

LUBRICATION AND MAINTENANCE

00100120067

Maintenance and lubrication service recommendations have been compiled to provide maximum protection for the vehicle owner's investment against all reasonable types of driving conditions. Since these conditions vary with the individual vehicle owner's driving habits, the area in which the vehicle is operated and the type of driving to which the vehicle is subjected, it is necessary to prescribe lubrication and maintenance service on a time frequency as well as mileage interval basis.

Oils, lubricants and greases are classified and graded according to standards recommended by the Society of Automotive Engineers (SAE), the American Petroleum Institute (API) and the National Lubricating Grease Institute (NLGI).

MAINTENANCE SCHEDULES

Information for service maintenance is provided under "SCHEDULED MAINTENANCE TABLE".

Three schedules are provided; one for "Required Maintenance", one for "General Maintenance" and one for "Severe Usage Service".

Item numbers in the "SCHEDULED MAINTENANCE TABLE" correspond to the item numbers in the "MAINTENANCE SERVICE" section.

SEVERE SERVICE

Vehicles operating under severe service conditions will require more frequent service.

Component service information is included in appropriate units for vehicles operating under one or more of the following conditions:

1. Police, taxi, or commercial type operation
2. Operation of Vehicle
 - (1) Short-trip operation at freezing temperature (engine not thoroughly warmed up)
 - (2) More than 50% operation in heavy city traffic during hot weather above 32°C (90°F)
 - (3) Extensive idling
 - (4) Driving in sandy areas
 - (5) Driving in salty areas
 - (6) Driving in dusty conditions

ENGINE OIL

Either of the following engine oils should be used:

- (1) Engine oil displaying EOLCS certification mark
- (2) Engine oil conforming to the API classification SH ECII or SH/CD ECII.

For further details, refer to "LUBRICANTS SELECTION" section.

Caution

Test results submitted to EPA have shown that laboratory animals develop skin cancer after prolonged contact with used engine oil. Accordingly, the potential exists for humans to develop a number of skin disorders, including cancer, from such exposure to used engine oil.

Care should be taken, therefore, when changing engine oil, to minimize the amount and length of exposure time to used engine oil on your skin. Protective clothing and gloves, that cannot be penetrated by oil, should be worn. The skin should be thoroughly washed with soap and water, or use waterless hand cleaner, to remove any used engine oil. Do not use gasoline, thinners, or solvents.

GEAR LUBRICANTS

The SAE grade number also indicates the viscosity of Multi-purpose Gear Lubricants.

The API classification system defines gear lubricants in terms of usage. Typically gear lubricants conforming to API GL-4 or GL-5 with a viscosity of SAE 75W-85W are recommended for manual transaxle.

LUBRICANTS – GREASES

Semi-solid lubricants bear the NLGI designation and are further classified as grades 0, 1, 2; 3 etc. Whenever "Chassis Lubricant" is specified, Multi-purpose Grease, NLGI grade 2, should be used.

FUEL USAGE STATEMENT

Your car must use unleaded gasoline only.

This car has a fuel filler tube especially designed to accept only the smaller-diameter unleaded gasoline dispensing nozzle.

Caution

Using leaded gasoline in your car will damage the catalytic converter and oxygen sensor, and affect the warranty coverage validity.

Your car is designed to operate on premium unleaded gasoline having a minimum octane rating of 91 or 95 RON (Research Octane Number).

If premium unleaded gasoline is not available, unleaded gasoline having a octane rating of 87, or 91 RON (Research Octane Number) may be used. In this case, the performance and fuel consumption will suffer a little degradation.

Gasolines Containing Alcohol

Some gasolines sold at service stations contain alcohol, although they may not be so identified.

Use of fuels containing alcohol is not recommended unless the nature of the blend can be determined as being satisfactory.

Gasohol – A mixture of 10% ethanol (grain alcohol) and 90% unleaded gasoline may be used in your car.

If **driveability** problems are experienced as a result of using gasohol, it is recommended that the car be operated on gasoline.

Methanol – **Do not use gasolines containing methanol** (wood alcohol). Use of this type of alcohol can result in vehicle performance deterioration and damage critical parts in the fuel system components. Fuel system damage and performance problems, resulting from the use of gasolines containing methanol, may not be covered by the new car warranty.

Gasolines containing **MTBE (Methyl Tertiary Butyl Ether)**

Unleaded gasoline containing 15% or **less MTBE** may be used in **your** car. Fuel containing MTBE over 15% vol. may cause reduced engine performance and produce vapor lock or hard starting.

MATERIALS ADDED TO FUEL

Indiscriminate use of fuel system 'cleaning' **agents** should be avoided. Many of these materials intended for gum and varnish removal **may contain** highly active solvents or similar ingredients that can be harmful to gasket and diaphragm materials used in fuel system component **parts**.

RECOMMENDED LUBRICANTS AND LUBRICANT CAPACITIES TABLE

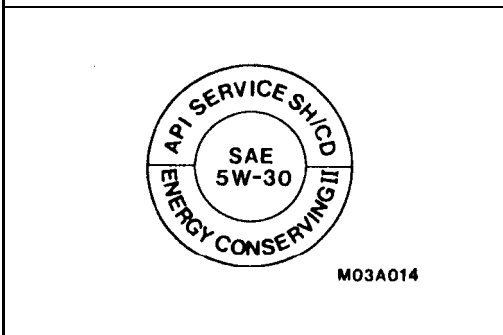
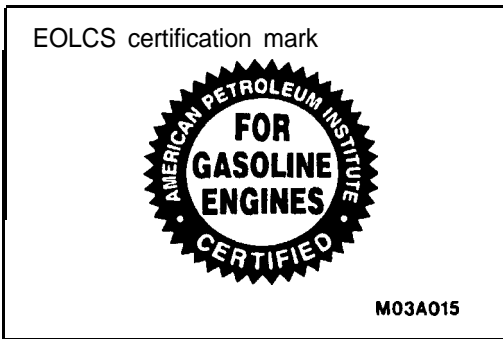
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RECOMMENDED LUBRICANTS

Items	Recommended lubricants	
Engine	Engine oil displaying EOLCS certification mark or conforming to the API classification SH ECII or SH/CD ECII (For further details, refer to "LUBRICANTS SELECTION" section)	
Manual transaxle	2.0L Engine (Non-turbo)	TEXACO MTX FLUID FM
	2.0L Engine (Turbo) and 2.4L Engine	API classification GL-4 , SAE 75W-90 or 75W-85W
Automatic transaxle	DIAMOND ATF SP II or equivalent	
Transfer <AWD>	API classification GL-4 , SAE 75W-90 or 75W-85W	
Differential (rear axle)	API classification GL-5 or higher Above -23°C (-10°F) : SAE 90, 85W-90, 80W-90 From -34°C (-30°F) to -23°C (-10°F) : SAE 80W, 80W-90 Below -34°C (-30°F) : SAE 75W	
Power steering	Automatic transmission fluid "DEXRON II "	
Brake and clutch	Conforming to DOT3 or DOT4	
Engine coolant	DIA-QUEEN LONG-LIFE COOLANT (Part No. 0103044) or High quality ethylene-glycol antifreeze coolant	

LUBRICANT CAPACITIES

Description		Metric measure	U.S. measure	
Engine oil	Crankcase (excluding oil filter)	2.0L Engine (Non-turbo)	3.8 dm ³	4 qts.
		2.0L Engine (Turbo) and 2.4L Engine	4.0 dm ³	4.2 qts.
	Oil filter	2.0L Engine (Non-turbo)	0.5 dm ³	.53 qt.
		2.0L Engine (Turbo) and 2.4L Engine	0.3 dm ³	.32 qt.
Oil cooler <2.0L Engine (Turbo)>		0.1 dm ³	.11 qt.	
Cooling system (including heater and engine coolant reserve system)		7.0 dm ³	7.4 qts.	
Manual transaxle	FWD	2.0 dm ³	2.1 qts.	
	AWD	2.3 dm ³	2.4 qts.	
Automatic transaxle	2.0L Engine (Non-turbo)	8.6 dm ³	9.1 qts.	
	2.0L Engine (Turbo)	6.7 dm ³	7.1 qts.	
	2.4L Engine	6.1 dm ³	6.4 qts.	
Transfer <AWD>		0.5 dm ³	.53 qt.	
Differential (rear axle)		0.85 dm ³	.9 qt.	
Power steering		0.9 dm ³	.95 qt.	
Fuel tank		64 dm ³	17.0 gals.	



**LUBRICANTS SELECTION
ENGINE OIL**

Caution

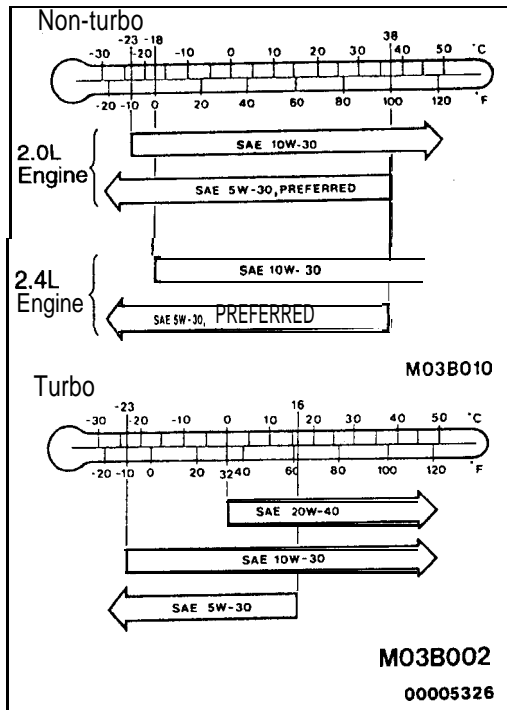
Never use non-detergent or straight mineral oil.

Oil Identification Symbol

Use only engine oils displaying the EOLCS certification mark on the container.

If these oils are not available, an API classification SH ECII or SH/CDECII can be used.

00-36 GENERAL – Recommended Lubricants and Lubricant Capacities Table



Oil Viscosity

The SAE grade number indicates the viscosity of the oil. A proper SAE grade number should be selected according to ambient temperature.

NOTE

- SAE 5W-30 may be used for operation in very cold weather areas where the lowest ambient temperature is below -10°F (-23°C).

COOLANT SELECTION

COOLANT

Relation between Antifreeze Concentration and Specific Gravity

Engine coolant temperature $^{\circ}\text{C}$ ($^{\circ}\text{F}$) and specific gravity					Freezing temperature $^{\circ}\text{C}$ ($^{\circ}\text{F}$)	Safe operating temperature $^{\circ}\text{C}$ ($^{\circ}\text{F}$)	Engine coolant concentration (Specific volume)
10 (50)	20 (68)	30 (86)	40 (104)	50 (122)			
1.054	1.050	1.046	1.042	1.036	-16 (3.2)	-11 (12.2)	30%
1.063	1.058	1.054	1.049	1.044	-20 (-4)	-15 (5)	35%
1.071	1.067	1.062	1.057	1.052	-25 (-13)	-20 (-4)	40%
1.079	1.074	1.069	1.064	1.058	-30 (-13)	-25 (-13)	45%
1.087	1.082	1.076	1.070	1.064	-36 (-32.8)	-31 (-23.8)	50%
1.095	1.090	1.084	1.077	1.070	-42 (-44)	-37 (-35)	55%
1.103	1.098	1.092	1.084	1.076	-50 (-58)	-45 (-49)	60%

Example

The safe operating temperature is -15°C (5°F) when the measured specific gravity is 1.058 at the coolant temperature of 20°C (68°F).

Caution

- If the concentration of the coolant is below 30%, the anti-corrosion property, will be adversely affected. In addition, if the concentration is above 60%, both the anti-freeze and engine cooling properties will decrease, affecting the engine adversely. For these reasons, be sure to maintain the concentration level within the specified range.
- Do not use a mixture of different brands of anti-freeze.

SCHEDULED MAINTENANCE TABLE

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SCHEDULED MAINTENANCE SERVICES FOR EMISSION CONTROL AND PROPER VEHICLE PERFORMANCE

Inspection and services should be performed any time a malfunction is observed or suspected. Retain receipts for all vehicle emission services to protect your emission warranty.

No.	Emission control system maintenance	Service to be performed	Kilometers in thousands							
			24	48	72	96	120	144	168	
			Mileage in thousands							
			15	30	45	60	75	90	105	
1	Fuel system (Tank, pipe line and connection, and fuel tank filler tube cap)	Check for leaks Every 5 years or				x				
2	Fuel hoses	Check condition Every 2 years or		x		x		x		
3	Air cleaner element	Replace at		x		x		x		
4	Evaporative emission control system (except evaporative emission canister)	Check for leaks and clogging Every 5 years or				x				
5	Spark plugs	Replace at		x		x		x		
6	Ignition cables	Replace Every 5 years or				x				

GENERAL MAINTENANCE SERVICE FOR PROPER VEHICLE PERFORMANCE

No.	General maintenance	Service to be performed	Kilometers in thousands							
			24	48	72	96	120	144	168	
			Mileage in thousands							
			15	30	45	60	75	90	105	
7	Timing belts	Replace at				x*			180,000 km ^{*2} (100,000 miles)	
8	Drive belt (for generator, water pump, power steering pump)	Check condition at		x		x		x		
9	Engine oil	Non-turbo	Change Every 6 months or				Every 12,000 km (7,500 miles)			
		Turbo					Every 8,000 km (5,000 miles)			
10	Engine oil filter	Non-turbo	Replace Every Year ^{*3} or	x	x	x	x	x	x	x
		Turbo	Replace Every Year or	Every 16,000 km (10,000 miles)						
11	Manual transaxle oil	Check oil level at		x		x		x		
12	Automatic transaxle fluid	Check fluid level Every year or	x	x	x	x	x	x	x	
13	Transfer oil	Check oil level at		x		x		x		
14	Engine coolant	Change Every 2 years or		x		x		x		
15	Disc brake pads	Check for wear Every year or	x	x	x	x	x	x	x	
16	Rear drum brake linings and rear wheel cylinders (vehicles without disc brakes for all wheels)	Check for wear and leaks Every 2 years or		x		x		x		
17	Brake hoses	Check for deterioration or leaks Every year or	x	x	x	x	x	x	x	
18	Ball joint and steering linkage seals	Check for grease leaks and damage Every 2 years or		x		x		x		
19	Drive shaft boots	Check for grease leaks and damage Every year or	x	x	x	x	x	x	x	
20	Rear axle oil	Check oil level at		x		x		x		
21	SRS ^{*4} system	Check system	At 10 years							
22	Exhaust system (connection portion of muffler, pipings and converter heat shields)	Check and service as required Every 2 years or		x		x		x		

NOTES

- *1: For California, this maintenance is recommended but not required
- *2: Not required if belt was previously changed.
- *3: If the mileage is less than 12,000 km (7,500 miles) each year, the oil filter should be replaced at every oil change.
- *4: Supplemental Restraint system

SCHEDULED MAINTENANCE UNDER SEVERE USAGE CONDITIONS

The maintenance items should be performed according to the following table:

No.	Maintenance item	Service to be performed	Kilometers in thousands								Severe usage conditions
			24	48	72	96	120	144	168		
			Mileage in Thousands								
			15	30	45	60	75	90	105		
3	Air cleaner element	Replace	x	x	x	x	x	x	x	A and E	
5	Spark plugs	Replace	x	x	x	x	x	x	x	B and D	
9	Engine oil	Change Every 3 months or	Every 4,800 km (3,000 miles)								A, B, C, D and G
10	Engine oil filter	Replace Every 6 months or	Every 9,600 km (6,000 miles)								A, B, C, D and G
11	Manual transaxle oil	Change oil* ¹		x		x		x		B, G and H	
12	Automatic transaxle fluid	Change fluid		x		x		x		B, G and H	
13	Transfer oil	Change oil		x		x		x		B, G and H	
15	Disc brake pads	Check for wear Every 6 months or	Every 9,600km (6,000 miles)								A and F
16	Rear drum brake linings and rear wheel cylinders (vehicles without disc brakes for all wheels)	Check for wear and leaks Every 12 months or	Every 24,000km (15,000 miles)								A and F

*1: Vehicles with turbocharger.

Severe usage conditions

- A – Driving in dusty conditions
- B – Trailer towing or police, taxi, or commercial type operation
- C – Extensive idling, driving in stop and go traffic
- D – Short-trip operation at freezing temperatures (engine not thoroughly warmed up)

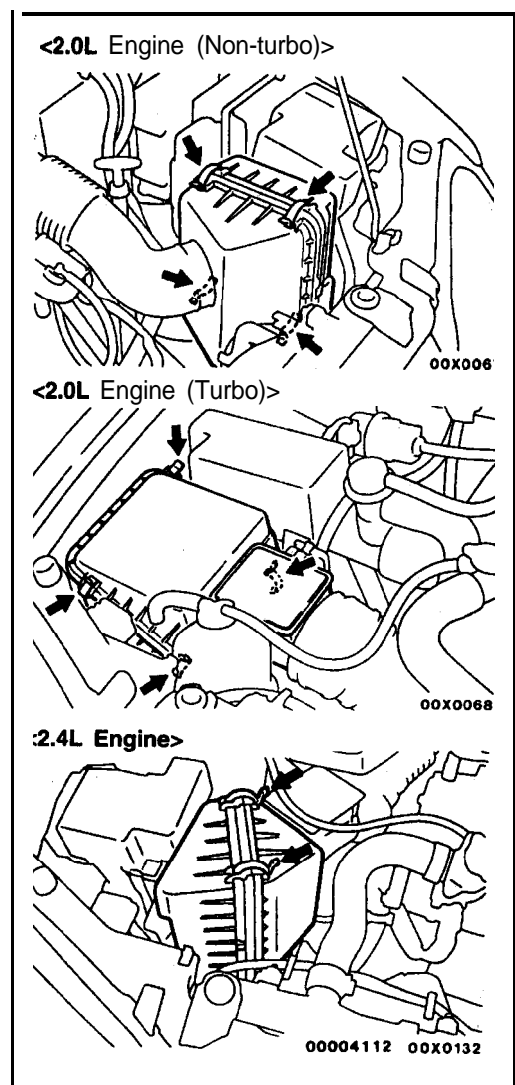
- E – Driving in sandy areas
- F – Driving in salty areas
- G – More than 50% operation in **heavy city** traffic or at sustained high speeds during hot weather above **32°C (90°F)**
- H – Driving on off-road

MAINTENANCE SERVICE

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1. FUEL SYSTEM (Tank, Pipe Lines, Connections and Fuel Tank Filler Tube Cap) (Check for leaks)/2. FUEL HOSES (Check condition)

1. Check for damage or leakage in the 'fuel lines,' and connections and looseness of the fuel tank filler tube cap.
2. **Check** the surface of fuel hoses for heat and **mechanical** damage. Hard and brittle rubber, cracking, **checking, tears, cuts, abrasions** and excessive swelling **indicate** deterioration of the rubber.
3. If the fabric casing of the rubber **hose** is exposed' by cracks and abrasions in the fuel **system**, the **hoses should** be changed.



3. AIR CLEANER ELEMENT (Replace) 00100180058

The air cleaner element **will** become dirty and loaded with dust during use, and the filtering effect will be **substantially** reduced.

Replace it with a new one.

- (1) Unclamp the air cleaner cover.
- (2) Take out the air cleaner element, install a new one.
- (3) Be sure when clamping the air cleaner cover in place that the cover is completely closed.

4. EVAPORATIVE EMISSION CONTROL SYSTEM (Check for leaks and clogging) – except evaporative emission canister 00100190051

1. If the fuel-vapor vent line is clogged or damaged, a fuel vapor mixture escapes into the atmosphere causing excessive emissions. Disconnect the line at both ends, and blow it clean with compressed air. Remove the fuel tank filler tube cap from the fuel tank filler tube and check to see if there is evidence that the packing makes improper contact to the fuel tank filler tube.
2. The fuel tank pressure control valve installed on the vapor line should be checked for correct operation.

5. SPARK PLUGS (Replace)

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- Spark plugs must spark properly to assure proper engine performance and reduce exhaust emission level. Therefore, they should be replaced periodically with new ones.
- The new plugs should be checked for the proper gap.

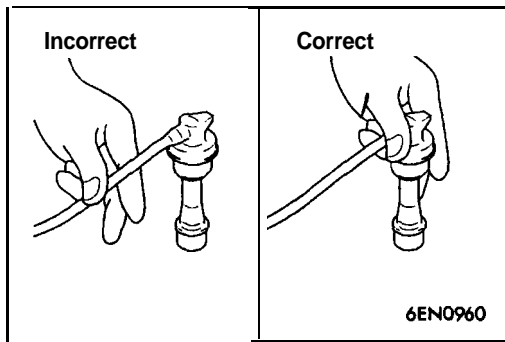
Spark plug gap:

- <2.0L Engine (Turbo)>
0.7–0.8 mm (.028–.030 in.)
- <2.0L Engine (Non-turbo)>
1.22–1.35 mm (.048–.053 in.)
- <2.4L Engine>
1.0–1.1 mm (.039–.043 in.)

- Install the spark plug and tighten to the specified.

Tightening torque:

- <2.0L Engine (Turbo) and 2.4L Engine>
25 Nm (18 ft.lbs.)
- <2.0L Engine (Non-turbo)>
28 Nm (20 ft.lbs.)

**6. IGNITION CABLES (Replace)**

00100210054

The ignition cables should be replaced periodically with new ones. After replacing, make sure that the ignition cables are routed properly and fully seated.

NOTE

When disconnecting an ignition cable; be sure to hold the cable boot. If the cable is disconnected by pulling on the cable alone, an open circuit might result.

7. TIMING BELT (Replace)

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Replace the belt with a new one periodically to assure proper engine performance.

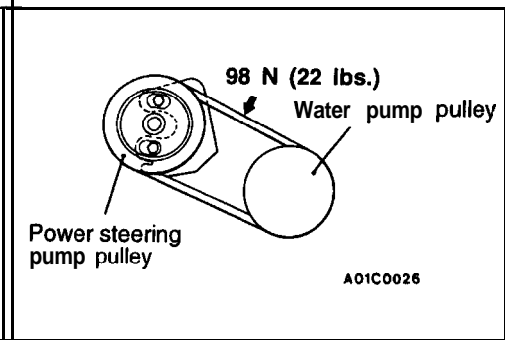
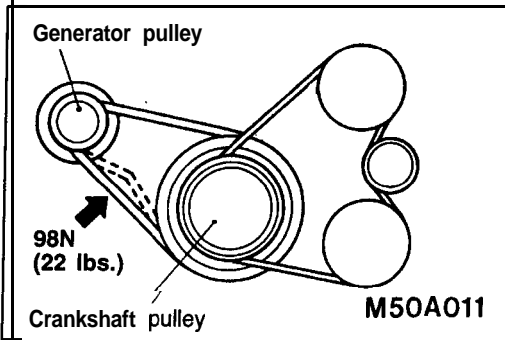
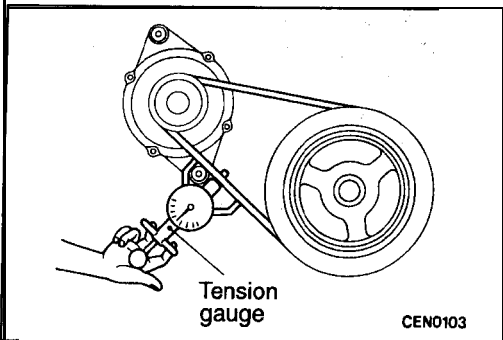
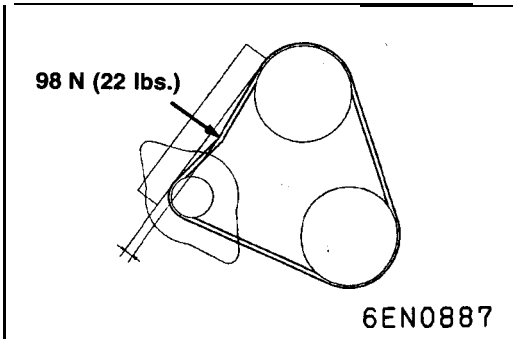
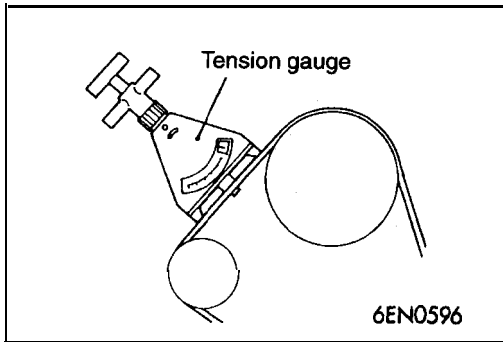
For disassembly and assembly procedures;

- Refer to GROUP 11A – Timing Belt.
- Refer to GROUP 11C – Timing Belt.
- Refer to GROUP 11E – Timing Belt.

8. DRIVE BELT (For Generator, Water Pump, Power Steering Pump) (Check condition)

00100250070

Check the tension of the drive belt. Check the drive belt for evidence of cuts and cracks, and replace it if defective.



GENERATOR AND WATER PUMP DRIVE BELT TENSION CHECK

<2.0L Engine (Turbo) and 2.4L Engine>

Check the belt tension with the tension gauge, or check the belt deflection by pressing the middle point of the belt by a force of 98 N (22 lbs.).

Standard value:

Tension N (lbs.)	245 – 490 (55.1 – 110.2)
Deflection mm (in.) <Reference value>	9.0 – 11.5 (.35 – .45)

<2.0L Engine (Non-turbo)>

Check the belt tension with the tension gauge at the middle point of the belt, or check the belt deflection by pressing the belt point by a force of 98 N (22 lbs.).

Standard value:

Tension N (lbs.)	400 – 490 (90 – 110) --
Deflection mm (in.) <Reference value>	9.0 – 12.0 (.35 – .47)

POWER STEERING PUMP DRIVE BELT TENSION CHECK

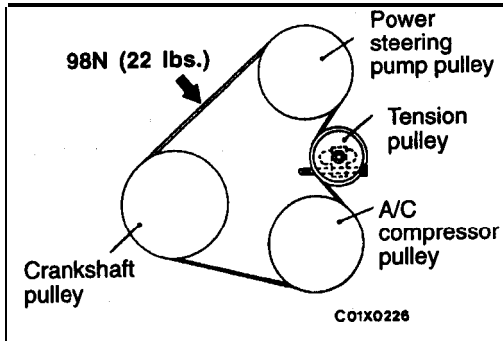
<2.0L Engine (Turbo) and 2.4L Engine>

1. Pull or push at the mid point of the belt with a force of 98 N (22 lbs.) to measure drive belt deflection.

Standard value: 5.5–8.0 mm (.22–.32 in.)

2. Use a tension gauge to measure belt tension.

Standard value: 245–490 N (55.1–110.2 lbs.)

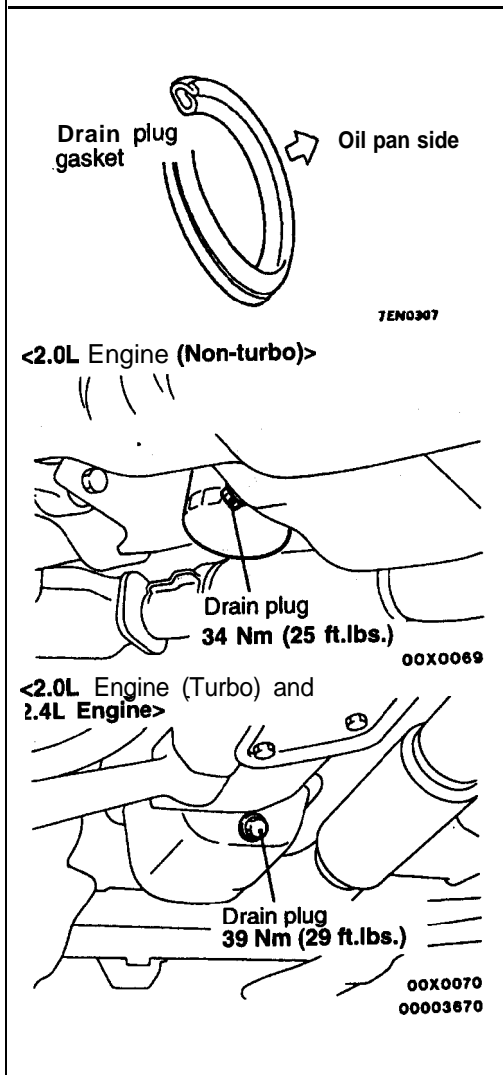
**<2.0L Engine (Non-turbo)>**

1. Pull or push at the mid point of the belt with a force of 98 N (22 lbs.) to measure drive belt deflection.

Standard value: 10.0–11.0 mm (.39–.43 in.)

2. Use a tension **gauge** to measure belt **tension**.

Standard value: 412–510 N (92.6–114.6 lbs.)

**9. ENGINE OIL (Change)**

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Use the specified oil. (Refer to P.00-34.)

Caution

Never use nondetergent or straight mineral oil.

1. After warming up the engine, remove the oil filler cap.
2. Remove the drain plug to allow the engine oil to drain.
3. Replace the drain plug gasket with a new one and tighten, the drain plug.
4. Supply new engine oil through the oil filler.

Engine oil total quantity:

[including oil filter and oil cooler]

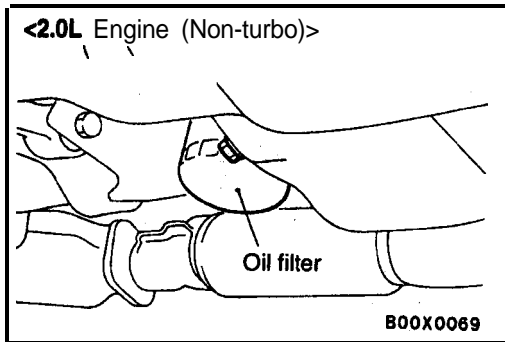
<2.0L Engine (Non-turbo) and 2.4L Engine>

4.3 dm³ (4 1/2 qts.)

<2.0L Engine (Turbo)>

4.4 dm³ (4.6 qts.)

5. Start and run the engine a few **minutes**.
6. Stop the engine and check the **engine oil** level is within the level range indicated on the oil dipstick.



10. ENGINE OIL FILTER (Replace)

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The quality of replacement filters varies considerably. **Only** high quality filters should be used to assure **most** efficient service.

Genuine oil filters are capable of **withstanding** a pressure, of 1,765 kPa (256 psi). These high quality filters are highly recommended. The followings part are available as follows.

Oil Filter Part No.

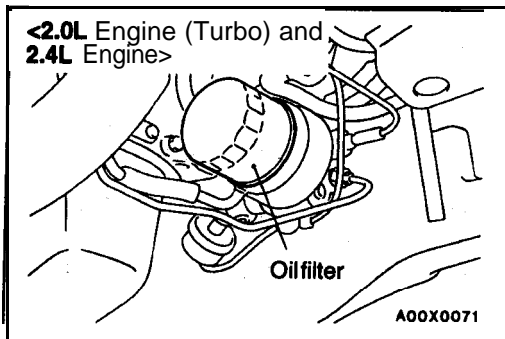
<2.0L Engine (Turbo) and 2.4L Engine>

Mitsubishi Genuine Parts:

MD1 35737, MD1 36466, MD325714 or equivalent

<2.0L Engine (Non-turbo)>

Chrysler Genuine Parts: **M05281090 or equivalent**



ENGINE OIL FILTER SELECTION

This vehicle is equipped with a **full-flow, throw-away** oil filter. The same type of replacement filter is recommended **as** a replacement filter for this vehicle. It is possible, **particularly** in cold weather, that this vehicle may develop high **oil pressure** for a short duration. You should be sure that **any** replacement filter used on this vehicle is a high-quality filter and is **capable** of withstanding a pressure of 1,765, **kPa (256 psi)** (manufacturer's specifications) to avoid filter and engine damage.

The following is a high-quality filter and is strongly recommended for use on this vehicle.

<2.0L Engine (Turbo) and 2.4L Engine>

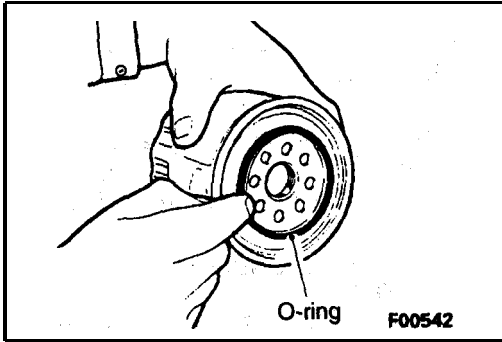
Mitsubishi Engine Oil Filter Part No; **MD135737, MD136466** or **MD325714**

<2.0L Engine (Non-turbo)>

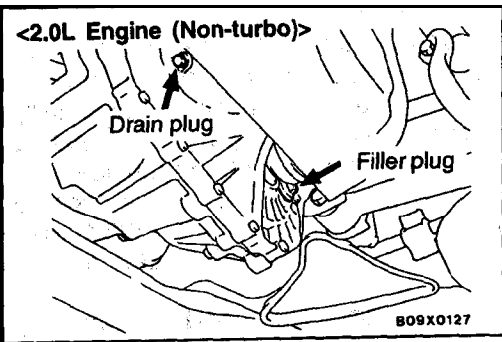
Chrysler Engine Oil Filter Part No. **M05281090**

Any replacement oil filter should be installed **in accordance** with the oil filter manufacturer's installation **instructions**.

- (1) Remove the engine oil filler cap.
- (2) Remove the engine oil drain plug, **and drain out the engine** oil.
- (3) Remove the engine oil filter by using the oil filter **wrench**.
- (4) Clean the oil filter mounting surface of the oil filter bracket.



- (5) Coat engine oil to the O-ring of new oil filter.
- (6) Screw on the oil filter by hand until it touches the surface of the flange and then tighten it with the filter wrench: etc.
 - <2.0L Engine (Turbo) and 2.4L Engine>
 - For MD135737: One full turn or 14 Nm (10 ft.lbs.)
 - For MD136466, MD325714: 3/4 turn or 17 Nm (12 ft.lbs.)
 - <2.0L Engine (Non-turbo)>
 - For M05281090: 3/4 turn or 21 Nm (15 ft.lbs.)
- (7) Add new engine oil through the oil filter...
- (8) Start and run engine and check for engine oil leaks.
- (9) After stopping engine, check oil level and replenish as necessary.



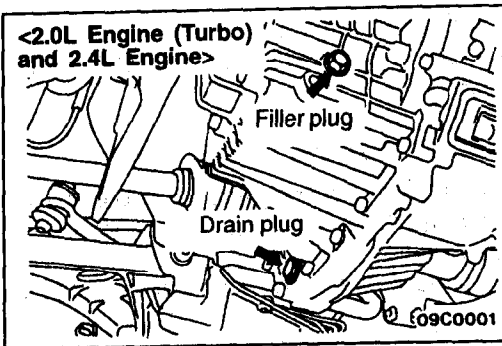
11. MANUAL TRANSAXLE OIL

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(Check oil level)

Check each component for evidence of leakage, and check the oil level by removing the filler plug. If the oil is contaminated, it is necessary to replace it with new oil.

1. With the vehicle parked at a level place, remove the filler plug and check that the oil level.
2. The level must be up to the lower edge of the filler plug hole.
3. Check that the transaxle oil is not noticeably dirty, and that it has a suitable viscosity.



(Change oil)

1. Remove transaxle drain plug.
2. Drain oil.
3. Tighten drain plug to specified torque.

Specified torque:

- <2.0L Engine (Non-turbo)> 30 Nm (22 ft.lbs.)
- <2.0L Engine (Turbo) and 2.4L Engine> 32 Nm (24 ft.lbs.)

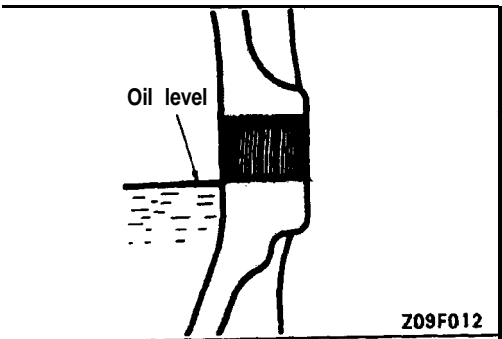
4. Remove filler plug and fill with specified oil till the level comes to the lower portion of filler plug hole.

Specified oil:

- <2.0L Engine (Non-turbo)>
TEXACO MTX FLUID FM
- <2.0L Engine (Turbo) and 2.4L Engine>
API classification GL-4, S A E 75W-90 or 75W-85W

Quantity:

- <FWD> 2.0 dm³ (2.1 qts.)
- <AWD> 2.3 dm³ (2.4 qts.)



5. Tighten filler plug to specified torque.

Specified torque:

- <2.0L Engine (Non-turbo)> 30 Nm (22 ft.lbs.)
- <2.0L Engine (Turbo) and 2.4L Engine>
32 Nm (24 ft.lbs.)

12. AUTOMATIC TRANSAXLE FLUID

00100290133

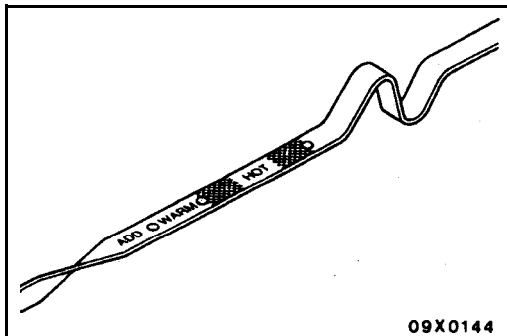
(Check 'fluid level)

<2.0L Engine (Non-turbo)>

1. Position the vehicle on a level surface.
2. Start engine and allow to idle in PARK for at least 60 seconds. The warmer the transaxle fluid, the more accurate the reading.
3. While sitting in driver seat, apply brakes and place gear selector in each position. Return gear selector to PARK.
4. Raise hood and remove transaxle fluid level indicator (dipstick) and wipe clean with a suitable shop towel.
5. **Install** dipstick and verify it is seated in fill tube.

Caution

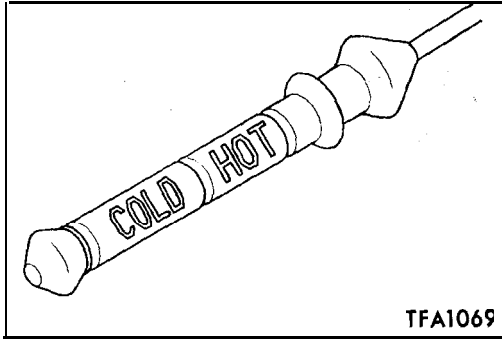
Do not overfill automatic transaxle, leakage or damage can result.



6. Remove dipstick, with handle above tip, take fluid level reading. If the vehicle has been driven for at least 15 minutes before inspecting fluid **level**, transaxle can be considered hot and reading should be above the WARM mark. If vehicle has run for less than 15 minutes and more than 60 seconds, transaxle can be considered warm and reading should be above ADD mark. Add fluid only if level is below ADD mark on dipstick when transaxle is warm.

<2.0L Engine (Turbo) and 2.4L Engine>

1. Drive until the fluid temperature reaches the usual temperature [70–80°C (158–176°F)]
2. Place vehicle on level floor.
3. Move selector lever sequentially to every position to fill torque converter and hydraulic circuit with fluid, then place lever, in "N" Neutral position. This operation is necessary to be sure that fluid level check is accurate.



4. Before removing dipstick, wipe all dirt from area around dipstick. Then take out the dipstick and check the condition of the fluid.

Further investigation of the transaxle is necessary if,

- the fluid smells burnt.
- the fluid color is brown or black.
- metal particles can be seen or felt on the dipstick.

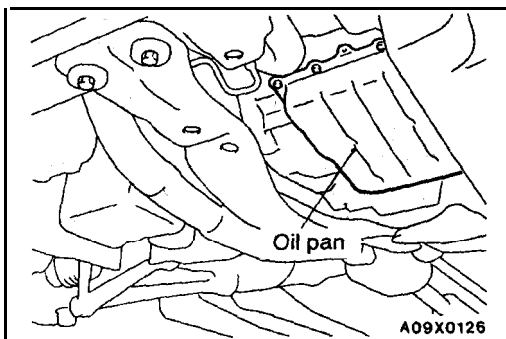
5. Check to see if fluid level is in "HOT" range on dipstick. If fluid level is low, add ATF until level reaches "HOT" range. Low fluid level can cause a variety of conditions because it allows pump to take in air along with fluid. Air trapped in hydraulic circuit forms bubbles which make fluid spongy.

Therefore, pressures will be erratic.

Improper filling can also raise fluid level too high. When transaxle has too much fluid, gears churn up foam and cause same conditions which occur with low fluid level, resulting in accelerated deterioration of ATF.

In either case, air bubbles can cause overheating, fluid-oxidation, which can interfere with normal valve, clutch, and servo operation. Foaming can also result in fluid escaping from transaxle vent where it may be mistaken for a leak.

6. Be sure to examine fluid on dipstick closely.



(Change fluid)

<2.0L Engine (Non-turbo)>

1. Place a drain container with a large opening, under the transaxle oil pan.
2. Loosen the pan bolts and tap the pan at one corner to break it loose allowing fluid to drain, then remove the oil pan.
3. Install a new filter and O-ring on bottom of the valve body.

4. Clean the oil pan and magnet.
Apply the specified sealant to the oil pan.

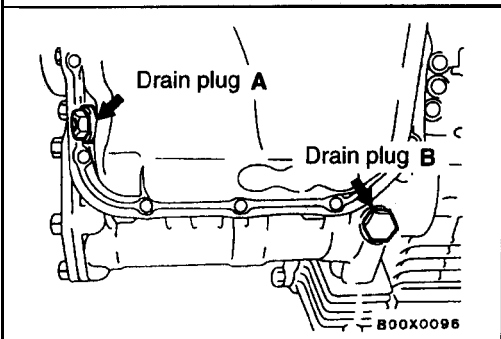
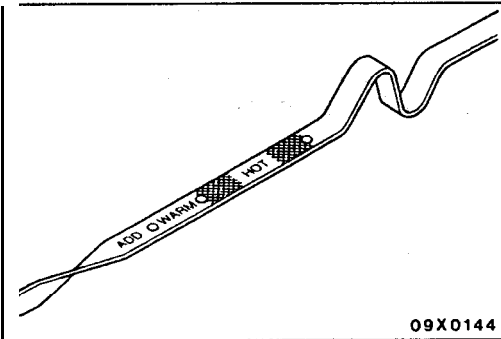
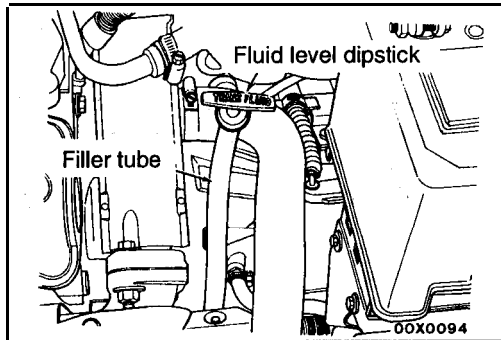
Specified sealant:

Loctite 18718 or equivalent

Tighten the oil pan mounting bolts to the specified torque:

Tightening torque:

19 Nm (14 ft.lbs.)



5. Add 3.8 dm³ (4.0 qts.) of the specified transmission fluid through the filler tube.

Specified fluid:

DIAMOND ATF SP II or equivalent

6. Start the engine and allow it to run at idle for at least one minute. Then, with parking and service brake applied, move the selector lever momentarily to each position, ending in the park or neutral position.
7. Add sufficient fluid to bring level to 1/8 inch below the ADD mark.
8. Recheck fluid level after transaxle is at normal operating temperature. The level should be in the HOT region.

<2.0L Engine (Turbo) and 2.4L Engine>

Drain the fluid and check whether there is any evidence of contamination.

Refill with new fluid after the cause of any contamination has been corrected.

1. Remove drain plugs to let fluid drain.
2. Remove the oil pan.
3. Check the oil filter for clogging and damage and replace if necessary.
4. Clean the inside of oil pan and magnets.
5. Attach the magnets to the concave part of the oil pan.
6. Clean both gasket surfaces of transaxle case and oil pan.
7. Install oil pan with new gasket and tighten oil pan bolts.
Oil pan bolt: 11 Nm (8.0 ft.lbs.)
8. Tighten drain plug with gasket to specified torque.

Specified torque:

<2.0L Engine (Turbo)>

(A) 39 Nm (29 ft.lbs.)

(B) 29-34 Nm (22-25 ft.lbs.)

<2.4L Engine>

(A) 39 Nm (29 ft.lbs.)

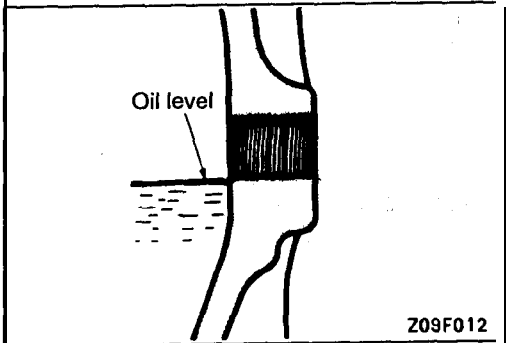
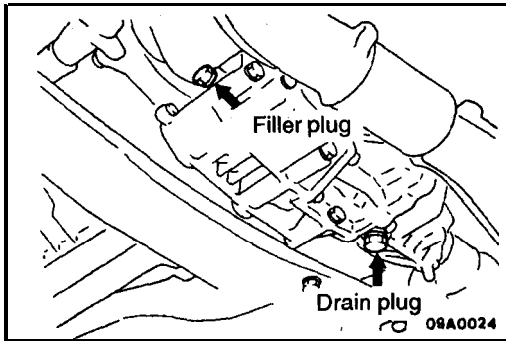
(B) 39 Nm (29 ft.lbs.)

9. Fill new ATF up to the COLD mark on the dipstick.

Transmission fluid:

DIAMOND ATF SP II or equivalent

10. Start engine and allow to idle for at least two minutes. Then, with parking brake on, move selector lever momentarily to each position, ending in "N" Neutral position.
11. Check if ATF is filled up to the HOT mark on the dipstick.



13. TRANSFER OIL

00100630010

(Check oil level)

Check each component for evidence of leakage, and check the oil level by removing the filler plug. If the oil is contaminated, it is necessary to replace it with new oil.

1. With the vehicle parked at a level place, remove the filler plug.
2. Check that the transfer oil level is at the **lower** portion of the filler plug hole.
3. Check to be sure that the transfer oil is not noticeably dirty, and that it has a suitable viscosity.

(Change oil)

1. Remove transfer drain plug.
2. Drain oil.
3. Tighten drain plug to specified torque.
4. Remove filler plug and fill with specified oil till the level comes to the lower portion of filler-plug hole.

Specified torque: 32 Nm (24 ft.lbs.)

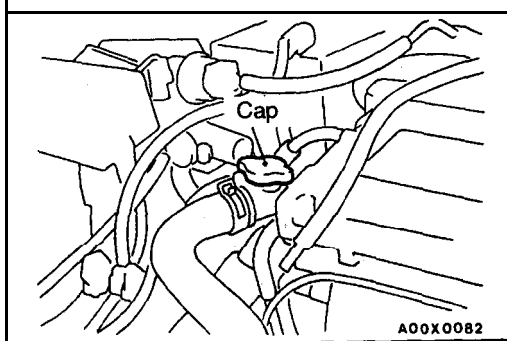
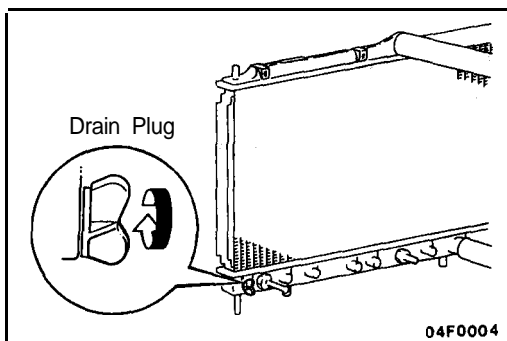
Specified oil:

API classification GL-4, SAE 75W-90 or 75W-85W

Quantity: 0.5 dm³ (.53 qt.)

5. Tighten filler plug to specified torque.

Specified torque: 32 Nm (24 ft.lbs.)



14. ENGINE COOLANT (Change)

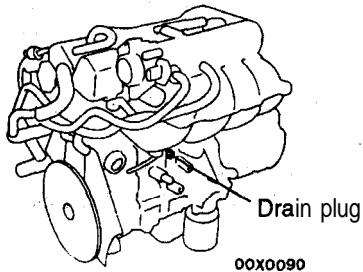
00100310075

Check the cooling system parts, such as radiator, heater, and oil cooler hoses, thermostat and connections for leakage and damage.

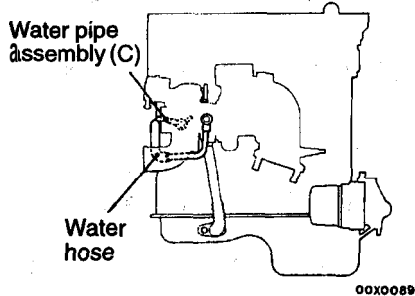
CHANGING COOLANT

1. Drain the engine coolant by removing the drain plug and then the cap.

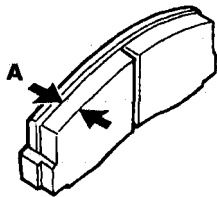
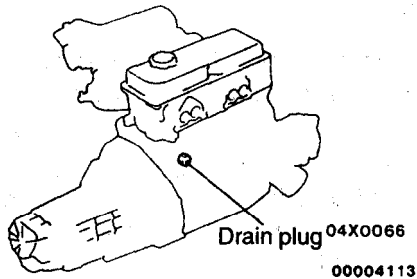
<2.0L Engine (Non-turbo)>



<2.0L Engine (Turbo)>



<2.4L Engine>



2. For non-turbo, remove the 'drain plug from the cylinder block to drain engine coolant.
For turbo, remove the water hose from the water pipe assembly (C) to do so.
3. Remove the reserve tank to drain the engine coolant.
4. When the engine coolant has drained, pour in water from the cap to clean the engine coolant line.
5. For non-turbo, install the drain plug to the cylinder block. For turbo, install the water hose to the water pipe assembly (C).
6. Securely tighten the radiator drain plug.
7. Install the reserve tank.
8. Slowly pour the engine coolant into the mouth of the radiator until the radiator is full, and pour also into the reserve tank up to the FULL line.

Recommended antifreeze:

**DIA-QUEEN LONG-LIFE COOLANT (Part No. 0103044)
or high quality ethylene-glycol antifreeze coolant)**

Quantity 7.0 dm³ (7.4 qts.)

9. Install the cap securely.
10. Start the engine and warm the engine until the thermostat opens. (Touch the radiator hose with your hand to check that warm water is flowing.)
11. After the thermostat opens, race the engine at 3,000 r/min 3 times.
12. After the engine is stopped, wait until the engine has cooled down, and then remove the cap to check the level of the liquid. If the level is low, repeat the operation from step 9.
Lastly, if the level does not drop, fill the condense tank with coolant up to the FULL line.

15. DISC BRAKE PADS (Check for wear) 00100320054

Check for fluid contamination and wear. Replace complete set of pads if defective.

Caution

The pads for the right and left wheels should be replaced at the same time. Never "split" or intermix brake pad sets.

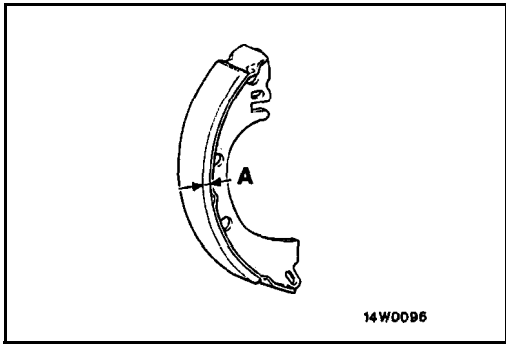
All four pads must be replaced as a complete set.

Thickness of lining (A)

Limit: 2.0 mm (.08 in.)

16. REAR DRUM BRAKE LININGS AND REAR WHEEL CYLINDERS (Check for wear and leaks) 00100330040

1. Remove the brake drum and check the thickness of brake shoe lining for wear. Check the automatic brake adjusting system by hand to see if it operates smoothly. Also see if the gears are in proper mesh with each other. To assure smooth operation, apply a very thin coat of multipurpose grease to the friction surface of adjuster and link shaft.



2. Check the wheel cylinder boots for evidence, of a brake fluid leak. Visually check the boots for **cuts**, tears or **heat** cracks. (A slight amount of fluid on the boot may not be a leak, but may be preservative **fluid used at assembly**.)

Caution

The shoes for the right and left wheels should be replaced at the same time.

Never split or intermix brake shoe sets.

All four shoes must be replaced as a complete set.

Thickness of lining (A)

Limit: 1.0 mm (.04 in.)

17. BRAKE HOSES (Check for deterioration or leaks)

00100340043

Check of brake hoses and tubing should be included in all brake service operations.

The hoses should be checked for:

1. Correct length, severe surface cracking, pulling, scuffing or worn spots. (If the fabric casing of the hoses is exposed by cracks or abrasion in the rubber hose cover, the hoses should be replaced. Eventual deterioration of hose may occur with possible bursting failure.)
2. Faulty installation, casing twisting or interference with wheel, tire or chassis.

18. BALL JOINT AND STEERING LINKAGE SEALS (Check for grease leaks and damage)

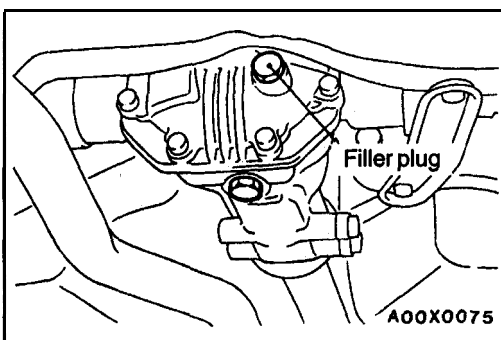
00100350046

1. These components, which are permanently lubricated at the factory, do not require periodic lubrication. Damaged seals and boots should be replaced to prevent leakage or contamination of the grease.
2. Check the dust cover and boots for proper sealing, leakage and damage. Replace them if defective.

19. DRIVE SHAFT BOOTS (Check for grease leaks and damage)

00100360049

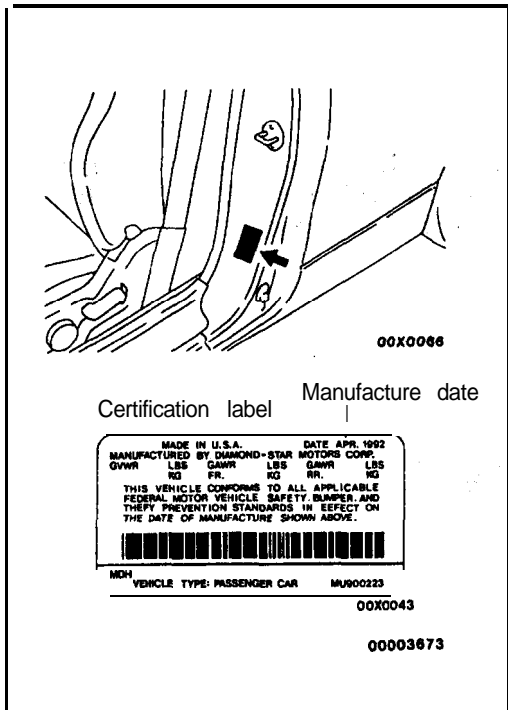
1. These components, which are permanently lubricated at the factory, do not require periodic lubrication. Damaged boots should be replaced to prevent leakage or contamination of the grease.
2. Check the boots for proper sealing, leakage and damage. Replace it if defective.



20. REAR AXLE OIL (Check oil level)-AWD

00100750013

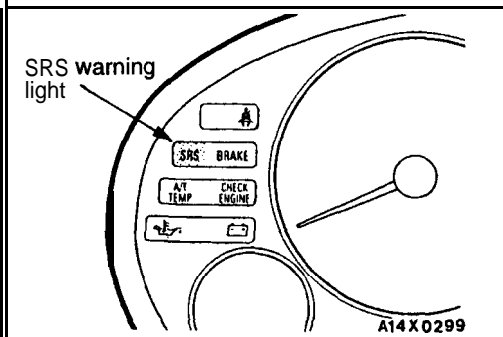
Remove the filler plug and check the oil level at bottom of filler hole. If the oil level is slightly below the filler hole, it is in satisfactory condition.



21 .SRS SYSTEM (SRS component check: damage, function, connection to wiring, harness, etc.)

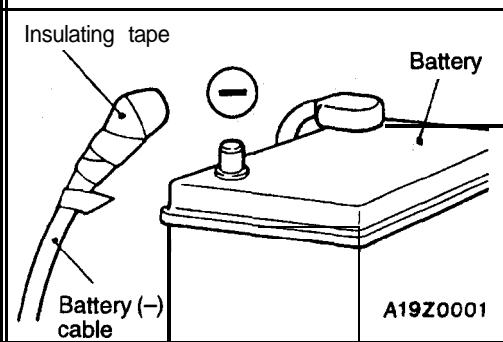
00100370066

The SRS must be inspected by an **authorized dealer** 10 years after the **car** manufacture date **shown on** the certification label located on left center pillar.



“SRS” WARNING LIGHT CHECK

Turn the ignition key to the “ON” position. **Does** the “SRS” warning light illuminate for about 7 seconds, turn “OFF” and then remain extinguished for at least 45 seconds? If yes, SRS system is functioning properly. If not, refer to GROUP 52B – Troubleshooting.



SRS COMPONENTS VISUAL CHECK

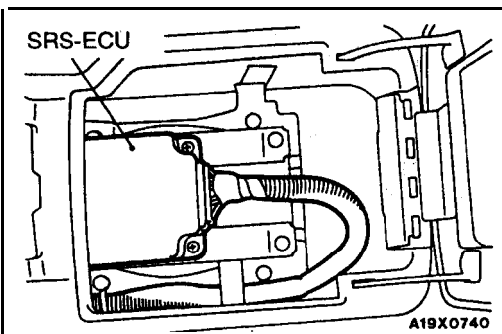
1. Turn the ignition key to “**LOCK**” position, disconnect the negative battery cable and tape the terminal.

Caution

Wait at least 60 seconds **after** disconnecting the battery cable before doing any further **work**.

The SRS system is designed to **retain** enough voltage to deploy the air bag for a short **time even** after the battery has been disconnected, so **serlous injury may** result from unintended air bag deployment **if work** is done on the SRS system immediately **after** the **bat-**tery cable is disconnected.

2. Remove the floor console assembly. (Refer to GROUP 52A – Floor Console.)

**SRS-ECU CHECK**

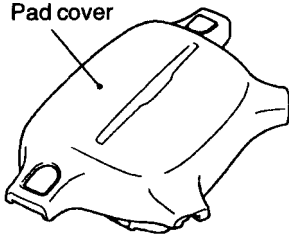
Check SRS-ECU case and brackets for dents, cracks, deformities or rust.

Caution

The SRS may not activate if a front impact sensor is not installed properly, which could result in serious injury or death to the driver and passenger.

<Driver's side>

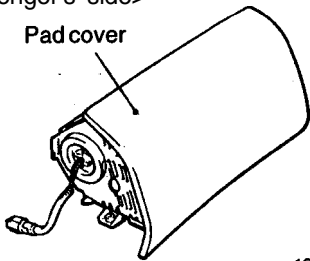
Pad cover



19C0228

<Passenger's side>

Pad cover



19X0518

00000167

AIR BAG MODULE, STEERING WHEEL AND CLOCK SPRING CHECK

1. Remove the air bag module, steering wheel and clock spring. (Refer to GROUP 52B – Air Bag Module and Clock Spring.)

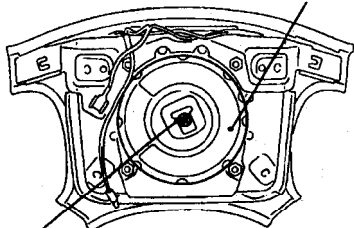
Caution

The removed air bag module should be stored in a clean, dry place with the pad cover face up.

2. Check pad cover for dents, cracks or deformities.

<Driver's side>

Inflator case



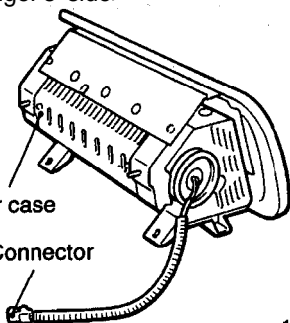
19X0551

Connector

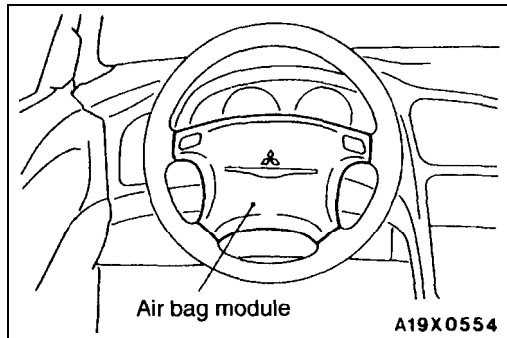
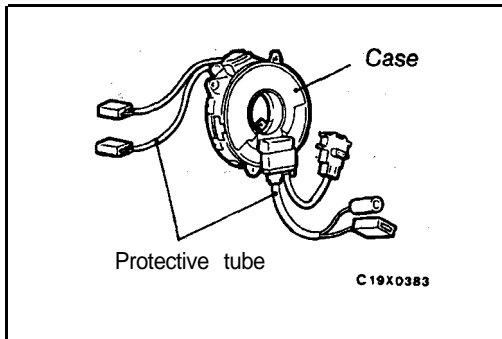
<Passenger's side>

Inflator case

Connector

19X0560
00000055

3. Check connector for damage, terminals deformities, and harness for binds.
4. Check air bag inflator case for dents, cracks or deformities.
5. Check harness (built into steering wheel) and connectors for damage, and terminals for deformities.



6. Check clock spring connectors and protective tube for damage, and terminals for deformities.
7. Visually check the clock spring case for damage.
8. Align the mating mark of the clock spring and, after turning the vehicle's front wheels to **straightahead** position, install the clock spring to the column switch.

Mating mark alignment

Turn the clock spring fully clockwise, and turn back it approx. 3 and 1/8 turns counterclockwise to align the mating marks.

Caution

If the clock spring's mating mark is not properly aligned, the steering wheel may not be completely rotational during a turn, or the flat cable within the clock spring may be severed, obstructing normal operation of the SRS and possibly leading to serious injury to the vehicle's driver and passenger.

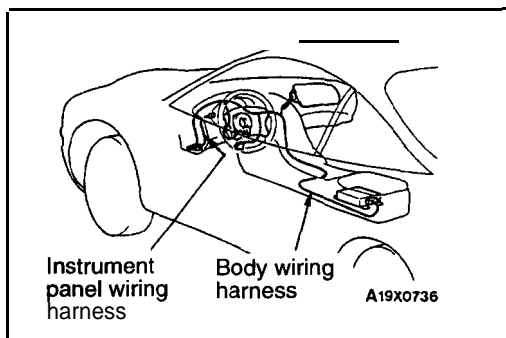
9. Install the steering column covers, steering wheel and the air bag module.
10. Check steering wheel for noise, binds of difficult operation.
11. Check steering wheel for excessive free play.

REPLACE ANY VISUALLY INSPECTED PART IF IT FAILS THAT INSPECTION.

(Refer to GROUP 52B -Air Bag Module and Clock Spring.)

Caution

The SRS may not activate if any of the above components is not installed properly, which could result in serious injury or death to the vehicle's driver and passenger.



INSTRUMENT PANEL WIRING HARNESS AND BODY WIRING HARNESS

1. Check connector for poor connection.
2. Check harnesses for binds, connectors for damage, and terminals for deformations.

REPLACE ANY CONNECTORS OR HARNESS THAT FAIL THE VISUAL INSPECTION.

(Refer to GROUP 52B – SRS Service Precautions.)

Caution

The SRS may not activate if SRS harnesses or connectors are damaged or improperly connected, which could result in serious injury or death to the vehicle's driver and passenger.

22. EXHAUST SYSTEM (CONNECTION PORTION OF MUFFLER, PIPINGS AND, CONVERTER HEAT SHIELDS) (Check and service as required)

00100580049

1. Check for holes and gas leaks'dwe to damage; **corrosion**, etc.
2. Check the joints and connections for looseness and gas' leaks.
3. Check the hanger rubber and brackets for damage.

MAIN SEALANT AND ADHESIVE TABLE

00100380052

SEALANTS FOR ENGINE ACCESSORIES

Application	Recommended brand
Sealing between rocker cover and camshaft bearing cap (4G6 DOHC and 6G7 engines only)	3M ATD Part No. 8680 or equivalent
Sealing between semi-circular packing and rocker cover and between semi-circular packing and cylinder head	
Oil pressure switch (except 4G1 and 6G7 engines)	
Engine coolant temperature switch, Engine coolant temperature sensor, Thermo valve, Thermo switch, Joints, Engine coolant temperature gauge unit (large size)	3M Nut Locking Part No. 4171 or equivalent
Engine coolant temperature gauge unit (small size, MD091056 only)	3M ATD Part No. 8660 or equivalent
Oil pan (except 4G5 engine)	MITSUBISHI GENUINE Part No. MD99711 0 or equivalent

SEALING BETWEEN GLASS AND WEATHERSTRIP

Application	Recommended brand
Sealing between tempered glass and weatherstrip	3M ATD Part No. 8513 or equivalent
Sealing between body flange and weatherstrip	
Sealing between laminated glass and weatherstrip	

ADHESION WITH RIBBON SEALER

Application	Recommended brand
Waterproof film for door, Fender panel, Splash shield, Mud guard, Rear combination light	3M ATD Part No. 8625 or equivalent

ADHESIVES FOR INTERIOR TRIM

Application	Recommended brand
Adhesion of polyvinyl chloride sheet	3M Part No. EC-1 368 or equivalent
Adhesion of door weatherstrip to body	3M ATD Part No. 8001 or 3M ATD Part No. 8011 or equivalent
Sealing between grommet or packing, and metal seal	3M ATD Part No. 8513 or equivalent
Adhesion of headlining and other interior trim materials	3M Part No. EC-1368 or 3M ATD Part No. 8080 or equivalent
Adhesion of fuel tank to pad	

BODY SEALANT

Application	Recommended brand
Sealing of sheet metal, drip rail, floor, body side panel, trunk, front panel and the like joints	3M ATD Part No. 8531 or 3M ATD Part No. 8848 or equivalent
Sealing of liftgate hinges	

CHASSIS SEALANT

Application	Recommended brand
Sealing of flange surfaces and threaded portions	3M ATD Part No. 8659 or equivalent
Fuel gauge unit packing	
Sealing of flange surfaces, threaded portions, packing and dust cover <ul style="list-style-type: none"> • Differential carrier packing • Dust covers for ball joint and linkage • Steering gear box packing and shims • Steering gear housing rack support cover and top cover • Mating surface of knuckle arm flange 	3M ATD Part No. 8663 or equivalent
Sealing between accelerator arm bracket and firewall	Drying sealant
Sealant for drum brake shoe hold-down pin and wheel cylinder	3M ATD Part No. 8513 or equivalent

FAST BONDING ADHESIVE

Application	Recommended brand
Adhesion of all materials except polyethylene, polypropylene, fluorocarbon resin or other materials with highly absorbent surface	3M ATD Part No. 8155 or equivalent

ANAEROBIC FAST BONDING ADHESIVE

Application	Recommended brand
Fixing of bolts and screws <ul style="list-style-type: none"> • Tightening of drive gear to differential case • Bolts for coupling tilt steering upper column with lower column 	3M Stud locking Part No. 4170 or equivalent
Fixing of bearing, fan, pulley and gear connections	
Sealing of small recess or flange surface	
Steering angle stopper bolt	3M Nut locking Part No. 4171 or equivalent

UNDERCOAT

Application	Recommended brand
Undercoat	3M ATD Part No. 8864 or equivalent