERAL

The purposes of the pre-delivery inspection (PDI) are as follows.

- Remove the additional parts used for ensuring the vehicle quality during transportation and restore the vehicle to its normal state.
- Check if the vehicle before delivery is in a normal state.
- Check for any damage or missing parts that may have taken place during transportation or storage.
- Make sure to provide a complete vehicle to the customer.

Because of the above reasons, all dealerships must always carry out the PDIs before delivering a vehicle.

In addition, all franchised shops and PDI centers must check the status of every vehicle received to identify who is responsible for any possible defects.

B: PDI PROCEDURE

Follow the procedures shown in the table below.

Static Checks Just After Vehicle Receipt

Step	Check point
1. Appearance check	(1) If the vehicle is covered with protective coating, visually check the vehicle body for damage and dents. If the protective coating has been removed, visually check the body paints for small areas of damage or stains. (2) Visually check the glass and light lenses for any damage and cracks or excessive gaps to the body sheet metal. (3) Visually check the plated parts for any damage.
2. Tire check	(4) Check the tires for damage, abnormal conditions, and dents on the wheels. (5) Check the tire air pressure.
3. Fuse installation	(6) If the vehicle is about to be delivered to the customer, attach a room lamp fuse.
4. Check the doors for lock/unlock and open/close operations.	(7) Using the key, check if the door can be locked and unlocked normally. (8) Open and close all doors to see that there are no abnormal conditions. (9) Operate the power door locking switch to check that all doors is locked and unlocked normally. (10) Operate lock knobs to check that the door locks operate normally.
5. Child door lock system operation check	(11) Check that the child lock system operates normally .
6. Power window operation check	(12) Check the power window for correct operations.
7. Check the trunk lid open/close operations.	(13) Operate the trunk lock release lever to check that the trunk opens normally. (14) Using the key, check if the trunk lid can be unlocked normally. (15) Open and close the trunk lid to see that there are no abnormal conditions. (16) Using the valet key, check if the trunk lid cannot be opened.
8. Check the rear gate for lock/unlock and open/close operations.	(17) Using the key, check if the rear gate can be lock and unlocked normally. (18) Open and close the rear gate to see that there are no abnormal conditions. (19) Operate the power door locking switch to check that the rear gate is locked and unlocked normally.
9. Operation check of trunk lid release handle	(20) Operate the trunk lid release lever to check the trunk is unlocked normally.
10. Operation check of fuel lid opener lock release lever	(21) Operate the fuel lid opener to check that the fuel lid is unlocked normally.
11. Accessory check	Check the following accessories are provided: • Owner's manual • Warranty booklet • Service booklet • Spare key • Jack • Tool set • Spare tire
12. Operation check of hood lock release system	(22) Operate the hood lock release lever to check that the hood opens normally.
13. Connection of air conditioner harness	(23) If the vehicle is about to be delivered to the customer, connect the air conditioner harness.
14. Battery	(24) Check the battery for any abnormal conditions such as rust and trace of battery fluid leaks.
15. Brake fluid	(25) Check the fluid amount.
16. Engine oil	(26) Check the oil amount.
17. Transmission fluid	(27) Check the fluid amount. (28) For AT, check the front differential oil.
18. AT front differential oil	(29) Check the AT front differential oil amount.
19. Coolant	(30) Check the coolant amount.

PRE-DELIVERY INSPECTION

PRE-DELIVERY INSPECTION

Step	Check point
20. Clutch fluid	(31) Check the clutch fluid amount.
21. Window washer fluid	(32) Check the window washer fluid amount.
22. Hood latch check	(33) Check that the hood is closed and latched securely.
23. Keyless entry system	(34) Check that the keyless entry system operates normally.
24. Security system	(35) Check that the security system operates normally.
25. Seat	(36) Check the seat surfaces for smears or dirt. (37) Check the seat installation conditions and functionality.
26. Seat belt	(38) Check the seat belt installation conditions and functionality.
27. Wheel alignment	(39) Check that the wheel alignments are properly adjusted.

Checks with the Engine Running

Step	Check point
28. Test mode connectors	(1) Disconnect the test mode connectors
29. Starting condition	(2) Start the engine and check that the engine starts smoothly.
30. Exhaust system	(3) Check that the exhaust noise is normal and no leaks are found.
31. Indicator light	(4) Check that all indicator lights operate normally.
32. Clock	(5) Check that the clock operates normally.
33. Radio	(6) Check that the radio system operates normally.
34. Cigarette lighter	(7) Check that the cigarette lighter operates normally.
35. Lighting system	(8) Check that the lighting systems operate normally.
36. Window washer	(9) Check that the window washer system operates normally.
37. Wiper	(10) Check that the wiper system operates normally.

Dynamic Test with the Vehicle Running

Step	Check point
38. Brake test	(1) Check that the foot brake operates normally.
39. Parking brake	(2) Check that the parking brake operates normally.
40. AT shift control	(3) Check that the AT shift patterns are correct.
41. Heater & ventilation	(4) Check that the heater & ventilation system operates normally.
42. Air conditioner	(5) Check that the air conditioner operates normally.
43. Cruise control	(6) Check that the cruise control system operates normally.

Checks after Dynamic Test

Step	Check point
44. ATF level	(1) Check that the ATF level is normal.
45. Power steering fluid level	(2) Check that the power steering fluid level is normal.
46. Fluid leak check	(3) Check for fluid/oil leaks.
47. Water leak check	(4) Spray the vehicle with water and check for water leaks.
48. Appearance check 2	(5) Remove the protective coating (wrap guards) if any. (6) Check the body paints for damage and smears. (7) Check the plated parts for damage and rust.

1. APPEARANCE CHECK

- If the vehicle is covered with protective coating (wrap guards), visually check the vehicle body for damage and dents.
- If there is no protective coating (wrap guards), check the body paints for small areas of damage or stains and repair as necessary.
- Check the window glass, door glass, and lights for any cracks or damage and repair or replace the parts as necessary.
- Check the plated parts, such as the grilles and door knobs, for damage or loss of gloss and repair or replace the parts as necessary.

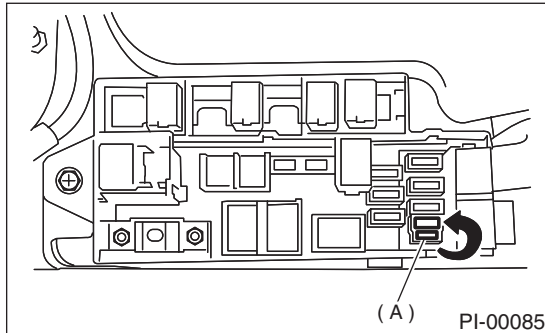
2. TIRE CHECK

- Check the tire outer faces for any damage.
- Check the tire air pressure by referring to the following table.

Tire size	Tire inflation pressure kPa (kg/cm ² , psi)	
	Front	Rear
P195/60R15 87H	220 (2.2, 32)	200 (2.0, 25)
P205/55R16 89V	220 (2.2, 32)	200 (2.0, 25)
215/45R17 87W	230 (2.3, 33)	220 (2.2, 32)

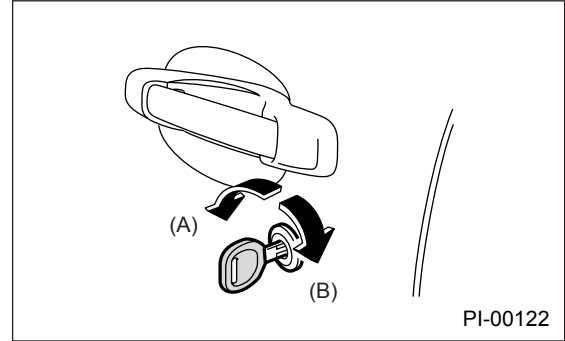
3. FUSE INSTALLATION

A vehicle just delivered has no fuses for the room lamp circuit to prevent battery discharge. Attach a 15 A fuse (A) as shown in the figure.



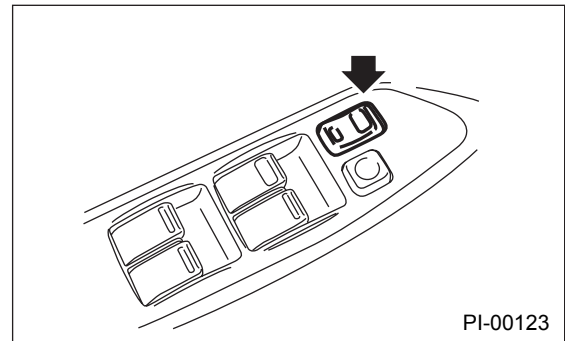
4. CHECK THE DOOR OPERATIONS, LOCK/UNLOCK AND OPEN/CLOSE, AS FOLLOWS.

Using the key, lock and unlock the door several times to check for normal operation. Open and close the door several times for smooth movement.

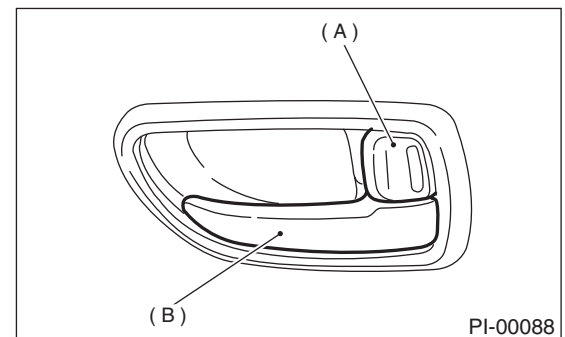


- (A) Unlock
- (B) Lock

Operate the power door locking switch on the front door arm rest, and check that all doors lock and unlock normally.



Sit in the driver's seat, close the door completely, and move the lock lever to the locked position. Then, pull the inner door handle to check that the door will not open. Check all remaining doors in the same manner.



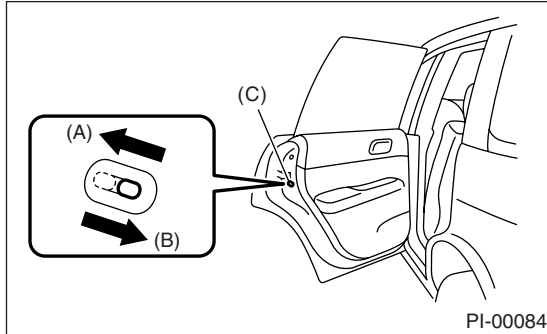
- (A) Lock lever
- (B) Inner door handle

PRE-DELIVERY INSPECTION

PRE-DELIVERY INSPECTION

5. CHILD SAFETY LOCK OPERATION CHECK

- 1) Place the child safety lock on the rear door to the locked position.
- 2) Close the rear door completely.
- 3) Make sure that the lock lever on the rear door is in the unlocked position. Then, check that the door cannot be opened by pulling the inner door handle on the rear door.
- 4) Check that the door can be opened by pulling the outer door handle on the rear door.



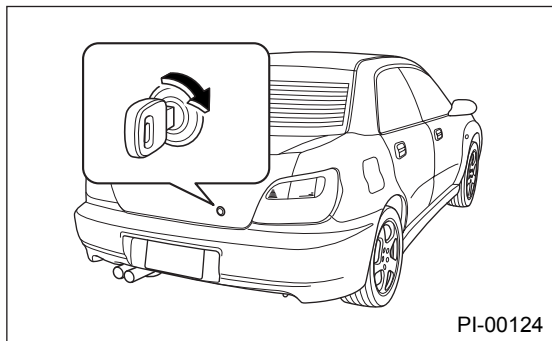
- (A) Unlock
- (B) Lock
- (C) Child safety lock

6. POWER WINDOW OPERATION CHECK

Manipulate the power window switches one by one to check that each of the power windows goes up and down with no abnormal noises.

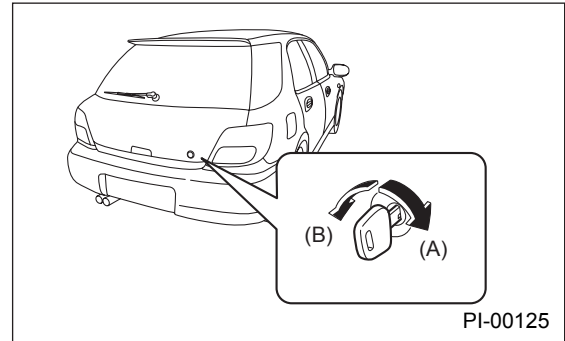
7. CHECK THE TRUNK LID OPERATIONS, OPEN/CLOSE, AS FOLLOWS.

- Operate the trunk lock release lever and verify that the trunk lid opens.
- Using the key, open the trunk lid several times to check for normal operation.
- Open and close the trunk lid several times for smooth movement.
- Check if the trunk lid cannot be opened with the valet key.



8. CHECK THE REAR GATE OPERATIONS, LOCK/UNLOCK AND OPEN/CLOSE, AS FOLLOWS.

- Using the key, lock and unlock the rear gate several times to check for normal operation.
- Open and close the rear gate several times for smooth movement.

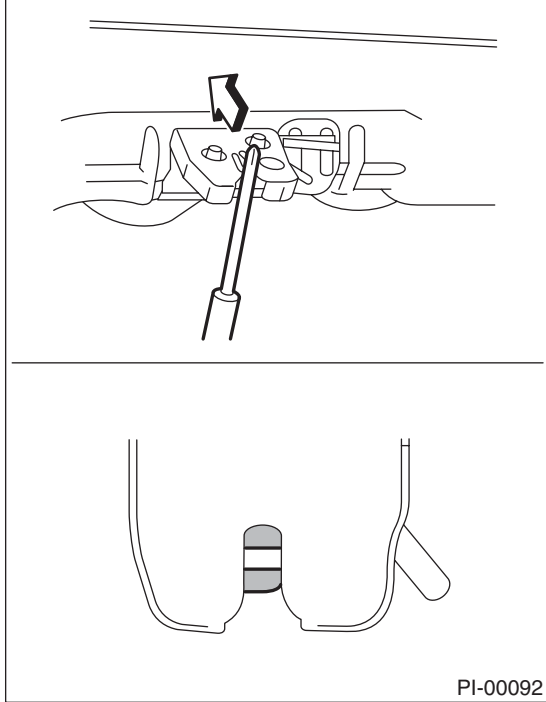


- (A) Unlock
- (B) Lock

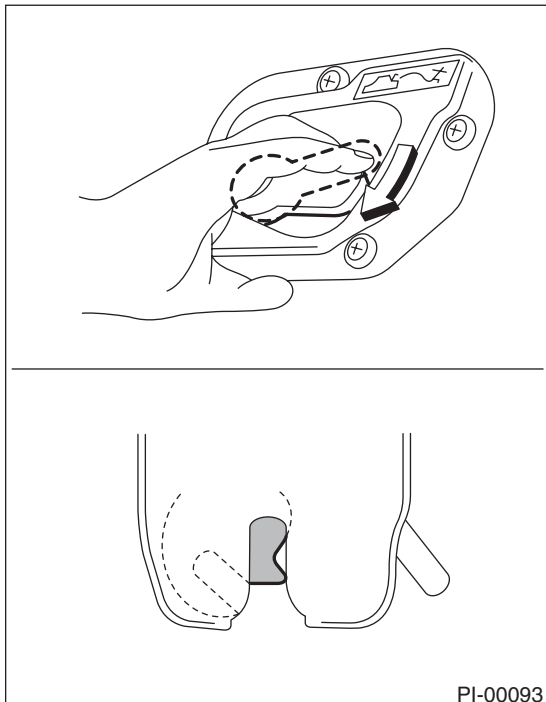
- Operate the power door locking switch to check that the rear gate is locked and unlocked normally.

9. OPERATION CHECK OF TRUNK LID RELEASE HANDLE

1) Use a screwdriver with a thin blade. Slide the screwdriver blade from the slit aperture of the lock assembly fully to the end until you hear a click. This places the latch in the locked position.



2) Move the release handle from outside the vehicle, in the direction of the arrow to check if the latch is released.



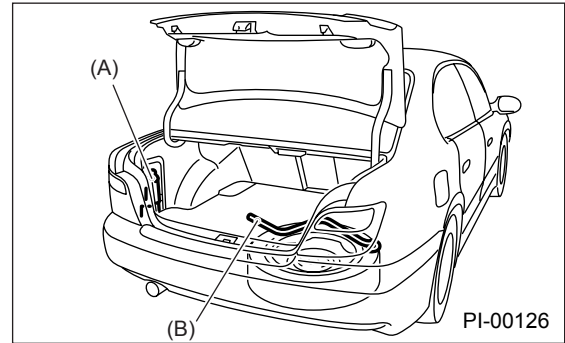
10. OPERATION CHECK OF FUEL LID OPENER LOCK RELEASE LEVER

Operate the fuel lid opener and verify that the fuel lid opens normally. Check that the filler cap is securely closed.

11. ACCESSORY CHECK

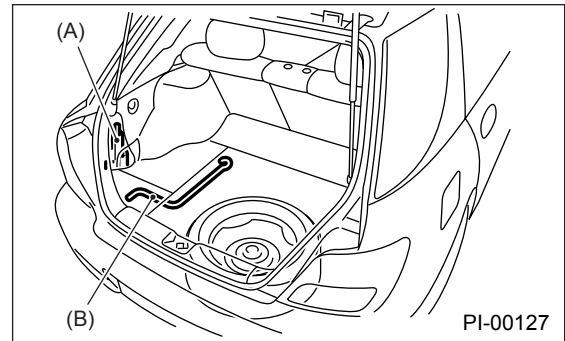
Check that the following accessories are provided in the luggage compartment or cargo area.

- Owner's manual
- Warranty booklet
- Service booklet
- Spare key
- Jack
- Tool set
- Spare tire
- Sedan



- (A) Jack
- (B) Jack handle

- Wagon



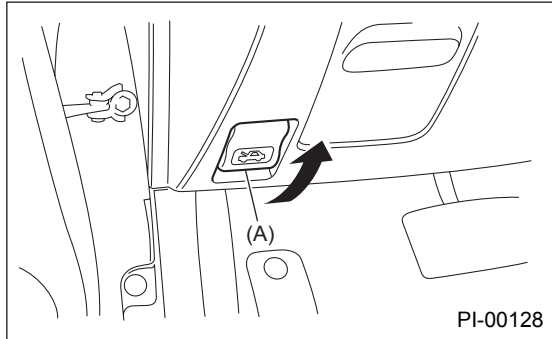
- (A) Jack
- (B) Jack handle

PRE-DELIVERY INSPECTION

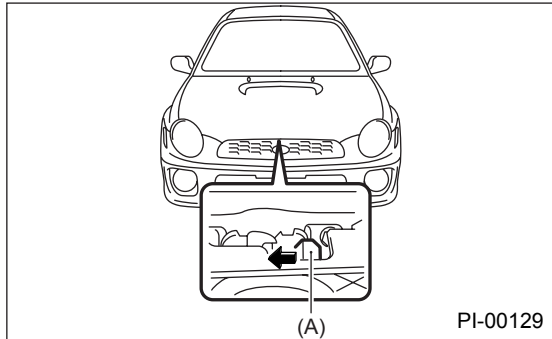
PRE-DELIVERY INSPECTION

12. OPERATION CHECK OF HOOD LOCK RELEASE SYSTEM

Operate the hood release knob (A) and check that the hood is unlocked normally.

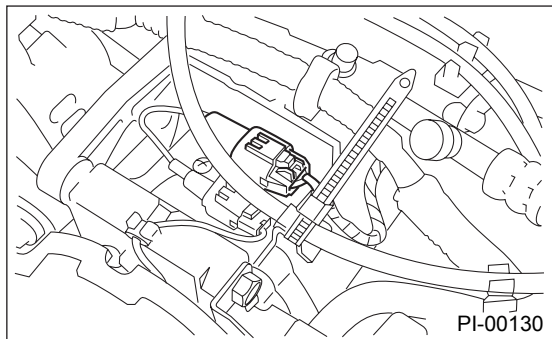


Operate the lever (A) and check that the hood is opened normally. Then support the hood with hood stay.



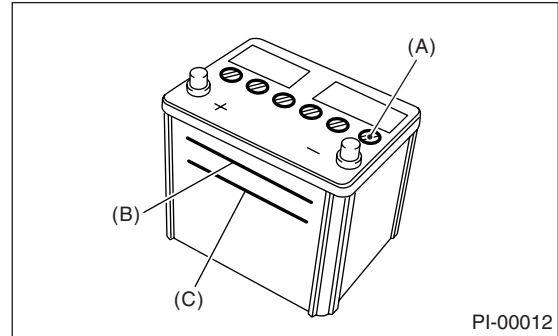
13. CONNECTION OF AIR CONDITIONER HARNESS

A vehicle just delivered has its air conditioner harness disconnected to protect the air conditioner compressor. Connect the harness as shown in the figure.



14. BATTERY

Check the battery terminals to make sure that no rust or corruptions due to fluid leaks are found. Check that the battery caps are securely tightened.



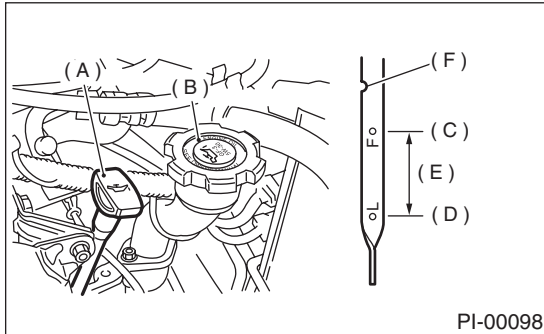
- (A) Cap
- (B) Upper level
- (C) Lower level

15. BRAKE FLUID

Check the brake fluid amount. If the amount is insufficient, carry out a brake line test to identify brake fluid leaks and check the brake operation. After that, refill the brake fluid tank with the specified type of fluid.

16.ENGINE OIL

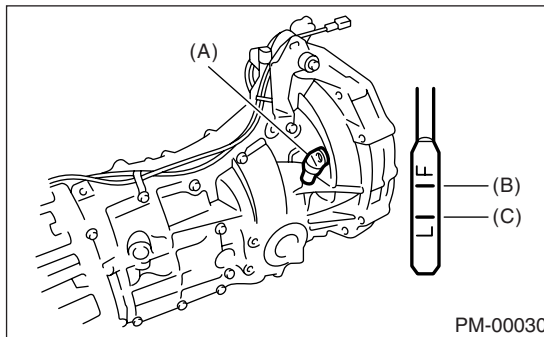
Check the engine oil amount. If the amount is insufficient, check that no leaks are found. Then, add the necessary amount of the specified engine oil.



- (A) Oil level gauge
- (B) Engine oil filler cap
- (C) Upper level
- (D) Lower level
- (E) About 1.0 liter (1.1 US qt, 0.9 Imp qt)
- (F) Notch mark

17.TRANSMISSION FLUID

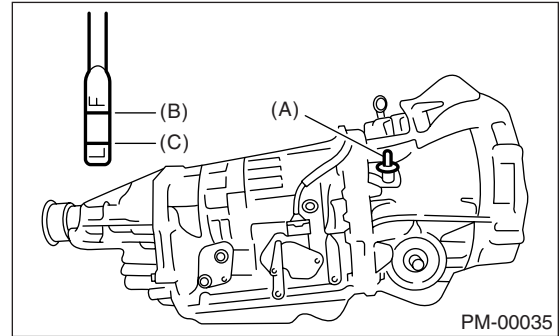
Check the transmission fluid amount. If the amount is insufficient, check that no leaks are found. Then, add the necessary amount of the specified fluid.



- (A) Oil level gauge
- (B) Upper level
- (C) Lower level

18.AT FRONT DIFFERENTIAL OIL

Check the AT front differential oil amount. If the amount is insufficient, check that no leaks are found. Then, add the necessary amount of the specified AT front differential oil.



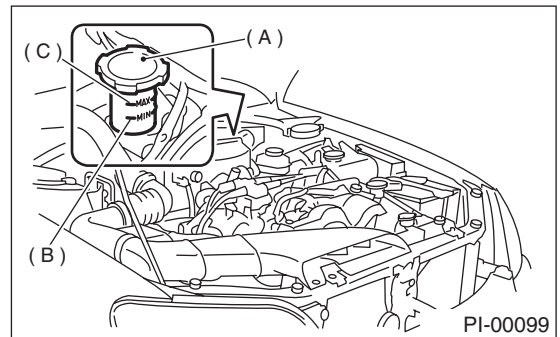
- (A) Oil level gauge
- (B) Upper level
- (C) Lower level

19.COOLANT

Check the coolant amount on the reservoir. If the amount is insufficient, check that no leaks are found. Then, add the necessary amount of coolant with the specified concentration.

20.CLUTCH FLUID

Check the clutch fluid amount. If the amount is insufficient, check that no leaks are found. Then, add the necessary amount of the specified fluid.



- (A) Reservoir tank
- (B) MIN level
- (C) MAX level

21.WINDOW WASHER FLUID

Check the window washer fluid amount. If the amount is insufficient, check that no leaks are found. Then, add the necessary amount of washer fluid commercially available.

22.HOOD LATCH CHECK

Retract the hood stay and close the hood. Check that the hood is securely latched.

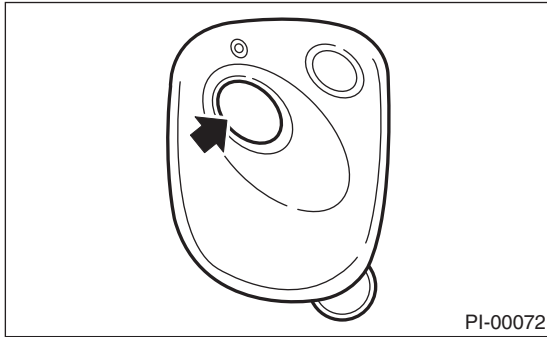
PRE-DELIVERY INSPECTION

PRE-DELIVERY INSPECTION

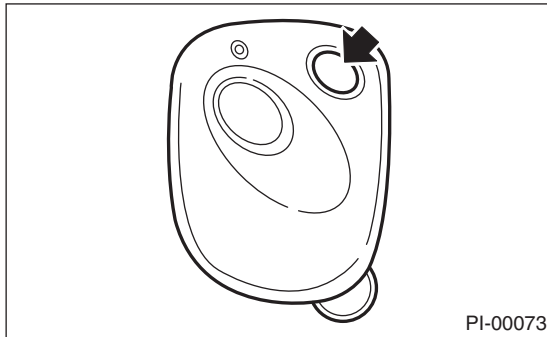
23.KEYLESS ENTRY SYSTEM

Check the keyless entry system operations as follows:

- Fully open all the door windows.
- Remove the key from the ignition switch and close all the doors including rear gate (wagon).
- Press the "LOCK/ARM" button on the transmitter momentarily once and check if all the doors are locked and the horn chirps once.

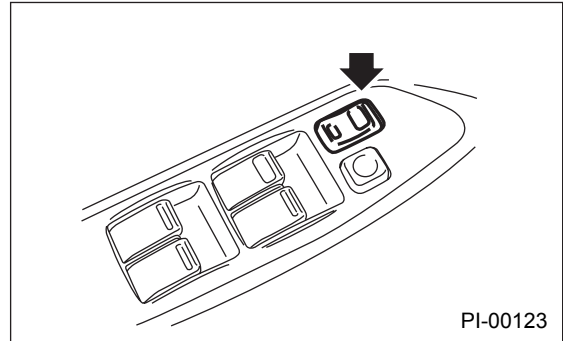


- Press the "UNLOCK/DISARM" button on the transmitter momentarily once and check if the driver's door is unlocked, the horn chirps twice and the dome light illuminates.



- Press the "UNLOCK/DISARM" button on the transmitter momentarily once again within five seconds and check if all the doors including the rear gate on wagon are unlocked.
- Press the "LOCK/ARM" button on the transmitter a little bit of time (approx. 2 sec.) and check if a panicking condition occurs; the horn sounds continuously. Also, check if that condition lasts for 30 seconds or until any button of the transmitter is pressed.
- Press the "LOCK/ARM" button on the transmitter momentarily once with one of the doors including the rear gate (wagon) open and check if the horn chirps three times to warn of a door ajar. Then, bring all the doors including the rear gate (wagon) in closed condition and check if all the doors are locked and the horn chirps once.
- Press the "LOCK" side of the power door locking switch with any one of the doors including the rear gate (wagon) open. Then, bring all the doors in-

cluding the rear gate (wagon) in the closed condition and check if all the doors are locked and the horn chirps once.



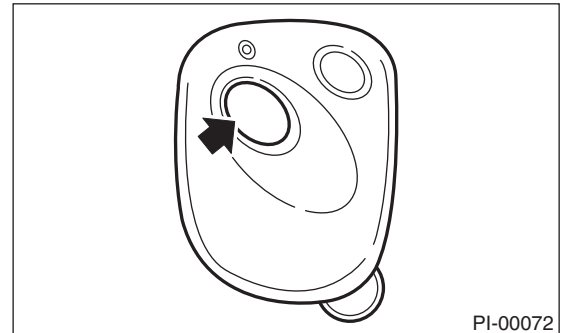
Check selecting audible signal operation.

- Using the horn, the system will give you an audible signal when the doors lock and unlock. If desired, you may turn the audible signal off. To turn the audible signal off, carry out the unlocking procedure of keyless entry system, then simultaneously depress LOCK/ARM and UNLOCK/DISARM buttons for more than two seconds. The horn will sound two times to inform you that the audible signal has been turned off. To turn the audible signal on again, carry out the unlocking procedure of keyless entry system, then simultaneously depress LOCK/ARM and UNLOCK/DISARM buttons for more than two seconds. The horn will sound one time to inform you that the audible signal has been turned on.

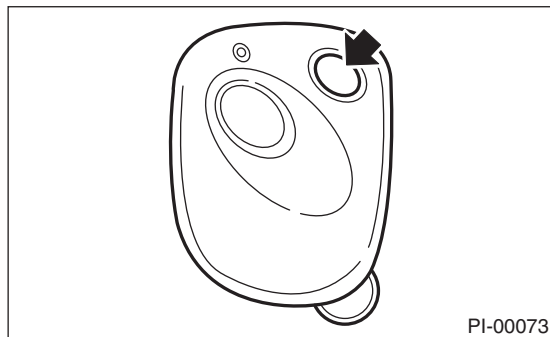
24.SECURITY SYSTEM

Check the security system operations as follows:

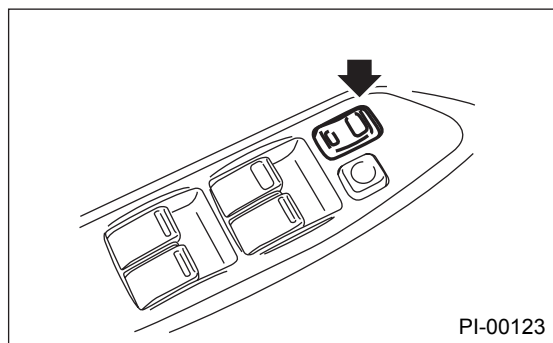
- Fully open all the door windows.
- Remove the key from the ignition switch and close all the doors including rear gate (wagon).
- Press the "LOCK/ARM" button on the transmitter momentarily once and check if all the doors are locked, the horn chirps once, the parking lights flash once and the security indicator light flashes slowly to ensure that the security system has been brought into the arming state.



- Press the “UNLOCK/DISARM” button on the transmitter momentarily once and check if the driver’s door is unlocked, the horn chirps twice, the parking light flash twice, the dome light illuminates and the security indicator light goes off to ensure that the system has been brought into the disarming state.



- Press the “UNLOCK/DISARM” button on the transmitter momentarily once again within five seconds and check if all the doors including the rear gate on wagon are unlocked.
- Press the “LOCK/ARM” button on the transmitter a little bit of time (approx. 2 sec.) and check if a panicking condition occurs; the horn sounds continuously, the parking lights flash and the security indicator light flashes rapidly. Also, check if that condition lasts for 30 seconds or until any button of the transmitter is pressed.
- Press the “LOCK/ARM” button on the transmitter momentarily once with one of the doors including the rear gate (wagon) open and check if the horn chirps three times to warn of a door ajar. Then, bring all the doors including the rear gate (wagon) in closed condition and check if the arming condition is brought about; all the doors are locked, the horn chirps once and the parking lights flash once.
- Press the “LOCK” side of the power door locking switch with any one of the doors including the rear gate (wagon) open. Then, bring all the doors including the rear gate (wagon) in the closed condition and check if all the doors are locked, the horn chirps once and the parking lights flash once to ensure that the security system has been brought into the arming state.



- Unlock a door using the inner lock knob or the key and open the door while the security system is in the arming state. Check to ensure that the alarming condition occurs, i.e. the horn sounds continuously, the parking lights flash and security indicator light flashes rapidly, and that it lasts for 30 seconds or until the “UNLOCK/DISARM” button on the transmitter is pressed. Also, check to ensure that turning the ignition key to the “START” position in the arming state does not cause the starter motor to turn, thus the engine being prevented from starting.
- Apply a continuous shock to the vehicle body with the security system in arming state, and check to ensure that the alarming condition occurs.
- Troubleshoot the security system if any one of the above-mentioned checks does not meet the requirements.

25. SEAT

Check that each seat provides full functionality in sliding and reclining. Check all available functions of the rear seat such as a trunk-through center arm rest.

26. SEAT BELT

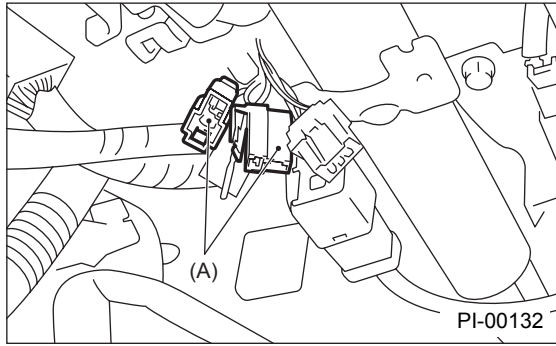
- Pull out the seat belt and then release it. Check that the belt webbing retracts smoothly.
- Check the seatbelt warning light and chime operations.

27. WHEEL ALIGNMENT

Check the wheel alignments. <Ref. to FS-8, Wheel Alignment.> and <Ref. to RS-9, Wheel Alignment.>

28. TEST MODE CONNECTOR

Turn the ignition switch to ON and check that the check-engine light starts blinking. If the light blinks, return the ignition key to LOCK and disconnect the test mode connector. Then, turn the ignition key to ON again. If the check-engine light blinks at that time in spite of the disconnected test mode connector, carry out an engine diagnosis.



(A) Test mode connector

29.KEY WARNING SYSTEM

Check that the chime sounds when the driver's door opens and the key is in the "LOCK" or "ACC" position.

30.STARTING CONDITION

Start the engine and check that the engine starts smoothly. If any battery voltage problems are found, recharge or replace the battery. If any abnormal noises are observed, immediately stop the engine and check and repair the necessary components.

31.EXHAUST SYSTEM

Listen to the exhaust noise to see if no abnormal noises are observed.

32.INDICATOR LIGHT

Check that all the indicator lights are off.

33.CLOCK

Check the clock for normal operations and enough accuracy.

34.RADIO

Check the radio for full functionality and normal noise level. Also check the CD unit operations.

35.CIGARETTE LIGHTER

Check the cigarette lighter operations.

36.LIGHTING SYSTEM

- Check the headlight operations.
- Check the brake light operations.
- Check the other lights for normal operations.
- Check the daytime running light system operations.
- Check the illumination brightness control system operations.

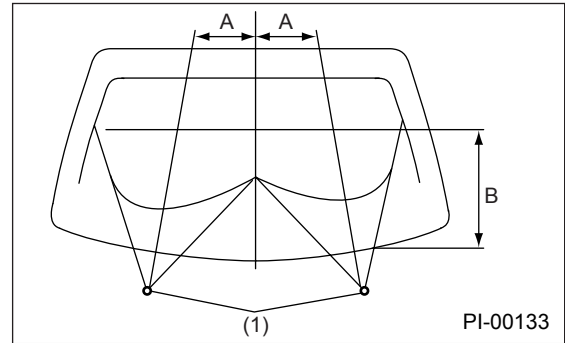
37.WINDOW WASHER

Check that the window washer system injects washer fluid to the specified area of the windshield shown in the figure.

Front Injection position:

A: 257mm (10.12 in)

B: 512mm (20.16 in)

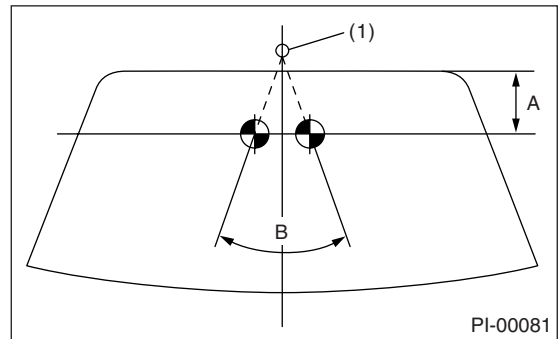


(1) Nozzle

Rear Injection position:

A: 39 mm (2.36 in)

B: 72°



(1) Nozzle

38.WIPER

Check the front and rear wipers for normal operations.

39.BRAKE TEST

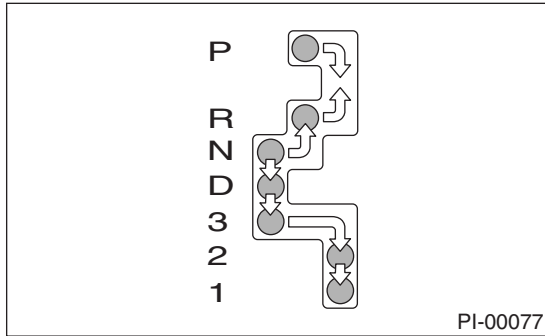
Check the foot brake for normal operations.

40.PARKING BRAKE

Check the parking brake for normal operations.

41.AT SHIFT CONTROL

Set the AT selector lever to each gear position while checking that the demanded gear position is correctly attained.



Selector Position	Gear Position			
	1st	2nd	3rd	4th
D	Yes	Yes	Yes	Yes
3	Yes	Yes	Yes	—
2	—	Yes	—	—
1	Yes	1	1	1

- Check the shift lock system operations.
- Check the key interlock system operations.

42.HEATER & VENTILATION

Operate the heater and ventilation system to check for normal airflow outlet control, air inlet control, air-flow capacity, and heating performance.

43.AIR CONDITIONER

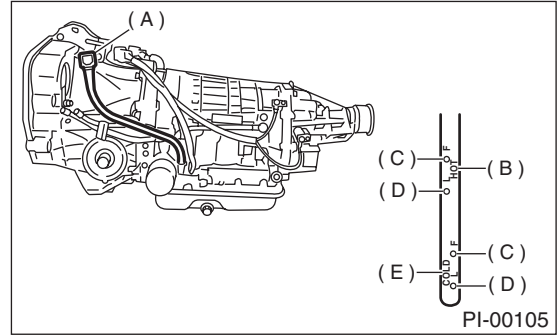
Operate the air conditioner. Check that the A/C compressor operates normally and enough cooling is provided.

44.CRUISE CONTROL

Operate the cruise control system. Check that the system is activated and deactivated correctly.

45.ATF LEVEL

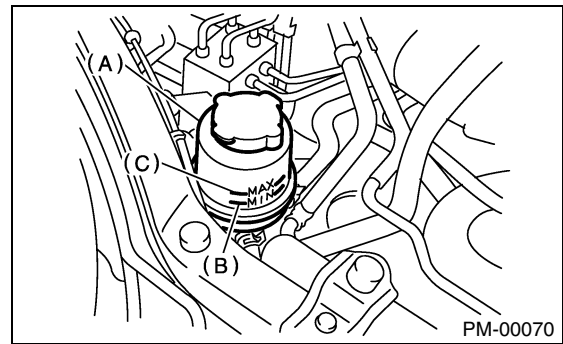
Check that the ATF level is normal. If insufficient, check that no leaks are found. Then add the necessary amount of the specified ATF.



- (A) Level gauge
- (B) "HOT" side
- (C) Upper level
- (D) Lower level
- (E) "COLD" side

46.POWER STEERING FLUID LEVEL

Check that the power steering fluid level is normal. If insufficient, check that no leaks are found. Then add the necessary amount of the specified power steering fluid.



- (A) Reservoir tank
- (B) MIN level
- (C) MAX level

47.FLUID LEAK CHECK

Check the entire areas of the vehicle for any trace of coolant/oil/fluid leaks.

48.WATER LEAK TEST

Spray the vehicle with water and check that no water enters the passenger compartment.

- Before performing the water leakage test, remove anything that may obstruct the operation or which must be kept dry.
- Close all of the windows completely, and then close all of the doors tightly. Close the hood and trunk lid before starting the test.

PRE-DELIVERY INSPECTION

PRE-DELIVERY INSPECTION

- Connect a hose to a tap, and spray water on the vehicle. The rate of water discharge must be approx. 20 to 25 liters (5.3 to 6.6 US gal, 4.4 to 5.5 Imp gal) per minute.

When spraying water on areas adjacent to the floor and wheel house, increase the pressure. When directing water on areas other than the floor portion and wheel house, decrease the pressure. But the force of water must be made strong occasionally by pressing the end of the hose.

NOTE:

Be sure to keep the hose at least 10 cm (3.9 in) from the vehicle.

- Check the following areas:
 - Front window and body framework mating portion
 - Door mating portions
 - Glass mating portions
 - Rear quarter window mating portions
 - Rear window and body framework mating portion
 - Around roof drips
- If any dampness in the compartments is discovered after the water has been applied, carefully check all areas that may have possibly contributed to the leak.

49. APPEARANCE CHECK 2

1) Remove the protective coating (wrap guard) if any.

NOTE:

- Use of steam eases peeling off the wrap guard.
- When performing on the vehicles left for a long time, or during low temperature period, apply steam at 50 to 122°C (122 to 140°F) to the vehicle to raise its surface temperature before peeling off the wrap guard. Do not use the steam exceeding 60°C (140°F).
- If adhesive remains on the coated surface, rub the portion with a flannel rag, etc. soaked with a coat of coating wax or a solvent, such as oil benzene and IPA, and then wipe it off.
- Avoid adhesion of the solvent to resin or rubber components. Do not use coating wax or a solvent while the component surface temperature is high due to hot weather, etc.
- If the coated surface is swollen out due to seams or moisture, expose the vehicle to the sun light for a few hours. Otherwise, heat the portion with seams or moisture using a dryer, etc.
- Dispose of the peeled wrap guard as burnable industrial garbage.

2) Check the vehicle body paints, plated faces, glass, and lenses for any dirt or damage.

GENERAL DESCRIPTION

PERIODIC MAINTENANCE SERVICES

1. General Description

A: GENERAL

Be sure to perform periodic maintenance in order to maintain vehicle performance and find problems before they become serious.

SCHEDULE

PERIODIC MAINTENANCE SERVICES

2. Schedule

A: MAINTENANCE SCHEDULE 1

		MAINTENANCE INTERVAL																		Remarks
		[Number of months or km (miles), whichever occurs first]																		
	Months	3	7.5	15	22.5	30	37.5	45	52.5	60	67.5	75	82.5	90	97.5	105	112.5	120		
	× 1,000 km	4.8	12	24	36	48	60	72	81.4	96	108	120	132	144	156	168	180	192		
	× 1,000 miles	3	7.5	15	22.5	30	37.5	45	52.5	60	67.5	75	82.5	90	97.5	105	112.5	120		
1	Engine oil	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R		
2	Engine oil filter	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R		
3	Spark plugs					R				R				R				R	For 2.5 L	
										R								R	For Turbo	
4	Drive belt(s)					I				I				I		R				
5	Camshaft Drive belt					I				I				I		R				
6	Fuel line					(I)				(I)				(I)				I	Note (1)	
7	Fuel filter					(R)				(R)				(R)				R	Note (1)	
8	Air cleaner element					R				R				R				R	Note (2)	
9	Cooling system					I				I				I				I		
10	Coolant					R				R				R				R		
11	Clutch system			I		I		I		I		I		I		I		I		
12	Transmission oil					I				I				I				I		
13	ATF					I				I				I				I	Note (3)	
14	Front & rear differential oil					I				I				I				I		
15	Brake line			I		I		I		I		I		I		I		I		
16	Brake fluid					R				R				R				R		
17	Disc brake pads & discs					I				I				I				I		
18	Brake linings and drums					I				I				I				I		
19	Parking brake			I		I		I		I		I		I		I		I		
20	Suspension			I		I		I		I		I		I		I		I		
21	Wheel bearing									(I)								(I)		
22	Axle boots & joints			I		I		I		I		I		I		I		I		
23	Tire rotation		I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	Note (4)	
24	Steering system (Power steering)			I		I		I		I		I		I		I		I		
25	Supplement restraint system	Inspect every 10 years																		

Symbols used:

R: Replace

I: Inspection

(R) or (I): Recommended service for safe vehicle operation.

NOTE:

(1) This inspection is not required to maintain emission warranty eligibility and it does not affect the manufacturer's obligations under EPA's in-use compliance program.

(2) When the vehicle is used in extremely dusty conditions, the air cleaner element should be replaced more often.

(3) ATF filter is maintenance free part. ATF filter needs replacement, when it has physically damaged or ATF leaked.

(4) A tire should be replaced when the tread wear indicator appears as a solid band across the tread. The indicators appear when the remaining tread has been worn to 1.6 mm (0.063 in) or less.

SCHEDULE

PERIODIC MAINTENANCE SERVICES

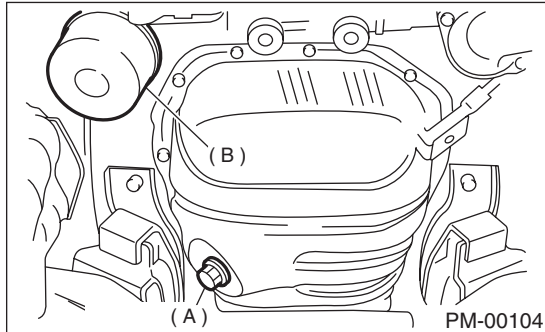
B: MAINTENANCE SCHEDULE 2

Item	Every	Repeat short distance drive	Repeat rough/muddy road drive	Extremely cold weather area	Salt or other corrosive used or coastal area	High humidity or mountain area	Repeat towing trailer
Engine oil	3.75 months	R		R			R
	6,000 km						
	3,750 miles						
Engine oil filter	3.75 months	R		R			R
	6,000 km						
	3,750 miles						
Fuel filter	15 months				I		
	24,000 km						
	15,000 miles						
Fuel line	15 months				I		
	24,000 km						
	15,000 miles						
Transmission oil	15 months						R
	24,000 km						
	15,000 miles						
ATF	15 months						R
	24,000 km						
	15,000 miles						
Front & rear differential oil	15 months						R
	24,000 km						
	15,000 miles						
Brake line	15 months	I	I		I		I
	24,000 km						
	15,000 miles						
Brake fluid	15 months					R	
	24,000 km						
	15,000 miles						
Disc brake pads & discs	15 months	I	I		I		I
	24,000 km						
	15,000 miles						
Brake linings and drums	15 months	I	I		I		I
	24,000 km						
	15,000 miles						
Parking brake	15 months	I	I		I		I
	24,000 km						
	15,000 miles						
Suspension	7.5 months		I	I	I		I
	12,000 km						
	7,500 miles						
Axle boots & joints	7.5 months	I	I	I	I		I
	12,000 km						
	7,500 miles						
Steering system (Power steering)	7.5 months	I	I	I	I		I
	12,000 km						
	7,500 miles						

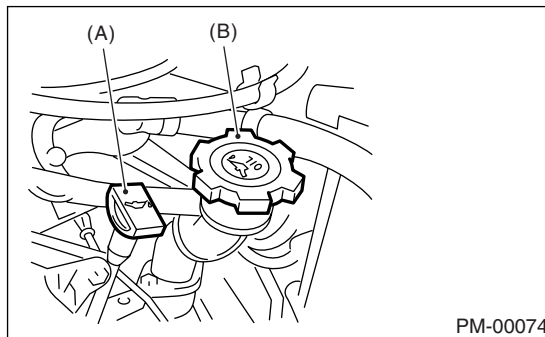
3. Engine Oil

A: REPLACEMENT

1) Drain the engine oil by loosening engine oil drain plug.



2) Open the engine oil filler cap for quick draining of the engine oil.

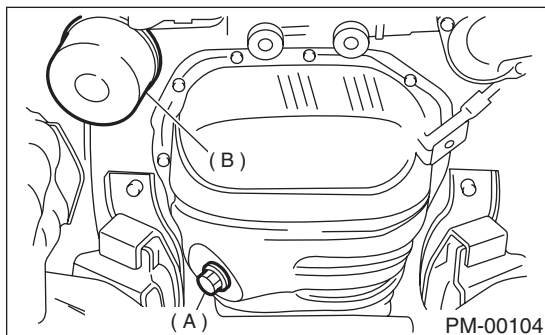


- (A) Oil level gauge
(B) Engine oil filler cap

3) Replace the drain plug gasket.
4) Tighten the engine oil drain plug after draining engine oil.

Tightening torque:

44 N·m (4.5 kgf-m, 33 ft-lb)



- (A) Drain plug
(B) Oil filter

5) Fill the engine oil through filler pipe up to the upper point on level gauge. Make sure that the vehicle is placed level when checking oil level. Use engine

oil of proper quality and viscosity, selected in accordance with the table in figure.

Engine oil amount preparation:

Non-turbo model

Approx. 4.0 ℓ (4.2 US qt, 3.5 Imp qt)

Turbo model

Approx. 4.5 ℓ (4.8 US qt, 4.0 Imp qt)

SAE (A)							
(°C)	-30	-20	-15	0	15	30	40
(°F)	-22	-4	5	32	59	86	104
10W-30, 10W-40							
5W-30 (B)							

PM-00088

- (A) SAE Viscosity No. and Applicable Temperature
(B) PREFERRED

The proper viscosity helps vehicle get good cold and hot starting by reducing viscous friction and thus increasing cranking speed.

NOTE:

- When replenishing oil, it does not matter if the oil to be added is a different brand from that in the engine; however, use oil having the API or ILSAC classification and SAE viscosity No. designated by SUBARU.

- If vehicle is used in desert areas with very high temperatures or for other heavy duty applications, the following viscosity oils may be used:

API classification: SJ or SH

ILSAC classification: GF-3

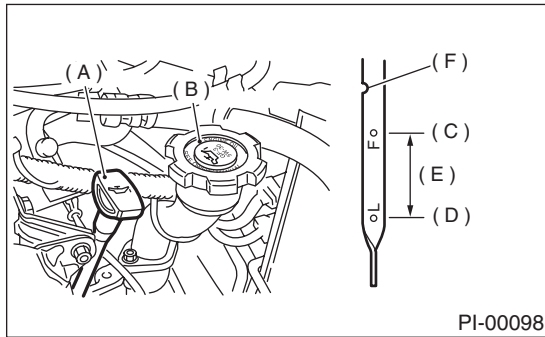
SAE Viscosity No.: 30, 40, 10W-50, 20W-40, 20W-50

6) Close the engine oil filler cap.

7) Start the engine and warm it up for a time.

8) After the engine stops, recheck the oil level.

If necessary, add the engine oil up to the upper level on level gauge.



- (A) Oil level gauge
- (B) Engine oil filler cap
- (C) Upper level
- (D) Lower level
- (E) About 1.0 liter (1.1 US qt, 0.9 Imp qt)
- (F) Notch mark

B: INSPECTION

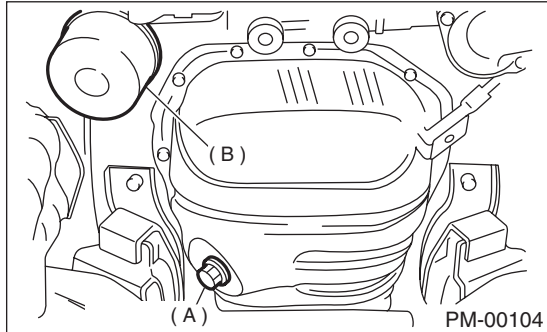
- 1) Park vehicle on a level surface.
- 2) Remove the oil level gauge and wipe it clean.
- 3) Reinsert the level gauge all the way. Be sure that the level gauge is correctly inserted and in the proper orientation.
- 4) Remove it again and note the reading. If the engine oil level is below the "L" line, check that there is no oil leak from the engine, and then add oil to bring the level up to the "F" line.
- 5) After turning off the engine, wait a few minutes for the oil to drain back into the oil pan before checking the level.
- 6) Just after driving or while the engine is warm, the engine oil level may show in the range between the "F" line and the notch mark. This is caused by thermal expansion of the engine oil.
- 7) To prevent overfilling the engine oil, do not add the oil above the "F" line when the engine is cold.

4. Engine Oil Filter

A: REPLACEMENT

1) Remove the oil filter with ST.

ST 498547000 OIL FILTER WRENCH



(A) Drain plug

(B) Oil filter

2) Get a new oil filter and apply a thin coat of engine oil to the seal rubber.

3) Install the oil filter by turning it by hand, being careful not to damage seal rubber.

4) Tighten more (approx. 3/4 turn) after the oil filter contacts the cylinder block. Do not tighten excessively, or oil may leak.

5) After installing oil filter, run the engine and make sure that no oil is leaking around seal rubber.

NOTE:

The filter element and filter case are permanently joined; therefore, interior cleaning is not necessary.

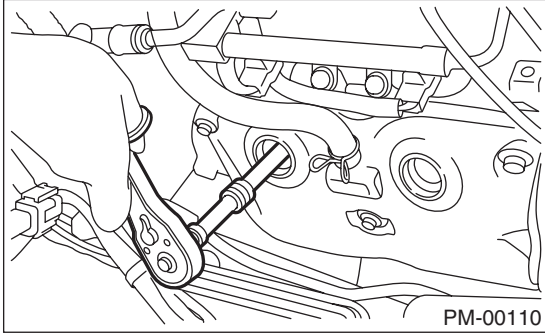
6) Check the engine oil level. <Ref. to PI-3, PDI PROCEDURE, Pre-delivery Inspection.>

5. Spark Plugs

A: REPLACEMENT

1. NON-TURBO MODEL

- 1) Remove the intake duct and resonator chamber.
- 2) Remove the washer tank and put it aside.
- 3) Disconnect the spark plug cord.
- 4) Remove the spark plug with a plug-wrench.



- 5) Set the new spark plug.

Recommended spark plug :

CHAMPION RC10YC4 (Standard)

NGK BKR5E-11

NGK BKR6E-11

Spark plug gap

1.0 — 1.1 mm (0.039 — 0.043 in)

- 6) Tighten the spark plug lightly with hand, and then secure with a plug-wrench to the specified torque.

Tightening torque:

21 N·m (2.1 kgf-m, 15 ft-lb)

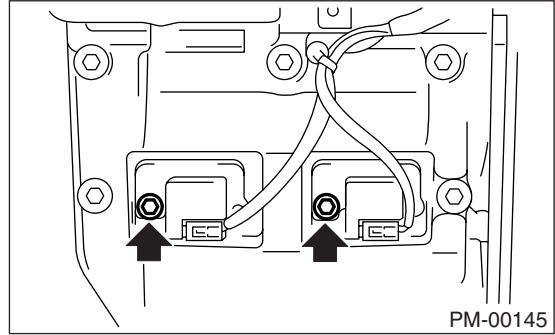
NOTE:

- Be sure to place the gasket between the cylinder head and spark plug.
- If the torque wrench is not available, tighten spark plug until gasket contacts cylinder head; then tighten further 1/4 to 1/2 turns.

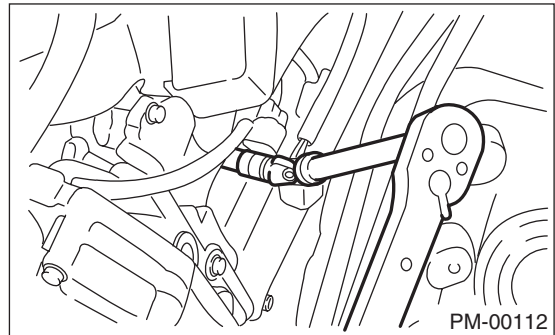
2. TURBO MODEL

- 1) Disconnect the battery cables, and then remove the battery and battery carrier.
- 2) Remove the washer tank and put it aside.
- 3) Remove the air cleaner lower case.
- 4) Disconnect the connector from ignition coil.

- 5) Remove the ignition coil.



- 6) Remove the spark plug with spark plug socket.



- 7) Set new spark plug.

Recommended spark plug :

NGK PFR 6G

- 8) Tighten the spark plug lightly with hand, and then secure with a plug-wrench to the specified torque.

Tightening torque:

21 N·m (2.1 kgf-m, 15 ft-lb)

- 9) Tighten the ignition coil.

Tightening torque:

16 N·m (1.6 kgf-m, 12 ft-lb)

NOTE:

- Be sure to place the gasket between cylinder head and spark plug.
- If a torque wrench is not available, tighten the spark plug until gasket contacts cylinder head: then tighten further 1/4 to 1/2 turn.

6. Drive Belt(s)

A: INSPECTION

- 1) Replace the belts, if cracks, fraying or wear is found.
- 2) Check the drive belt tension and adjust it if necessary by changing generator installing position and/or idler pulley installing position.

Belt tension

(A)

replaced: 7 — 9 mm (0.276 — 0.354 in)

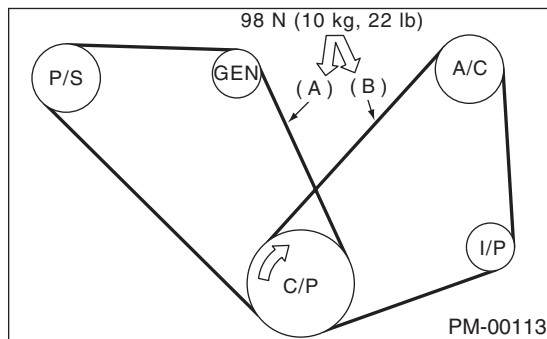
reused: 9.0 — 10.0 mm (0.354 — 0.394 in)

(B)*

replaced: 7.5 — 8.5 mm (0.295 — 0.335 in)

reused: 9.0 — 10.0 mm (0.354 — 0.394 in)

*: There is no belt (B) on models without an air conditioner.

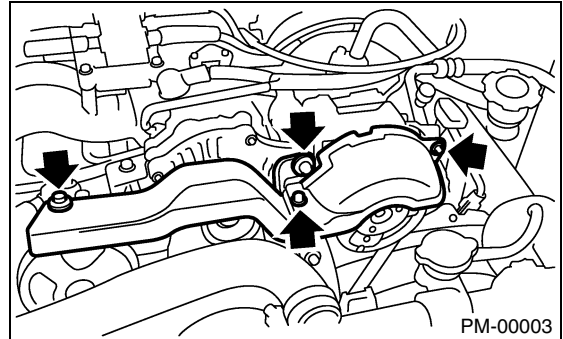


C/P	Crankshaft pulley
GEN	Generator
P/S	Power steering oil pump pulley
A/C	Air conditioning compressor pulley
I/P	Idler pulley

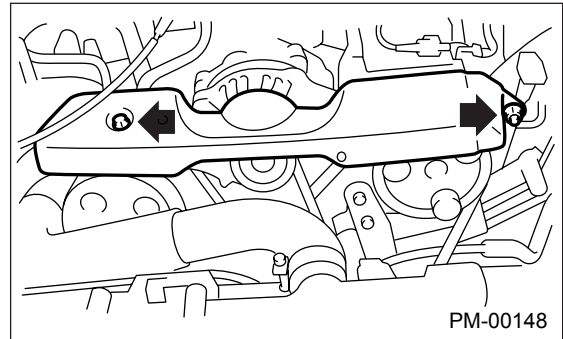
B: REPLACEMENT

1. V-BELT COVER

- 1) Remove the V-belt cover.
- Non-turbo model



- Turbo model



2. FRONT SIDE BELT (DRIVING POWER STEERING OIL PUMP AND GENERATOR)

NOTE:

Wipe off any oil or water on the belt and pulley.

- 1) Loosen the lock bolt (A).
- 2) Loosen the slider bolt (B).
- 3) Remove the front side belt (C).
- 4) Install a new belt, and tighten the slider bolt so as to obtain the specified belt tension.
- 5) Tighten the lock bolt (A).
- 6) Tighten the slider bolt (B).

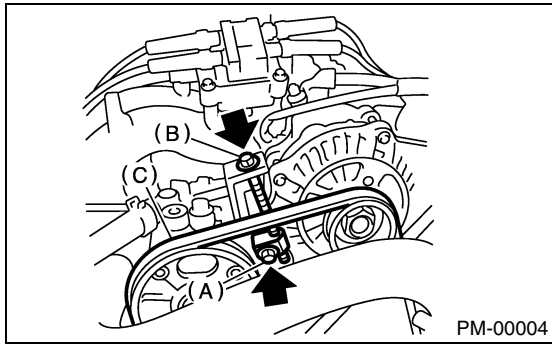
Tightening torque:

Lock bolt

25 N·m (2.5 kgf-m, 18 ft-lb)

Slider bolt:

8 N·m (0.8 kgf-m, 5.8 ft-lb)



3. REAR SIDE BELT (DRIVING AIR CONDITIONER)

NOTE:

- Wipe off any oil or water on the belt and pulley.
- Before removing the rear side belt, remove the front side belt.

- 1) Loosen the lock nut (A).
- 2) Loosen the slider bolt (B).
- 3) Remove the rear side belt.
- 4) Install a new belt, and tighten the slider bolt so as to obtain the specified belt tension.
- 5) Tighten the lock nut (A).

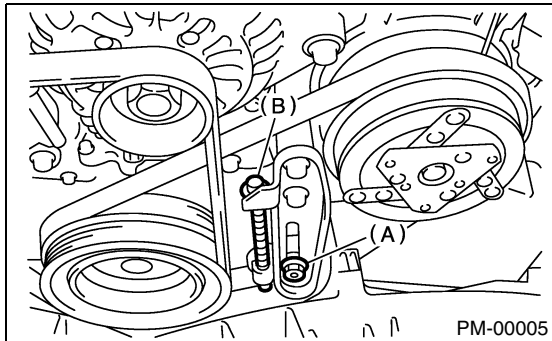
Tightening torque:

22.6 N·m (2.3 kgf-m, 16.6 ft-lb)

- 6) Tighten the slider bolt (B).

Tightening torque:

8 N·m (0.8 kgf-m, 5.8 ft-lb)



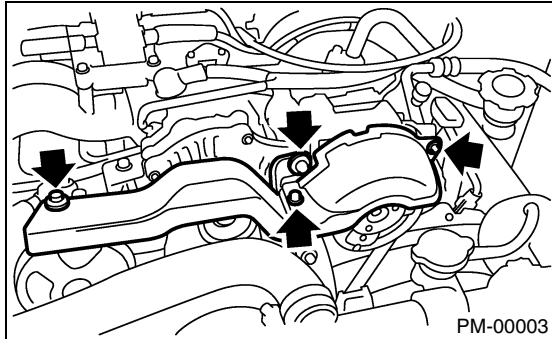
7. Camshaft Drive Belt

A: REPLACEMENT

1. NON-TURBO MODEL

1) Remove the radiator fan <Ref. to CO(H4SO)-47, Radiator Main Fan and Fan Motor.> and air conditioner fan. <Ref. to CO(H4SO)-49, Radiator Sub Fan and Fan Motor.>

2) Remove the V-belt cover.

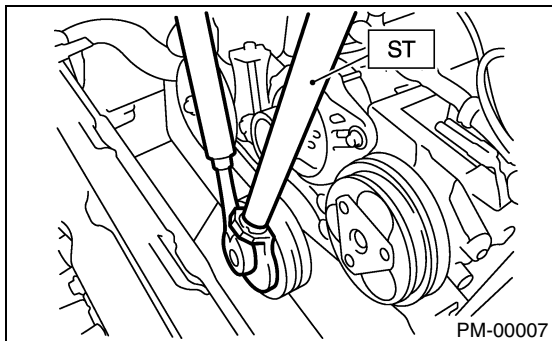


3) Remove the V-belts. <Ref. to ME(H4SO)-42, V-belt.>

4) Remove the air conditioning compressor drive belt tensioner.

5) Remove the pulley bolt. To lock crankshaft use ST.

ST 499977100 CRANKSHAFT PULLEY WRENCH

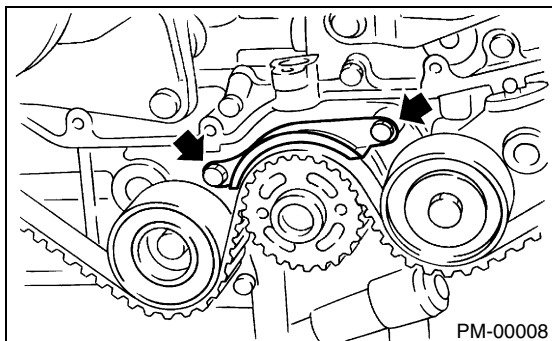


6) Remove the crankshaft pulley.

7) Remove the left side belt cover.

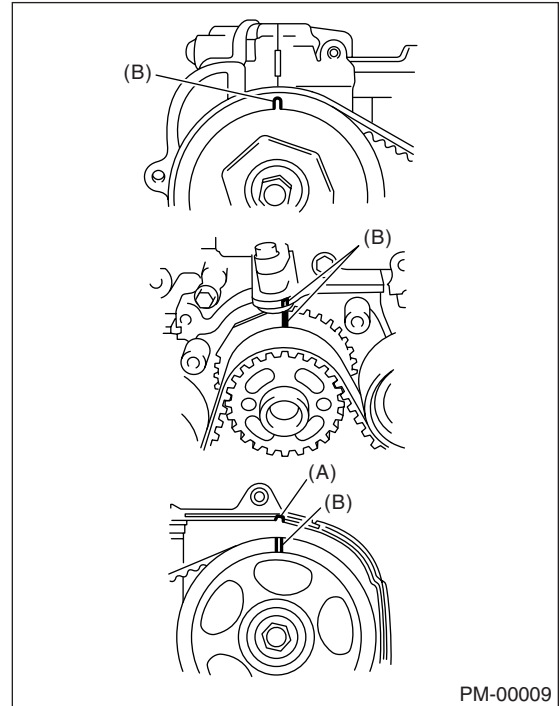
8) Remove the front belt cover.

9) Remove the timing belt guide. (MT vehicle only)



10) Turn the crankshaft and align alignment marks on crankshaft, and left and right camshaft sprockets with notches of belt cover and cylinder block:

ST 499987500 CRANKSHAFT SOCKET

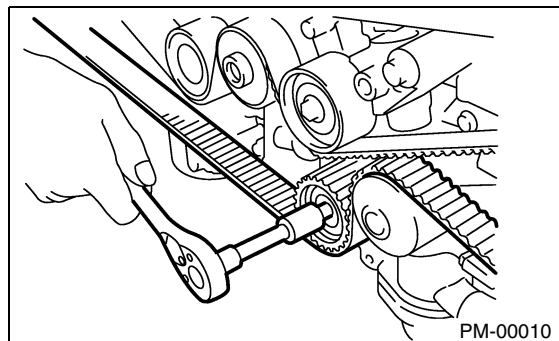


(A) Notch

(B) Alignment mark

11) Remove the belt idler.

12) Remove the belt idler (No. 2).

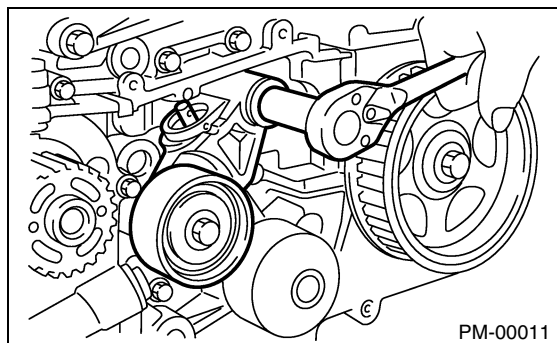


13) Remove the timing belt.

14) Remove the automatic belt tension adjuster assembly.

CAMSHAFT DRIVE BELT

PERIODIC MAINTENANCE SERVICES



2. TURBO MODEL

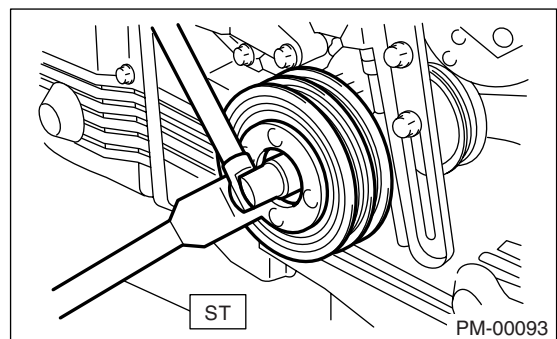
1) Remove the radiator fan and air conditioner fan. <Ref. to CO(H4SO)-47, Radiator Main Fan and Fan Motor.> <Ref. to CO(H4SO)-49, Radiator Sub Fan and Fan Motor.>

2) Remove the V-belts. <Ref. to ME(H4DOTC)-44, V-belt.>

3) Remove the air conditioning compressor drive belt tensioner.

4) Remove the pulley bolt. To lock crankshaft use ST.

ST 499977400 CRANKSHAFT PULLEY WRENCH



5) Remove the crankshaft pulley.

6) Remove the air conditioning compressor drive belt tensioner.

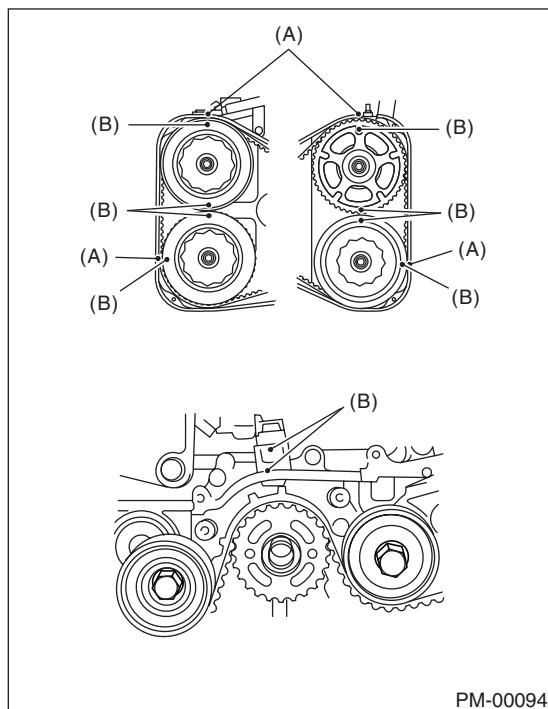
7) Remove the left side belt cover.

8) Remove the right side belt cover.

9) Remove the front belt cover.

10) Turn the crankshaft and align alignment marks on crankshaft, and left and right camshaft sprockets with notches of belt cover and cylinder block. To turn crankshaft, use ST:

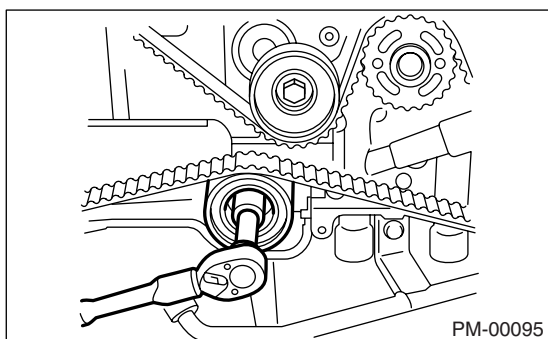
ST 499987500 CRANKSHAFT SOCKET



(A) Notch

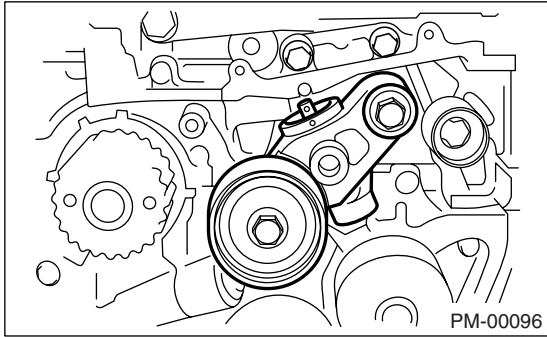
(B) Alignment mark

11) Remove the belt idler.



12) Remove the timing belt.

13) Remove the automatic belt tension adjuster assembly.



B: INSTALLATION

1. NON-TURBO MODEL

To install, reverse order of removal procedures.
<Ref. to ME(H4SO)-46, Timing Belt.>

2. TURBO MODEL

To install, reverse order of removal procedures.
<Ref. to ME(H4DOTC)-48, Timing Belt Assembly.>

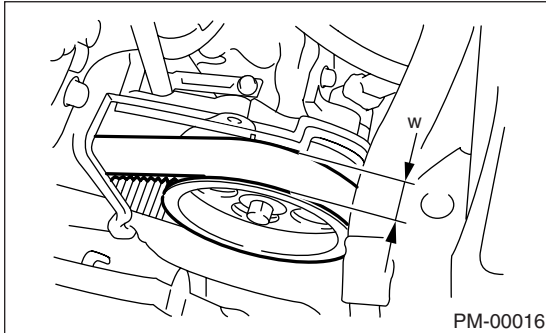
CAUTION:

When installing the timing belt, be sure to align all alignment marks on the belt with corresponding marks on the sprockets. If incorrectly installed, interference between pistons and valves may occur.

C: INSPECTION

1. NON-TURBO MODEL

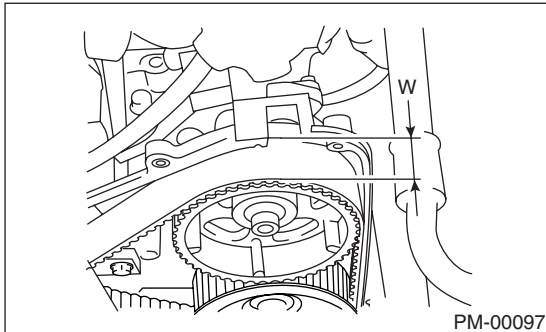
- 1) Remove front timing belt cover and timing belt cover LH.
- 2) While cranking engine at least four rotations, check the timing belt back surface for cracks or damage. Replace the faulty timing belt as needed.
- 3) Measure the timing belt width W. If it is less than 27 mm (1.06 in), check the idlers, tensioner, water pump pulley and cam sprocket to determine idler alignment (squareness). Replace the worn timing belt.



- 4) Install the left and right timing belt covers.

2. TURBO MODEL

- 1) Install front timing belt cover and timing belt cover LH.
- 2) While cranking engine at least four rotations, check the timing belt back surface for cracks or damage. Replace the faulty timing belt as needed.
- 3) Measure the timing belt width W. If it is less than 30 mm (1.18 in), check the idlers, tensioner, water pump pulley and cam sprocket to determine idler alignment (squareness). Replace the worn timing belt.
- 4) Install the left and right timing belt covers.



8. Fuel Line

A: INSPECTION

The fuel line is located mostly internally, so check the pipes, areas near pipes, and engine compartment piping for rust, hose damage, loose bands, etc. If the faulty parts are found, repair or replace them. <Ref. to FU(H4SO)-68, Fuel Delivery, Return and Evaporation lines.> or <Ref. to FU(H4DOTC)-71, Fuel Delivery, Return and Evaporation Lines.>

9. Fuel Filter

A: REPLACEMENT

For fuel filter replacement procedures, refer to “FU” section.

<Ref. to FU(H4SO)-65, Fuel Filter.> or <Ref. to FU(H4DOTC)-68, Fuel Filter.>

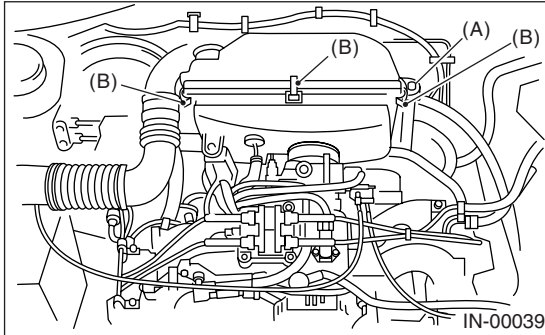
10. Air Cleaner Element

A: REPLACEMENT

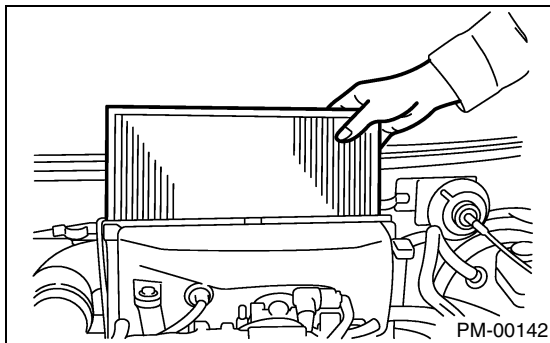
1. NON-TURBO MODEL

1) Remove the bolt (A) which install air cleaner case to stays.

2) Remove the clip (B) above the air cleaner case.



3) Remove the air cleaner element.



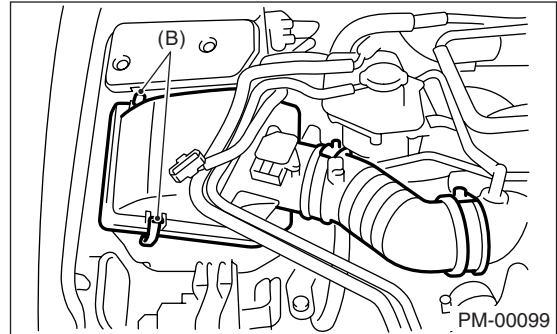
4) Install in the reverse order of removal.

CAUTION:

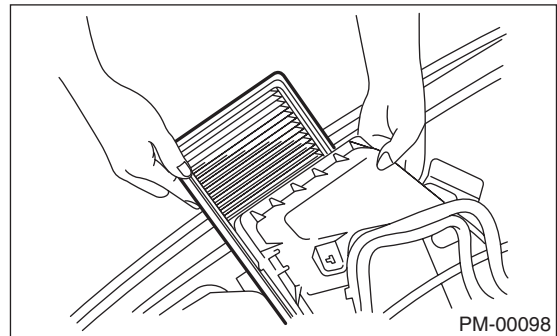
Fasten with a clip after inserting the lower tab of the case.

2. TURBO MODEL

1) Remove the clip (B) above the air cleaner case.



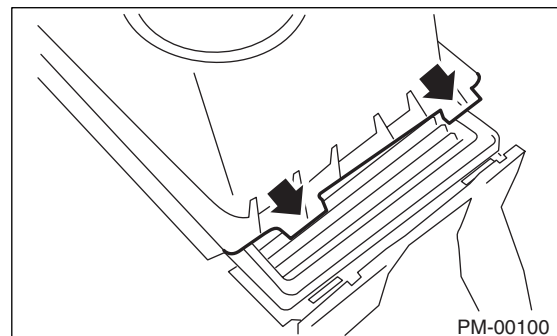
2) Remove the air cleaner element.



3) Install in the reverse order of removal.

CAUTION:

Align the protruding portion of the air cleaner upper cover with the hole in the air cleaner lower case, and then secure the upper cover to the lower case.



11. Cooling System

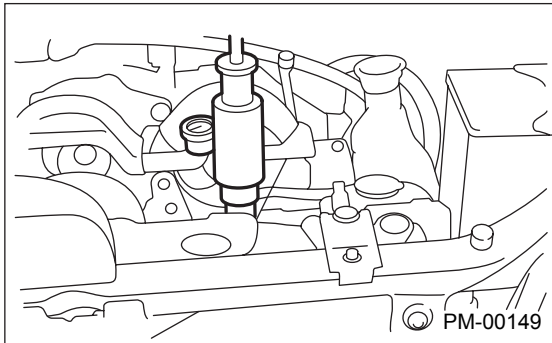
A: INSPECTION

1) Check the radiator for leakage, filling it with coolant and attach radiator cap tester to the filler neck. Then apply a pressure of 157 kPa (1.6 kg/cm², 23 psi) and check the following points:

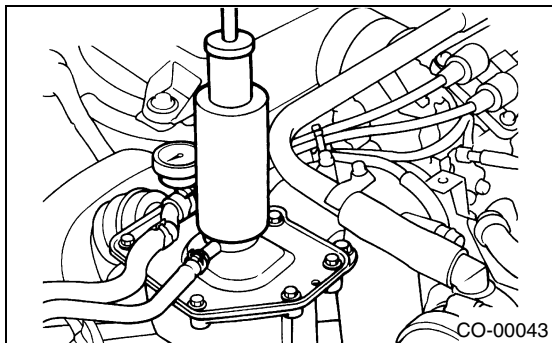
- Each portion of radiator for leakage
- Hose joints and other connections for leakage

NOTE:

- When attaching or detaching tester and when operating tester, use special care not to deform radiator filler neck.
- Non-turbo model



- Turbo model



- When performing this check, be sure to keep the engine stationary and fill radiator with coolant.
- Wipe off check points before applying pressure.
- Use care not to spill coolant when detaching tester from radiator.

2) Check the radiator cap valve open pressure using radiator cap tester.

NOTE:

Rust or dirt on cap may prevent valve from functioning normally: be sure to clean cap before testing.

Raise the pressure until the needle of gauge stops and see if the pressure can be retained for five to six seconds. The radiator cap is normal if a pressure above the service limit value has been maintained for this period.

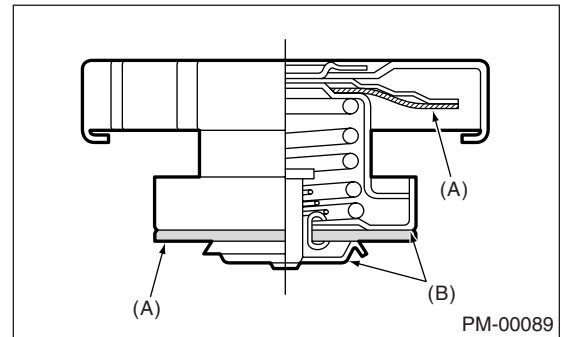
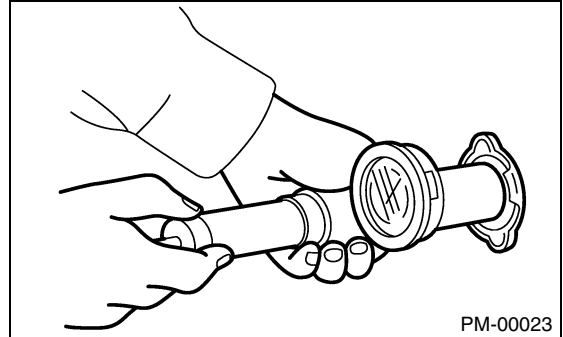
Radiator cap valve open pressure

Standard value:

93 — 123 kPa (0.95 — 1.25 kg/cm², 14 — 18 psi)

Service limit:

83 kPa (0.85 kg/cm², 12 psi)



3) Start the engine and make sure that overheating or overcooling does not occur. If overheating or overcooling occurs, inspect the cooling system. <Ref. to CO(H4SO)-31, Water Pump.> <Ref. to CO(H4SO)-36, Thermostat.> <Ref. to CO(H4SO)-46, Radiator Cap.>

4) Using a Subaru Select Monitor, check if the electric fan operates when the coolant temperature exceeds 95°C (203°F).

12. Coolant

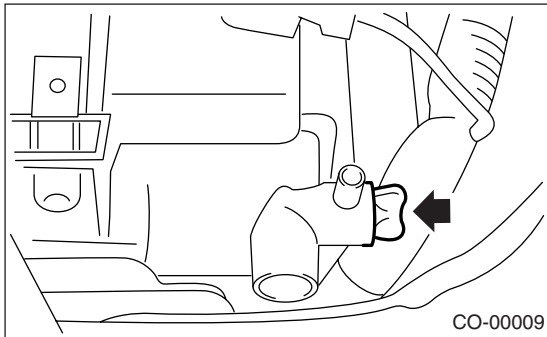
A: REPLACEMENT

1. REPLACEMENT OF COOLANT

WARNING:

The radiator is of the pressurized type. Do not attempt to open the radiator cap immediately after the engine has been stopped.

- 1) Lift up the vehicle.
- 2) Remove the under cover.
- 3) Place a container under drain pipe.
- 4) Loosen and remove the drain plug to drain engine coolant into the container.



- 5) For quick draining, open the radiator cap.

CAUTION:

Be careful not to spill coolant on the floor.

- 6) Drain the coolant from reservoir tank.
- 7) Tighten the radiator drain screw securely after draining coolant.
- 8) Slowly pour the prepared coolant from radiator filler port to neck of filler, then pour into the reservoir tank up to "FULL" level.

Coolant amount for preparation

Non-turbo AT model:

Approx. 6.9 ℓ (7.3 US qt, 6.1 Imp qt)

Non-turbo MT model:

Approx. 7.0 ℓ (7.4 US qt, 6.2 Imp qt)

Turbo AT model:

Approx. 7.6 ℓ (8.0 US qt, 6.7 Imp qt)

Turbo MT model:

Approx. 7.7 ℓ (8.1 US qt, 6.8 Imp qt)

NOTE:

The SUBARU Genuine Coolant containing anti-freeze and anti-rust agents is especially made for SUBARU engine, which has an aluminum crank-case. Always use SUBARU Genuine Coolant, since other coolant may cause corrosion.

- 9) Securely install the radiator cap.
- 10) Run engine for more than five minutes at 2,000 to 3,000 rpm. (Run engine until radiator becomes hot in order to purge air trapped in cooling system.)

- 11) Stop the engine and wait until coolant temperature lowers. Then open the radiator cap to check coolant level and add coolant up to radiator filler neck. Next, add coolant into reservoir tank up to "FULL" level.

- 12) After adding coolant, securely the install radiator and reservoir tank caps.

COOLANT

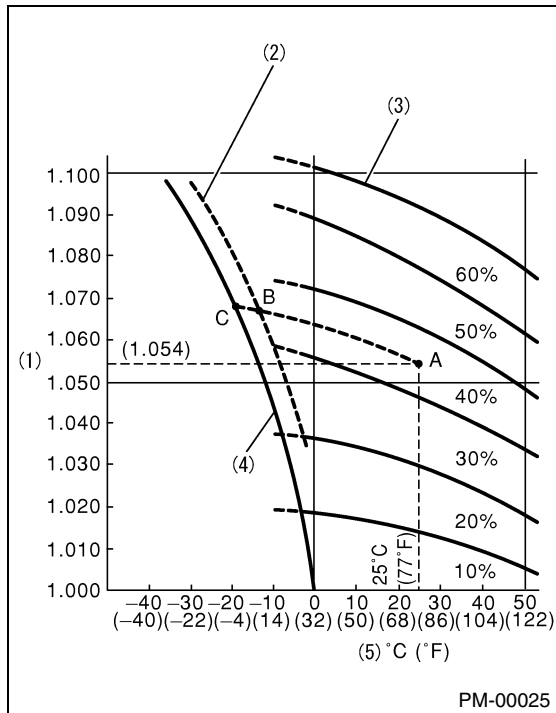
PERIODIC MAINTENANCE SERVICES

2. RELATIONSHIP OF SUBARU COOLANT CONCENTRATION AND FREEZING TEMPERATURE

The concentration and safe operating temperature of the SUBARU coolant is shown in the diagram. Measuring the temperature and specific gravity of the coolant will provide this information.

[Example]

If the coolant temperature is 25°C (77°F) and its specific gravity is 1.054, the concentration is 45% (point A), the safe operating temperature is -14°C (7°F) (point B), and the freezing temperature is -20°C (-4°F) (point C).



- (1) Specific gravity of coolant
- (2) Safe operating temperature
- (3) Concentration of coolant
- (4) Freezing temperature
- (5) Coolant temperature

3. PROCEDURE TO ADJUST THE CONCENTRATION OF THE COOLANT

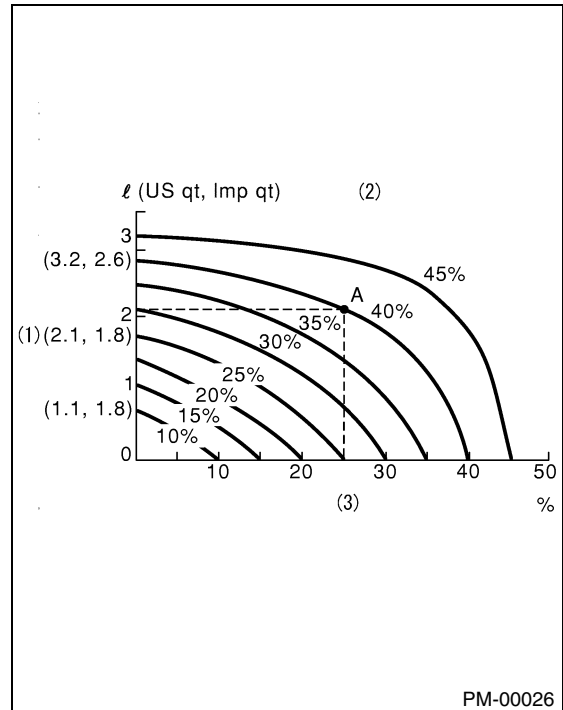
To adjust the concentration of the coolant according to temperature, find the proper fluid concentration in the above diagram and replace the necessary amount of coolant with an undiluted solution of SUBARU genuine coolant (concentration 50).

The amount of coolant that should be replaced can be determined using the diagram.

[Example]

Assume that the coolant concentration must be increased from 25% to 40%. Find point A, where the 25% line of coolant concentration intersects with the 40% curve of the necessary coolant concentration, and read the scale on the vertical axis of the graph at height A. The quantity of coolant to be drained is 2.1 liters (2.2 US qt, 1.8 Imp qt). Drain 2.1 liters (2.2 US qt, 1.8 Imp qt) of coolant from the cooling system and add 2.1 liters (2.2 US qt, 1.8 Imp qt) of the undiluted solution of SUBARU coolant.

If a coolant concentration of 50% is needed, drain all the coolant and refill with the undiluted solution only.



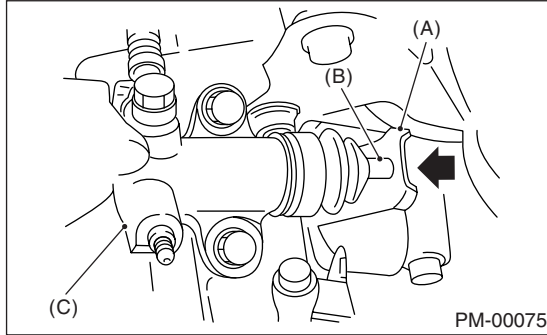
- (1) Quantity of coolant
- (2) Necessary concentration of coolant
- (3) Concentration of coolant in the vehicle cooling system

13. Clutch System

A: INSPECTION AND ADJUSTMENT

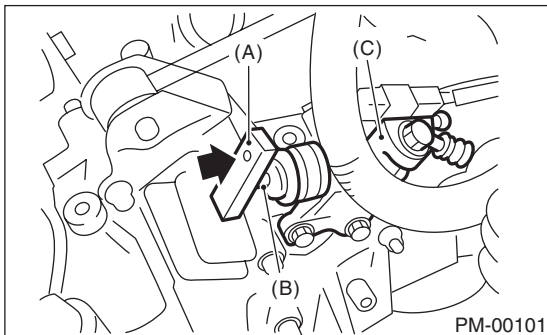
1) Push the release lever to retract the push rod of the operating cylinder and check if the fluid level in the clutch reservoir tank rises or not.

- Non-turbo model



- (A) Release lever
- (B) Push rod
- (C) Operating cylinder

- Turbo model



- (A) Release lever
- (B) Push rod
- (C) Operating cylinder

2) If the fluid level rises, pedal free play is correct.

3) If the fluid level does not rise, or the push rod cannot be retracted, adjust the clutch pedal. <Ref. to CL-26, Clutch Pedal.>

4) Inspect the underside of master cylinder, clutch damper and operating cylinder for clutch system, hoses, piping and their couplings for fluid leaks.

If the fluid leaks are found, correct them by retightening their fitting bolt and/or replacing their parts.

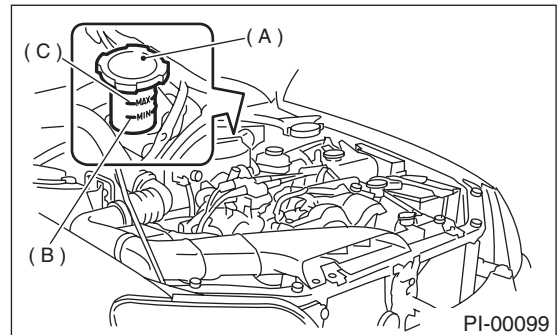
5) Check the fluid level using the scale on the outside of the clutch master cylinder tank (A). If the level is below "MIN" (B), add clutch fluid to bring it up to "MAX" (C).

Recommended clutch fluid:

FMVSS No. 116, fresh DOT3 or DOT4 brake fluid

NOTE:

- Avoid mixing different brands of brake fluid to prevent degradation of the fluid.
- Be careful not to allow dirt or dust to get into the reservoir tank.



14. Transmission Oil

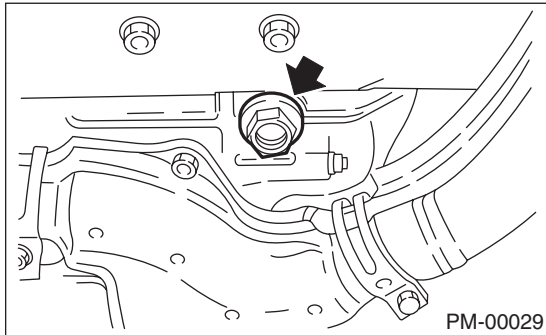
A: REPLACEMENT

1. MANUAL TRANSMISSION

1) Drain the gear oil by removing drain plug after allowing the engine to cool for 3 to 4 hours.

NOTE:

Before starting work, cool off the engine well.



2) Reinstall the drain plug after draining gear oil and tighten it to the specified torque.

Tightening torque:

Gasket (Part No. 803926040):

44 N·m (4.5 kgf-m, 32.5 ft-lb)

Gasket (Part No. 803926070):

70 N·m (7.1 kgf-m, 52 ft-lb)

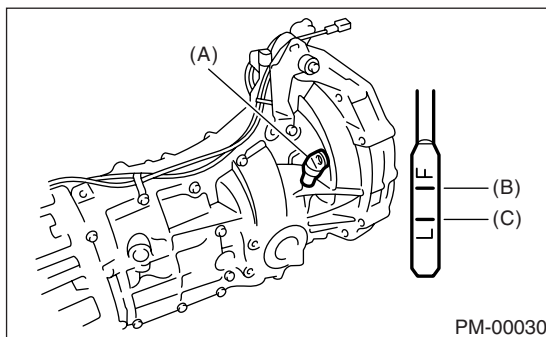
NOTE:

- Be sure to place a gasket between the transmission case and drain plug.
- Replace the gasket with a new one.
- Each oil manufacturer has its base oil and additives. Thus, do not mix two or more brands.

3) Fill the transmission gear oil through the oil level gauge hole up to the upper point of level gauge.

Gear oil capacity:

3.5 ℓ (3.7 US qt, 3.1 Imp qt)



- (A) Oil level gauge
- (B) Upper level
- (C) Lower level

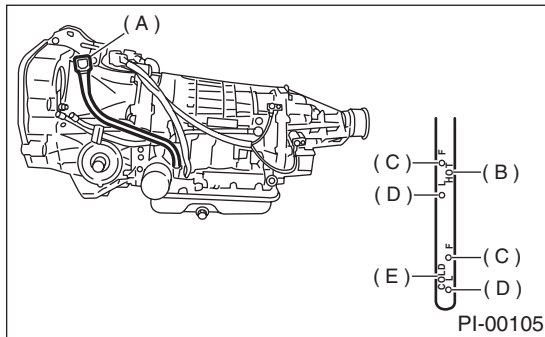
15.ATF

A: INSPECTION

1) Raise the ATF temperature to 70 to 80°C (158 to 176°F) by driving about 10 minutes.

NOTE:

The level of ATF varies with fluid temperature. Pay attention to the fluid temperature when checking oil level.



- (A) Level gauge
- (B) "HOT" side
- (C) Upper level
- (D) Lower level
- (E) "COLD" side

2) Make sure the vehicle is level. After selecting all positions (P, R, N, D, 3, 2, 1), set the select lever in "P" range. Measure the fluid level with engine idling.

NOTE:

After running, idle the engine for 1 or 2 minutes before measurement.

3) If the fluid level is below the center between upper and lower marks, add the recommended ATF until the fluid level is found within the specified range (above the center between upper and lower marks). When the transmission is hot, the level should be above the center of upper and lower marks, and when it is cold, the level should be found below the center of these two marks.

CAUTION:

- Use care not to exceed the upper limit level.
- ATF level varies with temperature. Remember that the addition of fluid to the upper limit mark when the transmission is cold will result in the overfilling of fluid.

4) Fluid temperature rising speed

- By idling the engine

Time for temperature rise to 70°C (158°F) with atmospheric temperature of 0°C (32°F): More than 25 minutes

NOTE:

- Time for temperature rise to 30°C (86°F) with atmospheric temperature of 0°C (32°F): Approx. 8 minutes

- By running the vehicle

Time for temperature rise to 60°C (140°F) with atmospheric temperature of 0°C (32°F): More than 10 minutes

5) Method for checking fluid level upon delivery or at periodic inspection

Check the fluid level after a warm-up run of approx. 10 minutes. During the warm-up period, the automatic transmission functions can also be checked.

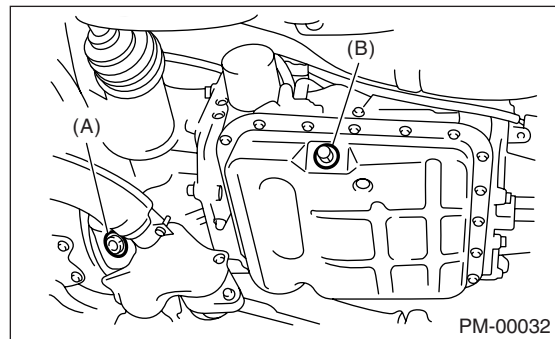
B: REPLACEMENT

1. AUTOMATIC TRANSMISSION FLUID

1) Drain ATF (Automatic Transmission Fluid) by removing drain plug after allowing the engine to cool for 3 to 4 hours.

NOTE:

Before starting work, cool off the engine well.



- (A) Front differential drain plug
- (B) ATF drain plug

2) Reinstall the drain plug after draining ATF, and tighten it to the specified torque.

Tightening torque:

25 N·m (2.5 kgf-m, 18.1 ft-lb)

3) Fill ATF up to the middle of the "COLD" side on level gauge by using the gauge hole.

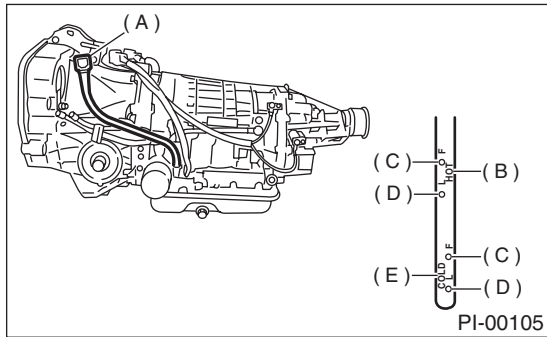
Recommended fluid:

Dexron III type automatic transmission fluid

Fluid capacity:

Fill the same amount drained from ATF drain plug hole.

4) Run the vehicle until the ATF temperature rises to 70 to 80°C (158 to 176°F) and check the ATF level.



- (A) Level gauge
- (B) "HOT" side
- (C) Upper level
- (D) Lower level
- (E) "COLD" side

2. ATF FILTER

NOTE:

ATF filter is maintenance free part. ATF filter needs replacement, when it has physically damaged or ATF leaked.

For the replacement procedures of the ATF filter:
<Ref. to AT-70, ATF Filter.>

16. Front & Rear Differential Oil

A: REPLACEMENT

1. FRONT DIFFERENTIAL (MANUAL TRANSMISSION)

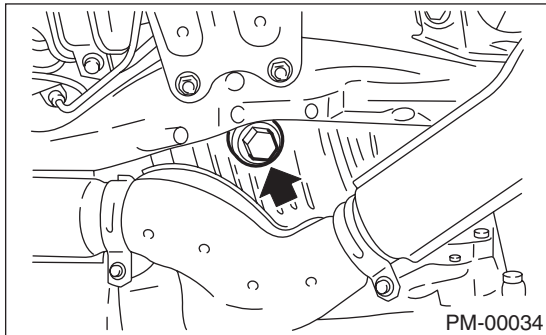
For M/T vehicle, manual transmission oil works as differential oil to lubricate differential. Refer to "Transmission Oil". <Ref. to PM-22, Transmission Oil.>

2. FRONT DIFFERENTIAL (AUTOMATIC TRANSMISSION)

1) Drain the differential gear oil by removing drain plug after allowing the engine to cool for 3 to 4 hours.

NOTE:

Before starting work, cool off the engine well.



2) Reinstall drain plug after draining differential gear oil and tighten it to the specified torque.

Tightening torque:

44 N·m (4.5 kgf-m, 32.5 ft-lb)

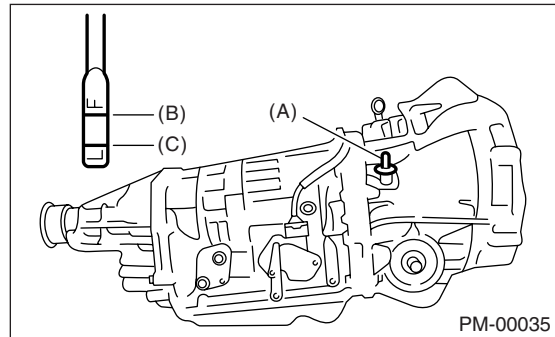
NOTE:

- Be sure to place a gasket between the transmission case and drain plug.
- Replace the gasket with a new one.
- Each oil manufacturer has its base oil and additives. Thus, do not mix two or more brands.

3) Fill differential gear oil through the oil level gauge hole up to the upper point of level gauge.

Differential gear oil capacity:

1.1 — 1.3 ℓ (1.2 — 1.4 US qt, 1.0 — 1.1 Imp qt)



- (A) Oil level gauge
- (B) Upper level
- (C) Lower level

3. REAR DIFFERENTIAL

- 1) Drain the oil by removing drain plug.
- 2) Remove the filler plug for quick draining oil.
- 3) Reinstall the drain plug after draining oil.

NOTE:

- Apply liquid gasket to drain plug threads before installation.

Liquid gasket:

Three Bond 1105 (Part No. 004403010 or equivalent)

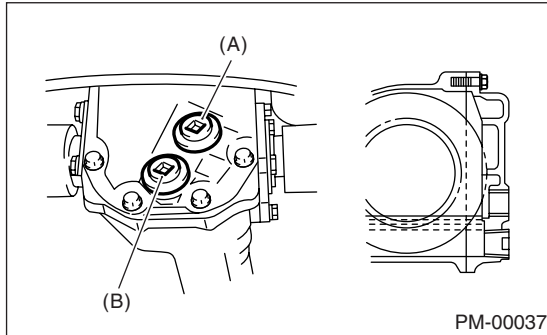
Tightening torque:

49.0 N·m (5.0 kgf-m, 36.2 ft-lb)

FRONT & REAR DIFFERENTIAL OIL

PERIODIC MAINTENANCE SERVICES

4) After installing drain plug onto rear differential gear case firmly, fill oil up fully to the mouth of filler plug.



- (A) Filler plug
(B) Drain plug

Oil capacity:

0.8 ℓ (0.8 US qt, 0.7 Imp qt)

NOTE:

Each oil manufacturer has its base oil and additives. Thus, do not mix two or more brands.

5) Install the filler plug onto rear differential gear case firmly.

NOTE:

Apply liquid gasket to filler plug before installation.

Liquid gasket:

Three Bond 1105 (Part No. 004403010 or equivalent)

Tightening torque:

49.0 N·m (5.0 kgf-m, 36.2 ft-lb)

17.Brake Line

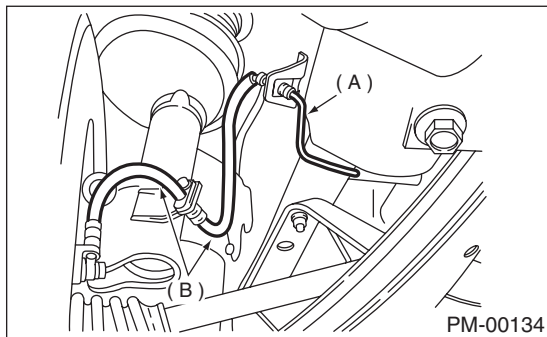
A: INSPECTION

1. BRAKE LINE

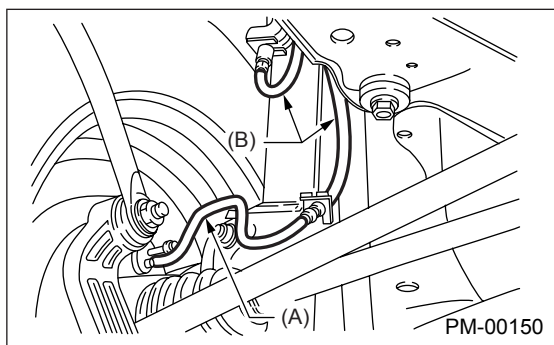
- 1) Check the scratches, swelling, corrosion and/or traces of fluid leakage on brake hoses or pipe joints.
- 2) Check the possibility of adjacent parts interfering with brake pipes/hoses during driving, and loose connections/clamps.
- 3) Check any trace of fluid leakage, scratches, etc. on master cylinder, wheel cylinder and pressure control valve.

NOTE:

- When the brake fluid level in the reservoir tank is lower than the specified limit, the brake fluid warning light on the combination meter will come on.
- Visually check brake hose (using a mirror where it is difficult to see) for any damage.



- (A) Brake pipe
(B) Brake hose



- (A) Brake pipe
(B) Brake hose

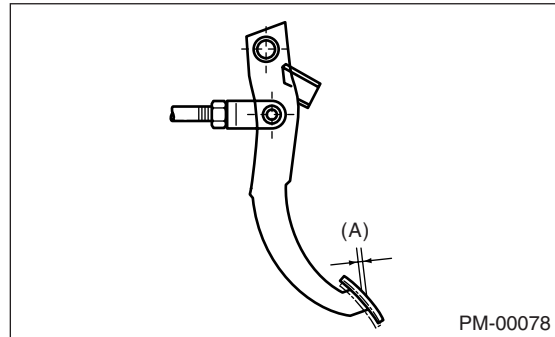
B: CHECKING

1. SERVICE BRAKE

- 1) Check the free play of brake pedal with a force of less than 10 N (1 kgf, 2 lb).

Brake pedal free play:

1 — 3 mm (0.04 — 0.12 in)



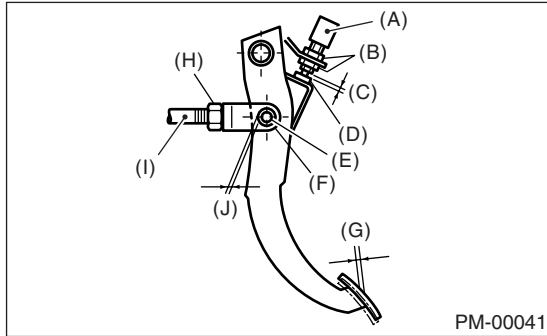
(A) Pedal play

- 2) If the free play is out of specifications above, adjust the brake pedal as follows:

- (1) Be sure the engine is off. (No vacuum is applied to brake booster.)
- (2) There should be play between brake booster clevis and pin at brake pedal installing portion.

[Depress brake pedal pad with a force of less than 10 N (1 kgf, 2 lb) to a stroke of 1 to 3 mm (0.04 to 0.12 in).]

- (3) Depress the surface of brake pad by hand.
- (4) If there is no free play between clevis pin and clevis, turn brake switch adjusting nut until the clearance between stopper and screw of brake switch becomes 0.3 mm (0.012 in).



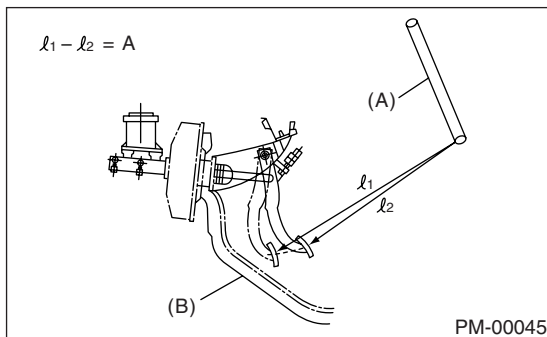
- (A) Brake switch
- (B) Adjusting nut
- (C) 0.3 mm (0.012 in)
- (D) Stopper
- (E) Clevis pin
- (F) Clevis
- (G) Pedal play
- (H) Lock nut
- (I) Brake booster operating rod
- (J) Play at pin

3) Check the pedal stroke.

While the engine is idling, depress the brake pedal with a 490 N (50 kgf, 110 lb) load and measure the distance between the brake pedal and steering wheel. With the brake pedal released, measure the distance between the pedal and steering wheel again. The difference between the two measurements must be less than 95 mm (3.74 in). If the distance is more than specified, there is a possibility air is in the inside of the hydraulic unit.

Brake pedal travel distance: A

more than 95 mm (3.74 in)/ 490 N (50 kgf, 110 lb)



- (A) Steering wheel
- (B) Toe board

4) Check to see if air is in the hydraulic brake line by the feel of pedal operation. If air appears to exist in the line, bleed it from the system.

5) Check for even operation of all brakes, using a brake tester or by driving the vehicle for a short distance on a straight road.

2. BRAKE SERVO SYSTEM

1) With the engine off, depress the brake pedal several times applying the same pedal force: Make sure the travel distance should not change.

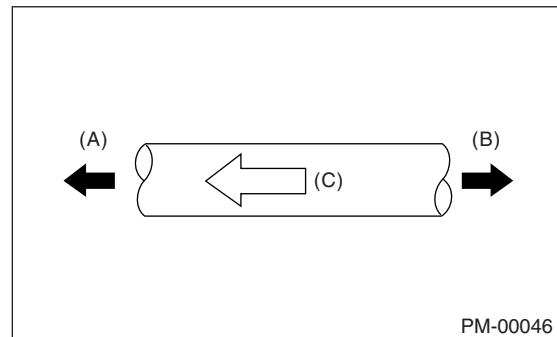
2) With the brake pedal depressed, start the engine: Make sure the pedal should move slightly toward the floor.

3) With the brake pedal depressed, stop the engine and keep the pedal depressed for 30 seconds: Make sure the pedal height should not change.

4) Check the valve is built into vacuum hose. Disconnect the vacuum hose to inspect function of check valve.

Blow air into vacuum hose from its brake booster side end: Air must flow out of engine side end of hose. Next blow air into hose from engine side: Air should not flow out of hose.

Replace the both check valve and vacuum hose if the check valve is faulty. Engine side of vacuum hose is indicated by marking "ENG" as shown.



- (A) Engine side
- (B) Brake booster side
- (C) ENG

5) Check the vacuum hose for cracks or other damage.

NOTE:

When installing the vacuum hose on the engine and brake booster, do not use soapy water or lubricating oil on their connections.

6) Check the vacuum hose to make sure it is tight and secure.

18.Brake Fluid

A: REPLACEMENT

- 1) Either jack up the vehicle and place a safety stand under it, or lift up the vehicle.
- 2) Remove the both front and rear wheels.
- 3) Draw out the brake fluid from master cylinder with syringe.
- 4) Refill the reservoir tank with recommended brake fluid.

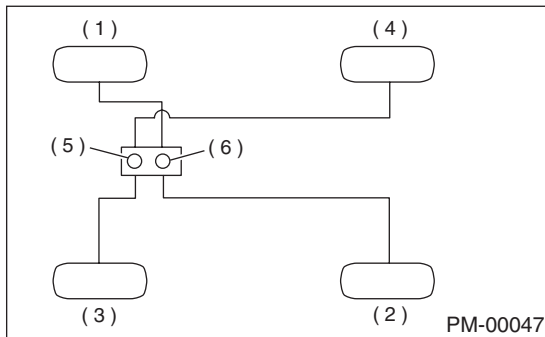
Recommended brake fluid:

FMVSS No. 116, fresh DOT3 or 4 brake fluid

NOTE:

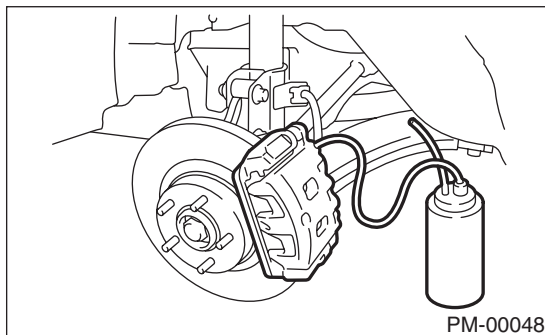
- Avoid mixing different brands of brake fluid to prevent degrading the quality of the fluid.
- Be careful not to allow dirt or dust to get into the reservoir tank.

Bleeding sequence (1) → (2) → (3) → (4)



- (1) Front right
- (2) Rear left
- (3) Front left
- (4) Rear right
- (5) Secondary
- (6) Primary

- 5) Install one end of a vinyl tube onto the air bleeder and insert the other end of the tube into a container to collect the brake fluid.



NOTE:

- Cover the bleeder with waste cloth, when loosening it, to prevent brake fluid from being splashed over surrounding parts.
 - During bleeding operation, keep the brake reserve tank filled with brake fluid to eliminate entry of air.
 - Brake pedal operation must be very slow.
 - For convenience and safety, it is advisable to have two men working.
 - The amount of brake fluid required is approximately 500 mℓ (16.9 US fl oz, 17.6 Imp fl oz) for total brake system.
- 6) Instruct your co-worker to depress the brake pedal slowly two or three times and then hold it depressed.
 - 7) Loosen the bleeder screw approximately 1/4 turn until a small amount of brake fluid drains into container, and then quickly tighten screw.
 - 8) Repeat steps 6) and 7) above until there are no air bubbles in drained brake fluid and new fluid flows through vinyl tube.

NOTE:

Add the brake fluid as necessary while performing the air bleed operation, in order to prevent the tank from running short of brake fluid.

- 9) After completing the bleeding operation, hold brake pedal depressed and tighten the screw and install the bleeder cap.

Tightening torque:

8 N·m (0.8 kgf-m, 5.8 ft-lb)

- 10) Bleed the air from each wheel cylinder by following the previous 5 steps.
- 11) Depress the brake pedal with a force of approximately 294 N (30 kgf, 66 lb) and hold it there for approximately 20 seconds. At this time check pedal to see if it makes any unusual movement. Visually inspect bleeder screws and brake pipe joints to make sure that there is no fluid leakage.
- 12) Install the wheels, and drive the vehicle for a short distance between 2 to 3 km (1 to 2 miles) to make sure that brakes are operating properly.

DISC BRAKE PADS AND DISCS

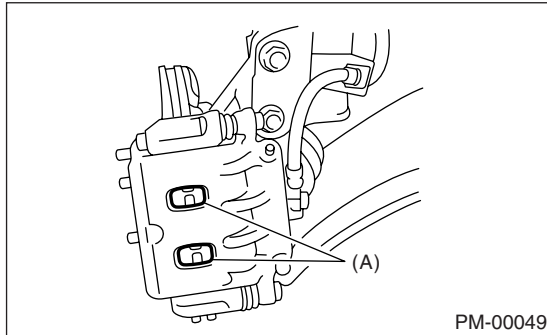
PERIODIC MAINTENANCE SERVICES

19.Disc Brake Pads and Discs

A: INSPECTION

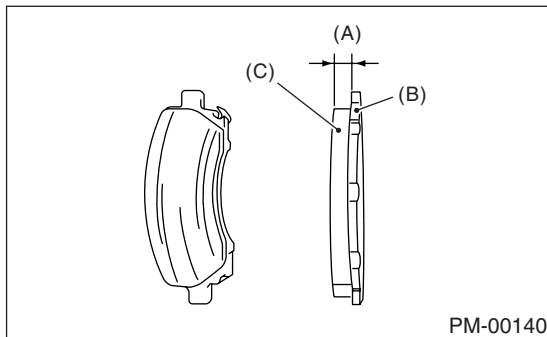
1. DISC BRAKE PAD AND DISC

- 1) Jack up the vehicle and support with rigid racks. Then remove wheels.
- 2) Visually check pad thickness through inspection hole of disc brake assembly. Replace the pad if necessary.



(A) Inspection hole

Pad thickness mm (in)		
	Front	Rear
Standard	11 (0.43)	9 (0.35)
Service limit	1.5 (0.059)	1.5 (0.059)



- (A) Thickness of pad
(B) Back metal
(C) Lining

- 3) Check the disc rotor, and correct or replace if it is damaged or worn.

Brake disc thickness mm (in)		
	Front	Rear
Standard	24 (0.94)	10 (0.39)
Wear limit	22 (0.87)	8.5 (0.335)

- 4) Measure the disc rotor runout at a point less than 10 mm (0.39 in) from the outer periphery of the rotor.

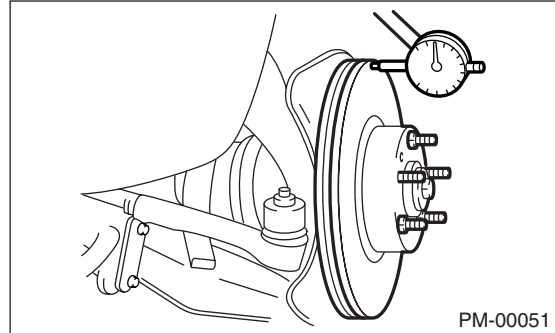
Disc rotor runout limit:

Front: 0.075 mm (0.0030 in)

Rear: 0.070 mm (0.0028 in)

NOTE:

When replacing a pad, always replace the pads for both the left and right wheels at the same time. Also replace pad clips if they are twisted or worn.



20.Brake Linings and Drums

A: INSPECTION

1. REAR DRUM BRAKE

1) Remove the brake drum, and check that there is no fluid leakage from wheel cylinder.

If there is fluid leakage from wheel cylinder, replace it.

2) Inspect the brake shoes for damage or deformities and check the brake linings for wear.

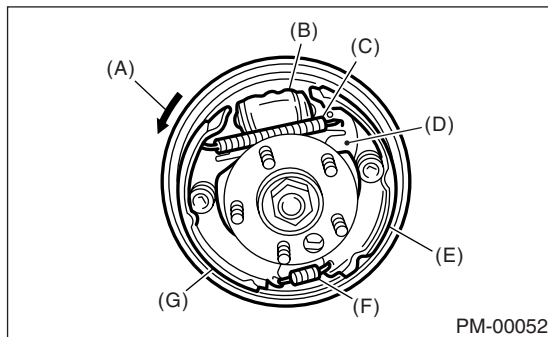
NOTE:

- Always replace both leading and trailing brake shoes for the left and right wheels at the same time.
- When either the left or the right brake assembly is replaced, always replace the leading shoe and trailing shoe of the other.

Thickness of lining (except back metal)

Standard value: 4.1 mm (0.161 in)

Service limit: 1.5 mm (0.059 in)



- (A) Rotational direction of drum (Forward)
- (B) Wheel cylinder
- (C) Upper shoe return spring
- (D) Adjusting lever
- (E) Trailing shoe
- (F) Lower shoe return spring
- (G) Leading shoe

3) Check the brake drum for wear, dents or other damage.

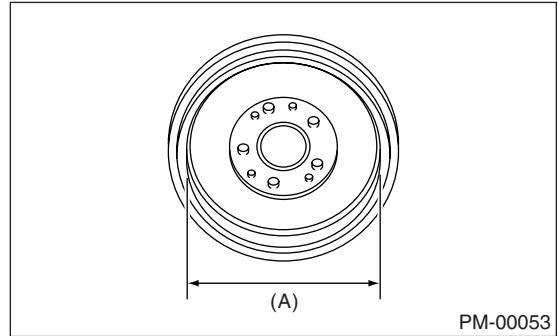
If the inside surface of brake drum is streaked, correct the surface with emery cloth (#200 or more). If it is unevenly worn, tapered, or the outside surface of brake drum is damaged, correct or replace it.

Brake drum inner diameter

Standard value: 228.6 mm (9.000 in)

Service limit: 230.6 mm (9.079 in)

If deformation or wear of back plate, shoe, etc. is noticeable, replace the affected parts.



(A) Inside diameter

2. PARKING BRAKE (REAR DISC BRAKE)

Inspect brake linings and drums of both sides of the rear brake at the same time by removing brake drums.

1) Inspect the brake shoes for damage or deformation and check the brake linings for wear.

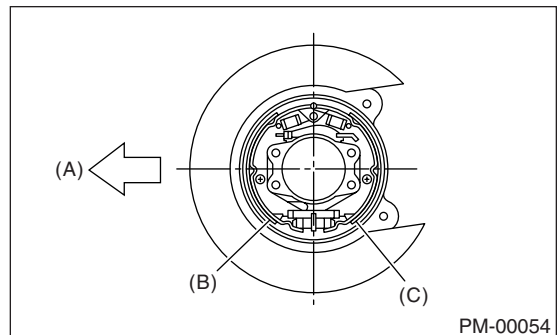
NOTE:

Always replace both primary and secondary brake shoes for the left and right wheels at the same time.

Brake lining thickness excluding back metal

Standard value: 3.2 mm (0.126 in)

Wear limit: 1.5 mm (0.059 in)



- (A) Forward
- (B) Brake shoe (Primary)
- (C) Brake shoe (Secondary)

BRAKE LININGS AND DRUMS

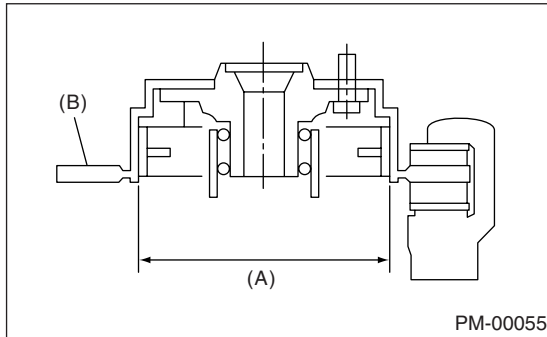
PERIODIC MAINTENANCE SERVICES

2) Check the brake drum for wear, dents or other damage. If the inside surface of brake drum is streaked, correct the surface with emery cloth (#200 or more). If it is unevenly worn, tapered, or the outside surface of brake drum is damaged, correct or replace it.

Brake drum inside diameter

Standard value: 170 mm (6.69 in)

Wear limit: 171 mm (6.73 in)



(A) Inside diameter

(B) Disc

3) If the deformation or wear of back plate, shoe, etc. is noticeable, replace them.

4) When the shoe return spring tension is excessively weakened, replace it, taking care to identify upper and lower springs.

B: ADJUSTMENT

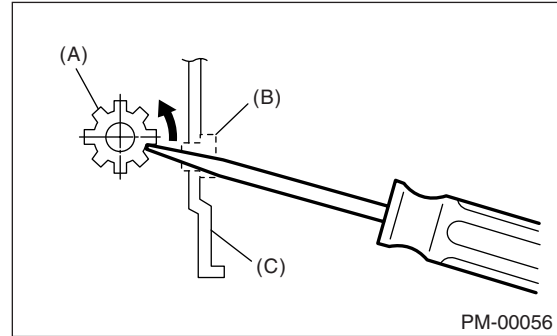
1. REAR DRUM BRAKE

The main brake is adjusted automatically, and so there is no need to adjust it.

2. PARKING BRAKE (REAR DISC BRAKE)

1) Remove the rear cover (rubber) installed at back plate.

2) Turn the adjuster toward arrow mark (upward) until it is locked slightly, by using slot-type screwdriver as shown in illustration.



(A) Adjuster

(B) Cover (Rubber)

(C) Back plate

3) Turn back (downward) the adjuster 3 to 4 notches.

4) Install the cover (rubber) at original position correctly.

3. LEVER STROKE

1) Remove the consol cover.

2) Forcibly pull the parking brake lever 3 to 5 times.

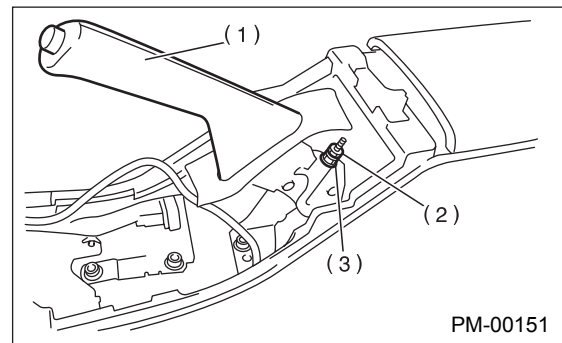
3) Adjust the parking brake lever by turning adjuster until the parking brake lever stroke is set at 7 to 8 notches with operating force of 196 N (20 kgf, 44 lb).

Lever stroke:

7 to 8 notches when pulled with a force of 196 N (20 kgf, 44 lb)

Tightening torque (Lock nut):

6 N·m (0.6 kgf-m, 4.4 ft-lb)



(1) Parking brake lever

(2) Lock nut

(3) Adjusting nut

4) Tighten the lock nut.

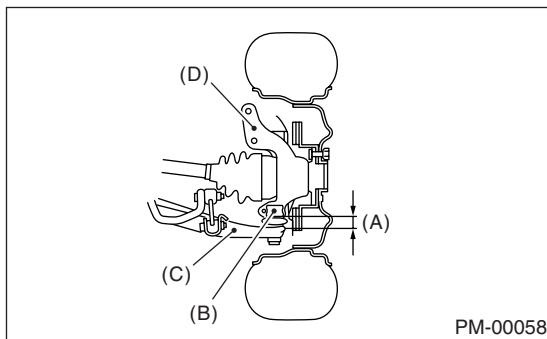
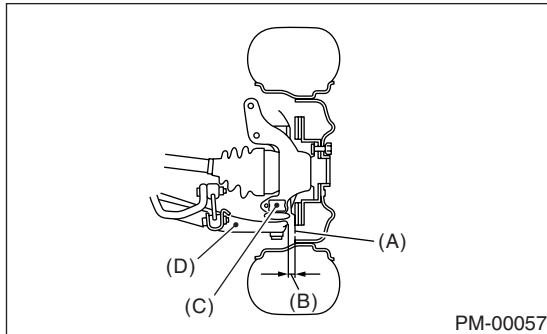
5) Install the console cover.

21. Suspension

A: INSPECTION

1. SUSPENSION BALL JOINT

- 1) Jack up the vehicle until front wheels are off ground.
- 2) Next, grasp the bottom of tire and move it in and out. If relative movement is observed between brake disc cover (A) and end of transverse link (D), ball joint (C) may be excessively worn.
- 3) Next, grasp the end of transverse link (C) and move it up and down. Relative movement (A) between housing (D) and transverse link boss indicates ball joint may be excessively worn.
- 4) If the relative movement is observed in the immediately preceding two steps, remove and inspect the ball joint. If the free play exceeds standard, replace the ball joint. <Ref. to FS-20, Front Ball Joint.>



5) Damage of dust seal

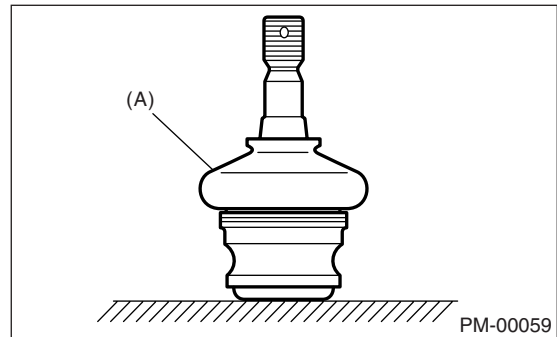
Visually inspect ball joint dust seal. If it is damaged, remove the transverse link. <Ref. to FS-18, Front Transverse Link.> And measure free play of ball joint. <Ref. to FS-20, Front Ball Joint.>

- (1) When looseness exceeds standard value, replace ball joint.
- (2) If the dust seal is damaged, replace with the new ball joint.

NOTE:

When transverse link ball joint has been removed or replaced, check toe-in of front wheel. If front

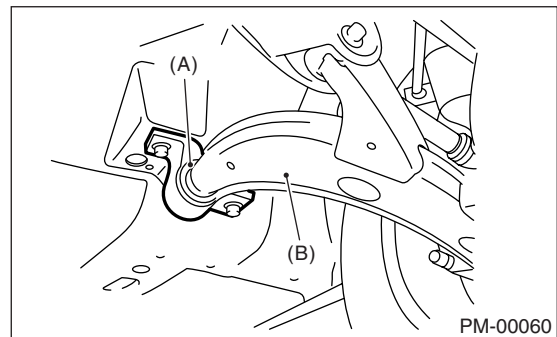
wheel toe-in is not at specified value, adjust toe-in. <Ref. to FS-8, Wheel Alignment.>



(A) Dust seal

2. TRANSVERSE LINK'S REAR BUSHING

Check oil leaks at around liquid-filled bushing. If oil leaks, replace bushing.



(A) Rear bushing

(B) Transverse link

3. WHEEL ARCH HEIGHT

- 1) Unload the cargoes and set the vehicle in curb weight (empty) condition.
- 2) Then, check the wheel arch height of front and rear suspensions to ensure that they are within specified values.
- 3) When the wheel arch height is out of standard, visually inspect following components and replace deformed parts.

- Suspension components [Front strut assembly and rear strut assembly]
 - Body parts to which suspensions are installed.
- 4) When no components are deformed, adjust wheel arch height by replacing coil spring in the suspension whose wheel arch height is out of standard. <Ref. to FS-8, Wheel Alignment.> <Ref. to RS-9, Wheel Alignment.>

4. WHEEL ALIGNMENT OF FRONT SUSPENSION

1) Check the alignment of front suspension to ensure that following items conform to standard values.

- Toe-in
- Camber angle
- Caster angle
- Steering angle

<Ref. to FS-8, Wheel Alignment.>

2) When the caster angle does not conform to standard value, visually inspect following components and replace deformed parts.

- Suspension components [Strut assembly, crossmember, transverse link, etc.]
- Body parts to which suspensions are installed.

3) When the toe-in and camber are out of standard value, adjust them so that they conform to respective service standard.

4) When the right-and-left turning angles of tire are out of standard, adjust to standard value.

5. WHEEL ALIGNMENT OF REAR SUSPENSION

1) Check the alignment of rear suspension to ensure that following items are within standard values.

- Toe-in
- Camber angle
- Thrust angle

<Ref. to RS-9, Wheel Alignment.>

2) When the camber angle does not conform to standard value, visually inspect parts listed below. If the deformation is observed, replace damaged parts.

- Suspension components [Strut assembly, crossmember, trailing link, lateral links, etc.]
- Body parts to which suspensions are installed.

3) When the toe-in and thrust angle are out of standard value, adjust them so that they conform to respective service standard.

6. OIL LEAKAGE OF STRUT

Visually inspect front strut and rear strut for oil leakage as instructed. Replace front strut and rear strut if oil leaks excessively.

7. TIGHTNESS OF BOLTS AND NUTS

Check each bolts and nuts of the suspension for looseness. Retighten the bolts and nuts to specified torque. If self-lock nuts and bolts are removed, replace them with new ones.

Front suspension: <Ref. to FS-2, General Description.>

Rear suspension: <Ref. to RS-2, General Description.>

8. DAMAGE TO SUSPENSION PARTS

1) Check the following parts and the fastening portion of the vehicle body for deformation or excessive rusting which impairs the suspension. If necessary, replace damaged parts with new ones. If minor rust formation, pitting, etc. are noted, remove rust and apply remedial anti-corrosion measures.

- Front suspension
 - Transverse link
 - Crossmember
 - Strut

- Rear suspension
 - Crossmember
 - Lateral links
 - Trailing link
 - Strut

- In the district where salt is sprayed to melt snow on a road in winter, check suspension parts for damage caused by rust every 12 months after lapse of 60 months. Take rust prevention measure as required.

22. Wheel Bearing

A: INSPECTION

1. FRONT WHEEL BEARING

NOTE:

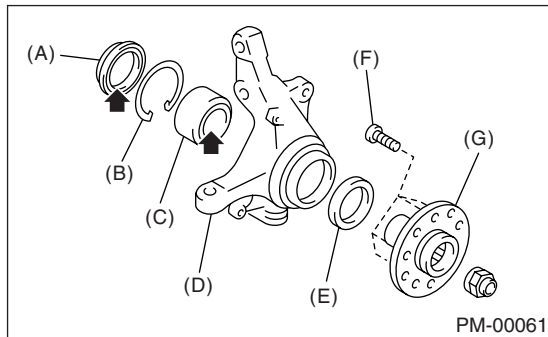
Inspect the condition of front wheel bearing grease.

- 1) Jack up the front of vehicle.
- 2) While holding front wheel by hand, swing it in and out to check bearing free play.
- 3) Loosen the wheel nuts and remove the front wheel.
- 4) If the bearing free play exists in step 2) above, attach a dial gauge to hub COMPL and measure axial displacement in axial direction.

Service limit:

Straight-ahead position within 0.05 mm (0.0020 in)

- 5) Remove stabilizer link from transverse link.
 - 6) Remove transverse link ball joint from housing.
 - 7) While lightly hammering spring pin which secures S.F.J. to transmission spindle, remove it.
 - 8) Extract S.F.J. from the transmission spindle. <Ref. to DS-17, Front Axle.>
 - 9) While supporting front drive shaft horizontally with one hand, turn the hub with the other to check for noise or binding.
- If the hub is noisy or binds, disassemble the front axle and check the oil seals, bearing, etc.



- (A) Inner oil seal
- (B) Snap ring
- (C) Bearing
- (D) Housing
- (E) Outer oil seal
- (F) Hub bolt
- (G) Hub

2. REAR WHEEL BEARING

- 1) Jack up the rear of vehicle.
- 2) While holding rear wheel by hand, swing it in and out to check bearing free play.

- 3) Loosen the wheel nuts and remove the rear wheel.

- 4) If the bearing free play exists in step 2) above, attach a dial gauge to hub COMPL and measure axial displacement in axial direction.

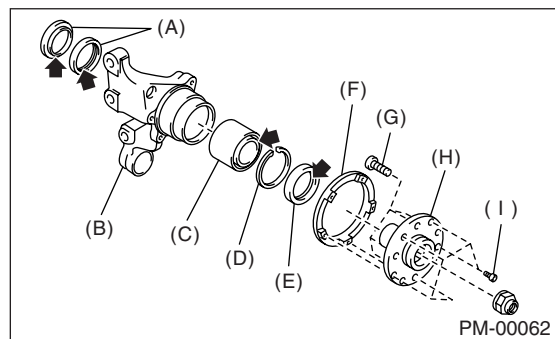
Service limit:

Straight-ahead position within 0.05 mm (0.0020 in)

- 5) Remove the DOJ of rear drive shaft from rear differential. <Ref. to DS-39, Rear Drive Shaft.>

- 6) While supporting rear drive shaft horizontally with one hand, turn the hub COMPL with the other to check for noise or binding.

If the hub COMPL is noisy or binds, disassemble the rear axle and check the oil seals, bearings, etc.



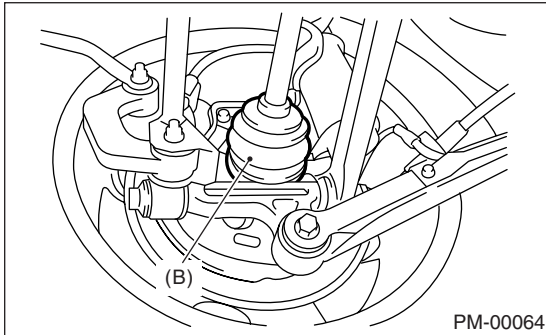
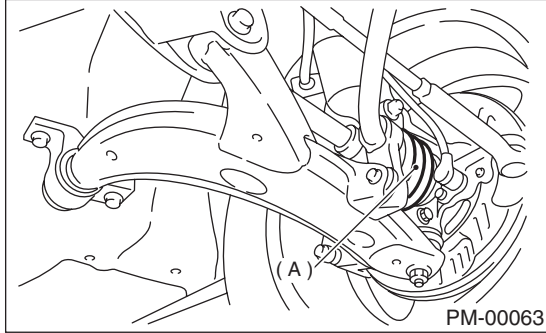
- (A) Inner oil seal
- (B) Rear housing
- (C) Bearing
- (D) Snap ring
- (E) Outer oil seal
- (F) Tone wheel
- (G) Hub bolt
- (H) Hub
- (I) Socket bolt

23. Axle Boots & Joints

A: INSPECTION

1. FRONT AND REAR AXLE BOOTS

Inspect the front axle boots (A) and rear axle boots (B) for deformation, damage or failure. If faulty, replace them with new ones. <Ref. to DS-32, Front Drive Shaft.> <Ref. to DS-39, Rear Drive Shaft.>



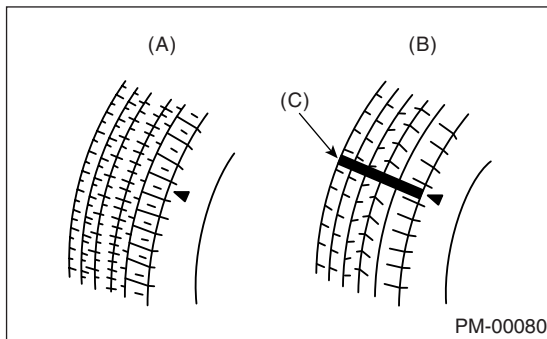
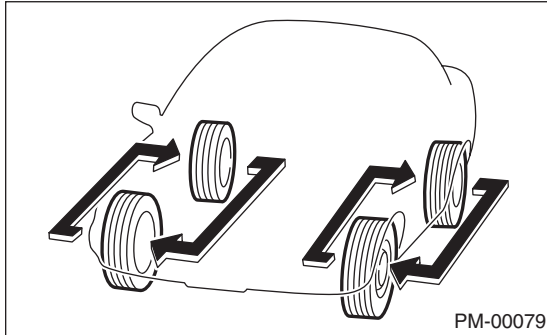
2. PROPELLER SHAFT

Inspect the propeller shaft for damage or failure. If faulty, replace with new one. <Ref. to DS-14, Propeller Shaft.>

24. Tire rotation

A: INSPECTION

- 1) When the tread has worn down to 1.6 mm (2/32 in) or the wear indicator appears across the tread, replace the tire. (It is recommended to replace both left and right tires as a set.)
- 2) If abnormal uneven wear is found on the tire, adjust the wheel alignment.
- 3) Also, tire rotations should be done by interchanging front and rear tires as shown to ensure even wear of the tires.



- (A) New tread
- (B) Worn tread
- (C) Tread wear indicator

STEERING SYSTEM (POWER STEERING)

PERIODIC MAINTENANCE SERVICES

25. Steering System (Power Steering)

A: INSPECTION

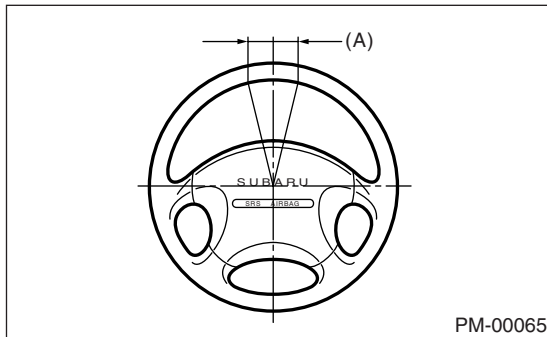
1. STEERING WHEEL

- 1) Set the steering wheel in a straight-ahead position, and check the wheel spokes to make sure they are correctly set in their specified positions.
- 2) Lightly turn the steering wheel to the left and right to determine the point where front wheels start to move.

Measure the distance of the movement of steering wheel at the outer periphery of wheel.

Steering wheel free play:

0 — 17 mm (0 — 0.67 in)



Move the steering wheel vertically toward the shaft to ascertain if there is play in the direction.

Maximum permissible play:

0.5 mm (0.020 in)

- 3) Drive the vehicle and check the following items during operation.

(1) Steering force:

The effort required for steering should be smooth and even at all points, and should not vary.

(2) Pull to one side:

Steering wheel should not be pulled to either side while driving on a level surface.

(3) Wheel runout:

Steering wheel should not show any sign of runout.

(4) Return factor:

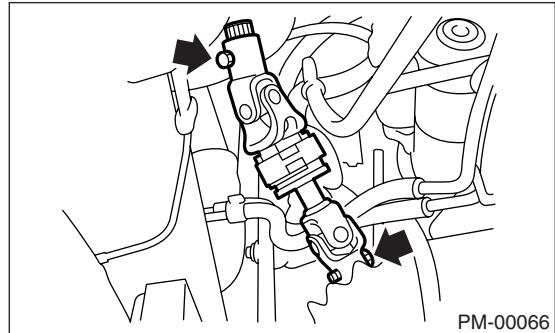
Steering wheel should return to its original position after it has been turned and then released.

2. STEERING SHAFT JOINT

- 1) When the steering wheel free play is excessive, disconnect the universal joint of steering shaft and check it for any play and yawing torque (at the point of the crossing direction). Also inspect for any damage to sealing or worn serrations. If the joint is loose, retighten the mounting bolts to the specified torque.

Tightening torque:

24 N·m (2.4 kgf-m, 17.4 ft-lb)



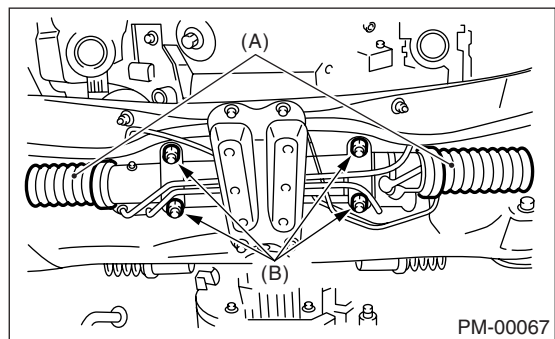
3. GEARBOX

- 1) With wheels placed on a level surface, turn the steering wheel 90° in both the left and right directions.

While the wheel is being rotated, reach under vehicle and check for looseness in gearbox.

Tightening torque:

59 N·m (6.0 kgf-m, 43.4 ft-lb)



(A) Gear box

(B) Gear box mounting bolt

- 2) Check the boot for damage, cracks or deterioration.

- 3) With vehicle on a level surface, quickly turn steering wheel to the left and right.

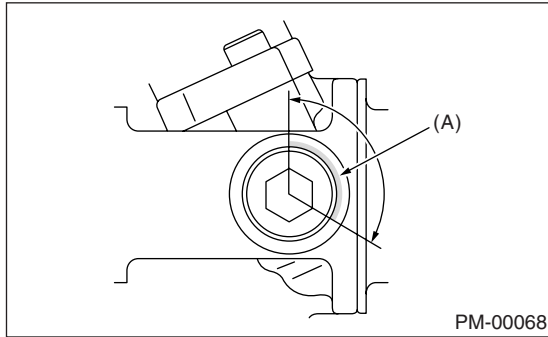
While steering wheel is being rotated, check the gear backlash. If any unusual noise is noticed, adjust the gear backlash in the following manner.

- (1) Tighten adjusting screw to 7.4 N·m (0.75 kgf-m, 5.4 ft-lb) and then loosen. Repeat this operation twice.

STEERING SYSTEM (POWER STEERING)

PERIODIC MAINTENANCE SERVICES

- (2) Retighten adjusting screw to 7.4 N·m (0.75 kgf-m, 5.4 ft-lb) and back off 25°.
- (3) Apply the liquid packing to at least 1/3 of entire perimeter of adjusting screw thread.



(A) Apply liquid gasket to threads

- (4) Install the lock nut. While holding adjusting screw with a wrench, tighten lock nut using ST. 926230000 SPANNER

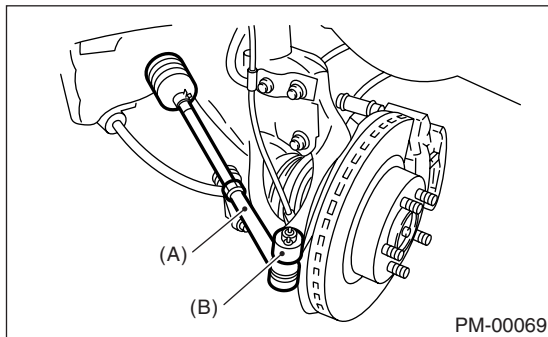
Tightening torque (Lock nut):

39 N·m (4.0 kgf-m, 29 ft-lb)

Hold the adjusting screw with a wrench to prevent it from turning while tightening the lock nut.

4. TIE-ROD

- 1) Check the tie-rod and tie-rod ends for bends, scratches or other damage.



(A) Tie-rod end
(B) Knuckle arm

- 2) Check the connections of knuckle ball joints for play, inspect for damage on dust seals, and check free play of ball studs. If castle nut is loose, retighten it to the specified torque, then tighten further up to 60° until cotter pin hole is aligned.

Tightening torque:

27 N·m (2.75 kgf-m, 19.9 ft-lb)

- 3) Check the lock nut on the tie-rod end for tightness. If it is loose, retighten it to the specified torque.

Tightening torque:

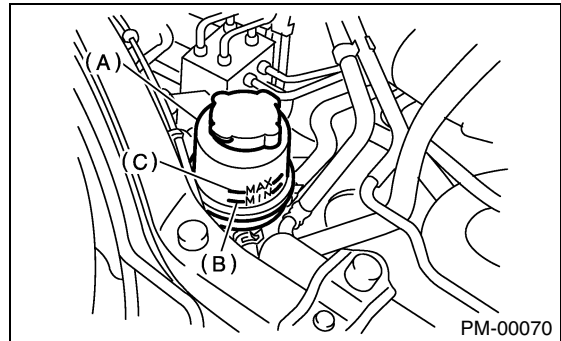
83 N·m (8.5 kgf-m, 61.5 ft-lb)

5. POWER STEERING FLUID LEVEL

NOTE:

The fluid level must be checked when the temperature of the reservoir tank surface is approximately 20°C (68°F).

- 1) Place the vehicle with engine "off" on the flat and level surface.
- 2) Check the fluid level using the scale on the outside of the reservoir tank (A). If the level is below "MIN" (B), check that there is no fluid leak, and then add fluid to bring it up to "MAX" (C).



NOTE:

If fluid level is at MAX level or above, drain fluid to keep the level in the specified range of indicator by using a syringe or the like.

Recommended fluid:

Dexron IIE or III

Fluid capacity:

0.7 ㉓ (0.7 US qt, 0.6 Imp qt)

6. POWER STEERING FLUID FOR LEAKS

Inspect the underside of oil pump and gearbox for power steering system, hoses, piping and their couplings for fluid leaks.

If the fluid leaks are found, correct them by retightening their fitting bolts (or nuts) and/or replacing their parts.

NOTE:

- Wipe the leakage fluid off after correcting fluid leaks, or a wrong diagnosis is taken later.
- Also pay attention to clearances between hoses (or pipings) and other parts when inspecting fluid leaks.

STEERING SYSTEM (POWER STEERING)

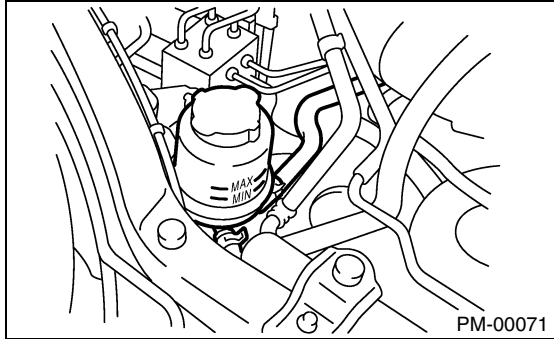
PERIODIC MAINTENANCE SERVICES

7. HOSES OF OIL PUMP FOR DAMAGES

Check the pressure hose and return hose of oil pump for crack, swell or damage. Replace the hose with new one if necessary.

NOTE:

Prevent hoses from revolving and/or turning when installing hoses.



8. POWER STEERING PIPES FOR DAMAGE

Check the power steering pipes for corrosion and damage.

Replace the pipes with new one if necessary.

9. GEARBOX BOOTS

Inspect both sides of gearbox boots as follows, and correct the defects if necessary.

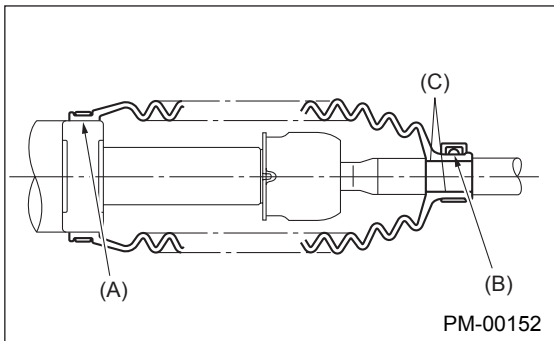
1) (A) and (B) positions of gearbox boot are fitted correspondingly in (A) and (B) grooves of gearbox and the rod.

2) Clips are fitted outside of (A) and (B) positions of boot.

3) Boot does not have crack and hole.

NOTE:

Rotate (B) position of gearbox boot against twist of it produced by adjustment of toe-in, etc. Apply grease to groove (C).



10. FITTING BOLTS AND NUTS

Inspect the fitting bolts and nuts of oil pump and bracket for looseness, and retighten them if necessary.

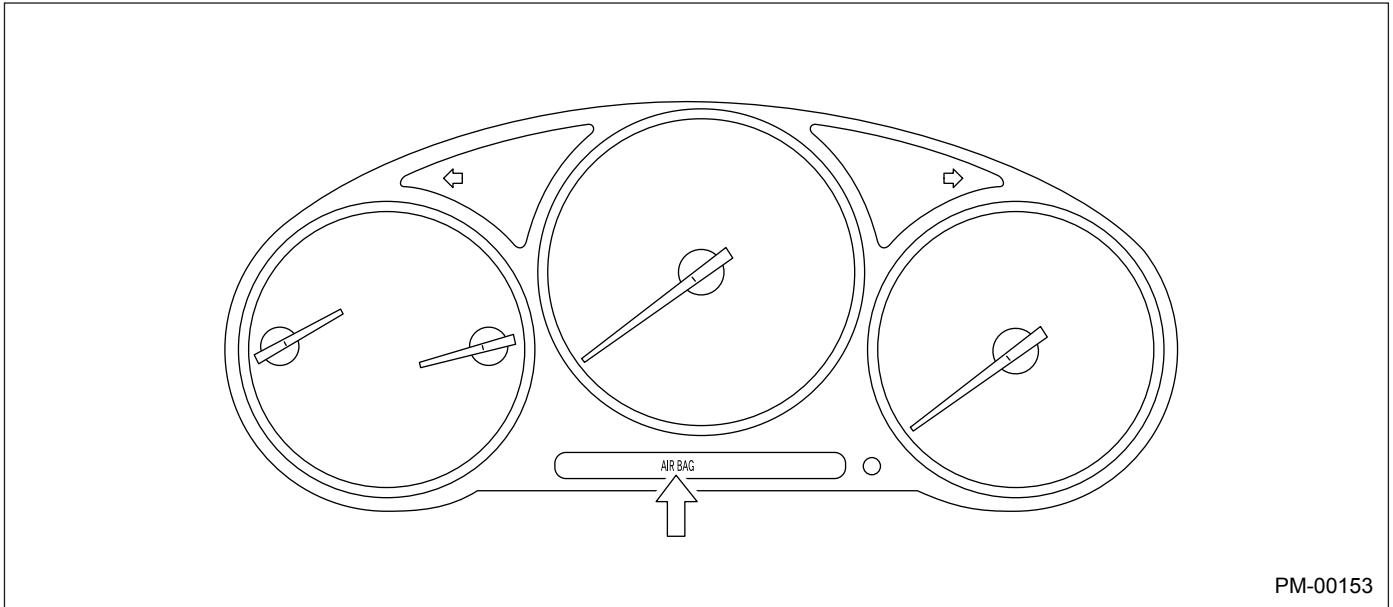
Inspect and/or retighten them when engine is cold.

26. Supplemental Restraint System

A: INSPECTION

Check the airbag system in accordance with the result of the self-diagnosis. <Ref. to AB-2, Basic Diagnostic Procedure.>

1) Ensure that airbag connectors are connected. If not, properly connect. When the ignition switch is turned ON with the connector(s) disconnected, the airbag warning light blinks to identify the fault.



2) Turn the ignition switch ON, and connect the airbag diagnosis terminal of the service connector (located below lower cover) to the ground terminal.

3) The warning light blinks to indicate a trouble code (a fault is identified). When the airbag system is in good order (no trouble codes are stored in the memory), the warning light blinks on and off at 0.6 second intervals (as long as the diagnosis terminal is connected to the ground terminal).

4) When the warning light indicates a trouble code, check the airbag system in accordance with the trouble-shooting procedure. <Ref. to AB-2, Basic Diagnostic Procedure.>

SUPPLEMENTAL RESTRAINT SYSTEM

PERIODIC MAINTENANCE SERVICES
