

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.

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FOREWORD



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1. Foreword

A: FOREWORD

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

Applied model: GG***** and GD***** from 2001MY.

The additional manuals below are also available:
AUTOMATIC TRANSMISSION SERVICE MANUAL (Pub. No. G0853ZE)

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 MANUALS

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1. How to Use This Manuals

A: HOW TO USE THIS MANUALS

1. STRUCTURE

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

2. INDEX

The first page has an index with tabs. And at the end of each section is an alphabetical index.

3. COMPONENTS

For each component, a composition drawing is included.

4. SPECIFICATIONS

If necessary, specifications are also included

5. INSPECTION

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

6. MAINTENANCE

Maintenance instructions are provided for each component. When multiple components comprise one process, refer to the instructions for that process for each component.

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.

SPECIFICATIONS

SPC

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1. Impreza

A: DIMENSIONS

Model			Sedan	Wagon	OUTBACK
Overall length		mm (in)	4,405 (173.4)		
Overall width		mm (in)	1,730 (68.1)	1,695 (66.7)	1,710 (67.3)
Overall height (at CW)		mm (in)	1,440 (56.7)	1,465 (57.7), 1,485 (58.5)★2	1,475 (58.1), 1,495 (58.9)★2
Compartment	Length	mm (in)	1,890 (74.4)	1,845 (72.6)	
	Width	mm (in)	1,380 (54.3)		
	Height	mm (in)	1,180 (46.5)	1,200 (47.2), 1,150 (45.3)★3	1,200 (47.2), 1,150 (45.3)★3
Wheelbase		mm (in)	2,525 (99.4)		
Tread	Front	mm (in)	1,485 (58.5)	1,465 (57.7)	1,460 (57.5)
	Rear	mm (in)	1,475 (58.1), 1,480 (58.3)★1	1,455 (57.3)	1,455 (57.3)
Minimum road clearance		mm (in)	150 (5.9), 155 (6.1)★1	150 (5.9), 155 (6.1)★1	160 (6.3)

★1: WRX

★2: With roof rail

★3: With sun roof

B: ENGINE

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

C: ELECTRICAL

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

D: TRANSMISSION

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

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

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

DSPD: Dry Single Plate Diaphragm

TCC: Torque Converter Clutch

IMPREZA

SPECIFICATIONS

Model		2.5 L				
		RS		Others		
Transmission type		5MT★1	4AT★2	5MT★1	4AT★2	
Clutch type		DSPD	TCC	DSPD	TCC	
Gear ratio	1st	3.454	3.027	3.454	2.785	
	2nd	2.062	1.619	2.062	1.545	
	3rd	1.448	1.000	1.448	1.000	
	4th	1.088	0.694	1.088	1.694	
	5th	0.780	—	0.780	—	
	Reverse	3.333	2.272	3.333	2.272	
	Dual range	—	—	—	—	
Reduction gear (Front drive)	1st reduction	Type of gear	—	Helical	—	Helical
		Gear ratio	—	1.000	—	1.000
	Final reduction	Type of gear	Hypoid	Hypoid	Hypoid	Hypoid
		Gear ratio	4.111	4.444	3.900	4.111
Reduction gear (Rear drive)	Transfer reduction	Type of gear	Helical	—	Helical	—
		Gear ratio	1.000	—	1.000	—
	Final reduction	Type of gear	Hypoid	Hypoid	Hypoid	Hypoid
		Gear ratio	4.111	4.444	3.900	4.111

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

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

DSPD: Dry Single Plate Diaphragm

TCC: Torque Converter Clutch

E: STEERING

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

F: SUSPENSION

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

G: BRAKE

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

★1: WRX

H: TIRE

Model	TS	OTHERS
Rim size	15 × 6JJ	16 × 6 ¹ / ₂ JJ
Tire size	P195/60R15 87H	P205/55R16 89V
Type	Steel belted radial, Tubeless	

I: CAPACITY

Model		Turbo 2.0 L		2.5 L	
		5MT	4AT	5MT	4AT
Fuel tank		ℓ (US gal, Imp gal)		60 (15.9, 13.2)	
Engine oil	Upper level	ℓ (US qt, Imp qt)		4.5 (4.8, 4.0)	
	Lower level	ℓ (US qt, Imp qt)		3.5 (3.7, 3.1)	
Transmission gear oil		ℓ (US qt, Imp qt)		3.5 (3.7, 3.1)	
Automatic transmission fluid		ℓ (US qt, Imp qt)		—	
AT differential gear oil		ℓ (US qt, Imp qt)		—	
AWD rear differential gear oil		ℓ (US qt, Imp qt)		0.8 (0.8, 0.6)	
Power steering fluid		ℓ (US qt, Imp qt)		0.7 (0.7, 0.6)	
Engine coolant		ℓ (US qt, Imp qt)		7.7 (8.1, 6.8)	

J: WEIGHT

1. U.S. SPEC. VEHICLE

Sedan

Model		AWD				
		Turbo 2.0 L		2.5 L		
		WRX		RS		
		5MT★1	4AT★1	5MT	4AT	
Curb weight (C.W.)	Front	kg (lb)	826 (1,820)	851 (1,875)	778 (1,715)	803 (1,770)
	Rear	kg (lb)	569 (1,255)	569 (1,255)	567 (1,250)	567 (1,250)
	Total	kg (lb)	1,395 (3,075)	1,420 (3,130)	1,345 (2,965)	1,370 (3,020)
Gross vehicle weight (G.V.W.)	Front	kg (lb)	998 (2,200)	998 (2,200)	939 (2,070)	939 (2,070)
	Rear	kg (lb)	857 (1,890)	857 (1,890)	857 (1,890)	857 (1,890)
	Total	kg (lb)	1,837 (4,050)	1,795 (4,050)	1,778 (3,920)	1,837 (4,050)

★1: Excludes weight of side air bag.

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Wagon

Model			AWD	
			Turbo 2.0 L	
			WRX	
			5MT★2	4AT★2
Curb weight (C.W.)	Front	kg (lb)	825 (1,820)	851 (1,875)
	Rear	kg (lb)	606 (1,335)	605 (1,335)
	Total	kg (lb)	1,431 (3,155)	1,458 (3,210)
Gross vehicle weight (G.V.W.)	Front	kg (lb)	998 (2,200)	998 (2,200)
	Rear	kg (lb)	925 (2,040)	925 (2,040)
	Total	kg (lb)	1,901 (4,190)	1,901 (4,190)

Model			AWD			
			2.5 L			
			TS		OUTBACK	
			5MT★1	4AT★1	5MT	4AT
Curb weight (C.W.)	Front	kg (lb)	773 (1,705)	796 (1,755)	783 (1,725)	805 (1,775)
	Rear	kg (lb)	603 (1,330)	606 (1,335)	601 (1,325)	603 (1,330)
	Total	kg (lb)	1,376 (3,035)	1,402 (3,090)	1,384 (3,050)	1,408 (3,105)
Gross vehicle weight (G.V.W.)	Front	kg (lb)	939 (2,070)	939 (2,070)	939 (2,070)	939 (2,070)
	Rear	kg (lb)	925 (2,040)	925 (2,040)	925 (2,040)	925 (2,040)
	Total	kg (lb)	1,833 (4,040)	1,833 (4,040)	1,833 (4,040)	1,833 (4,040)

★1: Excludes weight of ABS, cruise control.

★2: Excludes weight of side air bag.

2. CANADA SPEC. VEHICLE

Sedan

Model		AWD				
		Turbo 2.0 L		2.5 L		
		WRX		RS		
		5MT	4AT	5MT	4AT	
Curb weight (C.W.)	Front	kg (lb)	826 (1,820)	851 (1,875)	778 (1,715)	803 (1,770)
	Rear	kg (lb)	573 (1,265)	573 (1,265)	567 (1,250)	567 (1,250)
	Total	kg (lb)	1,399 (3,085)	1,424 (3,140)	1,345 (2,965)	1,370 (3,020)
Gross vehicle weight (G.V.W.)	Front	kg (lb)	998 (2,200)	998 (2,200)	939 (2,070)	939 (2,070)
	Rear	kg (lb)	857 (1,890)	857 (1,890)	857 (1,890)	857 (1,890)
	Total	kg (lb)	1,837 (4,050)	1,837 (4,050)	1,778 (3,920)	1,778 (3,920)

Wagon

Model		AWD						
		Turbo 2.0 L			2.5 L			
		WRX		TS		OUTBACK		
		5MT★1	4AT	5MT★1	4AT★1	5MT	4AT	
Curb weight (C.W.)	Front	kg (lb)	826 (1,820)	851 (1,875)	758 (1,670)	780 (1,720)	783 (1,725)	805 (1,775)
	Rear	kg (lb)	610 (1,345)	610 (1,345)	594 (1,310)	597 (1,315)	601 (1,325)	603 (1,330)
	Total	kg (lb)	1,436 (3,165)	1,461 (3,220)	1,352 (2,980)	1,377 (3,035)	1,384 (3,050)	1,408 (3,105)
Gross vehicle weight (G.V.W.)	Front	kg (lb)	998 (2,200)	998 (2,200)	939 (2,070)	939 (2,070)	939 (2,070)	939 (2,070)
	Rear	kg (lb)	925 (2,040)	925 (2,040)	925 (2,040)	925 (2,040)	925 (2,040)	925 (2,040)
	Total	kg (lb)	1,901 (4,190)	1,901 (4,190)	1,833 (4,040)	1,833 (4,040)	1,833 (4,040)	1,833 (4,040)

★1: Excludes weight of air conditioner

PRECAUTION

PC

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1. Precaution.....2



1. Precaution

A: PRECAUTION

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

1. ABS

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

2. BRAKE FLUID

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

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

3. ELECTRIC FAN

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

4. ROAD TESTS

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

5. AIRBAG

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

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

- Step 1: Turn the ignition switch OFF.
- Step 2: Remove the negative battery terminal.

6. AIRBAG DISPOSAL

To prevent bodily injury from unexpected airbag deployment, do not dispose the airbag modules in the same way as other refuse. Follow instructions of SOA (distributor) service for disposal of airbag module. Follow all government regulations concerning the disposal of refuse.

7. AIRBAG MODULE

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

- Do not hold the harnesses or connectors to carry 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.

8. AIRBAG SPECIAL TOOLS

To prevent unexpected deployment, only use special tools.

9. WINDOW

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

10. WINDOW ADHESIVE

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

NOTE

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1. Note.....2



1. Note

A: NOTE

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

1. FASTENER NOTICE

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

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

2. STATIC ELECTRICITY DAMAGE

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

3. IGNITION OFF BATTERY

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

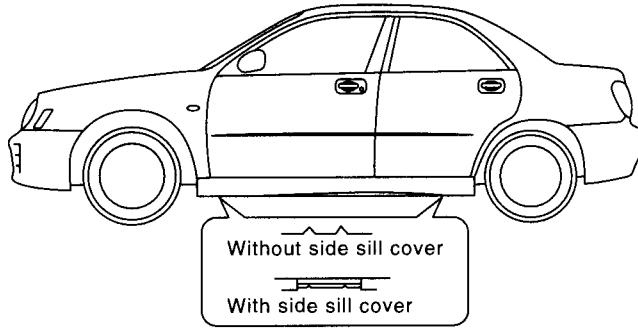
4. SERVICE PARTS

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

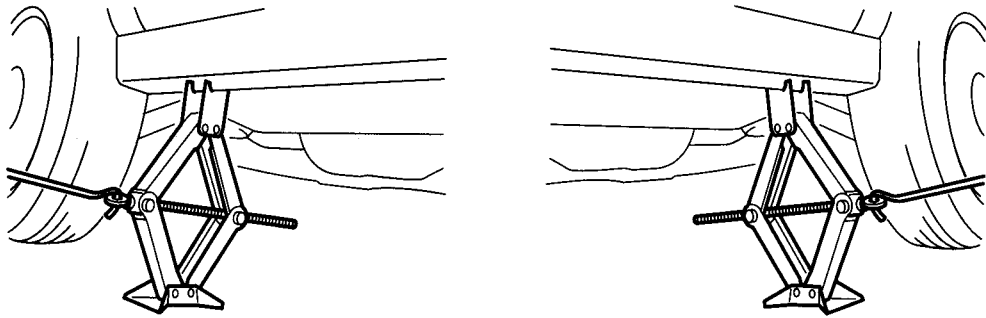
5. LIFTS AND JACKS

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

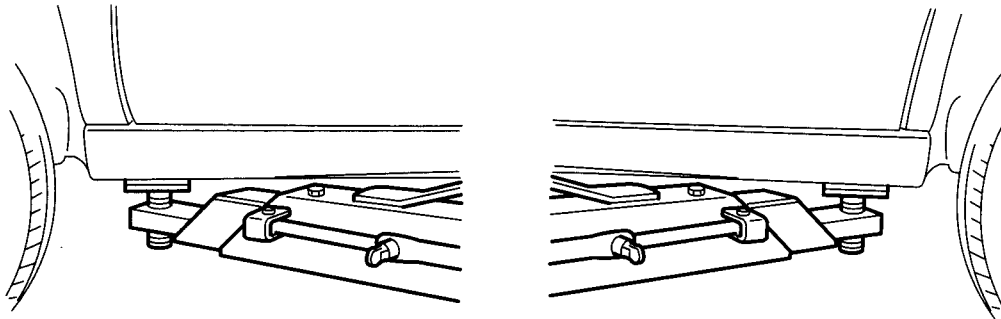
Support locations



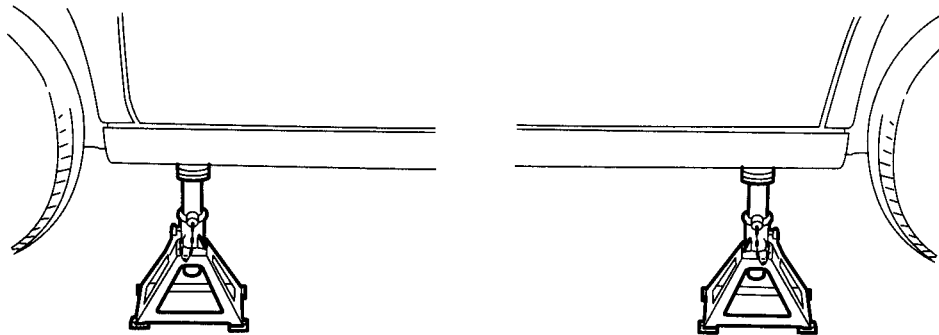
Pantograph jack



Lift

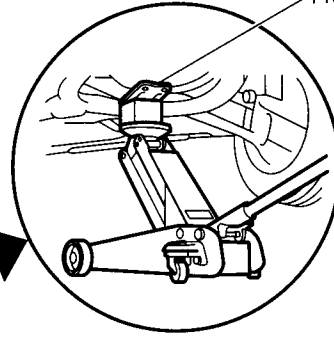
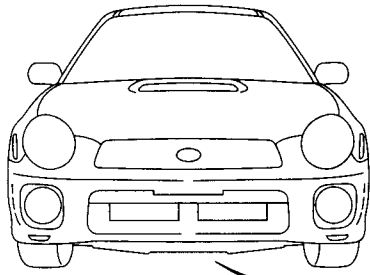


Safety stand

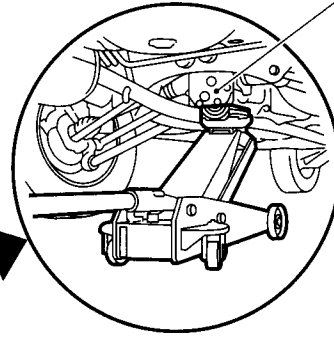
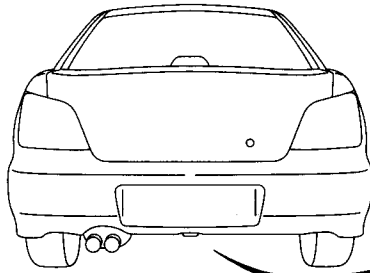


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Front



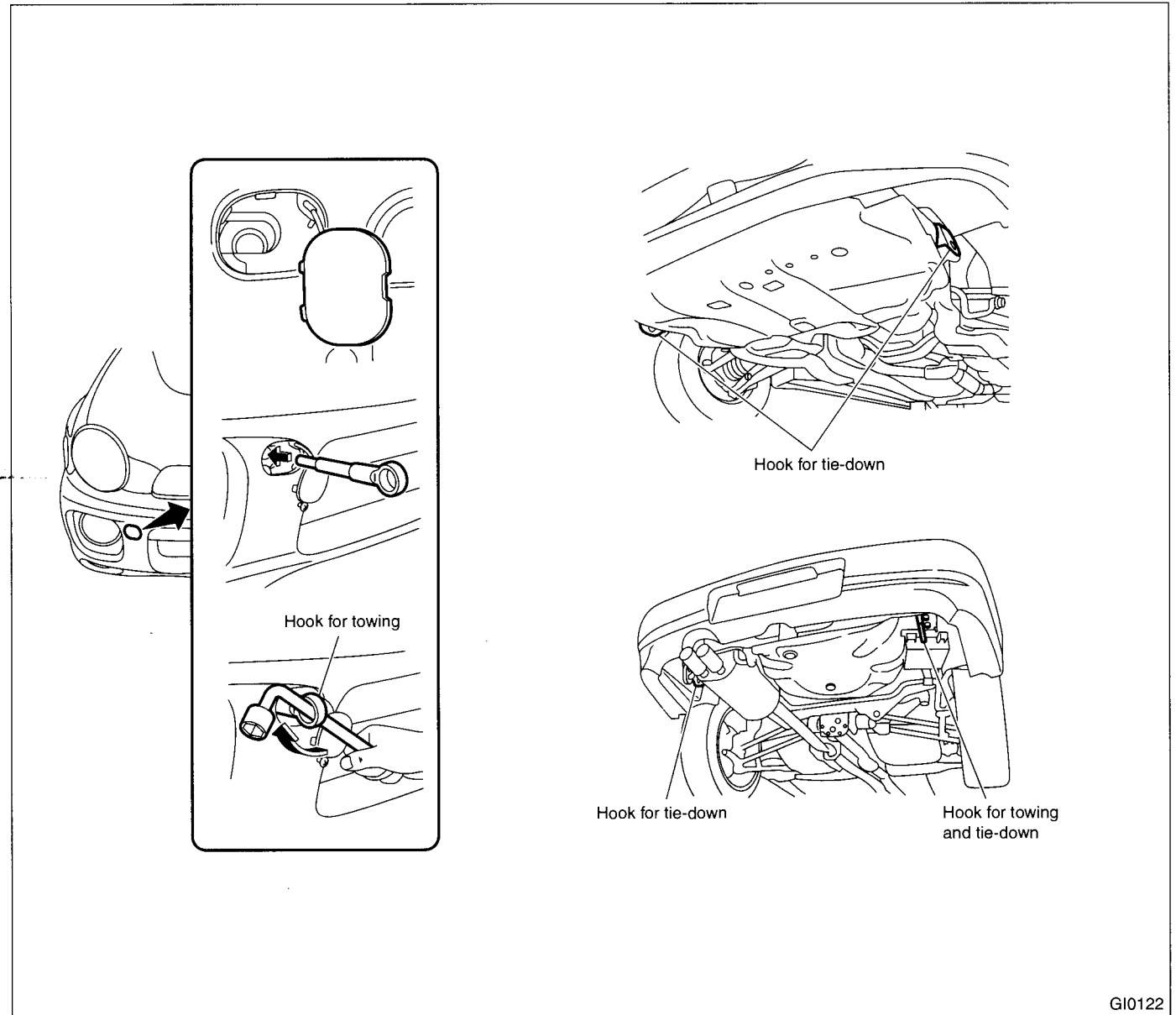
Rear



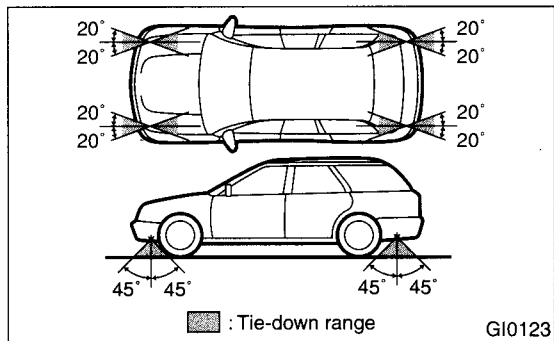
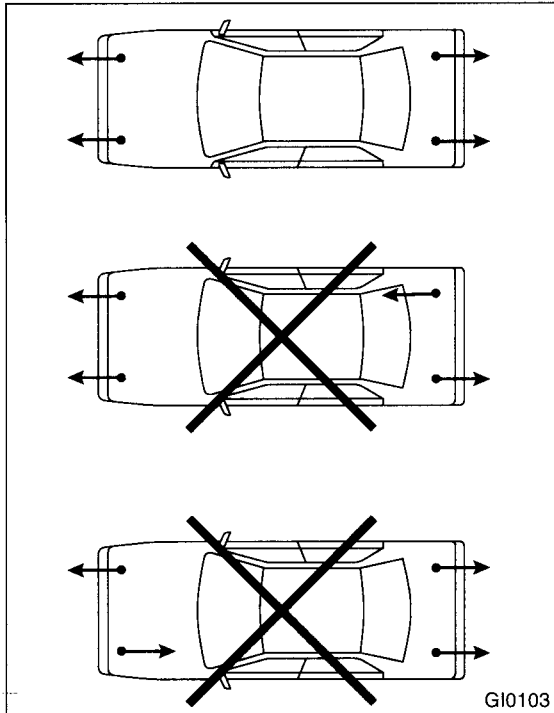
GI0121

6. TIE DOWNS

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



GI0122



7. TOWING

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

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

8. TRAINING

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

9. GENERAL SCAN TOOL

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

IDENTIFICATION

ID

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1. Identification2



IDENTIFICATION

IDENTIFICATION

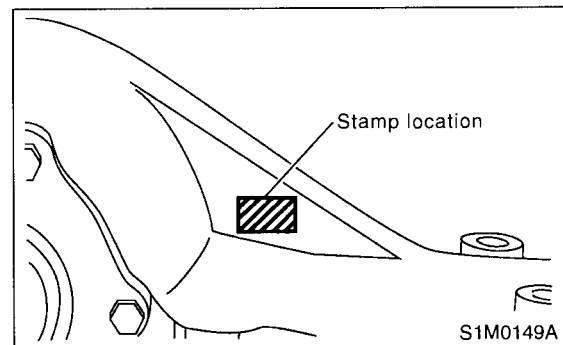
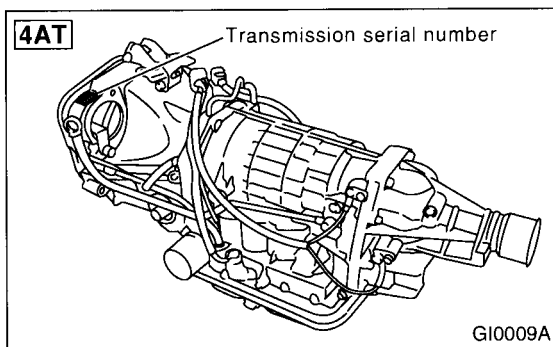
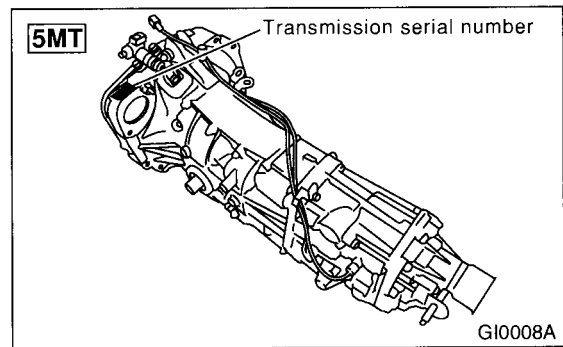
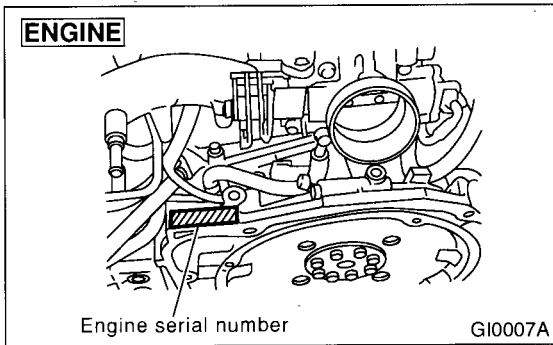
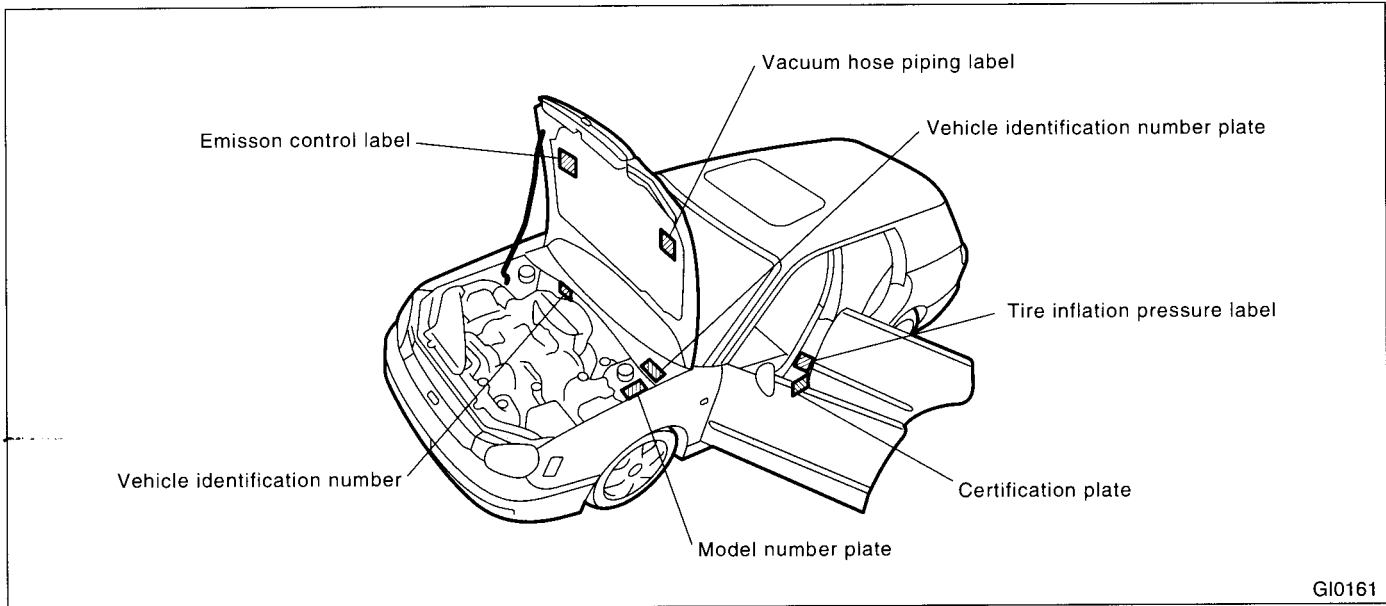
1. Identification

A: IDENTIFICATION

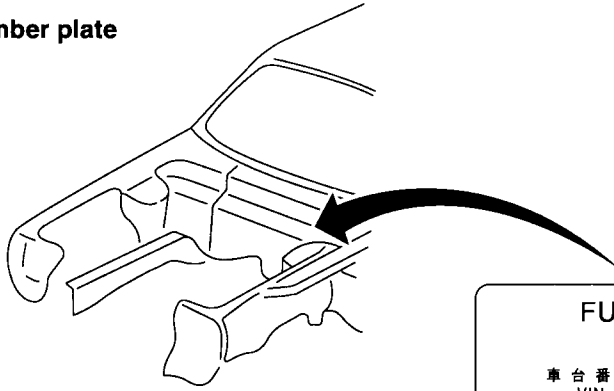
1. IDENTIFICATION NUMBER AND LABEL LOCATIONS


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

Positioning of the plate label for identification



Model number plate



FUJI HEAVY INDUSTRIES LTD.															
										型 式		□	□	□	□
車台番号		J F 1 B D 4 L G 9 R G 0 0 2 0 0 1													
VIN															
○	アプライトモデル	B D 4 A L 3 G				オプションコード	E 0		○						
applied model						option code									
トリムコード		4 1 0		エンジン型式		E J 2 0 E N M A B A									
trim code				engine type											
外装飾コード		2 3 0		ミッション型式		T M 7 5 2 R G A A A									
Color code				transmission type											
 富士重工業株式会社															

GI0011A

IDENTIFICATION

IDENTIFICATION

2. MEANING OF V.I.N.

The meaning of the VIN is as follows:

• North America

[JF1GD255X2G500001]

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

Digits	Code	Meaning	Details
1 to 3	JF1	Manufacturer body area	JF1: Passenger car, FHI made
4	G	Car line	G: IMPREZA
5	D	Body type	D: 4 Door Sedan G: Wagon
6	2	Displacement	2: 2.0 L AWD Turbo 6: 2.5 L AWD
7	5	Grade	5: TS 7: RS 8: OUTBACK 9: WRX
8	5	Restraint	5: Manual belts, dual airbag. 6: Manual belts, dual airbag, side airbag.
9	X	Check digit	0-9 & X
10	2	Model year	2: 2002MY 3: 2003MY
11	G	Transmission type	G: Full-time AWD 5-speed MT H: Full-time AWD 4-speed AT
12 to 17	500001	Manufacture number	From 500001: 4 Door Sedan From 800001: Wagon

3. MODEL NUMBER PLATE

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

GDEAY4R

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

The engine and transmission type are as follows:

- **Engine**

EJ251AW3AB

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

IDENTIFICATION

IDENTIFICATION

• Transmission

TV1A4Z1AA

Digits	Code	Meaning	Details	
1	T	Transmission	T: Transmission	
2	V	Transmission type	Y: Full-time AWD MT center differential V: Full-time AWD AT center differential Z: Full-time AWD AT MPT	
3 and 4	1A	Classification	75: MT 1A: AT	
5	4	Series	MT	4: 5 MT
			AT	4: New AT
6	Z	Transmission specifications	V: Full-time AWD 5-speed MT with viscous coupling center differential single range Z: Full-time AWD 4-speed AT with MPT Y: Full-time AWD 4-speed AT with VTD	
7	1	Minor change	1: Initial	
8 to 10	AA	Detailed specifications	Used when ordering parts. See the parts catalog for details.	

• Rear differential

EH

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