

SERVICE MANUAL (I) LEGANZA

FOREWORD

This manual includes procedure for maintenance, adjustment, service operation and removal and installation of components.

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

The right is reserved to make changes at any time without notice.



DAEWOO MOTOR CO., LTD.

INCHON, KOREA

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PERSONAL INJURY CAUTION

Appropriate service methods and proper repair procedures are essential for the safe, reliable operation of all motor vehicles, as well as for the personal safety of the person doing the repair. There are many variations in procedures, techniques, tools and parts for servicing vehicles, as well as in the skills of the people doing the work. This manual cannot possibly anticipate all such variations and provide advice or precautions for each. Anyone who deviates from the instructions provided in this manual must ensure their own safety and preserve the safety and integrity of the vehicle. The following list contains general precautions that should always be followed while working on a vehicle.

- *Safety stands are required whenever a procedure calls for underbody work.*
- *Do not smoke when you work on a vehicle.*
- *To prevent serious burns, do not touch any hot metal parts.*
- *Set the parking brake when you work on the vehicle.*
- *Turn the ignition switch OFF unless a procedure states otherwise.*
- *The engine may operate only in a well-ventilated area.*
- *Avoid moving parts when the engine is running.*
- *Safety glasses must be worn for eye protection.*

1997 Daewoo LEGANZA BL2 Service Manual

FOREWORD

This manual includes procedures for maintenance, adjustment, service operations, and removal and installation of components for the LEGANZA BL2 vehicle.

When reference is made in this manual to a brand name, number, or specific tool, an equivalent product may be used in place of the recommended item.

All information, illustrations and specifications contained in this manual are based on the latest product information available at the time of publication approval. The right is reserved to make changes at any time without notice.

Daewoo Motor Company, Limited
Overseas Service Department
426-1 Chong Chon-Dong, Pu Pyong-Gu
Inchon, Korea
Tel: 82-32-510-1761 ~ 1780
Fax: 82-32-510-1790 / 1797
E-mail: kimjs@baram.dwmc.co.kr

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MAY, 1997
Printed in the Republic of Korea

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Overseas Technical Service Department
426-1 Chong Chon-Dong, Pu Pyong-Gu
Inchon, Korea

SECTION 0B

GENERAL INFORMATION

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SPECIFICATIONS

TECHNICAL DATA

Performance - Manual Transaxle

Application	2.0L DOHC
Maximum Speed	206km/h (128.0 mph)
Gradeability	0.570 (tan \emptyset)
Minimum Turning Radius	5.5 m (18.0 ft)

Performance - Automatic Transaxle

Application	2.0L SOHC
Maximum Speed	192 km/h (119.3 mph)
Gradeability	0.650 (tan \emptyset)
Minimum Turning Radius	5.5 m (18.0 ft)

Engine

Application	2.0L DOHC
Engine Type	Dual Overhead Cam L-4
Bore	86 mm (3.4 in)
Stroke	86 mm (3.4 in)
Total Displacement	1 998 cm ³ (121.9 in ³)
Compression Ratio	9.6:1
Maximum Power	98 kw (131 hp) (at 5,400 rpm)
Maximum Torque	18.8 Kg•m (136 lb-ft) (at 4,600 rpm)

Ignition System

Application	2.0L DOHC
Ignition Type	Direct Ignition System
Ignition Timing	5° BTDC
Ignition Sequence	1-3-4-2
Spark Plug Gap	0.8 mm (0.03 in)
Spark Plug Maker	Bosch
Spark Plug Type	FR8LDC4

Clutch - Manual Transaxle

Application	2.0L DOHC
Type	Single Dry Plate
Outside Diameter	225 mm (8.9 in)
Inside Diameter	150 mm (5.9 in)
Thickness	4 mm (0.16 in)
Fluid Capacity	Common Use; Brake Fluid

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Manual Transaxle

Application	2.0L DOHC
Maker	DWMC
Type or Model	D-20
Gear Ratio:	
1st	3.545:1
2nd	2.158:1
3rd	1.478:1
4th	1.129:1
5th	0.886:1
Reverse	3.333:1
Final Drive Ratio	3.722:1 (*3.550)
Oil Capacity	1.8L (1.90 qt)

* France only

Automatic Transaxle

Application	2.0L DOHC
Maker	ZF
Type or Model	4HP14
Gear Ratio:	
1st	2.412:1
2nd	1.369:1
3rd	1.000:1
4th	0.739:1
Reverse	2.828:1
Final Drive Ratio	3.979:1
Oil Capacity	5.35L (5.65 qt)

Brake

Application	2.0L DOHC
Booster Size:	
Booster 1	7 in. (177.8 mm)
Booster 2	8 in. (203.2 mm)
Master Cylinder Diameter	23.8 mm (0.94 in)
Booster Ratio	5.0:1
Front Brake:	
Disc Type	Ventilated
Rear Brake:	
Disc Type	Solid
Fluid Capacity	0.5L (0.527 qt)

Tire and Wheel

Application	2.0L DOHC
Standard Tire Size	205/60R15
Standard Wheel Size	6.0JX15
Inflation Pressure at Full Load:	
205/60R15:	
Front	29
Rear	29

Steering System

Application	2.0L DOHC
Gear Type	Power Rack and Pinion
Wheel Alignment:	
Front:	
Total Toe-In (2 Occupants)	- 0.2 ± 0.2° (- 2 ± 2 mm) (0.08 ± 0.08 in)
Caster	3 ± 1°
Camber	- 0.2 ± 1°
Rear:	
Total Toe-In (2 occupants)	0.1 ± 0.1° (1 ± 1 mm) (0.04 ± 0.04 in)
Camber	- 0.8 ± 1°
Oil Capacity	1.0L (1.06 qt)

Suspension

Application	2.0L DOHC
Front Type	MacPherson Strut
Rear Type	Dual Link Strut

Fuel System

Application	2.0L DOHC
Fuel Delivery	MPI
Fuel Pump Type	Electric Motor Pump
Fuel Filter Type	Cartridge
Fuel Capacity	65L (17.2 gal)

Lubricating System

Application	2.0L DOHC
Lubricating Type	Forced Feed
Oil Pump Type	Duocentric Rotor
Oil Filter Type	Cartridge (Full Flow)
Oil Pan Capacity Including Oil Filter	4.0L (4.22 qt)

Electric System

Application	2.0L DOHC
Battery	610 Cold Cranking Amps
Alternator	95 amps
Starter (No-Load Test Current Draw): 1.4 kW	Minimum 80 Amps Maximum 120 Amps (at 10 Volts)

Cooling System

Application	2.0L DOHC
Cooling Type	Forced Water Circulation
Radiator Type	Cross-flow
Water Pump Type	Centrifugal
Thermostat Type	Pellet Type
Coolant Capacity	7.0L (7.25 qt)

VEHICLE DIMENSIONS AND WEIGHTS

Vehicle Dimensions - Manual and Automatic

Application	2.0L DOHC
Overall Length	4 671 mm (183.9 in)
Overall Width	1 779 mm (70.0 in)
Overall Height	1 437 mm (56.6 in)
Minimum Ground Clearance	167 mm (6.6 in)
Wheel Base	2 670 mm (105.1 in)
Tread: Front	1 515 mm (59.6 in)
Rear (Disc)	1 507 mm (59.3 in)

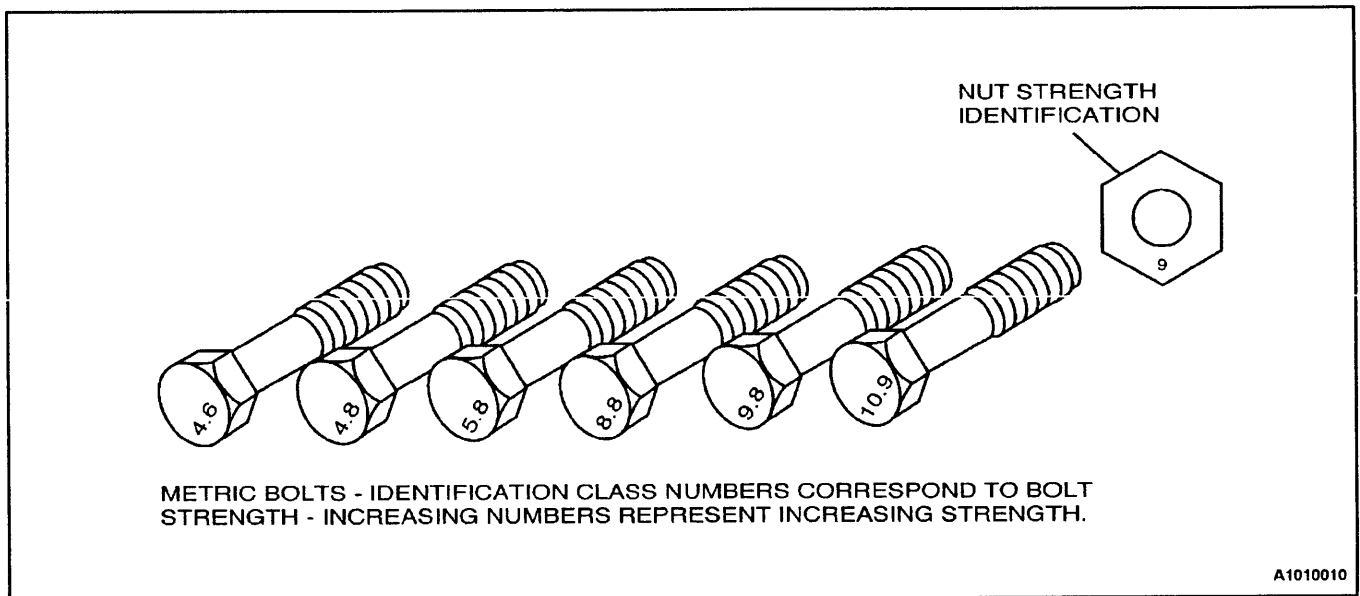
Vehicle Weights - 4 Door Notchback

Application	2.0L DOHC
Manual: Curb Weight	1,325-1,365kg (2,920-3,010 lb)
Gross Vehicle Weight	1,830 kg (4,034 lb)
Automatic: Curb Weight	1,336-1,376 kg (2,884-3,034 lb)
Gross Vehicle Weight	1,830 kg (4,034 lb)
Passenger Capacity	5

STANDARD BOLT SPECIFICATIONS

Bolt*	4T - Low Carbon Steel	7T - High Carbon Steel	7T - Alloy Steel
M6 X 1.0	4.1-8.1 N•m (36-72 lb-in)	4.1-9.5 N•m (48-84 lb-in)	-
M8 X 1.25	8.1-17.6 N•m (72-156 lb-in)	12.2-23.0 N•m (108-204 lb-in)	16-30 N•m (12-22 lb-ft)
M10 X 1.25	20-34 N•m (15-25 lb-ft)	27-46 N•m (20-34 lb-ft)	37-62 N•m (27-46 lb-ft)
M10 X 1.5	19-34 N•m (14-25 lb-ft)	27-45 N•m (20-33 lb-ft)	37-60 N•m (27-44 lb-ft)
M12 X 1.25	49-73 N•m (36-54 lb-ft)	61-91 N•m (45-67 lb-ft)	76-114 N•m (56-84 lb-ft)
M12 X 1.75	45-69 N•m (33-51 lb-ft)	57-84 N•m (42-62 lb-ft)	72-107 N•m (53-79 lb-ft)
M14 X 1.5	76-115 N•m (56-85 lb-ft)	94-140 N•m (69-103 lb-ft)	114-171 N•m (84-126 lb-ft)
M14 X 2.0	72-107 N•m (53-79 lb-ft)	88-132 N•m (65-97 lb-ft)	107-160 N•m (79-118 lb-ft)
M16 X 1.5	104-157 N•m (77-116 lb-ft)	136-203 N•m (100-150 lb-ft)	160-240 N•m (118-177 lb-ft)
M16 X 2.0	100-149 N•m (74-110 lb-ft)	129-194 N•m (95-143 lb-ft)	153-229 N•m (113-169 lb-ft)
M18 X 1.5	151-225 N•m (111-166 lb-ft)	195-293 N•m (144-216 lb-ft)	229-346 N•m (169-255 lb-ft)
M20 X 1.5	206-311 N•m (152-229 lb-ft)	270-405 N•m (199-299 lb-ft)	317-476 N•m (234-351 lb-ft)
M22 X 1.5	251-414 N•m (185-305 lb-ft)	363-544 N•m (268-401 lb-ft)	424-636 N•m (313-469 lb-ft)
M24 X 2.0	359-540 N•m (265-398 lb-ft)	431-710 N•m (318-524 lb-ft)	555-831 N•m (409-613 lb-ft)

* Diameter X pitch in millimeters



MAINTENANCE AND REPAIR

MAINTENANCE AND LUBRICATION

NORMAL VEHICLE USE

The maintenance instructions contained in the maintenance schedule are based on the assumption that the vehicle will be used for the following reasons:

- To carry passengers and cargo within the limitation indicated on the Tire Placard located on the edge of the driver's door.
- To be driven on reasonable road surfaces and within legal operating limits.

EXPLANATION OF SCHEDULED MAINTENANCE SERVICES

The services listed in the maintenance schedule are further explained below. When the following maintenance services are performed, make sure all the parts are replaced and all the necessary repairs are done before driving the vehicle. Always use the proper fluid and lubricants.

Drive Belt Inspection

When a separate belt drives the power steering pump, the air conditioning compressor and the generator, inspect it for cracks, fraying, wear, and proper tension. Adjust or replace the belt as needed.

Engine Oil and Oil Filter Change

Always use above the SH grade engine oil. The SH designation may be shown alone or in combination with other designations such as SH/CC, SH/CD, etc.

Engine Oil Viscosity

Engine oil viscosity (thickness) has an effect on fuel economy and cold weather operation. Lower viscosity engine oils can provide better fuel economy and cold weather performance; however, higher temperature weather conditions require higher viscosity engine oils for satisfactory lubrication. Using oils of any viscosity other than those viscosities recommended could result in engine damage.

Cooling System Service

Drain, flush and refill the system with new coolant. Refer to "Recommended Fluids and Lubricants" in this section.

Fuel Micro-Filter Replacement

Replace the engine fuel filter every 45 000 km (25,000 miles).

The engine fuel filter is located on the center dash panel near the brake booster.

Air Cleaner Element Replacement

Replace the air cleaner element every 30 000 km (18,000 miles).

Replace the air cleaner more often under dusty conditions.

Throttle Body Mounting Bolt Torque

Check the torque of the throttle body mounting bolts.

Tighten the throttle body mounting nuts to 9 N•m (80 lb-in) (DOHC), if necessary.

Spark Plug Replacement

Replace spark plugs with the same type.

- Type: Bosch Type FR8LDC4 (DOHC)

- Gap: 0.8 mm (0.03 in) (DOHC)

Spark Plug Wire Replacement

Clean the wires and inspect them for burns, cracks, or other damage. Check the wire boot fit at the direct ignition system (DIS) module and at the spark plugs. Replace the wires as needed.

Brake System Service

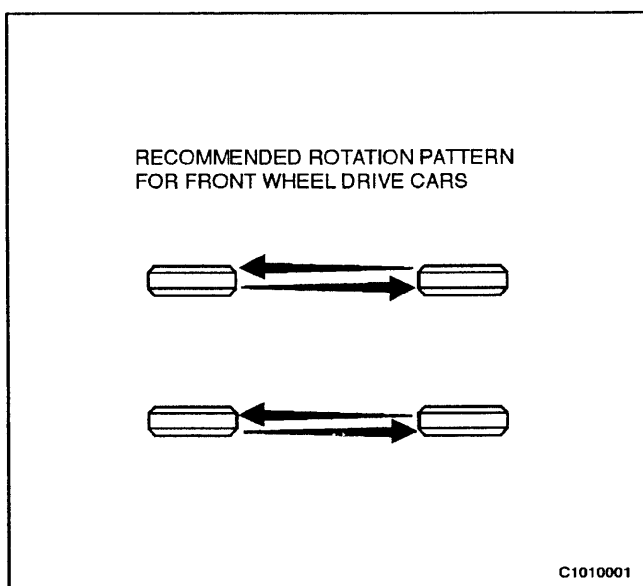
Check the disc brake pads every 10 000 km (6,000 miles) or 12 months. Check the pad and the lining thickness carefully. If the pads or the linings are not expected to last another 10 000 km (6,000 miles), replace the pads or the linings. Check the breather hole in the brake fluid reservoir cap to be sure it is free from dirt and the passage is open.

Transaxle Service

The manual transaxle oil does not require changing. The automatic transaxle fluid should be changed every 30 000 km (19,000 miles).

Tire and Wheel Inspection and Rotation

Check the tires for abnormal wear or damage. To equalize wear and obtain maximum tire life, rotate the tires. If irregular or premature wear exists, check the wheel alignment and check for damaged wheels. While the tires and wheels are removed, inspect the brakes. Refer to "Each Time The Oil Is Changed" in this section.



SCHEDULED MAINTENANCE CHARTS**Engine**

Maintenance Item	Maintenance Interval								
	Kilometers (miles) or time in months, whichever comes first								
Kilometers x 1 000	1	15	30	45	60	75	90	105	120
Miles x 1 000	.6	9	18	27	36	45	54	63	72
Months	-	12	24	36	48	60	72	84	96
Drive belts (alternator, power steering)									
DOHC					I				I
Engine oil and oil filter ^{1, 3}	I	R	R	R	R	R	R	R	R
Cooling system and hose connection		I	I	I	I	I	I	I	I
Engine coolant ³	I	I	I	R	I	I	R	I	I
Fuel filter				R			R		
Fuel line and connections		I	I	I	I	I	I	I	I
Air cleaner element ²		I	I	R	I	I	R	I	I
Ignition timing		I	I	I	I	I	I	I	I
Spark plugs			I		R		I		R
DIS Module			I		I		I		I
Charcoal canister and vapor lines				I			I		
PCV System			I		I		I		I
Timing belt (camshaft belt)					I		R		I
Air condition filter*		R	R	R	R	R	R	R	R

Chart Symbols:

I - Inspect, and if necessary correct, clean, replenish or adjust.

R - Replace or change:

¹ If the vehicle is operated under severe conditions: short distance driving, extensive idling or driving in dusty conditions, change the engine oil every 7 500 km (5,000 miles) or six months, whichever comes first.² More frequently if driving in dusty conditions.³ Refer to "Recommended Fluids and Lubricants."

Chassis and Body

Maintenance Item	Maintenance Interval								
	Kilometers (miles) or time in months, whichever comes first								
Kilometers x 1 000	1	15	30	45	60	75	90	105	120
Miles x 1 000	.6	9	18	27	36	48	54	63	72
Months	-	12	24	36	48	60	72	84	96
Brake and clutch fluid ^{1, 4}	I	I	R	I	R	I	R	I	R
Brake pads and discs ³		I	I	I	I	I	I	I	I
Parking brake		I	I	I	I	I	I	I	I
Brake line and connections (including booster)		I	I	I	I	I	I	I	I
Rear hub bearing and clearance		I	I	I	I	I	I	I	I
Manual transaxle oil ¹		I	I	I	I	I	I	I	I
Clutch and brake pedal free play		I	I	I	I	I	I	I	I
Automatic transaxle fluid ¹	I	I	R	I	R	I	R	I	R
Tighten chassis and underbody bolts and nuts		I	I	I	I	I	I	I	I
Tire condition and inflation pressure	I	I	I	I	I	I	I	I	I
Wheel alignment ²	Inspect when abnormal condition is noted								
Steering wheel and linkage		I	I	I	I	I	I	I	I
Power steering fluid and lines ¹	I	I	I	I	I	I	I	I	I
Drive shaft boots		I	I	I	I	I	I	I	I
Seat belts, buckles and anchors		I	I	I	I	I	I	I	I
Lubricate locks, hinges and hood latch		I	I	I	I	I	I	I	I

Chart Symbols:

I - Inspect, and if necessary correct, clean, replenish or adjust.

R - Replace or change:

¹ Refer to "Recommended Fluids And Lubricants."

² And if necessary, rotate and balance wheels.

³ More frequently if operated under severe conditions: short distance driving, extensive idling, frequent low-speed operation in stop and go traffic, or driving in dusty conditions.

⁴ Change the brake/clutch fluid every 15 000 km (9,000 miles) if the vehicle is mainly driven under severe conditions:
 - driving in hilly or mountainous terrain, or
 - towing a trailer/caravan frequently.

OWNER INSPECTIONS AND SERVICES

WHILE OPERATING THE VEHICLE

Horn Operation

Blow the horn occasionally to make sure it works. Check all the button locations.

Brake System Operation

Be alert for abnormal sounds, increased brake pedal travel, or repeated pulling to one side when braking. Also, if the brake warning light goes on or flashes, something may be wrong with part of the brake system.

Exhaust System Operation

Be alert to any changes in the sound of the system or the smell of the fumes. These are signs that the system may be leaking or overheating. Have the system inspected and repaired immediately.

Tires, Wheels and Alignment Operation

Be alert to any vibration of the steering wheel or the seats at normal highway speeds. This may mean a wheel needs to be balanced. Also, a pull right or left on a straight, level road may show the need for a tire pressure adjustment or a wheel alignment.

Steering System Operation

Be alert to changes in the steering action. An inspection is needed when the steering wheel is hard to turn or has too much free play, or if unusual sounds are noticed when turning or parking.

Headlamp Aim

Take note of the light pattern occasionally. Adjust the headlamps if the beams seem improperly aimed.

AT EACH FUEL FILL

A fluid loss in any (except windshield washer) system may indicate a problem. Have the system inspected and repaired immediately.

Engine Oil Level

Check the oil level and add oil if necessary. The best time to check the engine oil level is when the oil is warm.

1. After stopping the engine, wait a few minutes for the oil to drain back to the oil pan.
2. Pull out the oil level indicator (dipstick).
3. Wipe it clean, and push the oil level indicator back down all the way.
4. Pull out the oil level indicator and look at the oil level on it.
5. Add oil, if needed, to keep the oil level above the MIN line and within the area labeled "Operating Range." Avoid overfilling the engine, since this may cause engine damage.

6. Push the indicator all the way back down into the engine after taking the reading.

If you check the oil level when the oil is cold, do not run the engine first. The cold oil will not drain back to the pan fast enough to give a true oil level reading.

Engine Coolant Level and Condition

Check the coolant level in the coolant reservoir tank and add coolant if necessary. Inspect the coolant. Replace dirty or rusty coolant.

Windshield Washer Fluid Level

Check the washer fluid level in the reservoir. Add fluid if necessary.

AT LEAST MONTHLY

Tire and Wheel Inspection and Pressure Check

Check the tires for abnormal wear or damage. Also check for damaged wheels. Check the tire pressure when the tires are cold (check the spare also, unless it is a stowaway). Maintain the recommended pressures that are on the tire placard that is on the driver's door.

Lamp Operation

Check the operation of the license plate lamp, the headlamps (including the high beams), the parking lamps, the fog lamps, the taillamp, the brake lamps, the turn signals, the backup lamps, and the hazard warning flasher.

Fluid Leak Check

Periodically inspect the surface beneath the vehicle for water, oil, fuel or other fluids, after the vehicle has been parked for a while. Water dripping from the air conditioning system after use is normal. If you notice fuel leaks or fumes, find the cause and correct it at once.

AT LEAST TWICE A YEAR

Power Steering System Reservoir Level

Check the power steering fluid level. Keep the power steering fluid at the proper level. Refer to *Section 6A, Power Steering System*.

Brake Master Cylinder Reservoir Level

Check the fluid and keep it at the proper level. Refer to *Section 4B, Master Cylinder*. A low fluid level can indicate worn disc brake pads may need to be serviced. Check the breather hole in the reservoir cover to be free from dirt and check for an open passage.