

## SECTION : 0B

# GENERAL INFORMATION

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## SPECIFICATIONS

### TECHNICAL DATA

#### Performance – Manual Transaxle

Application	2.0L DOHC
Maximum Speed	195 km/h (122 mph)
Gradeability	0.446 (tan Ø)
Minimum Turning Radius	5.3 m (17 ft)

#### Performance – Automatic Transaxle

Application	2.0L DOHC
Maximum Speed	190 km/h (119mph)
Gradeability	0.668 (tan Ø)
Minimum Turning Radius	5.3 m (17 ft)

**Engine**

<b>Application</b>	<b>2.0L DOHC</b>
Engine Type	Dual Overhead Cam L-4
Bore	86 mm (3.4 in.)
Stroke	86 mm (3.4 in.)
Total Displacement	1 998 cm <sup>3</sup> (121.9 in <sup>3</sup> )
Compression Ratio	9.5±0.2:1
Maximum Power	96 kW (128.7 bhp) (at 5,400 rpm)
Maximum Torque	184 N•m (135.7 lb–ft) (at 4,400 rpm)

**Ignition System**

<b>Application</b>	<b>2.0L DOHC</b>
Ignition Type	Direct Ignition System
Ignition Timing	8° BTDC
Ignition Sequence	1–3–4–2
Spark Plug Gap	0.8 mm (0.031 in)
Spark Plug Maker	Bosch
Spark Plug Type	FR8LDC4

**Clutch – Manual Transaxle**

<b>Application</b>	<b>2.0L DOHC</b>
Type	Single Dry Plate
Outside Diameter	225 mm (9.0 in.)
Inside Diameter	150 mm (5.9 in.)
Thickness	3.4 mm (0.13 in.)
Fluid Capacity	Common Use; Brake Fluid

**Manual Transaxle**

<b>Application</b>	<b>2.2L DOHC</b>
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	3.550:1
Oil Capacity	1.8L (2 qt)

\* Puerto Rico only.

**Automatic Transaxle**

<b>Application</b>	<b>2.0L DOHC</b>
Maker	GM
Type or Model	4T40E
Gear Ratio:	–
1st	2.957:1
2nd	1.623:1
3rd	1.000:1
4th	0.682:1
Reverse	2.143:1
Final Drive Ratio	3.910:1
Oil Capacity	11.5L (12 qt)

**Brake**

<b>Application</b>	<b>2.0L DOHC</b>
Booster Size:	–
Single	228.6 mm (9 in.)
Master Cylinder Diameter	22.2 mm (0.87 in.)
Booster Ratio	5.0:1
Front Brake:	–
Disc Type	Ventilated
Disc Size	356 mm (14.0 in.)
Rear Brake:	–
Disc:	–
Disc Type	Solid
Disc Size	32 mm (1.3 in.)
Fluid Capacity	0.5L (0.53 qt)

**Tire and Wheel**

<b>Application</b>	<b>2.0L DOHC</b>
Standard Tire Size	185/65R14
Temporary Tire Size	T125/70D15
Standard Wheel Size	5.5JX14
Inflation Pressure at Full Load:	–
185/65R14:	—
Front	30 psi
Rear	28 psi
T127/70D15	60 psi

### Steering System

Application	2.0L DOHC
Gear Type	Power Rack and Pinion
Overall Gear Ratio:	–
Manual Steering	–
Power Steering	16:1
Wheel Alignment:	–
Front:	–
Total Toe-In (2 Occupants)	–10' to +10'
Caster:	–
Power Steering	2°30' to 3°30'
Camber	–54' to 6'
Rear:	–
Total Toe-In (2 Occupants)	–3' to +17'
Camber	–1°35' to –5'
Oil Capacity	1.0L (1.1 qt)

### Suspension

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

### Fuel System

Application	2.0L DOHC
Fuel Delivery	MPI
Fuel Pump Type	Electric Motor Pump
Fuel Filter Type	Cartridge
Fuel Capacity	52L (13.7 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	3.8L (4.1 qt)

**Cooling System**

<b>Application</b>	<b>2.0L DOHC</b>
Cooling Type	Forced Water Circulation
Radiator Type	Cross-flow
Water Pump Type	Centrifugal
Thermostat Type	Pellet Type
Coolant Capacity:	–
Manual:	7.0L (7.4 qt)
Automatic:	7.0L (7.4 qt)

**Electric System**

<b>Application</b>	<b>2.0L DOHC</b>
Battery (55 AH, M/F)	630 Cold Cranking Amps
Alternator:	85 Amps
Starter (1.4 kW) No Load Test	Minimum 40 Amps Maximum 90 Amps (at 12.2 volts)

**VEHICLE DIMENSIONS AND WEIGHTS****Vehicle Dimensions – Manual and Automatic**

<b>Application</b>	<b>2.0L DOHC</b>
Overall Length:	–
4-Door Notchback	4 470 mm (176.0 in.)
4-Door Wagon	4 514 mm (177.7 in.)
5-Door	4 248 mm (167.2 in.)
Overall Width	1 700 mm (66.9 in.)
Overall Height:	–
4-Door Notchback	1 425 mm (56.1 in.)
4-Door Wagon	1 432 mm (56.4 in.)
5-Door	1 425 mm (56.1 in.)
Overall Height:	Overall Height:
4-Door Notchback	1 430 mm (56.2 in.)
4-Door Wagon	1 470 mm (58.0 in.)
5-Door	1 430 mm (56.2 in.)
Minimum Ground Clearance	151 mm (5.9 in.)
Wheel Base	2 570 mm (101.2 in.)
Tread:	–
Front	1 464 mm (57.6 in.)
Rear	1 454 mm (57.2 in.)

**Vehicle Weights – 4 Door Notchback**

<b>Application</b>	<b>2.0L DOHC</b>
Manual:	–
Curb Weight:	–
Standard	1 164 kg (2,566 lb)
Optional	1 233 kg (2,718 lb)
Gross Vehicle Weight	1 720 kg (3,792 lb)
Automatic:	–
Curb Weight	–
Standard	1 200 kg (2,645 lb)
Optional	1 269 kg (2,797 lb)
Gross Vehicle Weight	1 720 kg (3,792 lb)
Passenger Capacity	5

**Vehicle Weights – 4 Door Wagon**

<b>Application</b>	<b>2.0L DOHC</b>
Manual:	–
Curb Weight:	–
Standard	1 222 kg (2,694 lb)
Optional	1 291 kg (2,846 lb)
Gross Vehicle Weight	1 860 kg (4,101 lb)
Automatic:	–
Curb Weight	–
Standard	1 258 kg (2,773 lb)
Optional	1 327 kg (2,925 lb)
Gross Vehicle Weight	1 860 kg (4,101 lb)
Passenger Capacity	5

**Vehicle Weights – 5 Door**

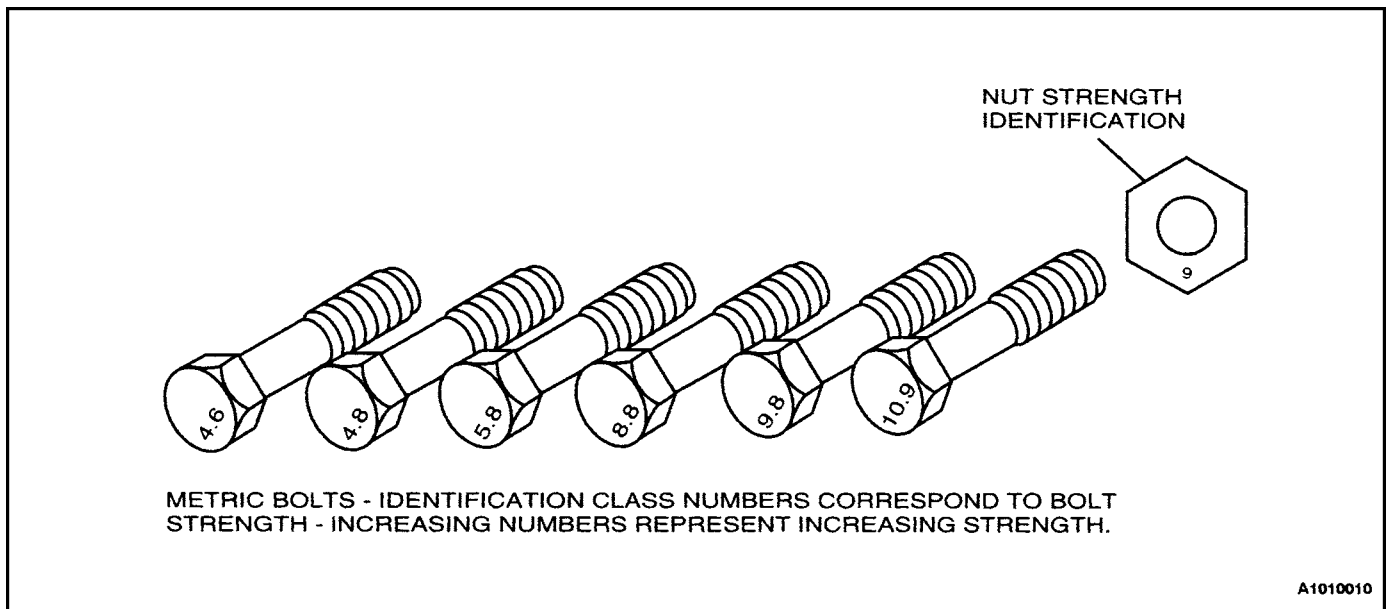
<b>Application</b>	<b>2.0L DOHC</b>
Manual:	–
Curb Weight:	–
Standard	1 155 kg (2,546 lb)
Optional	1 224 kg (2,698 lb)
Gross Vehicle Weight	1 720 kg (3,792 lb)
Automatic:	–
Curb Weight:	–
Standard	1 191 kg (2,625 lb)
Optional	1 260 kg (2,778 lb)
Gross Vehicle Weight	1 720 kg (3,792 lb)
Passenger Capacity	5

Optional Weight: Air Conditioning, Power Steering, ABS, Sunroof, Airbag.

## 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)	5.4–9.5 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 side 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**

###### **API Classifications of Engine Oil**

The International Lubricant Standardization and Approval Committee (ILSAC) and American Petroleum Institute classifies engine oils according to their performance quality. Always use oil rated API-SJ (ILSAC GF-II) or better.

###### **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 48,000 km (30,000 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 48 000 km (30,000 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 bolts to 17 N•m (13 lb-ft) if necessary.

**Spark Plug Replacement**

Replace spark plugs with the same type.

- Type: AC Type FR8LDC4 (2.0L DOHC)
- Gap: 0.8 mm (0.031 in.) (2.0L 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**

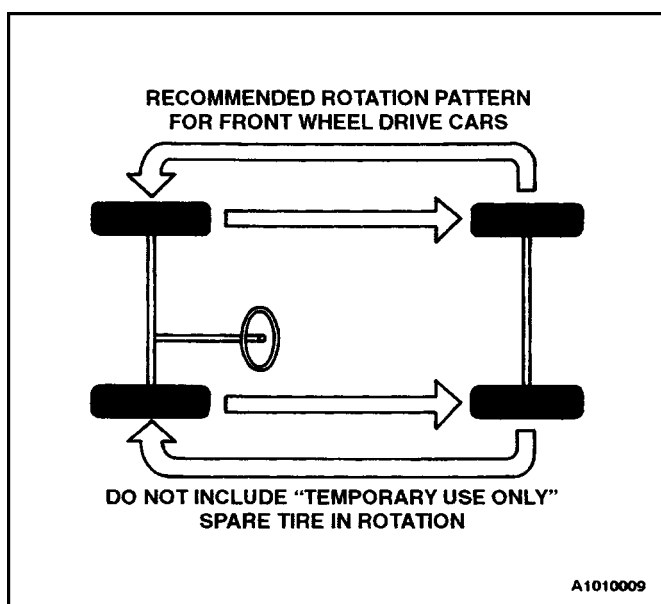
Check the disc brake pads or the drum brake linings every 9,600 km (6,000 mi) or 6 months. Check the pad and the lining thickness carefully. If the pads or the linings are not expected to last another 9,600 km (6,000 mi), replace the pads or the linings. Check the breather hole in the brake fluid reservoir cap to be sure it is free from dirt and the passage is open.

**Transaxle Service**

The manual transaxle fluid does not require changing. For automatic transaxles, refer to "Scheduled Maintenance Charts" in this section.

**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																
	Miles (Kilometers) or time in months, whichever comes first																
x 1,000 miles	6	12	18	24	30	36	42	48	54	60	66	72	78	84	90	96	102
x 1,000 km	9.6	19.2	28.8	38.4	48	57.6	67.2	76.8	86.4	96	105.6	115.2	124.8	134.4	144	153.6	163.2
# Months	6	12	18	24	30	36	42	48	54	60	66	72	78	84	90	96	102
Drive belt (Generator and power Steering)			I			I			I			I			I		
Engine oil & engine oil filter (1)(3)	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
Cooling system hose & connections		I		I		I		I		I		I		I		I	
Engine coolant (3)	I	I	I	I	R	I	I	I	I	R	I	I	I	I	R	I	I
Fuel filter					R*					R*					R*		
Fuel line and connections		I*		I*		I*		I*		I*		I*		I*		I*	
Air cleaner element (2)	I*	I*	I*	I*	R	I*	I*	I*	I*	R	I*	I*	I*	I*	R	I*	I*
Ignition timing		I*		I*		I*		I*		I*		I*		I*		I*	
Spark plugs			I*		R			I*		R			I*		R		
Evaporative emission canister & vapor lines					I*					I*					I*		
PCV system			I*			I*			I*			I*			I*		
Camshaft belt (Timing belt)	Out of California	Replace every 72,000 miles (115,200 km)															
	California	Inspect every 60,000 miles (96,000 km) and 90,000 miles (144,000 km) Replace every 102,000 miles (163,200 km)															

**Chart Symbols:**

I – Inspect these items and their related parts. If necessary, correct, clean, replenish, adjust or replace.

R – Replace or change.

(1) Change the engine oil every 3,000 miles (4,800 kilometers) or 3 months, whichever comes first, if the vehicle is operated under any of the following conditions :

- Short-distance driving.
- Extensive idling.
- Driving on dusty roads.

(2) More frequent maintenance is required if driving under dusty conditions.

(3) Refer to "Recommended Fluids And Lubricants"

**Note :** Check the engine oil and radiator coolant levels every week.

\* : Replacement or inspection of these emissions components is recommended to be performed at the indicated intervals however, the California Air Resources Board has determined that performing these maintenance items are not required to maintain your vehicle emission warranty.

## Chassis and Body

Maintenance Item	Maintenance Interval																
	Miles (Kilometers) or time in months, whichever comes first																
x 1,000 miles	6	12	18	24	30	36	42	48	54	60	66	72	78	84	90	96	102
x 1,000 km	9.6	19.2	28.8	38.4	48	57.6	67.2	76.8	86.4	96	105.6	115.2	124.8	134.4	144	153.6	163.2
# Months	6	12	18	24	30	36	42	48	54	60	66	72	78	84	90	96	102
Air Filter (A/C) (2)	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
Exhaust pipes & mountings		I*		I*		I*		I*		I*		I*		I*		I*	
Brake/Clutch fluid (3)(5)	I	I	R	I	I	R	I	I	R	I	I	R	I	I	R		I
Brake pads & discs(6)	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
Parking brake		I		I		I		I		I		I		I		I	
Brake line & connections (Including booster)	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
Rear hub bearing & clearance		I		I		I		I		I		I		I		I	
Manual Transaxle Oil (3)		I		I		I		I		I		I		I		I	
Clutch & brake pedal free play	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
Automatic transaxle fluid* (3) (7)		I		I		I		I		R		I		I		I	
Chassis & underbody bolts & nuts, tighten/secure	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
Tire condition & inflation pressure	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
Wheel alignment (8)	Inspect when abnormal condition is noted.																
Tire rotation	Rotate tires every 6,000 miles																
Steering wheel & linkage	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
Power steering fluid & lines*		I		I		I		I		I		I		I		I	
Drive shaft boots	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
Seat belts, buckles & anchors	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
Lubricate locks, hinges & hood latch		I		I		I		I		I		I		I		I	

### Chart Symbols:

I – Inspect these items and their related parts. If necessary, correct, clean, replenish, adjust or replace.

R – Replace or change.

(2) More frequent maintenance is required if driving under dusty conditions.

(3) Refer to "Recommended Fluids And Lubricants."

(5) Change the brake/clutch fluid every 9,000 miles (14,400 kilometers) or 9 months, whichever comes first, if the vehicle is operated under any of the following conditions :

- Driving in hilly or mountainous terrain.

(6) More frequent maintenance is required if the vehicle is operated under any of the following conditions:

- Short-distance driving.
- Extensive idling or slow-speed driving in stop-and-go traffic.
- Driving on dusty roads.

(7) Change the automatic transaxle fluid every 50,000 miles (80,000 kilometers) if the vehicle is operated under any of the following conditions :

- Driving in hilly or mountainous terrain.
- Driving in heavy city traffic where the outside temperatures regularly reach 32°C (90°F) or higher.
- Driving a taxi, or police or delivery vehicles.

(8) If necessary, rotate and balance the wheels

**Note :** Check the engine oil and radiator coolant levels every week.

\* Replacement or inspection of these emissions components is recommended to be performed at the indicated intervals however, the California Air Resources Board has determined that performing these maintenance items are not required to maintain your vehicle emission warranty.

## 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 to the right or the 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, 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 checking 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 tire, unless it is a stow-away). Maintain the recommended pressures that are on the tire placard that is on the driver's side 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 immediately.

### 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. A low fluid level can indicate worn disc brake pads and may need to be serviced. Check the breather hole in the reservoir cover that it is free from dirt and check for an open passage.

#### Clutch Pedal Free Travel

Check clutch pedal free travel and adjust, as necessary, every 16,000 km (10,000 miles). Measure the distance from the center of the clutch pedal to the outer edge of the

steering wheel with the clutch pedal not pressed. Then, measure the distance from the center of the clutch pedal to the outer edge of the steering wheel with the clutch pedal fully pressed. The difference between the two values must be greater than 130 mm (5.1 in.).

### Weatherstrip Lubrication

Apply a thin film of silicone grease using a clean cloth.

## EACH TIME THE OIL IS CHANGED

### Automatic Transaxle Fluid

Refer to "Transaxle Fluid Level Checking Procedure" in Section 5A, 4T40E Automatic Transaxle.

### Manual Transaxle

Check the fluid level and add fluid, as required. Refer to Section 5B, Five-Speed Manual Transaxle.

### Brake System Inspection

This inspection should be done when the wheels are removed for rotation. Inspect the lines and the hoses for proper hookup, binding, leaks, cracks, chafing, etc. Inspect the disc brake pads for wear. Inspect the rotors for surface condition. Also, inspect the drum brake linings for wear and cracks. Inspect other brake parts, including the drums, the wheels cylinders, the parking brake, etc., at the same time. Check the parking brake adjustment. Inspect the brakes more often if habit or conditions result in frequent braking.

### Steering, Suspension and Front Drive Axle Boot and Seal Inspection

Inspect the front and the rear suspension and the steering system for damaged, loose, or missing parts; signs of wear; or lack of lubrication. Inspect the power steering lines and the hoses for proper hookup, binding, leaks, cracks and chafing, etc. Clean and inspect the drive axle boot and seals for damage, tears, or leakage. Replace the seals, if necessary.

### Exhaust System Inspection

Inspect the complete system (including the catalytic converter, if equipped). Inspect the body near the exhaust system. Look for broken, damaged, missing, or out of position parts, as well as open seams, holes, loose connections, or other conditions which could cause heat build-up in the floor pan or could let exhaust fumes seep into the trunk or passenger compartment.

### Throttle Linkage Inspection

Inspect the throttle linkage for interference or binding, damaged or missing parts. Lubricate all linkage joints and throttle cable joints, the intermediate throttle shaft bearing, the return spring at the throttle valve assembly, and the accelerator pedal sliding face with suitable grease. Check the throttle cable for free movement.

### Engine Drive Belts

Inspect all belts for cracks, fraying, wear, and proper tension. Adjust or replace the belts, as needed.

### Hood Latch Operation

When opening the hood, note the operation of the secondary latch. It should keep the hood from opening all the way when the primary latch is released. The hood must close firmly.

## AT LEAST ANNUALLY

### Lap and Shoulder Belt Condition and Operation

Inspect the belt system, including the webbing, the buckles, the latch plates, the retractor, the guide loops and the anchors.

### Movable Head Restraint Operation

On vehicles with movable head restraints, the restraints must stay in the desired position.

### Spare Tire and Jack Storage

Be alert to rattles in the rear of the vehicle. The spare tire, all the jacking equipment, and the tools must be securely stowed at all times. Oil the jack ratchet or the screw mechanism after each use.

### Key Lock Service

Lubricate the key lock cylinder.

### Body Lubrication Service

Lubricate all the body door hinges including the hood, the fuel door, the rear compartment hinges and the latches, the glove box and the console doors, and any folding seat hardware.

### Transaxle Neutral Switch Operation on Automatic Transaxle

**CAUTION : Adhere to the following precautions. Failure to do so can cause injuries and property damage.**

- Firmly apply the parking brake and the regular brakes.
- Do not use the accelerator pedal.
- Be ready to turn the ignition OFF if the vehicle starts.

On automatic transaxle vehicles, try to start the engine in each gear. The starter should crank only in P (PARK) and in N (NEUTRAL).

### Parking Brake and Transaxle P (PARK) Mechanism Operation

**CAUTION : To reduce the risk of personal injury or property damage, be prepared to apply the regular brakes if the vehicle begins to move.**

Park on a fairly steep hill with enough room for movement in the downhill direction. To check the parking brake, with the engine running and the transaxle in N (NEUTRAL), slowly remove foot pressure from the regular brake pedal (until only the parking brake is holding the vehicle).

To check the automatic transaxle P (PARK) mechanism's holding ability, release all brakes after shifting the transaxle to P (PARK).

### **Underbody Flushing**

Flushing the underbody will remove any corrosive materials used for ice and snow removal and dust control. At least every spring, clean the underbody. First, loosen the sediment packed in closed areas of the vehicle. Then, flush the underbody with plainwater.

### **Engine Cooling System**

Inspect the coolant and freeze protection fluid. If the fluid

is dirty or rusty, drain, flush and refill the engine cooling system with new coolant. Keep the coolant at the proper mixture to ensure proper freeze protection, corrosion protection and engine operating temperature. Inspect the hoses. Replace the cracked, swollen, or deteriorated hoses. Tighten the clamps. Clean the outside of the radiator and the air conditioning condenser. Wash the filler cap and the neck. Pressure test the cooling system and the cap to help ensure proper operation.

**RECOMMENDED FLUIDS AND LUBRICANTS**

<b>USAGE</b>	<b>CAPACITY</b>	<b>FLUID/LUBRICANT</b>
Engine Oil	3.8L (4.1 qt)	ILSAC GF-II (API SJ) grade SAE 5W—30, SAE 10W—30
Engine Coolant	7.0L (7.4 qt)	Mixture of water and good quality ethylene glycol-base antifreeze (year-round coolant)
Brake and Clutch Fluid	0.5L (0.5 qt)	SSK-221 (DOT-3 and DOT-4 Fluid)
Power Steering System Fluid	1.0L (1.1 qt)	DEXRON®-III, DEXRON® II-D
Automatic Transaxle	11.5L (12.2 qt)	DEXRON®-III
Manual Transaxle	1.8L (2 qt)	Manual Transaxle Fluid ( B0400075, SAE80 or equivalent; Extremely cold area: SAE 75W)
Manual Transaxle Shift Linkage	As needed	Multipurpose-type grease meeting requirements NLGI No. 1 or 2
Key Lock Cylinders	As needed	Silicone lubricant
Automatic Transaxle Shift Linkage	As needed	Engine oil
Clutch Linkage Pivot Points	As needed	Engine oil
Floor Shift Linkage Points	As needed	Engine oil
Hood Latch Assembly 1. Pivots and Spring Anchor 2. Release Pawl	As needed	1. Engine oil 2. Multipurpose-type grease meeting requirements NLGI No. 1 or 2
Hood and door hinges Fuel door hinge Rear compartment lid hinges	As needed	Engine oil
Weatherstripping	As needed	Silicone grease

## GENERAL DESCRIPTION AND SYSTEM OPERATION

### GENERAL REPAIR INSTRUCTIONS

If a floor jack is used, the following precautions are recommended:

- Park the vehicle on level ground, "block" the front or rear wheels, set the jack against the frame, raise the vehicle and support it with chassis stands, and then perform the service operation.
- Before performing the service operation, disconnect the negative battery cable to reduce the chance of cable damage and burning due to short-circuiting.
- Use a cover on the body, the seats, and the floor to protect them against damage and contamination.
- Handle brake fluid and antifreeze solution with care as they can cause paint damage.
- The use of proper tools, and the required special tools where specified, is important for efficient and reliable performance of the service repairs.

- Use genuine DAEWOO parts.
- Discard used cotter pins, gaskets, O-rings, oil seals, lock washers and self-locking nuts. Prepare new ones for installation. Normal functioning of the vehicle's components cannot be maintained if these fasteners and seals are reused.
- Keep the disassembled parts to assist in reassembly.
- Keep attaching bolts and nuts separated, as they vary in hardness and design depending on the position of the installation.
- Clean the parts before inspection or reassembly.
- Clean the oil parts, etc. Use compressed air to make certain they are free of restrictions.
- Lubricate rotating and sliding faces of parts with oil or grease before installation.
- When necessary, use a sealer on gaskets to prevent leakage.
- Carefully observe all specifications for bolt and nut torques.

When service operation is complete, make a final check to be sure service was done properly and the problem was corrected.



## GENERAL DESCRIPTION

### ON BOARD REFUELING VAPOR RECOVERY SYSTEM

The NUBIRA 2.0 DOHC model is equipped with an On Board Diagnostic Stage II (OBD–II) system to meet enhanced emission control requirements. Within this OBD–II system, an On Board Refueling Vapor Recovery (ORVR) system has been developed and equipped to meet enhanced evaporative emission control requirements during vehicle moving, parking, and refueling at gas stations. The Daewoo ORVR system adopts one canister to collect both evaporative vapors during the moving & parking as well as refueling vapor. Collected vapor is consumed by the engine through the intake manifold during vehicle operation. The mechanism of Daewoo ORVR system to meet the ORVR requirement is to create suction inside filler neck by the aid of fuel flow through a reduced diameter section in the filler pipe.

Therefore, Daewoo ORVR system adopts the so called "Liquid Trap" or "Liquid Seal" system that assures the long term durability.

The Daewoo ORVR system provides nozzle compatibility with conventional and stage II vapor recovery nozzle.

The Daewoo ORVR system has been designed to have the following functional features.

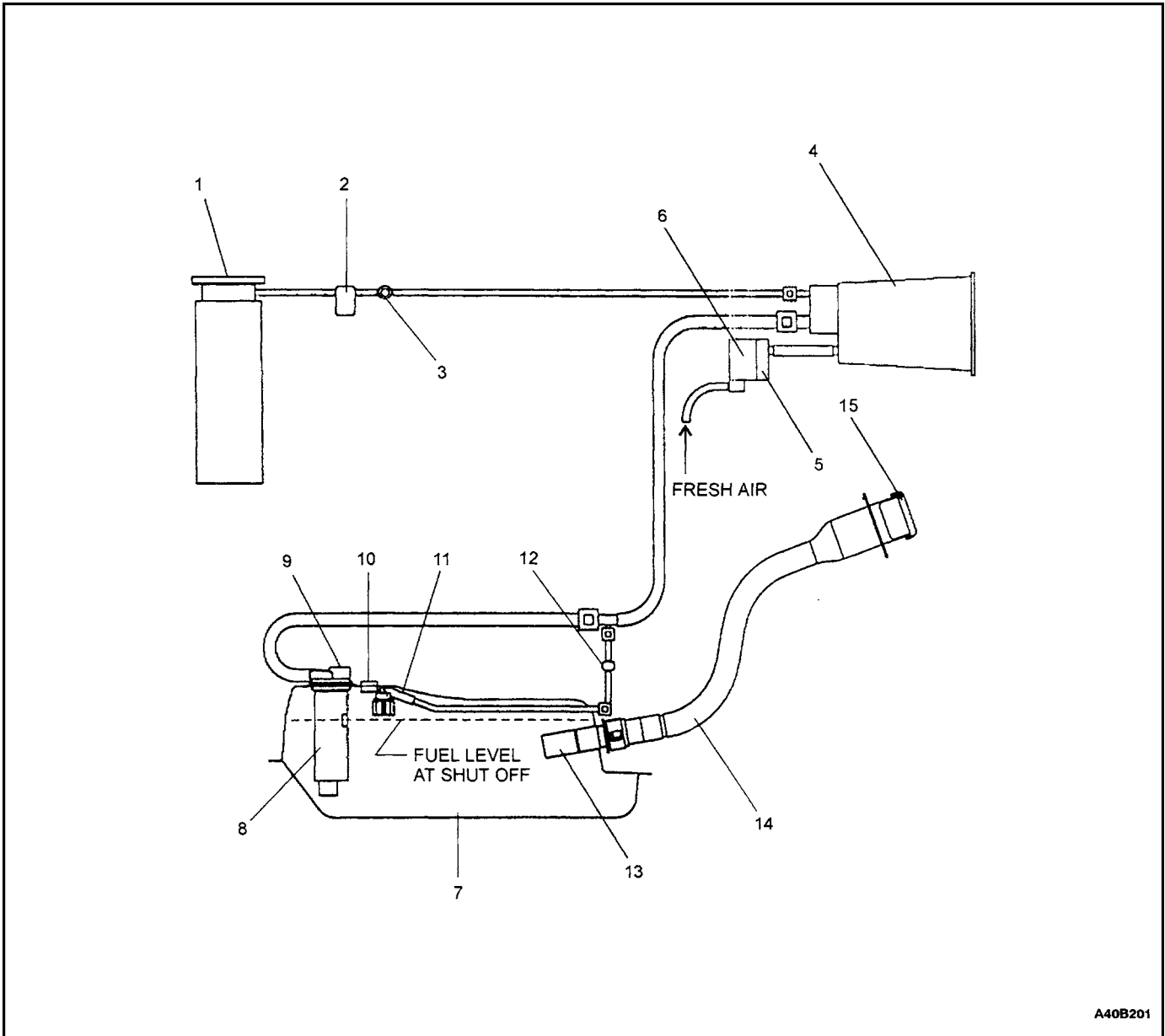
- To collect refueling vapors and to route to canister.
- To provide nozzle compatibility with conventional and stage II vapor recovery nozzles.
- To provide fill shut off signal.
- To prevent canister from liquid fuel during normal driving and vehicle rollover.
- To provide fuel tank venting to canister during vehicle operation.
- To protect fuel tank from over–pressure.
- To protect fuel vapor dome from overfill.

Any failures or malfunction of the ORVR system will be identified by OBD–II system and warned through Malfunction Indicator Lamp (MIL) on the instrument cluster.

No special refueling procedures and maintenance on ORVR system are required.

The Daewoo ORVR system and all fuel system components have been designed to prevent the electrostatic discharge phenomenon by adopting mitigation techniques recommended in SAE J1645. Daewoo's own test procedure (EDS–T–5005) is similar to SAE J1113.

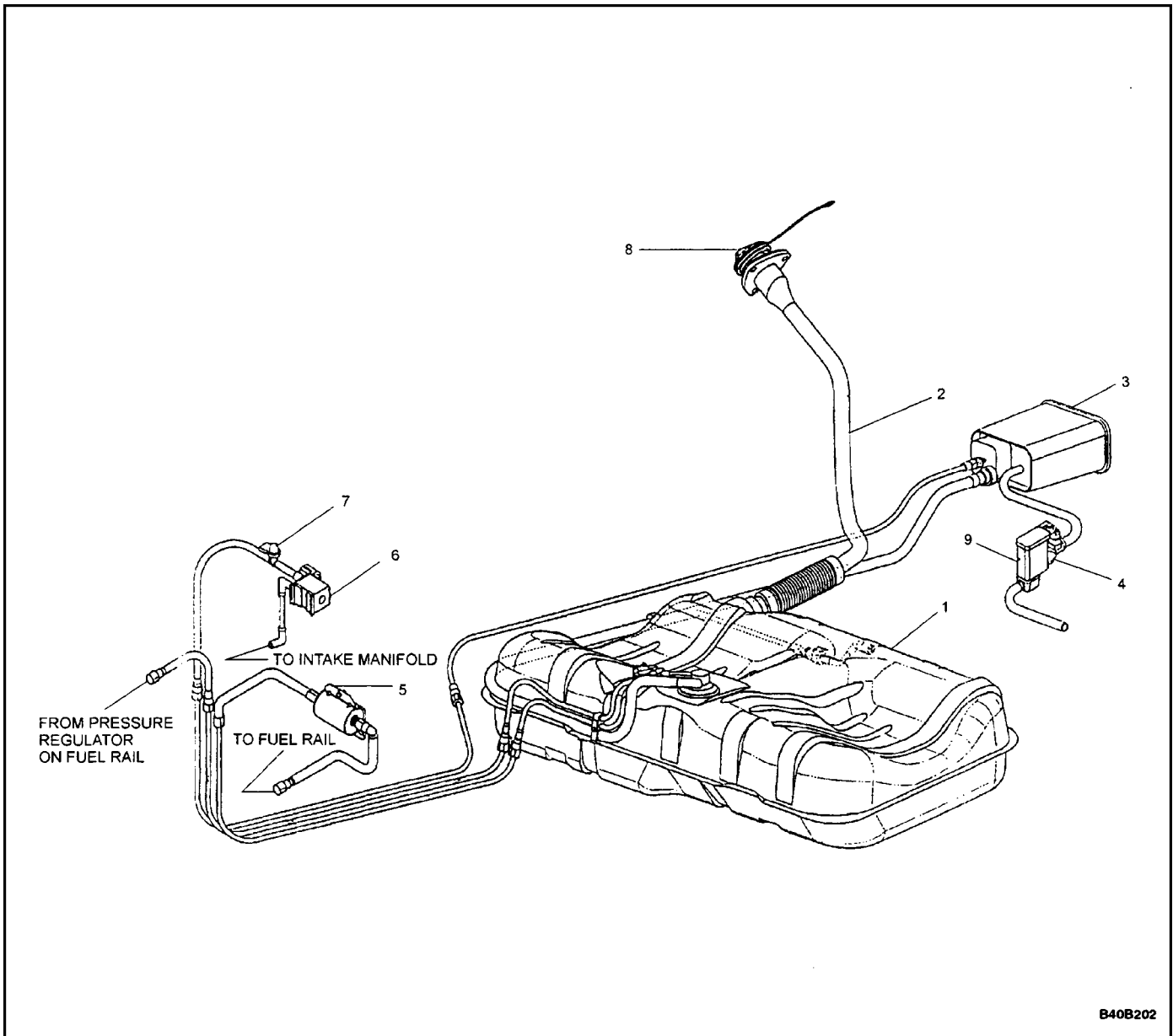
### Schematic Of On Board Refueling Vapor Recovery System



A40B201

- |  |   |
|--|---|
| 1. Manifold (Intake)   | 9. Pressure Relief Valve                        |
| 2. Canister Purge Valve (Electronic Pwm Control)             | 10. Tank Pressure Transducer (OBD-II)           |
| 3. Service Port  | 11. Rollover Valve                              |
| 4. Integrated Fuel Vapor Storage Canister                    | 12. 2-Way Check Valve                           |
| 5. OBD-II Valve (Solenoid) OBD-II Valve (Solenoid)           | 13. Check Valve                                 |
| 6. Air Filter  | 14. Fuel Filler Tube (Dynamic Seal During Fill) |
| 7. Fuel Tank (Steel)   | 15. Fuel Filler Cap (Pressure-Vacuum Relief)    |
| 8. Fuel Fill Vent Control Valve & Liquid-Vapor Discriminator |   |

## Component Locator

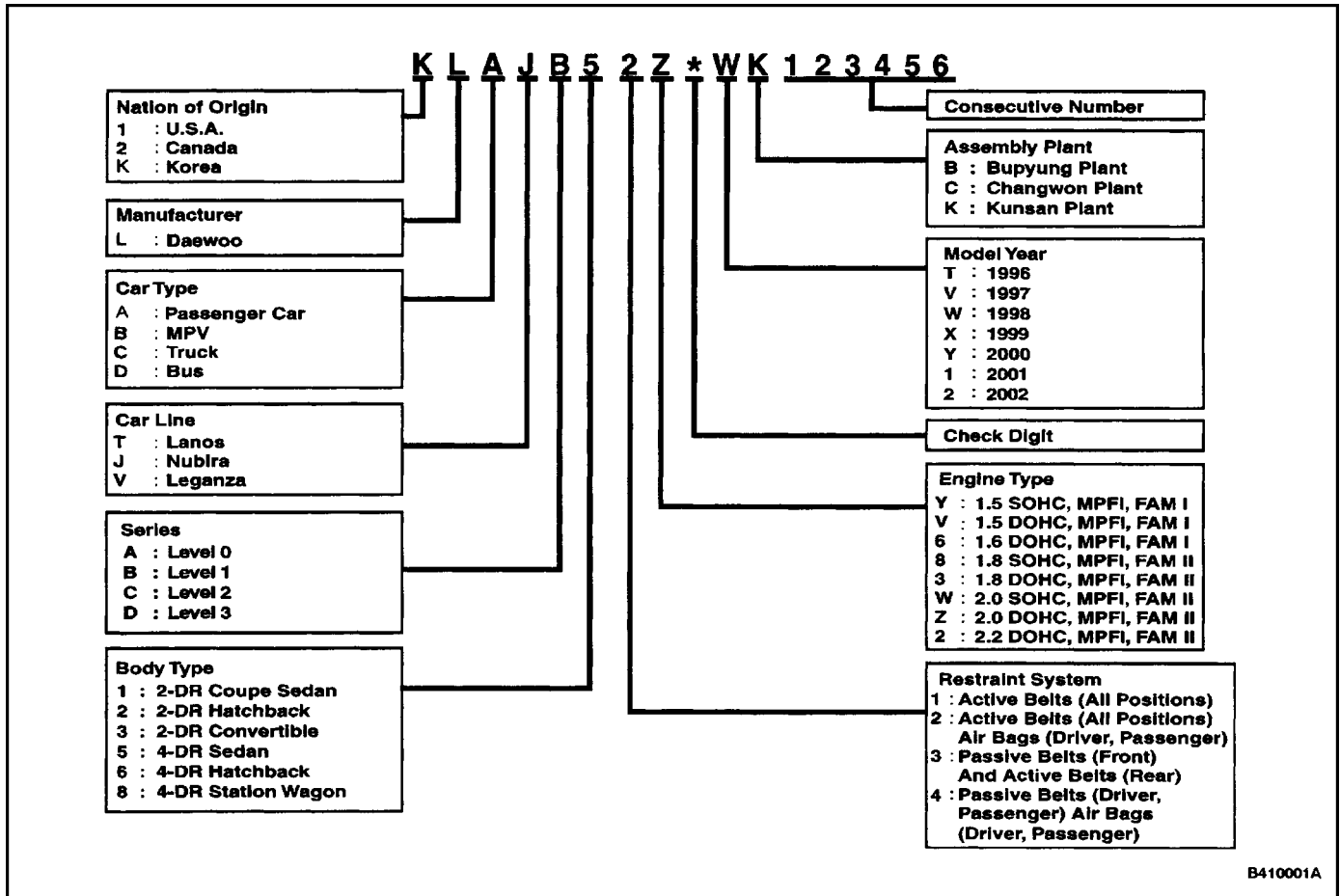


1. Fuel Tank
2. Filler Tube
3. Canister
4. OBD- II Valve
5. Fuel Filter

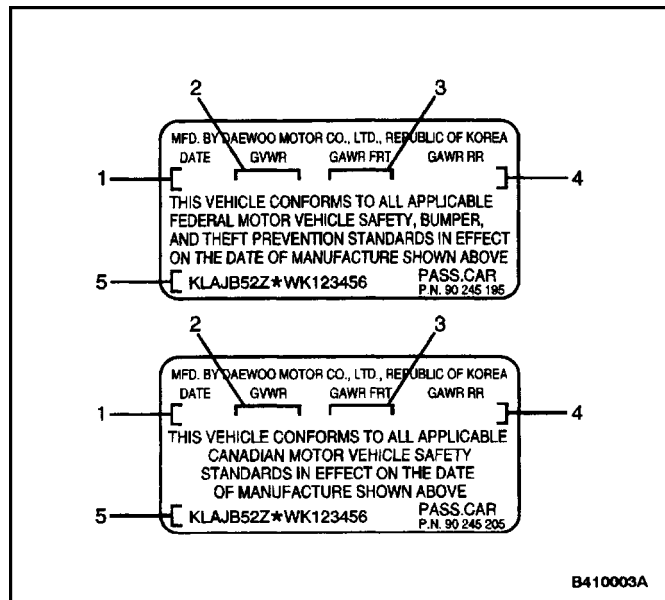
6. Purge Valve
7. Service port
8. Fuel Filler Cap
9. Air Filter

# VEHICLE IDENTIFICATION

## Passenger Car VIN



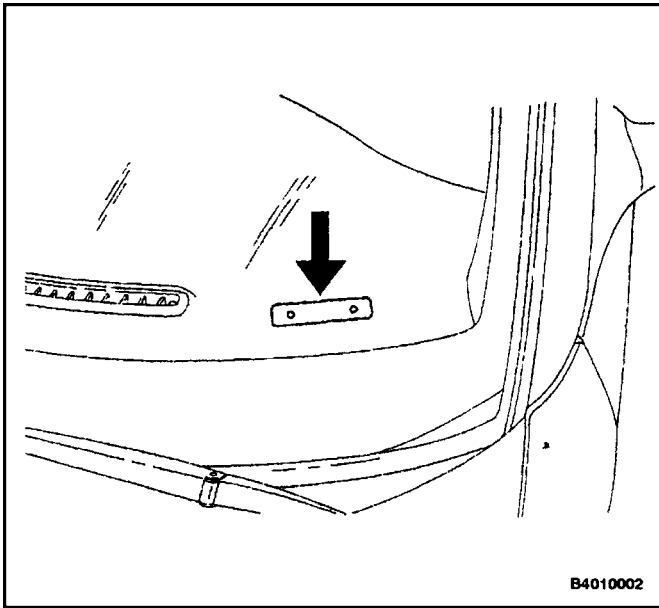
## Certification plate



1. Production Date
2. Gross Vehicle Weight Rating
3. Gross Axle Weight Rating Front
4. Gross Axle Weight Rating Rear
5. Vehicle Identification Number

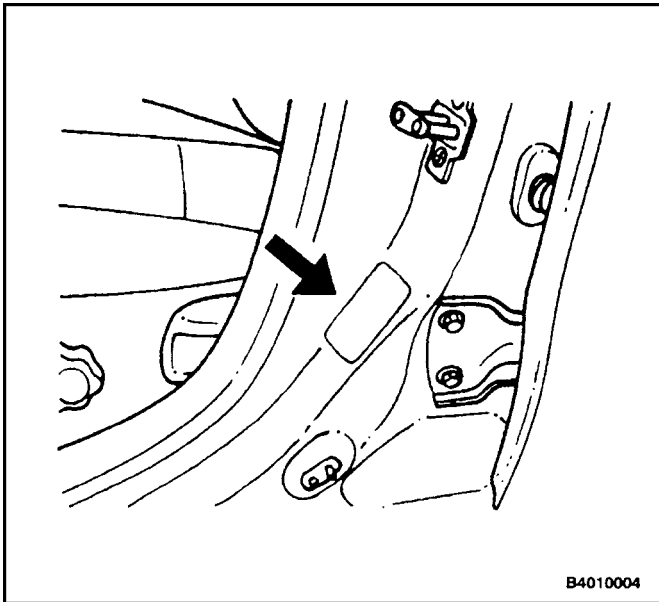
### VIN Plate Location

The vehicle identification number (VIN) plate is attached to the top of the driver's side of the instrument panel.

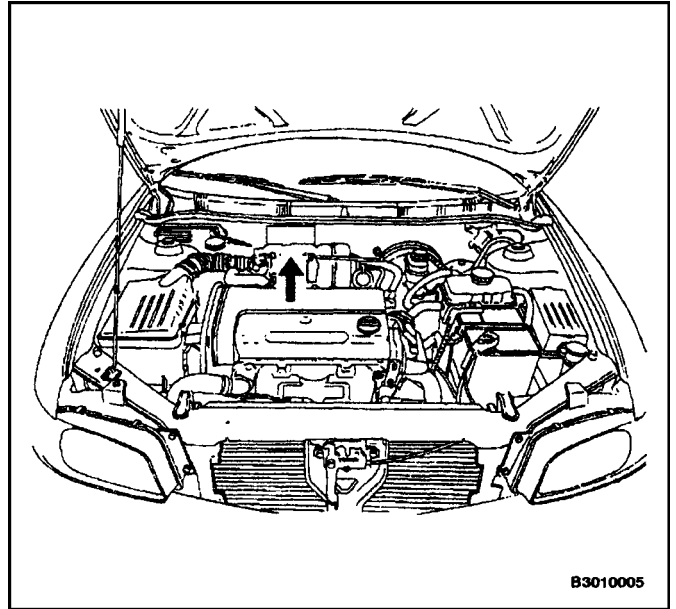


### Certification Label

The Certification Label is attached to the driver's side B-pillar near door strike.

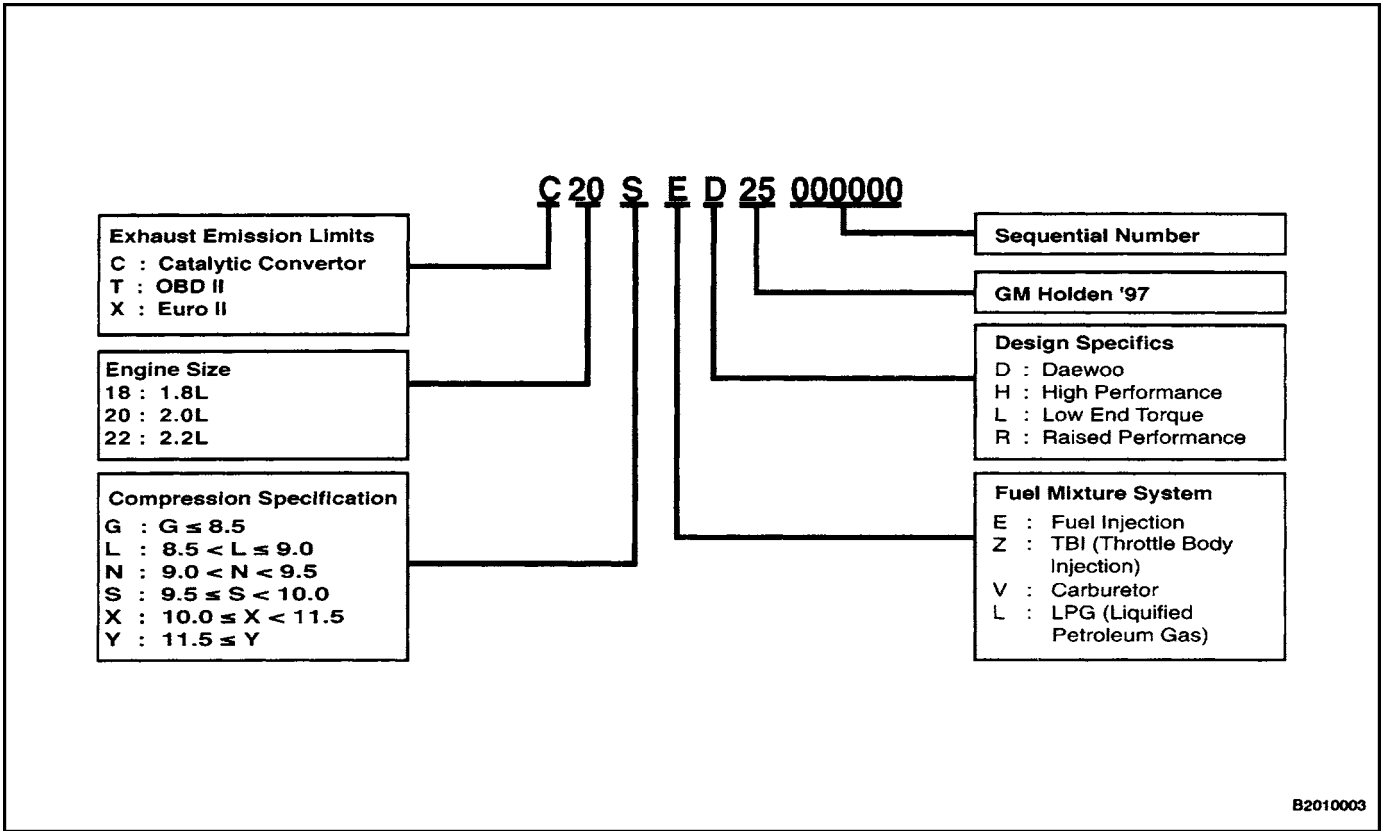


### Engraved VIN Location



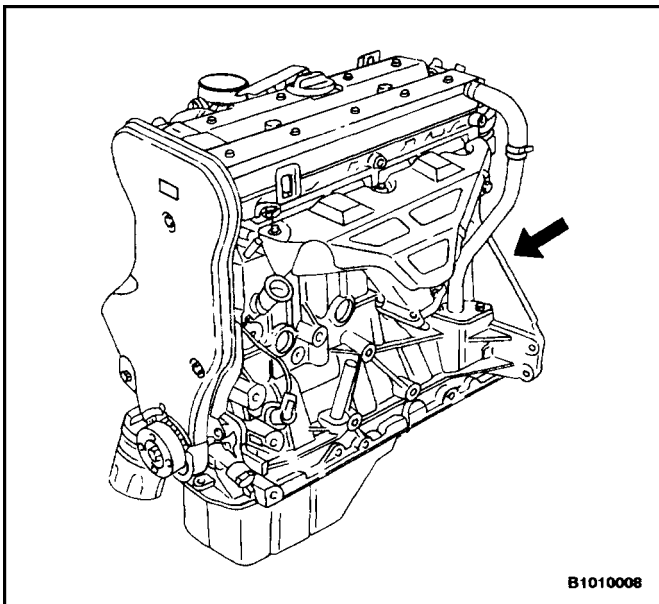
The vehicle identification number (VIN) is engraved in the top of the bulkhead, next to the ABS module.

**Engine Number – Family II (2.0L DOHC Engine)**

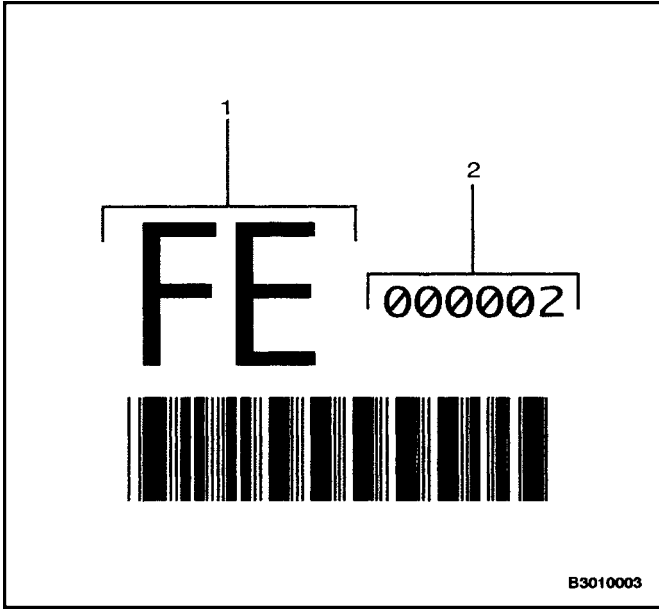


**Engine Number Plate Location – Family II (2.0L DOHC Engine)**

The engine number is stamped on the cylinder block under the No. 4 exhaust manifold of the engine.



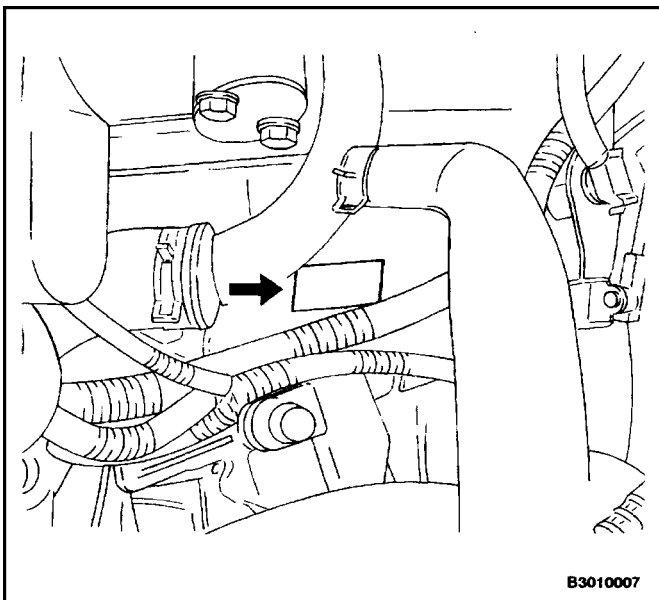
**Manual Transaxle Identification Number Plate**



- 1. Identification Code
- 2. Sequential Number

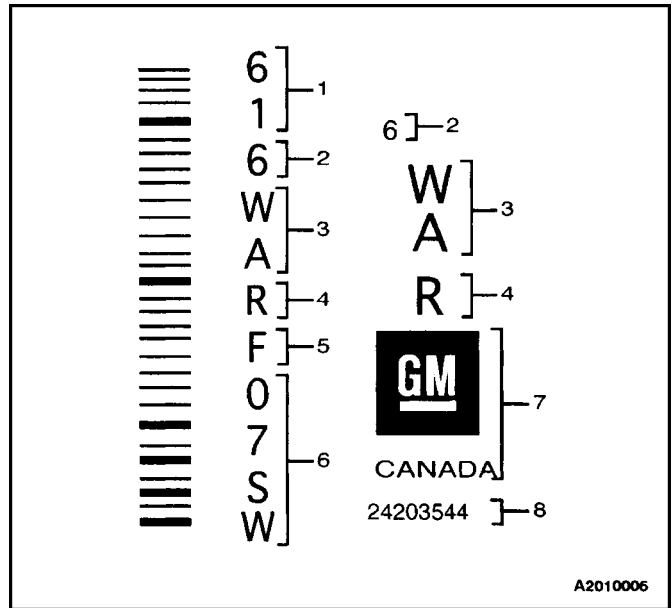
Identification Code	Engine	Gear Ratio
FE	2.0L DOHC	3.545 C/R

**Manual Transaxle Identification Number Plate Location**



The manual transaxle identification number is attached to the top of the transaxle case near the engine.

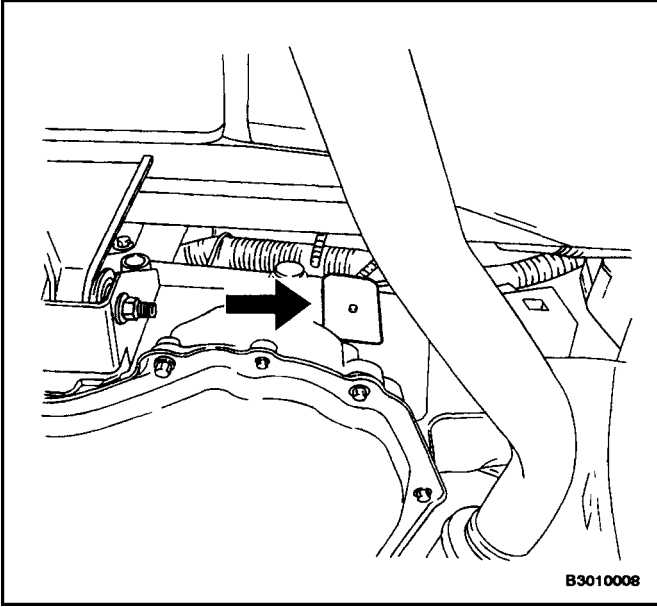
**Automatic Transaxle Identification Number Plate**



- 1. Assembly Plant (Windsor, Canada)
- 2. Model Year (1996)
- 3. Broadcast Code
- 4. Model Name (4T40E)
- 5. Update Level
- 6. Sequential Number
- 7. Manufacturer
- 8. Part Number

Identification Code	Engine
7ZZR	2.0L DOHC

### Automatic Transaxle Identification Number Plate Location

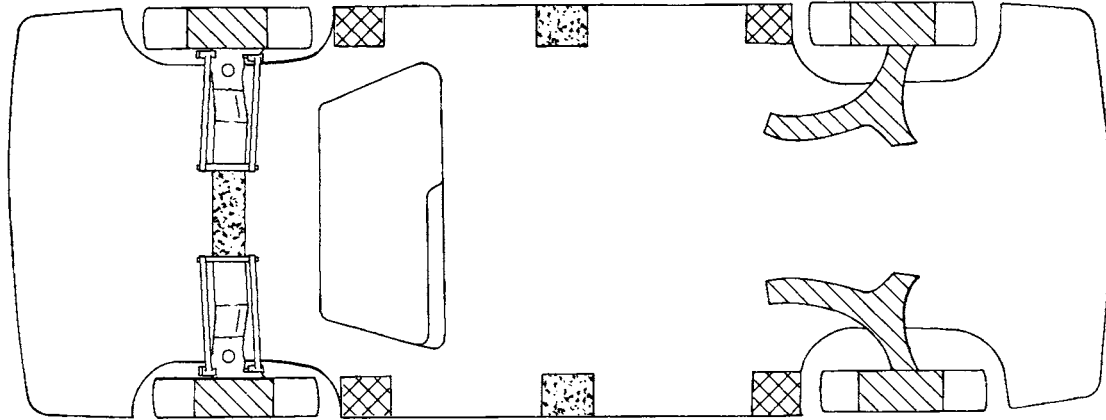


The automatic transaxle identification number plate is attached on the rear side of the transaxle near the bulkhead.

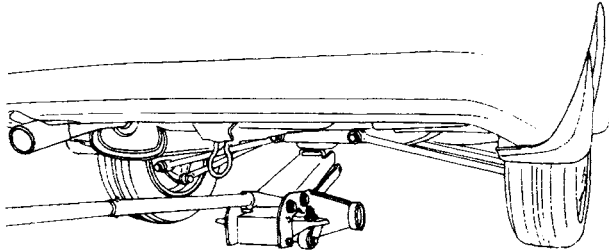
### VEHICLE LIFTING PROCEDURES

**Notice :** To raise the vehicle, place the lifting equipment only at the points indicated. Failure to use these precise positions may result in permanent body deformation. Many dealer service facilities and service stations are equipped with automotive hoists that bear upon some parts of the frame to lift the vehicle. If any other hoist method is used, use special care to avoid damaging the fuel tank, the filler neck, the exhaust system, or the underbody.

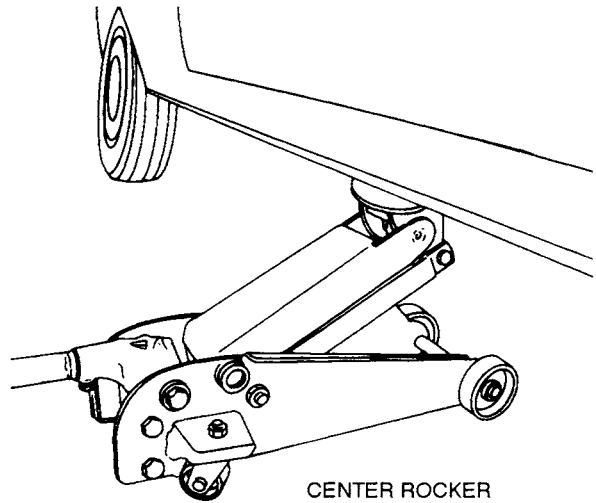




☒ FRAME CONTACT HOIST    ☒ SUSPENSION CONTACT HOIST    ☒ FLOOR JACK

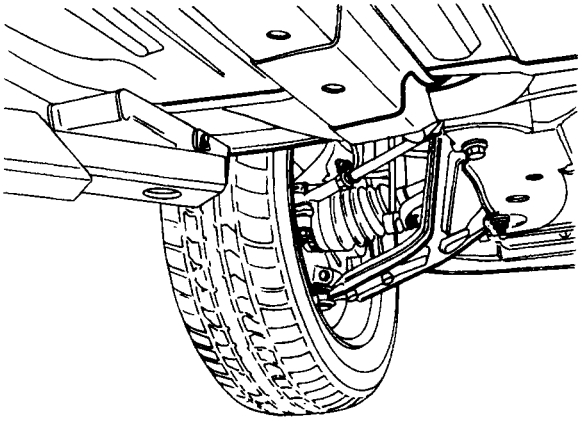


REAR SUSPENSION  
AXLE LIFT POINT

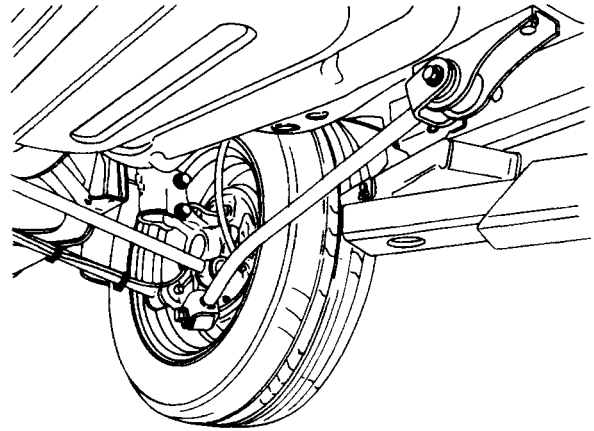


CENTER ROCKER  
LIFT POINT (LH/RH)

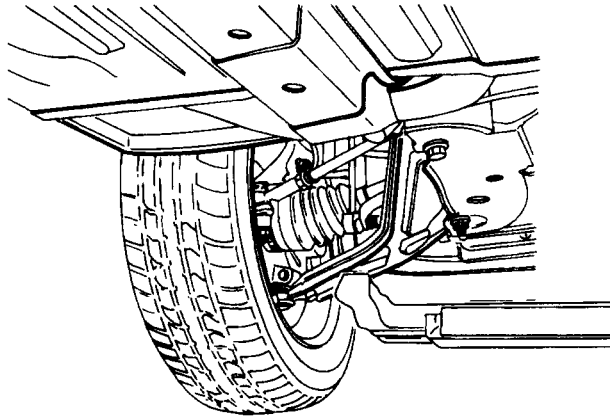
### Vehicle Lifting Points



FRAME CONTACT HOIST  
REARWARD OF FRONT TIRE



FRAME CONTACT HOIST  
FORWARD OF REAR WHEEL



SUSPENSION CONTACT HOIST  
UNDER FRONT LOWER CONTROL ARM