SUBARU®
1992
SERVICE MANUAL

FOREWORD

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 vehicle.
This manual include the procedures for maintenance disassembling, reassembling, inspection and adjustment of components and troubleshooting for guidance of both the fully qualified and the less-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.

FUJI HEAVY INDUSTRIES LTD.

QUICK REFERENCE INDEX

1 GENERAL SECTION

IMPORTANT SAFETY NOTICE

Providing appropriate service and repair is a matter of great importance in the serviceman's safety maintenance and safe operation, function and performance which the SUBARU vehicle possesses.

In case the replacement of parts or replenishment of consumables is required, genuine SUBARU parts whose parts numbers are designated or their equivalents must be utilized.

It must be made well known that the safety of the serviceman and the safe operation of the vehicle would be jeopardized if he used any service parts, consumables, special tools and work procedure manuals which are not approved or designated by SUBARU.

How to use this manual

- This Service Manual is divided into six volumes by section so that it can be used with ease at work. Refer to the Table of Contents, select and use the necessary section.

- Each chapter in the manual is basically made of the following five types of areas.

  M : Mechanism and function
  S : Specifications and service data
  C : Component parts
  W : Service procedure
  (X : Service procedure)
  (Y : Service procedure)
  T : Troubleshooting

- The description of each area is provided with four types of titles different in size as shown below. The Title No. or Symbol prefixes each title in order that the construction of the article and the flow of explanation can be easily understood.

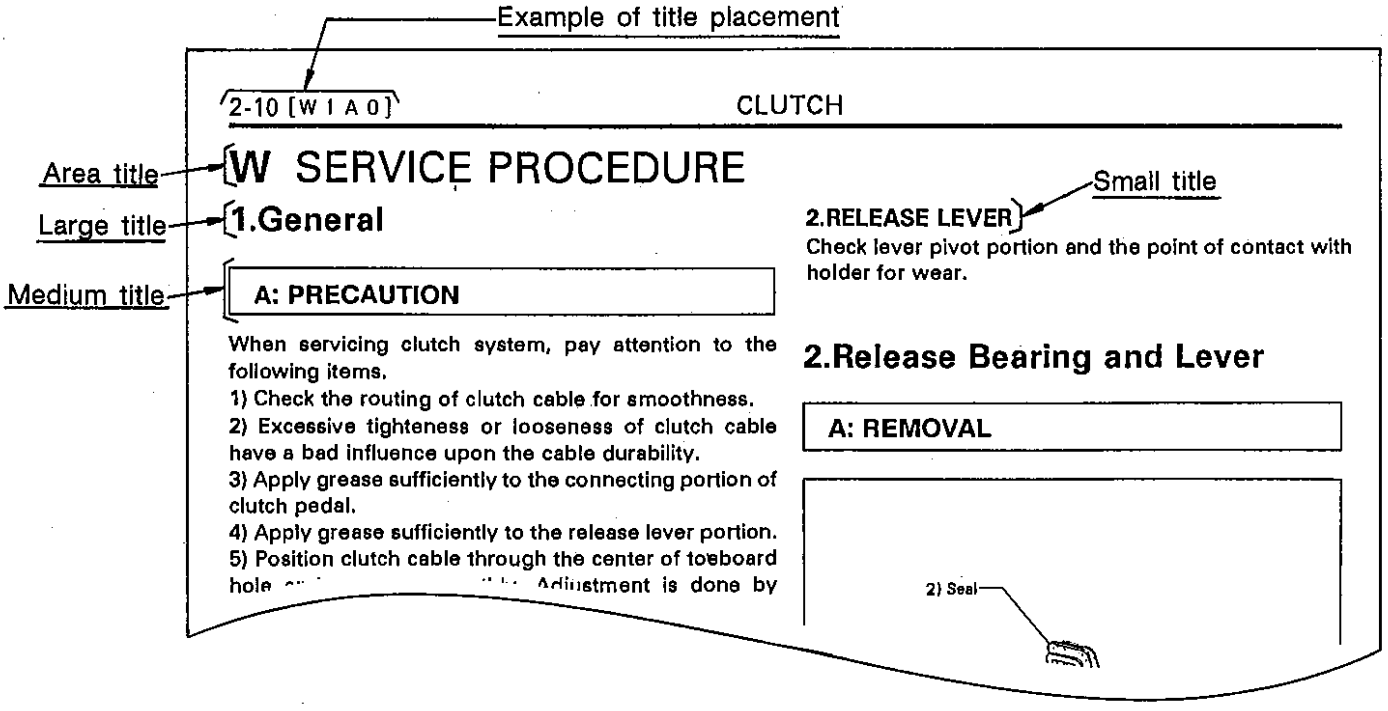
  [Example of each title]
  - Area title: W. Service procedure (one of the five types of areas)
  - Large title (Heading): 1. Oil Pump (to denote the main item of explanation)
  - Medium title (Section): A. REMOVAL (to denote the type of work in principle)
  - Small title (Sub-section): 1. INNER ROTATOR (to denote a derivative item of explanation)

- The Title Index No. is indicated on the top left (or right) side of the page as the book is opened. This is useful for retrieving the necessary portion.

(Example of usage)

Refer to 2 - 4 [W 1 B 1]

- Small title (Sub-section)
- Medium title (Section)
- Large title (Heading)
- Area title
- Chapter No.



- In this manual, the following symbols are used.

: Should be lubricated with oil.

: Should be lubricated with grease.

: Sealing point

T : Tightening torque

TABLE OF CONTENTS

SUBARU®

1992

SERVICE MANUAL

S SPECIFICATIONS

1. Except Australia

A: 4-DOOR SEDAN

ITEM \ MODEL	4-DOOR SEDAN						
	1600	1800	1600	1800		2200	
	FWD						
	DL		GL			GX	
	CARB. 5MT	CARB. 5MT	CARB. 5MT	CARB. 5MT	CARB. 4AT	MPFI 5MT	MPFI 4AT

1. DIMENSIONS

Overall length		mm (in)	4,545 (178.9)					
Overall width		mm (in)	1,690 (66.5)					
Overall height (at CW)		mm (in)	1,380 (54.3)				1,400 (55.1)	
Compartment	Length	mm (in)	1,875 (73.8)					
	Width	mm (in)	1,415 (55.7)					
	Height	mm (in)	1,155 (45.5)					
Wheelbase		mm (in)	2,580 (101.6)					
Tread	Front	mm (in)	1,475 (58.1)		1,465 (57.7)			
	Rear	mm (in)	1,465 (57.7)		1,455 (57.3)			
Minimum road clearance (at CW)		mm (in)	160 (6.3)					

2. WEIGHT

Curb weight (C.W.)	Front	kg (lb)	645 (1,420)	645 (1,420) 640 (1,410)*1	670 (1,475)	670 (1,475) 665 (1,465)*1	715 (1,575) 710 (1,565)*1	685 (1,510)	730 (1,610)
	Rear	kg (lb)	480 (1,060)	480 (1,060) 470 (1,040)*1	500 (1,105)	500 (1,105) 490 (1,080)*1	505 (1,115) 495 (1,090)*1	505 (1,115)	510 (1,125)
	Total	kg (lb)	1,125 (2,480)	1,125 (2,480) 1,110 (2,450)*1	1,170 (2,580)	1,170 (2,580) 1,155 (2,545)*1	1,220 (2,690) 1,205 (2,655)*1	1,190 (2,625)	1,240 (2,735)
Maximum permissible weight (M.P.W.)	Front	kg (lb)	950 (2,095)						
	Rear	kg (lb)	950 (2,095)						
	Total	kg (lb)	1,870 (4,125)						

3. ENGINE

Engine type			Horizontally opposed, liquid cooled, 4-cylinder, 4-stroke gasoline engine					
Valve arrangement			Overhead camshaft type					
Bore x Stroke		mm (in)	87.9 x 65.8 (3.461 x 2.591)	87.9 x 75 (3.461 x 2.95)	87.9 x 65.8 (3.461 x 2.591)	87.9 x 75 (3.461 x 2.95)		96.9 x 75 (3.815 x 2.95)
Displacement		cm³ (cu in)	1,597 (97.45)	1,820 (111.06)	1,597 (97.45)	1,820 (111.06)		2,212 (135.0)
Compression ratio			8.9	9.7	8.9	9.7	9.2	9.5
Firing order			1—3—2—4					
Idling speed at N or P position		rpm	900± 50	800± 50	900± 50	800± 50		800± 100
Maximum output		kW (PS)/rpm	70 (95)/6,400	76 (103)/6,000	70 (95)/6,400	76 (103)/6,000		100 (136)/6,000
Maximum torque		N•m (kg-m, ft-lb)/rpm	123 (12.5, 90)/3,200	145 (14.8, 107)/3,200	123 (12.5, 90)/3,200	145 (14.8, 107)/3,200		189 (19.3, 140)/4,800

4. ELECTRICAL

Ignition timing at idling speed		BTDC	8°± 2° (without vacuum)	4°± 2° (without vacuum)	8°± 2° (without vacuum)	4°± 2° (without vacuum)	8°± 2° (without vacuum)	23°± 10°
Spark plug	Type and manufacturer		NGK: BKR6E NIPPONDENSO: K20PR-U					
Alternator			12 V—70 A					
Battery	Type and capacity (5HR)	For Europe	5MT: 55D23L-MF (12 V—48 Ah) 4AT: 75D23L-MF (12 V—52 Ah)					
		Others	5MT: 34B19L-MF (12 V—27 Ah) 4AT: 46B24L-MF (12 V—36 Ah)					

*1: Except Europe

When any of the following optional parts are installed, add the weight to the curb weight.

Weight of optional parts

kg (lb)

	A.B.S.		Power door lock	Power window	Sunroof	Power steering
	1800 & 2000 MPFI	2200 & 2000 TURBO				
Front	15 (33)	16 (35)	0 (0)	1 (2)	6 (13)	1 (2)
Rear	7 (15)	0 (0)	1 (2)	1 (2)	15 (33)	4 (9)
Total	22 (49)	16 (35)	1 (2)	2 (4)	21 (46)	5 (11)

4-DOOR SEDAN						
1800		2000			2200	
4WD						
GL				TURBO	GX	
CARB. 5MT	CARB. 4AT	MPFI 5MT	MPFI 4AT	MPFI 5MT	MPFI 5MT	MPFI 4AT
4,545 (178.9)						
1,690 (66.6)						
1,390 (54.7)				1,400 (55.1)		
1,875 (73.8)						
1,415 (55.7)						
1,155 (45.5)						
2,580 (101.6)						
1,460 (57.5)				1,465 (57.7)	1,460 (57.5)	
1,455 (57.3)						
165 (6.5)					175 (6.9)	
700 (1,545) 695 (1,530)*1	730 (1,610)	710 (1,565)	740 (1,630)	785 (1,730)	725 (1,600) 715 (1,575)*1	755 (1,665) 745 (1,640)*1
565 (1,245) 555 (1,225)*1	570 (1,255)	565 (1,245)	570 (1,260)	590 (1,300)	580 (1,280) 570 (1,260)*1	585 (1,290) 575 (1,270)*1
1,265 (2,790) 1,250 (2,755)*1	1,300 (2,865)	1,275 (2,810)	1,310 (2,890)	1,375 (3,030)	1,305 (2,880) 1,285 (2,835)*1	1,340 (2,955) 1,320 (2,910)*1
950 (2,095)						
950 (2,095)						
1,870 (4,125)						
Horizontally opposed, liquid cooled, 4-cylinder, 4-stroke gasoline engine						
Overhead camshaft type						
87.9 x 75 (3.461 x 2.95)		92 x 75 (3.62 x 2.95)			96.9 x 75 (3.815 x 2.95)	
1,820 (111.06)		1,994 (121.67)			2,212 (135.0)	
9.7	9.2	9.5		8.0	9.5	
1—3—2—4						
800± 50		800± 100		900± 100	800± 100	
76 (103)/6,000		85 (116)/5,600		147 (200)/6,000	100 (136)/6,000	
145 (14.8, 107)/3,200		164 (16.7, 121)/4,400		260 (26.5, 192)/3,600	189 (19.3, 140)/4,800	
4°± 2° (without vacuum)	8°± 2° (without vacuum)	23°± 10°		18°± 10°	23°± 10°	
NGK: BKR6E NIPPONDENSO: K20PR-U		NGK: BKR6E-11 NIPPONDENSO: K20PR-U11		NGK: BKR6EVX PFR6B PFR6G	NGK: BKR6E, [BKR6E-11]*2 NIPPONDENSO: K20PR-U, [K20PR-U11]*2	
12 V—70 A						
5MT: 55D23L-MF (12 V—48 Ah) 4AT: 75D23L-MF (12 V—52 Ah)						
5MT: 34B19L-MF (12 V—27 Ah) 4AT: 46B24L-MF (12 V—36 Ah)						

*1: Except Europe

*2: Catalyst equipped vehicles

ITEM \ MODEL	4-DOOR SEDAN						
	1600	1800	1600	1800		2200	
	FWD						
	DL		GL			GX	
	CARB. 5MT	CARB. 5MT	CARB. 5MT	CARB. 5MT	CARB. 4AT	MPFI 5MT	MPFI 4AT

5. TRANSMISSION

Clutch type			DSPD	DSPD	DSPD	DSPD	TC	DSPD	TC
Transmission type			*3	*3	*3	*3	*4	*3	*4
Gear ratio		1st	3.636	3.636	3.636	3.636	2.785	3.545	2.785
		2nd	2.105	2.105	2.105	2.105	1.483	2.111	1.483
		3rd	1.428	1.428	1.428	1.428	1.000	1.448	1.000
		4th	1.093	1.093	1.093	1.093	0.729	1.088	0.729
		5th	0.885	0.885	0.885	0.885	—	0.871	—
		Reverse	3.583	3.583	3.583	3.583	2.696	3.416	2.696
Auxiliary transmission gear ratio		High	—	—	—	—	—	—	—
		Low	—	—	—	—	—	—	—
Reduction gear (Front drive)	1st reduction	Type of gear	—	—	—	—	Helical	—	Helical
		Gear ratio	—	—	—	—	1.000	—	1.000
	Final reduction	Type of gear	Hypoid						
		Gear ratio	4.111	3.900	4.111	3.900	4.444	3.700	4.111
Reduction gear (Rear drive)	Transfer reduction	Type of gear	—	—	—	—	—	—	—
		Gear ratio	—	—	—	—	—	—	—
	Final reduction	Type of gear	—	—	—	—	—	—	—
		Gear ratio	—	—	—	—	—	—	—

6. STEERING

Type	Rack and pinion
Turns, lock to lock	Manual steering: 4.5, Power steering: 3.3
Minimum turning circle m (ft)	Wall to wall: 11.0 (36.1)/Curb to curb: 10.2 (33.5)

7. SUSPENSION

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

8. BRAKE

Service brake system	Dual circuit hydraulic with vacuum suspended power unit	
Front	Ventilated disc brake	
Rear	Drum brake (Leading and trailing type)*5	Disc brake
Parking brake	Mechanical on rear brakes	

9. TIRE

Size	165R13 82T	165R13 82T 165R13 82H	175/70R14 84S	165R13 82T 165R13 82H	185/70R14 87H 185/70R14 88H
Type	Steel belted radial, Tubeless				

10. CAPACITY

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)	2.6 (2.7, 2.3)	2.6 (2.7, 2.3)	2.6 (2.7, 2.3)	2.6 (2.7, 2.3)	—	3.3 (3.5, 2.9)	—
Automatic transmission fluid		ℓ (US qt, Imp qt)	—	—	—	—	8.3 (8.8, 7.3)	—	8.3 (8.8, 7.3)
AT differential gear oil		ℓ (US qt, Imp qt)	—	—	—	—	1.2 (1.3, 1.1)	—	1.2 (1.3, 1.1)
4WD rear differential gear oil		ℓ (US qt, Imp qt)	—						
Power steering fluid		ℓ (US qt, Imp qt)	0.7 (0.7, 0.6)						
Engine coolant		ℓ (US qt, Imp qt)	Approx. MT: 6.3 (6.7, 5.5) AT: 6.2 (6.6, 5.5)					Approx. MT: 5.9 (6.2, 5.2) AT: 5.8 (6.1, 5.1)	

DSPD: Dry Single Plate Diaphragm
TC: Torque Converter
*3: 5-forward speeds with synchromesh and 1-reverse speed
*4: Electronically controlled fully-automatic, 4-forward speeds and 1-reverse speed
*5: When optional ABS is equipped, rear brake shall be a disc brake.

4-DOOR SEDAN						
1800		2000			2200	
		4WD				
GL				TURBO	GX	
CARB. 5MT	CARB. 4AT	MPFI 5MT	MPFI 4AT	MPFI 5MT	MPFI 5MT	MPFI 4AT

DSPD	TC	DSPD	TC	DSPD	DSPD	TC
*6	*4	*6	*4	*6	*6	*4
3.545	2.785	3.545	2.785	3.545	3.545	2.785
2.111	1.483	2.111	1.483	1.947	2.111	1.483
1.448	1.000	1.448	1.000	1.366	1.448	1.000
1.088	0.729	1.088	0.729	0.972	1.088	0.729
0.871	—	0.871	—	0.780	0.871	—
3.416	2.696	3.416	2.696	3.416	3.416	2.696
—	—	—	—	—	—	—
—	—	—	—	—	—	—
—	Helical	—	Helical	—	—	Helical
—	1.000	—	1.000	—	—	1.000
Hypoid						
4.111	4.444	4.111	4.444	3.900	3.900	4.111
Helical	—	Helical	—	Helical	Helical	—
1.000	—	1.000	—	1.100	1.000	—
Hypoid						
4.111	4.444	4.111	4.444	3.545	3.900	4.111

Rack and pinion
Manual steering: 4.5, Power steering: 3.3, 3.0 ... [TURBO]
Wall to wall: 11.0 (36.1)/Curb to curb: 10.1 (33.1), 10.6 (34.8) ... [TURBO]

Macpherson strut type, Independent, Coil spring
Dual link strut type, Independent, Coil spring

Dual circuit hydraulic with vacuum suspended power unit		
Ventilated disc brake		
Drum brake (Leading and trailing type)*5	Ventilated disc brake	Disc brake
Mechanical on rear brakes		

175/70R14 84T 175/70R14 84H	175/70R14 84T	205/60R15 91V	185/70R14 87H 185/70R14 88H
Steel belted radial, Tubeless			

60 (15.9, 13.2)						
4.5 (4.8, 4.0)						
3.5 (3.7, 3.1)						
3.5 (3.7, 3.1)	—	3.5 (3.7, 3.1)	—	3.5 (3.7, 3.1)	3.5 (3.7, 3.1)	—
—	8.3 (8.8, 7.3)	—	8.3 (8.8, 7.3)	—	—	8.3 (8.8, 7.3)
—	1.2 (1.3, 1.1)	—	1.2 (1.3, 1.1)	—	—	1.2 (1.3, 1.1)
0.8 (0.8, 0.7)						
0.7 (0.7, 0.6)						
Approx. MT: 6.3 (6.7, 5.5) AT: 6.2 (6.6, 5.5)		Approx. MT: 6.1 (6.4, 5.4) AT: 6.0 (6.3, 5.3)		Approx. 7.2 (7.6, 6.3)	Approx. MT: 5.9 (6.2, 5.2) AT: 5.8 (6.1, 5.1)	

*6: 5-forward speeds with synchromesh and 1-reverse speed — with center differential and viscous coupling

B: STATION WAGON AND TOURING WAGON

ITEM \ MODEL	STATION WAGON					
	1600	1800	1600	1800		
			FWD			4WD
	DL		GL			DL
	CARB. 5MT	CARB. 5MT	CARB. 5MT	CARB. 5MT	CARB. 4AT	SPFI 5MT

1. DIMENSIONS

Overall length		mm (in)	4,620 (181.9)				
Overall width		mm (in)	1,690 (66.5)				
Overall height (at CW)		mm (in)	1,420 (55.9)				
Compartment	Length	mm (in)	1,820 (71.7)				
	Width	mm (in)	1,415 (55.7)				
	Height	mm (in)	1,165 (45.9)				
Wheelbase		mm (in)	2,585 (101.8)				
Tread	Front	mm (in)	1,475 (58.1)		1,465 (57.7)		1,460 (57.5)
	Rear	mm (in)	1,460 (57.5)		1,450 (57.1)		1,450 (57.1)
Minimum road clearance (at CW)		mm (in)	160 (6.3)				165 (6.5)

2. WEIGHT

Curb weight (C.W.)	Front	kg (lb)	630 (1,390)	625 (1,380)	655 (1,445)	655 (1,445) 650 (1,430)*1	695 (1,530)	675 (1,490)
	Rear	kg (lb)	550 (1,210)	540 (1,190)	565 (1,245)	565 (1,245) 555 (1,225)*1	560 (1,235)	615 (1,355)
	Total	kg (lb)	1,180 (2,600)	1,165 (2,570)	1,220 (2,690)	1,220 (2,690) 1,205 (2,655)*1	1,255 (2,765)	1,290 (2,845)
Maximum permissible weight (M.P.W.)	Front	kg (lb)	950 (2,095)					950 (2,095)
	Rear	kg (lb)	950 (2,095)					1,000 (2,205)
	Total	kg (lb)	1,900 (4,190)					1,950 (4,300)

3. ENGINE

Engine type		Horizontally opposed, liquid cooled, 4-cylinder, 4-stroke gasoline engine					
Valve arrangement		Overhead camshaft type					
Bore x Stroke	mm (in)	87.9 x 65.8 (3.461 x 2.591)	87.9 x 75 (3.461 x 2.95)	87.9 x 65.8 (3.461 x 2.591)	87.9 x 75 (3.461 x 2.95)		
Displacement	cm^3 (cu in)	1,597 (97.45)	1,820 (111.06)	1,597 (97.45)	1,820 (111.06)		
Compression ratio		8.9	9.7	8.9	9.7	9.2	9.7
Firing order		1—3—2—4					
Idling speed at N or P position	rpm	900± 50	800± 50	900± 50	800± 50		850± 100
Maximum output	kW (PS)/rpm	70 (95)/6,400	76 (103)/6,000	70 (95)/6,400	76 (103)/6,000		
Maximum torque	N•m (kg-m, ft-lb)/rpm	123 (12.5, 90)/3,200	145 (14.8, 107)/3,200	123 (12.5, 90)/3,200	145 (14.8, 107)/3,200		147 (15.0, 108)/3,200

4. ELECTRICAL

Ignition timing at idling speed		BTDC	8°± 2° (without vacuum)	4°± 2° (without vacuum)	8°± 2° (without vacuum)	4°± 2° (without vacuum)	8°± 2° (without vacuum)	20°± 10°
Spark plug	Type and manufacturer		NGK: BKR6E NIPPONDENSO: K20PR-U					NGK: BKR6E-11 NIPPONDENSO: K20PR-U11
Alternator			12 V—70 A					
Battery	Type and capacity (5HR)	For Europe	5MT: 55D23L-MF (12 V—48 Ah) 4AT: 75D23L-MF (12 V—52 Ah)					
		Others	5MT: 34B19L-MF (12 V—27 Ah) 4AT: 46B24L-MF (12 V—36 Ah)					

*1: Except Europe

When any of the following optional parts are installed, add the weight to the curb weight.

Weight of optional parts

kg (lb)

	A.B.S.		Power door lock	Power window	Air conditioner	Sunroof		Power steering	Roof rail
	1800 & 2000 MPFI	2200 & 2000 TURBO				Station wagon	Touring wagon		
Front	15 (33)	16 (35)	0 (0)	1 (2)	26 (57)	6 (13)	5 (11)	7 (15)	1 (2)
Rear	7 (15)	0 (0)	1 (2)	1 (2)	−2 (−4)	15 (33)	16 (35)	−1 (−2)	4 (9)
Total	22 (49)	16 (35)	1 (2)	2 (4)	24 (53)	21 (46)	21 (46)	6 (13)	5 (11)

STATION WAGON		TOURING WAGON							
1800	2000	1800		2000			2200		
4WD									
DL		GL				TURBO	GX		
CARB. 5MT	MPFI 5MT	CARB. 5MT	CARB. 4AT	MPFI 5MT	MPFI 4AT	MPFI 5MT	MPFI 5MT	MPFI 5MT*7	MPFI 4AT
4,620 (181.9)									
1,690 (66.5)									
1,430 (56.3)		1,480 (58.3)				1,470 (57.9)	1,480 (58.3)	1,470 (57.9)	
1,820 (71.7)									
1,415 (55.7)									
1,165 (45.5)		1,205 (47.4)							
2,580 (101.6)									
1,460 (57.5)						1,465 (57.7)	1,460 (57.5)		
1,450 (57.1)				1,455 (57.3)			1,450 (57.1)	1,455 (57.3)	
165 (6.5)		175 (6.9)				165 (6.5)	175 (6.9)		
665 (1,465)	680 (1,500)	695 (1,535) 690 (1,520)*1	720 (1,590) 715 (1,575)*1	705 (1,555)	730 (1,610)	770 (1,700)	710 (1,565) 700 (1,545)*1	715 (1,575)	745 (1,640) 735 (1,620)*1
605 (1,335)	615 (1,355)	640 (1,410) 630 (1,390)*1	645 (1,420) 635 (1,400)*1	640 (1,410)	645 (1,420)	660 (1,455)	655 (1,445) 645 (1,420)*1	655 (1,445)	655 (1,445) 645 (1,425)*1
1,270 (2,800)	1,295 (2,855)	1,335 (2,945) 1,320 (2,910)*1	1,365 (3,010) 1,350 (2,975)*1	1,345 (2,965)	1,375 (3,030)	1,430 (3,155)	1,365 (3,010) 1,345 (2,965)*1	1,370 (3,020)	1,400 (3,085) 1,380 (3,045)*1
950 (2,095)		950 (2,095)							
1,000 (2,205)		1,030 (2,270)							
1,950 (4,300)		1,950 (4,300)							
Horizontally opposed, liquid cooled, 4-cylinder, 4-stroke gasoline engine									
Overhead camshaft type									
87.9 x 76 (3.461 x 2.95)	92 x 75 (3.62 x 2.95)	87.9 x 75 (3.461 x 2.95)		92 x 75 (3.62 x 2.95)			96.9 x 75 (3.815 x 2.95)		
1,820 (111.06)	1,994 (121.67)	1,820 (111.06)		1,994 (121.67)			2,212 (135.0)		
9.7	9.5	9.7	9.2	9.5		8.0	9.5		
1—3—2—4									
800± 50	800± 100	800± 50		800± 100		900± 100	800± 100		
76 (103)/6,000	85 (116)/5,600	76 (103)/6,000		85 (116)/5,600		147 (200)/ 6,000	100 (136)/6,000		
145 (14.8, 107)/3,200	164 (16.7, 121)/4,400	145 (14.8, 107)/3,200		164 (16.7, 121)/4,400		260 (26.5, 192)/3,600	189 (19.3, 140)/4,800		
4°± 2° (without vacuum)	8°± 2° (without vacuum)	4°± 2° (without vacuum)	8°± 2° (without vacuum)	23°± 10°		18°± 10°	23°± 10°		
NGK: BKR6E NIPPON-DENSO: K20PR-U	NGK: BKR6E-11 NIPPON-DENSO: K20PR-U11	NGK: BKR6E NIPPONDENSO: K20PR-U		NGK: BKR6E-11 NIPPONDENSO: K20PR-U11		NGK: BKR6EVX PFR6B PFR6G	NGK: BKR6E, [BKR6E-11]*2 NIPPONDENSO: K20PR-U, [K20PR-U11]*2		
12 V—70 A									
5MT: 55D23L-MF (12 V—48 Ah) 4AT: 75D23L-MF (12 V—52 Ah)									
5MT: 34B19L-MF (12 V—27 Ah) 4AT: 46B24L-MF (12 V—36 Ah)									

*1: Except Europe

*2: Catalyst equipped vehicles

*7: Pneumatic suspension equipped vehicles

ITEM \ MODEL	STATION WAGON					
	1600	1800	1600	1800		
	FWD					4WD
	DL		GL			DL
	CARB. 5MT	CARB. 5MT	CARB. 5MT	CARB. 5MT	CARB. 4AT	SPFI 5MT

5. TRANSMISSION

Clutch type			DSPD				TC	DSPD
Transmission type			*3				*4	*8
Gear ratio		1st	3.636				2.785	3.545
		2nd	2.105				1.438	2.111
		3rd	1.428				1.000	1.448
		4th	1.093				0.729	1.088
		5th	0.885				—	0.871
		Reverse	3.538				2.696	3.538
Auxiliary transmission gear ratio		High	—				—	1.000
		Low	—				—	1.592
Reduction gear (Front drive)	1st reduction	Type of gear	—				Helical	—
		Gear ratio	—				1.000	—
	Final reduction	Type of gear	Hypoid					
		Gear ratio	4.111	3.900	4.111	3.900	4.444	4.111
Reduction gear (Rear drive)	Transfer reduction	Type of gear	—	—	—	—	—	Helical
		Gear ratio	—	—	—	—	—	1.000
	Final reduction	Type of gear	—	—	—	—	—	Hypoid
		Gear ratio	—	—	—	—	—	4.111

6. STEERING

Type	Rack and pinion
Turns, lock to lock	Manual steering: 4.5, Power steering: 3.3
Minimum turning circle m (ft)	Wall to wall: 11.0 (36.1)/Curb to curb: 10.2 (33.5) ... FWD, Curb to curb: 10.1 (33.1) ... 4WD

7. SUSPENSION

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

8. BRAKE

Service brake system	Dual circuit hydraulic with vacuum suspended power unit
Front	Ventilated disc brake
Rear	Drum brake (Leading and trailing type)*5
Parking brake	Mechanical on rear brakes

9. TIRE

Size	165R13 82T	175/70R14 84S	175/70R14 84S 175/70R14 84T
Type	Steel belted radial, Tubeless		

10. CAPACITY

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)	2.6 (2.7, 2.3)	—	3.3 (3.5, 2.9)
Automatic transmission fluid		ℓ (US qt, Imp qt)	—	8.3 (8.8, 7.3)	—
AT differential gear oil		ℓ (US qt, Imp qt)	—	1.2 (1.3, 1.1)	—
4WD rear differential gear oil		ℓ (US qt, Imp qt)	—		0.8 (0.8, 0.7)
Power steering fluid		ℓ (US qt, Imp qt)	0.7 (0.7, 0.6)		
Engine coolant		ℓ (US qt, Imp qt)	Approx. MT: 6.3 (6.7, 5.5) AT: 6.2 (6.6, 5.5)		

DSPD: Dry Single Plate Diaphragm
TC: Torque Converter
*3: 5-forward speeds with synchromesh and 1-reverse speed
*4: Electronically controlled fully-automatic, 4-forward speeds and 1-reverse speed
*5: When optional ABS is equipped, rear brake shall be a disc brake.
*8: 5x2-forward speeds with synchromesh and 1-reverse speed — with selective 4WD system

STATION WAGON		TOURING WAGON							
1800	2000	1800		2000			2200		
4WD									
DL		GL				TURBO	GX		
CARB. 5MT	MPFI 5MT	CARB. 5MT	CARB. 4AT	MPFI 5MT	MPFI 4AT	MPFI 5MT	MPFI 5MT	MPFI 5MT*7	MPFI 4AT
DSPD *8	DSPD *8	DSPD *9	TC *4	DSPD *9	TC *4	DSPD *6	DSPD *9		TC *4
3.545	3.545	3.545	2.785	3.545	2.785	3.545	3.545		2.785
2.111	2.111	2.111	1.438	2.111	1.483	1.947	2.111		1.483
1.448	1.448	1.448	1.000	1.448	1.000	1.366	1.448		1.000
1.088	1.088	1.088	0.729	1.088	0.729	0.972	1.088		0.729
0.871	0.871	0.871	—	0.871	—	0.780	0.871		—
3.416	3.416	3.416	2.696	3.416	2.696	3.416	3.416		2.696
1.000	1.000	1.000	—	1.000	—	—	1.000		—
1.592	1.196	1.592	—	1.196	—	—	1.196		—
—	—	—	Helical	—	Helical	—	—		Helical
—	—	—	1.000	—	1.000	—	—		1.000
Hypoid									
4.111	4.111	4.111	4.444	4.111	4.444	3.900	3.900		4.111
Helical	Helical	Helical	—	Helical	—	Helical	Helical		—
1.000	1.000	1.000	—	1.000	—	1.100	1.000		—
Hypoid									
4.111	4.111	4.111	4.444	4.111	4.444	3.545	3.900		4.111

Rack and pinion
Manual steering: 4.5, Power steering: 3.3, 3.2 ... [TURBO]
Wall to wall: 10.2 (33.5)/Curb to curb: 10.1 (33.1), 10.6 (34.8) ... [TURBO]

Macpherson strut type, Independent, Coil spring	*10
Dual link strut type, Independent, Coil spring	*11

Dual circuit hydraulic with vacuum suspended power unit		
Ventilated disc brake		
Drum brake (Leading and trailing type)*5	Ventilated disc brake	Disc brake
Mechanical on rear brakes		

175/70R14 84S 175/70R14 84T	175/70R14 84T	185/70R14 87H 185/70R14 88H		205/60R15 91V	185/70R14 87H 185/70R14 88H
Steel belted radial, Tubeless					

60 (15.9, 13.2)								
4.5 (4.8, 4.0)								
3.5 (3.7, 3.1)								
3.3 (3.5, 2.9)	3.3 (3.5, 2.9)	3.5 (3.7, 3.1)	—	3.5 (3.7, 3.1)	—	3.5 (3.7, 3.1)	3.5 (3.7, 3.1)	—
	—	—	8.3 (8.8, 7.3)	—	8.3 (8.8, 7.3)	—	—	8.3 (8.8, 7.3)
	—	—	1.2 (1.3, 1.1)	—	1.2 (1.3, 1.1)	—	—	1.2 (1.3, 1.1)
0.8 (0.8, 0.7)								
0.7 (0.7, 0.6)								
Approx. 6.3 (6.7, 5.5)	Approx. 6.1 (6.4, 5.4)	Approx. MT: 6.3 (6.7, 5.5) AT: 6.2 (6.6, 5.5)		Approx. MT: 6.1 (6.4, 5.4) AT: 6.0 (6.3, 5.3)		Approx. 7.2 (7.6, 6.3)	Approx. MT: 5.9 (6.2, 5.2) AT: 5.8 (6.1, 5.1)	

*6: 5-forward speede with synchromesh and 1-reverse speed — with center differential and viscous coupling

*7: Pneumatic suspension equipped vehicle

*9: 5x2-forward speeds with synchromesh and 1-reverse speed — with center differential and viscous coupling

*10: Macpherson strut type, Independent, Pneumatic suspension with height control

*11: Dual link strut type, Independent, Pneumatic suspension with height control

2. Australia

A: 4-DOOR SEDAN AND TOURING WAGON

ITEM \ MODEL	4-DOOR SEDAN			
	2200			
	FWD			
	LX		GX	
	MPFI 5MT	MPFI 4AT	MPFI 5MT	MPFI 4AT

1. DIMENSIONS

Overall length		mm (in)	4,545 (178.9)
Overall width		mm (in)	1,690 (66.5)
Overall height (at CW)		mm (in)	1,400 (55.1)
Compartment	Length	mm (in)	1,875 (73.8)
	Width	mm (in)	1,415 (55.7)
	Height	mm (in)	1,150 (45.3)
Wheelbase		mm (in)	2,580 (101.6)
Tread	Front	mm (in)	1,465 (57.7)
	Rear	mm (in)	1,455 (57.3)
Minimum road clearance (at CW)		mm (in)	170 (6.7)

2. WEIGHT

Curb weight (C.W.)	Front	kg (lb)	680 (1,500)	715 (1,575)	685 (1,510)	720 (1,590)
	Rear	kg (lb)	505 (1,115)	515 (1,135)	510 (1,125)	520 (1,145)
	Total	kg (lb)	1,185 (2,615)	1,230 (2,710)	1,195 (2,635)	1,240 (2,735)
Gross vehicle weight (G.V.W.)	Front	kg (lb)	935 (2,060)			
	Rear	kg (lb)	845 (1,865)			
	Total	kg (lb)	1,780 (3,925)			

3. ENGINE

Engine type		Horizontally opposed, liquid cooled, 4-cylinder, 4-stroke gasoline engine
Valve arrangement		Overhead camshaft type
Bore x Stroke	mm (in)	96.9 x 75 (3.815 x 2.95)
Displacement	cm^3 (cu in)	2,212 (135.0)
Compression ratio		9.5
Firing order		1—3—2—4
Idling speed at N or P position	rpm	800± 100
Maximum output	kW (PS)/rpm	100 (136)/6,000
Maximum torque	N•m (kg-m, ft-lb)/rpm	189 (19.3, 140)/4,800

4. ELECTRICAL

Ignition timing at idling speed	BTDC	23°± 10°
Spark plug	Type and manufacturer	NGK: BKR6E-11 NIPPONDENSO: K20PR-U11
Alternator		12 V—70 A
Battery	Type and capacity (5HR)	5MT: 34B19L-MF (12 V—27 Ah) 4AT: 46B24L-MF (12 V—36 Ah)

When any of the following optional parts are installed, add the weight to the curb weight.

Weight of optional parts kg (lb)

	Power door lock & power window	Power door lock & power window & cruise control	Sunroof		Leather seats	Front fog light
			4-DOOR SEDAN	TOURING WAGON		
Front	1 (2)	3 (7)	8 (13)	5 (11)	2 (4)	2 (4)
Rear	2 (4)	2 (4)	15 (33)	16 (35)	5 (11)	0 (0)
Total	3 (7)	5 (11)	21 (46)	21 (46)	7 (15)	2 (4)

4-DOOR SEDAN			TOURING WAGON			
2000	2200		2200			
4WD			FWD		4WD	
TURBO	GX		GX			
MPFI 5MT	MPFI 5MT	MPFI 4AT	MPFI 5MT	MPFI 4AT	MPFI 5MT	MPFI 4AT
4,545 (178.9)						
1,690 (66.5)						
1,400 (55.1)			1,480 (58.3)		1,470 (57.9)	
1,875 (73.8)						
1,415 (55.7)						
1,150 (45.3)			1,205 (47.4)			
2,580 (101.6)						
1,465 (57.7)	1,460 (57.5)		1,465 (57.7)		1,460 (57.5)	
1,455 (57.3)			1,450 (57.1)		1,455 (57.3)	
165 (6.5)	175 (6.9)		180 (7.1)		175 (6.9)	
770 (1,700)	705 (1,550)	740 (1,630)	675 (1,490)	710 (1,565)	700 (1,545)	735 (1,620)
585 (1,290)	575 (1,270)	580 (1,280)	575 (1,265)	585 (1,290)	640 (1,410)	645 (1,425)
1,355 (2,990)	1,280 (2,820)	1,320 (2,910)	1,250 (2,755)	1,295 (2,855)	1,340 (2,955)	1,380 (3,045)
950 (2,095)			915 (2,020)		935 (2,065)	
915 (2,015)			960 (2,115)		1,030 (2,270)	
1,865 (4,110)			1,875 (4,135)		1,965 (4,335)	
Horizontally opposed, liquid cooled, 4-cylinder, 4-stroke gasoline engine						
Overhead camshaft type						
92 x 75 (3.62 x 2.95)	96.9 x 75 (3.815 x 2.95)					
1,994 (121.67)	2,212 (135.0)					
8.0	9.5					
1—3—2—4						
900± 100	800± 100					
147 (200)/6,000	100 (136)/6,000					
260 (26.5, 192)/3,600	189 (19.3, 140)/4,800					
18°± 10°	23°± 10°					
NGK: BKR6EVX PFR6B PFR6G	NGK: BKR6E-11 NIPPONDENSO: K20PR-U11					
12 V—70 A						
5MT: 34B19L-MF (12 V—27 Ah) 4AT: 46B24L-MF (12 V—36 Ah)						

12 18

ITEM \ MODEL	4-DOOR SEDAN			
	2200			
	FWD			
	LX		GX	
	MPFI 5MT	MPFI 4AT	MPFI 5MT	MPFI 4AT

5. TRANSMISSION

Clutch type			DSPD	TC	DSPD	TC
Transmission type			*3	*4	*3	*4
Gear ratio		1st	3.545	2.785	3.545	2.785
		2nd	2.111	1.483	2.111	1.483
		3rd	1.448	1.000	1.448	1.000
		4th	1.088	0.729	1.088	0.729
		5th	0.871	—	0.871	—
		Reverse	3.416	2.696	3.416	2.696
Auxiliary transmission gear ratio		High	—	—	—	—
		Low	—	—	—	—
Reduction gear (Front drive)	1st reduction	Type of gear	—	Helical	—	Helical
		Gear ratio	—	1.000	—	1.000
	Final reduction	Type of gear	Hypoid			
		Gear ratio	3.700	4.111	3.700	4.111
Reduction gear (Rear drive)	Transfer reduction	Type of gear	—			
		Gear ratio	—			
	Final reduction	Type of gear	—			
		Gear ratio	—			

6. STEERING

Type		Rack and pinion
Turns, lock-to-lock		3.3
Minimum turning circle	m (ft)	Wall to wall: 11.0 (36.1)/Curb to curb: 10.2 (33.5)

7. SUSPENSION

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

8. BRAKE

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

9. TIRE

Size	185/70R14 87H 185/70R14 88H
Type	Steel belted radial, Tubeless

10. CAPACITY

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)	3.3 (3.5, 2.9)	—	3.3 (3.5, 2.9)	—
Automatic transmission fluid		ℓ (US qt, Imp qt)	—	8.3 (8.8, 7.3)	—	8.3 (8.8, 7.3)
AT differential gear oil		ℓ (US qt, Imp qt)	—	1.2 (1.3, 1.1)	—	1.2 (1.3, 1.1)
4WD rear differential gear oil		ℓ (US qt, Imp qt)	—			
Power steering fluid		ℓ (US qt, Imp qt)	0.7 (0.7, 0.6)			
Engine coolant		ℓ (US qt, Imp qt)	Approx. MT: 5.9 (6.2, 5.2) AT: 5.8 (6.1, 5.1)			

DSPD: Dry Single Plate Diaphragm

TC: Torque converter

*3: 5-forward speeds with synchromesh and 1-reverse speed

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

4-DOOR SEDAN			TOURING WAGON			
2000	2200		2200			
4WD			FWD		4WD	
TURBO	GX		GX			
MPFI 5MT	MPFI 5MT	MPFI 4AT	MPFI 5MT	MPFI 4AT	MPFI 5MT	MPFI 4AT
DSPD *6	DSPD *6	TC *4	DSPD *3	TC *4	DSPD *9	TC *4
3.545	3.545	2.785	3.545	2.785	3.545	2.785
1.947	2.111	1.483	2.111	1.483	2.111	1.483
1.366	1.448	1.000	1.448	1.000	1.448	1.000
0.972	1.088	0.729	1.088	0.729	1.088	0.729
0.780	0.871	—	0.871	—	0.871	—
3.416	3.416	2.696	3.416	2.696	3.416	2.696
—	—	—	—	—	1.000	—
—	—	—	—	—	1.196	—
—	—	Helical	—	Helical	—	Helical
—	—	1.000	—	1.000	—	1.000
Hypoid						
3.900	3.900	4.111	3.700	4.111	3.900	4.111
Helical	Helical	—	—		Helical	—
1.100	1.000	—	—		1.000	—
Hypoid			—		Hypoid	
3.545	3.900	4.111	—		3.900	4.111

Rack and pinion
3.3, 3.0 ... [TURBO]
Wall to wall: 11.0 (36.1)/Curb to curb: 10.2 (33.5) ... FWD, Curb to curb: 10.1 (33.1), 10.6 (34.8) [TURBO] ... 4WD

Macpherson strut type, Independent, Coil spring	*10
Dual link strut type, Independent, Coil spring	*11

Dual circuit hydraulic with vacuum suspended power unit	
Ventilated disc brake	
Ventilated disc brake	Disc brake
Mechanical on rear brakes	

205/60R15 91V	185/70R14 87H 185/70R14 88H
Steel belted radial, Tubeless	

60 (15.9, 13.2)						
4.5 (4.8, 4.0)						
3.5 (3.7, 3.1)						
3.5 (3.7, 3.1)	3.5 (3.7, 3.1)	—	3.3 (3.5, 2.9)	—	3.5 (3.7, 3.1)	—
—	—	8.3 (8.8, 7.3)	—	8.3 (8.8, 7.3)	—	8.3 (8.8, 7.3)
—	—	1.2 (1.3, 1.1)	—	1.2 (1.3, 1.1)	—	1.2 (1.3, 1.1)
0.8 (0.8, 0.7)			—		0.8 (0.8, 0.7)	
0.7 (0.7, 0.6)						
Approx. 7.2 (7.6, 6.3)	Approx. MT: 5.9 (6.2, 5.2) AT: 5.8 (6.1, 5.1)					

*6: 5-forward speede with synchromesh and 1-reverse speed — with center differential and viscous coupling
*9: 5x2-forward speeds with synchromesh and 1-reverse speed — with center differential and viscous coupling
*10: Macpherson strut type, Independent, Pneumatic suspension with height control
*11: Dual link strut type, Independent, Pneumatic suspension with height control

SUBARU®

1992

SERVICE MANUAL

Page

1. General Precautions

A: BEFORE STARTING SERVICE

1) Be sure to perform the jobs listed in the Periodic Maintenance Schedule.
2) When a vehicle is brought in for maintenance, carefully listen to the owner's explanations of the symptoms exhibited by the vehicle. List the problems in your notebook, and refer to them when trying to diagnose the trouble.
3) All jewelry should be removed. Suitable work clothes should be worn.
4) Be sure to wear goggles.
5) Use fender, floor and seat covers to prevent the vehicle from being scratched or damaged.
6) Never smoke while working.
7) Before removing underfloor bolts (including the rear differential filler plug) coated with bituminous wax, remove old wax. Re-coat with new wax after reinstallation.

B: WHILE WORKING

1) When jacking up the vehicle, be sure to use safety stands.
2) When jacking up the front or rear end of the car body, be sure to chock the tires remaining in contact with the ground.
3) Keep the parking brake applied when working on the vehicle. Chock the tires remaining in contact with the ground (and set the selector lever to "P" position in AT vehicle), when the parking brake cannot be applied, such as when the brakes are being worked on.
4) Keep the ignition key turned "OFF" if at all possible.
5) Be cautious while working when the ignition key is "ON"; if the engine is hot, the cooling fan may start to operate.
6) While the engine is in operation, properly ventilate the workshop.
7) While the engine is in operation, be aware of any moving parts, such as the cooling fan and the drive belt.
8) Keep your hands off any metal parts such as the radiator, exhaust manifold, exhaust pipe, and muffler, to prevent burning yourself.
9) When servicing the electrical system or the fuel system, disconnect the ground cable from the battery.
10) When disassembling, arrange the parts in the order that they were disassembled.
11) When removing a wiring connector, do not pull the wire but pull the connector itself.
12) When removing a hose or tube, remove the clip first. Then, pull the hose or tube while holding its end fitting.
13) Replace gaskets, O-rings, snap rings, lock washers, etc. with new ones.
14) When tightening a bolt or nut, tighten it to the specified torque.
15) When performing work requiring special tools, be sure to use the designated ones.
16) After completing work, make certain that the hoses, tubes and wiring harnesses are securely connected.
17) After completing work, be sure to wash the vehicle.

C: TREATMENT FOR USED ENGINE OIL

1. ENGINE OILS

Prolonged and repeated contact with mineral oil will result in the removal of natural fats from the skin, leading to dryness, irritation and dermatitis. In addition, used engine oil contains potentially harmful contaminants which may cause skin cancer. Adequate means of skin protection and washing facilities should be provided.

2. HEALTH PROTECTION PRECAUTIONS

1) Avoid prolonged and repeated contact with oils, particularly used engine oils.
2) Wear protective clothing, including impervious gloves where practicable.
3) Do not put oily rags in pockets.
4) Avoid contaminating clothes, particularly underpants, with oil.
5) Overalls must be cleaned regularly. Discard unwashable clothing and oil impregnated footwear.
6) First Aid treatment should be obtained immediately for open outs and wounds.
7) Use barrier creams, applying then before each work period, to help the removal of oil from the skin.
8) Wash with soap and water to ensure all oil is removed (skin cleansers and nail brushes will help). Preparations containing lanolin replace the natural skin oils which have been removed.
9) Do not use petrol, kerosene, diesel fuel, gas oil, thinners or solvents for washing skin.
10) If skin disorders develop, obtain medical advice.
11) Where practicable, degrease components prior to handling.
12) Where there is a risk of eye contact, eye protection should be worn, for example, chemical goggles or face shields; in addition an eye wash facility should be provided.

For the UK region, see also HSE Cautionary Notice SHW 397 Effects of Mineral Oil on the skin.

3. ENVIRONMENTAL PROTECTION PRECAUTIONS

It is illegal to pour used oil on to the ground, down sewers or drains, or into water courses. The burning of used engine oil in small space heaters or boilers is not recommended unless emission control equipment is

fit ted. If in doubt check with the Local Authority.
Dispose of used oil through authorized waste disposal contractors, licensed waste disposal sites, or to the waste oil reclamation trade. If in doubt, contact the Local Authority for advice on disposal facilities.

D: PNEUMATIC SUSPENSION MODELS WITH HEIGHT CONTROL

These models are provided with height control mechanisms. Be sure to return the height control to "Normal" position (low) and support the vehicle with a jack before getting under it for servicing, etc. To check any system, other than electrical, under the vehicle, disconnect cables from battery in advance.

E: FULL-TIME 4WD MT MODELS

1. SPEEDOMETER TEST

■ Jack-up Method
1) Position vehicle so that front wheels are placed between rollers of speedometer test machine.
2) Jack up vehicle until rear wheels clear the floor, and support with safety stands.
3) Start engine with shift lever set in 2nd gear (for safety considerations). Perform speedometer tests.

a. Secure a rope or wire to the front towing hook to prevent the lateral runout of front wheels.

b. Do not abruptly depress/release clutch pedal or accelerator pedal during tests even when engine is operating at low speeds since this may cause vehicle to jump off test machine.
c. Avoid abrupt braking after tests.
d. In order to prevent the vehicle from slipping due to vibration, do not place any wooden blocks or similar items between the safety stands and the vehicle.
e. Since the rear wheels will also be rotating, do not place anything near them. Also, make sure that nobody goes in front of the vehicle.

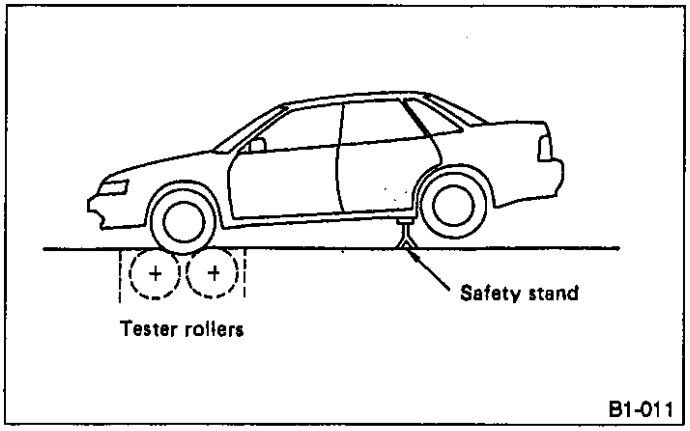


Fig. 1

■ Free roller method
1) Position vehicle so that front wheels are placed between rollers of test machine.
2) Scribe alignment mark corresponding with centerline of rear wheels on floor.
3) Back up vehicle so that centerline of free rollers are aligned with mark scribed in step 2 above.
4) Drive vehicle onto free rollers.
5) Perform speedometer tests.

a. Secure a rope or wire to the front towing hook to prevent the lateral runout of front wheels

b. Do not abruptly depress/release clutch pedal or accelerator pedal during tests even when engine is operating at low speeds since this may ceuse vehicle to jump off test machine.
c. Avoid abrupt braking after tests.

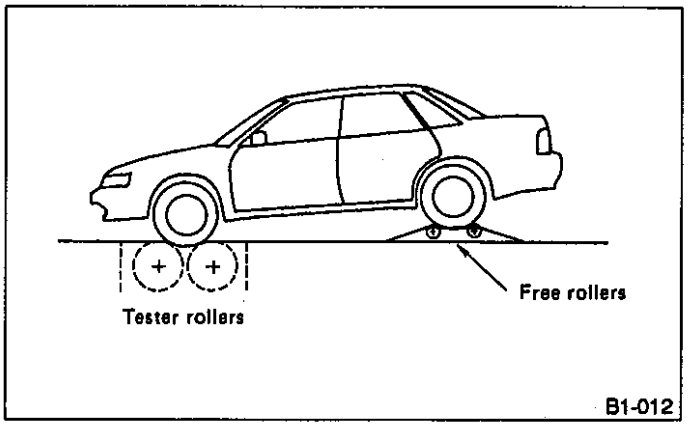


Fig. 2

2. BRAKE TEST

1) Drive vehicle for a distance of several kilometers (miles) to stabilize dragging force of viscous coupling.
2) Place vehicle onto brake tester.
3) Perform brake tests.

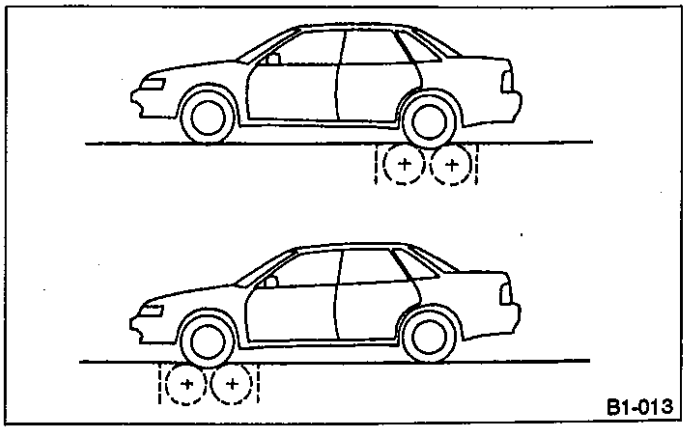


Fig. 3

If dragging force exceeds specifications, check brake pad or brake shoe for dragging. Abnormalities related to the viscous torque of viscous coupling unit may

cause excessive dragging force. At this point, raise vehicle so that two front or rear wheels clear floor, remove cause of abnormality and check wheel rotation.
Effect of braking force on viscous coupling torque;
Approx. 245 N (25 kg, 55 lb)

3. CHASSIS DYNAMOMETER TEST

1) Locate vehicle onto chassis dynamometer tester.
2) Locate rear wheels onto free rollers.
3) Perform dynamic performance tests.

a. Do not abruptly depress/release clutch pedal or accelerator pedal during tests.
b. Avoid abrupt braking tests after tests.

4. TIRE BALANCE TEST (On-car machine)

1) Raise vehicle so that left and right wheels to be checked clear the floor. Support wheels using pick-up stands.
2) Raise the other two wheels off the ground and support with a safety stand.
3) Attach on-car machine to wheels to be checked.
4) Drive wheel with engine and perform tire balance tests.

a. Perform tire balance tests after each tire balance has been measured.
b. Locate the vehicle so that its front and rear sides are equal in height.
c. Release parking brake.
d. Manually rotate each tire and check for drag.
e. Do not operate clutch and do not accelerate the engine abruptly.
f. If error occurs due to engine operation, do not operate balance's motor.

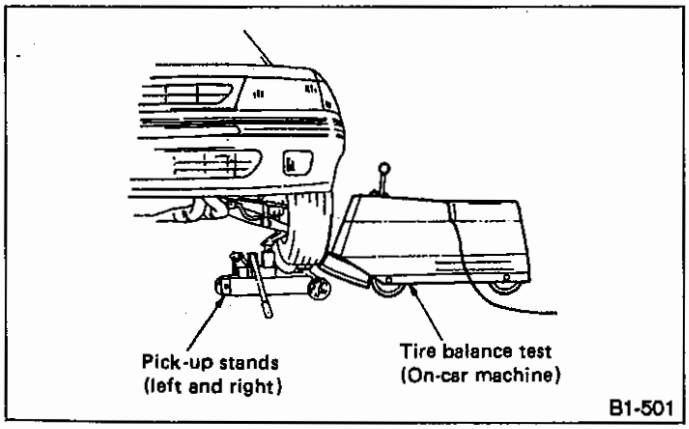


Fig. 4

5. TOWING

1) Loading vehicle onto dolly or flat-bed truck

a. Transport vehicle using a dolly or flat-bed truck whenever possible.
b. Move shift lever to "1st" and apply parking brake.

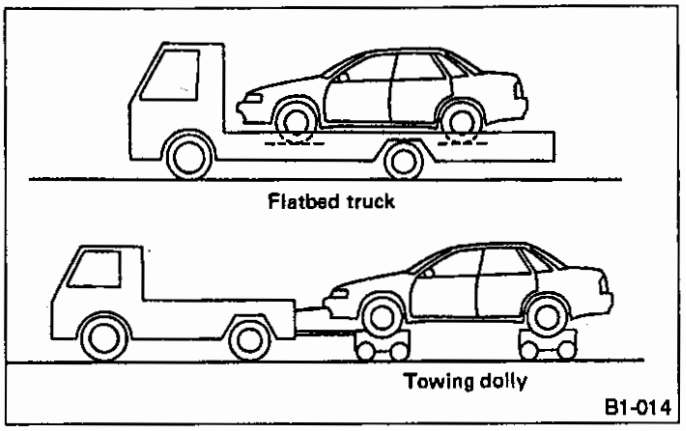


Fig. 5

2) Towing with a rope

a. Use a rope only when power train and all wheels are operating properly.
b. The ignition switch should be in the "ACC" position. Never have the ignition switch on "LOCK" while the vehicle is being towed because steering will not be possible, since the direction of the wheels will be locked.
c. Put the transmission in neutral.
d. Never use the tie down hooks for towing.
e. Remember that brake booster and power steering will not work when engine is "OFF". You will have to use greater effort for the brake pedal and steering wheel.
f. Before towing, check transmission oil and differential oil levels and top up to the specified lever if necessary.

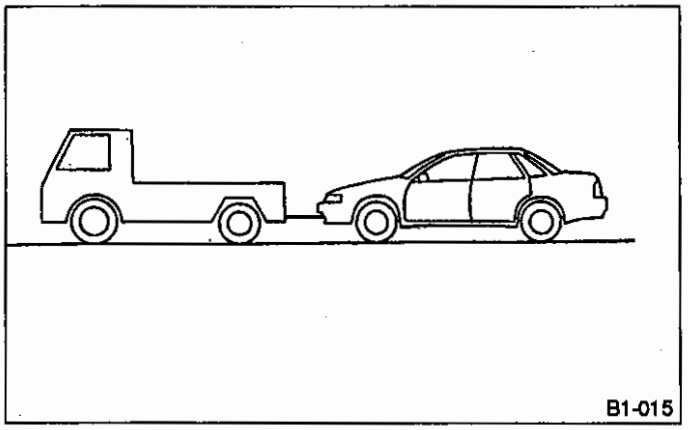


Fig. 6

3) Towing with front or rear wheels raised

a. Do not tow vehicle with only front or rear wheels placed on towing dolly or flat-bed truck. This may degrade viscous coupling performance or cause vehicle to jump off dolly or truck.

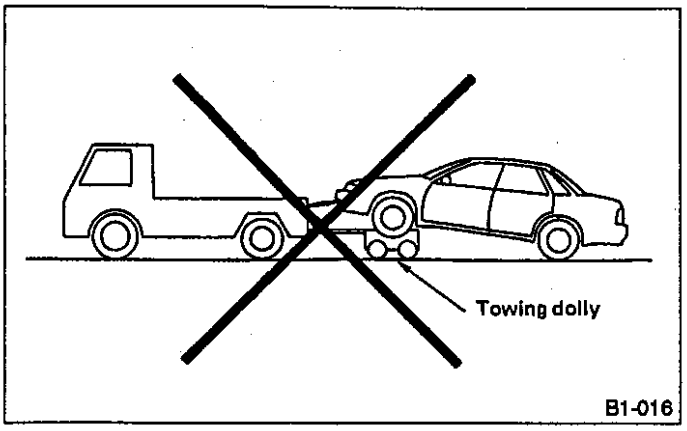


Fig. 7

b. Do not tow vehicle with rear wheels raised under any circumstances since this will damage bumper.

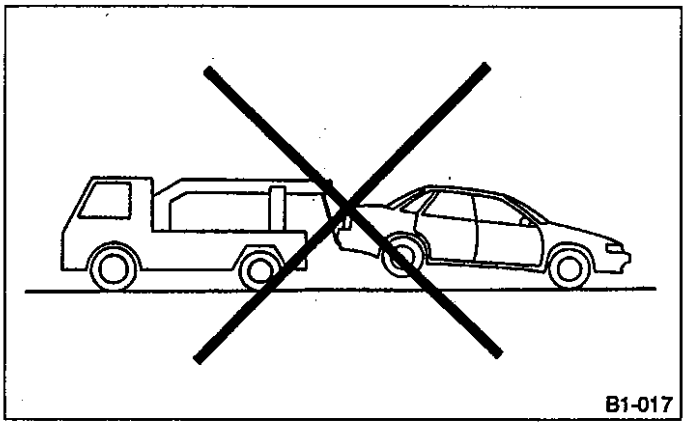


Fig. 8

c. Do not tow vehicle with front wheels raised under any circumstances since this will damage bumper.

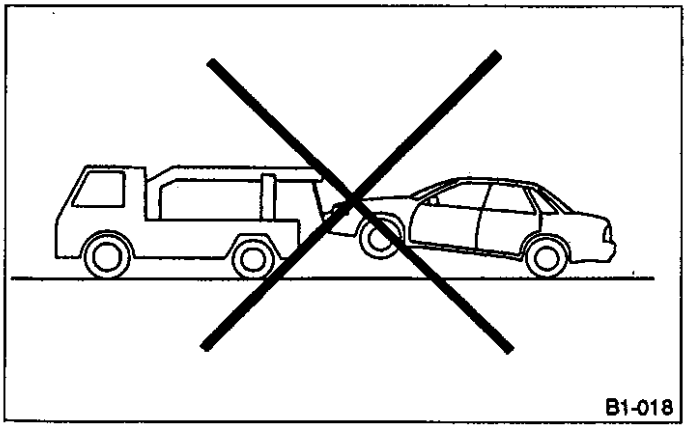


Fig. 9

F: FULL TIME 4WD AT MODELS

1. BEFORE CHECKING OR SERVICING CARS WITH THE FRONT WHEELS RAISED OR ON ROLLERS (BRAKE TESTER, CHASSIS DYNAMOMETER, ETC.)

Always set the car in the FWD mode.
To set the car in the FWD mode, disconnect the 4WD circuit by inserting a fuse in the FWD connector inside the engine compartment. Also chock the rear wheels firmly.

Ensure that the FWD pilot light is on. If the car is left in the 4WD mode, it will surge abruptly when the wheels turn, possibly damaging the transfer clutch.

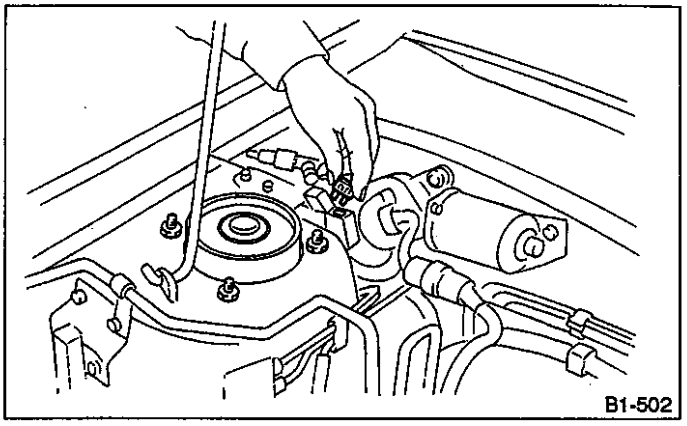


Fig. 10

2. TOWING

1) Loading vehicle onto dolly or flat-bed truck

a. Transport vehicle using a dolly or flat-bed truck whenever possible.

b. Place the selector lever in "P" position and apply the parking brake.

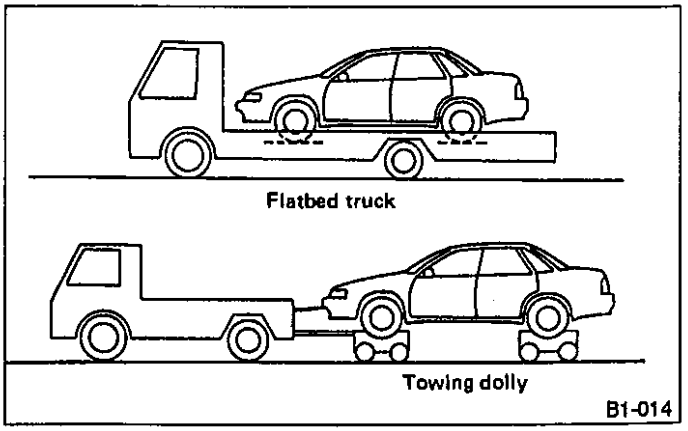


Fig. 11

2) Towing with a rope

a. Tow vehicle with a rope only when power train and all wheels are operating properly.

b. Put a spare fuse inside the FWD connector and never exceed 30 km/h (19 MPH). Also, do not tow for more than 10 km (6 miles).
c. Place the selector lever in "N" position.
d. The ignition switch should be in the "ACC" position while the vehicle is being towed. Never have the ignition switch on "LOCK" while the vehicle is being towed because steering will not be possible, since the direction of the wheels will be locked.
e. Never use the tie down hooks for towing.
f. Remember that brake booster and power steering will not work when the engine is "OFF". You will have to use greater effort for the brake pedal and steering wheel.
g. Before towing, check transmission oil and differential oil levels and top up to the specified level if necessary.

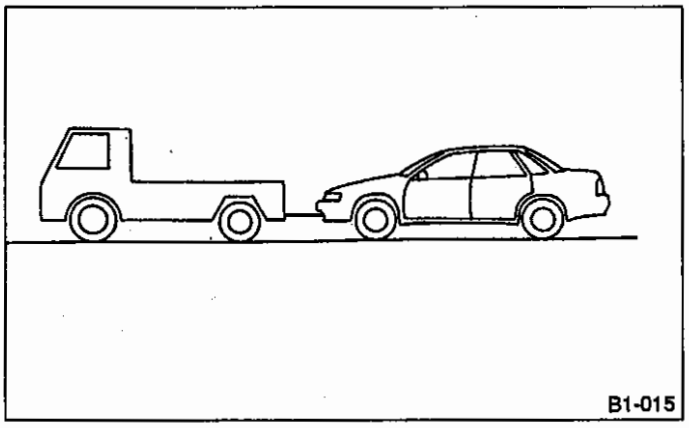


Fig. 12

3) Towing with front or rear wheels raised

Do not tow vehicle with front or rear wheels raised under any circumstances since this will damage bumper.

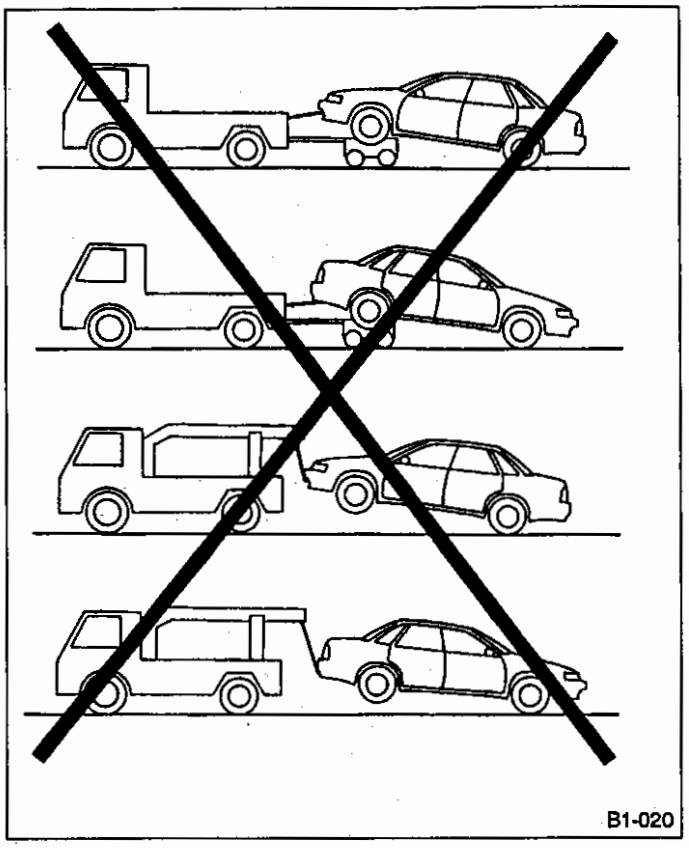


Fig. 13

G: SELECTIVE 4WD MT MODELS

1. BEFORE CHECKING OR SERVICING CARS WITH THE FRONT WHEELS RAISED OR ON ROLLERS (BRAKE TESTER, CHASSIS DYNAMOMETER, ETC.)

Always set the car in the FWD mode.

Be sure to set 4WD selector switch to OFF. In addition, disconnect harness connector for 4WD solenoid valve inside engine compartment and chock rear wheels firmly.

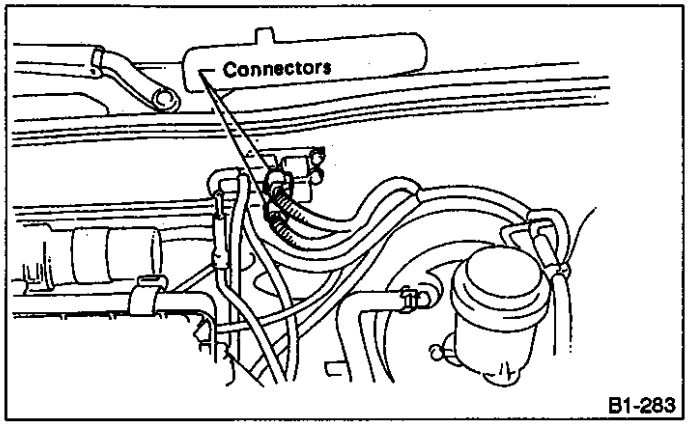


Fig. 14

2. TOWING

1) Loading vehicle onto dolly or flat-bed truck

a. Transport vehicle using a dolly or flat-bed truck whenever possible.

b. Move shift lever to "1st" position and apply parking brake.

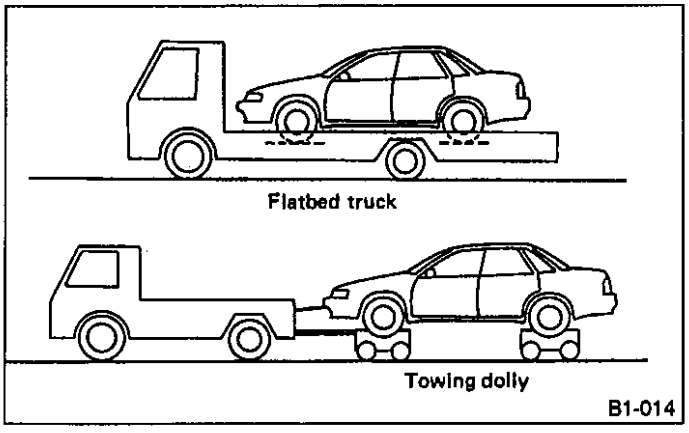


Fig. 15

2) Towing with a rope

a. Use a rope only when power train and all wheels are opereting properly.

b. The ignition switch should be in the "ACC" position. Never have the ignition switch on "LOCK" while the vehicle is being towed because steering will not be possible, since the direction of the wheels will be locked.

c. Put the transmission in neutral.

d. Never use the tie down hooks for towing.

e. Remember that brake booster and power steering will not work when engine is "OFF". You will have to use greater effort for the brake pedal and steering wheel.

f. Before towing, check transmission oil and differential oil levels and top up to the specified lever if necessary.

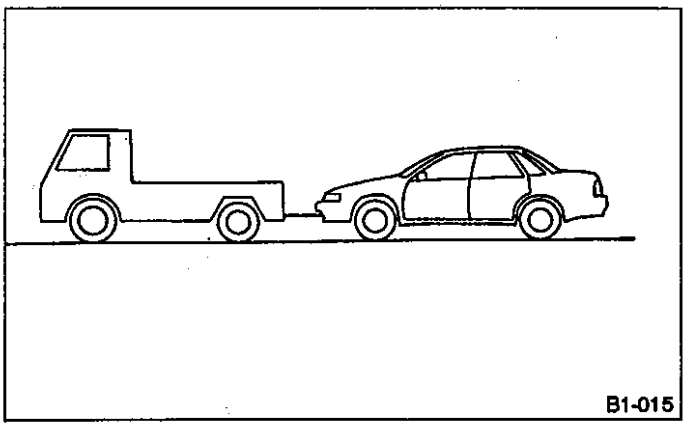


Fig. 16

3) Towing with front or rear wheels raised

a. When towing vehicle with only front wheels placed on towing dolly or flat-bed truck, set the vehicle in the FWD mode.

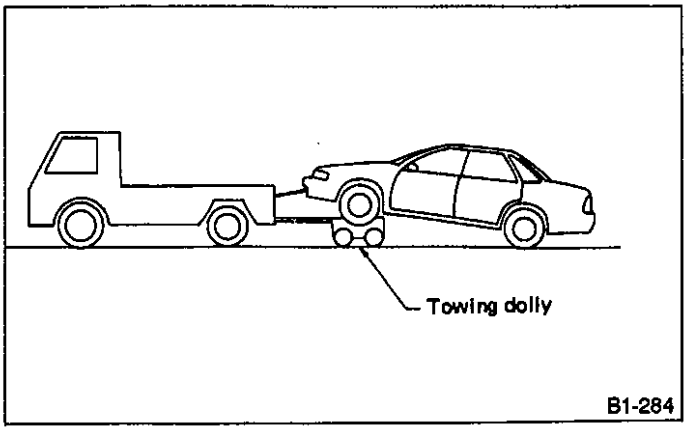


Fig. 17

■4WD mode canceling method

1) Under normal circumstances, start the engine, turn the 4WD selector switch off and, with the tires pointed straight ahead, move the vehicle either forward or backward.

2) If the engine cannot be started, such as when the battery is dead or when the vacuum actuator is not working, raise the front (or rear) wheels and move the transfer shift lever, on the right side of the transmission, towards the rear of the vehicle.

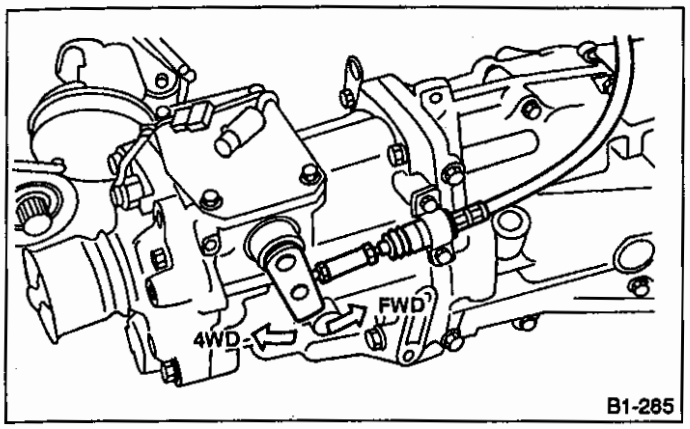


Fig. 18

b. Do not tow vehicle with rear wheels raised under any circumstances since this will damage bumper.

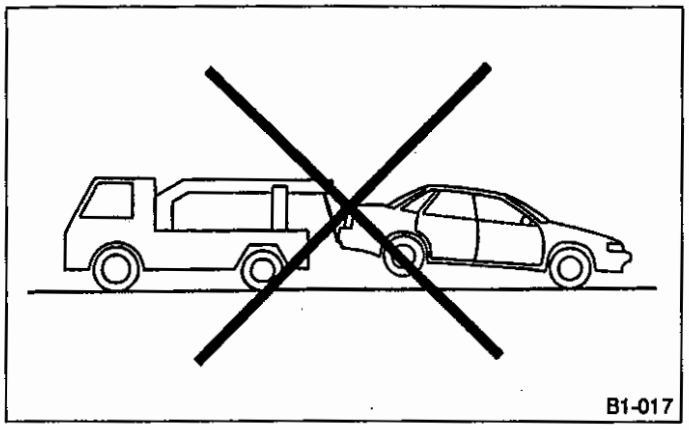


Fig. 19

c. Do not tow vehicle with front wheels raised under any circumstances since this will damage bumper.

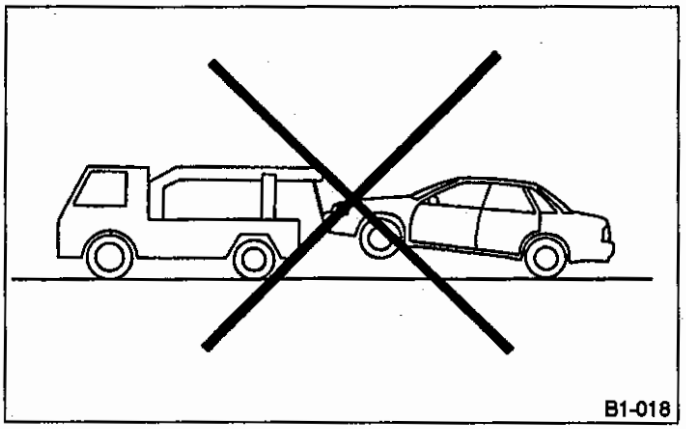


Fig. 20

2. Vehicle Identification Number (V.I.N.)

A: APPLICABLE V.I.N. IN THIS MANUAL

1. EXCEPT AUSTRALIA MODELS

4-DOOR SEDAN	1600 cc engine	DL	Carb., 5MT	J	F	1	B	C	H	C	R	O	C	B	0	1	5	0	0	1 and after
		GL	Carb., 5MT	J	F	1	B	C	H	C	R	O	C	B	0	1	5	0	0	1 and after
	1800 cc engine	DL	Carb., 5MT	J	F	1	B	C	2	C	R	O	C	B	0	1	5	0	0	1 and after
		GL	Carb., 5MT	J	F	1	B	C	2	C	R	O	C	B	0	1	5	0	0	1 and after
			Carb., 4AT	J	F	1	B	C	2	C	R	O	C	K	0	1	5	0	0	1 and after
		Full time 4WD GL	Cerb., 5MT SR	J	F	1	B	C	3	C	R	O	C	G	0	1	5	0	0	1 and after
			Carb., 4AT	J	F	1	B	C	3	C	R	O	C	H	0	1	5	0	0	1 and after
	2000 cc engine	Full time 4WD GL	MPFI, 5MT SR	J	F	1	B	C	5	C	R	O	E	G	0	1	5	0	0	1 and after
			MPFI, 4AT	J	F	1	B	C	5	C	R	O	E	H	0	1	5	0	0	1 and after
	2000 cc DOHC engine	Full time 4WD TURBO	MPFI, 5MT SR	J	F	1	B	C	5	C	R	O	B	G	0	1	5	0	0	1 and after
	2200 cc engine	GX	MPFI, 5MT	J	F	1	B	C	6	C	R	O	E	B	0	1	5	0	0	1 and after
			MPFI, 4AT	J	F	1	B	C	6	C	R	O	E	K	0	1	5	0	0	1 and after
		Full time 4WD GX	MPFI, 5MT SR	J	F	1	B	C	7	C	R	O	E	G	0	1	5	0	0	1 and after
			MPFI, 4AT	J	F	1	B	C	7	C	R	O	E	H	0	1	5	0	0	1 and after
STATION WAGON	1600 cc engine	DL	Carb., 5MT	J	F	1	B	J	H	C	R	O	C	B	0	0	4	0	0	1 and after
		GL	Cerb., 5MT	J	F	1	B	J	H	C	R	O	C	B	0	0	4	0	0	1 and after
	1800 cc engine	DL	Carb., 5MT	J	F	1	B	J	2	C	R	O	C	B	0	0	4	0	0	1 and after
		GL	Carb., 5MT	J	F	1	B	J	2	C	R	O	C	B	0	0	4	0	0	1 and after
			Carb., 4AT	J	F	1	B	J	2	C	R	O	C	K	0	0	4	0	0	1 and after
		Selective 4WD DL	Carb., 5MT DR	J	F	1	B	J	3	C	R	O	C	E	0	0	4	0	0	1 and after
			SPFI, 5MT DR	J	F	1	B	J	3	C	R	O	E	E	0	0	4	0	0	1 and after
	2000 cc engine	Selective 4WD DL	MPFI, 5MT DR	J	F	1	B	J	5	C	R	O	E	E	0	0	4	0	0	1 and after
TOURING WAGON	1800 cc engine	Full time 4WD GL	Carb., 5MT DR	J	F	1	B	F	3	C	R	O	C	J	0	1	2	5	0	1 and after
			Carb., 4AT	J	F	1	B	F	3	C	R	O	C	H	0	1	2	5	0	1 and after
	2000 cc engine	Full time 4WD GL	MPFI, 5MT DR	J	F	1	B	F	5	C	R	O	E	J	0	1	2	5	0	1 and after
			MPFI, 4AT	J	F	1	B	F	5	C	R	O	E	H	0	1	2	5	0	1 and after
	2000 cc DOHC engine	Full time 4WD TURBO	MPFI, 5MT SR	J	F	1	B	F	5	C	R	O	B	G	0	1	2	5	0	1 and after
	2200 cc engine	Full time 4WD GX	MPFI, 5MT DR	J	F	1	B	F	7	C	R	O	E	J	0	1	2	5	0	1 and after
			MPFI, 5MT DR	J	F	1	B	F	B	C	R	O	E	J	0	1	2	5	0	1 and after
			MPFI, 4AT	J	F	1	B	F	B	C	R	O	E	H	0	1	2	5	0	1 and after

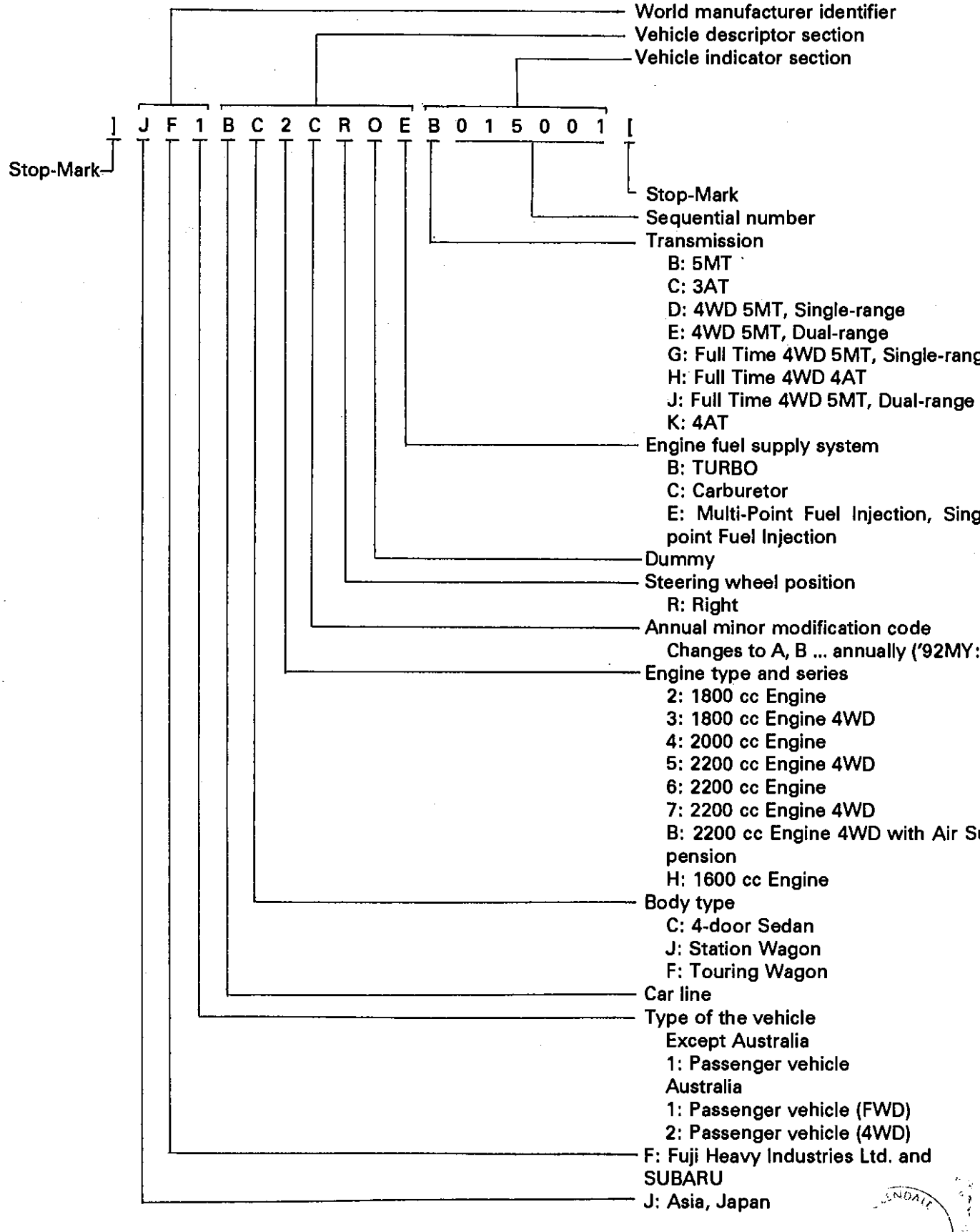
SR: Single-range
DR: Dual-range

2. AUSTRALIA MODELS

4-DOOR SEDAN	2000 cc DOHC engine	Full time 4WD TURBO	MPFI, 5MT SR	J	F	2	B	C	5	C	R	O	B	G	0	1	5	0	0	1 and after
	2200 cc engine	LX	MPFI, 5MT	J	F	1	B	C	6	C	R	O	E	B	0	1	5	0	0	1 and after
			MPFI, 4AT	J	F	1	B	C	6	C	R	O	E	K	0	1	5	0	0	1 and after
		GX	MPFI, 5MT	J	F	1	B	C	6	C	R	O	E	B	0	1	5	0	0	1 and after
			MPFI, 4AT	J	F	1	B	C	6	C	R	O	E	K	0	1	5	0	0	1 and after
		Full time 4WD GX	MPFI, 5MT SR	J	F	2	B	C	7	C	R	O	E	J	0	1	5	0	0	1 and after
			MPFI, 4AT	J	F	2	B	C	7	C	R	O	E	H	0	1	5	0	0	1 and after
TOURING WAGON	2200 cc engine	GX	MPFI, 5MT	J	F	1	B	F	6	C	R	O	E	B	0	1	2	5	0	1 and after
			MPFI, 4AT	J	F	1	B	F	6	C	R	O	E	K	0	1	2	5	0	1 and after
		Full time 4WD GX	MPFI, 5MT DR	J	F	2	B	F	B	C	R	O	E	J	0	1	2	5	0	1 and after
			MPFI, 4AT	J	F	2	B	F	B	C	R	O	E	H	0	1	2	5	0	1 and after

SR: Single-range
DR: Dual-range

B: THE MEANING OF V.I.N.



3. Identification Number and Label Locations

Engine, transmission and vehicle identification numbers are used for factory communications such as Technical information, Service bulletins and other information.

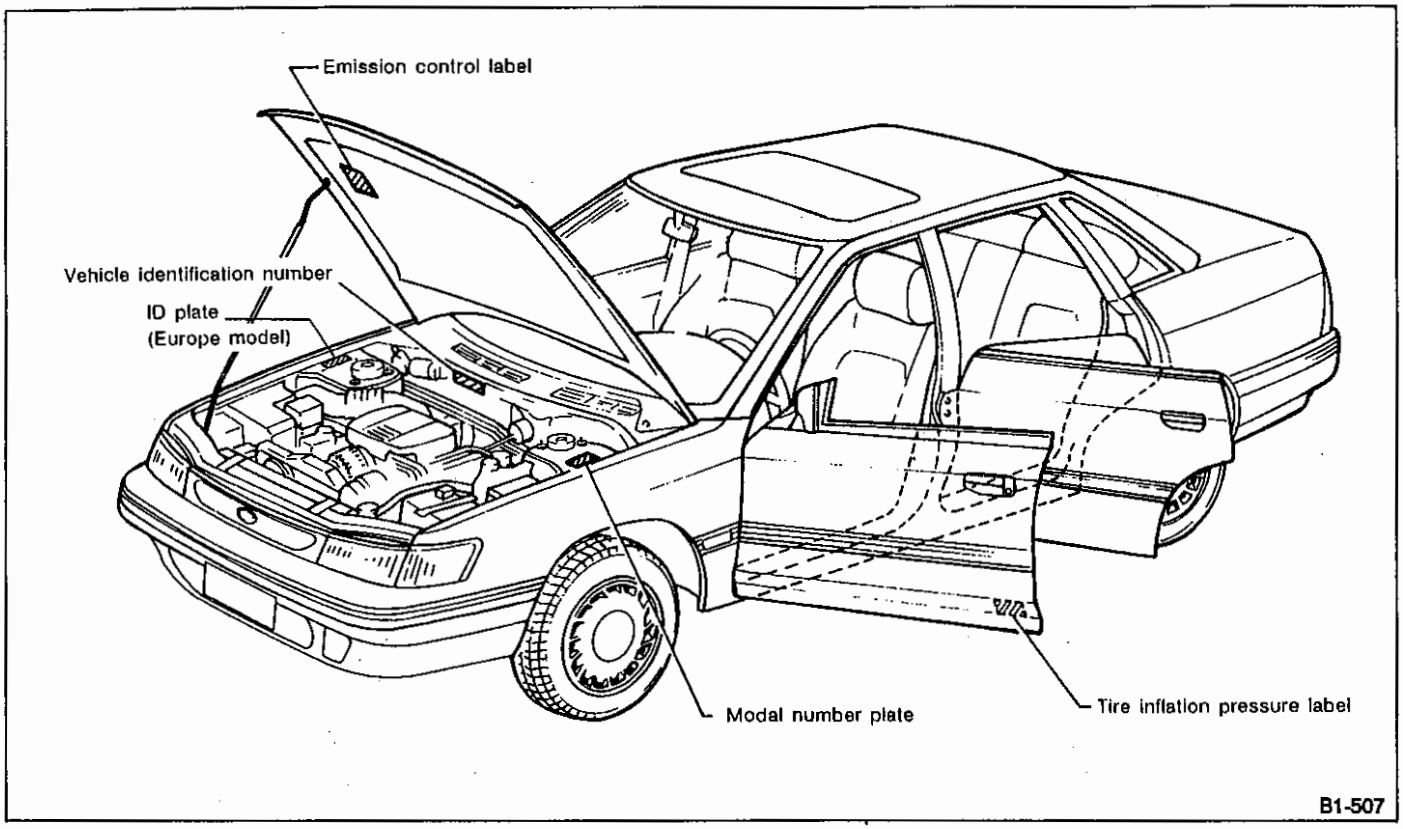


Fig. 21 For all models (except Australia)

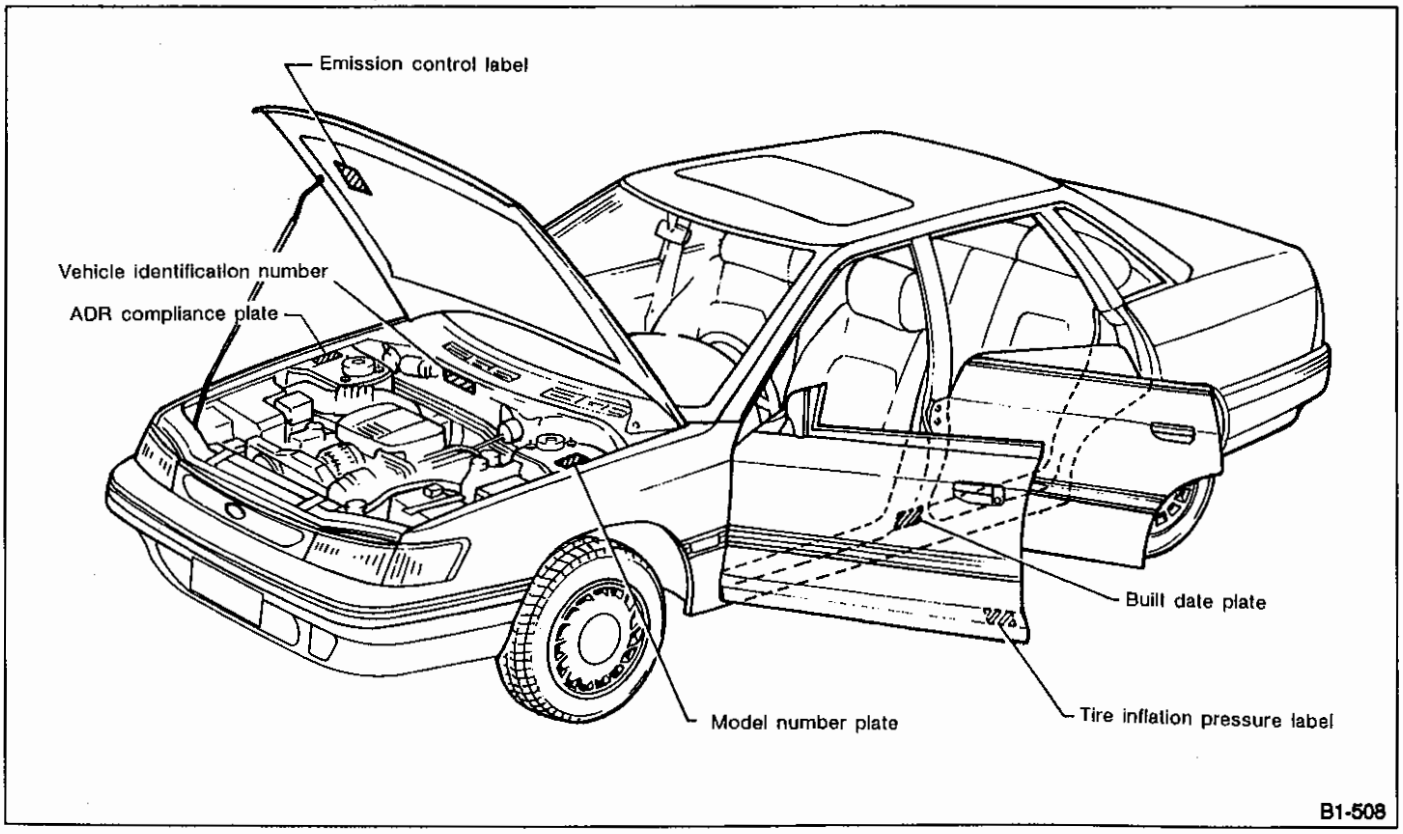


Fig. 22 For Australia model

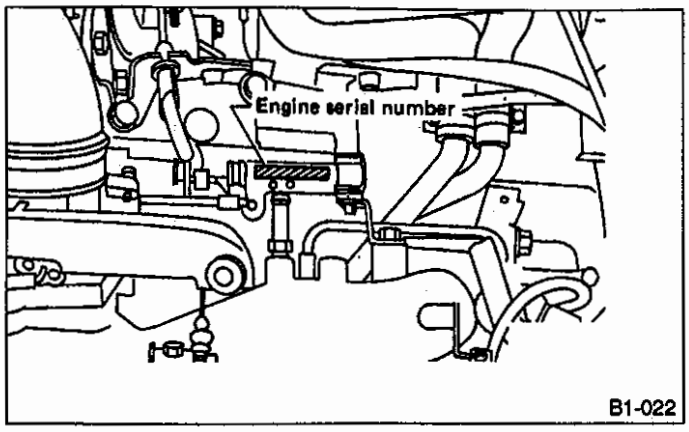


Fig. 23

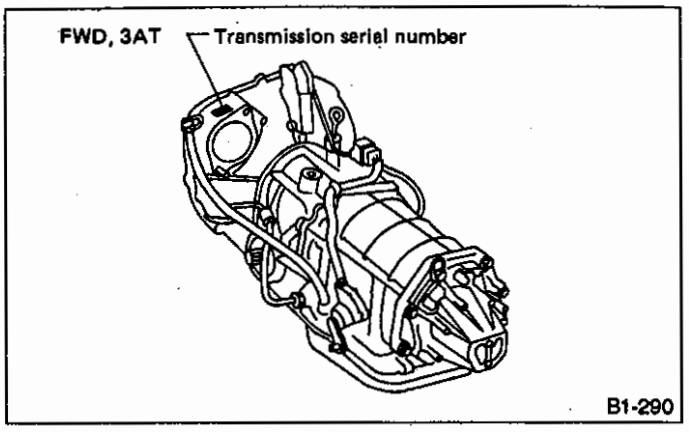


Fig. 26

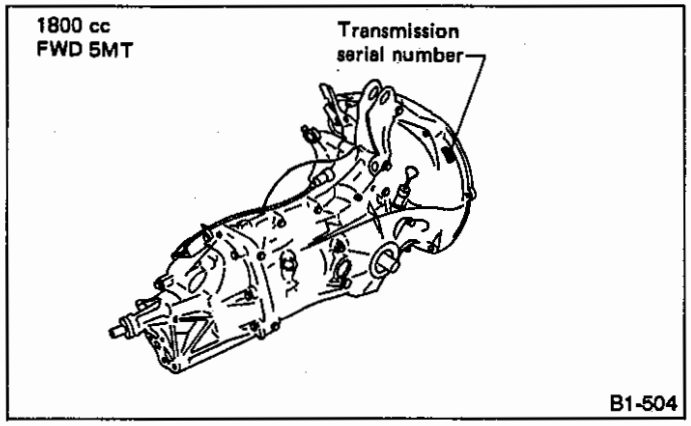


Fig. 24

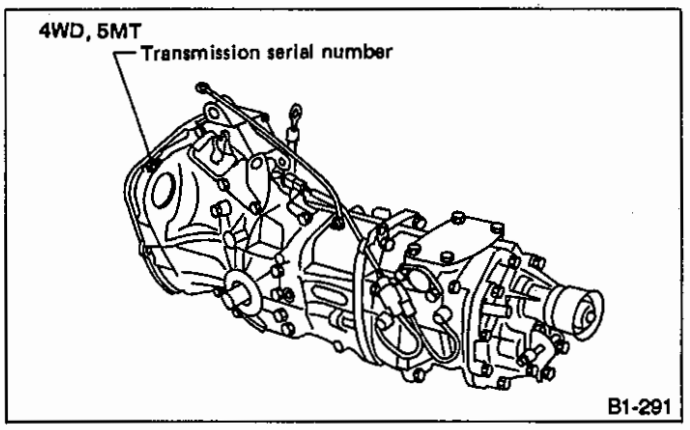


Fig. 27

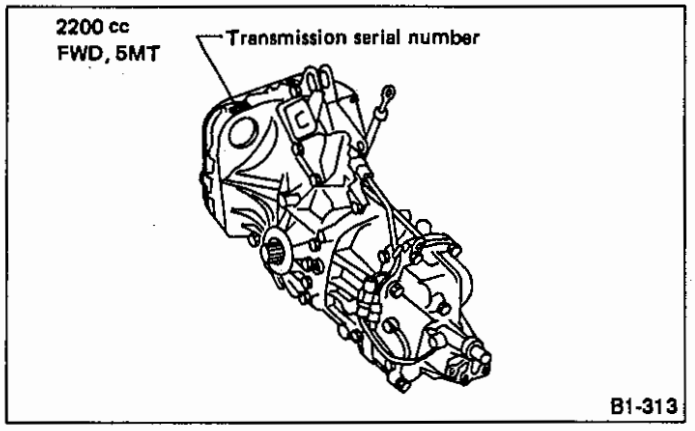


Fig. 25

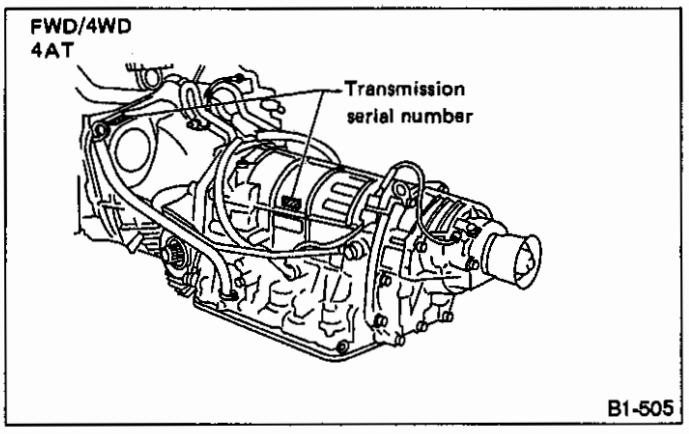


Fig. 28

4. Recommended Fuel, Lubricants, Sealants and Adhesives

1. FUEL

The SUBARU engines are designed to give satisfactory engine performance and low exhaust emissions using the following gasoline.

Carburetor	SPFI	MPFI (NON-TURBO)		TURBO
Without catalyst	With catalyst (Use unleaded gesoline only)	Without catalyst	With catalyst (Use unleaded gasoline only)	With catalyst (Use unleaded gasoline only)
90*	90	90	90	95

*: If gasoline with an octane number between 83 and 89 is used, adjust ignition timing.

a. Use gasoline of at least the octane number (RON) indicated in the table above.

b. For models without catalyst, either leaded or unleaded gasoline may be used.

2. LUBRICANTS

Lubricants	Specifications	Remerks
• Engine oil	• API Classification: SF or SG	• For SAE viscosity number, refer to the following table.
• Transmission and differential gear oil • 4WD rear differential gear oil	• API Classification: GL-5	• For SAE viscosity number, refer to the following table.
• Automatic transmission and power steering fluid	• DEXRON II	—
• Coolent	• Genuine SUBARU Coolant (Part No. 000016218) (Anti-freeze, anti-corrosive ethylene glycol base)	• For further coolant specifications, refer to the following table.
• Brake fluid	• DOT3 or DOT4	• FMVSS NO. 116 • Avoid mixing brake fluid of different brands to prevent the fluid performance from degrading. • When brake fluid is added, be careful not to allow any dust into the reservoir.

Lubricants	Recommended	Application	Equivalent
• Spray lubricants	SUBARU CRC (P/N 004301003)	O_2 sensor, TURBO unit	
• Grease	SUNLIGHT 2 (P/N 003602010)	Steering shaft bearing, bushing for manual transmission gear shift system	—
	Valiant grease M-2 (P/N 003608001)	Steering geerbox	—
	Niglube RX-2 (P/N 003606000 or 725191040)	Piston boot of disc brake and sliding pin	—
	Molykote No. 7439 (P/N 725191460)	Contacting surfaces of drum brake shoes and shoe clearance adjuster	—
	Molylex No. 2 (P/N 723223010)	BJ and DOJ (for MT) joints of axle shafts	—
	VU-3A702 (P/N 623029980)	DOJ (for AT) joints of axle shafts	—
	FX clutch grease (P/N 000040901)	Splines of transmission main shaft	—
	Slicolube G-30M (P/N 004404002)	Control cables and carburetor linkages subject to cold weather, water-pump impeller, door latch, striker, battery terminals etc.	—

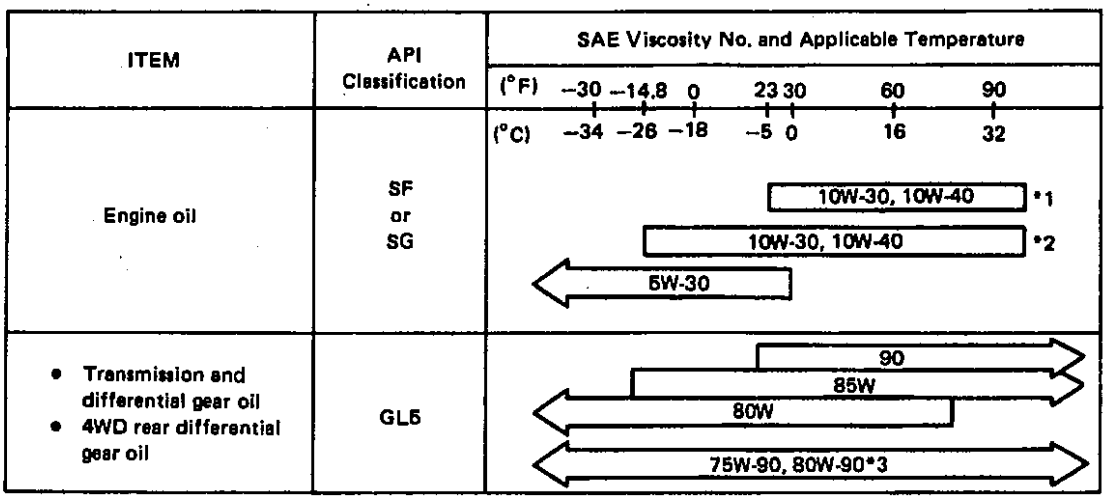


Fig. 29

*1: For Carburetor engine
*2: For SPFI,MPFI and TURBO engine

a. Each oil manufacturer has its base oil and additives. Thus, do not mix two or more brands (Except engine oil).
b. When replenishing oil, it does not matter if the oil to be added is a different brand from that in the engine, however, use oil having the API classification and SAE viscosity No. designated by SUBARU.
c. SAE 5W-30 is not recommended for sustained high speed driving.
d. If vehicle is used in desert areas or areas with very high temperatures or for other heavy duty applications, the following viscosity oils may be used:
30,40,10W-50,20W-40,20W-50
e. *3 For differential gear oil (AT)

Coolant Specifications							
Lowest anticipated atmospheric temperature	SUBARU coolant- to- *water ratio (Volume) %	Specification gravity					Freezing point
		at 10°C (50°F)	at 20°C (68°F)	at 30°C (86°F)	at 40°C (104°F)	at 50°C (122°F)	
Above – 30°C (– 22°F)	50 — 50	1.084	1.079	1.074	1.068	1.062	– 36°C (– 33°F)
Above – 15°C (– 5°F)	30 — 70	1.053	1.049	1.044	1.039	1.034	– 16°C (– 3°F)

* It is commended that distilled water be used.

a. Avoid using any coolant or only water other than this designated type to prevent corrosion.
b. SUBARU's engine is aluminum alloy, and so special care is necessary.

3. SEALANTS

	Recommended	Application	Equivalent
Sealant	Three Bond 1105 (P/N 004403010)	Rear differential oil drain plug, oil pressure switch, etc.	Dow Corning's No. 7038
	Three Bond 1215 (P/N 004403007)	Matching surface of oil pump, crank case, transmission case, etc. Engine service hole plug, coolant drain plug, etc.	Dow Corning's No. 7038
	Starcalking B-33A (P/N 000018901)	Sealing against water and dust entry through weatherstrips, grommets, etc.	Butyl Rubber Sealant
	Three Bond 1207C (P/N 004403012)	Matching surface of oil pan	—

4. ADHESIVES

	Recommended	Application	Equivalent
Adhesive	Cemedine 5430L	Weatherstrips and other rubber parts, plastics and textiles except soft vinyl parts.	3M's EC-1770 EC-1368
	Cemedine 540	Soft vinyl parts, and other parts subject to gasoline, grease or oil. e.g. trim leather, gear shift boot, door inner remote cover, etc.	3M's EC-776 EC-847 EC-1022 (Spray Type)
	Cemedine 3000	Bonding metals, glass, plastic and rubber parts. Repairing slightly torn weatherstrips, etc.	Armstrong's Eastman 910
	Essex Chemical Corp's Urethane E	Windshield to body panel.	Sunstar 580

5. Tightening Torque of Standard Bolts and Nuts

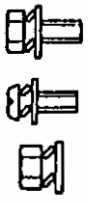
1. ENGINE AND TRANSMISSION

Unit: N•m (kg-m, ft-lb)

Dia. x Pitch (mm)	5T	7T	9T	10T
4 x 0.75	1.0 — 1.5 (0.105 — 0.155, 0.8 — 1.1)	1.5 — 2.0 (0.155 — 0.205, 1.1 — 1.5)	2.5 — 3.0 (0.255 — 0.305, 1.8 — 2.2)	3.0 — 3.5 (0.305 — 0.355, 2.2 — 2.6)
5 x 0.9	2.5 — 3.0 (0.255 — 0.305, 1.8 — 2.2)	2.9 — 3.9 (0.30 — 0.40, 2.2 — 2.9)	4.9 — 5.9 (0.50 — 0.60, 3.6 — 4.3)	5.4 — 6.4 (0.55 — 0.65, 4.0 — 4.7)
6 x 1.0	4.4 — 5.4 (0.45 — 0.55, 3.3 — 4.0)	5.9 — 6.9 (0.60 — 0.70, 4.3 — 5.1)	9.4 — 10.8 (0.955 — 1.105, 6.9 — 8.0)	10 — 12 (1.0 — 1.2, 7 — 9)
8 x 1.25	12 — 14 (1.2 — 1.4, 9 — 10)	14.2 — 17.2 (1.45 — 1.75, 10.5 — 12.7)	23 — 26 (2.3 — 2.7, 17 — 20)	25 — 28 (2.5 — 2.9, 18 — 21)
10 x 1.25	25 — 28 (2.5 — 2.9, 18 — 21)	30 — 36 (3.1 — 3.7, 22 — 27)	46 — 54 (4.7 — 5.5, 34 — 40)	49.5 — 58.4 (5.05 — 5.95, 36.5 — 43.0)
12 x 1.5	41 — 49 (4.2 — 5.0, 30 — 36)	53 — 63 (5.4 — 6.4, 39 — 46)	84 — 98 (8.6 — 10.0, 62 — 72)	88 — 106 (9.0 — 10.8, 65 — 78)
14 x 1.8	71 — 84 (7.2 — 8.8, 52 — 82)	88 — 106 (9.0 — 10.8, 65 — 78)	139 — 165 (14.2 — 16.8, 103 — 122)	147 — 175 (15.0 — 17.8, 108 — 129)

2. BODY

Unit: N•m (kg-m, ft-lb)

	Dia. (mm)	4T	7T	9T
 B1-026 *Fig. 30*	4	1.7 — 2.6 (0.17 — 0.27, 1.2 — 2.0)	—	—
	5	2.9 — 5.9 (0.30 — 0.80, 2.2 — 4.3)	—	—
	6	5.4 — 9.3 (0.55 — 0.95, 4.0 — 6.9)	—	—
	8	12.7 — 22.6 (1.30 — 2.30, 9.4 — 16.6)	22.6 — 42.2 (2.30 — 4.30, 16.6 — 31.1)	31.4 — 51.0 (3.20 — 5.20, 23.1 — 37.6)
	10	27.5 — 47.1 (2.80 — 4.80, 20.3 — 34.7)	51.0 — 86.3 (5.20 — 8.80, 37.6 — 63.7)	62.8 — 107.9 (6.40 — 11.00, 46.3 — 79.6)
	12	52.0 — 85.3 (5.30 — 8.70, 38.3 — 62.9)	88.3 — 156.9 (9.00 — 16.00, 65.1 — 115.7)	117.7 — 196.1 (12.00 — 20.00, 86.8 — 144.7)
Including bolt or nut with washer or spring washer only  B1-027 *Fig. 31*	4	1.2 — 2.2 (0.12 — 0.22, 0.9 — 1.6)	—	—
	5	2.5 — 4.4 (0.25 — 0.45, 1.8 — 3.3)	—	—
	6	4.4 — 7.4 (0.45 — 0.75, 3.3 — 5.4)	—	—
	8	9.8 — 17.7 (1.00 — 1.80, 7.2 — 13.0)	17.7 — 31.4 (1.80 — 3.20, 13.0 — 23.1)	23.5 — 39.2 (2.40 — 4.00, 17.4 — 28.9)
	10	22.6 — 36.3 (2.30 — 3.70, 16.6 — 26.8)	37.3 — 66.7 (3.80 — 6.80, 27.5 — 49.2)	48.1 — 83.4 (4.90 — 8.50, 35.4 — 61.5)
	12	39.2 — 64.7 (4.00 — 6.60, 28.9 — 47.7)	68.8 — 117.7 (7.00 — 12.00, 50.6 — 86.8)	88.3 — 147.1 (9.00 — 15.00, 65.1 — 108.5)

The mark is embossed on the bolt head as follows:

4T — 4 **9T — 9**
5T — 5 **10T — 10**
7T — 7

6. Lifting, Towing and Tie-down Points

Be sure to lift, tow and tie-down the vehicle at the designated positions.

1. GARAGE JACK

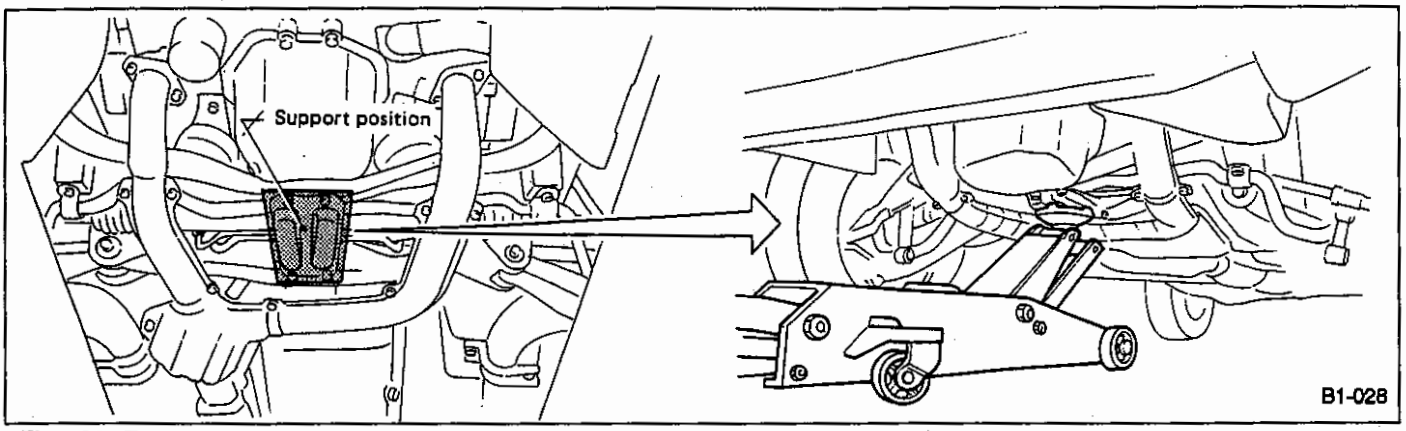


Fig. 32 Front

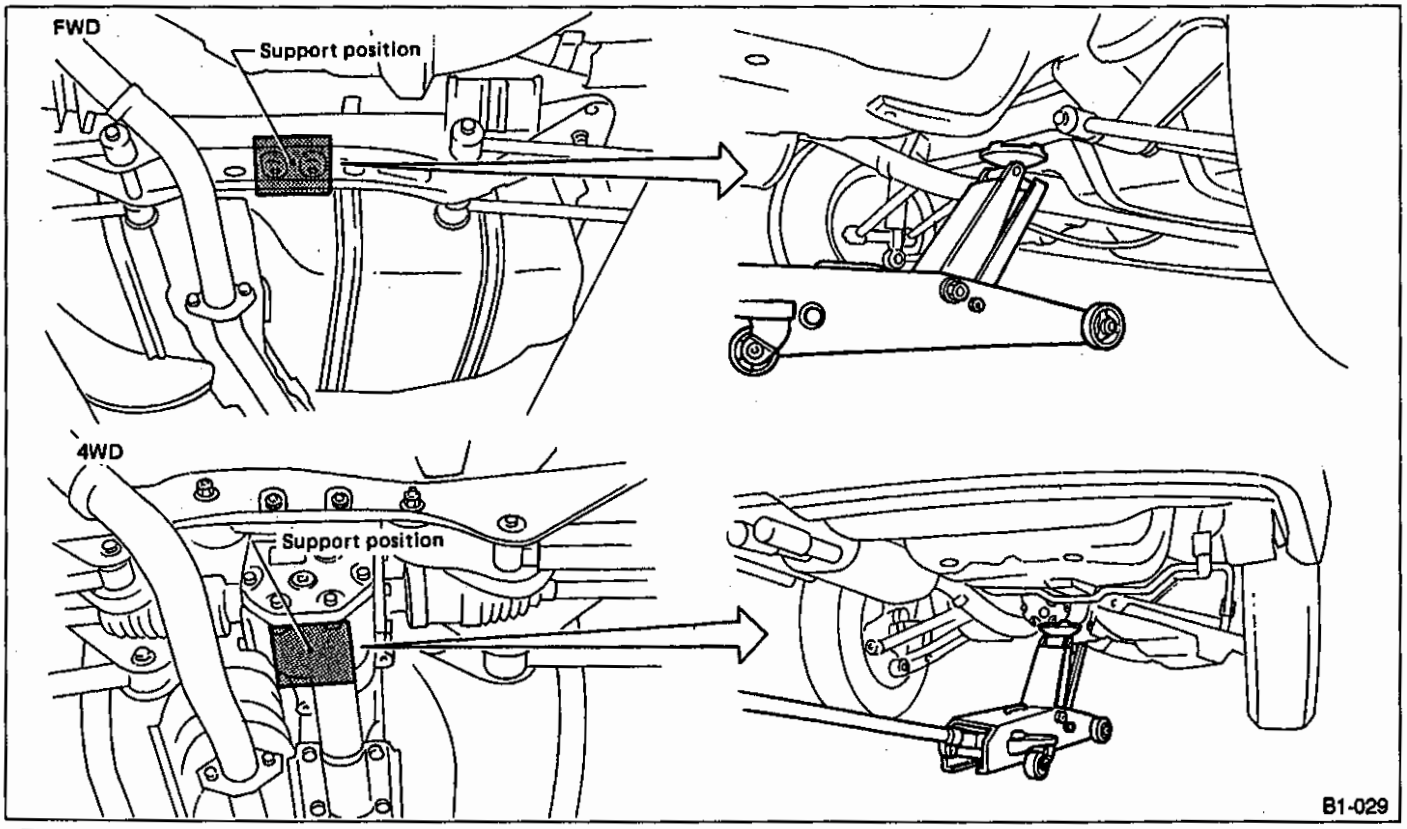
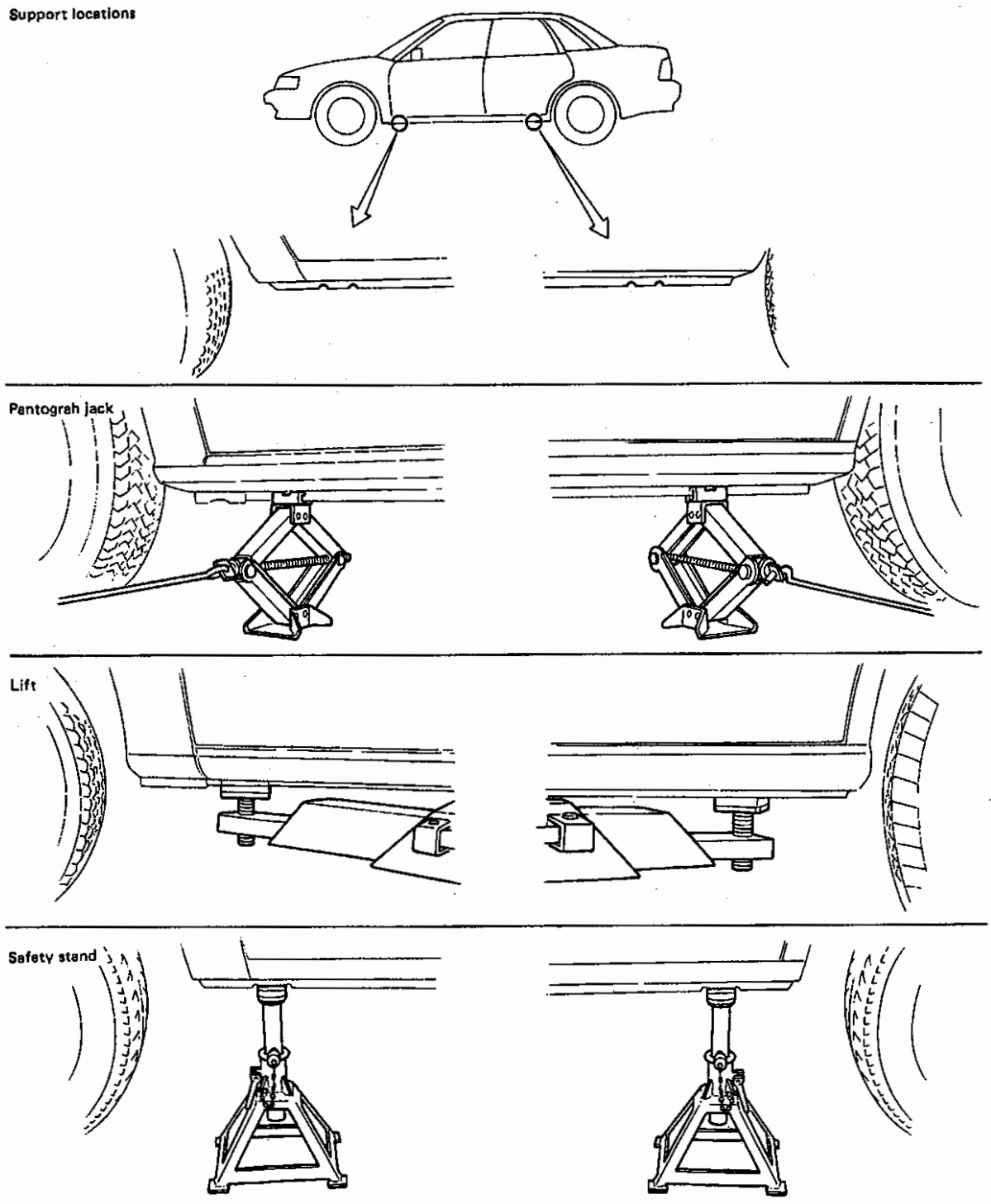


Fig. 33 Rear

a. Never get under the vehicle while it is supported by a jack.
b. When jacking up the vehicle, place chocks to hold wheels.
c. After jacking up the vehicle with garage jack, be sure to support the vehicle with stands for safety.
d. Be sure to lift vehicle at the same four positions as those or pantograph jack.

2. PANTOGRAPH JACK, SAFETY STAND AND LIFT



B1-033A

Fig. 34