

1. Foreword

A: FOREWORD

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

Applied model: SG***** from 2003MY

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

HOW TO USE THIS MANUALS

HU

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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. The specification, maintenance and other information for the components are included, and diagnosis information has also been added where necessary.

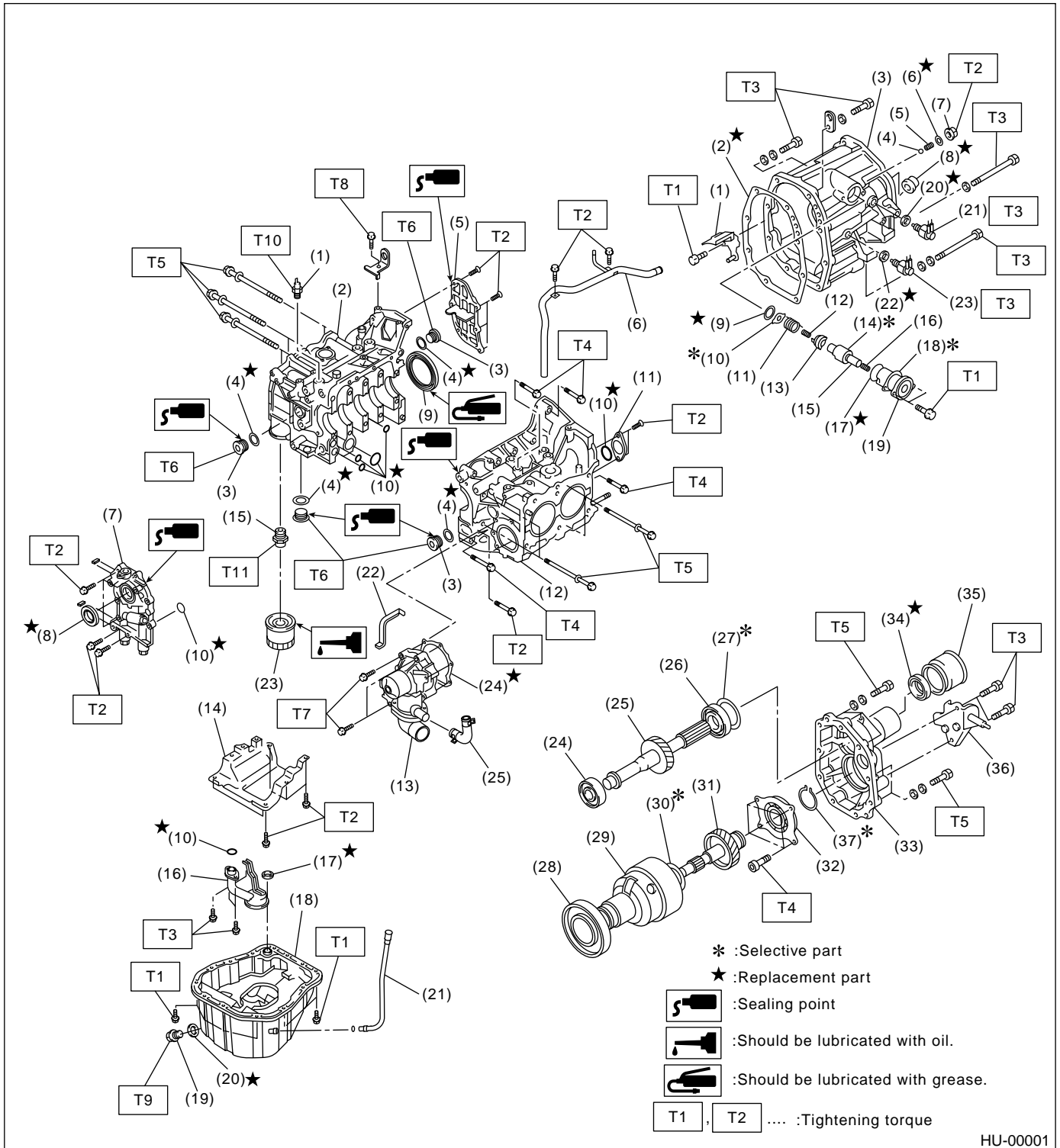
2. INDEX

The first page has an index with tabs.

3. COMPONENTS

Illustrations are listed for each component. The information necessary for repair work (tightening torque, grease up points, etc.) is described on these illustrations. Information is described using symbol. To order the parts, refer to parts catalogue.

Example:



HU-00001

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4. SPECIFICATIONS

If necessary, specifications are also included.

5. INSPECTION

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

6. MAINTENANCE

- Maintenance instructions for serviceable parts describes work area and detailed steps with illustration. It also describes the use of special tool, tightening torque, cautions for each procedure.
- If many serviceable parts 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)

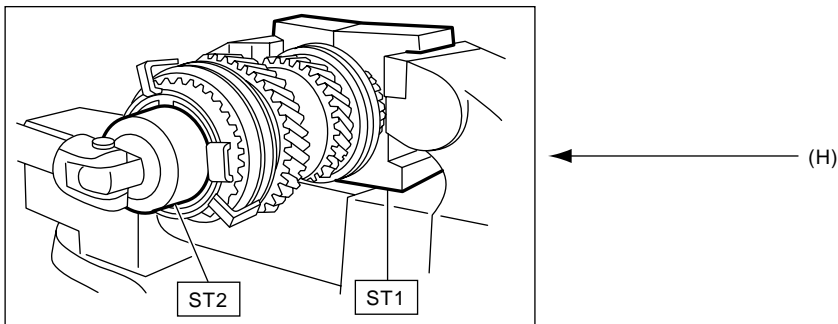
1) Remove the manual transmission assembly from vehicle. <Ref. to MT-33, REMOVAL, Manual Transmission Assembly.> ← (C)

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: ← (G)
118 N·m (12.0 kgf-m, 86.8 ft-lb)



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

FORESTER

SPECIFICATIONS

1. Forester

A: DIMENSIONS

Model		2.0L Non-turbo	2.0L Turbo	2.5L Non-turbo
Overall length	mm (in)	4,450 (175.2)		
Overall width	mm (in)	1,735 (68.3)		
Overall height (at C.W.)	mm (in)	1,590 (62.6)	1,585 (62.4)	1,590 (62.6)
Compartment	Length	1,795 (70.7)		
	Width	1,455 (57.3)		
	Height	1,245 (49.0), 1,210 (47.6)★		
Wheelbase	mm (in)	2,525 (99.4)		
Tread	Front	1,495 (58.9)		
	Rear	1,485 (58.5)		
Minimum road clearance	mm (in)	190 (7.5)	195 (7.7)	200 (7.9)

★: With sunroof

B: ENGINE

Model		2.0L Non-turbo	2.0L Turbo	2.5L Non-turbo
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 (3.92 × 3.11)
Displacement	cm ³ (cu in)	1,994 (121.67)		2,457 (149.94)
Compression ratio		10.0 ± 0.2	8.0 ± 0.2	10.0 ± 0.2
Firing order		1 — 3 — 2 — 4		
Idle speed at Park/Neutral position	rpm	650 ± 100	700 ± 100	650 ± 100
Maximum output	kW (PS)/rpm	92 (125)/5,600	130 (177)/5,600	115 (156)/5,600
Maximum torque	N·m (kgf-m, ft-lb)/rpm	184 (18.8)/3,600	245 (25.0)/3,200	223 (22.7)/3,600

C: ELECTRICAL

Model		2.0L Non-turbo	2.0L Turbo	2.5L Non-turbo
Ignition timing at idling speed		BTDC/rpm 10°±10°/650	12°±10°/700	MT: 10°±10°/650 AT: 15°±10°/650
Spark plug	Type and manufacturer	CHAMPION: RC10YC4	NGK: PFR6G	CHAMPION: RC10YC4
		Alternate CHAMPION: RC8YC4 NGK: BKR6E-11 DENSO: K20PR-U11		Alternate CHAMPION: RC8YC4 NGK: BKR6E-11 DENSO: K20PR-U11
Generator		12 V — 90 A		
Battery	Type and capacity (5HR)	MT: 12 V — 48 AH (55D23L) AT: 12 V — 52 AH (65D23L)		12 V — 27 AH (34B19L) 12 V — 48 AH (55D23L)★

★: For Australia model

D: TRANSMISSION

Model		2.0L Non-turbo		2.0L Turbo		2.5L Non-turbo		
Transmission type		5MT	4AT	5MT	4AT	5MT	4AT	
Clutch type		DSPD	TCC	DSPD	TCC	DSPD	TCC	
Gear ratio	1st	3.454	2.785	3.454	2.785	3.454	2.785	
	2nd	2.062	1.545	1.947	1.545	2.062	1.545	
	3rd	1.448	1.000	1.366	1.000	1.448	1.000	
	4th	1.088	0.694	0.972	0.694	1.088	0.694	
	5th	0.871	—	0.738	—	0.780	—	
	Reverse	3.333	2.272	3.333	2.272	3.333	2.272	
	Dual range	1.447	—	—	—	1.196	—	
Reduction gear (Front drive)	1st reduction	Type of gear	—	Helical	—	Helical	—	Helical
		Gear ratio	—	1.000	—	1.000	—	1.000
	Final reduction	Type of gear	Hypoid	Hypoid	Hypoid	Hypoid	Hypoid	Hypoid
		Gear ratio	4.111	4.444	4.444	4.111	4.111	4.444
Reduction gear (Rear drive)	Transfer reduction	Type of gear	Helical	—	Helical	—	Helical	—
		Gear ratio	1.000	—	1.081★, 1.000	—	1.000	—
	Final reduction	Type of gear	Hypoid	Hypoid	Hypoid	Hypoid	Hypoid	Hypoid
		Gear ratio	4.111	4.444	4.111★, 4.444	4.111	4.111	4.444

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

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

DSPD: Dry Single Plate Diaphragm

TCC: Torque Converter Clutch

★: Europe spec vehicle

E: STEERING

Type		Rack and Pinion	
Turns, lock to lock		3.0	
Minimum turning circle	m (ft)	Curb to curb	10.6 (34.8)
		Wall to wall	11.4 (37.4)

F: SUSPENSION

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

FORESTER

SPECIFICATIONS

G: BRAKE

Model	2.0L Non-turbo, 2.5L Non-turbo	2.0L Turbo, 2.5L Non-turbo★
Service brake system	Dual circuit hydraulic with vacuum suspended power unit	
Front	Ventilated disc brake	
Rear	Drum brake	Disc brake
Parking brake	Mechanical on rear brakes	

★: RHD model

H: TIRE

Rim size	15 × 6J	16 × 6 ¹ / ₂ J
Tire size	205/70 R15 95H	215/60 R16 95V, P215/60 R16 94H
Type	Steel belted radial, Tubeless	

I: CAPACITY

Model		2.0L Non-turbo		2.0L Turbo		2.5L Non-turbo	
		5MT	4AT	5MT	4AT	5MT	4AT
Fuel tank	ℓ (US gal, Imp gal)	60 (15.9, 13.2)					
Engine oil (When replacing)	ℓ (US qt, Imp qt)	Approx. 4.0 (4.2, 3.5)		Approx. 4.5 (4.8, 4.0)		Approx. 4.0 (4.2, 3.5)	
Transmission gear oil	ℓ (US qt, Imp qt)	4.0 (4.2, 3.5)	—	3.5 (3.7, 3.1) 3.9 (4.1, 3.4)★1	—	4.0 (4.2, 3.5)	—
Automatic transmis- sion fluid	ℓ (US qt, Imp qt)	—	8.4 (8.9, 7.4)	—	9.3 (9.8, 8.2)	—	9.3 (9.8, 8.2)
AT differential gear oil	ℓ (US qt, Imp qt)	—	1.2 (1.3, 1.1)	—	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)	6.6 (7.0, 5.8)	6.5 (6.9, 5.7)	7.4 (7.8, 6.5)	7.3 (7.7, 6.4)★2	6.9 (7.3, 6.1)	6.8 (7.2, 6.0)

★1: With oil pump

★2: MT vehicles with oil cooler included

J: WEIGHT

1. LHD MODEL

Option code★		EC		K4		KS		
Model		2.0L				2.5L		
		AWD						
		2.0X				2.5X		
		5MT	4AT	5MT	4AT	5MT	4AT	
Curb weight (C.W.)	Front	kgf (lb)	760 (1,675)	775 (1,710)	775 (1,710)	790 (1,740)	780 (1,720)	800 (1,765)
	Rear	kgf (lb)	600 (1,325)	600 (1,325)	595 (1,310)	595 (1,310)	620 (1,365)	620 (1,365)
	Total	kgf (lb)	1,360 (3,000)	1,375 (3,035)	1,370 (3,020)	1,385 (3,050)	1,400 (3,085)	1,420 (3,130)
Maximum permissible axle weight (M.P.A.W.)	Front	kgf (lb)	1,010 (2,225)	1,010 (2,225)	1,010 (2,225)	1,010 (2,225)	1,010 (2,225)	1,010 (2,225)
	Rear	kgf (lb)	1,035 (2,280)	1,035 (2,280)	1,035 (2,280)	1,035 (2,280)	1,035 (2,280)	1,035 (2,280)
Maximum permissible weight (M.P.W.)	Total	kgf (lb)	1,880 (4,140)	1,880 (4,140)	1,880 (4,140)	1,880 (4,140)	1,880 (4,140)	1,880 (4,140)
Option	Sport package base		—	—	—	—	—	—
	Aluminum wheel		○	○	○	○	○	○
	Front fog light		—	—	—	—	○	○
	Cruise control		—	—	—	—	○	○
	High-grade audio		—	—	—	—	—	—
	Sport steering		—	—	—	—	—	—
	Leather package base		—	—	—	—	—	—
	Leather seat, Leather door trim		—	—	—	—	—	—
	Air conditioner		—	—	○	○	○	○
	Side airbag		—	—	—	—	—	—
	Sunroof		—	—	—	—	—	—
	Self-leveling function Rr		○	○	—	—	—	—
	Cold area pack A		○	○	—	—	—	—
	Cold area pack B		—	—	—	—	—	—
	Cold area pack C		—	—	—	—	—	—
Security system		—	—	—	—	—	—	

FORESTER

SPECIFICATIONS

Option code★		EC		K4		
Model		2.0L				
		AWD				
		2.0XT				
		5MT	4AT	5MT	4AT	
Curb weight (C.W.)	Front	kgf (lb)	790 (1,740)	810 (1,785)	815 (1,795)	835 (1,840)
	Rear	kgf (lb)	620 (1,365)	620 (1,365)	630 (1,390)	630 (1,390)
	Total	kgf (lb)	1,410 (3,105)	1,430 (3,150)	1,445 (3,185)	1,465 (3,230)
Maximum permissible axle weight (M.P.A.W.)	Front	kgf (lb)	1,010 (2,225)	1,010 (2,225)	1,010 (2,225)	1,010 (2,225)
	Rear	kgf (lb)	1,035 (2,280)	1,035 (2,280)	1,035 (2,280)	1,035 (2,280)
Maximum permissible weight (M.P.W.)	Total	kgf (lb)	1,950 (4,295)	1,950 (4,295)	1,950 (4,295)	1,950 (4,295)
Option	Sport package base		—	—	—	—
	Aluminum wheel		○	○	○	○
	Front fog light		○	○	—	—
	Cruise control		—	—	○	○
	High-grade audio		—	—	—	—
	Sport steering		—	—	—	—
	Leather package base		○	○	○	○
	Leather seat, Leather door trim		—	—	—	—
	Air conditioner		—	—	○	○
	Side airbag		—	—	○	○
	Sunroof		—	—	○	○
	Self-leveling function Rr		○	○	—	—
	Cold area pack A		○	○	—	—
	Cold area pack B		—	—	—	—
	Cold area pack C		—	—	—	—
Security system		—	—	—	—	

★: For the option codes, refer to ID section. <Ref. to ID-6, Option code.>

2. RHD MODEL

Option code★		EK		KA		EK		
Model		2.0L		2.5L		2.0L		
		AWD						
		2.0X		2.5X		2.0XT		
		5MT	4AT	5MT	4AT	5MT	4AT	
Curb weight (C.W.)	Front	kgf (lb)	775 (1,705)	790 (1,740)	765 (1,685)	785 (1,730)	815 (1,795)	835 (1,840)
	Rear	kgf (lb)	600 (1,325)	600 (1,325)	625 (1,380)	625 (1,380)	635 (1,400)	635 (1,400)
	Total	kgf (lb)	1,375 (3,030)	1,390 (3,065)	1,390 (3,065)	1,410 (3,110)	1,450 (3,195)	1,470 (3,240)
Maximum permissible axle weight (M.P.A.W.)	Front	kgf (lb)	1,010 (2,225)	1,010 (2,225)	1,010 (2,225)	1,010 (2,225)	1,010 (2,225)	1,010 (2,225)
	Rear	kgf (lb)	1,035 (2,280)	1,035 (2,280)	1,035 (2,280)	1,035 (2,280)	1,035 (2,280)	1,035 (2,280)
Maximum permissible weight (M.P.W.)	Total	kgf (lb)	1,880 (4,145)	1,880 (4,145)	1,950 (4,300)	1,950 (4,300)	1,950 (4,300)	1,950 (4,300)
Option	Sport package base		—	—	—	—	—	—
	Aluminum wheel		○	○	○	○	○	○
	Front fog light		—	—	○	○	○	○
	Cruise control		—	—	○	○	○	○
	High-grade audio		—	—	○	○	—	—
	Sport steering		—	—	○	○	—	—
	Leather package base		—	—	○	○	○	○
	Leather seat, Leather door trim		—	—	○	○	○	○
	Air conditioner		○	○	○	○	○	○
	Side airbag		—	—	○	○	○	○
	Sunroof		—	—	○	○	○	○
	Self-leveling function Rr		○	○	—	—	○	○
	Cold area pack A		○	○	○	○	—	—
	Cold area pack B		—	—	—	—	—	—
	Cold area pack C		—	—	—	—	○	○
	Security system		—	—	—	—	—	—

★: For the option codes, refer to ID section. <Ref. to ID-6, Option code.>

FORESTER

SPECIFICATIONS

3. OPTION

Option		Front kgf (lb)	Rear kgf (lb)	Total kgf (lb)
Sport package base		0.1 (0.2)	0.4 (0.9)	0.5 (1.1)
Aluminum wheel	15 IN	-6.5 (-14.3)	-6.5 (-14.3)	-13.0 (-28.6)
	16 IN	-7.3 (-16.1)	-7.3 (-16.1)	-14.6 (-32.2)
Front fog light		0.7 (1.5)	-0.1 (-0.2)	0.6 (1.3)
Cruise control		1.5 (3.3)	0.2 (0.5)	1.7 (3.8)
High-grade audio		0.8 (1.8)	0.4 (0.9)	1.2 (2.7)
Sport steering		0.2 (0.5)	0.1 (0.2)	0.3 (0.7)
Leather package base		0.0 (0.0)	0.0 (0.0)	0.0 (0.0)
Leather seat, Leather door trim		1.2 (2.6)	3.0 (6.6)	4.2 (9.2)
Air conditioner		16.9 (37.3)	-1.4 (-3.1)	15.5 (34.2)
Side airbag		2.0 (4.4)	2.4 (5.3)	4.4 (9.7)
Sunroof		3.5 (7.7)	13.2 (29.1)	16.7 (36.8)
Self-leveling function Rr	2.0X	0.1 (0.2)	3.0 (6.6)	3.1 (6.8)
	2.0XT	0.1 (0.2)	3.1 (6.8)	3.2 (7.0)
Cold area pack A		0.1 (0.2)	0.2 (0.5)	0.3 (0.7)
Cold area pack B		0.1 (0.2)	0.3 (0.7)	0.4 (0.9)
Cold area pack C		0.1 (0.2)	0.3 (0.7)	0.4 (0.9)
Security system		0.3 (0.7)	0.3 (0.7)	0.6 (1.4)

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 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 the special instructions for disposal in this manual. 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 module.
- Do not face the bag in the direction that it opens towards yourself or other people.
- Do not face the bag in the direction that it opens 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.

NOTE

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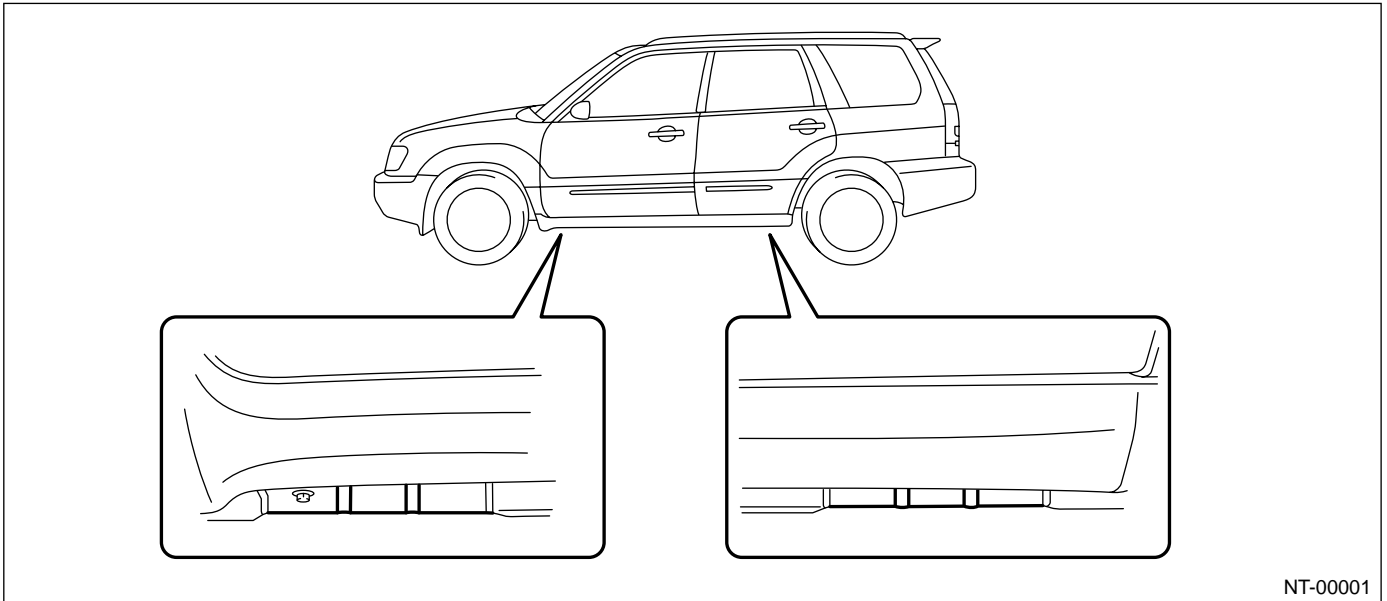
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5. LIFTS AND JACKS

When using a lift or jack-ridged rack to raise a vehicle, always follow 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**

