

How To Use This Manuals

HOW TO USE THIS MANUALS

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 the diagnostic information has also been added where necessary.

2. INDEX

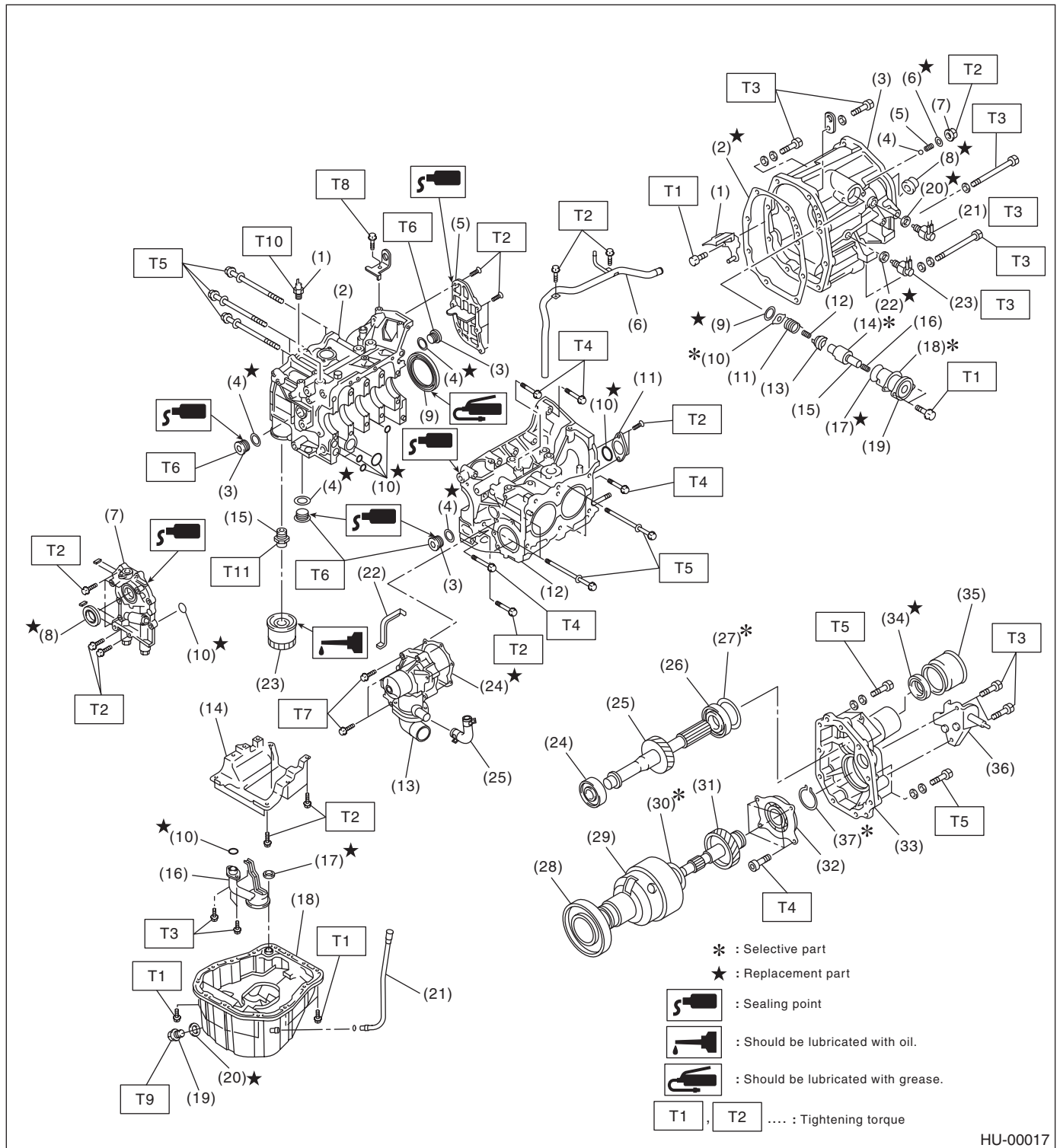
The first page has an index with tabs.

3. COMPONENT

Illustrations are provided 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 parts, refer to parts catalogue.

Example:



HU-00017

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4. SPECIFICATION

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 area and detailed step with illustration. It also describes the use of special tool, tightening torque, caution for each procedure.
- If many serviceable parts are included in one service procedure, appropriate reference is provided for each parts.

Example:

15. Main Shaft Assembly for Single-Range ← (A)

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)

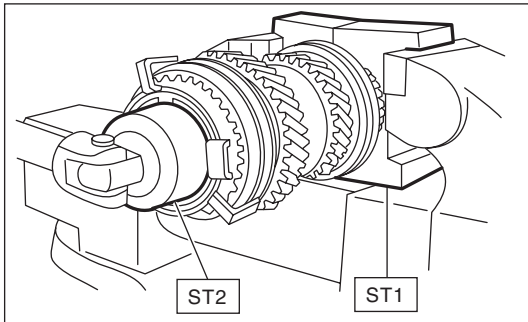
Secure the lock nuts in two Places after tightening.

ST1 498937000 TRANSMISSION HOLDER

ST2 499987003 (E) SOCKET WRENCH (35) (F)

Tightening torque:

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



HU-00020

(A) Component

(D) Cautions

(G) Tightening torque

(B) Process

(E) Tool number of special tool

(H) Illustration

(C) Reference

(F) Name of special tool

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)

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Forester

SPECIFICATIONS

1. Forester

A: DIMENSION

Model		2.5 L		
		AWD		
		Non-turbo	Turbo	
Overall length	mm (in)	4,485 (176.6)		
Overall width	mm (in)	1,735 (68.3)		
Total height (at C.W.)	mm (in)	1,590 (62.6)	1,585 (62.4)	
Compartment	Head-room	Front	mm (in)	1,012 (39.8) 992 (39.0)*1
		Rear	mm (in)	998 (39.3) 938 (36.9)*1
	Leg room	Front	mm (in)	1,108 (43.6)
		Rear	mm (in)	856 (33.7)
	Shoulder room	Front	mm (in)	1,356 (53.4)
		Rear	mm (in)	1,361 (53.6)
Wheelbase	mm (in)	2,525 (99.4)		
Tread	Front	mm (in)	1,495 (58.9)	
	Rear	mm (in)	1,485 (58.5)	
Minimum road clearance	mm (in)	205 (8.07)	200 (7.87)	

*1: Model with sunroof

B: ENGINE

Model		2.5 L Non-turbo	2.5 L Turbo
Engine type		Horizontally opposed, liquid cooled, 4-cylinder, 4-stroke gasoline engine	
Valve system mechanism	Method	SOHC	DOHC
	Number of valves	Intake 2/Exhaust 2	
Bore × stroke	mm (in)	99.5 × 79 (3.92 × 3.11)	
Displacement	cm ³ (cu in)	2,457 (149.94)	
Compression ratio		10.0±0.2	8.4±0.2
Ignition order		1 — 3 — 2 — 4	
Idling speed [at neutral position on MT, or "P" or "N" position on AT]	rpm	MT: 650±100 AT: 700±100	700±100
Maximum output	kW (HP)/rpm	129 (173)/6,000	172 (230)/5,600
Maximum torque	N·m (kgf·m, ft·lb)/rpm	226 (23.0, 166)/4,400	319 (32.5, 235)/3,600

C: ELECTRICAL

Model		2.5 L Non-turbo	2.5 L Turbo
Ignition timing/Idle speed	BTDC/rpm	MT: 10°±8°/650 AT: 15°±8°/700	17°±10°/700
Spark plug		NGK: FR5AP-11	NGK: ILFR6B
Generator		12 V — 90 A	12 V — 110 A
Battery		MT: 12 V — 48 AH (55D23L) AT: 12 V — 52 AH (75D23L)	

D: TRANSMISSION

Model		2.5 L Non-turbo		2.5 L Turbo		
Transmission		5MT	4AT	5MT	4AT	
Clutch type		DSPD	TCC	DSPD	TCC	
Gear ratio	1st	3.454	2.785	3.454	2.785	
	2nd	2.062	1.545	1.947	1.545	
	3rd	1.448	1.000	1.366	1.000	
	4th	1.088	0.694	0.972	0.694	
	5th	0.780	—	0.738	—	
	Rev.	3.333	2.272	3.333	2.272	
Reduction gear (Front)	First deceleration	Type	—	Helical	—	Helical
		Gear ratio	—	1.000	—	1.000
	Final deceleration	Type	Hypoid			
		Gear ratio	4.111	4.444		4.111
Reduction gear (Rear)	Transfer reduction	Type	Helical	—	Helical	—
		Gear ratio	1.000	—	1.000	—
	Final deceleration	Type	Hypoid			
		Gear ratio	4.111	4.444		4.111

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

E: STEERING

Model		2.5 L Non-turbo		2.5 L Turbo		
Type		Rack and Pinion, Integral				
Turns, lock to lock		3.1		3.0		
Minimum turning diameter	m (ft)	Curb to curb	10.6 (34.8)		10.8 (35.4)	
		Wall to wall	11.4 (37.4)		11.6 (38.1)	

F: SUSPENSION

Front	Macpherson strut type independent suspension
Rear	Dual link strut type independent suspension

G: BRAKE

Model	2.5 X	2.5 XS, 2.5 XT, CROSS SPORTS 2.5 XT, L.L.Bean
Service brake system	Dual circuit hydraulic with vacuum suspension and power unit	
Front	Ventilated disc brake	
Rear	Drum brake	Disc brake
Parking brake	Mechanical on rear brakes	

H: TIRE

Wheel size	16 × 6 ¹ / ₂ JJ, 16 × 6 ¹ / ₂ J	17 × 7JJ
Tire size	P215/60R16 94H	P215/55R17 93H
Type	Steel belted radial, tubeless	

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SPECIFICATIONS

I: CAPACITY

Model			2.5 L Non-turbo		2.5 L Turbo	
Transmission			5MT	4AT	5MT	4AT
Fuel tank			ℓ (US gal, Imp gal)			
			60 (15.9, 13.2)			
Engine oil	Total capacity (Overhaul)		5.0 (5.3, 4.4)			
	Filling amount of engine oil	When replacing engine oil and oil filter	4.2 (4.4, 3.7)		4.3 (4.5, 3.8)	
		When replacing only engine oil	4.0 (4.2, 3.5)			
Transmission oil			ℓ (US qt, Imp qt)			
			3.5 (3.7, 3.1)	—	3.5 (3.7, 3.1)	—
ATF			ℓ (US qt, Imp qt)			
			—	9.3 (9.8, 8.2)	—	9.3 (9.8, 8.2)
Front differential gear oil			ℓ (US qt, Imp qt)			
			—	1.2 (1.3, 1.1)	—	1.2 (1.3, 1.1)
Rear differential gear oil			ℓ (US qt, Imp qt)			
			0.8 (0.8, 0.7)			
Power steering fluid			ℓ (US qt, Imp qt)			
			0.7 (0.7, 0.6)			
Engine coolant			ℓ (US qt, Imp qt)			
			Approx. 6.9 (Approx. 7.3, 6.1)	Approx. 6.8 (Approx. 7.2, 6.0)	Approx. 7.4 (Approx. 7.8, 6.5)	Approx. 7.3 (Approx. 7.7, 6.4)

J: WEIGHT**1. FOR U.S. MODEL**

Option code★ 1			U5ZK		U5FK		U6ZK		U6FK	
Engine type			2.5 L Non-turbo							
Grade			2.5 X							
Transmission			5MT	4AT	5MT	4AT	5MT	4AT	5MT	4AT
Vehicle weight (C.W.)	Front axle	kg (lb)	796 (1,755)	814 (1,795)	789 (1,740)	807 (1,779)	796 (1,755)	814 (1,795)	789 (1,740)	807 (1,779)
	Rear axle	kg (lb)	639 (1,410)	639 (1,410)	632 (1,394)	632 (1,394)	639 (1,410)	639 (1,410)	632 (1,394)	632 (1,394)
	Total	kg (lb)	1,435 (3,165)	1,453 (3,205)	1,421 (3,133)	1,439 (3,173)	1,435 (3,165)	1,453 (3,205)	1,421 (3,133)	1,439 (3,173)
Total axle weight (G.A.W.)	Front axle	kg (lb)	930 (2,050)	930 (2,050)	930 (2,050)	930 (2,050)	930 (2,050)	930 (2,050)	930 (2,050)	930 (2,050)
	Rear axle	kg (lb)	998 (2,200)	998 (2,200)	998 (2,200)	998 (2,200)	998 (2,200)	998 (2,200)	998 (2,200)	998 (2,200)
Total vehicle weight (G.V.W.)		kg (lb)	1,882 (4,150)	1,882 (4,150)	1,882 (4,150)	1,882 (4,150)	1,882 (4,150)	1,882 (4,150)	1,882 (4,150)	1,882 (4,150)
Option	Aluminum wheel		—		○		—		○	
	Leather seats and leather door trim center decoration		—		—		—		—	
	Front fog light		○		○		○		○	
	Cruise control		○		○		○		○	
	Leather package base		—		—		—		—	
	Sunroof		—		—		—		—	
	VDC+VTD		—		—		—		—	
	Seat heater		—		—		—		—	
	Fully automatic air conditioner		—		—		—		—	
	Manual air conditioner		○		○		○		○	
	Cold zone package		—		—		—		—	
	Side airbag		○		○		○		○	
	De-icer		—		—		—		—	

★ 1: For option codes, refer to the ID section. <Ref. to ID-4, MODEL NUMBER PLATE, IDENTIFICATION, Identification.>

Forester

SPECIFICATIONS

Option code★1			U5SW		U5SL		U5SM		U6SW	
Engine type			2.5 L Non-turbo							
Grade			2.5 XS							
Transmission			5MT	4AT	5MT	4AT	5MT	4AT	5MT	4AT
Vehicle weight (C.W.)	Front axle	kg (lb)	796 (1,755)	814 (1,795)	795 (1,753)	815 (1,797)	789 (1,740)	810 (1,785)	789 (1,740)	810 (1,785)
	Rear axle	kg (lb)	644 (1,420)	644 (1,420)	645 (1,422)	645 (1,422)	635 (1,400)	635 (1,400)	635 (1,400)	635 (1,400)
	Total	kg (lb)	1,440 (3,175)	1,458 (3,215)	1,440 (3,175)	1,460 (3,219)	1,424 (3,140)	1,444 (3,185)	1,424 (3,140)	1,444 (3,185)
Total axle weight (G.A.W.)	Front axle	kg (lb)	930 (2,050)	930 (2,050)	930 (2,051)	930 (2,051)	930 (2,050)	930 (2,050)	930 (2,050)	930 (2,050)
	Rear axle	kg (lb)	998 (2,200)	998 (2,200)	1,000 (2,205)	1,000 (2,205)	998 (2,200)	998 (2,200)	998 (2,200)	998 (2,200)
Total vehicle weight (G.V.W.)		kg (lb)	1,882 (4,150)	1,882 (4,150)	1,880 (4,145)	1,880 (4,145)	1,882 (4,150)	1,882 (4,150)	1,882 (4,150)	1,882 (4,150)
Option	Aluminum wheel		○		○		○		○	
	Leather seats and leather door trim center decoration		—		—		—		—	
	Front fog light		○		○		○		○	
	Cruise control		○		○		○		○	
	Leather package base		○		○		○		○	
	Sunroof		○		○		—		○	
	VDC+VTD		—		—		—		—	
	Seat heater		—		○		○		—	
	Fully automatic air conditioner		○		○		○		○	
	Manual air conditioner		—		—		—		—	
	Cold zone package		—		○		○		—	
	Side airbag		○		○		○		○	
	De-icer		—		○		○		—	

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SPECIFICATIONS

Option code★ 1		U6SL		U6SM		U5TL	U6TL	U4TL		U483	U484	
Engine type		2.5 L Non-turbo						2.5 L Turbo		2.5 L Turbo		
Grade		2.5 XS				L.L.Bean		2.5 XT		CROSS SPORTS 2.5XT		
Transmission		5MT	4AT	5MT	4AT	4AT		5MT	4AT	5MT	4AT	
Vehicle weight (C.W.)	Front axle	kg (lb)	795 (1,753)	815 (1,797)	789 (1,740)	810 (1,785)	814 (1,795)	814 (1,795)	830 (1,830)	880 (1,940)	830 (1,830)	880 (1,940)
	Rear axle	kg (lb)	645 (1,422)	645 (1,422)	635 (1,400)	635 (1,400)	651 (1,435)	651 (1,435)	650 (1,433)	649 (1,432)	650 (1,433)	649 (1,432)
	Total	kg (lb)	1,440 (3,175)	1,460 (3,219)	1,424 (3,140)	1,444 (3,185)	1,465 (3,230)	1,465 (3,230)	1,480 (3,263)	1,529 (3,372)	1,480 (3,263)	1,529 (3,372)
Total axle weight (G.A.W.)	Front axle	kg (lb)	930 (2,051)	930 (2,051)	930 (2,050)	930 (2,050)	930 (2,050)	930 (2,050)	990 (2,183)	993 (2,190)	990 (2,183)	993 (2,190)
	Rear axle	kg (lb)	1,000 (2,205)	1,000 (2,205)	998 (2,200)	998 (2,200)	998 (2,200)	998 (2,200)	1,020 (2,249)	1,020 (2,250)	1,020 (2,249)	1,020 (2,250)
Total vehicle weight (G.V.W.)		kg (lb)	1,880 (4,145)	1,880 (4,145)	1,882 (4,150)	1,882 (4,150)	1,882 (4,150)	1,882 (4,150)	1,960 (4,322)	1,959 (4,320)	1,960 (4,322)	1,959 (4,320)
Option	Aluminum wheel		○		○		○		○		○	
	Leather seats and leather door trim center decoration		—		—		○		○		○	
	Front fog light		○		○		○		○		○	
	Cruise control		○		○		○		○		○	
	Leather package base		○		○		○		○		○	
	Sunroof		○		—		○		○		○	
	VDC+VTD		—		—		—		—		—	
	Seat heater		○		○		○		○		○	
	Fully automatic air conditioner		○		○		○		○		○	
	Manual air conditioner		—		—		—		—		—	
	Cold zone package		○		○		○		○		○	
	Side airbag		○		○		○		○		○	
	De-icer		○		○		○		○		○	

★ 1: For option codes, refer to the ID section. <Ref. to ID-4, MODEL NUMBER PLATE, IDENTIFICATION, Identification.>

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SPECIFICATIONS

2. FOR CANADA MODEL

Option code★ 1			COZK		COTL		COSL		COSM	
Engine type			2.5 L Non-turbo							
Grade			2.5 X		2.5 XS					
Transmission			5MT	4AT	5MT	4AT	5MT	4AT	5MT	4AT
Vehicle weight (C.W.)	Front axle	kg (lb)	795 (1,753)	815 (1,797)	795 (1,753)	815 (1,797)	795 (1,753)	815 (1,797)	790 (1,742)	810 (1,786)
	Rear axle	kg (lb)	640 (1,411)	640 (1,411)	650 (1,433)	650 (1,433)	645 (1,422)	645 (1,422)	635 (1,400)	635 (1,400)
	Total	kg (lb)	1,435 (3,164)	1,455 (3,208)	1,445 (3,186)	1,465 (3,230)	1,440 (3,175)	1,460 (3,219)	1,425 (3,142)	1,445 (3,186)
Total axle weight (G.A.W.)	Front axle	kg (lb)	930 (2,051)	930 (2,051)	930 (2,051)	930 (2,051)	930 (2,051)	930 (2,051)	930 (2,051)	930 (2,051)
	Rear axle	kg (lb)	1,000 (2,205)	1,000 (2,205)	1,000 (2,205)	1,000 (2,205)	1,000 (2,205)	1,000 (2,205)	1,000 (2,205)	1,000 (2,205)
Total vehicle weight (G.V.W.)		kg (lb)	1,880 (4,145)	1,880 (4,145)	1,880 (4,145)	1,880 (4,145)	1,880 (4,145)	1,880 (4,145)	1,880 (4,145)	1,880 (4,145)
Option	Aluminum wheel		—		○		○		○	
	Leather seats and leather door trim center decoration		—		○		—		—	
	Front fog light		○		○		○		○	
	Cruise control		○		○		○		○	
	Leather package base		—		○		○		○	
	Sunroof		—		○		○		—	
	VDC+VTD		—		—		—		—	
	Seat heater		—		○		○		○	
	Fully automatic air conditioner		—		○		○		○	
	Manual air conditioner		○		—		—		—	
	Cold zone package		—		○		○		○	
	Side airbag		○		○		○		○	
	De-icer		—		○		○		○	

★ 1: For option codes, refer to the ID section. <Ref. to ID-4, MODEL NUMBER PLATE, IDENTIFICATION, Identification.>

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SPECIFICATIONS

Option code★1			CO66		COSL		COTL		COSM	
Engine type			2.5 L Non-turbo				2.5 L Turbo			
Grade			2.5 XS				2.5 XT			
Transmission			5MT	4AT	5MT	4AT	5MT	4AT	5MT	4AT
Vehicle weight (C.W.)	Front axle	kg (lb)	790 (1,742)	810 (1,786)	845 (1,863)	865 (1,907)	830 (1,830)	850 (1,874)	825 (1,819)	845 (1,863)
	Rear axle	kg (lb)	635 (1,400)	635 (1,400)	655 (1,444)	655 (1,444)	650 (1,433)	650 (1,433)	635 (1,400)	635 (1,400)
	Total	kg (lb)	1,425 (3,142)	1,445 (3,186)	1,500 (3,308)	1,520 (3,352)	1,480 (3,263)	1,500 (3,308)	1,460 (3,219)	1,480 (3,263)
Total axle weight (G.A.W.)	Front axle	kg (lb)	930 (2,051)	930 (2,051)	990 (2,183)	990 (2,183)	990 (2,183)	990 (2,183)	990 (2,183)	990 (2,183)
	Rear axle	kg (lb)	1,000 (2,205)	1,000 (2,205)	1,020 (2,249)	1,020 (2,249)	1,020 (2,249)	1,020 (2,249)	1,020 (2,249)	1,020 (2,249)
Total vehicle weight (G.V.W.)		kg (lb)	1,880 (4,145)	1,880 (4,145)	1,960 (4,322)	1,960 (4,322)	1,960 (4,322)	1,960 (4,322)	1,960 (4,322)	1,960 (4,322)
Option	Aluminum wheel		○		○		○		○	
	Leather seats and leather door trim center decoration		—		—		○		—	
	Front fog light		○		○		○		○	
	Cruise control		○		○		○		○	
	Leather package base		○		○		○		○	
	Sunroof		—		○		○		—	
	VDC+VTD		—		—		—		—	
	Seat heater		○		○		○		○	
	Fully automatic air conditioner		—		○		○		○	
	Manual air conditioner		○		—		—		—	
	Cold zone package		○		○		○		○	
	Side airbag		○		○		○		○	
	De-icer		○		○		○		○	

★1: For option codes, refer to the ID section. <Ref. to ID-4, MODEL NUMBER PLATE, IDENTIFICATION, Identification.>

Forester

SPECIFICATIONS

3. OPTION

Option	Front kg (lb)	Rear kg (lb)	Total kg (lb)
Aluminum wheel	-6.6 (-14.6)	-6.6 (-14.6)	-13.2 (-29.1)
Leather seats and leather door trim center decoration	1.2 (2.6)	3.0 (6.6)	4.2 (9.3)
Front fog light	0.7 (1.5)	-0.1 (-0.2)	0.6 (1.3)
Cruise control	1.5 (3.3)	0.2 (0.4)	1.7 (3.7)
Leather package base	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)
Sunroof	3.5 (7.7)	13.2 (29.1)	16.7 (36.8)
VDC+VTD	3.0 (6.6)	1.0 (2.2)	4.0 (8.8)
Seat heater	0.2 (0.4)	0.3 (0.7)	0.5 (1.1)
Fully automatic air conditioner	16.9 (37.3)	-1.4 (-3.1)	15.5 (34.2)
Manual air conditioner	16.9 (37.3)	-1.4 (-3.1)	15.5 (34.2)
Cold zone package	0.1 (0.2)	0.2 (0.4)	0.3 (0.7)
Side airbag	2.0 (4.4)	2.4 (5.3)	4.4 (9.7)
De-icer	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)

1. Precaution

A: CAUTION

Please clearly understand and adhere to the following. 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. Follow the directions in this manual when performing maintenance on the ABSCM&H/U. When parts other than those specified are disassembled, the ABS system may not operate when needed, or may operate incorrectly and result in injury.

2. VEHICLE DYNAMICS CONTROL (VDC)

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

3. 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.

4. RADIATOR FAN

The radiator 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.

5. ROAD TEST

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

6. AIRBAG

To prevent bodily injury from unexpected deployment of airbags and unnecessary maintenance, follow the instructions in this manual when performing maintenance on the airbag components or nearby, around front of the vehicle (radiator panel, front wheel apron, front side frame, front bumper, front hood panel, front fender panel), around side of the vehicle (front door panel, center pillar, side sill), and the airbag wiring harnesses or nearby.

To prevent unexpected deployment, turn the ignition switch to OFF and disconnect the ground cable from battery, then wait at least 20 seconds to discharge electricity before starting work.

7. AIRBAG MODULE AND SEAT BELT PRETENSIONER DISPOSAL

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

8. 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 the 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.

9. AIRBAG SPECIAL TOOLS

To prevent unexpected deployment, only use special tools.

10. WINDOW

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

11. WINDOW ADHESIVE

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

12. OIL

When handling oil, adhere to the following to prevent from unexpected accident.

- Prepare a container and cloth when performing work which oil possibly spills. If oil spills, wipe it off immediately to prevent from penetrating into floor or flowing out for environmental protection.
- Follow all government and local regulations concerning disposal of refuse when disposing.

13. FUEL

When handling and storing fuel, adhere to the following to prevent from unexpected accident.

- Be careful with fire.
- Prepare a container and cloth to prevent scattering of fuels when performing work where fuels can be spilled. If the fuel spills, wipe it off immediately to prevent from penetrating into floor or flowing out for environmental protection.
- Follow all government and local regulations concerning disposal of refuse when disposing.

14.ENGINE COOLANT

When handling engine coolant, adhere to the following to prevent from unexpected accident.

- Never remove the radiator cap since engine coolant may blow out when it is hot.
- Prepare a container and cloth to prevent scattering of engine coolant when performing work where engine coolant can be spilled. If the fuel spills, wipe it off immediately to prevent from penetrating into floor or flowing out for environmental protection.
- Follow all government and local regulations concerning disposal of refuse when disposing.

15.AIR CONDITIONER REFRIGERANT

In order to prevent from global warming, avoid releasing air conditioner refrigerant into the atmosphere. Using a refrigerant recovery system, discharge and reuse it.

Precaution

PRECAUTION

1. Note

A: NOTE

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

1. FASTENER NOTICE

Replace the nonreusable parts with new parts. Check the tightening torque and tighten to the specified torque.

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

2. STATIC ELECTRICITY DAMAGE

Do not touch the control modules, 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 for the elimination of static electricity before conducting work.

3. BATTERY

When removing the battery cables, always be sure to turn the ignition switch to OFF to prevent electrical damage to the control module from overcurrent.

4. SERVICE PARTS

Use genuine parts for maximum performance and maintenance when conducting repairs. Subaru/FHI will not be responsible for poor performance resulting from the use of parts except for genuine parts.

5. PROTECTING VEHICLE UNDER MAINTENANCE

Make sure to attach the fender cover, seat covers, etc. before work.

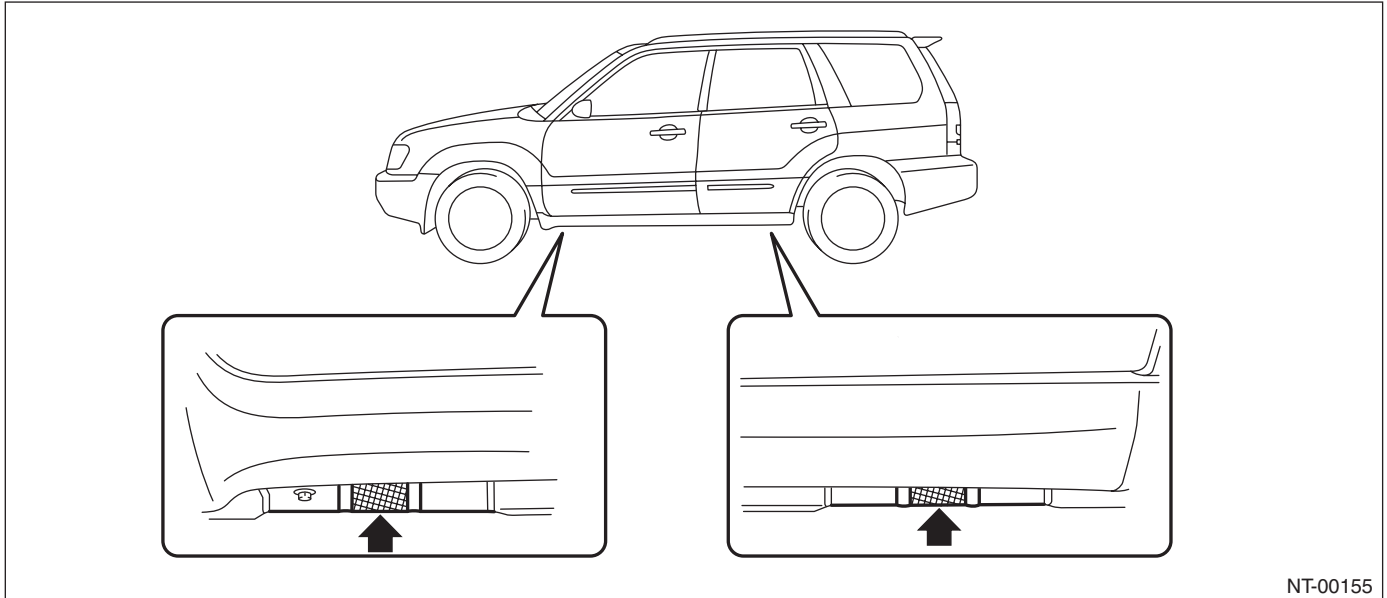
6. ENSURING SAFETY DURING WORK

When working in a group of two or more, perform the work with calling each other to ensure mutual safety.

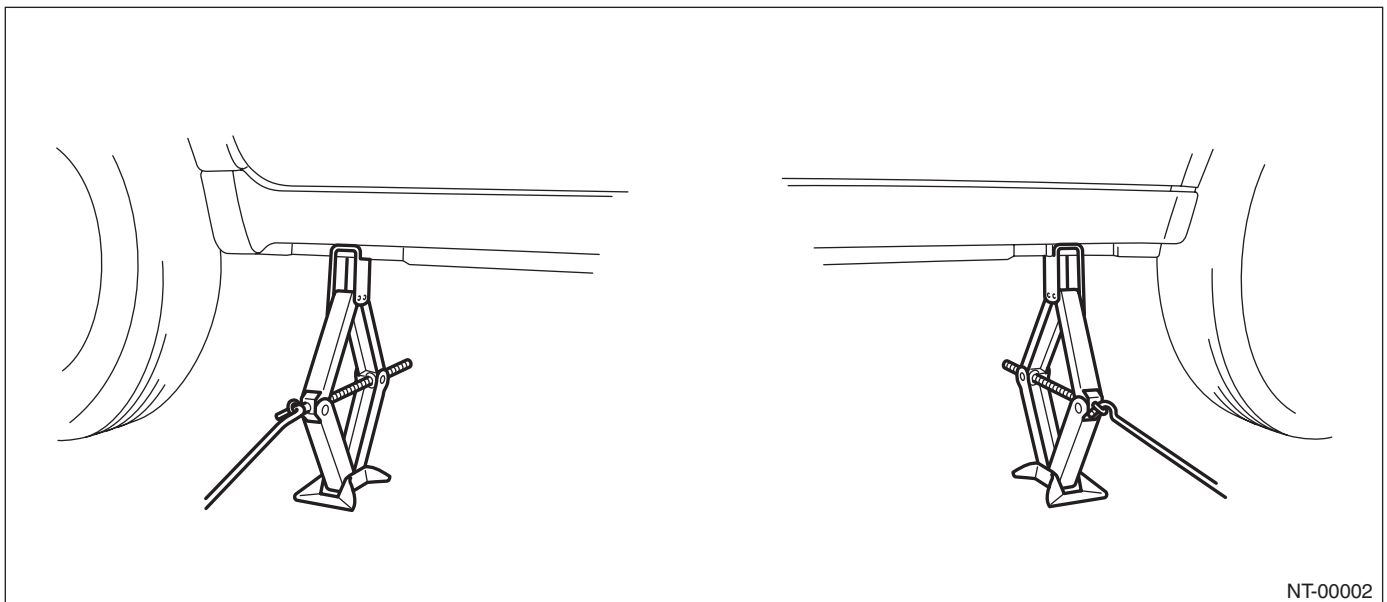
7. LIFTS AND JACKS

When using a lift or shop jack to raise a vehicle or using rigid racks to support 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 that the vehicle is balanced before raising it. Be sure to set the wheel stoppers when jacking-up only the front or rear side of the vehicle.

SUPPORT LOCATIONS



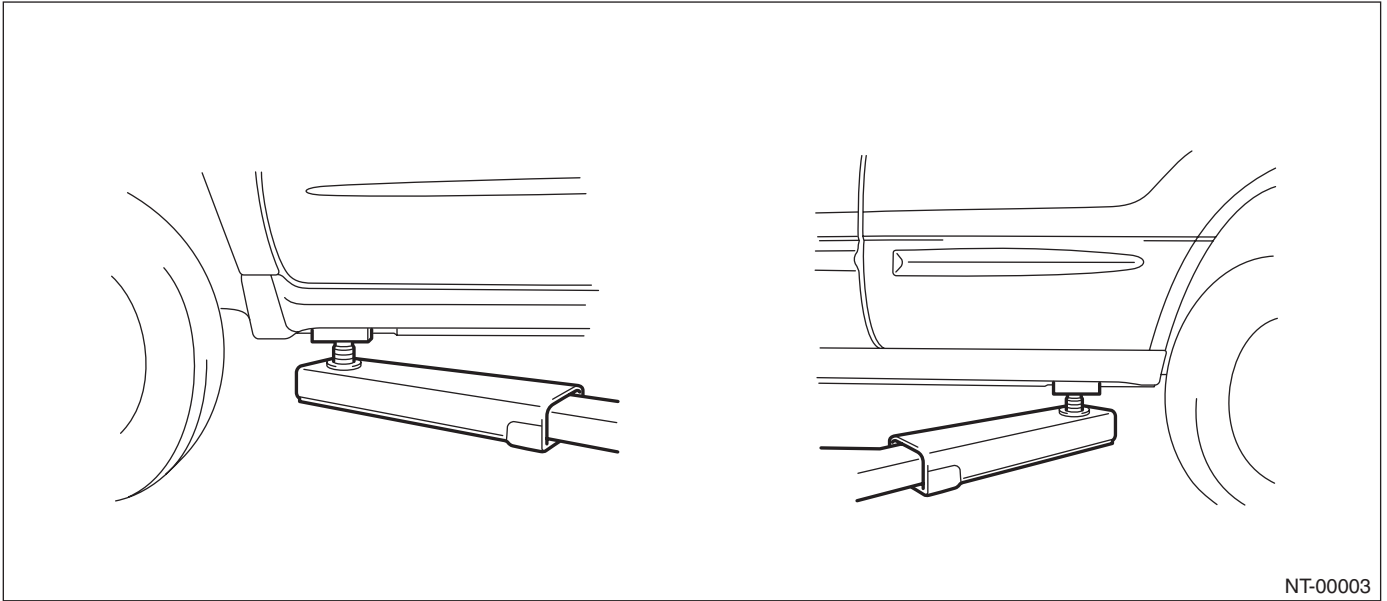
PANTOGRAPH JACK



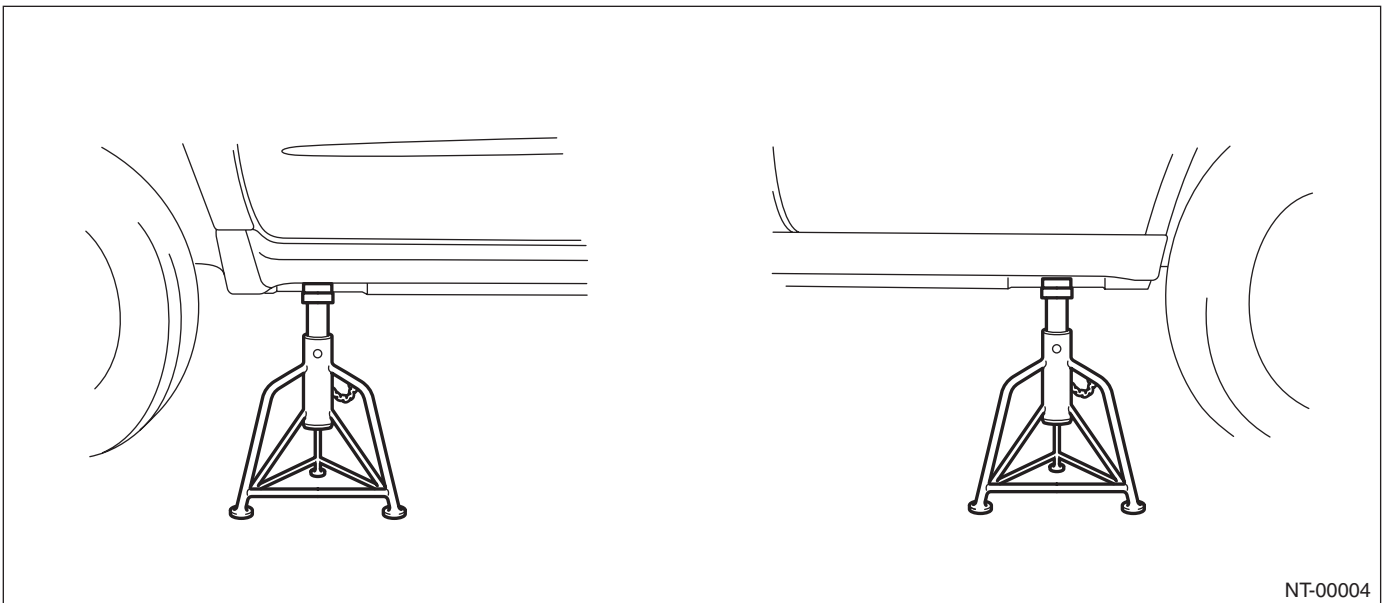
Note

NOTE

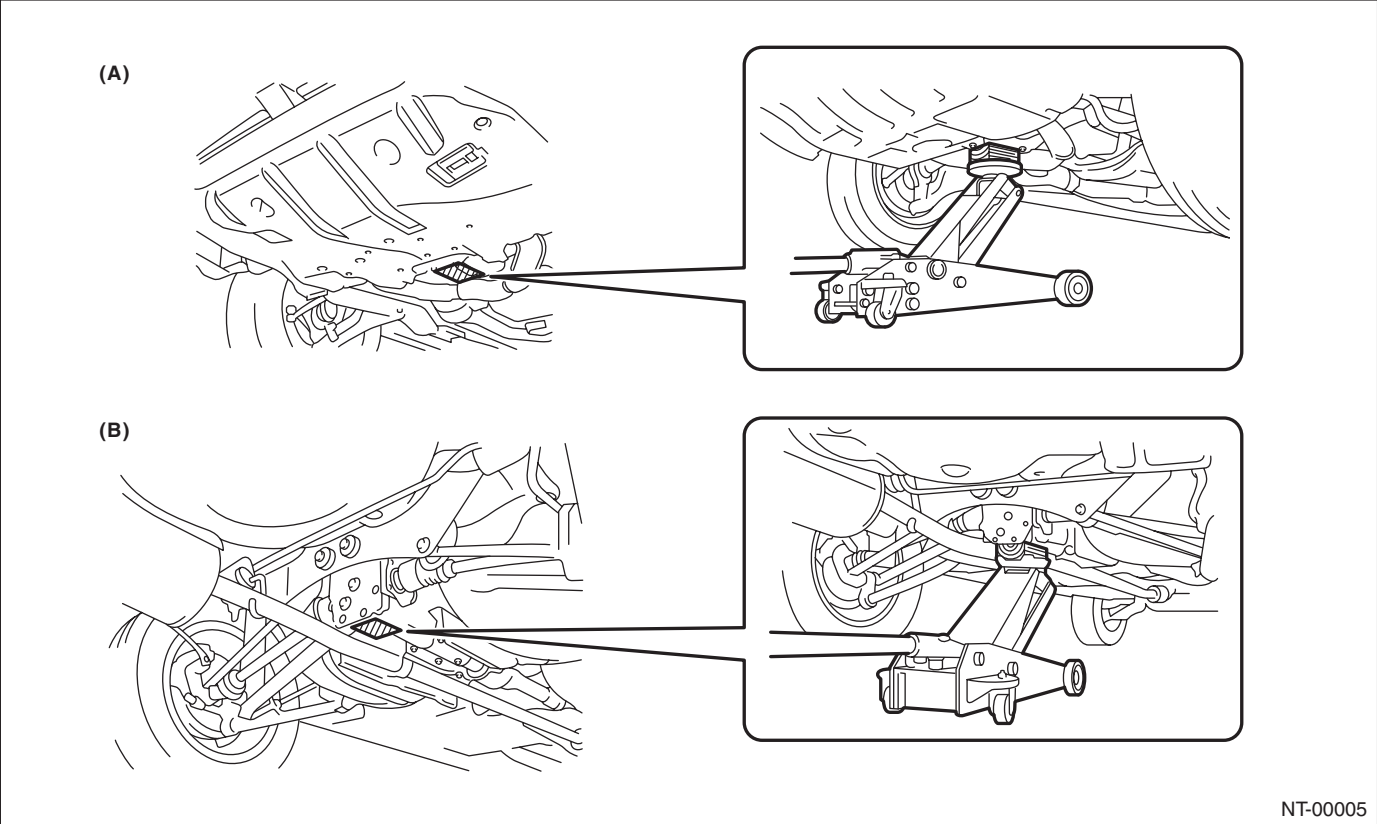
LIFT



RIGID RACK



JACK-UP POINT



(A) Front

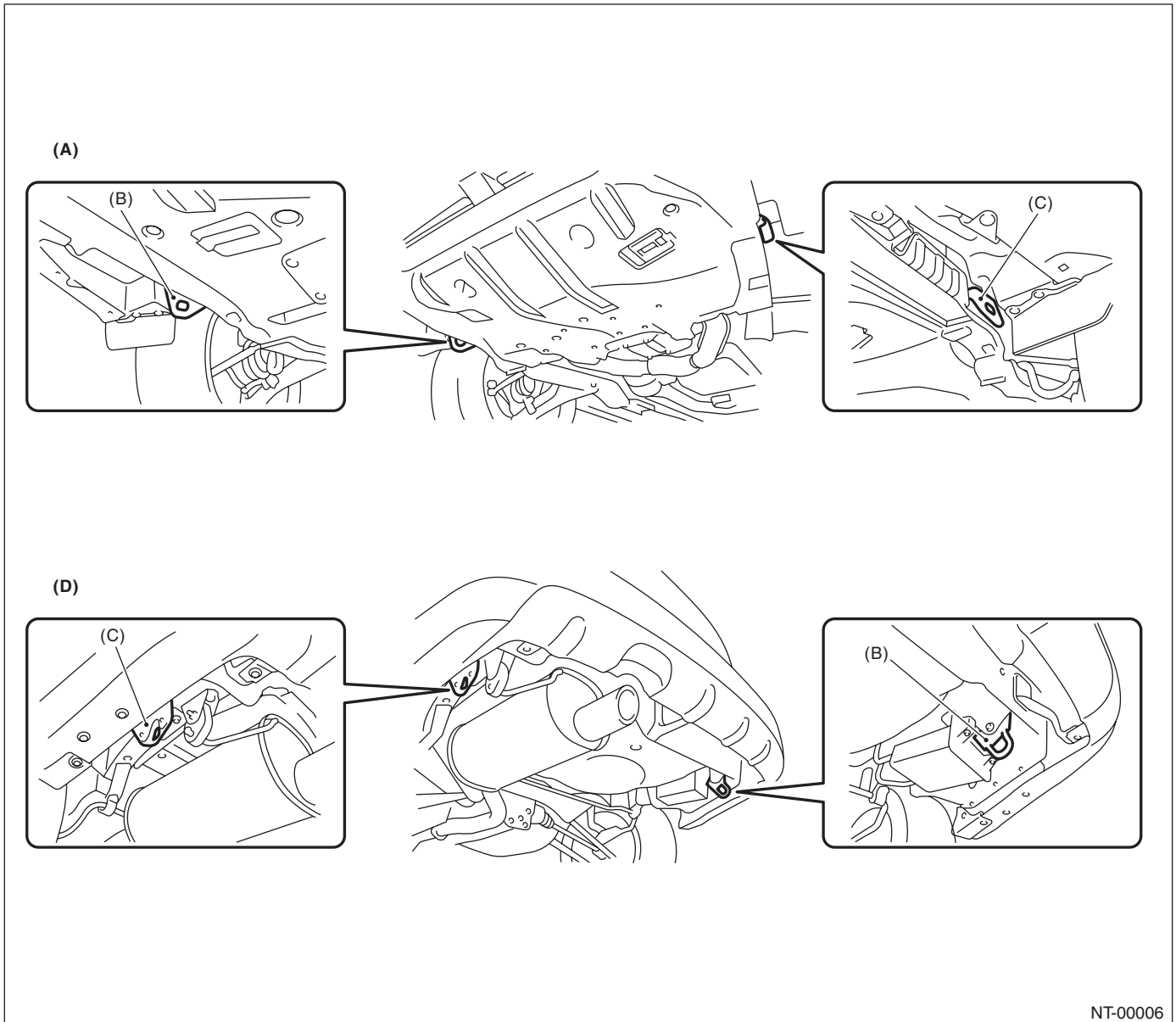
(B) Rear

Note

NOTE

8. TIE-DOWNS

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



NT-00006

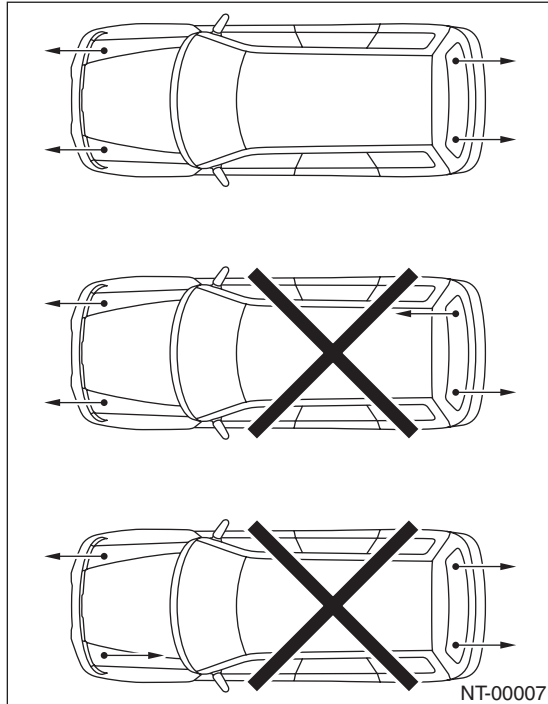
(A) Front

(B) Hook for tie-down and towing

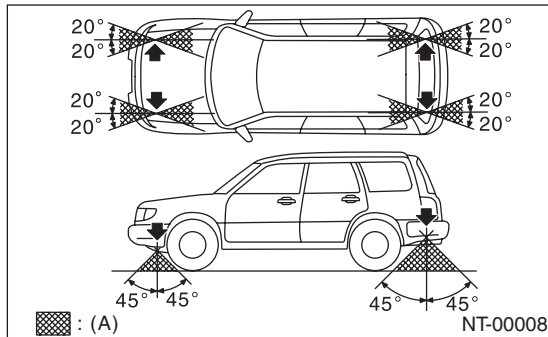
(C) Hook for tie-down

(D) Rear

CHAIN DIRECTION AT TIE-DOWN CONDITION



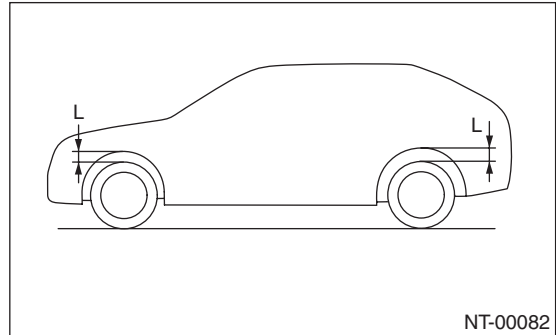
CHAIN PULLING RANGE AT TIE-DOWN CONDITION



(A) Chain pulling range at tie-down condition

VEHICLE SINKING VOLUME AT TIE-DOWN CONDITION

Measure the distance between the highest tire point and highest arch point before and after tie-down. Difference of measured values (sinking volume) should be within 50 mm (1.97 in) and make sure to fix the vehicle securely.



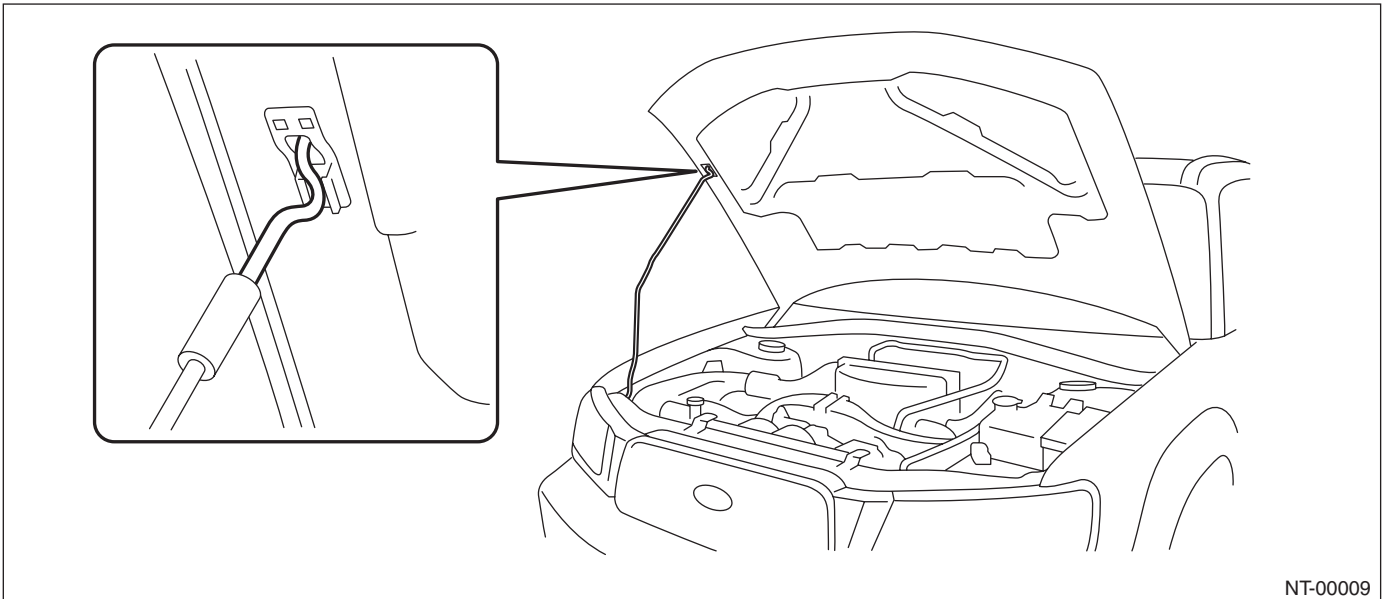
9. TOWING

Avoid towing vehicles except when the vehicle cannot be driven. For models with AWD or AT, use a loader instead of towing. When towing other vehicles, pay attention to the following to prevent hook or vehicle damage resulting from excessive weight.

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

NOTE

10.FRONT HOOD STAY INSTALLATION AT THE CHECK AND GENERAL MAINTENANCE



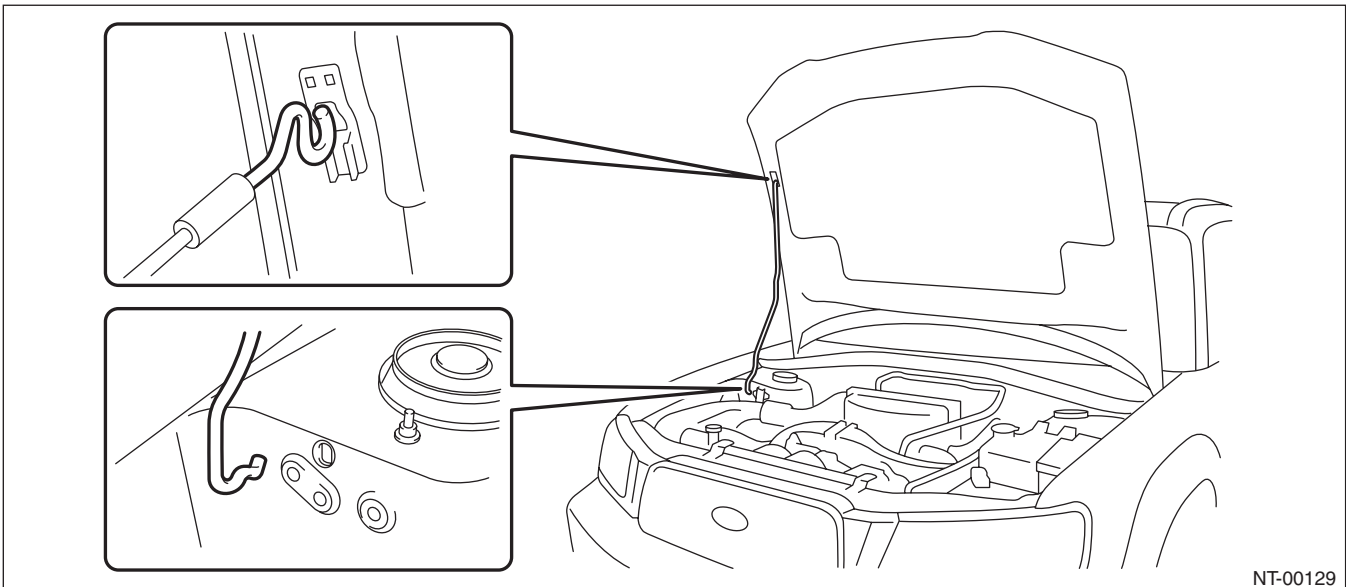
NT-00009

WHEN WIDER HOOD OPENING IS NECESSARY

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

NOTE:

Before setting the front hood in this position, remove the windshield washer hose attaching clip from the front hood.



NT-00129

11.TRAINING

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

12.GENERAL SCAN TOOL

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

Identification

IDENTIFICATION

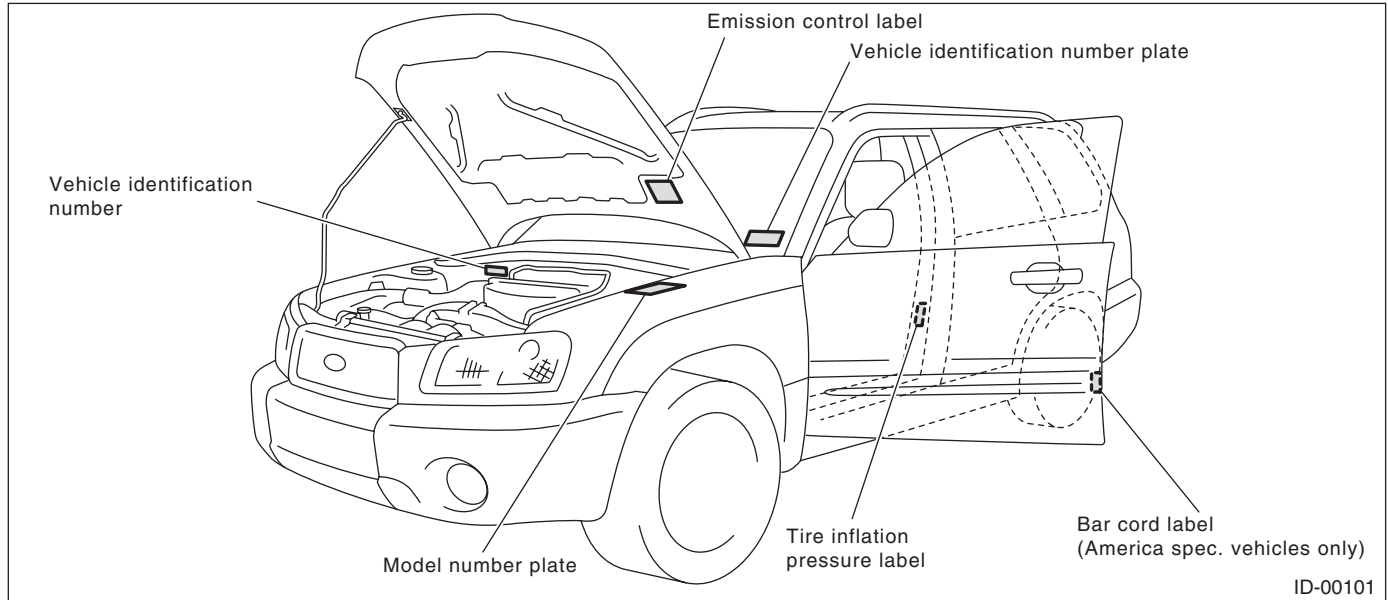
1. Identification

A: IDENTIFICATION

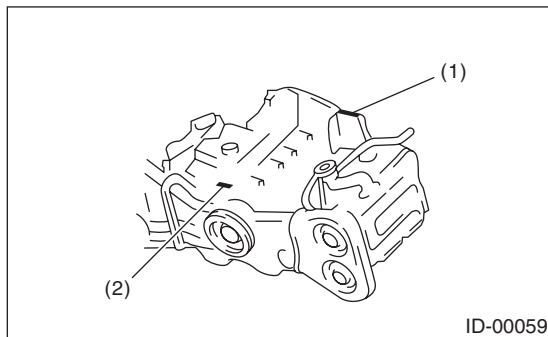
1. IDENTIFICATION NUMBER AND LABEL LOCATIONS

The Vehicle Identification Numbers (V.I.N.) is used to classify the vehicle.

• POSITIONING OF THE PLATE LABEL FOR IDENTIFICATION

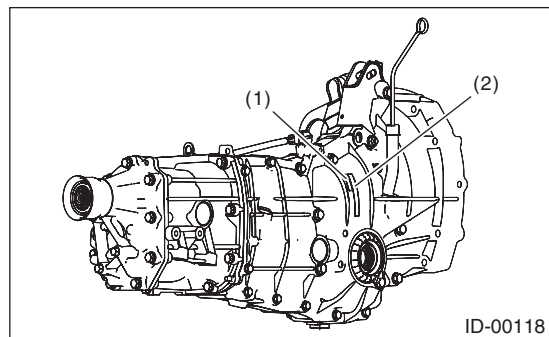


• ENGINE



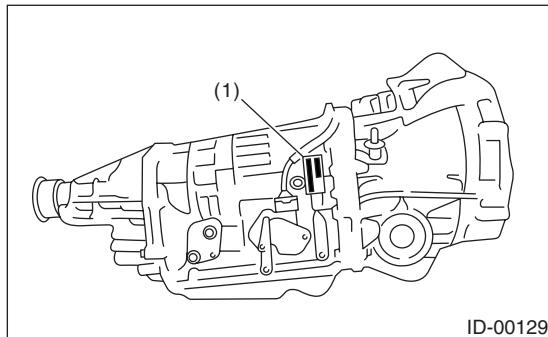
- (1) Engine serial number (Punch mark)
- (2) Engine type (Crankcase upper side)

• MANUAL TRANSMISSION



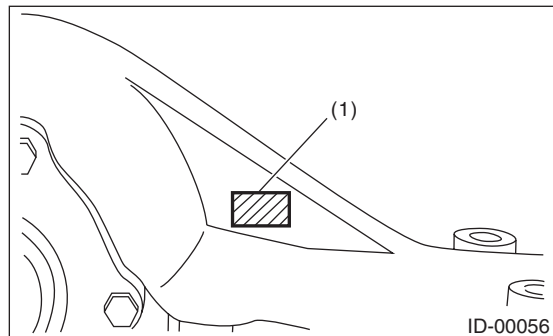
- (1) Transmission serial number
- (2) MT type label

• AUTOMATIC TRANSMISSION



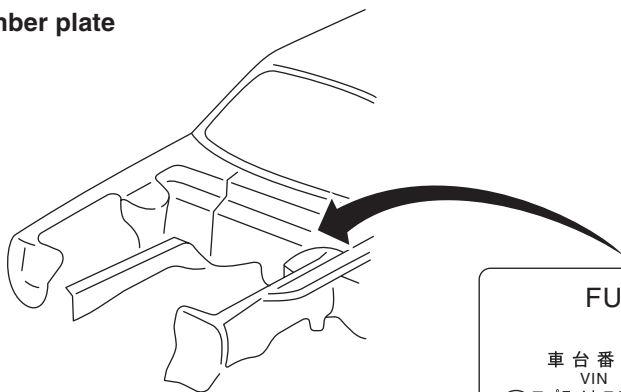
- (1) AT type and transmission serial number label

• REAR DIFFERENTIAL



(1) Type (white paint)

Model number plate



FUJI HEAVY INDUSTRIES LTD.											
型 式 <input type="text"/>											
車台番号		J F 1 S G 6 3 6 X 7 G 7 0 0 0 0 1									
VIN											
アプライトモデル		S G 9 D Y 4 J				オプションコード		U 5 Z K			
applied model						option code					
トリムコード		4 1 0		エンジン型式		E J 2 5 3 B S R H B					
trim code				engine type							
外装飾コード		2 3 0		ミッション型式		T Y 7 5 5 V C 7 A A					
Color code				transmission type							

ID-00152

Identification

IDENTIFICATION

2. MEANING OF V.I.N.

The meaning of the V.I.N. is as follows:

JF1SG636X7G700001

The large parentheses ([]) located in front and back are stop marks.

Digits	Code	Meaning	Details
1 — 3	JF1	Origin of manufacture of body	JF1: FHI manufactured passenger car
4	S	Car line	S: Forester
5	G	Body type	G: Wagon
6	6	Displacement class	6: 2.5 L AWD
7	3	Grade	3: 2.5 X 5: 2.5 XS 7: L.L. Bean 9: 2.5 XT
8	6	Restraint	6: Manual belt, dual airbags, side airbags
9	X	Check numbers	X or 0 — 9
10	7	Model year	7: 2007MY
11	G	Transmission type	G: Full-time AWD 5 speed MT H: Full-time AWD 4 speed AT
12 — 17	700001	Serial number	—

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.

SG9EY4J

Digits	Code	Meaning	Details
1	S	Series	S: Forester
2	G	Body type	G: Wagon
3	9	Total engine displacement Drive system	9: 2.5 L AWD
4	E	Model year	E: 2007MY
5	Y	Destination	Y: U.S.A., Canada
6	4	Grade	4: 2.5 X 6: 2.5 XS 9: 2.5 XT C: L.L. Bean
7	J	Transmission, fuel feed system	D: DOHC turbo MFI 5 speed MT J: SOHC MFI 5 speed MT P: DOHC turbo MFI 4 speed AT R: SOHC MFI 4 speed AT

Identification

IDENTIFICATION

The engine and transmission type are as follows.

Engine

EJ253ASQFB

Digits	Code	Meaning	Details
1 and 2	EJ	Engine type symbol	EJ: 4 cylinder
3 and 4	25	Displacement class	25: 2.5 L
5	3	Fuel feed system	3: MFI non-turbo (SOHC) 5: MFI DOHC turbo
6	A	Exhaust regulations	A: For states not using California emission standards B: For all states C: For states using California emission standards
7	S	Mounted transmission	P: AT S: MT
8 — 10	QFB	Detailed specifications	Used for ordering parts. Refer to parts catalog for details.

Transmission

TY755VC7AA

Digits	Code	Meaning	Details
1	T	Transmission	T: Transmission
2	Y	Transmission system	V: Full-time AWD AT center differential (VTD) Y: Full-time AWD MT center differential Z: Full-time AWD AT MPT
3 and 4	75	Classification	1B: AT 75: MT
5	5	Series	5: MT, AT
6	V	Transmission basic specifications	L: MP-T full-time AWD direct 4 speed AT M: VTD center differential full-time AWD direct 4 speed AT V: Full-time AWD 5 speed MT single range with viscous coupling center differential
7	C	Installed body	C: 2.5 L SOHC B: 2.5 L DOHC turbo 5 speed MT W: 2.5 L DOTC turbo 4 speed AT
8 — 10	7AA	Detailed specifications	Used for ordering parts. Refer to parts catalog for details.

Rear differential

T2

Code	Reduction gear ratio	LSD
T2	4.111	None
JP	4.111	Viscous
TP	4.444	None
CF	4.444	Viscous

Option code

U5ZK

Digits	Code	Meaning	Details
1 — 2	U5	Destination	U5: U.S. (for states using California emission standards) U6: U.S. (for states not using California emission standards) U4: U.S. (for all states) CO: Canada
3 — 4	ZK	Vehicle main options	—

Identification

IDENTIFICATION

Recommended Materials

RECOMMENDED MATERIALS

1. Recommended Materials

A: RECOMMENDED MATERIALS

1. GENERAL

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

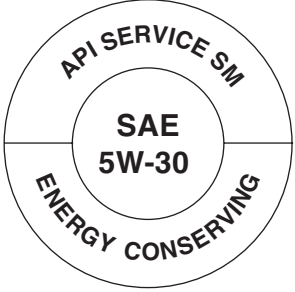

2. FUEL

- Use unleaded gasoline to reduce air pollution, because using leaded gasoline will damage the catalytic converter.
- Do not use the low quality gasoline, or improper fuel such as diesel fuel, fuel alcohol, or gasoline additive because they will adversely affect on engine components.
- Always use gasoline that is equivalent to that prescribed in the instruction manual or that of high octane value. There is the possibility of damaging or improper operation of the engine and fuel injection system if the specifications are not observed. Use the prescribed gasoline type to maintain proper vehicle performance.

Recommended Materials

3. LUBRICANTS

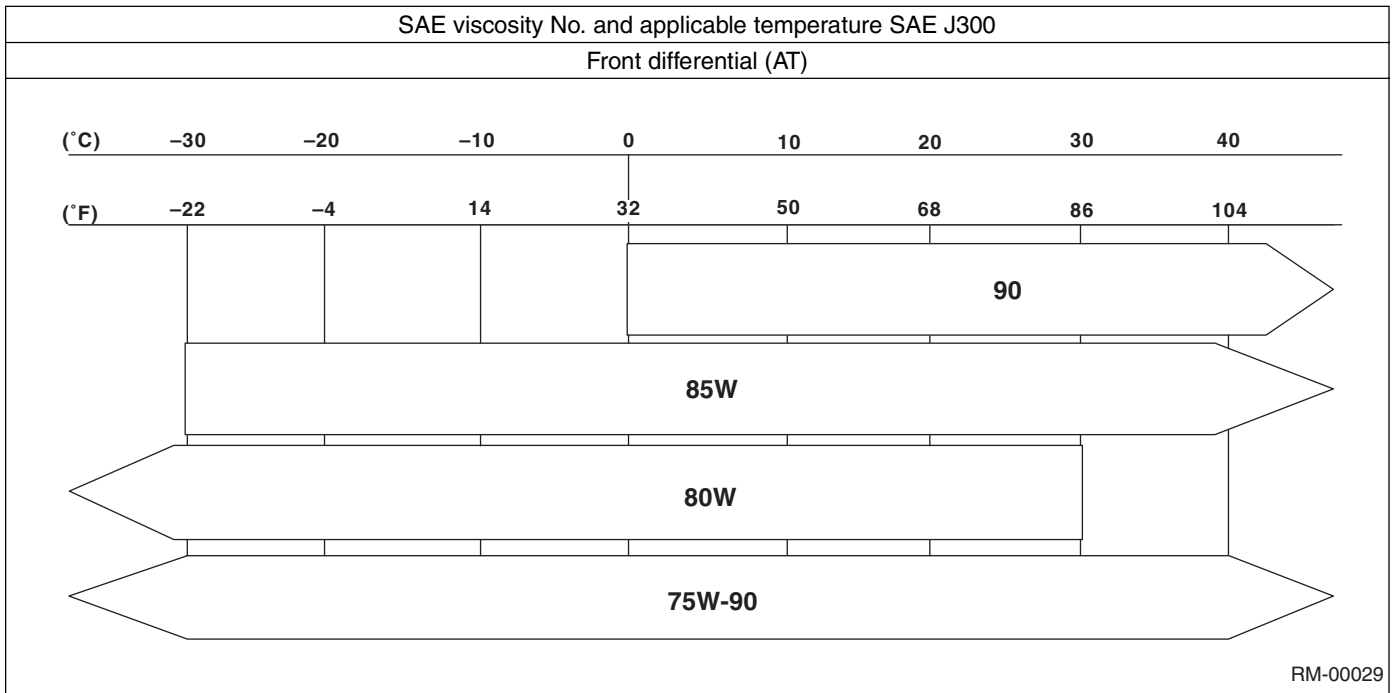
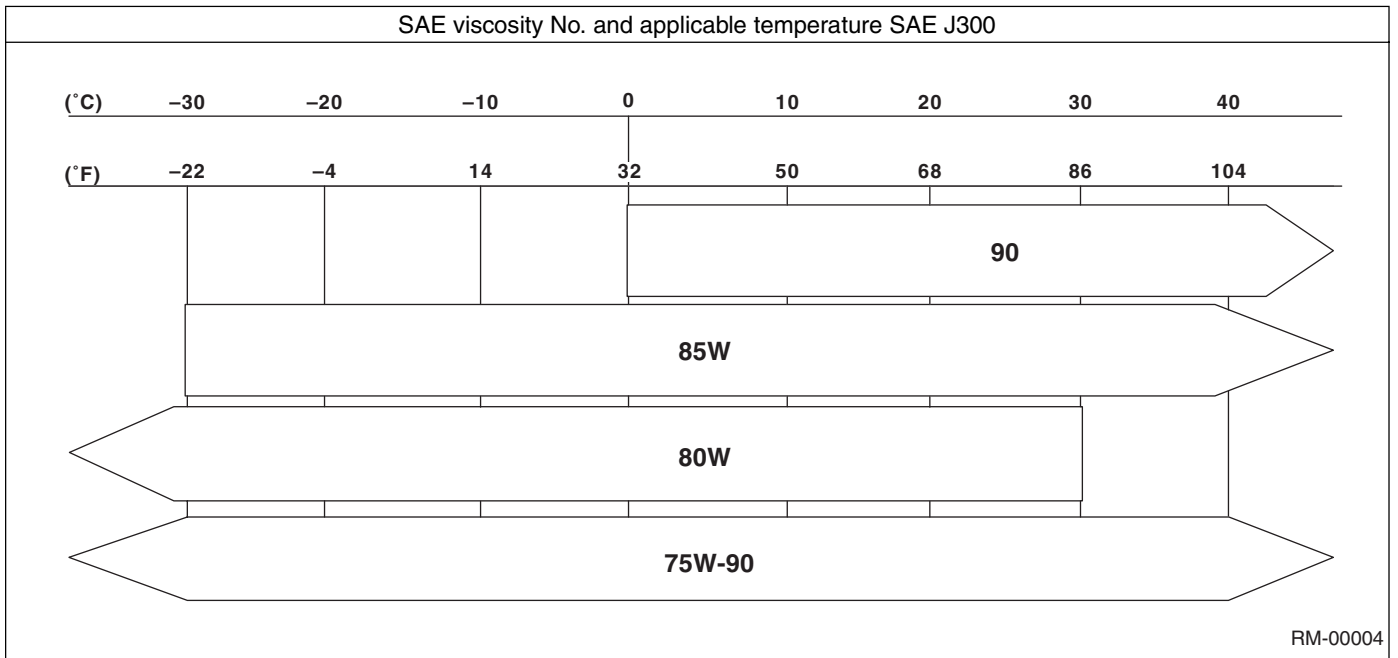
Use the lubricants shown in the table below, or equivalent. See the table below to choose the correct SAE viscosity.

Lubricants	Recommended materials	
	API spec.	ILSAC spec.
Engine oil	SM grade "Energy conservation"  RM-00049	GF-4  RM-00002
Manual transmission oil	GL-5	—
Front differential oil	GL-5	—
Rear differential oil	GL-5	—

SAE viscosity No. and applicable temperature SAE J300									
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-00059									
Manual transmission oil and rear differential oil									

Recommended Materials

RECOMMENDED MATERIALS



4. FLUID

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

Fluid	Recommended materials	Item number	Alternative
Automatic transmission fluid	SUBARU ATF HP	—	Idemitsu: ATF HP Castrol: Transmax J Pennzoil Quakerstate: Pennzoil ATF-J
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. ENGINE COOLANT

Use genuine engine coolant to protect the engine.

Engine coolant	Recommended materials	Item number	Alternative
Coolant	SUBARU coolant	000016218	Phosphoric acid (non-amine) type
Water for dilution	Distilled water	—	Soft water or tap water
Cooling system protecting agent	Cooling system conditioner	SOA345001	None

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 other than ZXL200PG.

Air conditioner	Recommended materials	Item number	Alternative
Refrigerant	HFC134a	—	None
Compressor oil	ZXL200PG	—	None

7. GREASE

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

Grease	Application point	Recommended materials	Item number	Alternative
Supplementary lubricants	<ul style="list-style-type: none"> • Oxygen sensor • Bolts etc. 	Spray type lubricant	—	—
Grease	MT main shaft	NICHIMOLY N-130	—	—
	Clutch master cylinder push rod	Silicone grease G-40M	004404003	—
	<ul style="list-style-type: none"> • Gear shift lever • Select lever • Clutch activating cylinder • Accelerator pedal • Clutch pedal • Brake pedal • Hill holder • Clutch bearing • Clutch release lever • Steering shaft bearing 	KOPR-KOTE	003603001	—
	Selector lever lock plate unit	Suncall GLO-244	0029408040	—
	Steering gearbox	Variant grease M-2	003608001	One luber MO or One luber SG
	<ul style="list-style-type: none"> • Disc brake • Drum brake wheel cylinder 	Niglube RX-2	K0779GA102	—
	<ul style="list-style-type: none"> • Drum brake • Brake shoe 	Molykote No. 7439	003602001	—
	Brake pad	Molykote AS-880N	K0777YA010	—
	Front axle AARi	One luber C	28395SA000	—
	Front axle AC	Olistamol	28395SA020	—
	Rear axle BJ, EBJ	NTG2218-M	28395AG010	—
	Rear axle DOJ	NGK205	28495AG000	—
	<ul style="list-style-type: none"> • Water pump • Door latch • Door striker 	Silicone grease G-30M	004404002	—

Recommended Materials

RECOMMENDED MATERIALS

8. ADHESIVES

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

Adhesive	Application point	Recommended materials	Item number	Alternative
Adhesive	Windshield, rear window glass, rear quarter glass, rear gate and body	Dow Automotive's Adhesive: ESSEX U-400 HV or equivalent Glass primer: U-401 and No. U-402 Paint surface primer: U-413	—	—
	Rearview mirror base	REPAIR KIT IN MR	65029FC000	—
	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 materials	Item number	Alternative
Seal material	MT transmission case	THREE BOND 1215B	—	Dow corning's No. 7038
	<ul style="list-style-type: none"> • Cylinder block • DOHC cam cap (Turbo model) • Torque converter clutch case • Oil pump 	THREE BOND 1215	004403007	
	Engine oil pan	THREE BOND 1207C	004403012	—
	ATF oil pan	THREE BOND 1217B	K0877YA020	—
	<ul style="list-style-type: none"> • Rear differential • Engine oil pressure switch • Cylinder head (Nipple) 	THREE BOND 1324	004403042	—
	<ul style="list-style-type: none"> • Rear differential • Service hole plug 	THREE BOND 1105	004403010	Dow corning's No. 7038
	Weather strip	Star caulking B-33A	000018901	Butyl rubber sealant
	<ul style="list-style-type: none"> • Steering adjusting screw • PCV Valve 	THREE BOND 1141	004403006	—
	<ul style="list-style-type: none"> • SOHC cam cap • DOHC rocker cover • Separator cover • DOHC semicircular plug 	THREE BOND 1280B	K0877YA018	THREE BOND 1217G
	<ul style="list-style-type: none"> • Front sealing cover • Rear sealing cover 	3M Butyl Rubber 8626	—	—

1. Pre-delivery Inspection

A: GENERAL DESCRIPTION

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 condition.
- Check that the vehicle before shipment is in normal condition.
- Check that there are no scratches on the vehicle and that none of the vehicle protective parts are missing when shipping or in storage.
- Make sure to deliver a complete vehicle to customer.

For above reasons, all SOA service centers must carry out the PDIs before delivery of vehicle.

Furthermore, all SOA service centers and PDI centers must inspect the status of all vehicles and clarify the responsible party.

B: PRE-DELIVERY INSPECTION (PDI) PROCEDURE

Follow the procedures shown in the table below.

Static Checks Just After Vehicle Receipt

Step	Check point
1. Appearance check	<ol style="list-style-type: none"> 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 inspect the body paints for small areas of damage or rust. 2. Visually check the glass and light lenses for any damage, cracks or excessive gaps between body sheet metal. 3. Visually check the plated parts for any damage.
2. Tire check	<ol style="list-style-type: none"> 1. Check the tires for damage, defective, and dents on wheels. 2. Check the tire air pressure.
3. Fuse installation	If the vehicle is about to be shipped to the customer, attach a room light fuse.
4. Air conditioner harness connection	If the vehicle is about to be shipped to the customer, connect the air conditioner harness.
5. Lock/unlock and open/close operation checks of doors.	<ol style="list-style-type: none"> 1. Using the key, check the trunk lid can be locked or unlocked normally. 2. Open and close all doors to check that there are no defective.
6. Operation check of child safety lock system	Check the child safety lock system operates normally.
7. Lock/unlock and open/close operation checks of the rear doors.	<ol style="list-style-type: none"> 1. Open and close the rear gate to see that there are no abnormal conditions. 2. Check if the rear gate can be unlocked normally through the emergency hole. 3. Operate the power door lock switch to check that the rear gate is locked and unlocked normally.
8. Operation check of fuel lid opener lock release lever	Operate the fuel lid opener to check that the fuel lid is unlocked normally.
9. Accessory check	<p>Check that the following accessories are provided.</p> <ul style="list-style-type: none"> • Owner's manual • Warranty booklet • Maintenance note • Spare key • Key number plate • Jack • Tool set • Spare tire
10. Operation check of front hood lock release system	Operate the front hood lock release lever to check that the front hood opens normally.
11. Battery	Check the battery for any abnormal conditions such as rust and trace of battery fluid leaks.
12. Brake fluid	Check the fluid amount.
13. Engine oil	Check the oil amount.
14. Transmission fluid	Check the fluid amount.
15. AT front differential oil	Check the AT front differential oil amount.
16. Engine coolant	Check the engine coolant amount.
17. Clutch fluid	Check the clutch fluid amount.
18. Window washer fluid	Check the window washer fluid amount.
19. Front hood latch check	Check that the hood is closed and latched completely.
20. Keyless entry system	Check that the keyless entry system operates normally.
21. Alarm system	Check that the alarm system operates normally.
22. Seat	<ol style="list-style-type: none"> 1. Check the seat surfaces for stains or dirt. 2. Check the seat installation conditions and functionality. 3. Check that the passenger's seat occupant detection system operates normally.
23. Seat belt	<ol style="list-style-type: none"> 1. Check the seat belt installation conditions and functionality. 2. Check the seat belt warning functionality for normal operations.