



SUBARU LEGACY

2004 Model Year PDF Service Manual

GENERAL INFORMATION SECTION (Pub.No.G2320GE1)

ENGINE SECTION 1 (Pub.No.G2320GE2)

ENGINE SECTION 2 (Pub.No.G2320GE3)

ENGINE SECTION 3 (Pub.No.G2320GE4)

TRANSMISSION SECTION (Pub.No.G2320GE5)

CHASSIS SECTION (Pub.No.G2320GE6)

BODY SECTION (Pub.No.G2320GE7)

WIRING SYSTEM SECTION (Pub.No.G2320GE8)

GENERAL INFORMATION 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.

FOREWORD

FW

HOW TO USE THIS MANUALS

HU

SPECIFICATIONS

SPC

PRECAUTION

PC

NOTE

NT

IDENTIFICATION

ID

RECOMMENDED MATERIALS

RM

PRE-DELIVERY INSPECTION

PI

PERIODIC MAINTENANCE SERVICES

PM

FOREWORD

FW

	Page
1. Foreword	2

1. Foreword

A: FOREWORD

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

Applied model:

BL*****, BP***** from 2004MY

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

HOW TO USE THIS MANUALS

HU

	Page
1. How to Use This Manuals	2

1. How to Use This Manuals

A: HOW TO USE THIS MANUALS

1. STRUCTURE

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

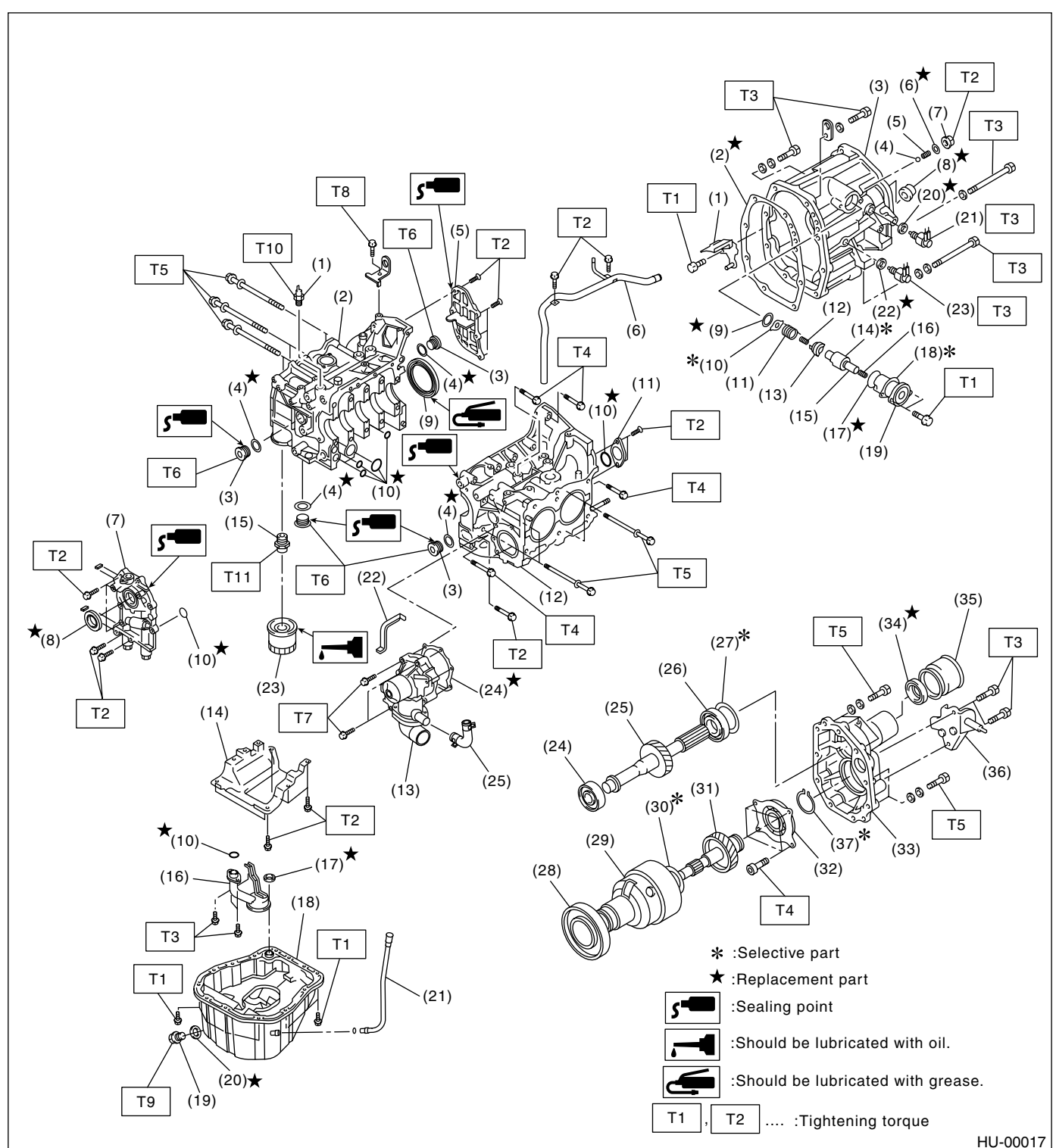
2. CONTENTS

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.



HU-00017

How to Use This Manuals

HOW TO USE THIS MANUALS

4. SPECIFICATION

If necessary, specifications are also included.

5. INSPECTION

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

6. MAINTENANCE

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

Example:

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

A: REMOVAL ← (B)

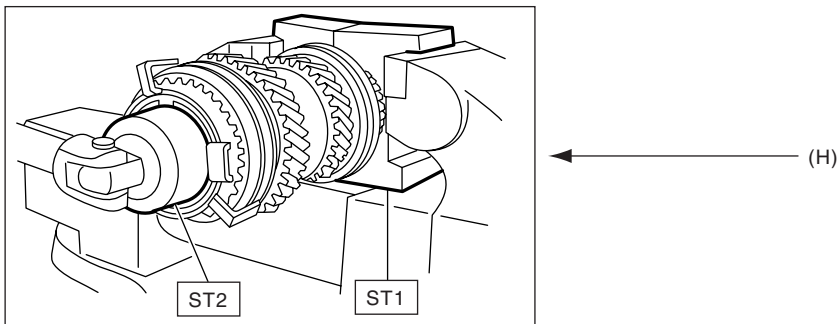
1) Remove the manual transmission assembly from vehicle. <Ref. to MT-33, REMOVAL, Manual Transmission Assembly.> ← (C)

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

NOTE: ← (D)
Secure the lock nuts in two Places after tightening.

ST2 499987003 SOCKET WRENCH
ST1 498937000 (E) TRANSMISSION HOLDER (F)

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



HU-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

7. DIAGNOSIS

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

8. SI UNITS

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

Example:

Tightening torque:

44 N·m (4.5 kgf·m, 33 ft·lb)

Item	SI units	Conventional unit	Remarks
Force	N (Newton)	kgf	1 kgf = 9.80655 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 = 9.80655 N·m
Rotating speed	rpm	rpm	
Pressure	kPa (kilopascal)	kgf/cm ²	1 kgf/cm ² = 98.0655 kPa
		mmHg	1 mmHg = 0.133322 kPa
Power	W	PS	1 PS = 0.735499 kW
Calorie	W·h	cal	1 kcal = 1.16279 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 ().

How to Use This Manuals

HOW TO USE THIS MANUALS

9. EXPLANATION OF TERMINOLOGY

• List

AAI	: Air Assist Injection	M/B	: Main Fuse & Relay Box
A/B	: Airbag	MD	: Mini Disc
ABS	: Antilock Brake System	MPI	: Multi Point Injection
A/C	: Air Conditioner	MP-T	: Multi-Plate Transfer
A/F	: Air Fuel Ratio	MT	: Manual Transmission
ALT	: Generator	Non-turbo	: Natural Aspiration
ASSY	: Assembly	NC	: Normal Close (Relay)
AT	: Automatic Transmission	NO	: Normal Open (Relay)
ATF	: Automatic Transmission Fluid	OP	: Option Parts
BATT	: Battery	P/S	: Power Steering
CD-R/RW	: CD Recordable/Rewritable	P/W	: Power Window
CPU	: Central Processing Unit	PCD	: Pitch Circle Diameter
DOHC	: Double Overhead Camshaft	PCV	: Positive Crankcase Ventilation
DVD	: Digital Versatile Disc	RH	: RH (Right Hand)
ECM	: Engine Control Module (ECM)	Rr	: Rear
EGR	: Exhaust Gas Recirculation	SOHC	: Single Overhead Camshaft
ELR	: Emergency Locking Retractor	SRS	: Supplemental Restraint System
EX	: Exhaust	SSM	: Subaru Select Monitor
F/B	: Fuse & Joint Box	ST	: Special Tool
FL	: Fusible Link	SW	: Switch
Ft	: Full-time AWD	TCS	: Traction Control System
FWD	: Front Wheel Drive	TGV	: Tumble Generated Valve
GPS	: Global Positioning System	T/M	: Transmission
H/U	: Hydraulic Unit	ViS-C	: Viscous Coupling
IG	: Ignition	VSV	: Vacuum Switching Valve
INT	: Intermittent	VTD	: Variable Torque Distribution
ISC	: Idle Speed Control	W/H	: Wiring Harness
LH	: LH (Left Hand)	Pr	: Primary
LSD	: Limited Slip Differential	2ndr	: Secondary

SPECIFICATIONS

SPC



1. LEGACY.....	Page 2
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LEGACY

SPECIFICATIONS

1. LEGACY

A: DIMENSION

1. SEDAN MODEL

Model		2.0 L SOHC	2.0 L DOHC turbo	2.5 L SOHC	3.0 L DOHC
Overall length	mm (in)	4,665 (183.7)			
Overall width	mm (in)	1,730 (68.1)			
Overall height (at C.W.)	mm (in)	1,425 (56.1)			
Compartment	Length	mm (in)	1,900 (74.8)		
	Width	mm (in)	1,445 (56.9)		
	Height	mm (in)	1,165 (45.9), 1,100 (43.3)* ¹		
Wheelbase	mm (in)	2,670 (105.1)			
Tread	Front	mm (in)	1,495 (58.9)		
	Rear	mm (in)	1,490 (58.7)		
Minimum road clearance	mm (in)	150 (5.9)			

*¹: With sunroof

2. WAGON MODEL

Model		2.0 L SOHC	2.0 L DOHC turbo	2.5 L SOHC	3.0 L DOHC
Overall length	mm (in)	4,720 (185.8)			
Overall width	mm (in)	1,730 (68.1)			
Overall height (at C.W.)	mm (in)	1,470 (57.9)			
Compartment	Length	mm (in)	1,840 (72.4)		
	Width	mm (in)	1,445 (56.9)		
	Height	mm (in)	1,190 (46.9), 1,145 (45.1)* ¹		
Wheelbase	mm (in)	2,670 (105.1)			
Tread	Front	mm (in)	1,495 (58.9)		
	Rear	mm (in)	1,485 (58.5)		
Minimum road clearance	mm (in)	150 (5.9)	155 (6.1)	150 (5.9)	

*¹: With sunroof

3. OUTBACK MODEL

Model		2.0 L SOHC	3.0 L DOHC
Overall length	mm (in)	4,730 (186.2)	
Overall width	mm (in)	1,770 (69.7)	
Overall height (at C.W.)	mm (in)	1,545 (60.8)	
Compartment	Length	mm (in)	1,840 (72.4)
	Width	mm (in)	1,445 (56.9)
	Height	mm (in)	1,190 (46.9), 1,145 (45.1)* ¹
Wheelbase	mm (in)	2,670 (105.1)	
Tread	Front	mm (in)	1,495 (58.9)
	Rear	mm (in)	1,485 (58.5)
Minimum road clearance	mm (in)	200 (7.9)	

*¹: With sunroof

B: ENGINE

Model	2.0 L SOHC	2.0 L DOHC turbo	2.5 L SOHC	3.0 L DOHC
Engine type	Horizontally opposed, liquid cooled, 4-cylinder, 4-stroke gasoline engine			Horizontally opposed, liquid cooled, 6-cylinder, 4-stroke gasoline engine
Valve arrangement	Overhead camshaft			
Bore × Stroke mm (in)	92 × 75 (3.62 × 2.95)		99.5 × 79.0 (3.917 × 3.110)	89.2 × 80.0 (3.512 × 3.150)
Displacement cm ³ (cu in)	1,994 (121.67)		2,457 (149.9)	3,000 (183.06)
Compression ratio	10.0	9.5	10.0	10.7
Ignition order	1 — 3 — 2 — 4			1 — 6 — 3 — 2 — 5 — 4
Idle speed at Park or Neutral position rpm	650	650	650	650
Maximum output kW (PS)/rpm	101 (137)/5,600	180 (245)/6,400	121 (165)/5,600	180 (245)/6,600
Maximum torque N·m (kgf-m, ft-lb)/rpm	187 (19.1, 137.9)/ 4,400	310 (31.6, 228.6)/ 2,400	226 (23.0, 166.7)/ 4,400	297 (30.3, 219.1)/ 4,200

C: ELECTRICAL

Model	2.0 L SOHC	2.0 L DOHC turbo	2.5 L SOHC	3.0 L DOHC			
Ignition timing (at idling) BTDC	13°	14°	13°	15°			
Spark plug	Type and manufacturer	CHAMPION: RC10YC4	NGK:ILFR6B	CHAMPION: RC10YC4 NGK: PFR5B-11* ¹			
Generator		12V — 110A					
Battery	Type and capacity (5HR)	EC, EK, K4	MT	12V — 48AH (55D23L)	—	12V — 48AH (55D23L)	—
			AT	12V — 52AH (65D23L)	—	12V — 52AH (75D23L)	12V — 52AH (75D23L)
			KA	—	12V — 48AH (55D23L)	12V — 27AH (34B19L)	12V — 48AH (55D23L)
			KS	12V — 27AH (34B19L)	—		

*¹: EC, EK model

LEGACY

SPECIFICATIONS

D: TRANSMISSION

Model		SEDAN, WAGON						
		2.0 L SOHC		2.0 L DOHC turbo	2.5 L SOHC		3.0 L DOHC	
Transmission type		4AT	5MT	5AT	4AT	5MT	5AT	
Clutch type		TCC	DSPD	TCC	TCC	DSPD	TCC	
Gear ratio	1st	2.785	3.454	3.540	2.785	3.454	3.540	
	2nd	1.545	1.947	2.264	1.545	2.062	2.264	
	3rd	1.000	1.366	1.471	1.000	1.448	1.471	
	4th	0.694	0.972	1.000	0.694	1.088	1.000	
	5th	—	0.738	0.834	—	0.825, 0.780* ¹	0.834	
	Rev.	2.272	3.333	2.370	2.272	3.333	2.370	
Auxiliary transmission gear ratio* ²		High	—	1,000	—	—	1,000	
		Low	—	1,447	—	—	1,196	—
Reduction gear (Front)	1st reduction	Type of gear	Helical	—	Helical	Helical	—	Helical
		Gear ratio	1.000	—	1.000	1.000	—	1.000
	Final reduction	Type of gear	Hypoid	Hypoid	Hypoid	Hypoid	Hypoid	Hypoid
		Gear ratio	4.111	4.111	3.272	4.111	3.700, 4.111* ¹	3.083
Reduction gear (Rear)	Transfer reduction	Type of gear	—	Helical	—	—	Helical	—
		Gear ratio	—	1.000	—	—	1.000	—
	Final reduction	Type of gear	Hypoid	Hypoid	Hypoid	Hypoid	Hypoid	Hypoid
		Gear ratio	4.111	4.111	3.272	4.111	3.700, 4.111* ¹	3.083

Model		OUTBACK			
		2.5 L SOHC		3.0 L DOHC	
Transmission type		4AT	5MT	5AT	
Clutch type		TCC	DSPD	TCC	
Gear ratio	1st	2.785	3.454	3.540	
	2nd	1.545	2.062	2.264	
	3rd	1.000	1.448	1.471	
	4th	0.694	1.088	1.000	
	5th	—	0.825	0.834	
	Rev.	2.272	3.333	2.370	
Auxiliary transmission gear ratio* ²		High	—	1,000	
		Low	—	1,196	—
Reduction gear (Front)	1st reduction	Type of gear	Helical	—	Helical
		Gear ratio	1.000	—	1.000
	Final reduction	Type of gear	Hypoid	Hypoid	Hypoid
		Gear ratio	4.444	3.900, 4.111* ¹	3.272
Reduction gear (Rear)	Transfer reduction	Type of gear	—	Helical	—
		Gear ratio	—	1.000	—
	Final reduction	Type of gear	Hypoid	Hypoid	Hypoid
		Gear ratio	4.444	3.900, 4.111* ¹	3.272

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

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

5AT: Electronically controlled fully-automatic, 5-forward speeds and 1-reverse
 DSPD: Dry Single Plate Diaphragm
 TCC: Torque Converter Clutch
 ★1: KA, K4 model
 ★2: Dual range model only

E: STEERING

Model		SEDAN, WAGON			
		2.0 L SOHC	2.0 L DOHC turbo	2.5 L SOHC	3.0 L DOHC
Type		Rack and Pinion			
Turns, lock to lock		3.2	2.8	3.2	2.8
Minimum turning diameter	m (ft)	Center of tire width to center of tire width	10.8 (35.4)		
		Wall to wall	11.6 (38.1)		

Model		OUTBACK	
		2.5 L SOHC	3.0 L DOHC
Type		Rack and Pinion	
Turns, lock to lock		3.2	
Minimum turning diameter	m (ft)	Center of tire width to center of tire width	10.8 (35.4)
		Wall to wall	11.6 (38.1)

F: SUSPENSION

Front	Macpherson strut type suspension
Rear	Multi-link type suspension

G: BRAKE

Model	Except for 2.0 L DOHC turbo	2.0 L DOHC turbo
Service brake system	Dual circuit hydraulic with vacuum suspended power unit	
Front	Ventilated disc brake	
Rear	Disc brake	Ventilated disc brake
Parking Brake	Mechanical on rear brakes	

H: TIRE

Model	SEDAN, WAGON				OUTBACK	
	2.0 L SOHC	2.0 L DOHC turbo	2.5 L SOHC	3.0 L DOHC	2.5 L SOHC	3.0 L DOHC
Wheel size	16 × 6 1/2JJ	17 × 7JJ	16 × 6 1/2JJ 17 × 7JJ	17 × 7JJ	16 × 6 1/2JJ	17 × 7JJ
Tire size	205/55 R16 89V	215/45 R17 87W	205/55 R16 89V 215/45 R17 87W	215/45 R17 87W	215/60 R16 95V 215/60 R16 95H★1	215/55 R17 94V 215/55 R17 93H★1
Type	Steel belted radial, Tubeless					

★1: KA model

LEGACY

SPECIFICATIONS

I: CAPACITY

Model		2.0 L SOHC				2.0 L DOHC turbo	
		4AT		5MT		5AT	
		LHD	RHD	LHD	RHD		
Fuel tank		ℓ (US gal, Imp gal) 64 (16.9, 14.1)					
Engine oil	Capacity (at overhaul)	ℓ (US qt, Imp qt) 4.5 (4.8, 4.0)				5.0 (5.3, 4.4)	
	Filling amount of engine oil (at replace)	ℓ (US qt, Imp qt) 4.0 (4.2, 3.5)					
Transmission gear oil		—		3.5 (3.7, 3.1) 4.0 (4.2, 3.5)* ²		—	
ATF		8.4 (8.9, 7.4)		—		9.8 (10.4, 8.6)	
Front differential gear oil		1.2 (1.3, 1.1)		—		1.4 (1.5, 1.2)	
Rear differential gear oil		ℓ (US qt, Imp qt) 0.8 (0.8, 0.7)					
Power steering fluid		ℓ (US qt, Imp qt) 0.8 (0.8, 0.7)					
Engine coolant		6.3 (6.7, 5.5) 6.7 (7.1, 5.9)* ¹	6.4 (6.8, 5.6) 6.8 (7.2, 6.0)* ¹	6.4 (6.8, 5.6)	6.5 (6.9, 5.7)	7.3 (7.7, 6.4)	

Model		2.5 L SOHC				3.0 L DOHC	
		4AT		5MT		5AT	
		LHD	RHD	LHD	RHD	LHD	RHD
Fuel tank		ℓ (US gal, Imp gal) 64 (16.9, 14.1)					
Engine oil	Capacity (at overhaul)	ℓ (US qt, Imp qt) 4.5 (4.8, 4.0)				7.2 (7.6, 6.3)	
	Filling amount of engine oil (at replace)	ℓ (US qt, Imp qt) 4.0 (4.2, 3.5)				Approx. 5.5 (5.8, 4.8)	
Transmission gear oil		—		3.5 (3.7, 3.1) 4.0 (4.2, 3.5)* ²		—	
ATF		9.3 (9.8, 8.2)		—		9.8 (10.4, 8.6)	
Front differential gear oil		1.2 (1.3, 1.1)		—		1.4 (1.5, 1.2)	
Rear differential gear oil		ℓ (US qt, Imp qt) 0.8 (0.8, 0.7)					
Power steering fluid		ℓ (US qt, Imp qt) 0.8 (0.8, 0.7)					
Engine coolant		6.3 (6.7, 5.5) 6.7 (7.1, 5.9)* ¹	6.4 (6.8, 5.6) 6.8 (7.2, 6.0)* ¹	6.4 (6.8, 5.6)	6.5 (6.9, 5.7)	7.2 (7.6, 6.3)	7.8 (8.2, 6.9)* ¹

*¹: With ATF cooler (with warmer function)

*²: Dual range model only

J: WEIGHT

1. SEDAN MODEL

- LHD model

Option code*1			EC					
Model			2.0 L SOHC					
			AWD					
			2.0 i					
			5MT (Single range)					
Curb weight (C.W.)	Front	kgf (lb)	740 (1,631)	755 (1,664)	760 (1,676)	760 (1,676)	765 (1,686)	775 (1,709)
	Rear	kgf (lb)	590 (1,301)	590 (1,301)	590 (1,301)	590 (1,301)	605 (1,334)	615 (1,356)
	Total	kgf (lb)	1,330 (2,932)	1,345 (2,965)	1,350 (2,976)	1,350 (2,976)	1,370 (3,020)	1,390 (3,064)
Maximum permissible axle weight (M.P.A.W.)	Front	kgf (lb)	1,040 (2,293)	1,040 (2,293)	1,040 (2,293)	1,040 (2,293)	1,040 (2,293)	1,040 (2,293)
	Rear	kgf (lb)	1,060 (2,336)	1,060 (2,336)	1,060 (2,336)	1,060 (2,336)	1,060 (2,336)	1,060 (2,336)
Maximum permissible weight (M.P.W.)	Total	kgf (lb)	1,900 (4,189)	1,900 (4,189)	1,900 (4,189)	1,900 (4,189)	1,900 (4,189)	1,900 (4,189)
Option	Vehicle Dynamics Control		—	—	—	—	—	—
	Cruise control		—	—	—	○	○	○
	McIntosh audio		—	—	—	—	—	—
	Leather interior		—	—	—	—	—	—
	Winter pack		—	—	—	○	○	○
	15 inch tire		—	—	—	—	—	—
	17 inch tire		—	—	—	—	—	○
	A/C		—	○	○	○	○	○
	Side airbag		○	○	○	○	○	○
	Curtain airbag		—	—	—	—	○	○
	Sunroof		—	—	—	—	○	○
	Navigation system		—	—	○	—	—	○
	Self levelizer		—	—	—	—	—	—

*1: For option code, refer to ID section. <Ref. to ID-5, MODEL NUMBER PLATE, IDENTIFICATION, Identification.>

SPECIFICATIONS

Option code★ ¹			EC					
Model			2.0 L SOHC					
			AWD					
			2.0 i					
			4AT					
Curb weight (C.W.)	Front	kgf (lb)	760 (1,676)	775 (1,709)	780 (1,720)	780 (1,720)	785 (1,731)	795 (1,753)
	Rear	kgf (lb)	590 (1,301)	590 (1,301)	590 (1,301)	590 (1,301)	605 (1,334)	615 (1,356)
	Total	kgf (lb)	1,350 (2,976)	1,365 (3,009)	1,370 (3,020)	1,370 (3,020)	1,390 (3,064)	1,410 (3,109)
Maximum permissible axle weight (M.P.A.W.)	Front	kgf (lb)	1,040 (2,293)	1,040 (2,293)	1,040 (2,293)	1,040 (2,293)	1,040 (2,293)	1,040 (2,293)
	Rear	kgf (lb)	1,060 (2,336)	1,060 (2,336)	1,060 (2,336)	1,060 (2,336)	1,060 (2,336)	1,060 (2,336)
Maximum permissible weight (M.P.W.)	Total	kgf (lb)	1,900 (4,189)	1,900 (4,189)	1,900 (4,189)	1,900 (4,189)	1,900 (4,189)	1,900 (4,189)
Option	Vehicle Dynamics Control		—	—	—	—	—	—
	Cruise control		—	—	—	○	○	○
	McIntosh audio		—	—	—	—	—	—
	Leather interior		—	—	—	—	—	—
	Winter pack		—	—	—	○	○	○
	15 inch tire		—	—	—	—	—	—
	17 inch tire		—	—	—	—	—	○
	A/C		—	○	○	○	○	○
	Side airbag		○	○	○	○	○	○
	Curtain airbag		—	—	—	—	○	○
	Sunroof		—	—	—	—	○	○
	Navigation system		—	—	○	—	—	○
Self levelizer		—	—	—	—	—	—	

★¹: For option code, refer to ID section. <Ref. to ID-5, MODEL NUMBER PLATE, IDENTIFICATION, Identification.>