

1. Foreword

A: FOREWORD

These manuals are used when performing maintenance, repair or diagnosis of SUBARU IMPREZA, SUBARU XV CROSSTREK™, and SUBARU XV CROSSTREK™ HYBRID.

Applicable model:

2015MY GJ****, GP****

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

HOW TO USE THIS MANUAL

HU

	Page
1. How to Use This Manual	2

1. How to Use This Manual

A: HOW TO USE THIS MANUAL

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. CONTENTS

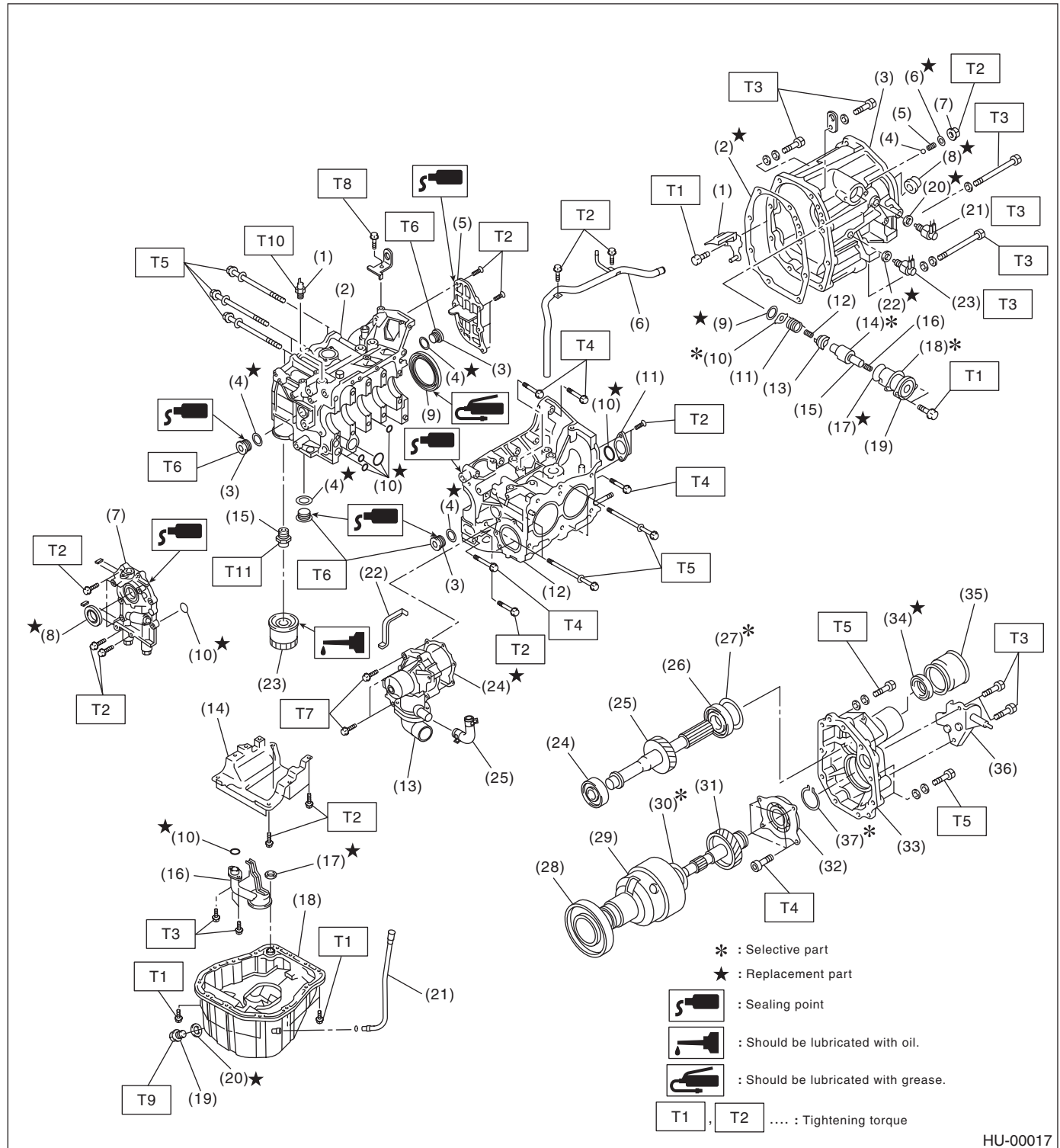
The first page has an index with tabs.

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

How to Use This Manual

HOW TO USE THIS MANUAL

4. DEFINITIONS OF “NOTE”, “CAUTION”, AND “WARNING”

- **NOTE:**

Describes additional information to make works easier.

- **CAUTION:**

Describes prohibited matters to prevent vehicle or parts damage, or matters that requires special attention during work.

- **WARNING:**

Describes matters that may cause serious damage to the operator or other person, or that may cause damage or accident.

5. SPECIFICATIONS

If necessary, specifications are also included.

6. INSPECTION

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

7. 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 part.

Example:

15.Main Shaft (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)

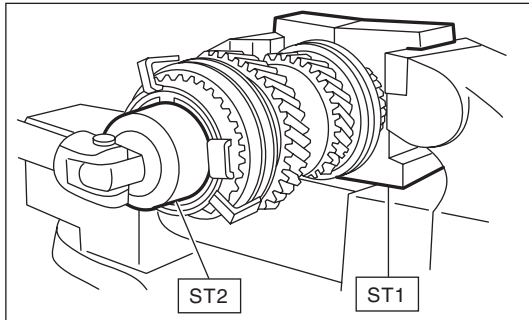
Secure the lock nuts in two places after tightening.

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)



(H)

HU-00020

(A) Component

(B) Process

(C) Reference

(D) Cautions

(E) Tool number of special tool

(F) Name of special tool

(G) Tightening torque

(H) Illustration

8. DIAGNOSIS

Step-by-step process is employed for easier diagnosis.

How to Use This Manual

HOW TO USE THIS MANUAL

9. 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)

List of SI unit

Item	SI units	Conventional unit	Remarks
Force	N (Newton)	kgf	1 kgf = 9.807 N
Mass (weight)	kg, g	kg, g	
Capacity	L, mL or cm ³	L or cc	1 cc = 1 cm ³ = 1 mL
Torque	N·m	kgf·m, kgf·cm	1 kgf·m = 9.807 N·m
Rotating speed	r/min	rpm	
Pressure	kPa (Kilopascal)	kgf/cm ²	1 kgf/cm ² = 98.07 kPa
		mmHg	1 mmHg = 0.1333 kPa
Power	W	PS	1 PS = 0.7355 kW
Calorie	W·h	cal	1 kcal = 1.163 W·h
Fuel consumption rate	g/kW·h	g/PS·h	1 g/PS·h = 1.3596 g/kW·h

The figure used in these manuals are described in the SI units and conventional units are described in ().

10.EXPLANATION OF TERMINOLOGY

List

2ndr	Secondary
AAI	Air Assist Injection
AAR	Angular Adjusted Roller
A/B	Airbag
ABS	Anti-lock Brake System
A/C	Air Conditioner
AC	Angular Contact
ACC	Accessory
A/F	Air Fuel Ratio
ALT	Generator
API	American Petroleum Institute
APS	Accessory Power Supply Socket
ASSY	Assembly
AT	Automatic Transmission
ATF	Automatic Transmission Fluid
AUX	Auxiliary Storage Unit (External storage)
AVCS	Active Valve Control System
AWD	All Wheel Drive
BATT	Battery
BCM	Brake Control Module
BECM	Battery Energy Control Module
BJ	Bell Joint
CAN	Controller Area Network
CCA	Cold Cranking Ampere
CD	Compact Disc
CD-R/RW	CD Recordable/Rewritable
COMPL	Complete
CPC	Canister Purge Control Solenoid Valve
CPU	Central Processing Unit
CM	Control Module
CVT	Continuously Variable Transmission
CVTF	Continuously Variable Transmission Fluid
DCCD	Driver's Control Center Differential
DMCM	Drive Motor Control Module
DOHC	Double Overhead Camshaft
DOJ	Double Offset Joint
DTC	Diagnosis Trouble Code
DU	Drive Unit
DVD	Digital Versatile Disc or Digital Video Disc
EBD	Electronic Brake Distribution
EBJ	High-Efficiency Compact Ball Fixed Joint
ECM	Engine Control Module
EDJ	High-Efficiency Compact Double Offset Joint
E/G	Engine
EGI	Electronic Gasoline Injection
EGR	Exhaust Gas Recirculation
ELR	Emergency Locking Retractor
ETC	Electronic Throttle Control

EX	Exhaust
F/B	Fuse & Joint Box
FL	Fusible Link
Ft	Front
FWD	Front Wheel Drive
GPS	Global Positioning System
HI	High
HID	High-Intensity Discharge
HPCM	Hybrid powertrain control module
H/L	Headlight
H/U	Hydraulic Unit
HVAC	Heater, Ventilator and Air Conditioner
I/F	Interface
IG	Ignition
ILSAC	International Lubricants Standardization and Approval Committee
IN	Intake
INT	Intermittent
I/O	Input/Output
IR	Infrared Ray
ISC	Idle Speed Control
ISG	Integrated Starter Generator
LAN	Local Area Network
LCD	Liquid Crystal Display
LED	Light Emitting Diode
LH	LH (Left Hand)
LHD	Left Hand Drive
LSD	Limited Slip Differential
M/B	Main Fuse & Relay Box
MD	Mini Disc
MID	Multi Information Display
MFI	Multi-Point Fuel Injection
MP-T	Multi-Plate Transfer
MT	Manual Transmission
NA	Natural Aspiration
NC	Normal Close (Relay)
NO	Normal Open (Relay)
OBD	On-Board Diagnosis
OP	Option Parts
PC	Personal Computer
PCD	Pitch Circle Diameter
PCV	Positive Crankcase Ventilation
PID	Parameter Identification
Pr	Primary
P/S	Power Steering
PTJ	Pillow Tripod Joint
P/W	Power Window
RAM	Random Access Memory
RH	RH (Right Hand)

How to Use This Manual

HOW TO USE THIS MANUAL

RHD	Right Hand Drive
ROM	Read Only Memory
rpm	Revolution Per Minute
Rr	Rear
SDI	Subaru Diagnostic Interface
SI	Subaru Intelligent
SOHC	Single Overhead Camshaft
SRS	Supplemental Restraint System
SSM	Subaru Select Monitor
ST	Special Tool
STD	Standard
SW	Switch
T/B	Turbocharger
TCS	Traction Control System
TCM	Transmission Control Module
TGV	Tumble Generator Valve
T/M	Transmission
TPMS	Tire Pressure Monitoring System
UJ	Universal Joint
UV	Ultraviolet
VDC	Vehicle Dynamics Control
V.I.N.	Vehicle Identification Number
ViS-C	Viscous Coupling
VSV	Vacuum Switching Valve
VTD	Variable Torque Distribution
W/H	Wiring Harness

SPECIFICATIONS

SPC

	Page
1. Impreza	2
2. XV	13

Impreza

SPECIFICATIONS

1. Impreza

A: DIMENSION

Model			4 door	5 door	SPORT
Overall length		mm (in)	4,585 (180.5)	4,420 (174.0)	
Overall width		mm (in)	1,740 (68.5)		
Overall height (at C.W.)		mm (in)	1,465 (57.7)		1,510 (59.4)
Compartment	Length	mm (in)	2,005 (78.9)		
	Width	mm (in)	1,490 (58.7)		
	Height	mm (in)	Model without sunroof: 1,010 (39.8) Model with sunroof: 946 (37.2)		
Wheelbase		mm (in)	2,645 (104.1)		
Tread	Front	mm (in)	1,510 (59.4)		
	Rear	mm (in)	1,515 (59.6)		
Minimum road clearance		mm (in)	145 (5.7)		145 (5.7)

B: ENGINE

Model	2.0 L	
Engine type	Horizontally opposed, liquid cooled, 4-cylinder, 4-stroke gasoline engine	
Valve arrangement	DOHC	
Bore × stroke	mm (in)	84.0 × 90.0 (3.31 × 3.54)
Displacement	cm ³ (cu in)	1,995 (121.73)
Compression ratio	10.5	
Ignition order	1 — 3 — 2 — 4	
Idle speed at parking or neutral position	r/min	650±100
Maximum output	kW (HP)/[r/min]	110 (147)/6,200
Maximum torque	N·m (kgf-m, ft-lb)/[r/min]	196 (20.0, 145)/4,200

C: ELECTRICAL

Model		2.0 L
Ignition timing (at idling) BTDC		MT: 12°±10° CVT: 16°±10°
Spark plug	Type and manufacturer	NGK: SILZKAR7B11
Generator		12 V — 130 A
Battery	Type and capacity (5HR)	12 V — 48 AH (55D23L)
	CCA	390 A

D: TRANSMISSION

1. MT

Model		2.0 L DOHC non-turbo	
Transmission type		5MT	
Clutch type		DSPD	
Gear ratio	1st	3.454	
	2nd	1.888	
	3rd	1.296	
	4th	0.972	
	5th	0.738	
	Rev.	3.333	
Reduction gear (front)		Type of gear	Hypoid
		Gear ratio	4.111
Transfer reduction		Type of gear	Helical
		Gear ratio	1.000
Reduction gear (rear)	Final reduction	Type of gear	Hypoid
		Gear ratio	4.111

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

DSPD: Dry Single Plate Diaphragm

2. CVT

Model			2.0 L DOHC non-turbo	
Transmission type			CVT	
Clutch type			TCC	
Gear ratio		Forward	3.420 — 0.544	
		Rev.	3.502	
Reduction gear (front)	Final reduction	Type of gear	Hypoid	
		Gear ratio	3.700	
Transfer reduction ratio			1.000	
Reduction gear (rear)		Type of gear	Hypoid	
		Gear ratio	3.700	

TCC: Torque Converter Clutch

CVT: Forward continuously variable speed change, 1-reverse

E: STEERING

Type	Rack and pinion	
Turns, lock to lock	2.9	
Minimum turning diameter	m (ft)	5.3 (17.39)

F: SUSPENSION

Front	Macpherson strut type suspension	
Rear	Double-wishbone type suspension	

Impreza

SPECIFICATIONS

G: BRAKE

Service brake system	Dual circuit hydraulic with vacuum suspended power unit
Front	Ventilated disc brake
Rear	Solid disc brake
Parking brake	Mechanical on rear brakes

H: TIRE

Rim size	15 × 6J	16 × 6 ¹ / ₂ J	17 × 7J, 17 × 7JJ
Tire size	P195/65R15 89H	P205/55R16 89V	P205/50R17 88V
Type	Tubeless, Steel belted radial		

I: CAPACITY

Model		2.0 L	
		5MT	CVT
Fuel tank	L (US gal, Imp gal)	55 (14.5, 12.1)	
Engine oil	Total capacity (at overhaul) L (US qt, Imp qt)	5.7 (6.0, 5.0)	
	When replacing engine oil and oil filter L (US qt, Imp qt)	4.8 (5.1, 4.2)	
	When replacing engine oil only L (US qt, Imp qt)	4.6 (4.9, 4.0)	
Transmission gear oil	L (US qt, Imp qt)	3.5 (3.7, 3.1)	—
CVTF	L (US qt, Imp qt)	—	11.68 — 12.18 (12.3 — 12.9, 10.3 — 10.7)
Front differential gear oil	L (US qt, Imp qt)	—	1.14 — 1.24 (1.2 — 1.3, 1.0 — 1.1)
Rear differential gear oil	L (US qt, Imp qt)	0.8 (0.8, 0.7)	
Engine coolant	L (US qt, Imp qt)	8.0 (8.5, 7.0)	8.4 (8.9, 7.4)

J: WEIGHT

Model			4 door			
			2.0 i			
Transmission			MT		CVT	
OP code			U5	C5	U5	C5
			MB	MB	MB	MB
Curb weight (C.W.)	Total	kg (lb)	1,340 (2,954)	1,340 (2,954)	1,375 (3,031)	1,375 (3,031)
	Front	kg (lb)	785 (1,731)	785 (1,731)	820 (1,808)	820 (1,808)
	Rear	kg (lb)	555 (1,224)	555 (1,224)	555 (1,224)	555 (1,224)
Gross vehicle weight (G.V.W.)		kg (lb)	1,950 (4,299)	1,950 (4,299)	1,950 (4,299)	1,950 (4,299)
Gross axle weight (G.A.W.)	Front	kg (lb)	990 (2,183)	990 (2,183)	990 (2,183)	990 (2,183)
	Rear	kg (lb)	1,000 (2,205)	1,000 (2,205)	1,000 (2,205)	1,000 (2,205)
Option	Aluminum wheel		—	—	—	—
	Keyless access with push button start		—	—	—	—
	Auto A/C		—	—	—	—
	Manual A/C		○	○	○	○
	Leather package		—	—	—	—
	Genuine leather seat		—	—	—	—
	Standard audio		○	○	○	○
	Premium audio		—	—	—	—
	Navigation		—	—	—	—
	Side airbag		○	○	○	○
	Curtain airbag		○	○	○	○
	HID headlight		—	—	—	—
	Cold weather package		—	—	—	—
	Sunroof		—	—	—	—

Impreza

SPECIFICATIONS

Model			4 door										
			2.0 i-Premium									2.0 i-Premium EyeSight	
Transmission			MT			CVT							
OP code			U5	C5	C5	U5	U5	U5	C5	C5	C4	U5	U5
			3C	3C	2P	3B	3C	3P	3C	2P	3B	3C	VC
Curb weight (C.W.)	Total	kg (lb)	1,355 (2,987)	1,355 (2,987)	1,355 (2,987)	1,395 (3,075)	1,395 (3,075)	1,395 (3,075)	1,395 (3,075)	1,395 (3,075)	1,400 (3,086)	1,395 (3,075)	1,395 (3,075)
	Front	kg (lb)	795 (1,753)	795 (1,753)	795 (1,753)	840 (1,852)	840 (1,852)	840 (1,852)	840 (1,852)	840 (1,852)	840 (1,852)	840 (1,852)	840 (1,852)
	Rear	kg (lb)	560 (1,235)	560 (1,235)	560 (1,235)	555 (1,224)	555 (1,224)	555 (1,224)	555 (1,224)	555 (1,224)	560 (1,235)	555 (1,224)	555 (1,224)
Gross vehicle weight (G.V.W.)		kg (lb)	1,950 (4,299)	1,950 (4,299)	1,950 (4,299)	1,950 (4,299)	1,950 (4,299)	1,950 (4,299)	1,950 (4,299)	1,950 (4,299)	1,950 (4,299)	1,950 (4,299)	1,950 (4,299)
Gross axle weight (G.A.W.)	Front	kg (lb)	990 (2,183)	990 (2,183)	990 (2,183)	990 (2,183)	990 (2,183)	990 (2,183)	990 (2,183)	990 (2,183)	990 (2,183)	990 (2,183)	990 (2,183)
	Rear	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)	1,000 (2,205)	1,000 (2,205)	1,000 (2,205)
Option	Aluminum wheel		○	○	○	○	○	○	○	○	○	○	○
	Keyless access with push button start		—	—	—	—	—	—	—	—	—	—	—
	Auto A/C		—	—	—	—	—	—	—	—	—	—	—
	Manual A/C		○	○	○	○	○	○	○	○	○	○	○
	Leather package		—	—	○	—	—	—	—	○	—	—	—
	Genuine leather seat		—	—	—	—	—	—	—	—	—	—	—
	Standard audio		○	○	○	○	○	○	○	○	○	—	—
	Premium audio		—	—	—	—	—	—	—	—	—	○	—
	Navigation		—	—	—	—	—	—	—	—	—	—	○
	Side airbag		○	○	○	○	○	○	○	○	○	○	○
	Curtain airbag		○	○	○	○	○	○	○	○	○	○	○
	HID headlight		—	—	—	—	—	—	—	—	—	—	—
	Cold weather pack-age		○	○	○	—	○	○	○	○	—	○	○
	Sunroof		—	—	○	—	—	○	—	○	—	—	—

Model			4 door					
			2.0 i-Premium+				2.0 i-Premium+ EyeSight	
Transmission			MT		CVT			
OP code			U5	C5	U5	C5	C4	C5
			2P	RP	2P	RP	RY	TP
Curb weight (C.W.)	Total	kg (lb)	1,370 (3,020)	1,370 (3,020)	1,400 (3,086)	1,400 (3,086)	1,405 (3,097)	1,400 (3,086)
	Front	kg (lb)	800 (1,764)	800 (1,764)	840 (1,852)	840 (1,852)	840 (1,852)	840 (1,852)
	Rear	kg (lb)	570 (1,257)	570 (1,257)	560 (1,235)	560 (1,235)	565 (1,246)	560 (1,235)
Gross vehicle weight (G.V.W.)		kg (lb)	1,950 (4,299)	1,950 (4,299)	1,950 (4,299)	1,950 (4,299)	1,950 (4,299)	1,950 (4,299)
Gross axle weight (G.A.W.)	Front	kg (lb)	990 (2,183)	990 (2,183)	990 (2,183)	990 (2,183)	990 (2,183)	990 (2,183)
	Rear	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)
Option	Aluminum wheel		○	○	○	○	○	○
	Keyless access with push button start		—	—	—	—	—	○
	Auto A/C		—	○	—	○	○	○
	Manual A/C		○	—	○	—	—	—
	Leather package		○	○	○	○	○	○
	Genuine leather seat		—	—	—	—	—	—
	Standard audio		○	○	○	○	○	○
	Premium audio		—	—	—	—	—	—
	Navigation		—	—	—	—	—	—
	Side airbag		○	○	○	○	○	○
	Curtain airbag		○	○	○	○	○	○
	HID headlight		—	—	—	—	○	—
	Cold weather package		○	○	○	○	—	○
	Sunroof		○	○	○	○	○	○

Impreza

SPECIFICATIONS

Model			4 door								
			2.0 i-L						2.0 i-Limited EyeSight		
Transmission			MT	CVT							
OP code			C5	U5	U5	U5	C5	C4	U5	U5	C5
			HR	QC	SP	EP	HR	SR	QC	EP	ER
Curb weight (C.W.)	Total	kg (lb)	1,365 (3,009)	1,410 (3,108)	1,410 (3,108)	1,410 (3,108)	1,410 (3,108)	1,410 (3,108)	1,410 (3,108)	1,410 (3,108)	1,410 (3,108)
	Front	kg (lb)	800 (1,764)	845 (1,863)	845 (1,863)	845 (1,863)	845 (1,863)	845 (1,863)	845 (1,863)	845 (1,863)	845 (1,863)
	Rear	kg (lb)	565 (1,246)	565 (1,246)	565 (1,246)	565 (1,246)	565 (1,246)	565 (1,246)	565 (1,246)	565 (1,246)	565 (1,246)
Gross vehicle weight (G.V.W.)		kg (lb)	1,950 (4,299)	1,950 (4,299)	1,950 (4,299)	1,950 (4,299)	1,950 (4,299)	1,950 (4,299)	1,950 (4,299)	1,950 (4,299)	1,950 (4,299)
Gross axle weight (G.A.W.)	Front	kg (lb)	990 (2,183)	990 (2,183)	990 (2,183)	990 (2,183)	990 (2,183)	990 (2,183)	990 (2,183)	990 (2,183)	990 (2,183)
	Rear	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)	1,000 (2,205)
Option	Aluminum wheel		○	○	○	○	○	○	○	○	○
	Keyless access with push button start		—	—	○	○	—	○	—	○	○
	Auto A/C		○	○	○	○	○	○	○	○	○
	Manual A/C		—	—	—	—	—	—	—	—	—
	Leather package		○	○	○	○	○	○	○	○	○
	Genuine leather seat		○	○	○	○	○	○	○	○	○
	Standard audio		—	—	—	—	—	—	—	—	—
	Premium audio		—	○	○	—	—	○	○	—	—
	Navigation		○	—	—	○	○	—	—	○	○
	Side airbag		○	○	○	○	○	○	○	○	○
	Curtain airbag		○	○	○	○	○	○	○	○	○
	HID headlight		○	—	—	—	○	○	—	—	○
	Cold weather package		○	○	○	○	○	○	○	○	○
	Sunroof		○	—	○	○	○	○	—	○	○

Model		5 door			
		2.0 i			
Transmission		MT		CVT	
OP code		U5	C5	U5	C5
		MB	MB	MB	MB
Curb weight (C.W.)	Total	kg (lb)	1,340 (2,954)	1,340 (2,954)	1,375 (3,031)
	Front	kg (lb)	785 (1,731)	785 (1,731)	820 (1,808)
	Rear	kg (lb)	555 (1,224)	555 (1,224)	555 (1,224)
Gross vehicle weight (G.V.W.)		kg (lb)	1,950 (4,299)	1,950 (4,299)	1,950 (4,299)
Gross axle weight (G.A.W.)	Front	kg (lb)	990 (2,183)	990 (2,183)	990 (2,183)
	Rear	kg (lb)	1,000 (2,205)	1,000 (2,205)	1,000 (2,205)
Option	Aluminum wheel		—	—	—
	Keyless access with push button start		—	—	—
	Auto A/C		—	—	—
	Manual A/C		○	○	○
	Leather package		—	—	—
	Genuine leather seat		—	—	—
	Standard audio		○	○	○
	Premium audio		—	—	—
	Navigation		—	—	—
	Side airbag		○	○	○
	Curtain airbag		○	○	○
	HID headlight		—	—	—
	Cold weather package		—	—	—
	Sunroof		—	—	—

Impreza

SPECIFICATIONS

Model			5 door										
			2.0 i-Premium									2.0 i-Premium EyeSight	
Transmission			MT			CVT							
OP code			U5	C5	C5	U5	U5	U5	C5	C5	C4	U5	U5
			3C	3C	2P	3B	3C	3P	3C	2P	3B	3C	VC
Curb weight (C.W.)	Total	kg (lb)	1,355 (2,987)	1,355 (2,987)	1,355 (2,987)	1,395 (3,075)	1,395 (3,075)	1,395 (3,075)	1,395 (3,075)	1,395 (3,075)	1,400 (3,086)	1,395 (3,075)	1,395 (3,075)
	Front	kg (lb)	795 (1,753)	795 (1,753)	795 (1,753)	840 (1,852)	840 (1,852)	840 (1,852)	840 (1,852)	840 (1,852)	840 (1,852)	840 (1,852)	840 (1,852)
	Rear	kg (lb)	560 (1,235)	560 (1,235)	560 (1,235)	555 (1,224)	555 (1,224)	555 (1,224)	555 (1,224)	555 (1,224)	560 (1,235)	555 (1,224)	555 (1,224)
Gross vehicle weight (G.V.W.)		kg (lb)	1,950 (4,299)	1,950 (4,299)	1,950 (4,299)	1,950 (4,299)	1,950 (4,299)	1,950 (4,299)	1,950 (4,299)	1,950 (4,299)	1,950 (4,299)	1,950 (4,299)	1,950 (4,299)
Gross axle weight (G.A.W.)	Front	kg (lb)	990 (2,183)	990 (2,183)	990 (2,183)	990 (2,183)	990 (2,183)	990 (2,183)	990 (2,183)	990 (2,183)	990 (2,183)	990 (2,183)	990 (2,183)
	Rear	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)	1,000 (2,205)	1,000 (2,205)	1,000 (2,205)
Option	Aluminum wheel		○	○	○	○	○	○	○	○	○	○	○
	Keyless access with push button start		—	—	—	—	—	—	—	—	—	—	—
	Auto A/C		—	—	—	—	—	—	—	—	—	—	—
	Manual A/C		○	○	○	○	○	○	○	○	○	○	○
	Leather package		—	—	○	—	—	—	—	○	—	—	—
	Genuine leather seat		—	—	—	—	—	—	—	—	—	—	—
	Standard audio		○	○	○	○	○	○	○	○	○	—	—
	Premium audio		—	—	—	—	—	—	—	—	—	○	—
	Navigation		—	—	—	—	—	—	—	—	—	—	○
	Side airbag		○	○	○	○	○	○	○	○	○	○	○
	Curtain airbag		○	○	○	○	○	○	○	○	○	○	○
	HID headlight		—	—	—	—	—	—	—	—	—	—	—
	Cold weather pack-age		○	○	○	—	○	○	○	○	—	○	○
	Sunroof		—	—	○	—	—	○	—	○	—	—	—

Model			5 door									
			2.0 i-Premium+			2.0 i-Premium+ EyeSight	2.0 i-Limited					
Transmission			5MT	CVT			5MT	CVT				
OP code			C5	C5	C4	C5	C5	U5	U5	U5	C5	C4
			RP	RP	RY	TP	HR	QC	SP	EP	HR	SR
Curb weight (C.W.)	Total	kg (lb)	1,360 (2,998)	1,390 (3,064)	1,395 (3,075)	1,390 (3,064)	1,365 (3,009)	1,410 (3,108)	1,410 (3,108)	1,410 (3,108)	1,410 (3,108)	1,410 (3,108)
	Front	kg (lb)	795 (1,753)	835 (1,841)	835 (1,841)	835 (1,841)	800 (1,764)	845 (1,863)	845 (1,863)	845 (1,863)	845 (1,863)	845 (1,863)
	Rear	kg (lb)	565 (1,246)	555 (1,224)	560 (1,235)	555 (1,224)	565 (1,246)	565 (1,246)	565 (1,246)	565 (1,246)	565 (1,246)	565 (1,246)
Gross vehicle weight (G.V.W.)		kg (lb)	1,950 (4,299)	1,950 (4,299)	1,950 (4,299)	1,950 (4,299)	1,950 (4,299)	1,950 (4,299)	1,950 (4,299)	1,950 (4,299)	1,950 (4,299)	1,950 (4,299)
Gross axle weight (G.A.W.)	Front	kg (lb)	990 (2,183)	990 (2,183)	990 (2,183)	990 (2,183)	990 (2,183)	990 (2,183)	990 (2,183)	990 (2,183)	990 (2,183)	990 (2,183)
	Rear	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)	1,000 (2,205)	1,000 (2,205)
Option	Aluminum wheel		○	○	○	○	○	○	○	○	○	○
	Keyless access with push button start		—	—	—	○	—	—	○	○	—	○
	Auto A/C		○	○	○	○	○	○	○	○	○	○
	Manual A/C		—	—	—	—	—	—	—	—	—	—
	Leather package		○	○	○	○	○	○	○	○	○	○
	Genuine leather seat		—	—	—	—	○	○	○	○	○	○
	Standard audio		○	○	○	○	—	—	—	—	—	—
	Premium audio		—	—	—	—	—	○	○	—	—	○
	Navigation		—	—	—	—	○	—	—	○	○	—
	Side airbag		○	○	○	○	○	○	○	○	○	○
	Curtain airbag		○	○	○	○	○	○	○	○	○	○
	HID headlight		—	—	○	—	○	—	—	—	○	○
	Cold weather pack-age		○	○	—	○	○	○	○	○	○	○
	Sunroof		○	○	○	○	○	—	○	○	○	○

Impreza

SPECIFICATIONS

Model			5 door									
			2.0 i-Limited EyeSight		SPORT		SPORT EyeSight	SPORT-Limited			SPORT- Limited EyeSight	
Transmission			CVT		5MT	CVT						
OP code			U5	C5	U5	U5	U5	U5	U5	U5	U5	U5
			EP	ER	2C	2C	2P	2P	QC	SP	EP	EP
Curb weight (C.W.)	Total	kg (lb)	1,410 (3,108)	1,410 (3,108)	1,375 (3,031)	1,410 (3,108)	1,410 (3,108)	1,415 (3,120)	1,420 (3,131)	1,420 (3,131)	1,420 (3,131)	1,420 (3,131)
	Front	kg (lb)	845 (1,863)	845 (1,863)	805 (1,775)	840 (1,852)	840 (1,852)	845 (1,863)	845 (1,863)	845 (1,863)	845 (1,863)	845 (1,863)
	Rear	kg (lb)	565 (1,246)	565 (1,246)	570 (1,257)	570 (1,257)	570 (1,257)	570 (1,257)	575 (1,268)	575 (1,268)	575 (1,268)	575 (1,268)
Gross vehicle weight (G.V.W.)		kg (lb)	1,950 (4,299)	1,950 (4,299)	1,950 (4,299)	1,950 (4,299)	1,950 (4,299)	1,950 (4,299)	1,950 (4,299)	1,950 (4,299)	1,950 (4,299)	1,950 (4,299)
Gross axle weight (G.A.W.)	Front	kg (lb)	990 (2,183)	990 (2,183)	990 (2,183)	990 (2,183)	990 (2,183)	990 (2,183)	990 (2,183)	990 (2,183)	990 (2,183)	990 (2,183)
	Rear	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)	1,000 (2,205)	1,000 (2,205)
Option	Aluminum wheel		○	○	○	○	○	○	○	○	○	○
	Keyless access with push button start		○	○	—	—	—	—	—	○	○	○
	Auto A/C		○	○	—	—	—	—	○	○	○	○
	Manual A/C		—	—	○	○	○	○	—	—	—	—
	Leather package		○	○	○	○	○	○	○	○	○	○
	Genuine leather seat		○	○	—	—	—	—	○	○	○	○
	Standard audio		—	—	○	○	○	○	—	—	—	—
	Premium audio		—	—	—	—	—	—	○	○	—	—
	Navigation		○	○	—	—	—	—	—	—	○	○
	Side airbag		○	○	○	○	○	○	○	○	○	○
	Curtain airbag		○	○	○	○	○	○	○	○	○	○
	HID headlight		—	○	—	—	—	—	—	—	—	—
	Cold weather package		○	○	○	○	○	○	○	○	○	○
	Sunroof		○	○	—	—	○	○	—	○	○	○

2. XV

A: DIMENSION

Model			5 door
Overall length		mm (in)	4,450 (175.2)
Overall width		mm (in)	1,780 (70.1)
Overall height (at C.W.)		mm (in)	1,615 (63.6)
Compartment	Length	mm (in)	2,005 (78.9)
	Width	mm (in)	1,490 (58.7)
	Height	mm (in)	Model without sunroof: 1,205 (47.4) Model with sunroof: 1,180 (46.5)
Wheelbase		mm (in)	2,635 (103.7)
Tread	Front	mm (in)	1,525 (60)
	Rear	mm (in)	1,525 (60)
Minimum road clearance		mm (in)	220 (8.7)

B: ENGINE

Model		2.0 L	2.0 L HEV
Engine type		Horizontally opposed, liquid cooled, 4-cylinder, 4-stroke gasoline engine	
Valve arrangement		DOHC	
Bore × stroke		mm (in)	84.0 × 90.0 (3.31 × 3.54)
Displacement		cm ³ (cu in)	1,995 (121.73)
Compression ratio		10.5	10.8
Ignition order		1 — 3 — 2 — 4	
Idle speed at parking or neutral position		r/min	650±100
Maximum output		kW (HP)/[r/min]	110 (147)/6,200
Maximum torque		N·m (kgf-m, ft-lb)/[r/min]	196 (20.0, 145)/4,200

C: ELECTRICAL

Model		2.0 L	2.0 L HEV
Ignition timing (at idling)		BTDC MT: 12°±10° CVT: 16°±10°	10°±10°
Spark plug	Type and manufacturer	NGK: SILZKAR7B11	NGK: DILZKAR7B11
Generator		12 V — 130 A	—
Integrated starter generator (ISG)		—	12 V — 200 A
DC/DC converter		—	12 V — 130 A
Battery	Type and capacity (5HR)	12 V — 48 AH (55D23L)	12 V — 48 AH (55D23L) (12 volt auxiliary battery) 12 V — 41 AH (N55-R) (12 volt engine restart battery)
	CCA	390 A	390 A (12 volt auxiliary battery) 450 A (12 volt engine restart battery)
High voltage battery	Type and capacity (1HR)	—	100.8 V — 5.5 AH Ni-MH (nickel metal hydride) battery
Drive motor	kind	—	Three-phase AC synchronous motor
	Rated voltage	—	100 V
	Maximum output	—	10 kW [13.4 HP]
	Maximum torque	—	65 N·m [6.6 kgf-m]

SPECIFICATIONS

D: TRANSMISSION

1. MT

Model			2.0 L DOHC non-turbo	
Transmission type			5MT	
Clutch type			DSPD	
Gear ratio		1st	3.545	
		2nd	1.888	
		3rd	1.296	
		4th	0.972	
		5th	0.780	
		Rev.	3.333	
Reduction gear (front)		Type of gear	Hypoid	
		Gear ratio	4.444	
Transfer reduction		Type of gear	Helical	
		Gear ratio	1.000	
Reduction gear (rear)	Final reduction	Type of gear	Hypoid	
		Gear ratio	4.444	

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

DSPD: Dry Single Plate Diaphragm

2. CVT

Model			2.0 L DOHC non-turbo	2.0 L DOHC motor hybrid
Transmission type			CVT	CVT (HEV)
Clutch type			TCC	
Gear ratio		Forward	3.581 — 0.570	3.420 — 0.544
		Rev.	3.667	3.502
Reduction gear (front)	Final reduction	Type of gear	Hypoid	
		Gear ratio	3.700	
Transfer reduction ratio			1.000	
Reduction gear (rear)		Type of gear	Hypoid	
		Gear ratio	3.700	

TCC: Torque Converter Clutch

CVT: Forward continuously variable speed change, 1-reverse

E: STEERING

Model		2.0 L	2.0 L HEV
Type		Rack and pinion	
Turns, lock to lock		2.8	
Minimum turning diameter		m (ft)	5.3 (17.39)

F: SUSPENSION

Front	Macpherson strut type suspension
Rear	Double-wishbone type suspension

G: BRAKE

Service brake system	Dual circuit hydraulic with vacuum suspended power unit
Front	Ventilated disc brake
Rear	Solid disc brake
Parking brake	Mechanical on rear brakes

H: TIRE

Model	2.0 L	2.0 L HEV
Rim size	17 × 7J	
Tire size	P225/55R17 95H	
	225/55R17 97V	—
Type	Tubeless, steel belted radial	

I: CAPACITY

Model		2.0 L		2.0 L HEV
		5MT	CVT	CVT
Fuel tank	L (US gal, Imp gal)	60 (15.9, 13.2)		52 (13.7, 11.4)
Engine oil	Total capacity (at overhaul) L (US qt, Imp qt)	5.7 (6.0, 5.0)		
	When replacing engine oil and oil filter L (US qt, Imp qt)	4.8 (5.1, 4.2)		
	When replacing engine oil only L (US qt, Imp qt)	4.6 (4.9, 4.0)		
Transmission gear oil	L (US qt, Imp qt)	3.5 (3.7, 3.1)	—	—
CVTF	L (US qt, Imp qt)	—	11.68 — 12.18 (12.3 — 12.9, 10.3 — 10.7)	13.67 — 14.17 (14.4 — 15.0, 12.0 — 12.5)
Front differential gear oil	L (US qt, Imp qt)	—	1.14 — 1.24 (1.2 — 1.3, 1.0 — 1.1)	1.3 — 1.4 (1.4 — 1.5, 1.1 — 1.2)
Rear differential gear oil	L (US qt, Imp qt)	0.8 (0.8, 0.7)		
Engine coolant	L (US qt, Imp qt)	8.0 (8.5, 7.0)	8.4 (8.9, 7.4)	8.2 (8.7, 7.2)

SPECIFICATIONS

J: WEIGHT

Model		5 door					
		2.0 i-Premium					
Transmission		5MT					
OP code		U5	U5	C5	C5	C5	C4
		3A	3E	3A	PE	RU	RB
Curb weight (C.W.)	Total	kg (lb)	1,410 (3,108)	1,410 (3,108)	1,410 (3,108)	1,410 (3,108)	1,410 (3,108)
	Front	kg (lb)	825 (1,819)	825 (1,819)	825 (1,819)	825 (1,819)	820 (1,808)
	Rear	kg (lb)	585 (1,290)	585 (1,290)	585 (1,290)	585 (1,290)	590 (1,301)
Gross vehicle weight (G.V.W.)		kg (lb)	1,970 (4,343)	1,970 (4,343)	1,970 (4,343)	1,970 (4,343)	1,970 (4,343)
Gross axle weight (G.A.W.)	Front	kg (lb)	1,010 (2,227)	1,010 (2,227)	1,010 (2,227)	1,010 (2,227)	1,010 (2,227)
	Rear	kg (lb)	1,000 (2,205)	1,000 (2,205)	1,000 (2,205)	1,000 (2,205)	1,000 (2,205)
Option	Aluminum wheel		○	○	○	○	○
	Keyless access with push button start		—	—	—	—	—
	Auto A/C		—	—	○	○	○
	Manual A/C		○	○	—	—	—
	Leather package		—	—	—	○	○
	Genuine leather seat		—	—	—	—	—
	Standard audio		○	○	○	○	○
	Premium audio		—	—	—	—	—
	Navigation		—	—	—	—	—
	Side airbag		○	○	○	○	○
	Curtain airbag		○	○	○	○	○
	HID headlight		—	—	—	○	—
	Cold weather package		—	○	—	○	—
	Privacy glass		○	○	○	○	—
	Sunroof		—	—	—	○	—

Model			5 door							
			2.0 i-Premium							
Transmission			CVT							
OP code			U5	U5	U5	U5	C5	C5	C5	C4
			3A	3E	3S	VS	3A	PE	RU	RB
Curb weight (C.W.)	Total	kg (lb)	1,445 (3,186)	1,445 (3,186)	1,445 (3,186)	1,445 (3,186)	1,445 (3,186)	1,445 (3,186)	1,445 (3,186)	1,450 (3,197)
	Front	kg (lb)	865 (1,907)	865 (1,907)	865 (1,907)	865 (1,907)	865 (1,907)	865 (1,907)	865 (1,907)	865 (1,907)
	Rear	kg (lb)	580 (1,279)	580 (1,279)	580 (1,279)	580 (1,279)	580 (1,279)	580 (1,279)	580 (1,279)	585 (1,290)
Gross vehicle weight (G.V.W.)		kg (lb)	1,970 (4,343)	1,970 (4,343)	1,970 (4,343)	1,970 (4,343)	1,970 (4,343)	1,970 (4,343)	1,970 (4,343)	1,970 (4,343)
Gross axle weight (G.A.W.)	Front	kg (lb)	1,010 (2,227)	1,010 (2,227)	1,010 (2,227)	1,010 (2,227)	1,010 (2,227)	1,010 (2,227)	1,010 (2,227)	1,010 (2,227)
	Rear	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)
Option	Aluminum wheel		○	○	○	○	○	○	○	○
	Keyless access with push button start		—	—	—	—	—	—	—	—
	Auto A/C		—	—	—	—	—	○	○	○
	Manual A/C		○	○	○	○	○	—	—	—
	Leather package		—	—	—	—	—	—	○	○
	Genuine leather seat		—	—	—	—	—	—	—	—
	Standard audio		○	○	○	—	○	○	○	○
	Premium audio		—	—	—	—	—	—	—	—
	Navigation		—	—	—	○	—	—	—	—
	Side airbag		○	○	○	○	○	○	○	○
	Curtain airbag		○	○	○	○	○	○	○	○
	HID headlight		—	—	—	—	—	—	○	—
	Cold weather package		—	○	○	○	—	○	○	—
	Privacy glass		○	○	○	○	○	○	○	—
	Sunroof		—	—	○	○	—	—	○	—

SPECIFICATIONS

Model			5 door			5 door						
			2.0 i-Premium EyeSight			2.0 i-Limited						2.0 i-Limited EyeSight
Transmission			CVT			5MT	CVT					
OP code			U5	U5	C5	C5	U5	U5	C5	C4	U5	C5
			VE	3E	TU	HU	QE	ES	HU	SR	ES	EU
Curb weight (C.W.)	Total	kg (lb)	1,445 (3,186)	1,445 (3,186)	1,445 (3,186)	1,410 (3,108)	1,455 (3,208)	1,455 (3,208)	1,455 (3,208)	1,460 (3,219)	1,455 (3,208)	1,455 (3,208)
	Front	kg (lb)	865 (1,907)	865 (1,907)	865 (1,907)	825 (1,819)	875 (1,929)	875 (1,929)	875 (1,929)	875 (1,929)	875 (1,929)	875 (1,929)
	Rear	kg (lb)	580 (1,279)	580 (1,279)	580 (1,279)	585 (1,290)	580 (1,279)	580 (1,279)	580 (1,279)	585 (1,290)	580 (1,279)	580 (1,279)
Gross vehicle weight (G.V.W.)		kg (lb)	1,970 (4,343)	1,970 (4,343)	1,970 (4,343)	1,970 (4,343)	1,970 (4,343)	1,970 (4,343)	1,970 (4,343)	1,970 (4,343)	1,970 (4,343)	1,970 (4,343)
Gross axle weight (G.A.W.)	Front	kg (lb)	1,010 (2,227)	1,010 (2,227)	1,010 (2,227)	1,010 (2,227)	1,010 (2,227)	1,010 (2,227)	1,010 (2,227)	1,010 (2,227)	1,010 (2,227)	1,010 (2,227)
	Rear	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)	1,000 (2,205)	1,000 (2,205)
Option	Aluminum wheel		○	○	○	○	○	○	○	○	○	○
	Keyless access with push button start		—	—	○	—	—	○	—	○	○	○
	Auto A/C		—	—	○	○	○	○	○	○	○	○
	Manual A/C		○	○	—	—	—	—	—	—	—	—
	Leather package		—	—	○	○	○	○	○	○	○	○
	Genuine leather seat		—	—	—	○	○	○	○	○	○	○
	Standard audio		—	—	○	—	—	—	—	—	—	—
	Premium audio		—	○	—	—	○	—	—	○	—	—
	Navigation		○	—	—	○	—	○	○	—	○	○
	Side airbag		○	○	○	○	○	○	○	○	○	○
	Curtain airbag		○	○	○	○	○	○	○	○	○	○
	HID headlight		—	—	○	○	—	—	○	○	—	○
	Cold weather package		○	○	○	○	○	○	○	○	○	○
	Privacy glass		○	○	○	○	○	○	○	—	○	○
	Sunroof		—	—	○	○	—	○	○	○	○	○

Model			5 door HEV					
			2.0 i-Premium				2.0 i-Limited	
Transmission			CVT					
OP code			U5	C5	C5	C5	U5	C5
			TE	PS	TS	TU	ES	EU
Curb weight (C.W.)	Total	kg (lb)	1,565 (3,450)	1,560 (3,439)	1,565 (3,450)	1,565 (3,450)	1,570 (3,461)	1,570 (3,461)
	Front	kg (lb)	935 (2,061)	930 (2,050)	935 (2,061)	935 (2,061)	940 (2,072)	940 (2,072)
	Rear	kg (lb)	630 (1,389)	630 (1,389)	630 (1,389)	630 (1,389)	630 (1,389)	630 (1,389)
Gross vehicle weight (G.V.W.)		kg (lb)	2,120 (4,674)	2,120 (4,674)	2,120 (4,674)	2,120 (4,674)	2,120 (4,674)	2,120 (4,674)
Gross axle weight (G.A.W.)	Front	kg (lb)	1,110 (2,447)	1,110 (2,447)	1,110 (2,447)	1,110 (2,447)	1,110 (2,447)	1,110 (2,447)
	Rear	kg (lb)	1,050 (2,315)	1,050 (2,315)	1,050 (2,315)	1,050 (2,315)	1,050 (2,315)	1,050 (2,315)
Option	Aluminum wheel		○	○	○	○	○	○
	Keyless access with push button start		○	—	○	○	○	○
	Auto A/C		○	○	○	○	○	○
	Manual A/C		—	—	—	—	—	—
	Leather package		○	—	○	○	○	○
	Genuine leather seat		—	—	—	—	○	○
	Standard audio		○	○	○	○	—	—
	Premium audio		—	—	—	—	—	—
	Navigation		—	—	—	—	○	○
	Side airbag		○	○	○	○	○	○
	Curtain airbag		○	○	○	○	○	○
	HID headlight		—	—	—	○	—	○
	Cold weather package		○	○	○	○	○	○
	Privacy glass		○	○	○	○	○	○
	Sunroof		—	○	○	○	○	○

PRECAUTION

PC

	Page
1. Precaution	2



1. Precaution

A: CAUTION

Please clearly understand and adhere to the following general precautions for environmental protection and to avoid minor or serious injury to the person doing the work or people in the area.

1. VEHICLE DYNAMICS CONTROL (VDC)

Handle the VDC as a total system. Do not disassemble or attempt to repair individual parts. Follow the directions in this manual when performing maintenance on the VDCCM&H/U. When parts other than those specified are disassembled, it is possible that the VDC system will not operate 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 eyes and seek immediate medical attention.
- Wash your skin with soap and then rinse thoroughly with water.

3. 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.

4. ACTIVE GRILLE SHUTTER

The active grille shutter may open and close without warning, even when the engine is not ON. Do not place your hand, cloth, tools or other items nearby at any time.

To prevent unexpected deployment, turn the ignition switch to OFF and disconnect the ground cable from battery, then wait at least 30 seconds before starting work. Also, wait at least 30 seconds before starting work after connecting the battery.

5. ROAD TEST

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

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 and 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, rear door panel, center pillar, rear fender panel, side sill, rear wheel apron), around rear of the vehicle (the rear seat cushion, rear floor pan, rear sub frame assembly) and the airbag wiring harnesses and nearby.

To prevent unexpected deployment, turn the ignition switch to OFF and disconnect the ground cable from battery, then wait at least 60 seconds to discharge electricity before starting work. Removing or installing the components or the connectors with the ignition switch ON will electrically impair them.

7. AIRBAG AND SEAT BELT PRETENSIONER DISPOSAL

To prevent bodily injury from unexpected airbag deployment, do not dispose the airbag modules or 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 TOOL

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 falling off, resulting in accidents and injury.

12.OIL

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

- Prepare a container and cloth to prevent scattering of oil when performing work where oil can be spilled. If the 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.

- Fuel is flammable. Prevent exposure to flames or sparks or any source of ignition.
- 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 the engine is hot.
- Prepare a container and cloth to prevent scattering of engine coolant when performing work where engine coolant can be spilled. If the coolant 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

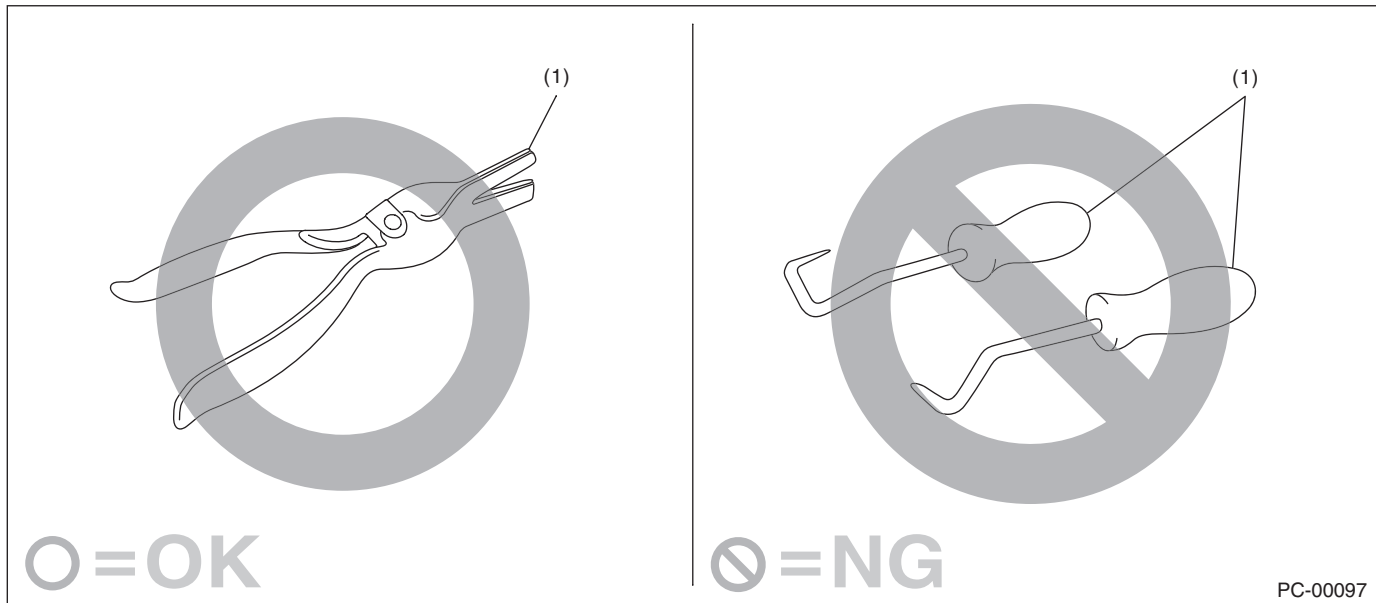
16.REMOVAL AND INSTALLATION OPERATION OF HOSES, ETC.

1. Before the removal and installation operation of hoses, etc.

- If you keep using the damaged or deformed hose, it results bleeds or leakage of the fat adheres or disconnection of the hose. Be careful not to spill fat adheres on exhaust pipes, etc. during maintenance to prevent emitting smoke or causing fires.
- Always perform the operation with the hoses removed. If the operation is performed while just putting aside the connected hoses that should be removed in advance, it may damage inner surface of the hose.

2. Removal and installation operation of hoses, etc. during the inspection

- **Follow the instructions below when removing hose.**
 - Do not use a pointed hose remover (hose plucker) when removing a hose. It may damage the inner surface of the hose.



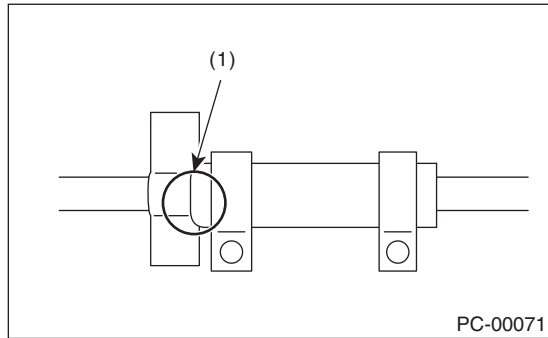
PC-00097

(1) Hose remover

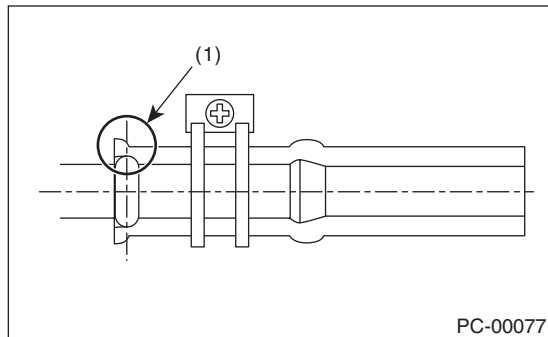
- When removing a hose using pliers, be sure to cover the hose with cloth and rotate the hose slightly to extract straight.

- If you keep using the hose, perform the inspection below and replace the hose with a new part if faulty.

- Replace the hose with a new part if it rides over the stay or the top of spool.



(1) Hose rides over the stay

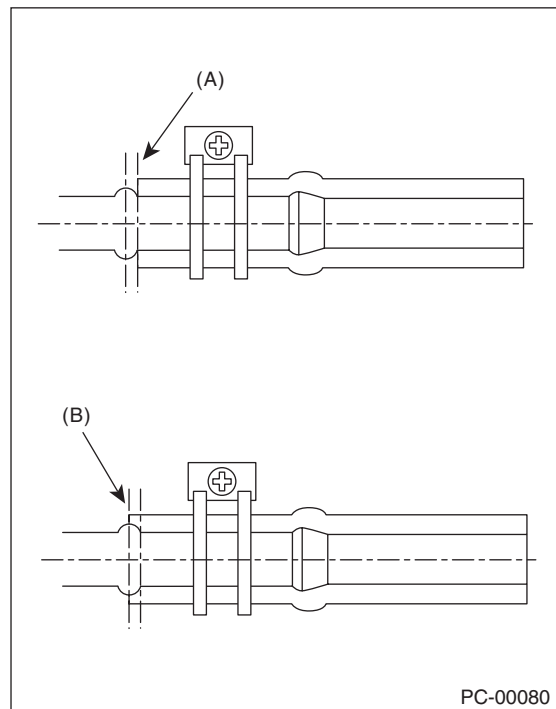
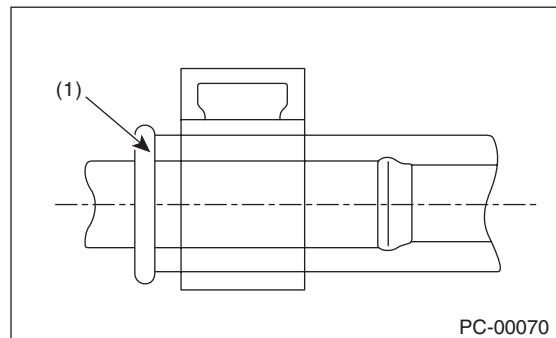
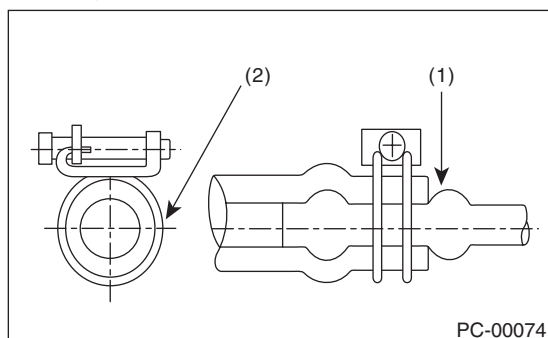


(1) Hose rides over the top of spool

- Check if the surface and the inner surface of the hose are damaged, cracked, bend, hardened, softened, swollen, peeled or deformed due to the adherence or the entry of the foreign matter by bending the hose. Replace with the new part if faulty.

- Follow the instructions below during installation.

- Check carefully for assembling position.
- Never use lubricants.
- Insert the hose to the specified position (stopper or spool) securely. (The stopper of the spool is between the top of the spool and the bottom section.)



- (1) Push against the spool. (Insert the hose and prevent it from becoming wrinkled.)
- (2) Tighten the hose clamp completely.
- (A) OK position (bottom of spool)
- (B) OK position (top of spool)

- Check if the position, direction and hose layout of the hose clamp are correct. (Check if the position, direction, length and the gap around are correct, or if it is different from the condition before the work.)
- After the installation, check that the hose is installed securely and there is no leakage. (Check if it is fixed securely with the clamp.)
- For hose clips and hose clamps, perform the inspection below and replace them with a new part if faulty.
 - Check for deformation, rust, damage or foreign matters.
 - For hose clip, check if it works and has clamping force.
 - For hose clamp, check if it can be tightened properly, and the band is not deformed.

Precaution

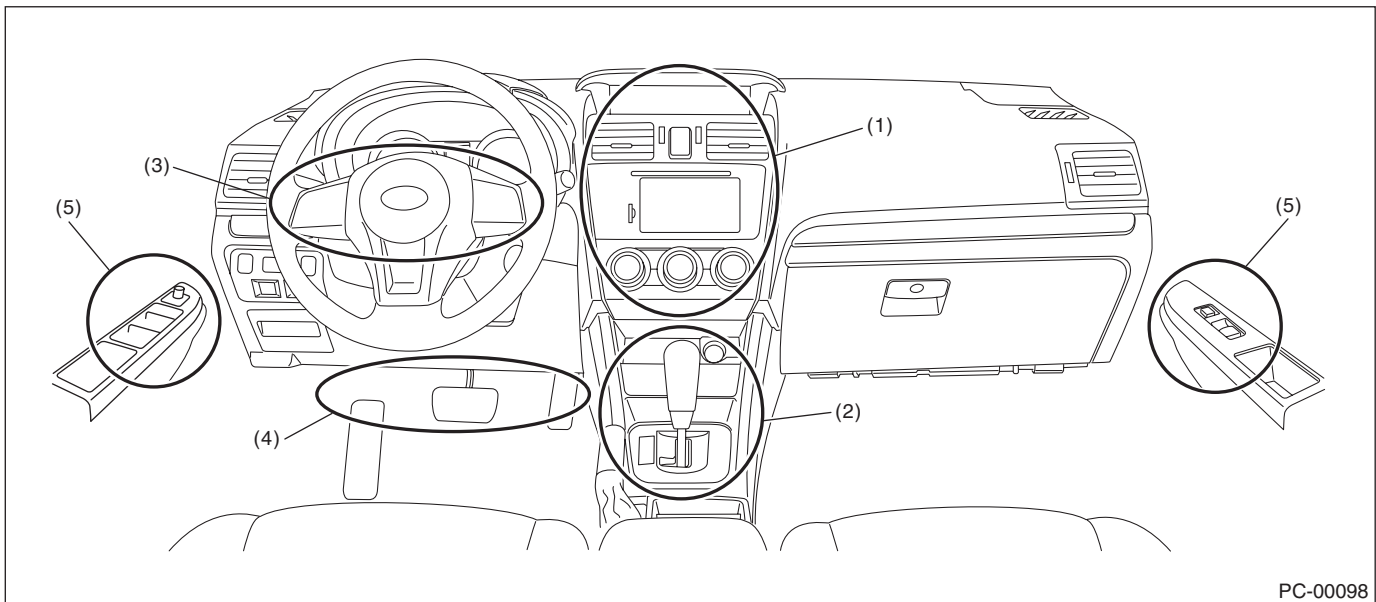
PRECAUTION

- **For hose pipes, perform the inspection below and replace with a new part if faulty.**
Check if the pipe is not damaged, rusted, peeled (peeled plates included), covered with foreign matter, bent, compressed or cracked.
- **For the parts below, replaces with a new part when the hose is removed or the installation position is changed.**
CVTF oil cooler hose, fuel hose (delivery) (except for those with quick connector)

17.HANDLING PRECAUTIONS FOR SILICON-CONTAINING SPRAY

When a silicon-containing lubricant is used, rust inhibitor or glazing agent adheres to the electrical contact of the relay or switch, which may produce silica dioxide (SiO_2). This may cause poor connection.

- Never spray directly to the electrical equipment.
- When using the spray close to the electrical equipment, always put the cover on the component. Special care must be exercised especially when using the spray to the locations shown in the figure below and their surrounding areas.



- | | | |
|---|---|-------------------------|
| (1) Audio, heater control switch | (3) Combination switch, steering switch, paddle shift switch | (5) Power window switch |
| (2) Shift/select lever switch, parking switch | (4) Stop light switch, brake light switch, clutch switch, clutch start switch | |

- If the residual silicon remains in the vicinity of the electrical equipment after the spray has been used, the vaporized silicon stands around the electrical equipment and it may adhere to electrical contact. After using the spray, be sure to wipe the silicon off with a cloth.
- Even when using the spray to the place away from the electrical equipment, the droplet of the spray may be splashed to the periphery. Use as small amount of spray as possible, and take care not to splash the silicon to the periphery.

NOTE:

The “silicon” used in this section refers to “silicone”, that is, silicon polymer.

B: CAUTION (HYBRID SYSTEM)**1. PRECAUTIONS FOR MAINTENANCE**

The hybrid system includes a high voltage circuit. Mishandling may cause electric shocks and leakage. Therefore, perform proper operations by following procedures in this manual.

High voltage caution display

- Before working on the HEV, the vehicle should be marked with a caution sign.
- Copy this page, fold along the perforation and put it on the roof of the vehicle in service before performing any service on the HEV system.

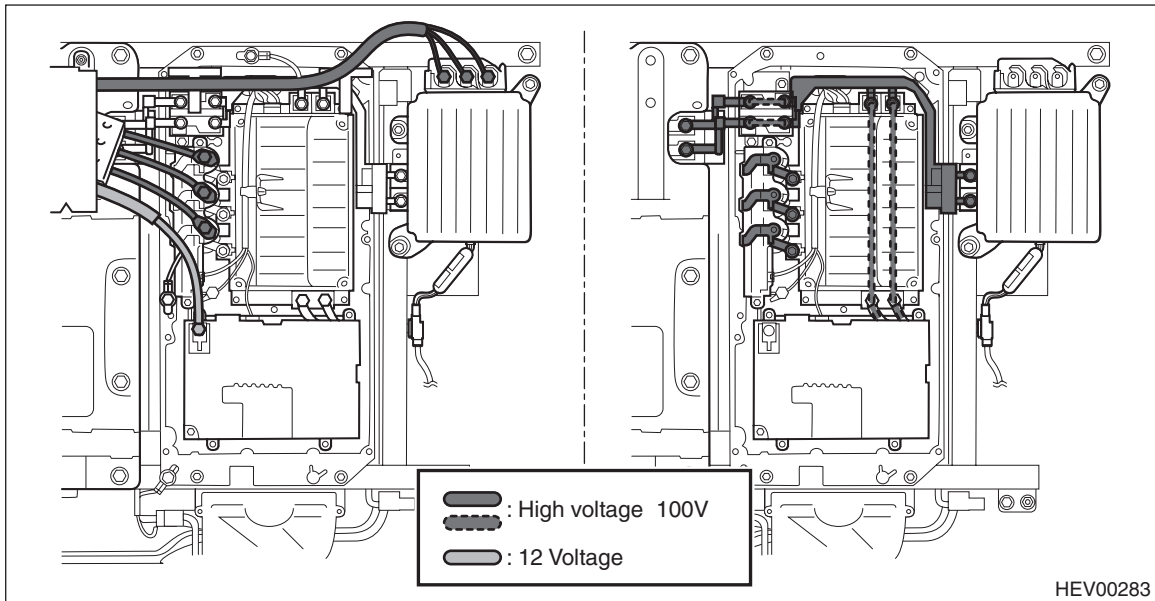
HIGH VOLTAGE CAUTION LABEL

 CAUTION: HIGH VOLTAGE. DO NOT TOUCH DURING OPERATION	Person in charge: _____
 CAUTION: HIGH VOLTAGE. DO NOT TOUCH DURING OPERATION	Person in charge: _____
Copy this page and put it after folding on the roof of the vehicle in service.	

Precaution

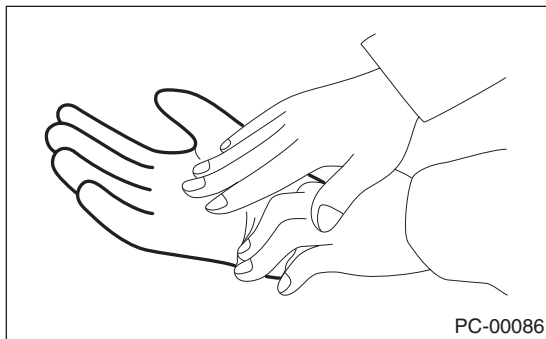
PRECAUTION

- Only technicians who have received the Subaru training for HEV Systems should be allowed to perform service or maintenance of high voltage circuits.
- All the power cable harnesses and connectors are colored orange. In addition, caution labels indicating [High Voltage] are attached on the High voltage battery and its battery cover. Do not touch the wires and parts related to high voltage without proper Personal Protective Equipment (PPE) and extreme caution.
- Use great care when handling the high voltage system power supply circuits shown in the figure below.



Personal Protective Equipment (PPE)

- Always wear PPE which is in good condition when working on the HEV system. Never touch any high voltage terminals or components without proper PPE.
- Personal Protective Equipment consists of insulated rubber gloves, protective goggles, rubber boots or insulated protective shoes or insulating rubber sheet for the shop floor.
- Always check the insulated gloves for holes or damage before starting work. To check for leaks, create a tight seal around your wrist with the glove gauntlet, and squeeze the glove to confirm that the trapped air does not leak, indicating a hole in the insulating material.



- Never use wet insulated gloves.

NOTE:

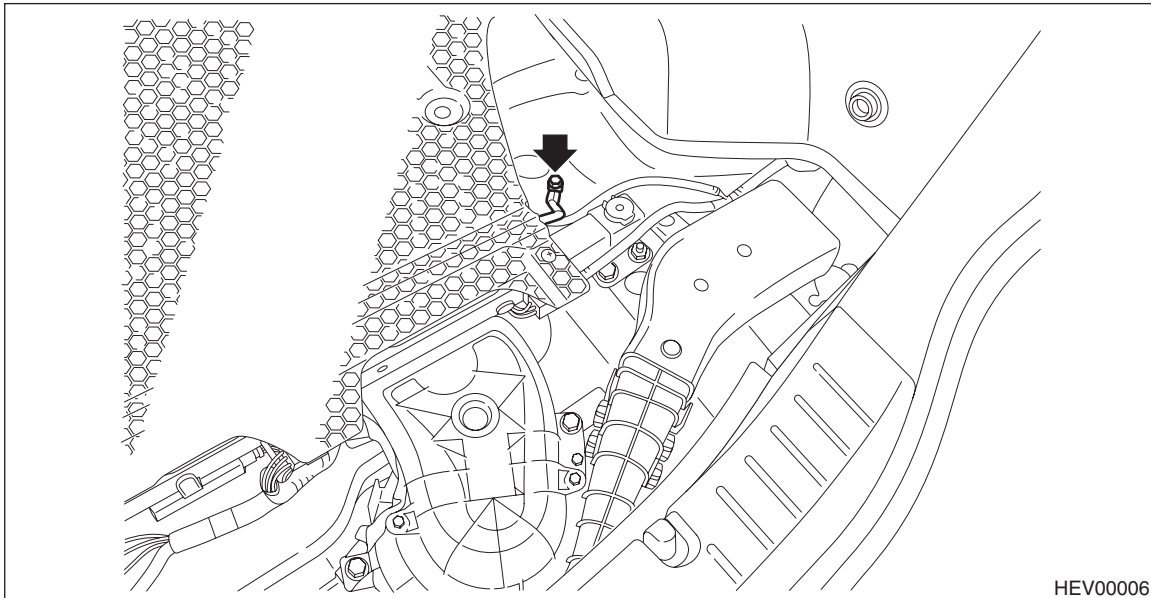
Maintenance of the high voltage battery cooling fan and cooling duct parts outside the battery cover, and drive motor control module parts does not require you to wear PPE, even in the compartment, because the voltage is only 12 V.

PPE is not required for maintenance or service of engine compartment and CVT unit. However, orange-colored power cables are excluded.

Operation procedure

In addition to PPE, other precautions must be observed when working on the HEV system since parts with high voltage and strong magnetic force are used.

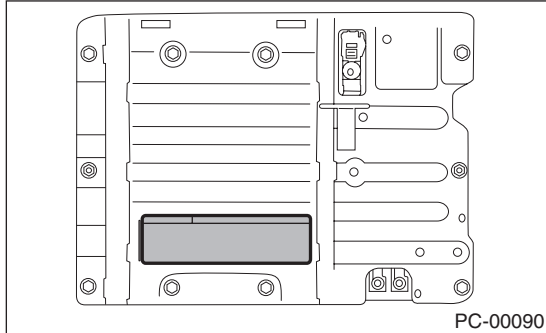
- Do not carry any metallic products, such as mechanical pencils and rulers, etc. They may be dropped and cause a short circuit.
- Do not wear any metallic objects such as belts or buckles, chains, etc.
- The strong magnetic force can damage or erase magnetic recording media (such as cash cards and pre-paid cards), etc.
- Always confirm that the voltage at any high voltage terminal is at 0 V using an insulation multimeter before beginning work.
- To work on the high voltage wire connections, always use insulated tools. If insulated tools are not available, wrap tools with electrical tape for insulation before use.
- When using tools wrapped with electrical tape as alternatives to insulated tools, confirm the insulated condition before working, using a insulation multimeter.
- Make sure to maintain the proper polarity of the positive and negative terminal connections during the high voltage battery removal and installation procedures.
- Never connect the high voltage battery in reverse polarity. Otherwise, the control module will be broken instantly, and other parts will also be damaged.
- Do not disconnect the battery terminals while the engine is running. A large counter electromotive force will be generated, and this voltage may damage electronic parts such as control modules.
- When disconnecting the connectors of the electrical components, always be sure to turn the ignition switch to OFF. Perform the Clear Memory Mode after connecting the connectors.
- When measuring the voltage or resistance of individual sensor or all electrical control modules, use a tapered pin with a diameter of 0.6 mm (0.024 in) or less and touch it to the tip of terminal. Never insert the tapered pin into the terminal because it deforms inside which may lead to malfunction.
- Take care not to allow water to get into the connectors when servicing or washing the vehicle in rainy weather. Avoid exposure to water even if the connectors are waterproof.
- Use the engine ground terminal or engine assembly for the grounding point when measuring the voltage and resistance in engine compartment.
- Use the body ground bolt on the inverter frame as the grounding point, when measuring voltage and resistance in rear of the vehicle.



Precaution

PRECAUTION

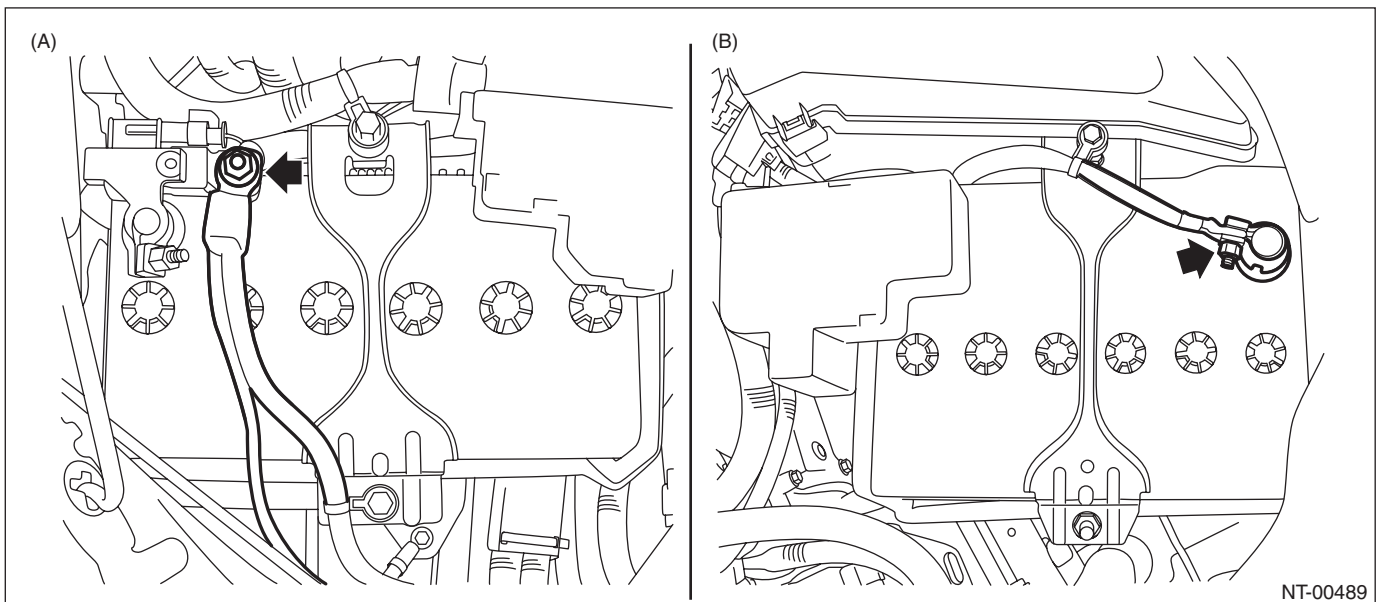
- All parts related to the hybrid system are precision parts. Do not drop or otherwise apply impact. Do not re-use the parts that are dropped accidentally.
- Each warning light may illuminate during or after the diagnosis. However, this does not indicate a system malfunction. After the hybrid system diagnosis, perform Clear Memory Mode.
- Take the ignition key or access key out of the vehicle, except when the key is needed inside.
- When the part is replaced or the label is detached, make sure to attach a new label in the original position and direction. Many of the HEV components are labeled with caution warnings.



- This engine starts and stops automatically, when the Hybrid READY indicator light in the meter illuminates. Make sure to turn the ignition to OFF before performing maintenance.

2. SERVICE DISCONNECT PLUG REMOVAL

- Always remove the service disconnect plug before beginning work on the HEV system.
 - The ignition must be OFF before removing the service disconnect plug.
 1. Turn off the ignition switch and remove the key, or move the access key away from the vehicle.
 2. Confirm that the READY light is not illuminated.
- 1) Remove the ground terminal from the 12 volt auxiliary battery.
 - 2) For the 12 volt engine restart battery, disconnect the ground terminal from 12V engine restart battery sensor.

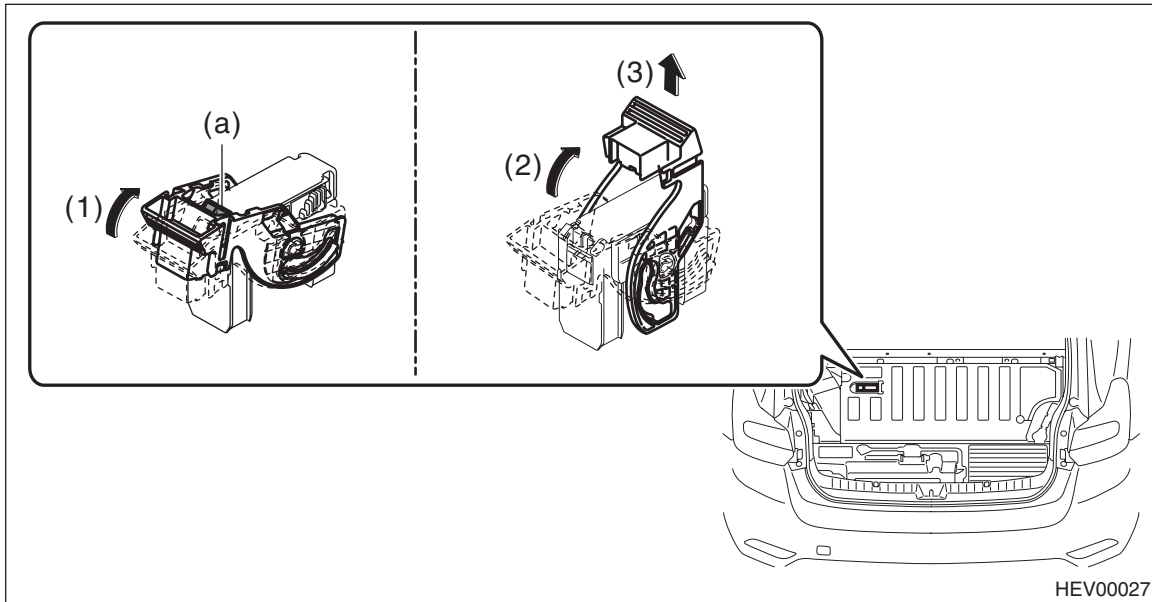


(A) 12 volt engine restart battery

(B) 12 volt auxiliary battery

- 3) Remove the mat - rear floor CTR.

4) Remove the service disconnect plug.



- (1) Pull up the lever until it touches the stopper.
- (2) Move the lever upwards while pressing the claw (a).

NOTE:

The lever locks in the vertical position.

- (3) Pull out the service disconnect plug from high voltage battery.

WARNING:

After removing the service disconnect plug, be sure to wait for ten minutes before touching the high voltage connectors and terminals.

NOTE:

Waiting for 10 minutes allows the high voltage condenser in the inverter to discharge.

- Always confirm that the voltage at any high voltage terminal is at 0 V using an insulation multimeter before beginning additional work.

CAUTION:

After removing the service disconnect plug and waiting ten minutes, cover the connection on the battery with electrical tape to protect from intrusion of foreign matter such as water or dust, tools, etc.

- Do not turn the ignition switch ON with the service disconnect plug removed. The system may be damaged.
- After removal, always carry the removed service disconnect plug in your pocket in order to prevent other technicians from accidentally re-installing it while you are working on the system.
- Even after the service disconnect plug is removed, make sure to wear insulated gloves (PPE) during maintenance of all the parts inside the cover including the battery cover, and underfloor power cable.
- Insulate the high voltage power cables, connectors and terminals with electrical tape immediately after removing them.
- Be sure to tighten the high voltage screw terminals firmly to the specified torque. Lack of, or excess torque causes failures.
- Be careful not to allow foreign matter to enter the high voltage battery.

3. INSTALLATION OF THE SERVICE DISCONNECT PLUG

WARNING:

Make sure the connectors are connected completely and locked securely.

- After performing work for the high voltage system, make sure to check again for misplaced parts and tools, tightening conditions of high voltage terminals, and connector connections, before connecting the Service disconnect plug.
 - Always replace faulty or damaged Service disconnect plug with a new part.
 - If not damaged, always re-use the original Service disconnect plug from the vehicle you are servicing. Never use a Service disconnect plug removed from another vehicle.
- Install in the reverse order of removal.

NOTE:

Move the lever to the horizontal position and push it until a click is heard and confirm it is securely locked.

4. PROCEDURES AT AN ACCIDENT SCENE

- Preparation items

Protective equipment (insulated gloves, rubber gloves, protective goggles, and rubber boots for electrical purposes)

Saturated boric-acid solution 20 L (In a container, dissolve 800 g of boric acid powder purchased at a drug store in 20 L of water.)

Red litmus paper (purchase at a drug store)

Fire extinguisher (used for both oil fire and electric fire)

Cloth, old towels (for wiping electrolytic solution)

Insulating tape

Circuit tester

- Procedures at an accident scene

Do not touch the exposed wires, when whether they are high voltage wires or not is unknown. When it is necessary or possible to touch them, make sure to wear insulated gloves and insulate the wires using insulating tape.

When vehicle is on fire, extinguish a fire using an electrical fire extinguisher. Attempting to extinguish a fire with a small amount of water may be more of a danger. Therefore, spray a large amount of water from a fire hydrant, or wait for arrival of firefighters.

When the vehicle is submerged in water, do not touch the service disconnect plug and any other high voltage parts and wires due to a possibility of electrical shock. Perform work after completely pulling out the vehicle.

- Check for any leakage in the high voltage battery vicinity.

CAUTION:

- **Do not touch any leaked fluid, because it may be strong alkaline electrolytic solution. When it is necessary to touch it, wear insulated gloves and protective goggles, neutralize with saturated boric-acid solution, confirm that red litmus paper does not change to blue, and then wipe off with cloth.**
- **Do not touch the skin or eyes with rubber gloves with the electrolytic solution (strong alkaline) adhered, because it may cause inflammation and blindness.**
- When the vehicle is damaged due to collision, stop the hybrid system in the following steps.
 1. Turn the ignition to OFF.

NOTE:

When the ignition cannot be turned to OFF, remove the fuse in engine compartment.

2. Wear insulated gloves and remove the service disconnect plug. <Ref. to PC-10, SERVICE DISCONNECT PLUG REMOVAL, CAUTION (HYBRID SYSTEM), Precaution.>

5. MOVING DAMAGED VEHICLE

- When one of the following conditions applies, use a tow truck to move the vehicle.

CAUTION:

Refer to [Towing] for towing procedures. <Ref. to NT-16, TOWING, NOTE, Note.>

High voltage system parts and wires are damaged.

The Hybrid READY indicator light does not illuminate with the ignition at ON.

CAUTION:

Using a tow truck, tow the vehicle with the negative terminal of 12 volt auxiliary battery disconnected, and the service disconnect plug removed. <Ref. to PC-10, SERVICE DISCONNECT PLUG REMOVAL, CAUTION (HYBRID SYSTEM), Precaution.>

- Move the vehicle by driving it, only when towing by a tow truck is unnecessary and there is no problem to drive the vehicle.

CAUTION:

When the hybrid fail lamp illuminates, or abnormal noise, odor, or strong vibration is detected during driving, perform the following procedures.

1. Bring the vehicle to a stop in a safe place.
 2. Apply the parking brake.
 3. Turn the ignition to OFF and disconnect the negative terminal from 12 volt auxiliary battery.
 4. Wear insulated gloves and remove the service disconnect plug. <Ref. to PC-10, SERVICE DISCONNECT PLUG REMOVAL, CAUTION (HYBRID SYSTEM), Precaution.>
- Procedure after moving damaged vehicle

When there is fluid leakage on the road surface, it may be strong alkaline electrolytic solution. Wear insulated gloves and protective goggles, neutralize with saturated boric-acid solution, confirm that red litmus paper does not change to blue, and then wipe off with cloth.

6. PRECAUTION DURING REPAIR OF DAMAGED VEHICLE

- Preparation items

Protective equipment (insulated gloves, rubber gloves, protective goggles, and rubber boots for electrical purposes)

Saturated boric-acid solution 20 L (In a container, dissolve 800 g of boric acid powder purchased at a drug store in 20 L of water.)

Red litmus paper (purchase at a drug store)

Cloth, old towels (for wiping electrolytic solution)

Insulating tape

Circuit tester

- Precaution during repair of damaged vehicle

CAUTION:

Follow the procedures to ensure safety.

Make sure to use insulated tools, and wear insulated gloves or rubber gloves, protective goggles, and rubber boots for electrical purposes.

Check for any leakage in the high voltage battery vicinity.

CAUTION:

- **Do not touch any leaked fluid, because it may be strong alkaline electrolytic solution. When it is necessary to touch it, wear insulated gloves and protective goggles, neutralize with saturated boric-acid solution, confirm that red litmus paper does not change to blue, and then wipe off with cloth.**
- **If the electrolytic solution should touch the skin directly, immediately wash it away with saturated boric-acid solution or plenty of water. Also, take off the contaminated clothes.**
- **If it enters your eyes, scream for help, do not rub your eyes, immediately wash it away with plenty of water, and consult a doctor.**

Precaution

PRECAUTION

When the vehicle is damaged due to collision, stop the hybrid system in the following steps.

CAUTION:

Do not touch the exposed wires, when whether they are high voltage wires or not is unknown. When it is necessary or possible to touch them, make sure to wear insulated gloves and insulate the wires using insulating tape.

1. Turn the ignition to OFF.

NOTE:

When the ignition cannot be turned to OFF, remove the fuse in engine compartment.

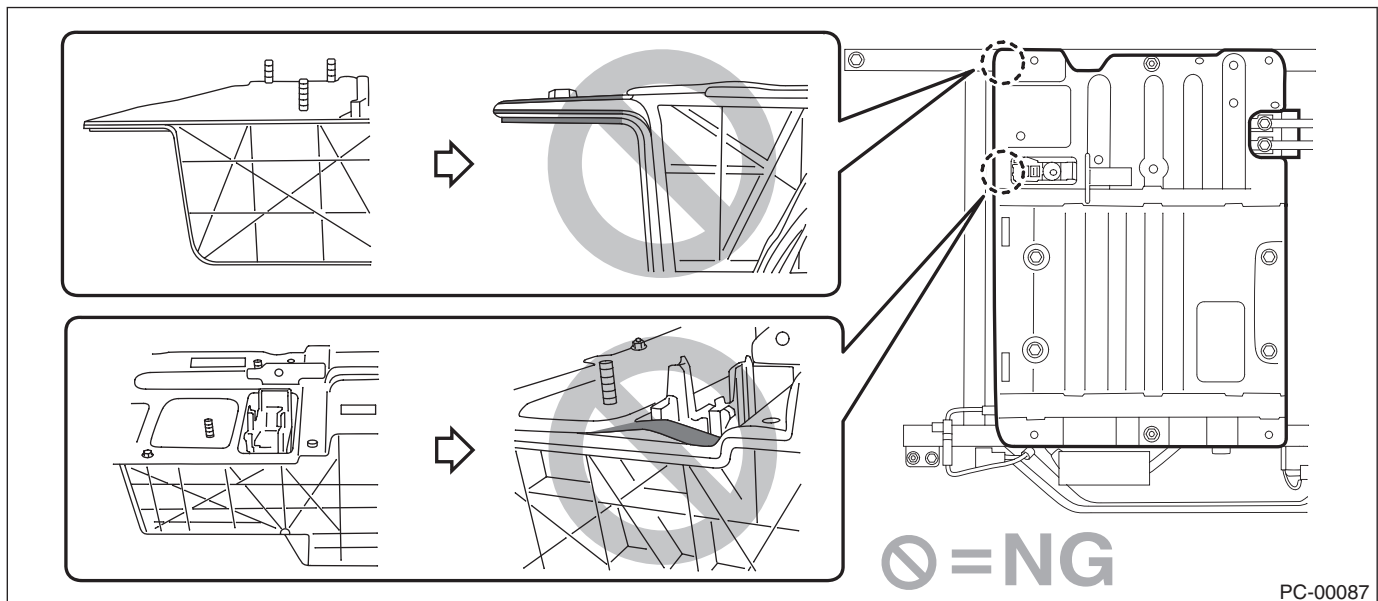
2. Wear insulated gloves and remove the service disconnect plug. <Ref. to PC-10, SERVICE DISCONNECT PLUG REMOVAL, CAUTION (HYBRID SYSTEM), Precaution.>

7. PRECAUTION FOR HIGH VOLTAGE BATTERY

Through the route specified by the manufacturer, make sure to collect the high voltage batteries that are no longer needed due to replacement or other reasons.

CAUTION:

- When high voltage batteries are dumped or left without proper measures, electric shock accidents may occur. Be sure to collect the high voltage batteries through the route specified by the manufacturer.
- Do not leave the removed high voltage batteries in a place where water may splash, because generated heat may cause fire.
- When the collision is severe, high impact is applied to the high voltage battery, possibly causing damage inside the high voltage battery. Therefore, visually check the exterior of high voltage battery, and replace with a new one if deformation or such evidence is found at the following locations.



NOTE

NT



	Page
1. Note	2



1. Note

A: BASIC REPAIR HINT

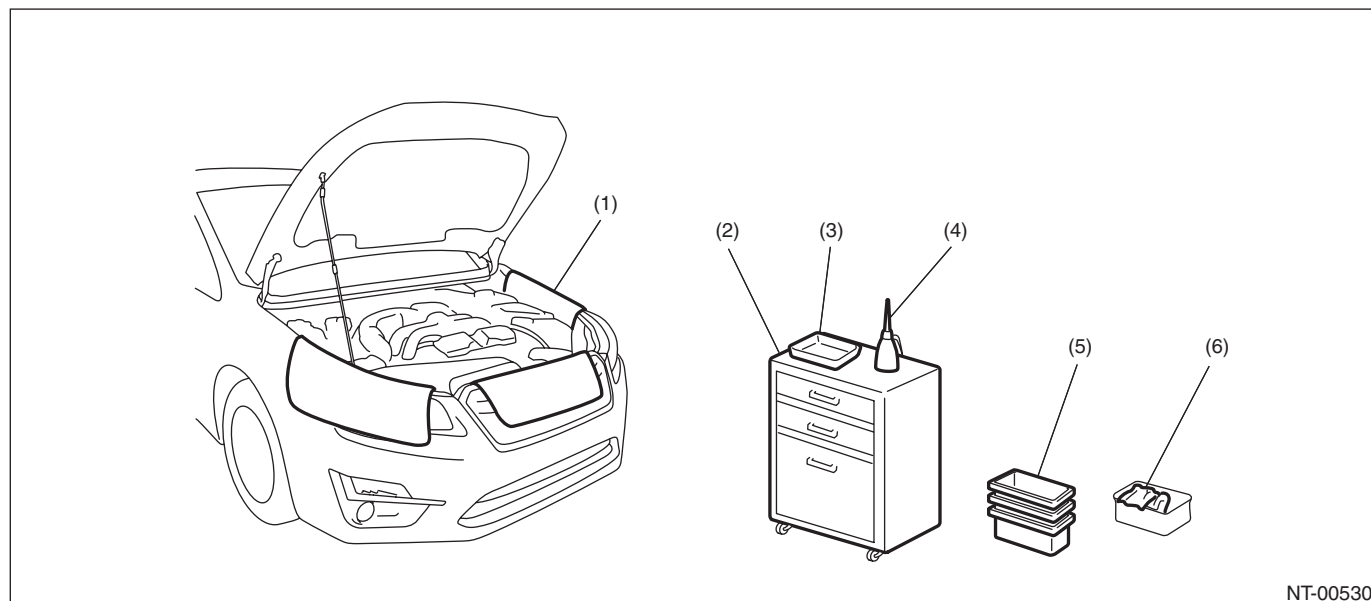
This section describes basic points that the service operator must understand before performing the service operation.

1. APPEARANCE

- Always wear clean work clothing.
- Wear a cap and protective shoes.

2. PROTECTION OF VEHICLE UNDER MAINTENANCE AND PREPARATION OF TOOLS/ EQUIPMENT

- Before work, cover the vehicle body. (Ex. grille cover, fender cover, seat cover and floor mat cover)
- Before performing the service operation, prepare tools, equipment, container box, grease and cloth etc.



NT-00530

- (1) Fender cover
- (2) Tools/equipment case

- (3) Tray
- (4) Oil

- (5) Container box
- (6) Cloth

3. SAFETY

- Before work, set the wheel stoppers to secure the vehicle.
- When performing work by multiple workers, call to each other to make sure that service operation is performed safely.
- Ventilate the room when starting the engine.
- When performing the service operation of high-temperature parts like muffler, or rotating parts like fan and other movable parts, be careful not to get burned or injured.
- For the jack-up and lift up, set the tool to the proper location to support the vehicle correctly. And use the safety device properly when lifting up.
- When touching the power cables, wear insulation protectors.

4. SERVICE OPERATION

- By identifying the vehicle problems thoroughly before work, service operation will be performed effectively.
- Before removing parts, confirm the installation condition or the damage of the parts.
- To reinstall parts properly, leave a note of the condition before work as necessary.
- For a part which needs positioning, take appropriate action such as putting alignment marks.
- For a removed part, clean it as necessary and check for damage and defect before installation. If the part is damaged or defective, replace it with a new part.
- Removing or installing the components or the connectors with the ignition switch ON will electrically impair them.

5. REMOVED PART

- A removed part must be organized to avoid mixing up with similar parts. When same parts are used in multiple locations, such as pistons in engine, manage the parts by using labels with cylinder No. so that the parts are not installed to the wrong location.
- Always replace nonreusable parts such as gasket and O-ring with new parts.
- After work, have a customer confirm the replaced part.

6. WHEN REMOVING BATTERY

When removing battery, power supply is cut off and the information stored in the computer memory is volatilized. Therefore, setting information of some device is initialized to the factory default. The device and functions initialized by removing battery are as follows.

No.	Item	Job contents when connecting battery
1	Clock (MFD) (settings that the customer set)	Set the clock to the current time.
2	MFD (high grade type)	Set to the contents checked before disconnecting the battery.
3	Audio (settings that the customer set)	Set to the contents checked before disconnecting the battery.
4	Navigation system (settings that the customer set)	• Time setting is not necessary because the time information is received via GPS. • Set the sound and other settings (items that were set in the selection) to the contents checked before disconnecting the battery.
5	Temperature setting of fully automatic air conditioner (settings that the customer set)	Set to the contents checked before disconnecting the battery.
6	Power window system	Initialize automatic full open/close of driver's window (power window system). For the initialization procedure, refer to "GW" section. <Ref. to GW-10, OPERATION, Power Window System.>
7	Steering lock system (model with keyless access)	If the engine does not start, initialize the steering lock system. For the initialization procedure, refer to "KPS" section. <Ref. to KPS(diag)-142, ENGINE DOES NOT START, INSPECTION, Diagnostics with Phenomenon.>
8	EyeSight (model with EyeSight)	Set to the contents checked before disconnecting the battery.
9	Electronic throttle system	Turn the ignition switch to ON, wait for 10 seconds or more, and start the engine.
10	Engine control system	Let the engine run at idle until it fully warms up (the radiator fan turns 2 times or more) under no electrical load condition.
11	Past trouble history (memory code)	—
12	Brake stroke sensor learning value (HEV model)	Connect the Subaru Select Monitor and read the diagnostic trouble codes (DTC). If any diagnostic trouble code (DTC) is displayed, refer to "List of Diagnostic Trouble Code (DTC)" in "HYBRID ELECTRIC VEHICLE (DIAGNOSTICS)" section. <Ref. to HEV(diag)-74, List of Diagnostic Trouble Code (DTC).>
13	Active grille shutter system	Perform active test to close the shutter. For procedures, refer to EN(H4DO HEV)(diag). <Ref. to EN(H4DO HEV)(diag)-67, OPERATION, System Operation Check Mode.>

Note

NOTE

7. OTHER ADJUSTMENT OPERATIONS BEFORE DELIVERING THE VEHICLE TO CUSTOMER

Due to service and parts replacement convenience, perform the following operations before delivering the vehicle to the customer.

No.	Item	Check operation	Adjustment operation	Additional adjustment operations when replacing parts
1	Positions of devices - Steering - Room mirror - Door mirror - Seat - Air conditioner vent grille	Is the device set to the same position when the vehicle was received from the customer?	Adjust the device to the similar position when the vehicle was received from the customer.	When removing/installing each device - Meter, instrument panel, steering column, etc. - Room mirror, roof trim, sunroof assembly, etc. - Door mirror, door panel, etc. - Seat, floor carpet, parking brake lever, etc. - Vent grille, instrument panel, console box, etc.
2	Positions of switches - SI-Drive - Wiper, light (AUTO or OFF) - Headlight beam leveler - Illumination control - Room light - Seat heater, etc.	Is the switch set to the same position when the vehicle was received from the customer?	Set the switch to the same position when the vehicle was received from the customer.	When removing/installing each switch
3	Position of antenna	Is the antenna set to the same position when the vehicle was received from the customer?	Adjust the position of antenna.	When removing/installing the antenna and washing the vehicle

B: NOTE

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

1. CLEANING

- Perform the operation in a clean location and use extra caution in dust proofing.
- Clean the items (except for assembly components) with steam, etc. before disassembly. During steam cleaning, wrap the air breather, oil level gauge, connectors, etc. with vinyl tape to prevent steam from entering inside the parts.
- Use an appropriate cleaning solvent.
- Do not clean rubber parts such as O-ring, gasket and oil seal with cleaning solution.

2. FASTENERS NOTICE

Tighten the bolts and nuts to the specified torque.

Do not apply paint, lubricant, rust retardant or other substance to the surface around bolts, nuts, etc. It may cause troubles with tightening to the specified torque and result in looseness and other problems of bolts and nuts.

3. ABOUT SCREWS

Use an appropriate sized tool. Insert a screw vertically into the hole. Check for any loose screws after installation.

If improper tools are used or screws are inserted obliquely to the hole, the screws cannot be installed correctly, which may result in insufficient tightening force or damage on the hole.

4. STATIC ELECTRICITY DAMAGE

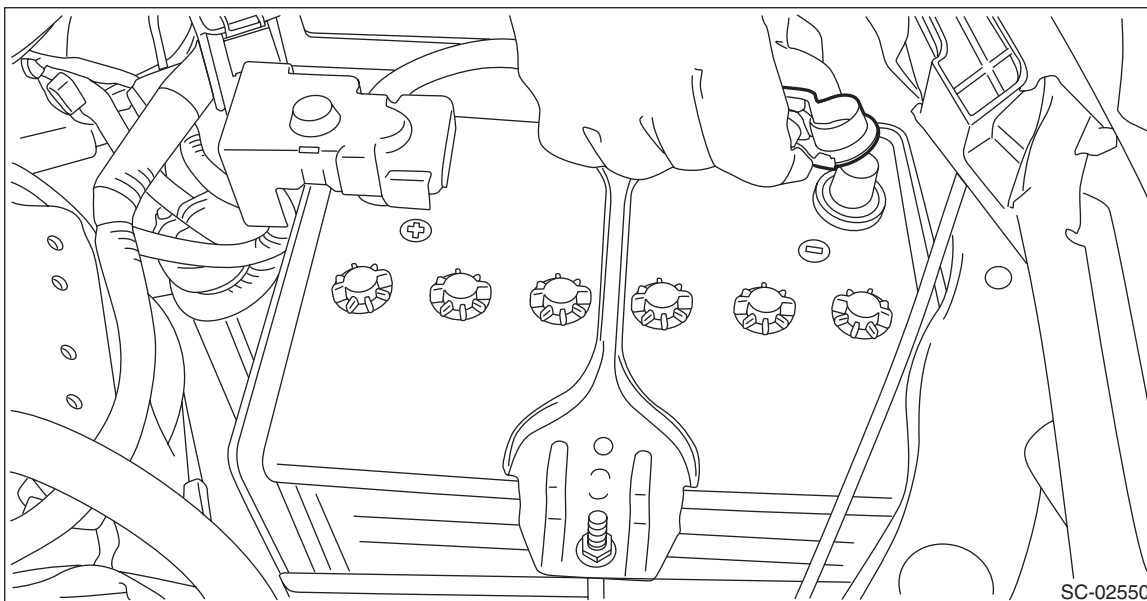
Do not touch the control modules, connectors, logic boards and other such parts when there is a risk of static electricity. Always use a static electricity prevention cord or touch grounded metal for the elimination of static electricity before conducting work.

5. BATTERY

When removing the battery terminal, always be sure to turn the ignition switch to OFF and disconnect the battery ground terminal first.

1. Gasoline engine model

- Disconnect the ground cable from battery.



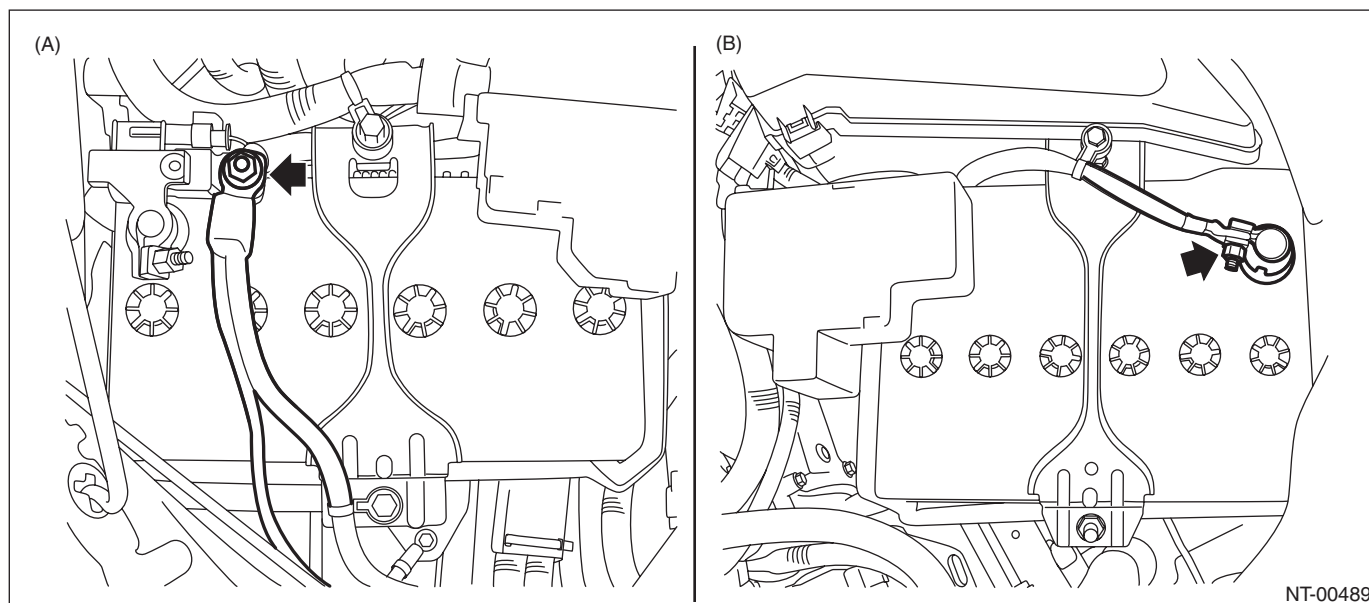
- Install in the reverse order of removal.

NOTE:

- Clean the battery cable terminals and apply grease to retard the formation of corrosion.
- Connect the positive (+) terminal, and then connect the negative (-) terminal of the battery.
- After the battery is installed, initial diagnosis of the electronic throttle control is performed. Wait for 10 seconds or more after turning the ignition switch to ON, and then start the engine.

2. HEV model

- After disconnecting the negative terminal from 12 volt auxiliary battery, disconnect the ground terminal from 12V engine restart battery sensor for 12 volt engine restart battery.



(A) 12 volt engine restart battery

(B) 12 volt auxiliary battery

Note

NOTE

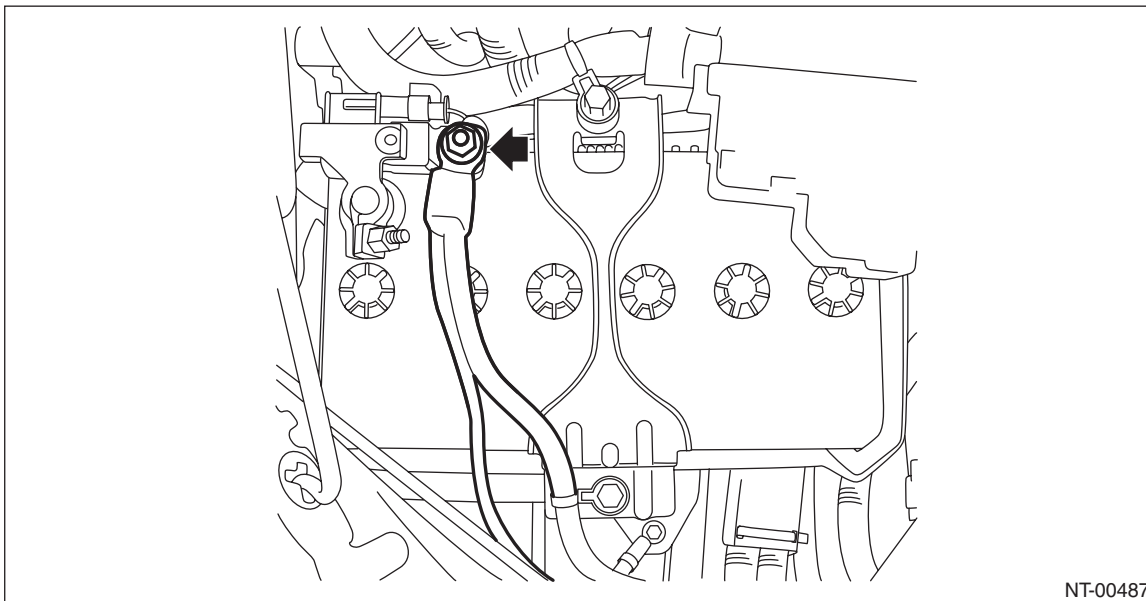
- Install in the reverse order of removal.

NOTE:

- Install the 12V engine restart battery sensor while holding it with your hand to prevent the sensor from turning.
 - Clean the battery cable terminals and apply grease to retard the formation of corrosion.
 - Connect the positive (+) terminal, and then connect the negative (–) terminal of the battery.
 - After connecting the battery ground terminal, the following operations are automatically performed in the vehicle.
 - Initial diagnosis of electronic throttle control
 - Learning control of brake pedal stroke sensor
- Therefore, before starting the engine, be sure to place the select lever in “P” position, turn the ignition switch to ON, and wait at least 10 seconds without depressing the brake pedal.
- Initialization operation of active grille shutter
- Do not place your hand, cloth, tools or other items nearby, because the active grille shutter opens approximately four seconds after the battery installation.

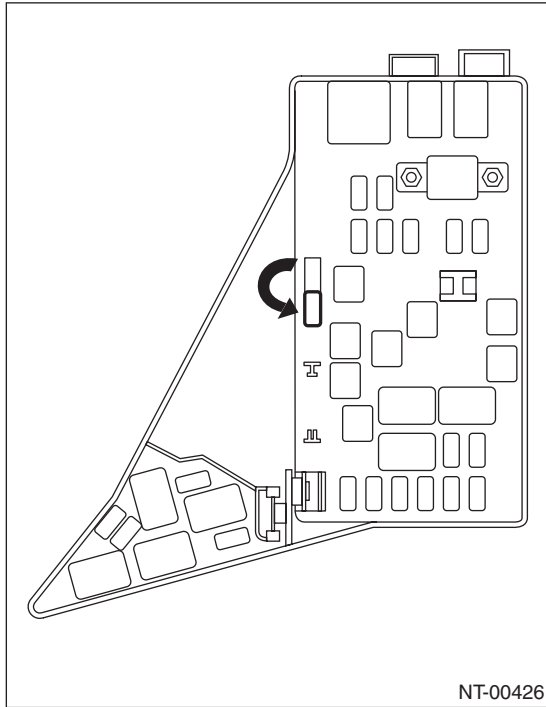
Tightening torque:

7.5 N·m (0.8 kgf-m, 5.5 ft-lb)



6. BACKUP/POWER SUPPLY FUSE

Backup fuse (20A) remains removed to prevent the battery consumption when vehicles are delivered. Install the backup fuse by following the illustration.



7. IMMOBILIZER RELATED PART

- Do not replace the immobilizer related parts with the parts from other vehicle.
- Registration of the immobilizer is necessary when a immobilizer-related control module has been replaced. For detailed operation procedure, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".

8. 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.

9. PROTECTING VEHICLE UNDER MAINTENANCE

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

10. ENSURING SECURITY DURING WORK

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

11. LIFT AND JACK

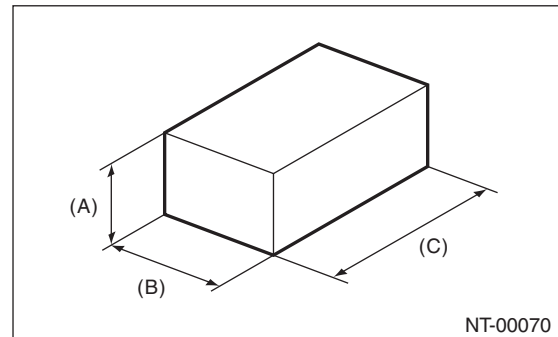
When using a lift or shop jack to raise a vehicle or using rigid rack to support a vehicle, always follow instructions concerning jack-up points and weight limits to prevent the vehicle from falling, which could result in injury. Be especially careful that the vehicle is balanced before raising it. Be sure to set the wheel stoppers when jacking-up only the front or rear side of the vehicle.

CAUTION:

Select the lift attachment so that the side sill does not contact the lift arm.

NOTE:

- When using a lift, follow its operation manual.
- When the side sill cover contacts the lift arm, use a lift attachment.
- Do not work or leave unattended while the vehicle is supported with jack, support it with rigid racks.
- Be sure to use the rigid racks with rubber attached to cradle to support the vehicle.
- When using a lift, use an attachment or something similar.
- When using a plate lift, use a rubber attachment. Place the attachment to the specified position of the vehicle, by adjusting front/rear and left/right sides accordingly.



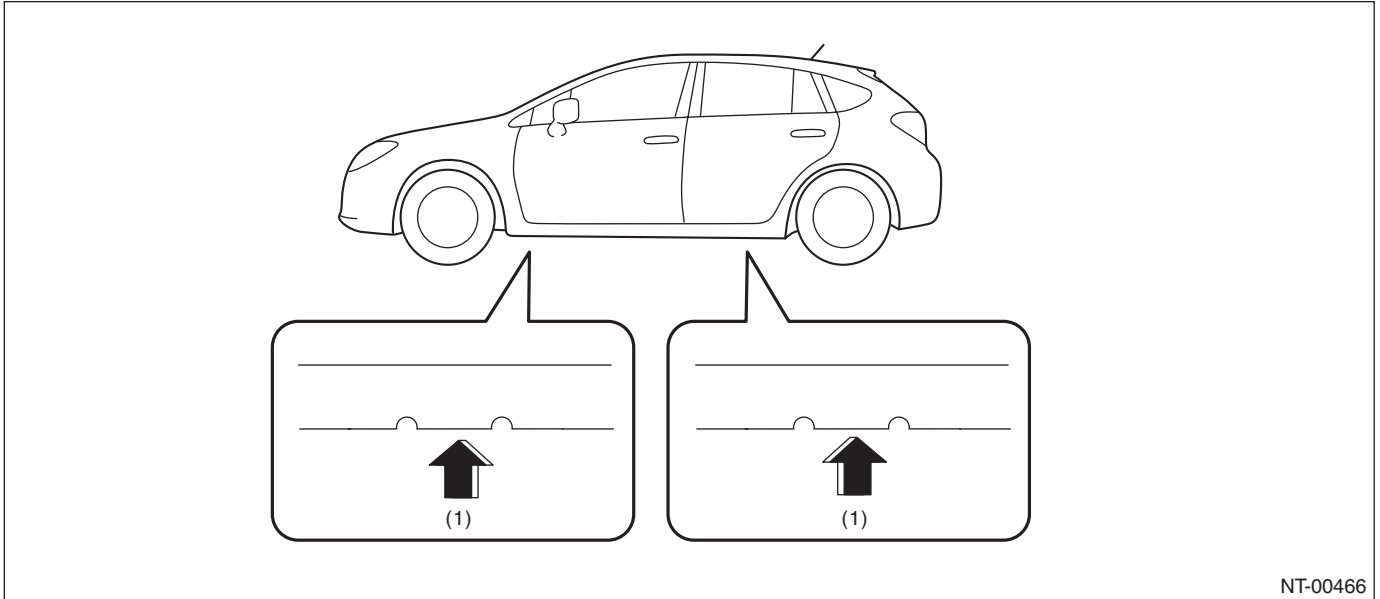
- (A) 80 mm (3.1 in) or more
- (B) 80 — 100 mm (3.15 — 3.94 in)
- (C) 120 — 200 mm (4.72 — 7.87 in)

- Align the cushion rubber center part of plate lift with the center part of rubber attachment.
- Do not use the plate lift whose attachment does not reach the supporting locations.

Note

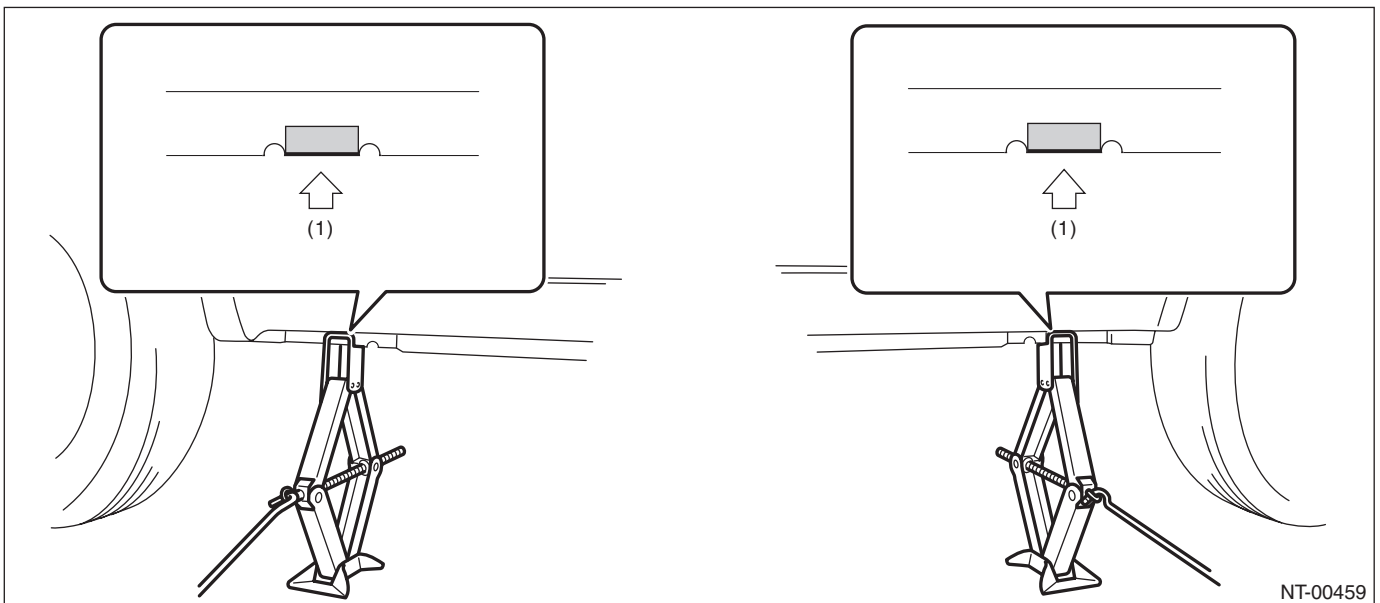
NOTE

- **Support locations**



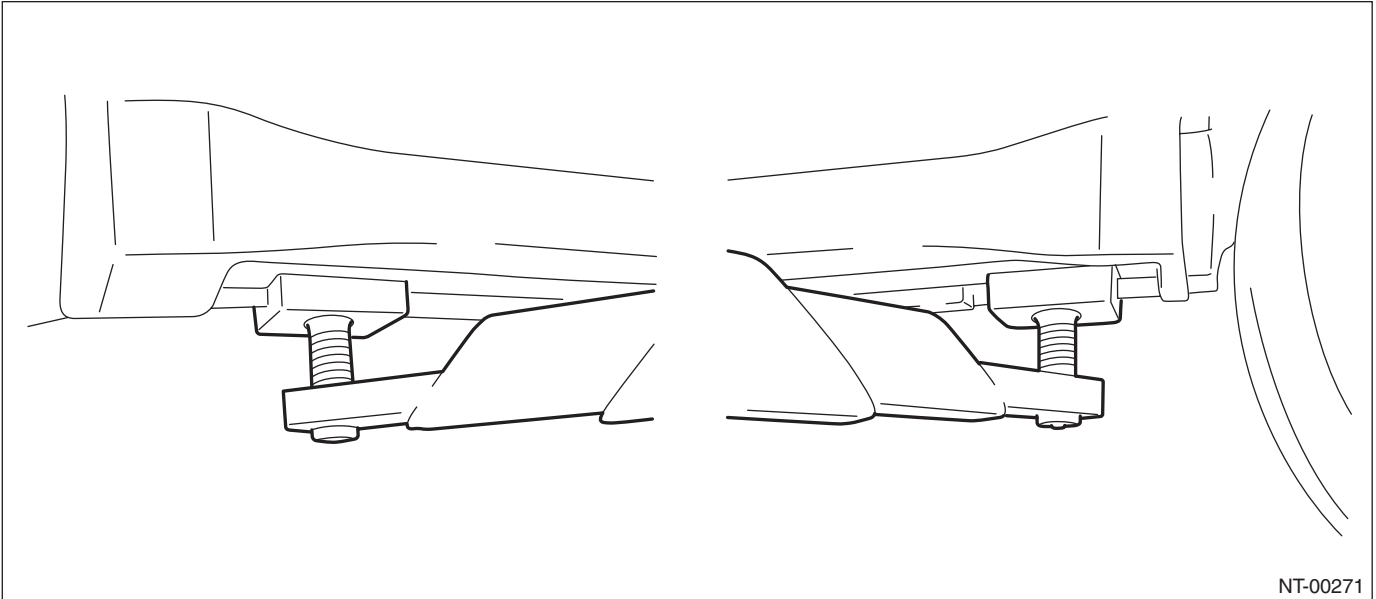
(1) Jack-up point

- **Pantograph jack**



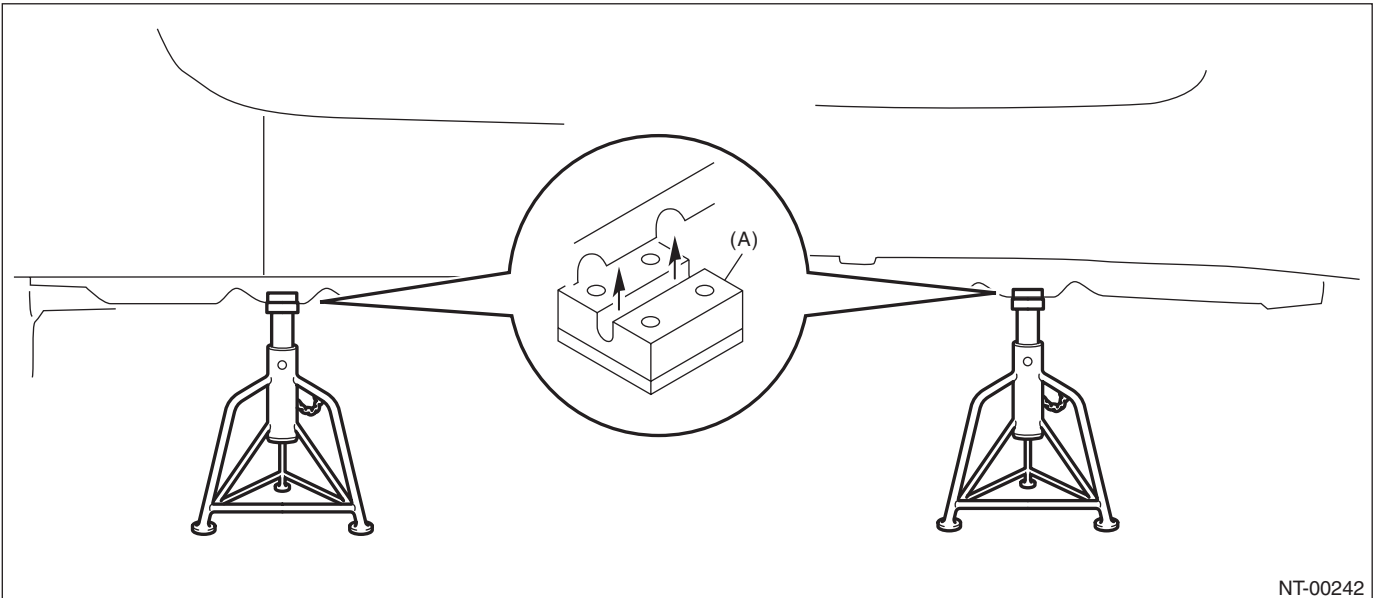
(1) Jack-up point

- Lift

**CAUTION:**

For models with side garnish, use a spacer or an attachment to lift up the vehicle securely at jack up point without the side garnish contacting the lift.

- Rigid rack

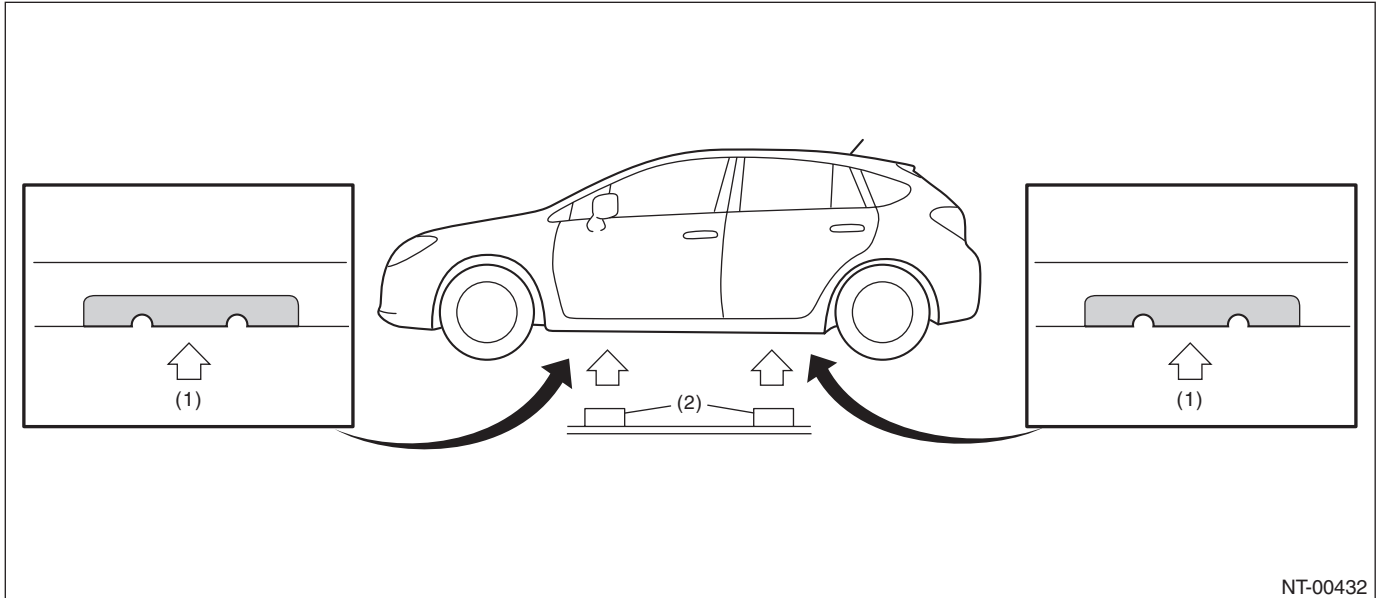


(A) Attachment

Note

NOTE

• Plate lift

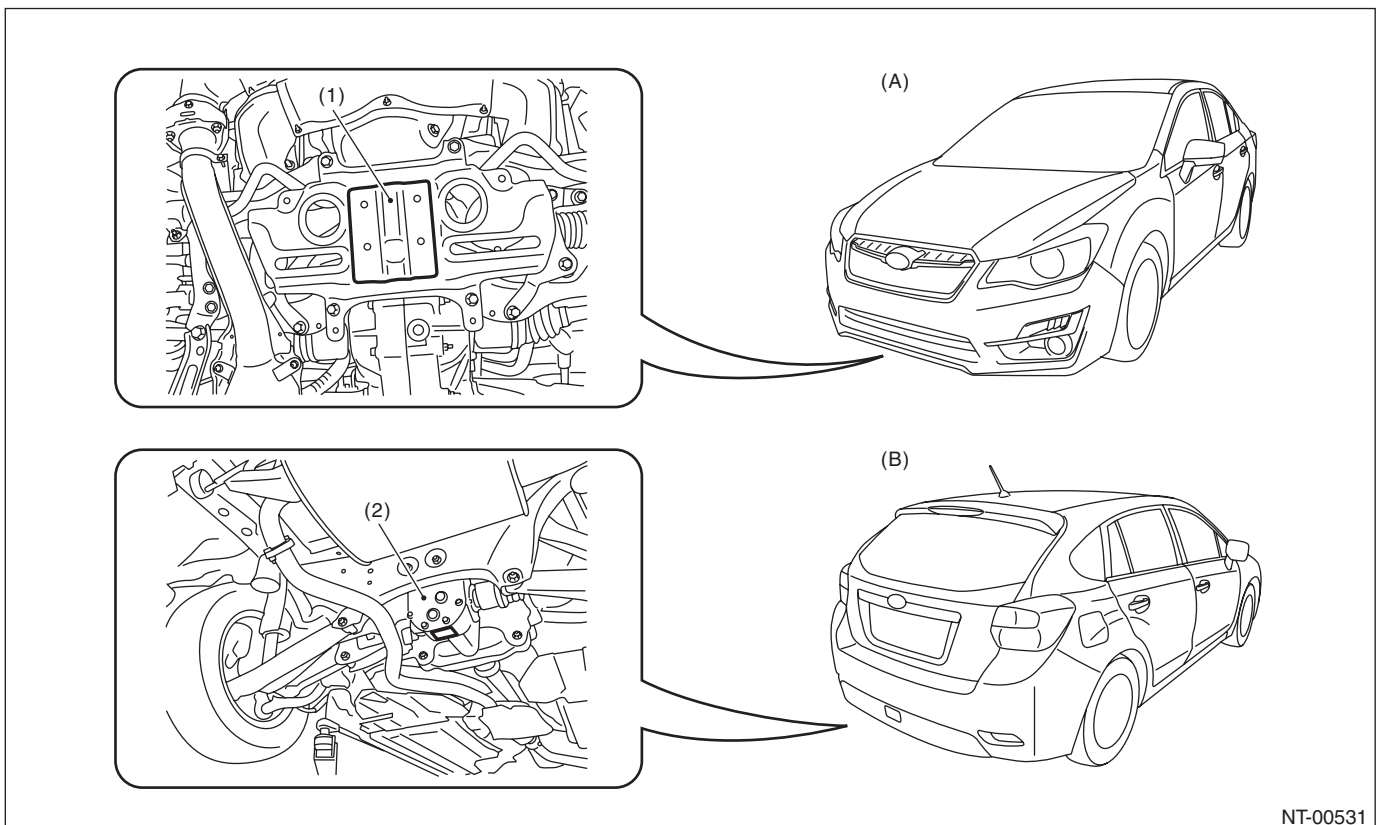


NT-00432

(1) Jack-up point

(2) Attachment

• Jack-up point (when using a garage jack)



NT-00531

(A) Front

(B) Rear

(1) Front crossmember

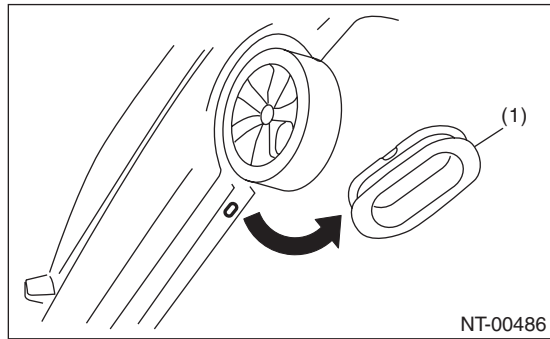
(2) Rear differential

CAUTION:

If jacking up the front side of the vehicle, make sure that the jack is attached at the center of the jack-up plate not at the sides.

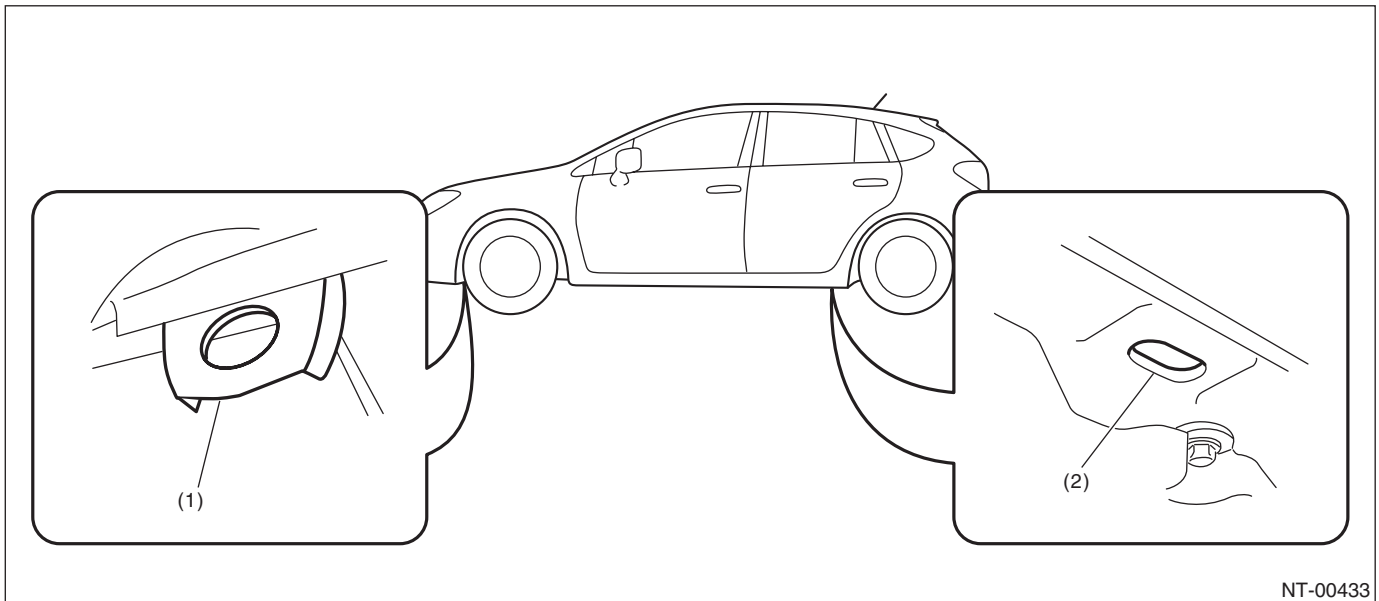
12.TIE-DOWNS

Tie-downs are used when transporting vehicles and when using the chassis dynamo. Remove the grommet of the tie-down hole and install the tie-down only to the specified locations on the vehicle.



(1) Grommet

• Tie-down location



(1) Hook for tie-down

(2) Tie-down hole

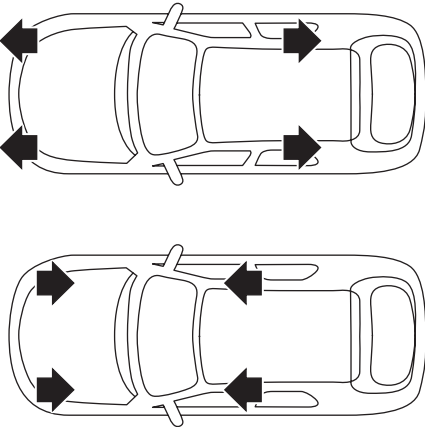
Note

NOTE

- Chain direction at tie-down condition

CAUTION:

- Pull the front and rear of the vehicle in the opposite direction, and pull the left and right of the vehicle in the same direction.
- Patterns except for the followings (recommended) are not allowed.

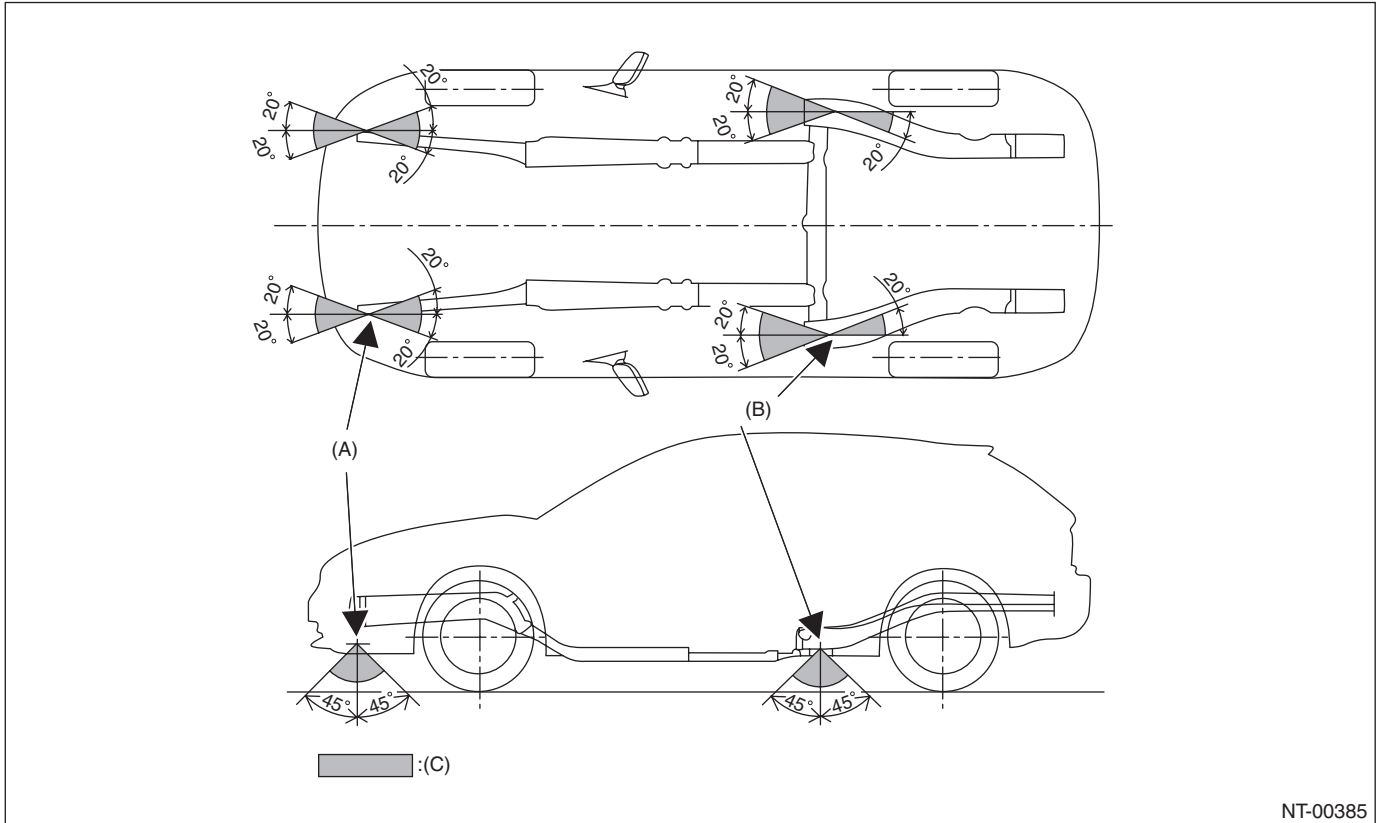
	Recommended
Tie-down direction	 NT-00214

• Tie-down range

For ground transportation

CAUTION:

When the vehicle is tied down from vehicle inside, hook the hooks of tie-down chain on the rear tie-down holes from vehicle inside. When the vehicle is tied down from vehicle outside, hook the hooks of tie-down chain on the rear tie-down hooks from vehicle outside.



NT-00385

(A) Front tie-down hook

(B) Rear tie-down hole

(C) Chain pulling range at tie-down condition

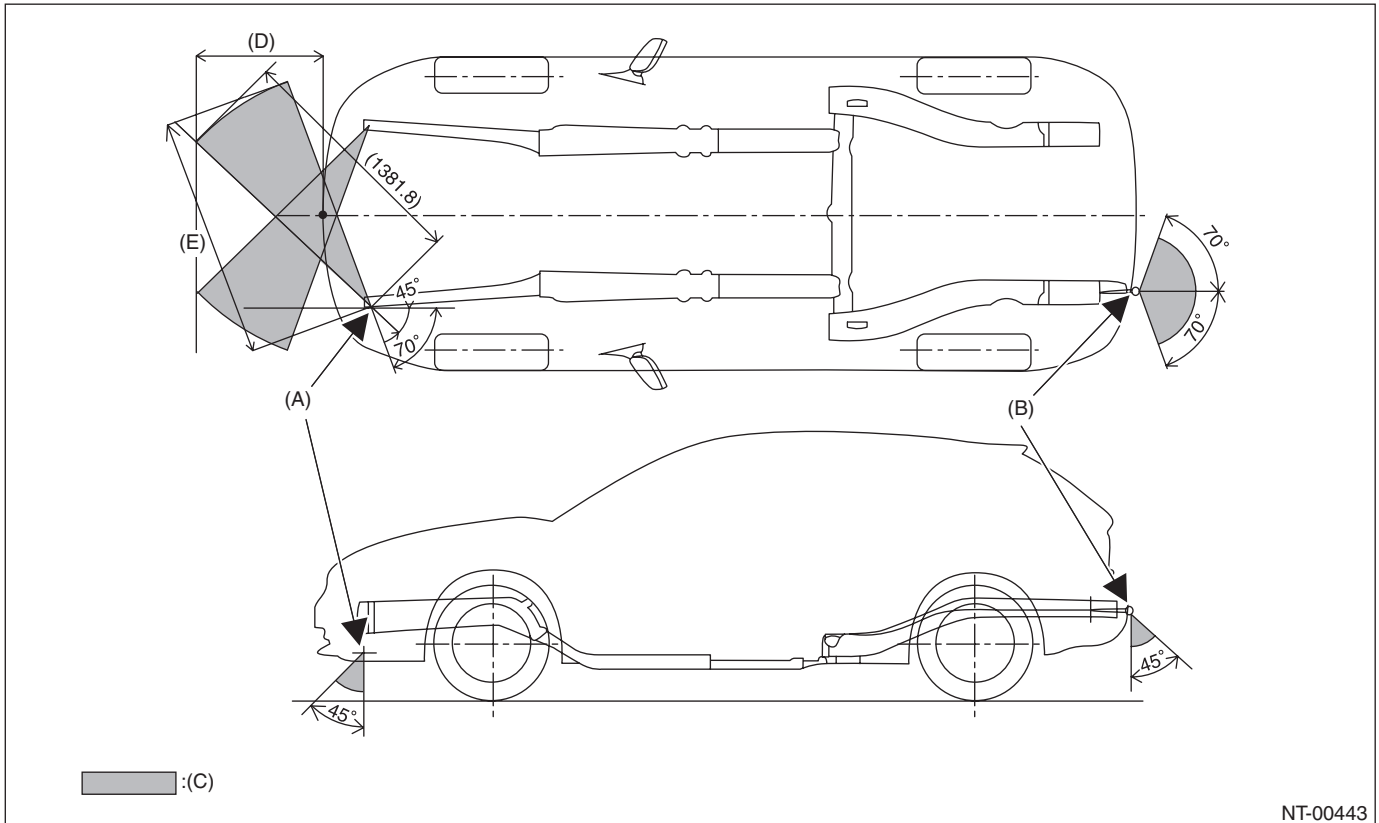
Note

NOTE

For sea transportation

CAUTION:

The eyebolts are exclusively used for towing and sea transportation tie-down, and do not use them for ground and freight transportation.



NT-00443

- | | | |
|-------------------------|---|------------------------|
| (A) Front tie-down hook | (C) Chain pulling range at tie-down condition | (E) 1,320 mm (52.0 in) |
| (B) Eyebolt | (D) 400 mm (15.7 in) | |

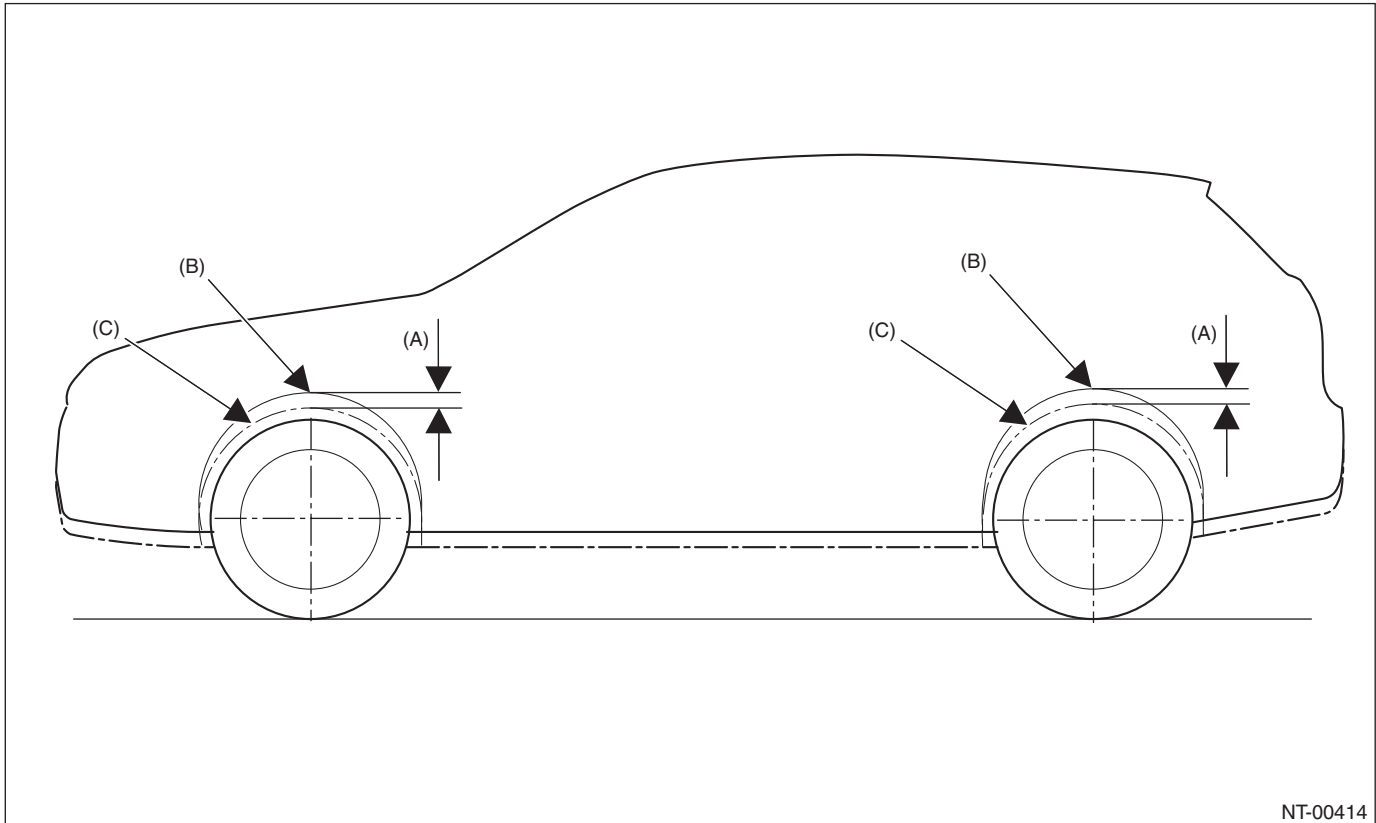
• Vehicle sinking volume at tie-down condition

CAUTION:

The vehicle sinking volume at tie-down condition should be less than 50 mm (1.97 in) and make sure to fix the vehicle securely.

Check to see if the tensions of chains or belts at tie-down condition are appropriate in the following procedures.

- 1) Before tie-down, measure the distance between the highest tire point and highest arch point at the center of wheel.
- 2) After tie-down, measure the distance between the highest tire point and highest arch point at the center of wheel.
- 3) If the distance (A) between the measured value of 1) and 2) above, is less than 50 mm (1.97 in), it is judged as OK. If the distance is 50 mm (1.97 in) or more, it is judged as NG because the tension is too high.



(B) Arch position before tie-down

(C) Arch position after tie-down

• Notes for the use of tie-down hook

When the vehicle is tied down from vehicle inside, hook the hooks of tie-down chain from vehicle inside, and when the vehicle is tied down from vehicle outside, hook the hooks of tie-down chain from vehicle outside. For front tie-down hook, use S hook and J hook, and for rear tie-down hole, use S hook, J hook and T hook. T hook can be used only for rear tie-down hole.

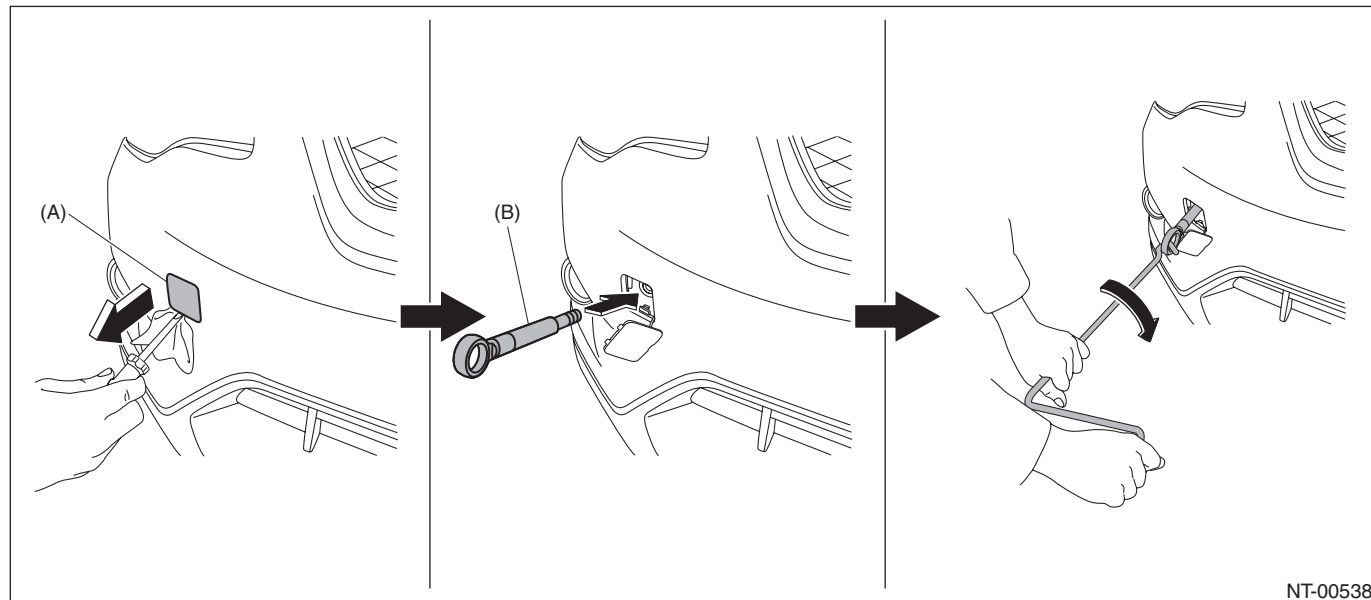
13.TOWING

Avoid towing vehicles except when the vehicle cannot be driven. For models with AWD, CVT or VTD, 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.
- When towing the vehicle equipped with Subaru EyeSight, be sure to hold down the pre-collision brake OFF switch to turn OFF the pre-collision brake function. (Check that the pre-collision brake OFF indicator light in the meter lights up.)

- Front

Remove the hook cover, and install the towing hook (eyebolt).

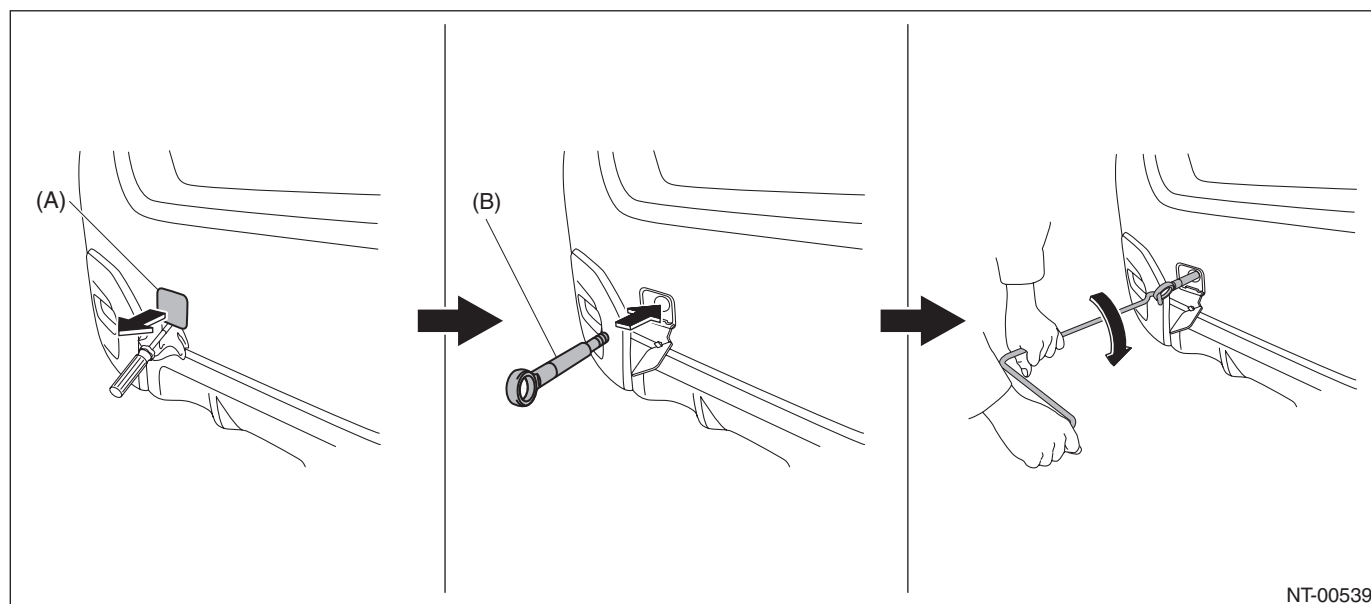


(A) Hook cover

(B) Towing hook (eyebolt)

- Rear

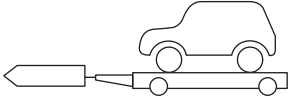
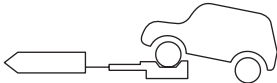
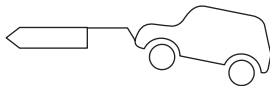
Remove the hook cover, and install the towing hook (eyebolt).



(A) Hook cover

(B) Towing hook (eyebolt)

• Precautions

Towing	Precautions	MT	CVT
Lifting up four wheels (on a trailer)  NT-00023	Towing the vehicle after lifting up all four wheels is a basic rule for AWD model.	○	○
Rope  NT-00024	• Check if both front and rear wheels are rotated normally. • CVT model driving conditions: Driving speed of 30 km/h (19 MPH) or less Allow driving distance 50 km (31 miles) or less	○	▲
Raising the front wheels  NT-00025	Prohibited for full-time AWD model.	×	×
Lifting up the front wheels  NT-00026	• Prohibited, due to damage on bumper, front grille, etc. • Do not raise the vehicle with bumper.	×	×

Marked ○ : OK, Marked × : Prohibited, Marked ▲ : Conditionally OK

CAUTION:

- Place the shift lever in “N” position during towing.
- Do not lift up the rear wheels to avoid unsteady rotation.
- Turn the ignition key to “ACC”, then check the steering wheel moves freely. (Models without the keyless access with push button start system)
- Turn the ignition switch to “ACC” or “ON” position, and check that the steering wheel moves freely. (Models equipped with the keyless access with push button start system)
- Release the parking brake to avoid tire dragging.
- Since the power steering does not work, be careful for the heavy steering effort. (When engine is stopped)
- Since the servo brake does not work, be careful that the brake is not applied effectively. (When engine is stopped)
- In case of the malfunction of internal transmission or drive system, lift up four wheels (on a trailer) for towing.
- Do not use towing hook (eyebolt) except when towing.
- Make sure to detach the towing hook (eyebolt) after towing. If the hook remains attached, airbag may not operate properly when receiving a shock from front side. And it may also affect the crash performance of the vehicle.
- While being towed with all four wheels on the ground, turn the engine switch to ON but do not start the engine.
- If the ignition switch is ON while being towed with a rope, the pedestrian alert system may sound. (This is not a malfunction.)
- Do not activate the hybrid system.

14.CARRIER CAR

Before lowering the vehicle from the carrier car, perform the following operations.

CAUTION:

Always perform the following operations before lowering the vehicle from the carrier car. Otherwise, the power unit will rotate reversely, which may cause the damage to the engine, vacuum pump, and transmission.

- 1) Start the engine.
- 2) Set the transmission shift position into driving direction of the vehicle. (When the vehicle drives forward, do not set the transmission into R range. When the vehicle drives rearward, do not set the transmission into 1 — 5 speed, or D range.)

CAUTION:

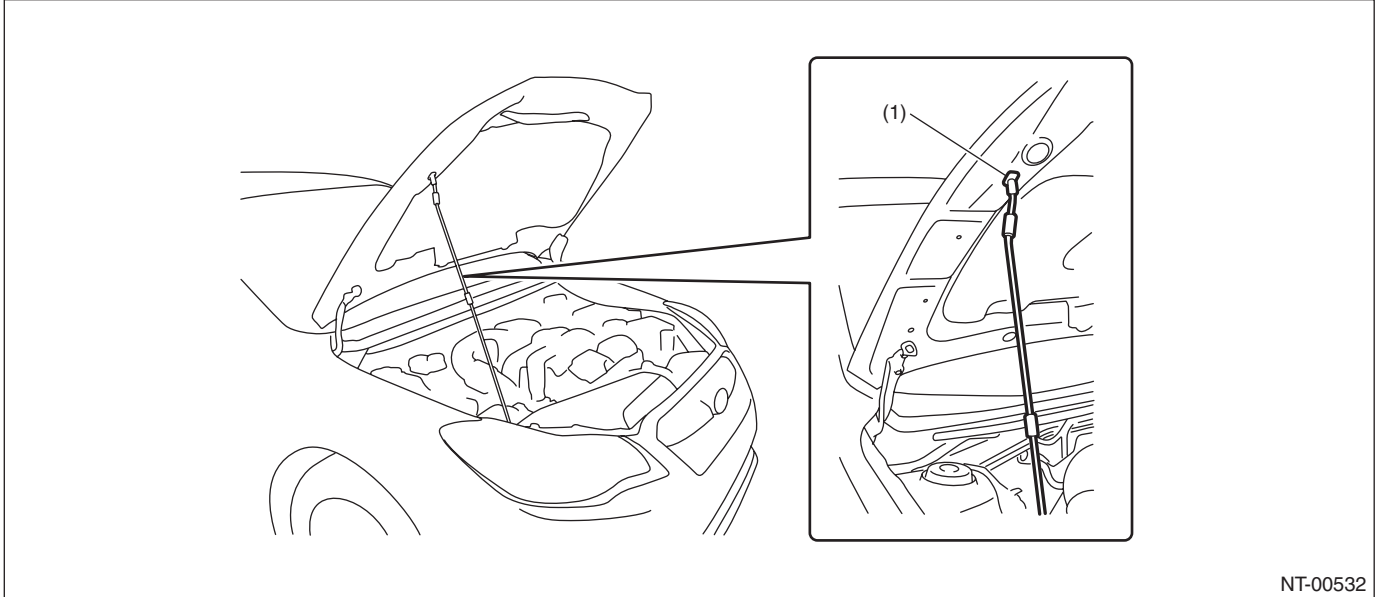
Be sure to perform 2) mentioned above even if the engine cannot be started in some reasons.

15.FRONT HOOD STAY

1) Always attach the stay to the normal position when performing works such as inspections and general maintenance.

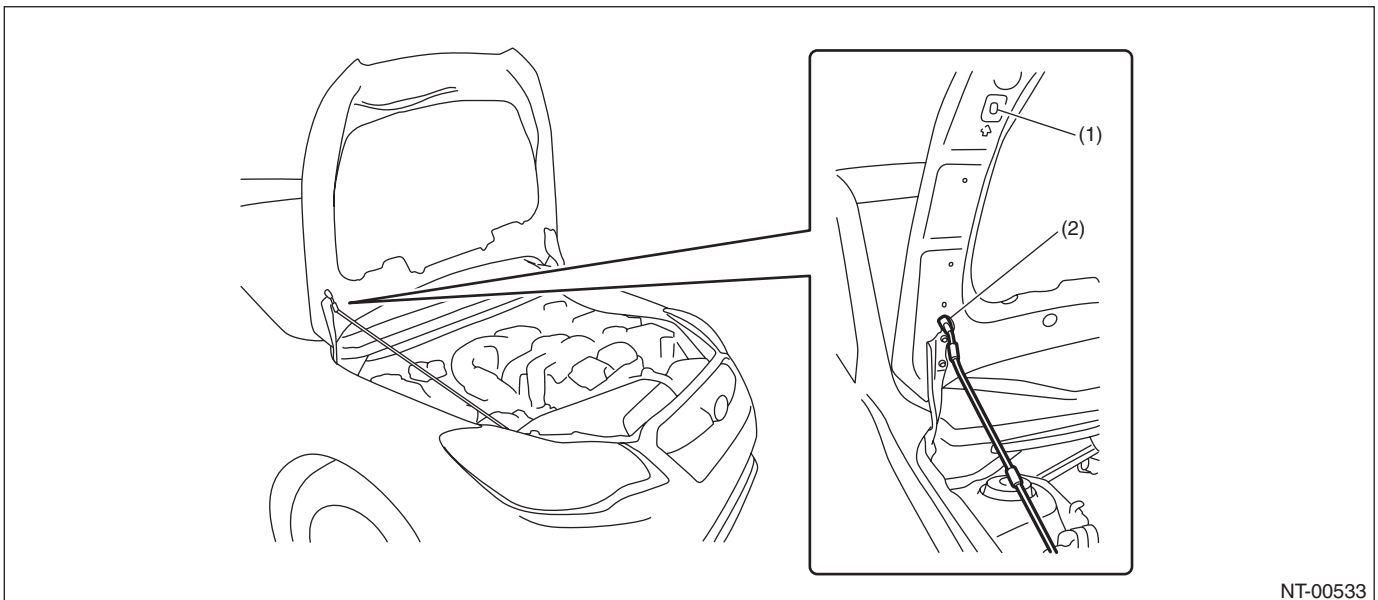
CAUTION:

- During the inspection and general maintenance, always be sure to turn the ignition switch to OFF.
- At the inspection and general maintenance, do not detach the stay.



(1) Normal attached position

2) When wider front hood opening is necessary, set the stay to the lower position (hood hinge) as shown in the figure.



(1) Normal attached position

(2) Installation position at full open

NOTE

16.GENERAL SCAN TOOL

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

17.AWD CIRCUIT MEASURES

1) Full-time AWD MT model

Since viscous coupling (limited slip differential) is used in the center differential, cut-off of AWD circuit cannot be carried out.

2) Full-time AWD CVT model

Since electronically controlled MP-T hydraulic multi-plate clutch is adapted for center differential, switch to FWD by using Subaru Select Monitor.

18.SPEEDOMETER TEST

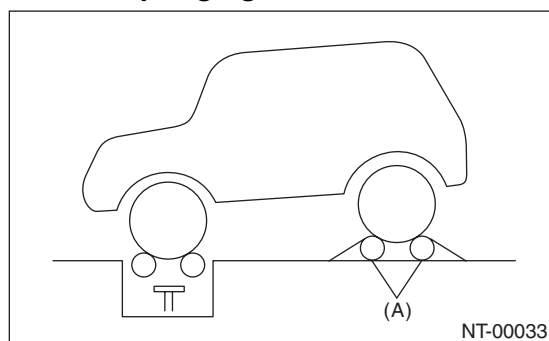
1) Rear wheel free roller system

(1) Set the free roller on the floor of rear wheel side securely according to the wheel base and rear tread of the vehicle.

(2) Let the vehicle ride on the tester and free roller gently.

CAUTION:

Fix the vehicle using a pulling metal (chain or wire) to the front and rear towing hooks or tie-down hook to prevent the lateral runout of front wheels and springing out of vehicle.



(A) Free roller

(3) Set the speedometer tester.

(4) Conduct the speedometer test work.

CAUTION:

Do not operate the clutch quickly and do not accelerate or decelerate suddenly during work.

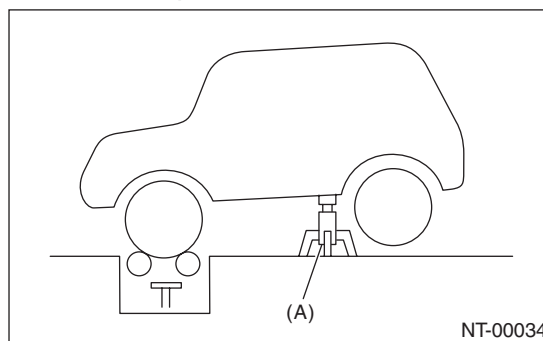
2) Rear wheel jack-up system

(1) Set the vehicle on speedometer tester.

CAUTION:

Fix the vehicle using a pulling metal (chain or wire) to the front and rear towing hooks or tie-down hook to prevent the lateral runout of front wheels and springing out of vehicle.

(2) Jack up the rear wheels and set the rigid racks to the specified locations of side sill.



(A) Rigid rack

(3) Conduct the speedometer test work.

CAUTION:

Do not operate the clutch quickly and do not accelerate or decelerate suddenly during work.

19.BRAKE TEST

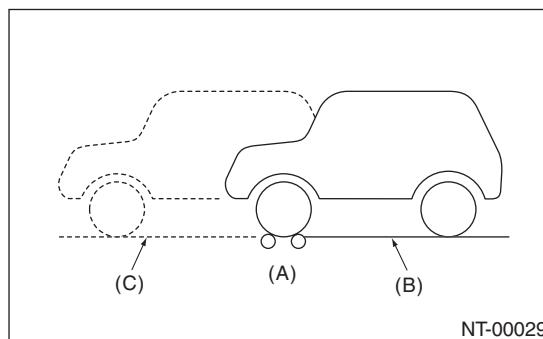
1) Full-time AWD MT model

(1) Perform this test after driving the vehicle 2 to 3 km (1.24 to 1.86 miles) on road in order to stabilize the viscous torque of viscous coupling.

(2) Keep the front or rear wheels on the ground for this test.

NOTE:

Effect of the viscous torque on braking force will be added approx. 25 kg compared with FWD model.



(A) Brake tester

(B) Position for measuring front wheel

(C) Position for measuring rear wheel

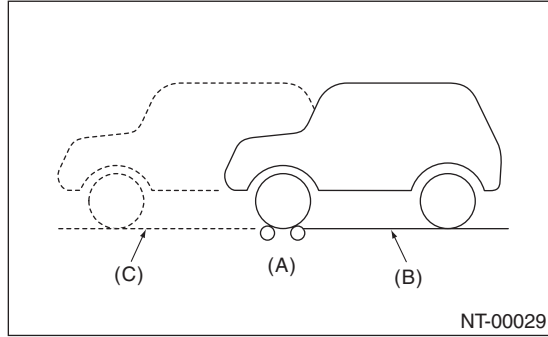
(3) When the brake dragging force is large.

- Check the dragging of brake pad or brake shoe.

- Since it may be affected by the viscosity of viscous coupling, jack up either of the front or rear two wheels to check the each wheel rotation condition with the viscous coupling affection removed.

2) Full-time AWD CVT model

- (1) Keep the front or rear wheels on the ground during measurement.



- (A) Brake tester
(B) Position for measuring front wheel
(C) Position for measuring rear wheel

- (2) When the brake dragging force is large.

- Check the dragging of brake pad or brake shoe.

Specifications:

	Braking force
Rear wheel total	10% or more of load on front or rear wheels
Difference between right and left wheels	8% or less of load on front or rear wheels
Grand total	50% or more of vehicle weight at the time of test

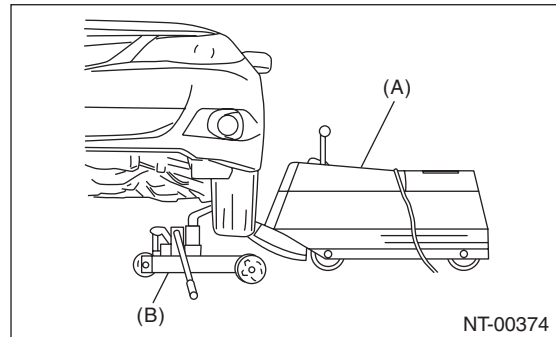
- When measurement is difficult to carry out because both of front wheels are locked, break force measurement in this condition conforms to standard grand total.

20.ON THE CAR WHEEL BALANCING

CAUTION:

- Carry out the procedures after measuring the balance of each single tire.
- Set the vehicle so that the front and rear wheels are the same height.
- Make sure that the VDC is deactivated.
- Release the parking brake during measurement.
- Rotate each wheel by hands, and make sure it rotates without dragging.
- Do not operate the clutch quickly and do not accelerate or decelerate suddenly during work.
- When an error is indicated during engine drive, do not use the motor drive together.

- 1) Set the rigid rack to the specified locations of side sill, jack up the front or rear two wheels of non-measuring side and set the pickup stands to two wheels of measuring side.



- (A) Balancer body
(B) Pickup stand (left and right)

- 2) For drive wheel, drive the tires with engine for measurement.

- 3) For non-drive wheel, drive the tires from the on the car wheel balancer for measurement.

NOTE

IDENTIFICATION

ID

	Page
1. Identification	2



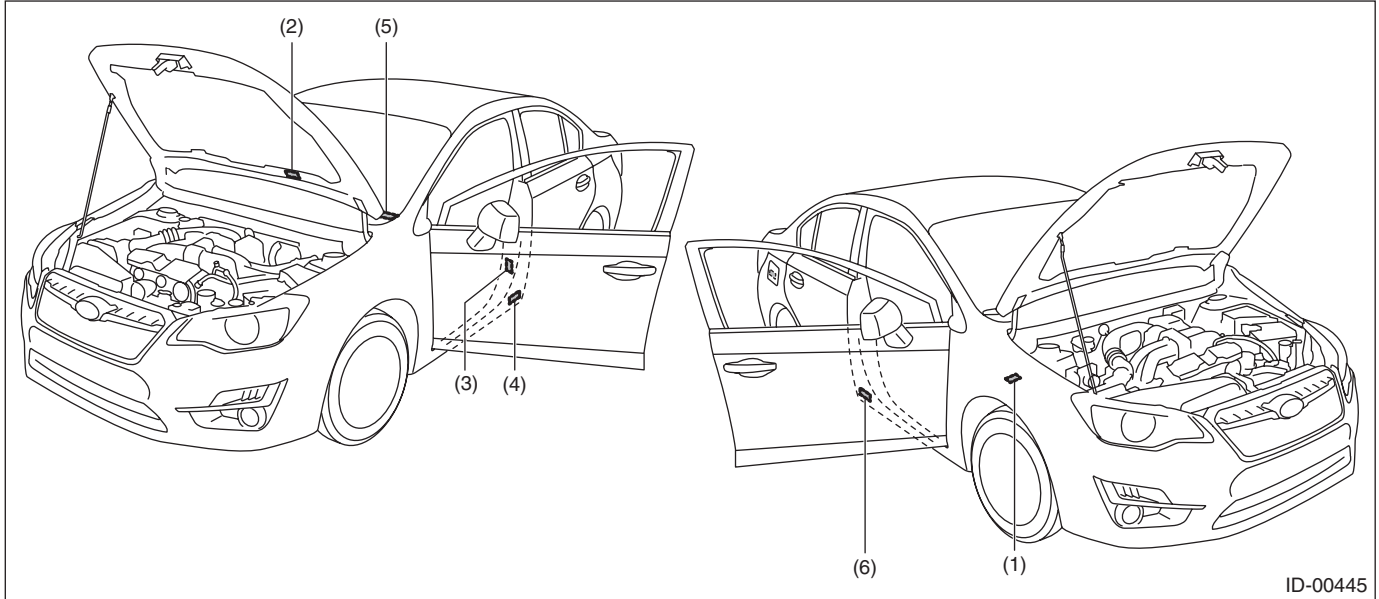
1. Identification

A: IDENTIFICATION

1. IDENTIFICATION NUMBER & LABEL LOCATIONS

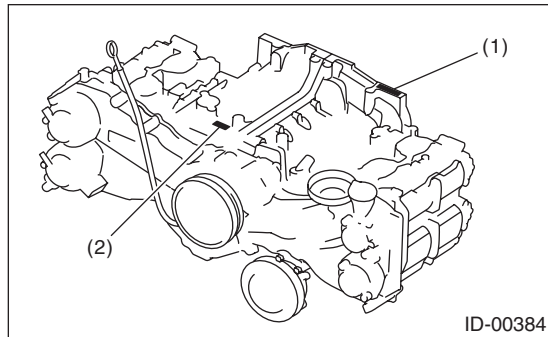
The V.I.N. (Vehicle Identification Numbers) is used to classify the vehicle.

- **Positioning of the label for identification**



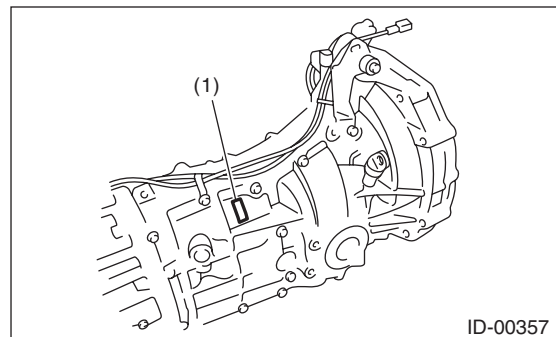
- (1) Vehicle identification number (V.I.N.) (below the driver's floor carpet)
- (2) Emission control label
- (3) Tire inflation pressure label
- (4) MVSS label
- (5) Vehicle identification number (V.I.N.) plate
- (6) Model number label

- **Engine**



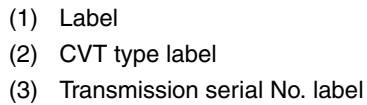
- (1) Engine serial number
- (2) Engine type (casting) cylinder block upper side

- **Manual transmission**
5MT

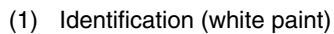


- (1) MT type and transmission serial number

CVT



T-type



VA1-type



- **MVSS label (XV model)**



Identification

IDENTIFICATION

2. MEANING OF V.I.N.

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

JF1GJAA6XFG002001

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

Digits	Code	Meaning	Details
1 — 3	JF1	Manufacturer body area	JF1: Passenger car, FHI made (except for XV model) JF2: Passenger car, FHI made (XV model)
4	G	Car line	G: IMPREZA, XV
5	J	Body type	J: 4 door P: 5 door
6	A	Displacement	A: 2.0 L non-turbo B: 2.0 L HEV
7	A	Grade	A: Base B: Prm C: Prm+AWP D: Prm+AWP+S/R E: Prm+AWP+S/R+NAVI F: Prm+AWP+EyeSight G: Prm+AWP+EyeSight+S/R H: Prm+AWP+EyeSight+NAVI J: Prm Plus+S/R K: Prm Plus+AWP+S/R L: Prm Plus+EyeSight+S/R M: Ltd N: Ltd+S/R P: Ltd+S/R+NAVI R: Sport-Ltd+S/R+NAVI S: Ltd+EyeSight+S/R+NAVI T: Sport U: Sport+S/R V: Sport-Ltd W: Sport-Ltd+S/R Y: Sport+EyeSight+S/R Z: Sport-Ltd+EyeSight+S/R+NAVI
8	6	Restraint	6: Manual belts, dual airbag, side airbag for seat back, curtain airbag for roof C: Manual belt, dual airbag, side airbag for seat back, curtain airbag for roof, class C (GVWR 4001 — 5000 lb) (XV model)
9	X	Check digit	0 — 9 & X
10	F	Model year	F: 2015MY
11	G	Transmission type	G: Full-time AWD single range 5 speed MT (Yajima plant, Gunma) H: Full-time AWD CVT (Yajima plant, Gunma) 8: Full-time AWD CVT (main plant, Gunma) 9: Full-time AWD single range 5 speed MT (main plant, Gunma)
12 — 17	002001	Serial number	002001 — 199999: 4 door 200001 — 399999: 5 door

3. MODEL NUMBER LABEL

The model number label 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.

GJ7DY4C

Digits	Code	Meaning	Details
1	G	Series	G: IMPREZA, XV
2	J	Body type	J: 4 door P: 5 door
3	7	Total engine displacement Drive system	7: 2.0 L AWD E: 2.0L AWD HEV
4	D	Model year	D: 2015MY
5	Y	Destination	Y: U.S., Canada
6	4	Grade	4: 2.0 i 5: 2.0 i-Premium 6: 2.0 i-Premium+ 7: 2.0 i-Limited 8: Sport 9: Sport-Limited A: 2.0 i-Premium EyeSight B: 2.0 i-Premium+ EyeSight C: 2.0 i-Limited EyeSight D: Sport EyeSight E: Sport-Limited EyeSight F: 2.0 i-Premium (XV model) G: 2.0 i-Limited (XV model) R: 2.0 i-Premium EyeSight (XV model) T: 2.0 i-Limited EyeSight (XV model)
7	C	Fuel feed system transmission	C: MFI CVT F: MFI 5 speed MT

The engine and transmission type are as follows.

Engine

FB20BCZA5A

Digits	Code	Meaning	Details
1 and 2	FB	Engine type	FB: 4 cylinders
3 and 4	20	Displacement	20: 2.0 L
5	B	Fuel feed system	B: MFI non-turbo (DOHC) X: HEV
6	C	Exhaust regulations	C: For states using California emission standards
7	Z	Intake/exhaust system	Z: Intake AVCS, exhaust AVCS, TGV, EGR
8	A	Mounted transmission	A: 5MT H: CVT
9 — 10	5A	Detailed specifications	Used when ordering parts. For details, refer to the parts catalog.

Identification

IDENTIFICATION

Transmission (MT)

TY758VD7CA

Digits	Code	Meaning	Details
1	T	Transmission	T: Transmission
2	Y	Transmission system	Y: Full-time AWD MT center differential
3 and 4	75	Distance between gear center	75: Between main shaft and drive pinion
5	8	Series	8: 5MT
6	V	Transmission specifications	V: Full-time AWD single range 5 speed MT with viscous coupling center differential
7	D	Mounted engine	D: 2.0 L DOHC non-turbo
8 — 10	7CA	Detailed specifications	Used when ordering parts. For details, refer to the parts catalog.

Transmission (CVT)

TR580GD7AB

Digits	Code	Meaning	Details
1	T	Transmission	T: Transmission
2	R	Transmission system	R: Full-time AWD CVT H: HEV Full-time AWD CVT
3 and 4	58	Between pulley centers	58: Between pulley centers
5	0	Series	0: CVT A: MA1
6	G	Transmission specifications	D: With Auto Start Stop, with CVTF cooler (with warmer feature), without CVTF cooler (air cool) G: Without Auto Start Stop, with CVTF cooler (with warmer feature), without CVTF cooler (air cool)
7	D	Engine type	D: 2.0 L DOHC non-turbo
8 — 10	7AB	Detailed specifications	Used when ordering parts. For details, refer to the parts catalog.

Rear differential

Identification	Reduction gear ratio	LSD
XD	3.700	None
T2	4.111	None
TP	4.444	None

Option code

MB

- 1-digit number

	E	H	M	P	Q	R	S	T	V	2	3
Aluminum wheel	○	○	—	○	○	○	○	○	○	○	○
Keyless access with push button start	○	—	—	—	—	—	○	○	—	—	—
Auto A/C	○	○	—	○	○	○	○	○	—	—	—
Manual A/C	—	—	○	—	—	—	—	—	○	○	○
Leather package	○	○	—	—	○	○	○	○	—	○	—
Genuine leather seat	○	○	—	—	○	—	○	—	—	—	—
High grade audio	—	—	—	—	—	—	—	—	—	—	—
Navigation system	○	○	—	—	—	—	—	—	○	—	—

- 2-digit number

	A	B	C	E	P	R	S	U	Y
Side airbag	○	○	○	○	○	○	○	○	○
Curtain airbag	○	○	○	○	○	○	○	○	○
HID headlight	—	—	—	—	—	○	—	○	○
Cold weather package	—	—	○	○	○	○	○	○	—
Privacy glass	○	—	—	○	—	—	○	○	—
Sunroof	—	—	—	—	○	○	○	○	○

Identification

IDENTIFICATION

RECOMMENDED MATERIALS

RM

	Page
1. Recommended Materials	2



Recommended Materials

RECOMMENDED MATERIALS

1. Recommended Materials

A: RECOMMENDED MATERIALS

1. GENERAL

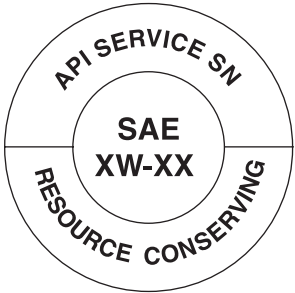
To insure the best performance, always use the specified oil, gasoline, adhesive, sealant, etc. or a substitute of equivalent quality.

2. FUEL

- Use unleaded gasoline because using leaded gasoline will cause a malfunction.
- 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 and fuel system components.
- Always use gasoline that is equivalent to that prescribed in the owner's 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.

3. LUBRICANTS

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

Lubricant	Recommended materials	
	API standard	ILSAC standard
Engine oil Choose oil suitable for the standard from the right.	SN or SM grade "Resource conserving" or "Energy conserving"  RM-00081 Those with the above API service labels	GF-5 or GF-4  RM-00002 Those with the above ILSAC certification mark (Starburst mark)
Rear differential gear oil	GL-5	—

Recommended Materials

RECOMMENDED MATERIALS

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
(1)								
RM-00075								
(1) 0W-20 (synthetic oil) Specified								
Rear differential gear oil*								
(°C)	-30	-20	-10	0	10	20	30	40
(°F)	-22	-4	14	32	50	68	86	104
90 75W-90 (1)								
RM-00080								
(1) Recommended materials								

*

CAUTION:
Do not mix two different kinds or makes of gear oil.

Recommended Materials

RECOMMENDED MATERIALS

4. FLUID

CAUTION:

- Use the fluids specified in the table below. Do not mix two different kinds or makes of fluid.
- Always use the recommended CVTF for CVT. Using other fluid will cause malfunction.
- If an alternative transmission gear oil is used, you may not have expected functionality and performance.

Fluid	Recommended materials	Item number	Alternative
Automatic transmission fluid	SUBARU CVT FLUID LINEARTRONIC II	K0425Y0711	—
Transmission gear oil	SUBARU GEAR OIL EXTRA MT	—	GL-5 (75W-90)
Front differential gear oil	SUBARU GEAR OIL EXTRA MT	—	GL-5 (75W-90)
Brake fluid and clutch fluid	FMVSS No. 116 DOT3, or DOT4	—	—

5. ENGINE COOLANT

Use genuine engine coolant to protect the engine.

Engine coolant	Recommended materials	Item number	Alternative
Coolant	SUBARU SUPER COOLANT (Concentrated type)	—	—
	SUBARU SUPER COOLANT (Diluted type)	K0670Y0001	
Water for dilution	Distilled water	—	Soft water or tap water
Cooling system protective agent	Cooling system conditioner	SOA345001	—

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 materials	Item number	Alternative
Refrigerant	HFC134a	—	—
Compressor oil	DH-PR	—	—

Recommended Materials

RECOMMENDED MATERIALS

7. GREASE

Use grease and supplementary lubricants shown in the table below.

Grease	Application point	Recommended materials	Item number	Alternative
Supplementary lubricants	Oxygen sensor	Spray type lubricant	004301003	—
Grease	- MT main shaft (spline parts) - MT main shaft (oil seal lip) - Transfer driven gear (front roller bearing, rear roller bearing) - Clutch release lever - Clutch release bearing (inner circumference) - Clutch operating cylinder	NICHIMOLY N-130	—	—
	Clutch master cylinder push rod	SILICONE GREASE G-40M	—	—
	- Gear shift lever - Clutch pedal - Brake pedal	NIGTIGHT LYW No. 2	—	—
	Select lever	Multemp D	—	—
	- Door latch - Door striker	SILICONE GREASE G-30M	004404002	—
	Steering gearbox	Multemp AC-P	—	—
	Disc brake (lock pin, guide pin)	NIGLUBE RX-2	—	—
	Brake pad clip	Molykote M7439	K0770YA000	—
	Between front brake pad and shim	Molykote AS-880N	—	—
	Between rear brake pad and shim	WAKO grease V160	—	—
	Brake shoe (parking brake)	Molykote 44MA	—	—
	Front axle AAR	One-Luber GKN-C	—	—
	Front axle AC	Olistamoly 2LN584/Lo	—	—
	Front axle PTJ	NKG302	—	—
	- Front axle EBJ - Rear axle BJ (XV) - Rear axle DOJ (XV) - Rear axle EBJ - Rear axle DOJ	NKG814	—	—
	Rear axle BJ	Raremax LF-G	—	—
	Rear axle DOJ		—	—

Recommended Materials

RECOMMENDED MATERIALS

8. ADHESIVE

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

Adhesive	Application point	Recommended materials	Item number	Alternative
Adhesive	Windshield glass, rear quarter glass, rear window glass, rear gate glass and body	Dow Automotive's Adhesive: ESSEX U-400HV or equivalent Glass primer: U-401 and U-402 Painted surface primer: U-413	—	—

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	• CVT extension case • CVT transmission case • CVT motor case (HEV model) • CVT drive pinion retainer • CVT oil pump chain cover • MT transmission case • MT transfer case	THREE BOND 1215B	—	DOW CORNING No. 7038 THREE BOND 1215
	Transmission oil pan (CVT model)	THREE BOND 1217B	K0877YA020	—
	• Rear differential • Oil pressure switch • PCV valve	THREE BOND 1324	004403042	—
	• Rear differential • Service hole plug	THREE BOND 1105	004403010	DOW CORNING No. 7038
	Steering adjusting screw (electric power steering)	THREE BOND 1111B	—	—
	• Front sealing cover • Rear sealing cover	3M Butyl Tape 8626	—	—
	• Engine oil pan • Separator cover • Camshaft cap • Cylinder block • Rocker cover • Chain cover • Oil pan upper • Cylinder head • Camshaft carrier • Camshaft bearing cap	THREE BOND 1217G THREE BOND 1217H	K0877Y0100 —	—
	Rear differential	THREE BOND 1110F	—	THREE BOND 1110B

PRE-DELIVERY INSPECTION

PI

	Page
1. Pre-delivery Inspection	2



Pre-delivery Inspection

PRE-DELIVERY INSPECTION

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.
- Check the vehicle or parts before delivery for any damage occurred during transportation or storage.
- Check that the vehicle after repair does not have any problems.
- Make sure to provide a complete vehicle to customer.

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

Besides, all SOA service center and PDI center check the condition of all vehicles to make sure to take responsibility.

B: PRE-DELIVERY INSPECTION (PDI) PROCEDURE

Perform the procedures indicated in the table below.

Static checks just after vehicle receipt

Item	Check point
1. Appearance	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 painted body surfaces in detail for 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. 4. Check the instrument panel, console and trim for stains or dirt.
2. Tire	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 delivered to customer, attach a back-up fuse.
4. Door lock/unlock and open/close operations	1. Using the key, check the door can be locked or unlocked normally. 2. Open and close all doors to check that there are no problems. 3. Operate the power door lock switch to check that all doors and the rear gate lock and unlock normally.
5. Child safety lock	Check the child safety lock system operates normally.
6. Trunk lid open/close operations	1. Operate the trunk lock release lever to check that the trunk lid opens normally. 2. Open and close the trunk lid to check that there are no problems.
7. Rear gate lock/unlock and open/close operation	1. Check if the rear gate can be unlocked normally through the emergency hole. 2. Open and close the rear gate to check that there are no problems. 3. Operate the power door lock switch to check that all doors and the rear gate lock and unlock normally.
8. Operation check of trunk lid release lever	Operate the trunk lid release lever to check that the trunk lock is unlocked normally.
9. Fuel lid opener lock release lever	Operate the fuel lid opener to check that the fuel filler lid can be unlocked normally.
10. Towing hook (eyebolt)	At factory shipment, the towing hook (eyebolt) is installed to the rear bumper. Remove the towing hook (eyebolt), store it in the holder.
11. Accessory	Check that the following accessories are equipped. • Owner's manual • Warranty booklet • Maintenance note • Spare key • Key No. plate • Jack • Tool set • Spare tire or puncture repair kit • Towing hook
12. Front hood lock release	Operate the front hood lock release lever to check that the front hood opens normally.
13. 12 V battery	Check the battery for any abnormal conditions such as rust or traces of battery fluid leaks. (Including 12 volt auxiliary battery and 12 volt engine restart battery)
14. High voltage battery air intake	Check that no dirt or fluid is adhered or mixed in.

Pre-delivery Inspection

PRE-DELIVERY INSPECTION

Item	Check point
15. Brake fluid	Check the brake fluid amount.
16. Engine oil	Check the engine oil amount.
17. Transmission gear oil	Check that the transmission gear oil level is normal.
18. CVTF	Check for leakage of CVTF.
19. CVT front differential oil	Check for leakage of CVT front differential oil.
20. Rear differential gear oil	Check for leakage of gear oil from the rear differential.
21. Engine coolant	Check the engine coolant level.
22. Clutch fluid	Check the clutch fluid amount.
23. Window washer fluid	Check the window washer fluid amount.
24. Front hood latch	Check that the front hood is closed normally and locked securely.
25. Keyless entry system	Check that the keyless entry system operates normally.
26. Keyless access	Check that the keyless access function operates normally.
27. Security system	Check that the security system operates normally.
28. Seat	1. Check the seat surfaces for stains or dirt. 2. Check the seat installation conditions and functionality.
29. Seat belt	Check the seat belt installation conditions and functionality.
30. TPMS (U.S. model)	If the display of TPMS warning light does not operate normally, perform the diagnosis by referring to TPMS (Diagnosis).

Checks with the engine running

Item	Check point
31. Grommet installation	Install the grommet on the rear seat to the tie-down hole. (When equipped)
32. Delivery (test) mode	Turn the ignition switch to ON and check that the malfunction indicator light starts blinking.
33. Immobilizer system	1. Check that the engine starts with all keys that are equipped on vehicle. 2. Check that the security indicator light operates normally.
34. Push button start	Using the access key that is equipped on vehicle, operate the push button start function to check engine start and stop operations.
35. Starting condition	Start the engine and check that the engine starts smoothly.
36. Exhaust system	Check that the exhaust noise is normal and no leaks are found.
37. Indicator and warning lights	Check that all indicator lights and warning lights are operating correctly.
38. Heater & ventilation	Check that the heater & ventilation system operates normally.
39. Air conditioner	Check that the air conditioner operates normally.
40. Multi-function display (MFD)	Check that the Multi-Function Display (MFD) function operates normally.
41. Audio	Check the radio and AUX operate normally.
42. Navigation	Check the navigation and AUX operate normally.
43. Accessory power supply socket	Check that the accessory power supply socket operates normally.
44. Lighting system	Check that the lighting system operates normally.
45. Illumination control	Check that the illumination control operates normally.
46. Window washer system	Check that the window washer system operates normally.
47. Wiper system	Check that the wiper system operates normally.
48. Wiper deicer	Check that the wiper deicer operates normally.
49. Power window	Check that the power window operates normally.
50. Sunroof	Check that the sunroof operates normally.
51. Rear defogger system	Check that the rear defogger system operates normally.
52. Door mirror	Check that the remote control mirror and heated mirror operate normally.
53. Diagnostic trouble code (DTC) check	Check that the diagnostic trouble code (DTC) is not detected.

Pre-delivery Inspection

PRE-DELIVERY INSPECTION

Dynamic test with the vehicle running

Item	Check point
54. Brake test	Check the foot brake for normal operations.
55. Parking brake	Check the parking brake for normal operations.
56. Shift control	Check that the shift patterns are correct.
57. Cruise control	Check that the cruise control system operates normally.
58. Subaru EyeSight	Check that the Subaru EyeSight operates normally.
59. Hybrid system	Check that the hybrid system operates normally.
60. EV mode lamp	Check that the EV mode lamp operates normally.

Checks after dynamic test

Item	Check point
61. Power steering system (electric power steering model)	Check the steering warning light operation.
62. Fluid leakage	Check for fluid/oil leaks.
63. Water leak test	Spray the vehicle with water and check for water leaks.
64. Appearance 2	1. Remove the protective coating (if equipped). 2. Check the body paints for damage and stain. 3. Check the plated parts for damage and rust.

1. APPEARANCE

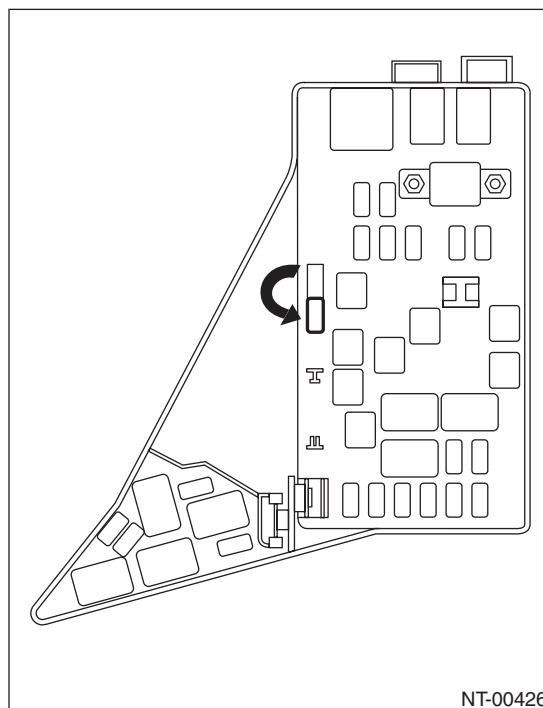
- If the vehicle is covered with protective coating, visually check the vehicle body for damage and dents.
- When there is no protective coating, check the body paints for damage or stains in detail and repair as necessary.
- Check the window glass, door glass, and lights for any cracks or damage, and replace as necessary.
- Visually check the plated parts, such as the grilles and door knobs, for damage or loss of gloss and replace the parts as necessary.
- Check the instrument panel, console and trim for stains or dirt.
- Check the keyless key and access key for dirt, and wipe off if necessary.

2. TIRE

- Check the tires for damage, defective, and dents on wheels.
- Check the tire size, spare tire and tire air pressure described on the tire air pressure label (driver's side).

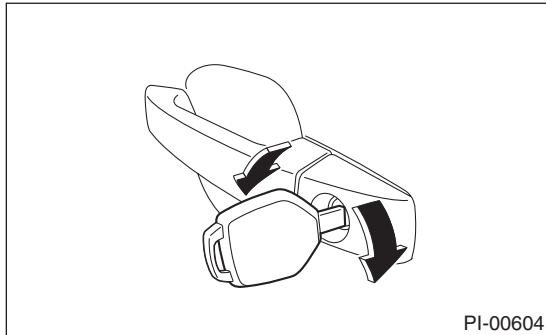
3. FUSE INSTALLATION

Fuses for the back-up circuit on initially delivered vehicles are removed to prevent battery discharge. Attach the 20 A fuse as shown in the figure.

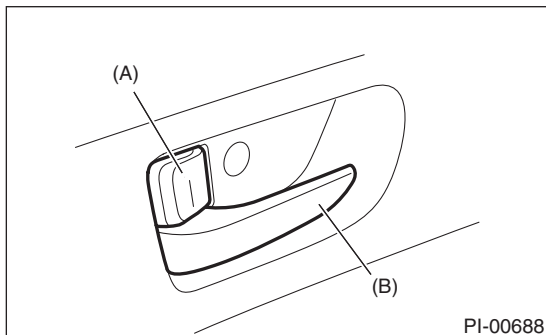


4. LOCK/UNLOCK AND OPEN/CLOSE OPERATION CHECKS OF DOORS

1) 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.

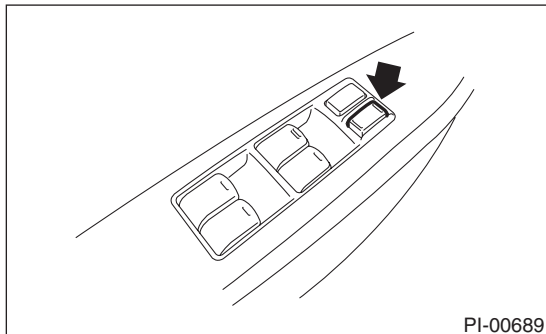


2) Completely close the driver's door, and then check the smooth movement with operating door lock knob from lock to unlock several times. Set the door lock knob (A) to lock position. Then pull the inner remote (B) to ensure that doors will not open. For other doors, place the door lock knob (A) to lock position and then pull the inner remote (B) to ensure that doors will not open.

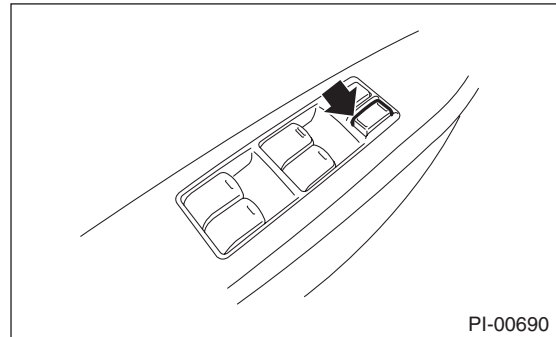


- (A) Door lock knob
- (B) Inner remote

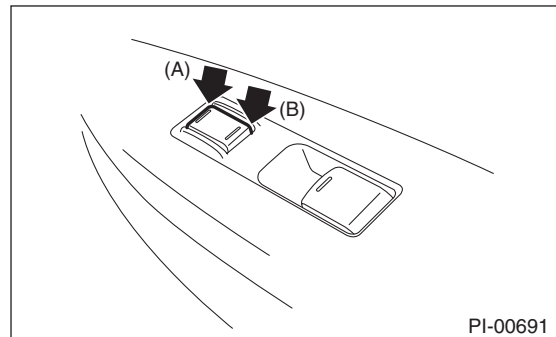
3) Close all the doors, and then press the lock on power door lock switch at driver's side. Check that all doors (including the rear gate) lock.



4) Press the driver's side power door lock switch to unlock side. Check that all doors including rear gate are unlocked.



5) Check that the passenger's power door lock switch locks and unlocks normally in the same manner.



- (A) Lock
- (B) Unlock

6) Insert the key to ignition switch, and open the driver's side door. Press lock on power door lock. Check that the door is not locked.

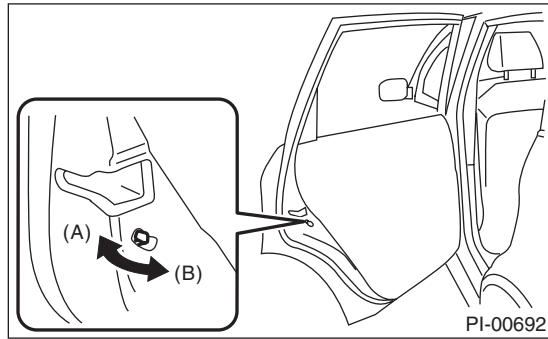
5. CHILD SAFETY LOCK

- 1) Set the child safety lock lever on both rear doors to the lock position.
- 2) Close the rear doors completely.
- 3) Check that the lock levers of the rear doors are in the unlock position. Then, pull inner remote of rear doors to ensure that doors will not open.

Pre-delivery Inspection

PRE-DELIVERY INSPECTION

- 4) Pull the outer handles to ensure that doors will open.



- (A) Unlock
(B) Lock

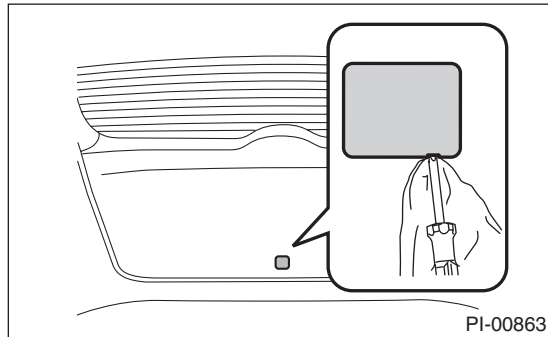
6. TRUNK LID OPEN/CLOSE OPERATIONS

- 1) Operate the trunk lock release lever to check that the trunk lid opens.
2) Open and close the trunk lid several times for smooth movement.

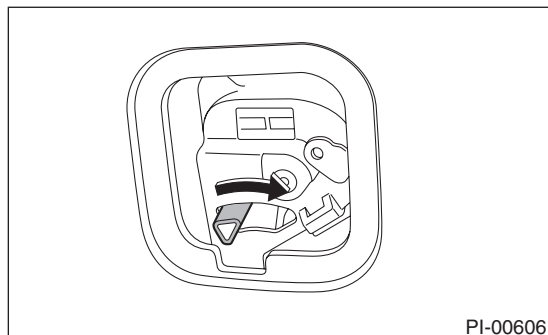
7. REAR GATE LOCK/UNLOCK AND OPEN/CLOSE OPERATIONS

- 1) Open and close the rear gate several times for smooth movement.
2) Operate the rear gate emergency release lever to check that the rear gate can be locked and unlocked properly.

- (1) Remove the cover inside the rear gate.



- (2) Operate the lever using a tool such as a screwdriver to check that the rear gate is unlocked normally.

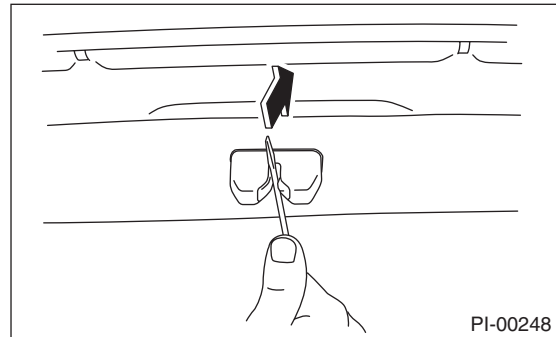


8. OPERATION CHECK OF TRUNK LID RELEASE HANDLE

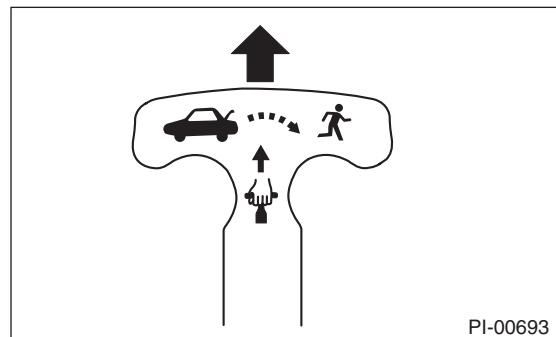
CAUTION:

Do not check the trunk lid release handle when in the trunk. If the trunk lid release handle is defective, you may be trapped in.

- 1) Use a flat tip screwdriver. 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) Make sure the latch is released by pulling the yellow trunk lid release handle in the direction of arrow.



9. FUEL LID OPENER LOCK RELEASE LEVER

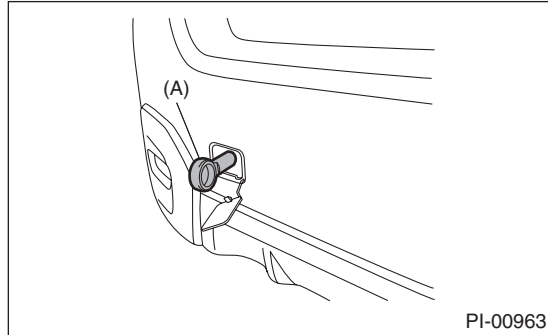
Operate the fuel lid lock release lever to check that the fuel lid is unlocked normally. Check that the filler cap is securely closed.

10.TOWING HOOK (EYEBOLT)

NOTE:

At factory shipment, the towing hook (eyebolt) is installed to the rear bumper for securing the vehicle during transportation. Follow the procedure below to store it to the holder in the spare tire or sub-trunk.

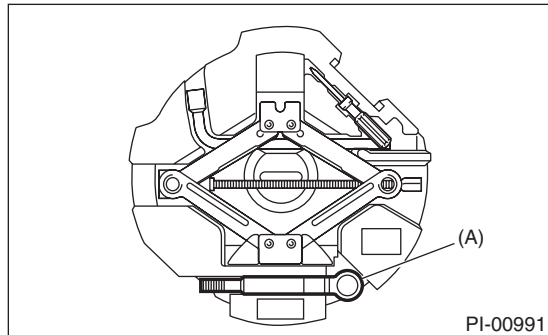
1) Remove the towing hook (eyebolt) from the rear bumper.



(A) Towing hook (eyebolt)

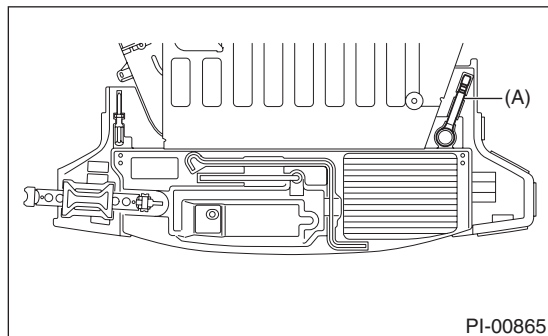
2) Store the towing hook (eyebolt) to the holder in the spare tire or sub-trunk.

Gasoline engine model



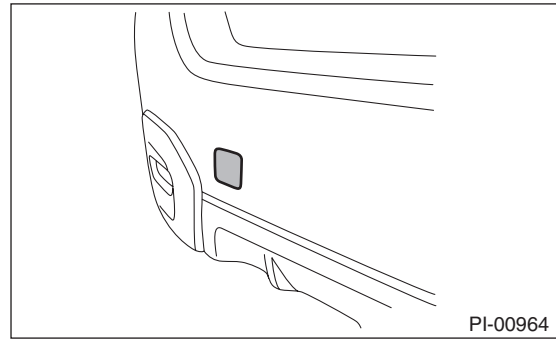
(A) Towing hook (eyebolt)

HEV model



(A) Towing hook (eyebolt)

3) Install the supplied rear hook cover to rear bumper.

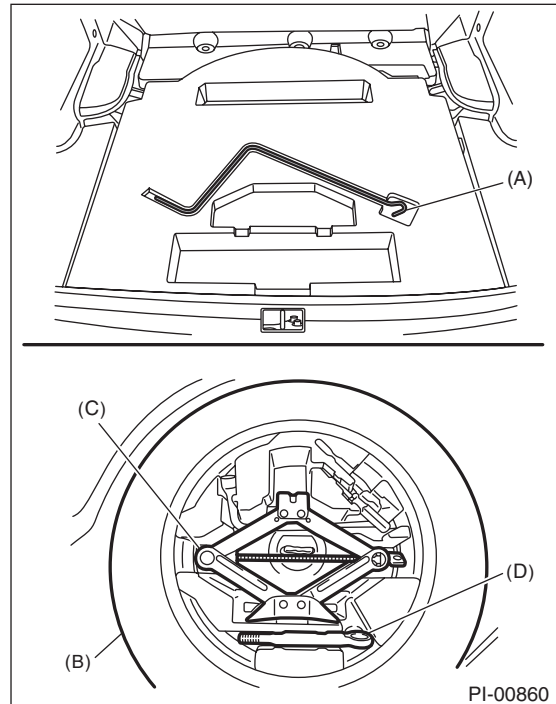


11.ACCESSORY

Check that the following accessories are provided.

- Owner's manual
- Warranty booklet
- Maintenance note
- Spare key
- Key No. plate
- Jack
- Tool set
- Spare tire or puncture repair kit
- Towing hook (eyebolt)

4 door

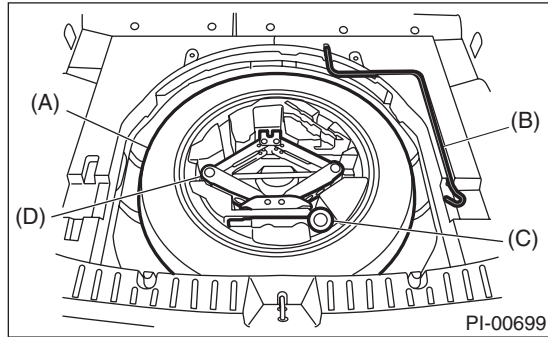


- (A) Jack handle
- (B) Spare tire
- (C) Jack
- (D) Towing hook (eyebolt)

Pre-delivery Inspection

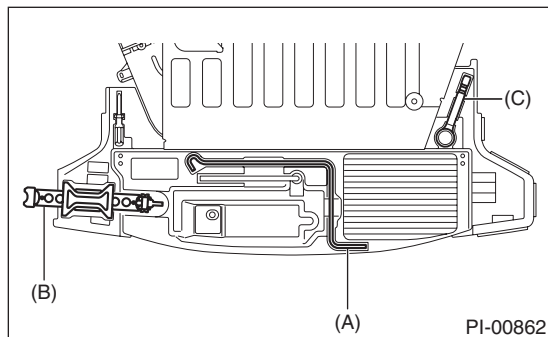
PRE-DELIVERY INSPECTION

5 door

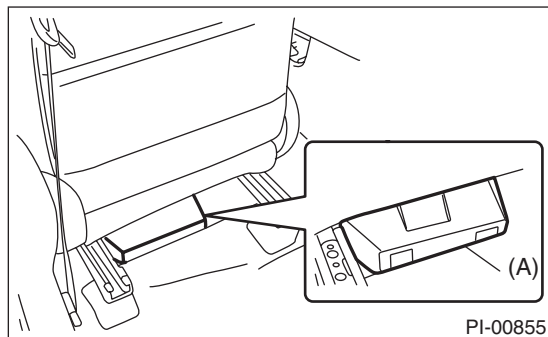


- (A) Spare tire
- (B) Jack handle
- (C) Towing hook (eyebolt)
- (D) Jack

5 door (HEV)



- (A) Jack handle
- (B) Jack
- (C) Towing hook (eyebolt)



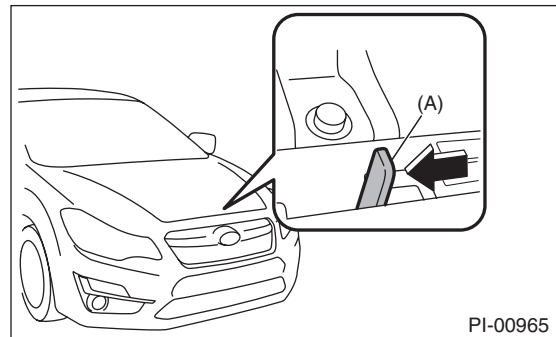
- (A) Puncture repair kit (beneath driver's seat)

12.FRONT HOOD LOCK RELEASE

Operate the front hood release lever to check that the front hood is unlocked normally.

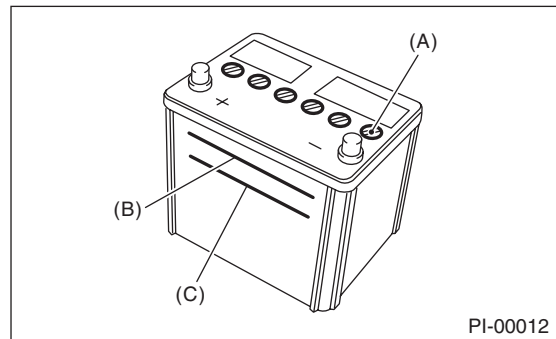


Operate the lever (A) and check that the front hood is opened normally.



13.BATTERY

Check the battery terminals to make sure that there are no rust or corruptions due to fluid leaks. Check that the battery caps are securely tightened. (Including 12 volt auxiliary battery and 12 volt engine restart battery)



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

14.HIGH VOLTAGE BATTERY AIR INTAKE

Check that no dirt or fluid is adhered or mixed in.

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.

CAUTION:

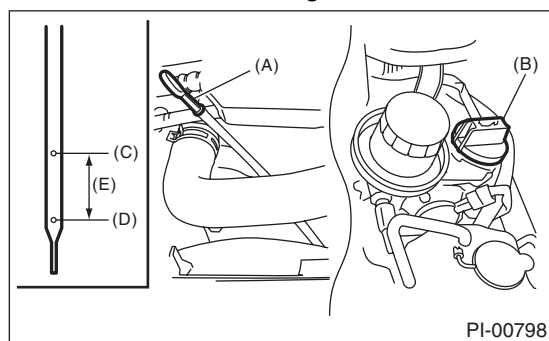
If the brake fluid is spilt over exhaust pipe, wipe it off with cloth to avoid emitting smoke or causing a fire.

16.ENGINE OIL

- 1) Park the vehicle on a level surface.
- 2) Remove the oil level gauge and wipe away the oil.
- 3) Reinsert the oil level gauge all the way. Be sure that the oil level gauge is correctly inserted and properly orientated.
- 4) Pull out the oil level gauge again, and check both sides of the oil level gauge. Use a lower side to determine the engine oil level. If the engine oil level is below "L" line, add oil to bring the level up to "F" line.
- 5) Start the engine, and spread the oil in engine room.
- 6) After turning off the engine, wait a few minutes for the oil to return to the oil pan before checking the oil level.

NOTE:

To prevent overfilling of engine oil, do not add oil above "F" line when the engine is cold.



- (A) Engine oil level gauge
- (B) Engine oil filler cap
- (C) "F" line
- (D) "L" line
- (E) Approx. 1 L (1.1 US qt, 0.9 Imp qt)

17.TRANSMISSION GEAR OIL

Check the transmission gear oil amount. If the amount of gear oil is insufficient, check for leaks. Then, add the necessary amount of the specified gear oil. Refer to "5MT" section for transmission gear oil inspection. <Ref. to 5MT-21, INSPECTION, Transmission Gear Oil.>

18.CVTF

Check for leakage of CVTF.

CAUTION:

If the CVTF is spilt over exhaust pipe, wipe it off with cloth to avoid emitting smoke or causing a fire.

19.CVT FRONT DIFFERENTIAL OIL

Check for leakage of CVT front differential gear oil.

CAUTION:

If gear oil is spilt over the exhaust pipe, wipe it off with a cloth to avoid emitting smoke or causing a fire.

20.REAR DIFFERENTIAL GEAR OIL

Check for leakage of gear oil from the rear differential.

CAUTION:

If the rear differential gear oil is spilt over exhaust pipe, wipe it off with cloth to avoid emitting smoke or causing a fire.

21.ENGINE COOLANT

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

CAUTION:

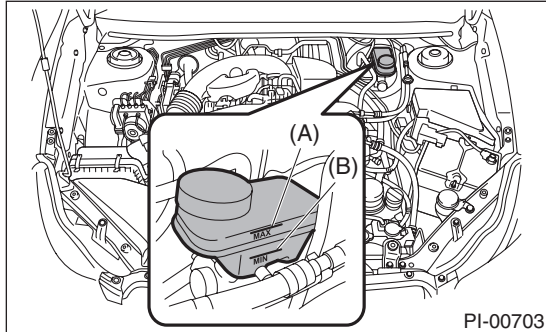
If the coolant is spilt over exhaust pipe, wipe it off with cloth to avoid emitting smoke or causing a fire.

22.CLUTCH FLUID

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

CAUTION:

If any clutch fluid is spilt on the exhaust pipe, wipe it off with a cloth to avoid emitting smoke or causing a fire.



(A) MAX. level

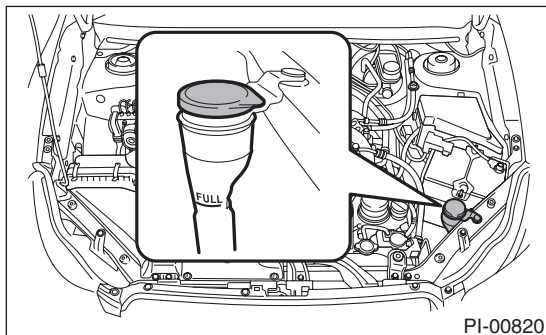
(B) MIN. level

23.WINDOW WASHER FLUID

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

NOTE:

If there is the vibration, water comes into the layer of air in the washer tank and the water level may drop. This is not a malfunction.



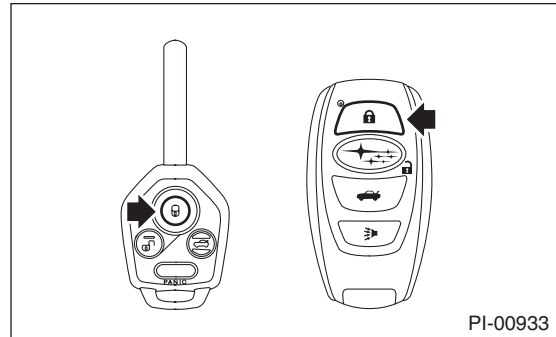
24.FRONT HOOD LATCH

Close the front hood. Check that the front hood is completely latched.

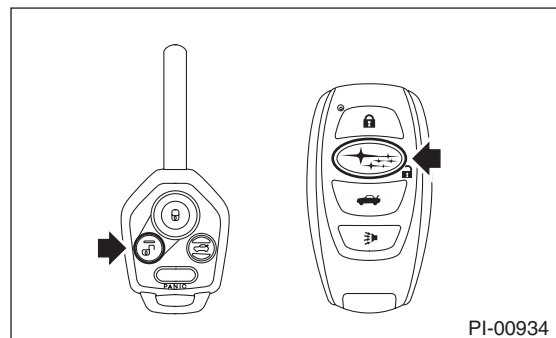
25.KEYLESS ENTRY SYSTEM

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.
- Press the “LOCK/ARM” button momentarily on the keyless transmitter. Check that all the doors become locked, the buzzer sounds once, and the hazard lights flash once.

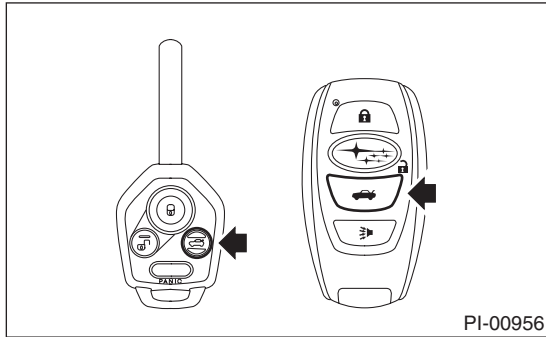


- Press the “UNLOCK/DISARM” button momentarily on the keyless transmitter. Check that the driver’s door is unlocked, the buzzer sounds twice, and the hazard lights flash twice.
- Within 5 seconds, press the “UNLOCK/DISARM” button momentarily on the keyless transmitter. Check that all doors (including rear gate) are unlocked, the buzzer sounds twice, and the hazard lights flash twice.

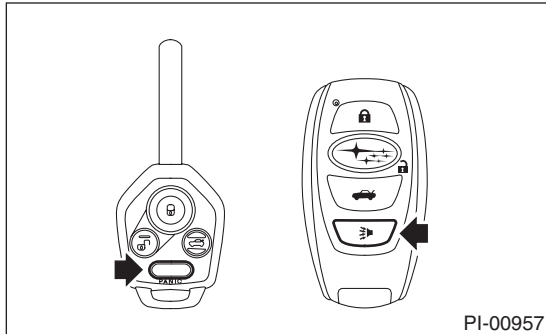


- Lock all the doors including rear gate. Check that the buzzer sounds twice, and the hazard lights flash twice, when the trunk open button is pressed to unlock the rear gate. Press the rear gate opener button and check that the rear gate opens. (Wagon model)

- Check that the buzzer sounds twice, and the hazard lights flash twice, when the trunk open button is held down to unlock the trunk lid. (Sedan model)

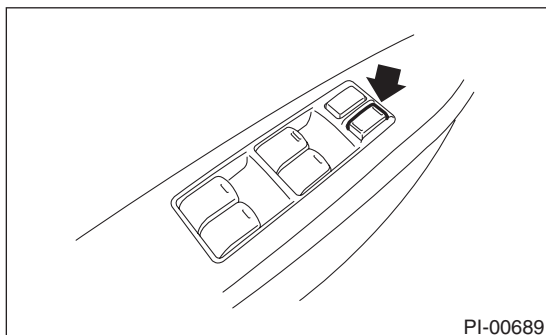


- Press the “PANIC” button of the keyless transmitter. Check that the panic mode (the horn keeps sounding) is initiated. Also, check that this condition continues for 30 seconds or until when any of the buttons on the keyless transmitter are pressed.

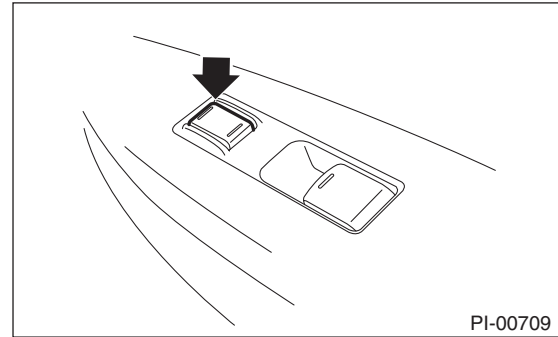


- Press the “LOCK/ARM” button momentarily on the keyless transmitter with one of the doors (including the rear gate) opened. Check that the buzzer sounds 5 times, and the hazard light flashes 5 times to notify the door not being fully closed. Next, close all the doors including rear gate. Check if all doors are locked and buzzer sounds once and the hazard light flashes once.
- With one of the doors open (including the rear gate), press the “LOCK” side of the power door lock switch. Next, close all the doors including rear gate. Check if all doors are locked and buzzer sounds once and the hazard light flashes once.

- Driver’s side



- Passenger’s side



Alarm sound operational check

- The system uses the buzzer and sounds the alarm when the door is locked or unlocked. The alarm sound can be turned OFF. To turn the alarm sound from ON to OFF, close all doors, (with the key not inserted in the key cylinder), hold down the “UNLOCK” side of the power door lock switch and insert the key in the key cylinder. Within 10 seconds, insert and take out the key for 5 times or more, and within 10 seconds after that, open and close the driver’s door. With the door closed, the hazard light will flash 3 times, indicating that the alarm sound has been turned OFF. To turn the alarm sound from OFF to ON, perform this procedure again. The hazard light will flash 3 times, indicating that the alarm has been turned ON.

26.KEYLESS ACCESS FUNCTION

CAUTION:

- **Make sure to separate the access keys individually for the inspection.**
- **Do not leave the separated access keys inside the vehicle.**

NOTE:

The following inspections are for the initial setting. When the settings are different from the initial settings, use Subaru Select Monitor to check the details of each setting for inspections. <Ref. to BC(diag)-12, OPERATION, Read Current Data.>

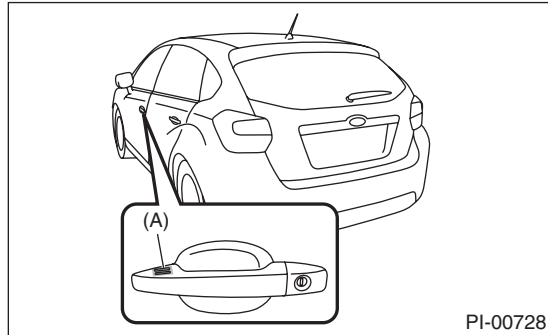
- Check that the room light illuminates, when a person carrying the access key approaches the front door handle of vehicle with all doors locked.
- Check that all doors and rear gate lock and the hazard light blinks, when a person carrying the access key touches the touch sensor (lock) on front door, or presses the rear lock button on rear gate.

Pre-delivery Inspection

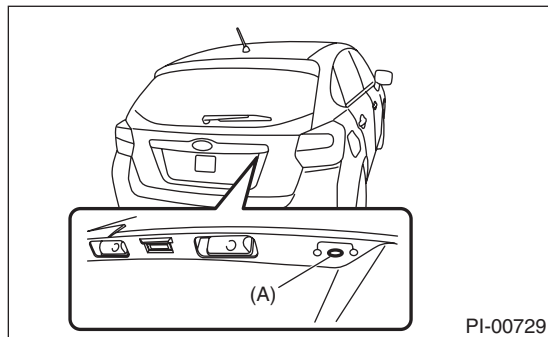
PRE-DELIVERY INSPECTION

NOTE:

- On unlocking, the hazard light blinks twice.
- On locking, the hazard light blinks once.

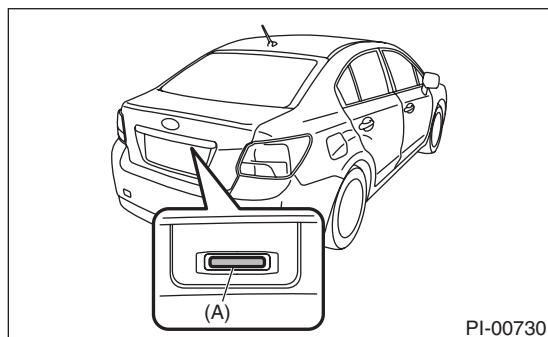


(A) Touch sensor (lock)



(A) Rear lock button

- Check that the trunk unlocks and the hazard light blinks twice, when a person carrying the access key presses the trunk opener button on trunk.



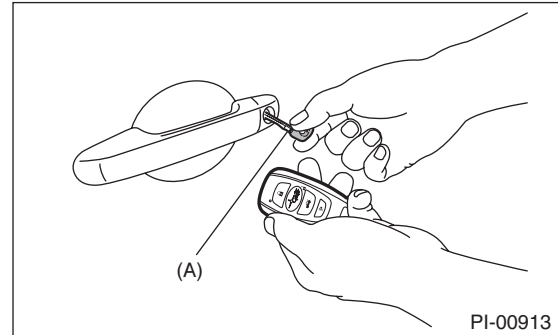
(A) Trunk opener button

- Operate the access key buttons manually to check that the doors and rear gate lock and unlock normally, and the hazard light blinks.

- Using the mechanical key attached to the access key, check lock and unlock operations.

CAUTION:

The mechanical key is a single groove type. Insert the mechanical key with the groove side facing the front side of the vehicle.



(A) Mechanical key

- Check that the warning buzzer sounds and the door-lock does not operate, when the doors are closed with the access key left in the vehicle and the touch sensor (lock) on door is touched, or the rear lock button on rear gate is pressed.

CAUTION:

The mechanical key must be carried separately from the access key.

- While the access key is left in trunk, check that the warning buzzer sounds when the trunk is closed, and that the trunk unlocks when the trunk opener button on trunk is pressed.

27.SECURITY SYSTEM

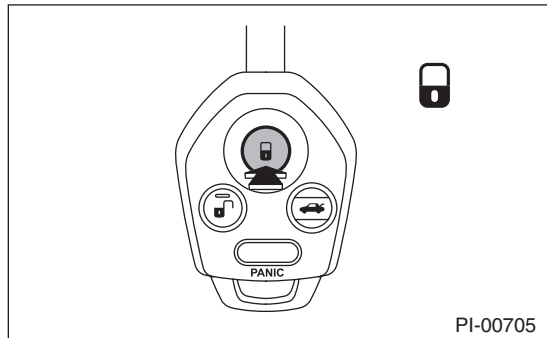
• Models without keyless access function

NOTE:

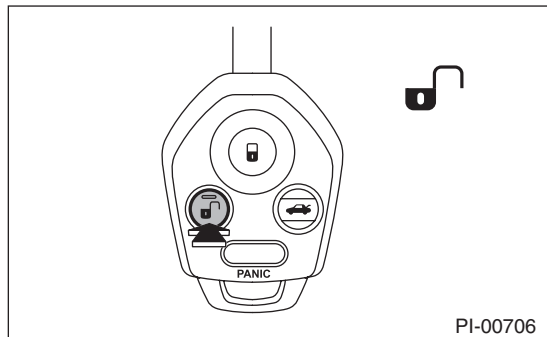
The following inspections are for the initial setting. When the settings are different from the initial settings, use Subaru Select Monitor to check the details of each setting for inspections. <Ref. to BC(diag)-21, OPERATION, Registration Body Integrated Unit.>

- 1) Fully open all the door windows.
- 2) Remove the key from the ignition switch and close all the doors including rear gate.

3) Press the “LOCK” button momentarily on the keyless transmitter. All doors are locked, and the security indicator light blinks rapidly for 30 seconds, then slowly twice repeatedly, indicating that the theft alarm is activated.



4) Press the “UNLOCK” button momentarily on the keyless transmitter. The driver’s door is unlocked, and the security indicator light blinks, indicating that the theft alarm is deactivated.

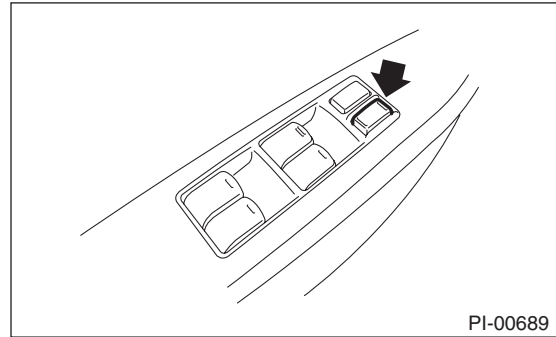


5) Press the “LOCK” button once on the keyless transmitter, while one of all doors (including rear gate) is open. Check that the buzzer sounds 5 times to notify the door not being fully closed. The doors are locked when all doors (including rear gate) are closed, and the security indicator light blinks rapidly for 30 seconds, then slowly twice repeatedly, indicating that the theft alarm is activated.

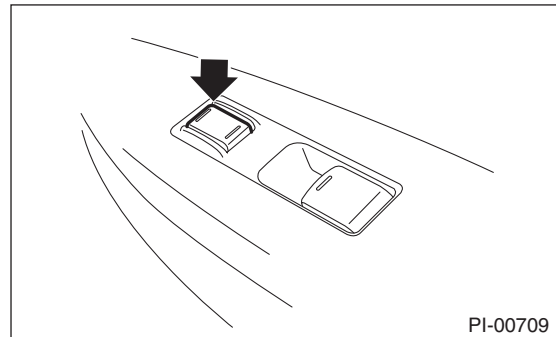
6) Press the “UNLOCK” button momentarily on the keyless transmitter. The driver’s door is unlocked, and the security indicator light blinks, indicating that the theft alarm is deactivated.

7) Press the “LOCK” side of the power door lock switch, while one of all doors (including rear gate) is open. The doors are locked when all doors (including rear gate) are closed, and the security indicator light blinks rapidly for 30 seconds, then slowly twice repeatedly, indicating that the theft alarm is activated.

• Driver’s side



• Passenger’s side



8) Unlock the door using the inner lock knob or the key, and open the door while the security system is activated. Check that the alarm condition (horn sounds continuously, hazard light blinks, and security indicator light illuminates) is initiated. Check that this condition continues until any of the buttons on the keyless transmitter is pressed, or the key is inserted to the ignition switch and turned to IGN ON.

NOTE:

While the door is open, the alarm condition continues for three minutes.

9) On models equipped with an impact sensor, hit the windshield glass with your hand with the theft alarm in the monitoring condition, to check that the alarm condition occurs.

10) When none of above is applicable, perform troubleshooting for the security system.

• Models with keyless access function

NOTE:

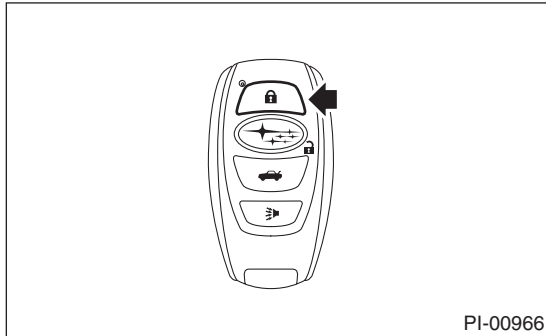
The following inspections are for the initial setting. When the settings are different from the initial settings, use Subaru Select Monitor to check the details of each setting for inspections. <Ref. to BC(diag)-21, OPERATION, Registration Body Integrated Unit.>

- 1) Fully open all the door windows.
- 2) Close all doors and rear gate.

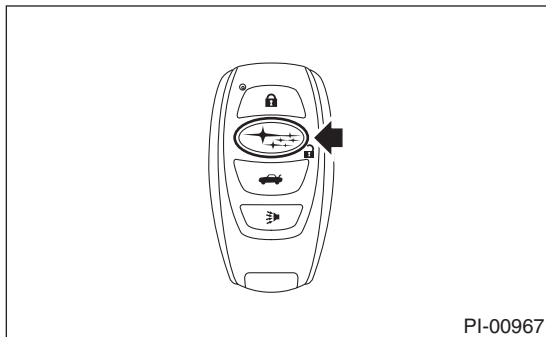
Pre-delivery Inspection

PRE-DELIVERY INSPECTION

3) Press the “LOCK” button momentarily on the access key. All doors are locked, and the security indicator light blinks rapidly for 30 seconds, then slowly twice repeatedly, indicating that the theft alarm is activated.



4) Press the “UNLOCK” button momentarily on the access key. The driver's door is unlocked, and the security indicator light blinks, indicating that the theft alarm is deactivated.

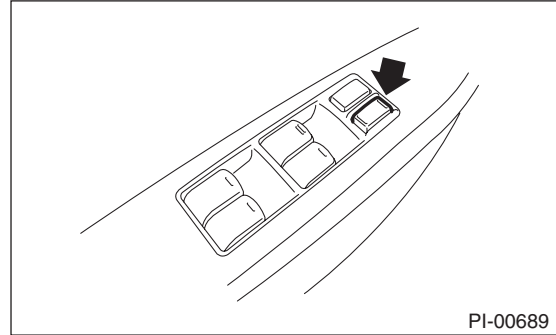


5) Press the “LOCK” button once on the access key while one of all doors (including rear gate) is open. Check that the buzzer sounds 5 times to notify the door not being fully closed. The doors are locked when all doors (including rear gate) are closed, and the security indicator light blinks rapidly for 30 seconds, then slowly twice repeatedly, indicating that the theft alarm is activated.

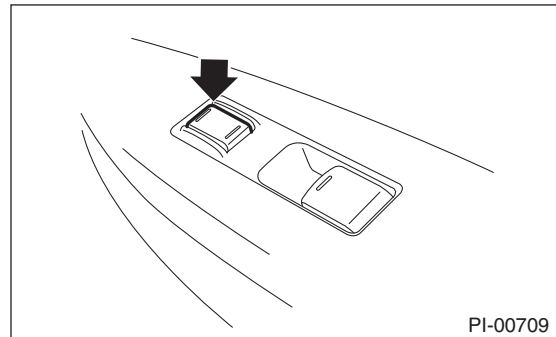
6) Press the “UNLOCK” button momentarily on the access key. The driver's door is unlocked, and the security indicator light blinks, indicating that the theft alarm is deactivated.

7) Press the “LOCK” side of the power door lock switch, while one of all doors (including rear gate) is open. The doors are locked when all doors (including rear gate) are closed, and the security indicator light blinks rapidly for 30 seconds, then slowly twice repeatedly, indicating that the theft alarm is activated.

• Driver's side



• Passenger's side



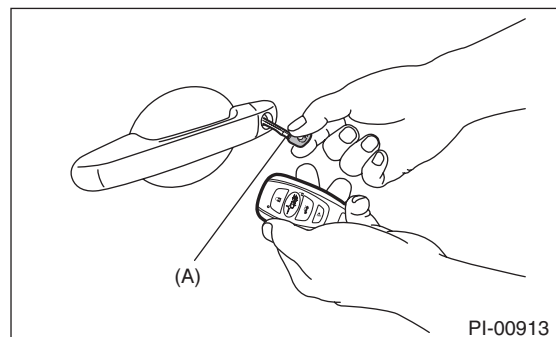
8) Unlock the door using the mechanical key, and open the door while the security system is activated. Check that the alarm condition (horn sounds continuously, hazard light blinks, and security indicator light illuminates) is initiated. Check that this condition continues until any of the buttons on the access key is pressed, or the key is turned to ACC.

CAUTION:

The mechanical key is a single groove type. Insert the mechanical key with the groove side facing the front side of the vehicle.

NOTE:

While the door is open, the alarm condition continues for three minutes.



(A) Mechanical key

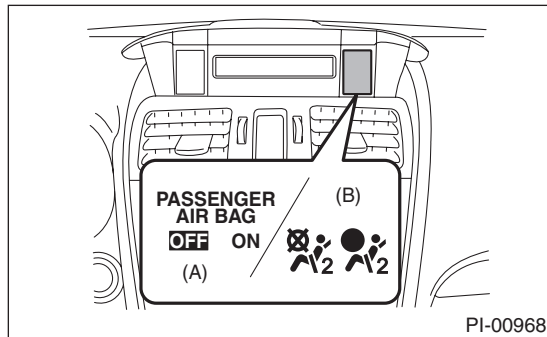
9) On models equipped with an impact sensor, hit the windshield glass with your hand with the theft alarm in the monitoring condition, to check that the alarm condition occurs.

10) When none of above is applicable, perform troubleshooting for the security system.

28. SEAT

- 1) Check the seat surfaces for stains or dirt.
- 2) Check that each seat provides full functionality in sliding, reclining, lifter, and tilting. Check all available functions of the rear seat such as backrest tilt knob.
- 3) Check the passenger's seat occupant detection system.

- (1) Empty the passenger's seat and turn the ignition switch to ON.
- (2) Check that the passenger airbag ON/OFF indicator lights both turn on simultaneously for approximately six seconds, and after turning off for two seconds, only the OFF light illuminates.



- (A) Airbag ON/OFF indicator light (U.S.(U5 and U6) models)
- (B) Airbag ON/OFF indicator light (Canada, Mexico (CO) models)

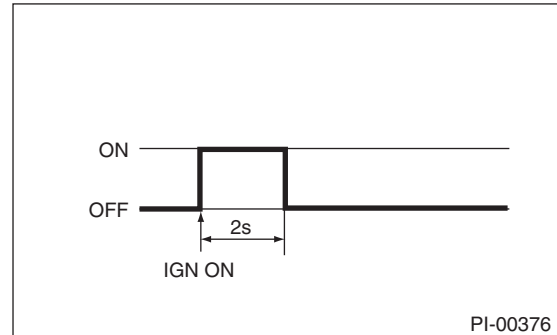
- 4) With a person weighing approximately 70 kg (155 lb) or more sitting in the passenger's seat, check whether the ON light of the passenger's airbag ON/OFF indicator illuminates or not.
- 5) Have the passenger get out of the passenger's seat, and check whether the OFF light of the passenger side airbag ON/OFF indicator illuminates.

29. SEAT BELT

- 1) Pull out the seat belt and then release it. Check that the belt retracts smoothly.
- 2) Check seat warning system
 - (1) Turn the ignition switch to ON without driver's and passenger's seat belts on.
 - (2) Check the seat belt warning lights of the driver's and the passenger's blink for approximately six seconds and the buzzer sounds intermittently.
 - (3) Then check that the seat belt warning lights illuminate and blink in a cycle of approximately 15 seconds. (If no one is seated on the passenger's seat, the seat belt warning light of the passenger's will not operate.)

30. TPMS (U.S. MODEL)

- 1) Turn the ignition switch to ON, and check TPMS warning light for normal operation.
 - Normal operation (IG ON (light check))



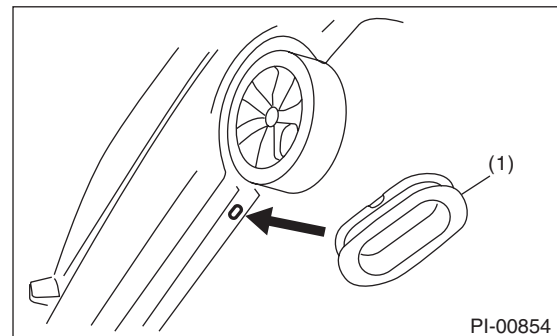
- 2) If the TPMS warning light display does not operate normally, check and repair the system. <Ref. to TPM(diag)-2, Basic Diagnostic Procedure.>

31. GROMMET INSTALLATION

Install the grommet on the rear seat to the tie-down hole.

CAUTION:

Make sure that the tie-down hole is firmly plugged with the grommet. Otherwise, dust, smell, etc. may come into the passenger compartment indirectly from the rear quarter, via the side sill from the tie-down hole.



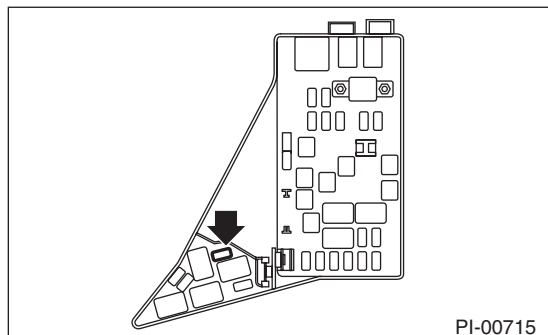
- (1) Grommet

32.DELIVERY (TEST) MODE

1) Install the delivery (test) mode fuse with ignition switch to OFF.

CAUTION:

Do not use any fuses that are installed on the vehicle.



- 2) Turn the ignition switch to ON and check that the malfunction indicator light starts blinking.
- 3) If the malfunction indicator light blinks, return the ignition key to LOCK.
- 4) Remove the delivery (test) mode fuse and attach it to the spare fuse holder provided on the fuse box cover.
- 5) Then, turn the ignition key to ON again.
- 6) Make sure that the malfunction indicator light is off. If the malfunction indicator light blinks, carry out an engine diagnosis.

33.IMMOBILIZER SYSTEM

- 1) Check that the engine starts with all keys that are equipped on vehicle. Also, when starting the engine, check that the security indicator light goes off.
- 2) Check that the security indicator light blinks in 60 seconds after turning the ignition switch from ON to ACC or to OFF, or immediately after removing the key. (Models without keyless access function)
- 3) Check that the security indicator light blinks immediately after turning the ignition switch from ON or ACC to OFF, or when the door is opened or closed while the ignition switch is at ON or ACC and the engine is stopped. (Models with keyless access function)

NOTE:

If malfunctions occur, refer to "IMMOBILIZER (DIAGNOSTICS)". <Ref. to IM(diag)-2, Basic Diagnostic Procedure.>

34.PUSH BUTTON START FUNCTION

- 1) While carrying the access key inside the vehicle and setting the shift lever in P range and the brake pedal OFF, check that the mode switches ACC → IGN ON → IGN OFF repeatedly, every time the push button ignition switch is pressed, and that the indicator light of push button ignition switch illuminates in orange.
- 2) While carrying the access key inside the vehicle and setting the shift lever in P range and the brake pedal ON, check that the indicator light of push button ignition switch illuminates in green.

NOTE:

When the select lever button is being pressed, the indicator light of push button ignition switch does not illuminate in green, even if the shift position is in P range.

- 3) While carrying the access key inside the vehicle and setting the shift lever in P range and the brake pedal ON, check that the engine starts when the push button ignition switch is pressed.
- 4) While the vehicle is stopped, engine is started and shift lever is in P range, check that the engine stops when the push button ignition switch is pressed.
- 5) While the vehicle is stopped, engine is started and shift lever is in N range, check that the engine stops when the push button ignition switch is pressed and that the mode switches ACC → IGN ON repeatedly every time the push button ignition switch is pressed.

35.STARTING CONDITION

Start the engine and check that the engine starts smoothly. If the 12 V battery voltage is low, recharge or replace the 12 V battery. If any noises are observed, immediately stop the engine and check and repair the abnormal components.

36.EXHAUST

Listen to the exhaust noise to see if no noises are observed. Check that no leaks are found.

37.INDICATOR AND WARNING LIGHTS

Check that all indicator lights and warning lights are operating correctly.

38.HEATER & VENTILATION

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

39. AIR CONDITIONER

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

NOTE:

To prevent the insufficient lubrication of the air conditioner, operate the air conditioner for five minutes at idling.

40. MULTI-FUNCTION DISPLAY (MFD)

Check that the Multi-Function Display (MFD) function operates normally.

41. AUDIO

- 1) Check if the AM/FM radio broadcasting can be heard.
- 2) Check that all the radio functions work properly and the noise level is normal.
- 3) Check the CD and AUX for normal operation.
- 4) Check that the AUX is installed into the console without looseness.
- 5) Check that the rearview camera operates normally.

42. NAVIGATION SYSTEM

- 1) Check all display functions for normal operation. (Refer to the operation manual.)
- 2) Check that the navigation system operates normally.
- 3) Check the radio, CD (DVD) player and AUX for normal operation.
- 4) Check that the AUX is installed into the console without looseness.
- 5) Check that the rearview camera operates normally.

43. ACCESSORY POWER SUPPLY SOCKET

- Check the operation of the front accessory power supply socket.
- Check operation of the accessory power supply socket in console box.

44. LIGHTING

- 1) Check the headlight operations. When pulling out the key, check if the headlight illuminates by turning the headlight switch from OFF to ON.
- 2) Check the stop light operation.
- 3) Check other lights for normal operations.

45. ILLUMINATION CONTROL

Check that the illumination control operates normally.

46. WINDOW WASHER SYSTEM

Check that the window washer system injects washer fluid to the specified area of the windshield and rear window glass. <Ref. to WW-42, ADJUSTMENT, Front Washer Nozzle.> <Ref. to WW-53, INSPECTING THE SPRAY POSITION, INSPECTION, Rear Washer.>

47. WIPER SYSTEM

Check the front and rear wipers for normal operations.

48. WIPER DEICER

Check that the wiper deicer operates normally.

NOTE:

When an ambient temperature is 5°C or more, wiper deicer operation is cancelled. Press the switch for 3 seconds or more to perform the compulsory operation.

49. POWER WINDOW

- Operate the power window switches one by one to check that each of the power windows goes up and down without noises.
- Check AUTO UP/AUTO DOWN operate properly by operating the power window switch on driver's seat side.

CAUTION:

If battery has been removed, AUTO UP does not operate properly because initialized. In this case, perform the initial setting (reset A) and check AUTO UP operates properly.

NOTE:

Check the power window if the door glass of the driver's seat does not open/close automatically. <Ref. to GW-10, INSPECTION, Power Window System.>

50. SUNROOF

Check that the sunroof operates normally.

51. REAR DEFOGGER SYSTEM

Press the rear defogger switch and check that the light inside the switch is activated for approx. 15 minutes and the rear defogger automatically turns to OFF.

52. DOOR MIRROR

- Check that the remote control mirror operates normally.
- Check that the heated mirror operates normally.

53. DIAGNOSTIC TROUBLE CODE (DTC) CHECK

Read the diagnostic trouble code and check that the diagnostic trouble code is not detected. If any diagnostic trouble code is detected, clear all.

NOTE:

For detailed operation procedures, refer to "PC application help for Subaru Select Monitor".

54. BRAKE TEST

Check the foot brake for normal operations.

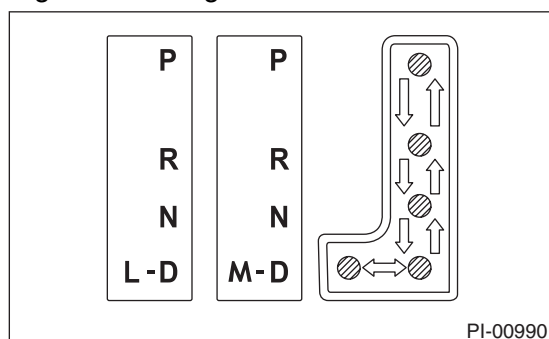
55. PARKING BRAKE

Check the parking brake for normal operations. When pulling the parking brake lever with a force of 200 N (20 kgf, 45 lb), check that the lever stroke of parking brake lever is 7 to 8 notches.

56. SHIFT CONTROL

• CVT model

- 1) Turn the ignition switch to ON.
- 2) While brake pedal is not depressed, check if the select lever does not move from "P" range.
- 3) While brake pedal is depressed, check if the select lever moves from "P" range.
- 4) Set the select lever to other than "P" range.
- 5) When the ignition switch is turned to OFF, check if the ignition key switch cannot be removed.
- 6) Set the select lever to each gear position and check the shifting while driving the vehicle. Operate the paddle shift at manual mode and check the shifting while driving the vehicle.



Selector position	Gear position					
	1st	2nd	3rd	4th	5th	6th
D	Continuously variable speed change					
Manual mode	OK	OK	OK	OK	OK	OK

- 7) Set the select lever to other than "P" range. (Except for models with keyless access function)

- 8) When the ignition switch is turned to OFF, check if the ignition key switch cannot be removed. (Except for models with keyless access function)

• MT model

Check for smooth operation to each position.

57. CRUISE CONTROL

Operate the cruise control system. Check that the system is activated and deactivated correctly. (In the delivery mode, the cruise control does not operate, even when the cruise control switch is pressed.)

58. SUBARU EyeSight

- Operate the EyeSight system. Check that the system is activated and deactivated correctly.
- Check the stereo camera cover opening for foreign matter.
- Check the glass in front of stereo camera for dirt and stickers.
- Check the lens and filter of the stereo camera for dirt such as fingerprints.
- Check the filter at lens portion of stereo camera for damage.
- According to the "ES(diag)" section, check the windshield glass and dashboard in front of stereo camera to make sure that no aftermarket part is adhered or attached in the prohibited area. <Ref. to ES(diag)-7, WINDSHIELD GLASS AND DASHBOARD, INSPECTION, General Description.>
- When delivering the vehicle, explain to the customer to make sure not to touch the filter at lens portion of the stereo camera.

59. HYBRID SYSTEM

Activate the hybrid system. Check that the system is activated and deactivated properly.

60. EV MODE LAMP

- 1) Check that the EV mode lamp setting is ON.
- 2) Check that the EV mode lamp illuminates during EV traveling or when the Auto Start Stop operates.

61. POWER STEERING SYSTEM (ELECTRIC POWER STEERING MODEL)

Check that the electric power steering warning light illuminates after the ignition switch is turned ON, and goes off after the engine is started.

62. FLUID LEAKAGE

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

63. WATER LEAK TEST

Spray the vehicle with water using a hose 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 the windows and doors securely. Close the front hood, trunk lid and rear gate before starting the test.
- Connect a hose to a tap, and spray water on the vehicle. The rate of water spray must be approx. 20 to 25 L (5.3 — 6.6 US gal, 4.4 — 5.5 Imp gal) per minute.

When spraying water on areas adjacent to the floor and wheel house, increase the pressure. When spraying water on areas other than the floor 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) away from 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 the areas that may have possibly contributed to the leak.

64. APPEARANCE 2

1) If protective coating (wrap guard) is applied, remove it.

NOTE:

- When removing the wrap guard, using steam will make it easier to remove.
- Vehicle left for a extended periods or at low temperatures, spray the vehicle with water heated 50 — 60°C (122 — 140°F) to raise the surface temperature before peeling off the wrap guard. Do not use the water heated to over 60°C (140°F).
- If the adhesive remains exist on the coated surface, soak a flannel rag, etc. with a small amount of coating wax or solvent such as oil benzene and IPA, put the soaked cloth on the remains lightly, and then wipe them off with a flannel rag etc.

- Keep solvent from touching the resin or rubber parts. Do not use coating wax or solvents while the component surface temperature is hot due to hot weather etc.

- If the coated surface is swollen out due to seams or moisture, expose the vehicle to the sunlight for a few hours or heat the seam and swollen portions using a dryer etc.

- Dispose of the peeled wrap guard as burnable industrial garbage.

2) Check the whole vehicle body for flaking paint, damage by transportation, corrosion, dirt, cracks or blisters.

NOTE:

- It is better to determine an inspection pattern in order to avoid missing an area, since the total inspection area is wide.

- Do not repair the body paint unless absolutely necessary. Also, if the vehicle is in need of repair to remove scratches or corroded paint, the repair area must be limited to the minimum. Re-painting and spray painting must be avoided as much as possible.

3) Check each window glass for scratches carefully. Slight damage may be removed by polishing with cerium oxide. (Fill a cup half with cerium oxide, and add warm water to it. Then agitate the content until it turns to wax. Apply this wax to a soft cloth, and polish the glass with it.)

4) Check each portion of the vehicle body and underside components for the formation of rust. If rust is discovered, remove it with sandpaper of #80 to #180 and treat the surface with rust preventive. After this treatment is completed, flush the portion thoroughly, and prepare the surface for repair painting.

5) Check each portion of body and all of the exterior parts for deformation or distortion. Also, check each light lens for cracks.

6) Peel the protective tape, vinyl wrapping and identification seal attached to the following places.

- Seat
- Door trim
- Floor carpet
- Side sill
- Front hood lock release lever
- Rear shelf
- Aluminum pedal
- Rear wiper
- Door mirror
- High-mounted stop light (placed in passenger room)
- Handle - door outer
- Cover - handle outer

Pre-delivery Inspection

PRE-DELIVERY INSPECTION

PERIODIC MAINTENANCE SERVICES

PM

	Page
1. General Description	2
2. Schedule	3
3. Engine Oil	6
4. Engine Oil Filter	7
5. Spark Plug	8
6. V-belt	9
7. Fuel Line	10
8. Fuel Filter	11
9. Air Cleaner Element	12
10. Cooling System	13
11. Engine Coolant	14
12. Clutch System	15
13. Transmission Gear Oil	16
14. CVTF	17
15. Front & Rear Differential Gear Oil	18
16. Brake Line	19
17. Brake Fluid	21
18. Disc Brake Pad and Disc	22
19. Parking Brake	23
20. Suspension	24
21. Wheel Bearing	27
22. Axle Boots & Joints	28
23. Tire Inspection and Rotation	29
24. Steering System (Power Steering)	30
25. A/C Filter	32

General Description

PERIODIC MAINTENANCE SERVICES

1. General Description

A: GENERAL DESCRIPTION

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

Schedule

PERIODIC MAINTENANCE SERVICES

2. Schedule

A: MAINTENANCE SCHEDULE

1. MODEL WITH US SPECIFICATION

Maintenance item		Maintenance interval [Number of months or km (miles), whichever occurs first]													Remarks
	Months	3	6	12	18	24	30	36	42	48	54	60	66	To be continued to the next table.	
	× 1,000 km	4.8	9.6	19.2	28.8	38.4	48	57.6	67.2	76.8	86.4	96	105.6		
	× 1,000 miles	3	6	12	18	24	30	36	42	48	54	60	66		
1	Engine oil		R	R	R	R	R	R	R	R	R	R	R		Note 1.
2	Engine oil filter		R	R	R	R	R	R	R	R	R	R	R		Note 1.
3	Spark plug											R			
4	V-belt						I					I			
5	Fuel line						I					I			Note 6. Note 7.
6	Fuel filter														Note 2. Note 7.
7	Air cleaner element						R					R			Note 8.
8	Cooling system						I					I			Note 10.
9	Engine coolant	Replace after the first 11 years or 220,000 km (137,500 miles), and every six years or 120,000 km (75,000 miles) thereafter													Note 10.
10	Clutch system			I		I		I		I		I			
11	Transmission gear oil						I					I			Note 3.
12	CVTF						I					I			Note 4.
13	Front & rear differential gear oil						I					I			Note 3.
14	Brake line			I		I		I		I		I			Note 6.
15	Brake fluid / clutch fluid (MT model only)						R					R			Note 5.
16	Disc brake pad and disc			I		I		I		I		I			Note 6.
17	Parking brake			I		I		I		I		I			Note 6.
18	Suspension			I		I		I		I		I			Note 6.
19	Wheel bearing											I			
20	Axle boots and joints			I		I		I		I		I			Note 6.
21	Tire rotation		P	P	P	P	P	P	P	P	P	P	P		Note 9.
22	Steering system (Power steering)			I		I		I		I		I			Note 6.
23	A/C filter	Replace every 12 months or 19,200 km (12,000 miles)													Note 8.

Schedule

PERIODIC MAINTENANCE SERVICES

Maintenance item		Maintenance interval [Number of months or km (miles), whichever occurs first]												Remarks
	Months	Continued from previous table	72	78	84	90	96	102	108	114	120	126	132	
	× 1,000 km		115.2	124.8	134.4	144	153.6	163.2	172.8	182.4	192	201.6	211.2	
	× 1,000 miles		72	78	84	90	96	102	108	114	120	126	132	
1	Engine oil		R	R	R	R	R	R	R	R	R	R	R	Note 1.
2	Engine oil filter		R	R	R	R	R	R	R	R	R	R	R	Note 1.
3	Spark plug										R			
4	V-belt					I					I			
5	Fuel line					I					I			Note 6. Note 7.
6	Fuel filter		R											Note 2. Note 7.
7	Air cleaner element					R					R			Note 8.
8	Cooling system					I					I			Note 10.
9	Engine coolant	Replace after the first 11 years or 220,000 km (137,500 miles), and every six years or 120,000 km (75,000 miles) thereafter												Note 10.
10	Clutch system		I		I		I		I		I		I	
11	Transmission gear oil					I					I			Note 3.
12	CVTF					I					I			Note 4.
13	Front & rear differential gear oil					I					I			Note 3.
14	Brake line		I		I		I		I		I		I	Note 6.
15	Brake fluid / clutch fluid (MT model only)					R					R			Note 5.
16	Disc brake pad and disc		I		I		I		I		I		I	Note 6.
17	Parking brake		I		I		I		I		I		I	Note 6.
18	Suspension		I		I		I		I		I		I	Note 6.
19	Wheel bearing										I			
20	Axle boots and joints		I		I		I		I		I		I	Note 6.
21	Tire rotation		P	P	P	P	P	P	P	P	P	P	P	Note 9.
22	Steering system (Power steering)		I		I		I		I		I		I	Note 6.
23	A/C filter	Replace every 12 months or 19,200 km (12,000 miles)												Note 8.

Symbol

R: Replace

I: Inspection

P: Perform

NOTE:

1. When the vehicle is used under severe conditions, replace the engine oil and engine oil filter every 3 months or 4,800 km (3,000 miles).
2. When the vehicle is used under extremely low or high temperature conditions, the fuel filter may become dirty. Therefore, it should be replaced frequently.
3. When the vehicle is used under severe conditions, replace every 15 months or 24,000 km (15,000 miles).
4. When the vehicle is used under severe conditions, replace CVTF every 40,000 km (24,855 miles).
5. When the vehicle is used in high humidity area or mountain area, replace the brake fluid every 15 months or 24,000 km (15,000 miles).
6. When the vehicle is used under severe conditions, replace every 6 months or 9,600 km (6,000 miles).
7. 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.
8. When the vehicle is used in extremely dusty conditions, this item should be replaced more often.
9. 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.
10. To prevent cooling system leakage, be sure to add SUBARU genuine cooling system conditioner when replacing coolant.

Examples of severe conditions

- a. Drive repeatedly at short distance. (Maintenance items 1 and 2)
- b. Drive repeatedly on bumpy muddy road. (Maintenance items 14, 15 and 17)
- c. Drive repeatedly in dusty conditions. (Maintenance items 7 and 23)
- d. Drive in extremely cold weather. (Maintenance items 1, 2, 16, 18, 20 and 22)
- e. Area where salt or other corrosive used. (Maintenance items 5, 14, 15, 16, 17 and 20)
- f. Coastal area. (Maintenance item 5)
- g. Repeat towing trailer. (Maintenance items 1, 2, 11, 12, 13, 14, 15, 16, 17, 18, 20 and 22)

3. Engine Oil

A: INSPECTION

Refer to “LU” section for engine oil inspection.
<Ref. to LU(H4DO(w/o HEV))-12, INSPECTION,
Engine Oil.>

B: REPLACEMENT

Refer to “LU” section for engine oil replacement.
<Ref. to LU(H4DO(w/o HEV))-13, REPLACE-
MENT, Engine Oil.>

4. Engine Oil Filter

A: REPLACEMENT

Refer to “LU” section for engine oil filter replacement. <Ref. to LU(H4DO(w/o HEV))-29, Engine Oil Filter.>

5. Spark Plug

A: REPLACEMENT

Refer to “IG” section for spark plug replacement.
<Ref. to IG(H4DO(w/o HEV))-4, Spark Plug.>

6. V-belt

A: INSPECTION

Refer to “ME” section for V-belt inspection. <Ref. to ME(H4DO(w/o HEV))-122, V-belt.>

B: REPLACEMENT

Refer to “ME” section for V-belt replacement. <Ref. to ME(H4DO(w/o HEV))-122, V-belt.>

7. Fuel Line

A: INSPECTION

The fuel line is located mostly internally, so check pipes, areas near pipes, and engine compartment piping for rust, hose and tube damage, loose band, etc. If faulty parts are found, repair or replace them.
<Ref. to FU(H4DO(w/o HEV))-170, INSPECTION, Fuel Delivery and Evaporation Lines.> <Ref. to FU(H4DO(HEV))-157, INSPECTION, Fuel Delivery and Evaporation Lines.>

8. Fuel Filter

A: REPLACEMENT

For fuel filter replacement procedure, refer to “FU” section. <Ref. to FU(H4DO(w/o HEV))-153, Fuel Filter.> <Ref. to FU(H4DO(HEV))-138, Fuel Filter.>

B: INSPECTION

Replace if the filter is clogged, or time for replacement has come.

9. Air Cleaner Element

A: REPLACEMENT

Refer to “IN” section for air cleaner element replacement. <Ref. to IN(H4DO(w/o HEV))-4, Air Cleaner Element.> <Ref. to IN(H4DO(HEV))-4, Air Cleaner Element.>

10. Cooling System

A: INSPECTION

1. RADIATOR

Check that there are no engine coolant leaks from the hose connections. Refer to “CO” section for radiator inspection. <Ref. to CO(H4DO(w/o HEV))-86, INSPECTION, Radiator.>

2. RADIATOR CAP

Refer to “CO” section for radiator cap inspection. <Ref. to CO(H4DO(w/o HEV))-88, INSPECTION, Radiator Cap.>

3. COOLING FAN

Check the radiator fan operates using Subaru Select Monitor, when the coolant temperature exceeds the specified value. If it does not operate, check the radiator fan system. <Ref. to CO(H4DO(w/o HEV))-11, INSPECTION, Radiator Fan System.>

4. COOLING SYSTEM

Start the engine, and then inspect that it does not overheat or it is not cooled excessively. If it overheats or it is cooled excessively, check the cooling system.

11.Engine Coolant

A: INSPECTION

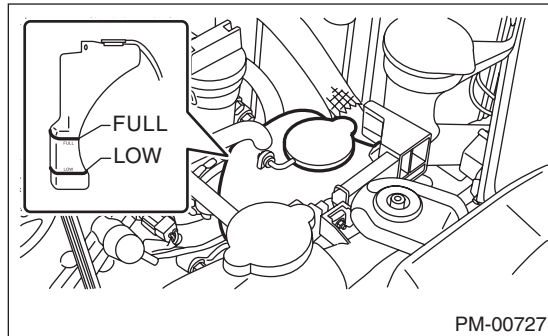
CAUTION:

- Do not use water instead of coolant.
- Refer to “RM” section for the recommended engine coolant. <Ref. to RM-4, ENGINE COOLANT, RECOMMENDED MATERIALS, Recommended Materials.>

- 1) Park the vehicle on a level surface.
- 2) Make sure the engine coolant level in the reservoir tank is between “FULL” and “LOW” when the engine is cold.

NOTE:

If the engine coolant level drops, make sure that there are no engine coolant leakage, and add engine coolant to the “FULL” line.



- 3) Remove the radiator cap and make sure that the radiator is filled with engine coolant up to the filler neck position.

B: REPLACEMENT

Refer to “CO” section for engine coolant replacement. <Ref. to CO(H4DO(w/o HEV))-16, REPLACEMENT, Engine Coolant.>

12.Clutch System

A: INSPECTION AND ADJUSTMENT

Refer to “CL” section for inspection and adjustment of clutch system. <Ref. to CL-25, INSPECTION, Clutch Pedal.> <Ref. to CL-26, ADJUSTMENT, Clutch Pedal.>

13. Transmission Gear Oil

A: INSPECTION

Refer to “5MT” section for transmission gear oil inspection. <Ref. to 5MT-21, INSPECTION, Transmission Gear Oil.>

B: REPLACEMENT

Refer to “5MT” section for transmission gear oil replacement. <Ref. to 5MT-21, REPLACEMENT, Transmission Gear Oil.>

14.CVTF

A: INSPECTION

Refer to “CVT (TR580)” section for CVTF inspection. <Ref. to CVT(TR580)-36, INSPECTION, CVTF.> <Ref. to CVT(TH58A)-41, INSPECTION, CVTF.>

B: REPLACEMENT

Refer to “CVT (TR580)” section for CVTF replacement. <Ref. to CVT(TR580)-38, REPLACEMENT, CVTF.> <Ref. to CVT(TH58A)-43, REPLACEMENT, CVTF.>

15. Front & Rear Differential Gear Oil

A: INSPECTION

1. FRONT DIFFERENTIAL (MT MODEL)

Front differential gear oil of MT model lubricates the transmission and differential together. Refer to “Transmission Gear Oil” for inspection procedures. <Ref. to 5MT-21, INSPECTION, Transmission Gear Oil.>

2. FRONT DIFFERENTIAL (CVT MODEL)

Refer to “CVT (TR580)” or “CVT (TH58A)” section for front differential gear oil inspection of CVT model. <Ref. to CVT(TR580)-41, INSPECTION, Differential Gear Oil.> <Ref. to CVT(TH58A)-45, INSPECTION, Differential Gear Oil.>

3. REAR DIFFERENTIAL

Refer to “DI” section for rear differential gear oil inspection. <Ref. to DI-19, INSPECTION, Differential Gear Oil.>

B: REPLACEMENT

1. FRONT DIFFERENTIAL (MT MODEL)

Front differential gear oil of MT model lubricates the transmission and differential together. Refer to “5MT” section for replacement procedure. <Ref. to 5MT-21, REPLACEMENT, Transmission Gear Oil.>

2. FRONT DIFFERENTIAL (CVT MODEL)

Refer to “CVT (TR580)” or “CVT (TH58A)” section for front differential gear oil replacement. <Ref. to CVT(TR580)-43, REPLACEMENT, Differential Gear Oil.> <Ref. to CVT(TH58A)-47, REPLACEMENT, Differential Gear Oil.>

3. REAR DIFFERENTIAL

Refer to “DI” section for rear differential gear oil replacement. <Ref. to DI-19, REPLACEMENT, Differential Gear Oil.>

16.Brake Line

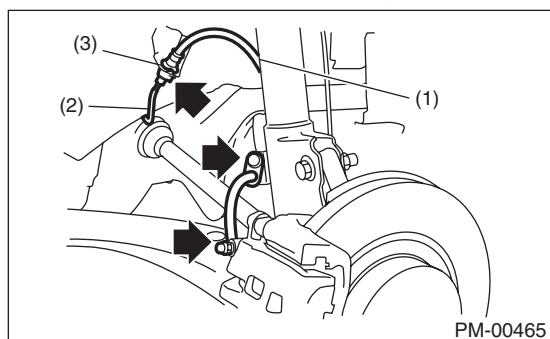
A: INSPECTION

1. BRAKE LINE

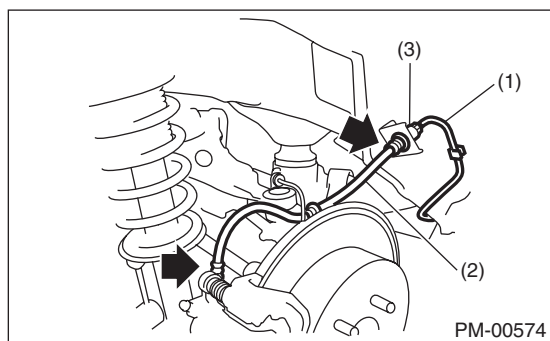
- 1) Check for scratches, swelling, corrosion, traces of fluid leakage on the brake hoses or pipe joints.
- 2) Make sure that brake pipes/hoses do not interfere with adjacent parts and there is no loose connector/clamp during driving.
- 3) Check any trace of fluid leakage, scratches, etc. on master cylinder, wheel cylinder and hydraulic unit.

NOTE:

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



- (1) Front brake hose
- (2) Front brake pipe
- (3) Clamp



- (1) Brake pipe
- (2) Rear brake hose
- (3) Clamp

2. SERVICE BRAKE

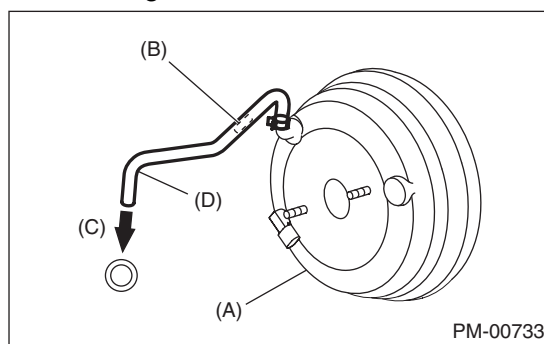
Refer to "BR" section for foot brake inspection.
<Ref. to BR-72, INSPECTION, Brake Pedal.>

3. BRAKE SERVO SYSTEM

- 1) With the engine off, depress the brake pedal several times applying the same pedal force. Check that the travel distance should not change.
- 2) With the brake pedal depressed, start the engine. Check that the pedal moves slightly toward the floor.
- 3) With the brake pedal depressed, stop the engine and keep the pedal depressed for 30 seconds. Check that the pedal height does not change.
- 4) A check valve is built into the brake booster nipple. Disconnect the vacuum hose to inspect function of check valve.

Check that check valve ventilates from booster side to engine side. Also, check that there is no ventilation from engine side to booster side.

- Gasoline engine model

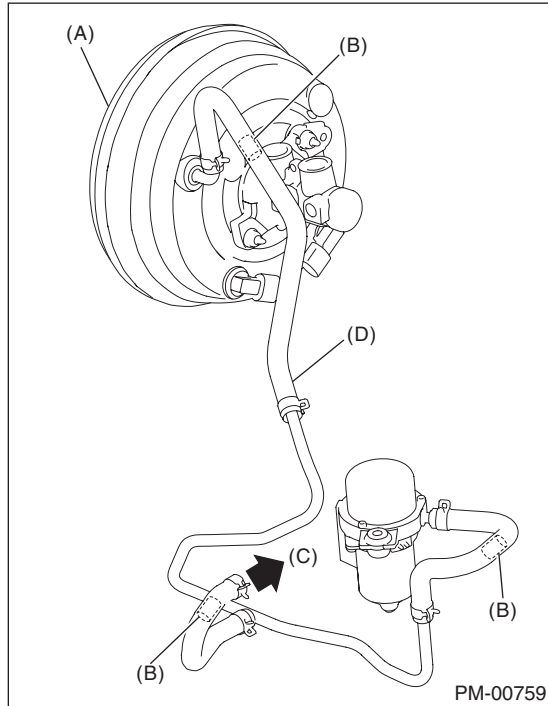


- (A) Brake booster
- (B) Check valve
- (C) Engine side
- (D) Vacuum hose

Brake Line

PERIODIC MAINTENANCE SERVICES

- HEV model



- (A) Brake booster
- (B) Check valve
- (C) Engine side
- (D) Vacuum hose and pipe ASSY

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

CAUTION:

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

6) Check that the vacuum hose is securely tightened.

17.Brake Fluid

A: INSPECTION

Refer to “BR” section for brake fluid inspection.
<Ref. to BR-60, INSPECTION, Brake Fluid.>

B: REPLACEMENT

Refer to “BR” section for brake fluid replacement.
<Ref. to BR-61, REPLACEMENT, Brake Fluid.>

18.Disc Brake Pad and Disc

A: INSPECTION

Refer to “BR” section for disc brake pad and disc inspection. <Ref. to BR-19, INSPECTION, Front Brake Pad.> <Ref. to BR-33, INSPECTION, Rear Brake Pad.> <Ref. to BR-21, INSPECTION, Front Disc Rotor.> <Ref. to BR-37, INSPECTION, Rear Disc Rotor.>

19. Parking Brake

A: INSPECTION

Refer to "PB" section for parking brake inspection.
<Ref. to PB-21, INSPECTION, Parking Brake Assembly (Rear Disc Brake).>

B: ADJUSTMENT

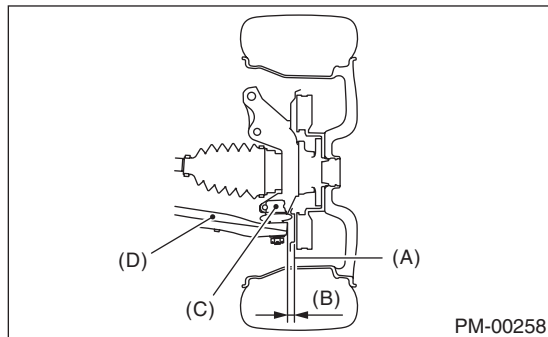
Refer to "PB" section for parking brake adjustment.
<Ref. to PB-21, ADJUSTMENT, Parking Brake Assembly (Rear Disc Brake).>

20. Suspension

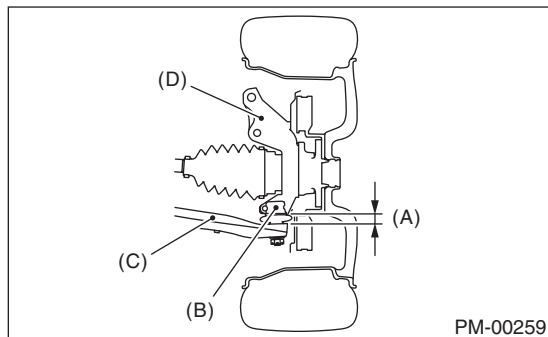
A: INSPECTION

1. FRONT SUSPENSION BALL JOINT

- 1) Lift up the vehicle until front wheels are off ground.
- 2) Grasp the bottom of tire and move it in and out in axial direction. If movement (B) is observed between the brake disc cover (A) and end of front arm (D), ball joint (C) may be excessively worn.



- 3) Next, grasp the end of front arm (C) and move it up and down. If movement (A) between the housing (D) and front arm (C) boss is observed, ball joint (B) may be excessively worn.



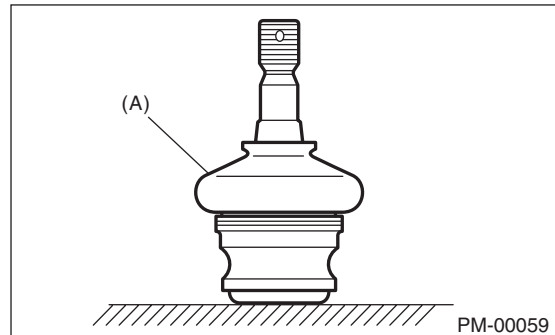
- 4) If the relative movement is observed in the preceding two steps, remove and inspect the ball joint. If the free play exceeds standard value, replace the ball joint. <Ref. to FS-33, Front Ball Joint.>

- 5) Damage of dust boot

Visually inspect the ball joint dust boot. Replace if ball joint is damaged.

NOTE:

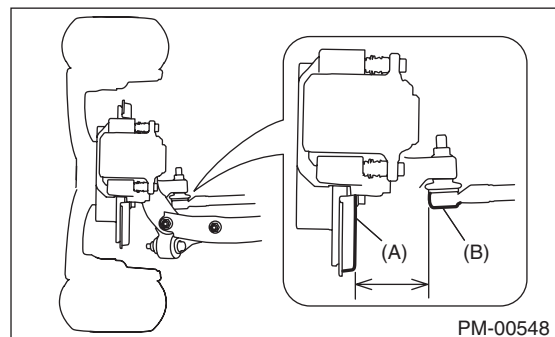
When the front arm ball joint is removed or replaced, check the toe-in of front wheel. If it is not within the specified value, adjust the toe-in. <Ref. to FS-7, Wheel Alignment.>



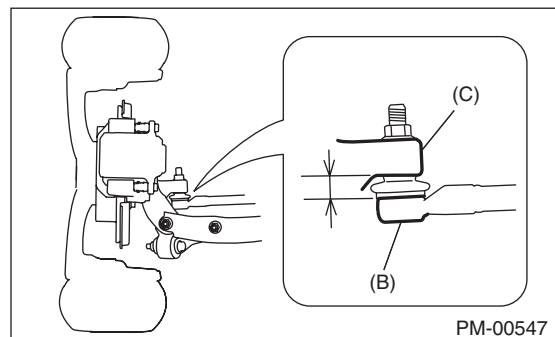
(A) Dust boot

2. REAR SUSPENSION BALL JOINT

- 1) Lift up the vehicle until rear wheels are off ground.
- 2) Grasp the bottom of tire and move it in and out in axial direction.
- 3) If movement is observed between the brake disc cover (A) and end of front lateral link (B), ball joint may be excessively worn.



- 4) Grasp the end of front lateral link (B) and move it up and down. If movement is observed between the housing (C) and front lateral link (B) boss, ball joint may be excessively worn.

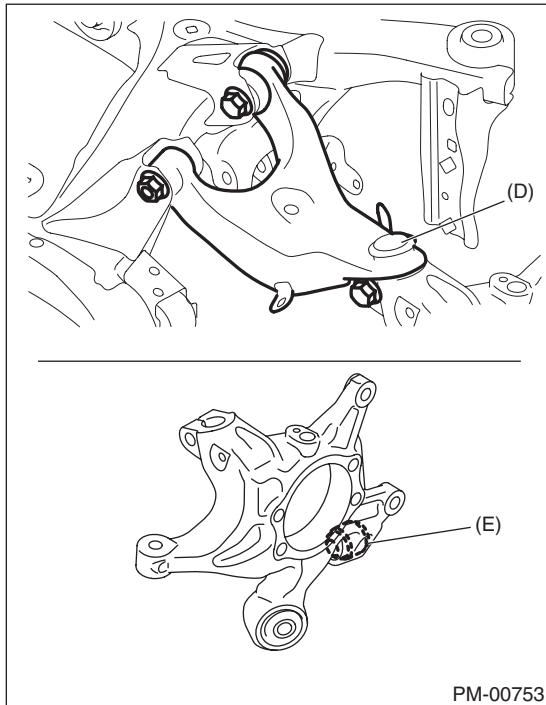


5) If the movement related to the previous two steps is observed, replace the front lateral link.
<Ref. to RS-23, Front Lateral Link.>

6) Damage of dust boots

Visually inspect the ball joint dust boots. Replace if front lateral link is damaged.

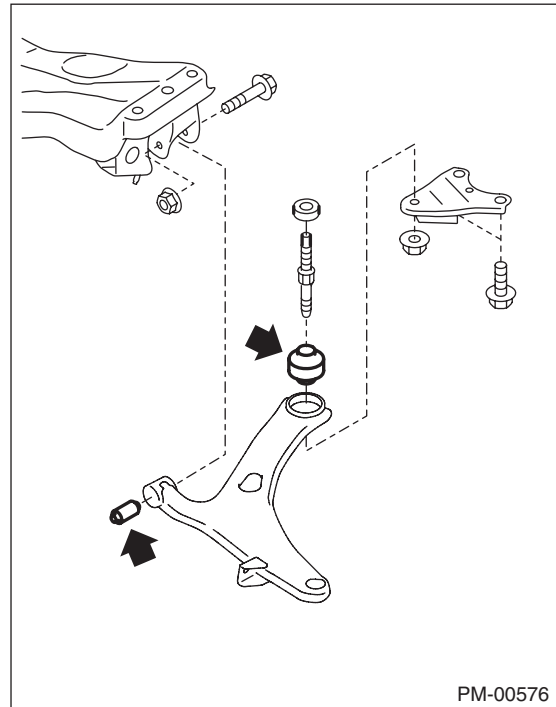
7) Check the upper arm ball joint (D) and the pillow ball bushing (E) of housing in the same manner.



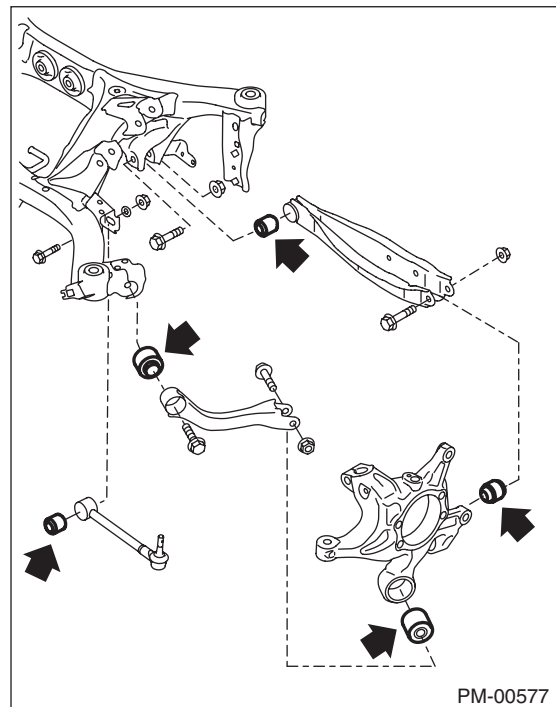
3. FRONT, REAR SUSPENSION BUSHING

Apply pressure with tire lever etc, and inspect the bushing for excessive wear or damage. If defective, replace the bushing.

- Front suspension bushing



- Rear suspension bushing



4. WHEEL ARCH HEIGHT

Refer to “FS” section for wheel arch height inspection. <Ref. to FS-8, WHEEL ARCH HEIGHT, INSPECTION, Wheel Alignment.>

5. WHEEL ALIGNMENT

Measure and adjust the front and rear wheel alignment at a time. Refer to “FS” section for measurement and adjustment of wheel alignment. <Ref. to FS-7, INSPECTION, Wheel Alignment.>

6. OIL LEAKAGE OF STRUT AND SHOCK ABSORBER

Visually inspect the front strut and rear shock absorber for oil leakage. Replace the front strut and rear shock absorber if oil leaks excessively.

7. TIGHTNESS OF BOLTS AND NUTS

Check the bolts and nuts for looseness. Retighten the bolts and nuts to specified torque. If the self-locking nuts and bolts are removed, replace them with new parts. <Ref. to FS-2, General Description.> <Ref. to RS-2, General Description.>

8. DAMAGE TO SUSPENSION PARTS

Check the following parts and the fastening portion of the vehicle body for deformation or excessive rusting which impairs the suspension. Thoroughly remove the deposits of the lower spring seat of strut where dust or mud are likely piled up. If necessary, replace the damaged parts with new parts. If minor rust formation, pitting, etc. are noted, remove the rust and take rust prevention measure.

- Front suspension
 - Front arm
 - Crossmember
 - Strut
- Rear suspension
 - Sub frame
 - Front lateral link
 - Rear lateral link
 - Upper arm
 - Trailing link
 - Shock absorber
- In the area 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 measures as required.

21. Wheel Bearing

A: INSPECTION

1. FRONT WHEEL BEARING

NOTE:

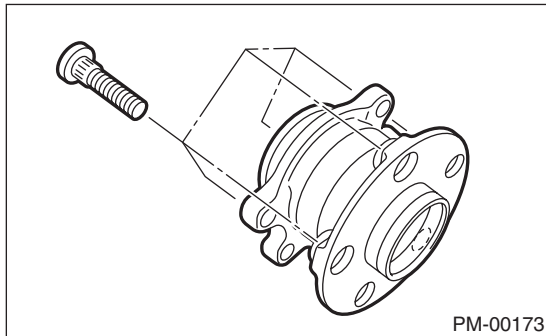
Inspect the condition of front wheel bearing grease.

- 1) Jack-up the front side of vehicle.
- 2) While holding the 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 the hub and measure axial play in axial direction.

Service limit:

Straight-ahead position within 0.05 mm (0.0020 in)

- 5) Remove the bolts and self-locking nuts, and extract the front arm from front crossmember.
 - 6) Remove the transmission-side joint of the front drive shaft from the transmission. <Ref. to DS-17, Front Axle.>
 - 7) While supporting the front drive shaft horizontally with one hand, turn the hub with the other hand to check for noise or binding.
- If the hub is noisy or binds, replace the front axle.



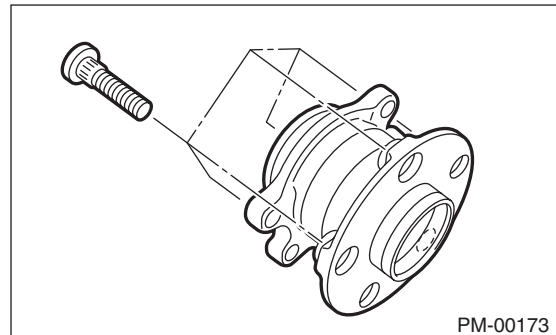
2. REAR WHEEL BEARING

- 1) Jack-up the rear side of vehicle.
- 2) While holding the 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 the hub and measure axial play 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-72, Rear Drive Shaft.>
 - 6) While supporting rear drive shaft horizontally with one hand, turn the hub with the other hand to check for noise or binding.
- If the hub is noisy or binds, replace the rear axle.



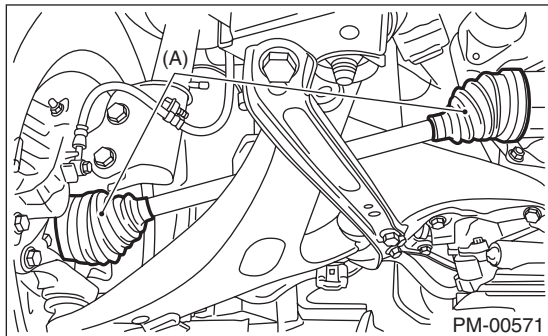
22. Axle Boots & Joints

A: INSPECTION

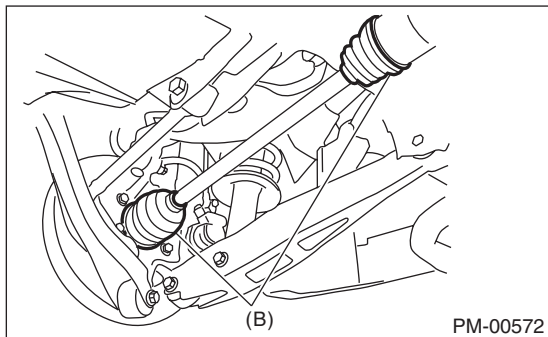
1. FRONT AND REAR AXLE BOOTS

Inspect the front axle boots (A) and rear axle boots (B) for deformation, damage or failure. If faulty, replace with new part. <Ref. to DS-56, Front Drive Shaft.> <Ref. to DS-72, Rear Drive Shaft.>

- Front



- Rear



2. PROPELLER SHAFT

Inspect the propeller shaft for damage or failure. If faulty, replace with new part. <Ref. to DS-12, Propeller Shaft.>

23. Tire Inspection and Rotation

A: INSPECTION

Refer to “WT” section for tire inspection and rotation. <Ref. to WT-4, TIRE ROTATION, INSPECTION, Tire and Wheel.>

Steering System (Power Steering)

PERIODIC MAINTENANCE SERVICES

24. Steering System (Power Steering)

A: INSPECTION

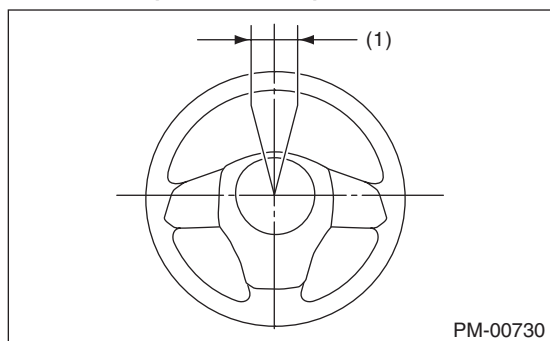
1. STEERING WHEEL

- 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 (periphery).

Steering wheel free play:

0 — 17 mm (0 — 0.67 in)



(1) Steering wheel free play

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

Play limit:

0.5 mm (0.020 in)

- 3) Drive the vehicle and check the following items.
 - (1) Steering force:
The effort required for steering should be smooth and even at all points, and should not vary.
 - (2) Pulled to one side:
Steering wheel should not be pulled to one side while driving on a level surface.
 - (3) Wheel runout:
Steering wheel should not show any sign of runout.
 - (4) Return status:
Steering wheel should return to its original position after it has been turned and then released.

2. STEERING SHAFT JOINT

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. <Ref. to PS-14, Universal Joint.>

Tightening torque:

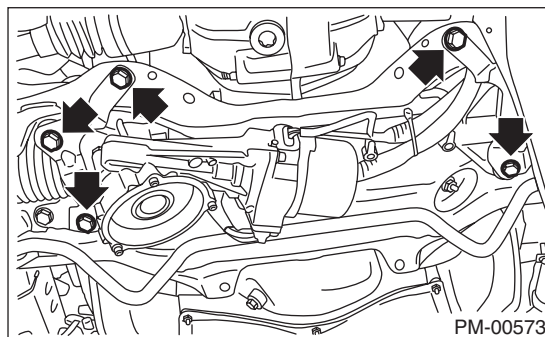
24 N·m (2.4 kgf-m, 17.4 ft-lb)

3. GEARBOX

- 1) Set the steering wheel in the straight position, then rotate it 90° in both the left and right directions. While steering wheel is being rotated, check the looseness of the gearbox.

Tightening torque:

60 N·m (6.1 kgf-m, 44.3 ft-lb)

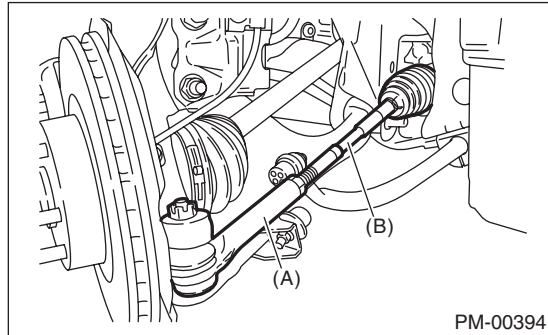


- 2) Check the boot for damage, cracks or deterioration.

- 3) With the vehicle stopped on a level surface, quickly turn the steering wheel to the left and right. While steering wheel is being rotated, check the gear backlash. If any noise is noticed, adjust the gear backlash. <Ref. to PS-42, GEARBOX BACKLASH ADJUSTMENT, ADJUSTMENT, Electric Power Steering Gearbox.>

4. TIE-ROD

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



(A) Tie-rod end

(B) Tie-rod

2) Confirm that the connections of knuckle ball joints for play, and then check for damage on dust boots and free play of ball studs. If castle nut is loose, retighten it to the specified torque, then tighten further up to a maximum of 60° until the 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:

85 N·m (8.7 kgf-m, 62.7 ft-lb)

5. GEARBOX BOOTS

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

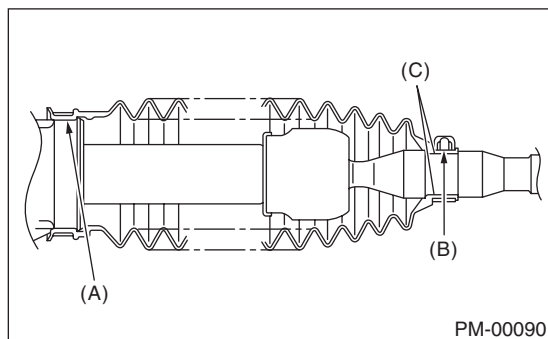
1) The (A) and (B) positions of the gearbox boot are fitted in (A) and (C) grooves of gearbox and the rod.

2) Clips are fitted onto the boot grooves to the positions (A) and (B) of the boot.

3) Check that there is no cracks or holes in the boot.

NOTE:

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



25.A/C Filter

A: REPLACEMENT

Refer to “AC” section for A/C filter replacement.

<Ref. to AC-109, REPLACEMENT, A/C Filter.>

ENGINE 1 SECTION

This service manual has been prepared to provide SUBARU service personnel with the necessary information and data for the correct maintenance and repair of SUBARU vehicles.

This manual includes the procedures for maintenance, disassembling, reassembling, inspection and adjustment of components and diagnostics for guidance of experienced mechanics.

Please peruse and utilize this manual fully to ensure complete repair work for satisfying our customers by keeping their vehicle in optimum condition. When replacement of parts during repair work is needed, be sure to use SUBARU genuine parts.

All information, illustration and specifications contained in this manual are based on the latest product information available at the time of publication approval.

FUEL INJECTION (FUEL SYSTEMS)

FU(H4DO(w/o
HEV))EMISSION CONTROL
(AUX. EMISSION CONTROL DEVICES)EC(H4DO(w/o
HEV))

INTAKE (INDUCTION)

IN(H4DO(w/o
HEV))

MECHANICAL

ME(H4DO(w/o
HEV))

EXHAUST

EX(H4DO(w/o
HEV))

COOLING

CO(H4DO(w/o
HEV))

LUBRICATION

LU(H4DO(w/o
HEV))

SPEED CONTROL SYSTEMS

SP(H4DO(w/o
HEV))

IGNITION

IG(H4DO(w/o
HEV))

STARTING/CHARGING SYSTEMS

SC(H4DO(w/o
HEV))

ENGINE (DIAGNOSTICS)

EN(H4DO w/o
HEV)(diag)

GENERAL DESCRIPTION

GD(H4DO w/o
HEV)

FUEL INJECTION (FUEL SYSTEMS)

FU(H4DO(w/o HEV))

	Page
1. General Description	2
2. Throttle Body	14
3. Intake Manifold	19
4. Engine Wiring Harness	43
5. Engine Coolant Temperature Sensor	51
6. Engine Oil Temperature Sensor	53
7. Crankshaft Position Sensor	55
8. Crankshaft Position Sensor Plate	58
9. Camshaft Position Sensor	59
10. Oil Control Solenoid	64
11. Knock Sensor	68
12. Throttle Position Sensor	72
13. Mass Air Flow and Intake Air Temperature Sensor	73
14. Manifold Absolute Pressure Sensor	76
15. Fuel Injector	79
16. Tumble Generator Valve Assembly	85
17. Tumble Generator Valve Actuator	90
18. Front Oxygen (A/F) Sensor	92
19. Rear Oxygen Sensor	96
20. Engine Control Module (ECM)	100
21. Main Relay	102
22. Fuel Pump Relay	104
23. Electronic Throttle Control Relay	106
24. Fuel	109
25. Fuel Tank Protector	114
26. Fuel Tank	116
27. Fuel Filler Pipe	132
28. Fuel Pump	137
29. Fuel Level Sensor	143
30. Fuel Sub Level Sensor	146
31. Fuel Filter	153
32. Fuel Delivery and Evaporation Lines	164
33. Fuel System Trouble in General	171