



LUBRICATION AND MAINTENANCE

CONTENTS

GENERAL INFORMATION	2	FRONT WHEEL BEARING	19
LUBRICANT CAPACITY TABLE AND RECOMMENDED LUBRICANTS	6	FUEL FILTER	10
MAINTENANCE SERVICE	8	FUEL HOSES, WATER HOSES AND VAPOR HOSES	12
AIR CLEANER FILTER	11	FUEL SYSTEM	10
AIR CONDITIONER SYSTEM	20	IGNITION CABLES	11
AUTOMATIC TRANSMISSION FLUID	19	IGNITION TIMING ADJUSTMENT	9
BALL JOINT SEALS, STEERING LINKAGE SEALS AND DRIVE SHAFT BOOTS	19	MANUAL TRANSMISSION OIL	19
BRAKE	18	OXYGEN SENSOR	15
BRAKE FLUID	17	POWER STEERING FLUID LEVEL	20
BRAKE HOSES	18	POWER STEERING HOSES	20
COOLING SYSTEM	16	POWER STEERING OIL PUMP BELT	20
CRANKCASE VENTILATION SYSTEM	12	REAR AXLE	18
DRIVE BELT	15	SPARK PLUGS	11
ENGINE IDLE SPEED CHECK PROCEDURE	9	THROTTLE POSITION SYSTEM	10
ENGINE OIL FILTER	8	TURBOCHARGER AIR INTAKE HOSES ...	15
EVAPORATIVE EMISSION CONTROL SYSTEM	13	TURBOCHARGER OIL HOSE	15
EXHAUST SYSTEM	20	VACUUM HOSES, SECONDARY AIR HOSES AND CRANKCASE VENTILATION HOSES	12
		VALVE CLEARANCE ADJUSTMENT	8
		SCHEDULED MAINTENANCE TABLE	3



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".

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. Trailer towing or 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
 - (7) Driving off-road

ENGINE OIL

The SAE grade number indicates the viscosity of engine oils, for example, SAE 30, which is a single grade oil. Engine oils are also identified by a dual number, for example, SAE 10W-30, which indicates a multigrade oil.

The API classification system defines oil performance in terms of engine usage. Only engine oil designed "For Service SF" or "For Service SF/CC, when available" should be used. These oils contain sufficient chemical additives to provide maximum engine protection. Both the SAE grade and the API designation can be found on the container.

GEAR LUBRICANTS

The SAE grade number also indicates the viscosity of Multipurpose 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 80W or SAE 90 are recommended for manual transmission and rear axle (conventional differential) and MITSUBISHI Genuine Gear Oil Part No. 8149630EX, or MOPAR Hypoid Lubricant Part No. 4318058 plus MOPAR Hypoid Gear Oil Additive-Friction Modifier Part No. 4318060 or equivalent for limited slip differential.

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, Multipurpose Grease, NLGI grade #2 EP, should be used.

MOPAR Multi-Mileage Lubricant, Part Number 2525035 or equivalent, meets these requirements and is recommended.

FUEL USAGE STATEMENT

Use gasolines having a minimum anti-knock index (Octane Value) of 87 (R + M)/2. This designation is comparable to 91 Research Octane Number.

Unleaded gasolines only must be used in vehicles equipped with catalyst emission control systems. All vehicles, so equipped, have labels located on the instrument panel and on the back of fuel filler lid that state, "UNLEADED GASOLINE ONLY". These vehicles also have fuel filler tubes especially designed to accept the smaller diameter unleaded gasoline dispensing nozzles only.

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.

SCHEDULED MAINTENANCE TABLE



SCHEDULED MAINTENANCE SERVICES FOR EMISSION CONTROL AND PROPER VEHICLE PERFORMANCE

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

EMISSION CONTROL SYSTEM MAINTENANCE	SERVICE INTERVALS	MILEAGE IN THOUSANDS							
		7.5	15	22.5	30	37.5	45	50	
		KILOMETERS IN THOUSANDS							
		12	24	36	48	60	72	80	
ENGINE OIL	CHANGE OIL EVERY 6 MONTHS	OR	EVERY 3,000 MILES (4,800 KM)						
ENGINE OIL FLILTR	REPLACE OIL FILTER EVERY 12 MONTHS	OR	EVERY 6,000 MILES (9,600 KM)						
CHECK DRIVE BELT (FOR WATER PUMP AND ALTERNATOR) FOR CONDITION; ADJUST TENSION AS REQUIRED	AT		x		x		x		
REPLACE DRIVE BELT (FOR WATER PUMP AND ALTERNATOR)	AT				x				
CHECK VALVE CLEARANCE; ADJUST AS REQUIRED	AT		x		x		x		
CHECK IGNITION TIMING; ADJUST AS REQUIRED EVERY 5 YEARS	OR							x	
CHECK ENGINE IDLE SPEED; ADJUST AS REQUIRED	AT		x		x		x		
CHECK THROTTLE POSITION SYSTEM; ADJUST AS REQUIRED	INITIAL CHECK	AT		x					
	AFTER INITIAL CHECK, AT 50,000 MILES (80,000 KM), THEREAFTER EVERY 50,000 MILES (80,000 KM)								
REPLACE FUEL FILTER EVERY 5 YEARS	OR							x	
CHECK FUEL SYSTEM (TANK, LINE AND CONNECTIONS) FOR LEAKS EVERY 5 YEARS	OR							x	
REPLACE AIR CLEANER FILTER	AT				x				
REPLACE SPARK PLUGS	AT				x				
REPLACE IGNITION CABLES EVERY 5 YEARS	OR							x	
REPLACE VACUUM HOSES, SECONDARY AIR HOSES AND CRANKCASE VENTILATION HOSES EVERY 5 YEARS	OR							x	
REPLACE FUEL HOSES, WATER HOSES AND VAPOR HOSES EVERY 5 YEARS	OR							x	
CLEAN CRANKCASE EMISSION CONTROL SYSTEM (PCV VALVE) EVERY 5 YEARS	OR							x	
CHECK EVAPORATIVE EMISSION CONTROL SYSTEM (EXCEPT CANISTER) FOR LEAKS AND CLOGGING EVERY 5 YEARS	OR							x	
REPLACE CANISTER	AT							x	
REPLACE OXYGEN SENSOR	AT							x	
REPLACE TURBOCHARGER AIR INTAKE HOSES EVERY 5 YEARS	OR							x	
REPLACE TURBOCHARGER OIL HOSES EVERY 5 YEARS	OR							x	



SCHEDULED MAINTENANCE TABLE

GENERAL MAINTENANCE SERVICE FOR PROPER VEHICLE PERFORMANCE

GENERAL MAINTENANCE	SERVICE INTERVALS	MILEAGE IN THOUSANDS		7.5	15	22.5	30	37.5	45	50	60
		KILOMETERS IN THOUSANDS		12	24	36	48	60	72	80	96
COOLING SYSTEM	CHECK AND SERVICE AS REQUIRED EVERY 12 MONTHS	OR		•		•		•		•	
ENGINE COOLANT	CHANGE COOLANT EVERY 2 YEARS	OR				•					•
AIR CONDITIONER SYSTEM (INCLUDING COMPRESSOR BELT)	CHECK AND SERVICE AS REQUIRED	OR									•
	INITIAL CHECK AT THE FIRST 4 YEARS	OR	EVERY 15,000 MILES (24,000 KM)								
BRAKE FLUID (INCLUDING CLUTCH FLUID)	INSPECT FLUID LEVEL AND CHECK FOR LEAKS EVERY 12 MONTHS	OR		•		•		•		•	
	CHANGE FLUID EVERY 4 YEARS	OR									•
DISC BRAKE PADS (FRONT AND REAR)	INSPECT FOR WEAR EVERY 12 MONTHS	OR		•		•		•		•	
BRAKE HOSES	CHECK FOR DETERIORATION OR LEAKS EVERY 12 MONTHS	OR		•		•		•		•	
BALL JOINT, STEERING LINKAGE SEALS AND DRIVE SHAFT BOOTS	INSPECT FOR GREASE LEAKS AND DAMAGE EVERY 2 YEARS	OR				•					•
WHEEL BEARINGS	LUBRICATE GREASE EVERY 2 YEARS	OR				•					•
POWER STEERING OIL PUMP BELT	CHECK AND SERVICE AS REQUIRED	OR									•
	INITIAL CHECK AT THE FIRST 4 YEARS	OR	EVERY 15,000 MILES (24,000 KM)								
	AFTER INITIAL CHECK; EVERY 12 MONTHS	OR	EVERY 15,000 MILES (24,000 KM)								
POWER STEERING FLUID	INSPECT FLUID LEVEL EVERY 12 MONTHS	OR		•		•		•		•	
POWER STEERING HOSES	CHECK FOR DETERIORATION OR LEAKS EVERY 12 MONTHS	OR		•		•		•		•	
EXHAUST SYSTEM (CONNECTION PORTION OF MUFFLER AND PIPINGS)	CHECK AND SERVICE AS REQUIRED EVERY 12 MONTHS	OR		•		•		•		•	
MANUAL TRANSMISSION OIL	INSPECT OIL LEVEL	AT				•					•
REAR AXLE *1	INSPECT OIL LEVEL	AT				•					•
REAR AXLE *2	CHANGE OIL	AT		•		•		•		•	

NOTE

- *1 : Not applicable to vehicles with a limited slip differential.
- *2 : Applicable only to vehicles with a limited slip differential.

SCHEDULED MAINTENANCE TABLE



SEVERE USAGE SERVICE

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

MAINTENANCE ITEM	SERVICE TO BE PERFORMED	MILEAGE INTERVALS – KILOMETERS IN THOUSANDS (MILES IN THOUSANDS)								SEVERE USAGE CONDITIONS							
		12 (7.5)	24 (15)	36 (22.5)	48 (30)	60 (37.5)	72 (45)	80 (50)	96 (60)	A	B	C	D	E	F	G	H
ENGINE OIL	CHANGE EVERY 3 MONTHS OR	EVERY 4,800 KM (3,000 MILES)								○	○	○	○			○	
ENGINE OIL FILTER	REPLACE EVERY 6 MONTHS OR	EVERY 9,600 KM (6,000 MILES)								○	○	○	○			○	
AIR CLEANER FILTER	REPLACE	MORE FREQUENTLY								○				○			
CRANKCASE EMISSION CONTROL SYSTEM	CHECK AND CLEAN AS REQUIRED	MORE FREQUENTLY								○							
SPARK PLUGS	REPLACE		•		•		•		•		○		○				
DISC BRAKE PADS (FRONT AND REAR)	INSPECT FOR WEAR	MORE FREQUENTLY								○					○		
AUTOMATIC TRANSMISSION FLUID	CHANGE FLUID				•				•		○					○	○

Severe usage conditions

- A – Driving in dusty conditions
- B – Trailer towing or police, taxi, or commercial type operation
- C – Extensive idling
- 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 during hot weather above 32°C (90°F)
- H – Driving off-road



LUBRICANT CAPACITY TABLE AND RECOMMENDED LUBRICANTS

LUBRICANT CAPACITIES TABLE

Description	Metric measure	U.S. measure	Imperial measure
Engine oil			
Crankcase (including oil filter)	4.8 liters	5.1 qts.	4.2 qts.
Oil filter	0.50 liters	0.53 qts.	0.44 qts.
Cooling system (including for heater and for coolant reserve system)	9.2 liters	9.7 qts.	8.1 qts.
Manual transmission	2.3 liters	2.4 qts.	2.0 qts.
Automatic transmission	7.0 liters	7.4 qts.	6.2 qts.
Rear axle	1.3 liters	2.7 pints	2.3 pints
Power steering	1.06 liters	2.2 pints	1.9 pints
Fuel tank	75 liters	19.8 gals.	16.5 gals.

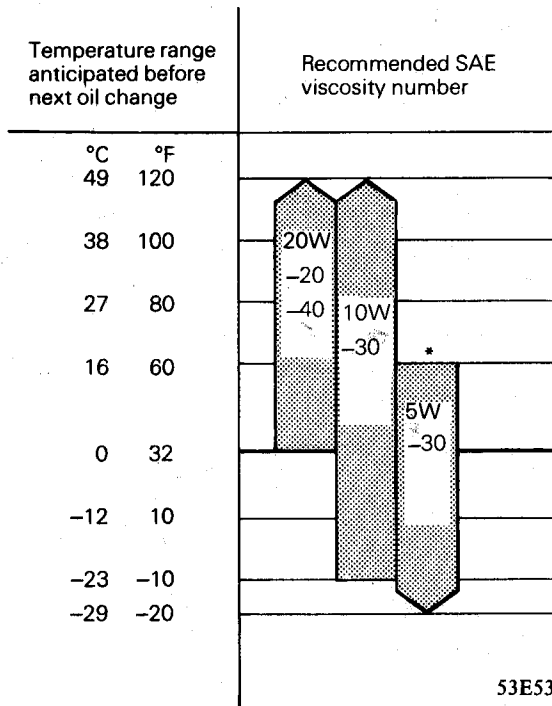
RECOMMENDED LUBRICANTS

Parts	Specification	Remarks
Engine oil	API classification SF or SF/CC	For further details, refer to SAE viscosity number (See Next Page)
Power steering	Automatic transmission fluid "DEXRON" or "DEXRON II" type	MOPAR Automatic Transmission Fluid or equivalent
Manual transmission	API classification GL-4	MOPAR Hypoid Gear Oil or equivalent
Automatic transmission	Automatic transmission fluid "DEXRON II" type	MOPAR Automatic Transmission Fluid or equivalent
Rear axle (conventional differential)	API classification GL-5	MOPAR Hypoid Gear Oil or equivalent
Rear axle (limited slip differential)	—	MITSUBISHI Genuine Gear Oil Part No. 8149630EX, MOPAR Hypoid Gear Lubricant Part No. 4318058 plus MOPAR Hypoid Gear Oil Additive-Friction Modifier Part No. 4318060 or equivalent
Brake	Conforming to DOT3	MOPAR Brake Fluid or equivalent
Clutch	Conforming to DOT3	MOPAR Brake Fluid or equivalent
Front wheel bearing	Multipurpose grease NLGI Grade #2 E.P.	MOPAR Front Wheel Bearing Grease or equivalent
Cooling system antifreeze	High quality ethylene glycol	Concentration level 50% MOPAR Antifreeze Permanent Type Coolant or equivalent
Transmission linkage, parking brake cable mechanism, hood lock and hook, door latch, hatch latch, seat adjuster	Multipurpose grease NLGI Grade #2	MOPAR Lubriplate or equivalent
Door hinges, hatch hinges	Engine oil	



SELECTION OF LUBRICANTS

Engine Oil



* Oils of SAE 5W-30 may be used in very cold weather areas where minimum air temperatures are below -23°C (-10°F).

Manual Transmission

Lubricants	API classification GL-4
Viscosity range	SAE80W SAE75W-85W

Rear Axle (conventional differential)

Lubricants	API classification GL-5
Anticipated temperature range	Viscosity range
Above -23°C (-10°F)	SAE 90 SAE 85W-90 SAE 80W-90
-23°C to -34°C (-10°F to -30°F)	SAE 80W SAE 80W-90
Below -34°C (-30°F)	SAE 75W

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COOLANT

Relation Between Antifreeze Concentration and Specific Gravity

The following table is applicable only to the specified coolant HIGH QUALITY ETHYLENE GLYCOL (ANTIFREEZE) COOLANT.

Coolant temperature °C (°F) and specific gravity					Freezing temperature °C (°F)	Safe operating temperature °C (°F)	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 (-22)	-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

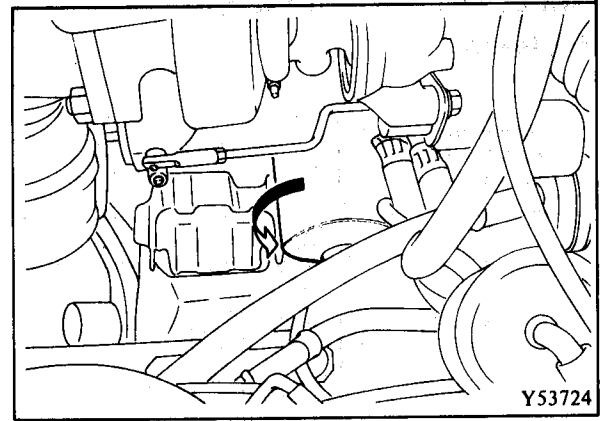
The safe operating temperature is -15°C (5°F) when the measured specific gravity is 1.058 at the coolant temperature of 20°C (68°F).



ENGINE OIL FILTER (Replace)

The quality of replacement filters varies considerably. Only high quality filters should be used to assure most efficient service. Mitsubishi oil filters require that the filter be capable of withstanding a pressure of 256 psi and are recommended as follows.

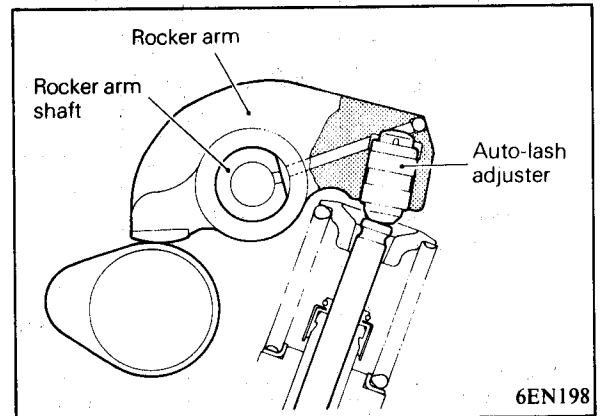
Recommended oil filter
Part No. MD031805 or equivalent



VALVE CLEARANCE ADJUSTMENT

Intake and Exhaust Valves

The auto-lash adjuster is installed to the rocker arm so that the valve clearance adjustment is maintenance-free. For additional information regarding the auto-lash adjuster, refer to GROUP 9.



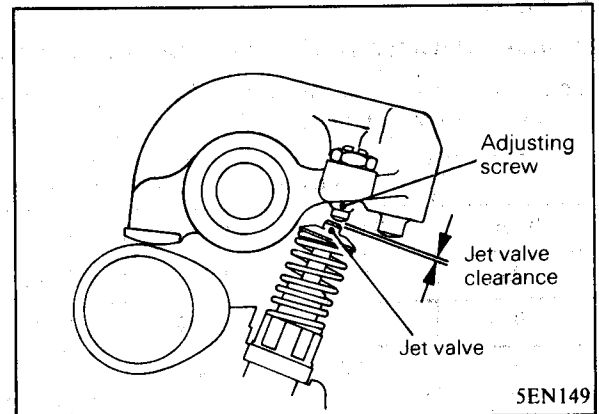
Jet Valve

Adjustment condition:

Normal operating temperature [Coolant temperature 80 to 90°C (176 to 194°F)]

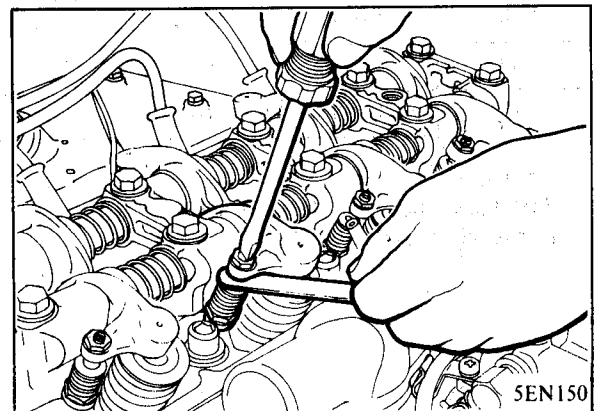
Cautions

1. An incorrect jet valve clearance will affect the emission levels and could also cause engine troubles.
2. The cylinder head bolts should be retightened before attempting this adjustment.



1. Adjust jet valve clearances at top dead center of compression stroke for each cylinder as follows.
2. Loosen the lock nut on the jet valve adjusting screw.
3. Back off the jet valve adjusting screw and place a 0.25 mm (.010 in.) leaf of the feeler gauge between the top end of the jet valve stem and the bottom end of the adjusting screw.

Jet valve clearance (operating temperature)
0.25 mm (.010 in.)





4. Screw in the adjusting screw (clockwise) until the bottom end of the adjusting screw touches the feeler gauge. Since the jet valve spring is weak in tensile strength, use special care not to force the jet valve in. Be particularly careful if the adjusting screw is hard to turn.
5. While holding the adjusting screw in place with a screwdriver, tighten the lock nut firmly.
6. Check with leaf of the feeler gauge to ensure a 0.25 mm (.010 in.) clearance.

IGNITION TIMING ADJUSTMENT

Adjustment condition:

Lights, electric cooling fan and all accessories are off, and transmission is in neutral.

1. Run the cold engine at fast idle until the cooling water temperature is raised to 85–95°C (185–205°F).
2. Run the engine at the specified curb idle speed (rpm).
3. Read the ignition timing. (Refer to P.0-10)
If outside specified limits, adjust the ignition timing by rotating the distributor after loosening the distributor fitting nut.

Ignition timing	10°BTDC ± 2° at curb idle speed
Curb idle speed	850 ± 100

ENGINE IDLE SPEED CHECK PROCEDURE

By the idle speed check procedure, check if the engine is idling at the specified speed. If not, adjust the idle speed to the specified value by the adjusting procedure.

Caution

The improper setting (throttle valve opening) will increase exhaust gas temperature at deceleration, reducing catalyst life greatly and deteriorating exhaust gas cleaning performance. It also has effect on fuel consumption and engine braking.



THROTTLE POSITION SYSTEM

1. Check if the plunger of throttle position sensor follows the movement of the cam mounted on the throttle shaft with good response. Also check the throttle sensor body and plunger for damage and cracks.
2. Using the screwdriver or the like, check the throttle sensor mounting screws for looseness.
3. Check if the throttle sensor has specified output (250 mV).

NOTE

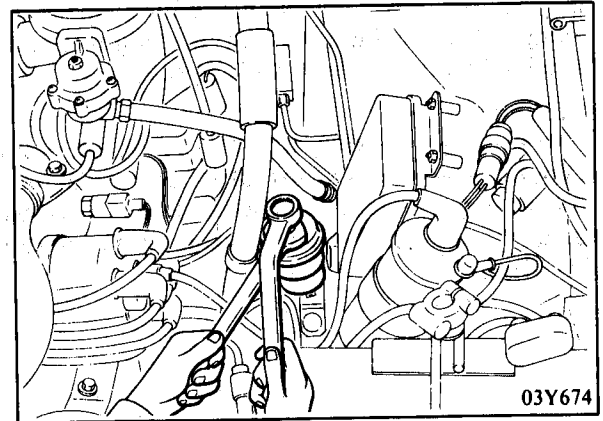
The throttle sensor output is used for feedback control. Therefore, if the setting is disturbed in use, the driveability and exhaust gas will be adversely affected.

Throttle Position Sensor

1. With the engine stopped, remove the air cleaner from the engine and perform the following check.
 - (1) Check the plunger of throttle position sensor for operation. To do this, operate the throttle lever manually for acceleration and deceleration and check if the plunger follows the movement of the cam (mounted on the throttle shaft) with good response.
 - (2) Check the throttle sensor body and plunger for damage and cracks.
 - (3) Using a screwdriver or the like, check the throttle sensor mounting screws for looseness.
2. For adjustment of idle speed control (ISC) and throttle position sensor (TPS), refer to GROUP 14.

FUEL FILTER (Replace)

The fuel filter should be replaced regularly because its performance is reduced by dirt and water collected over an extended period of use. Replace as required.



FUEL SYSTEM (Check for leaks)

Tank, Line and Connections

Check for damage or leakage in the fuel lines and connections and for looseness of the fuel tank cap.

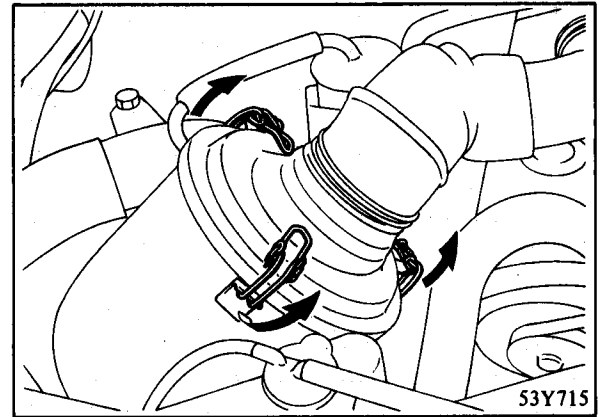
Inspect the surface of fuel hoses for heat and mechanical damage. Hard and brittle rubber, cracking, checking, tears, cuts, abrasions and excessive swelling indicate deterioration of the rubber.

If the fabric casing of the rubber hose is exposed by cracks and abrasions in the fuel system, the hoses should be changed.



AIR CLEANER FILTER (Replace)

1. Unsnap finger clips, and then remove air cleaner cover.
2. Remove filter from air cleaner body.
3. Insert new air cleaner filter into air cleaner body.
4. Install cover, and then snap finger clips.

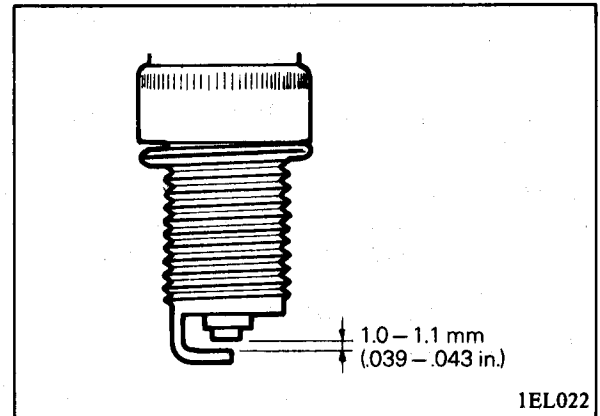


SPARK PLUGS (Replace)

Spark plugs must fire properly to assure proper engine performance and emission control. New plugs should be installed if any indication of misfiring occurs.

The entire set should be replaced if there is any malfunction due to faulty plugs.

The new plugs should be checked for proper gap.



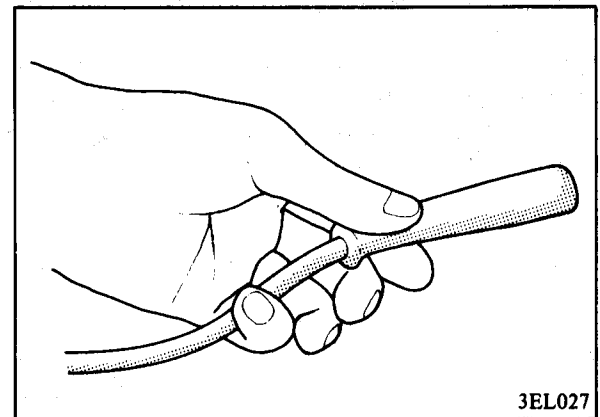
IGNITION CABLES (Check and replace)

The ignition cables should be kept clean and properly connected.

Cracked, damaged or faulty cables must be replaced.

NOTE

When spark plug cable is removed, be sure to hold cable cap. If spark plug cable is removed by pulling on the cable alone, an open circuit might result.





VACUUM HOSES, SECONDARY AIR HOSES AND CRANKCASE VENTILATION HOSES (Replace)

Inspect the surface of hoses for evidence of heat and mechanical damage. Hard and brittle rubber, cracking, checking, tears, cuts, abrasion and excessive swelling indicate deterioration of the rubber.

Particular attention should be paid to examining those hose surfaces nearest to high heat sources, such as the exhaust manifold.

Inspect the hose routing to assure that the hose does not come in contact with any heat source or moving component which will cause heat damage or mechanical wear. Inspect all hose connections, such as clamps and couplings, to make sure they are secure and that no leaks are present.

Hoses should be replaced immediately if there is any evidence of deterioration or damage.

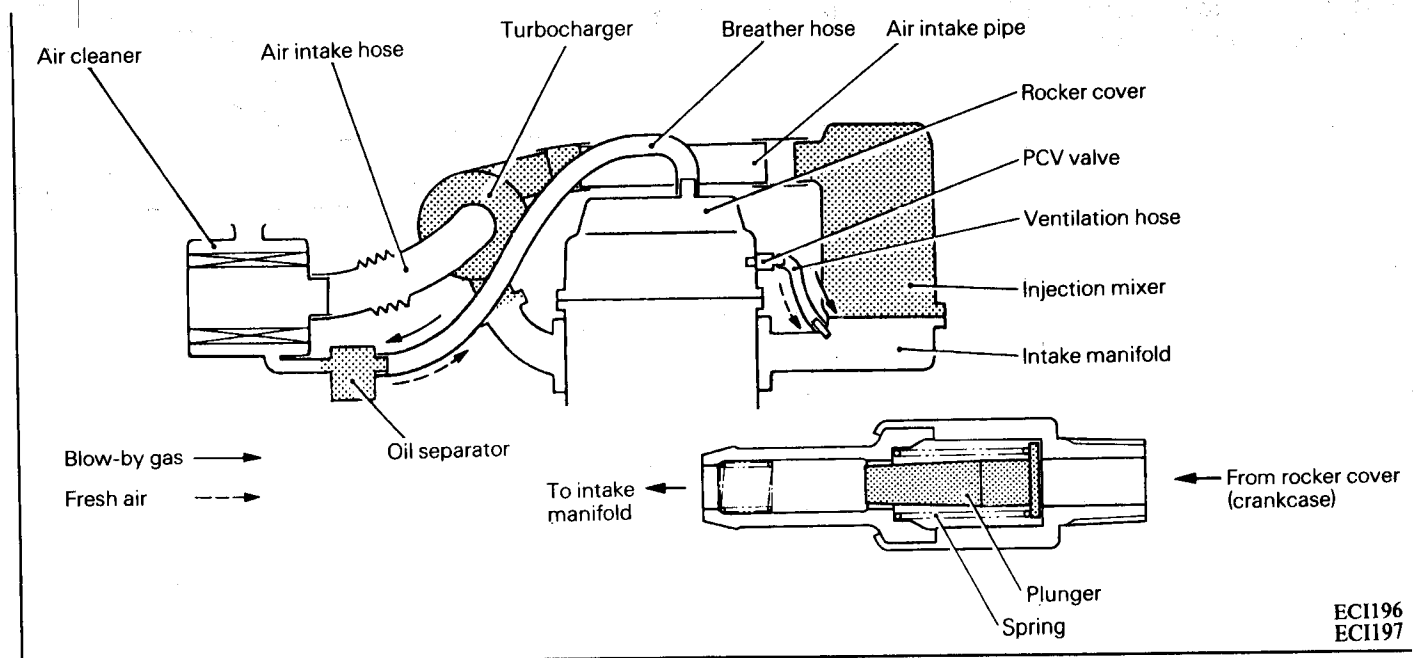
FUEL HOSES, WATER HOSES AND VAPOR HOSES (Replace)

Service procedures to check the hoses for damage are the same as those described in the section "Vacuum hoses, secondary air hoses and crankcase ventilation hoses".

CRANKCASE VENTILATION SYSTEM (Check and clean as required)

A closed-type crankcase ventilation system is utilized to prevent the blow-by gas from escaping into the atmosphere. This system has a positive crankcase vent valve (PCV valve) at the rocker arm cover.

This system supplies fresh air to the crankcase through the air cleaner. Inside the crankcase, the fresh air is mixed with blow-by gases, and this mixture passes through the PCV valve into the induction system.

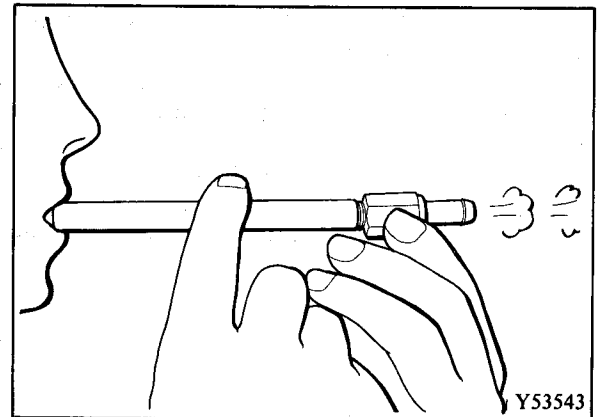
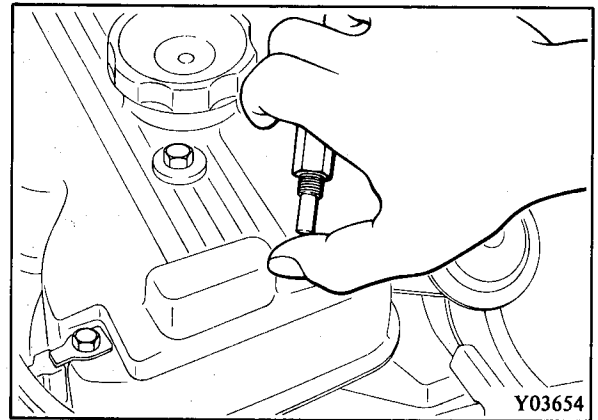


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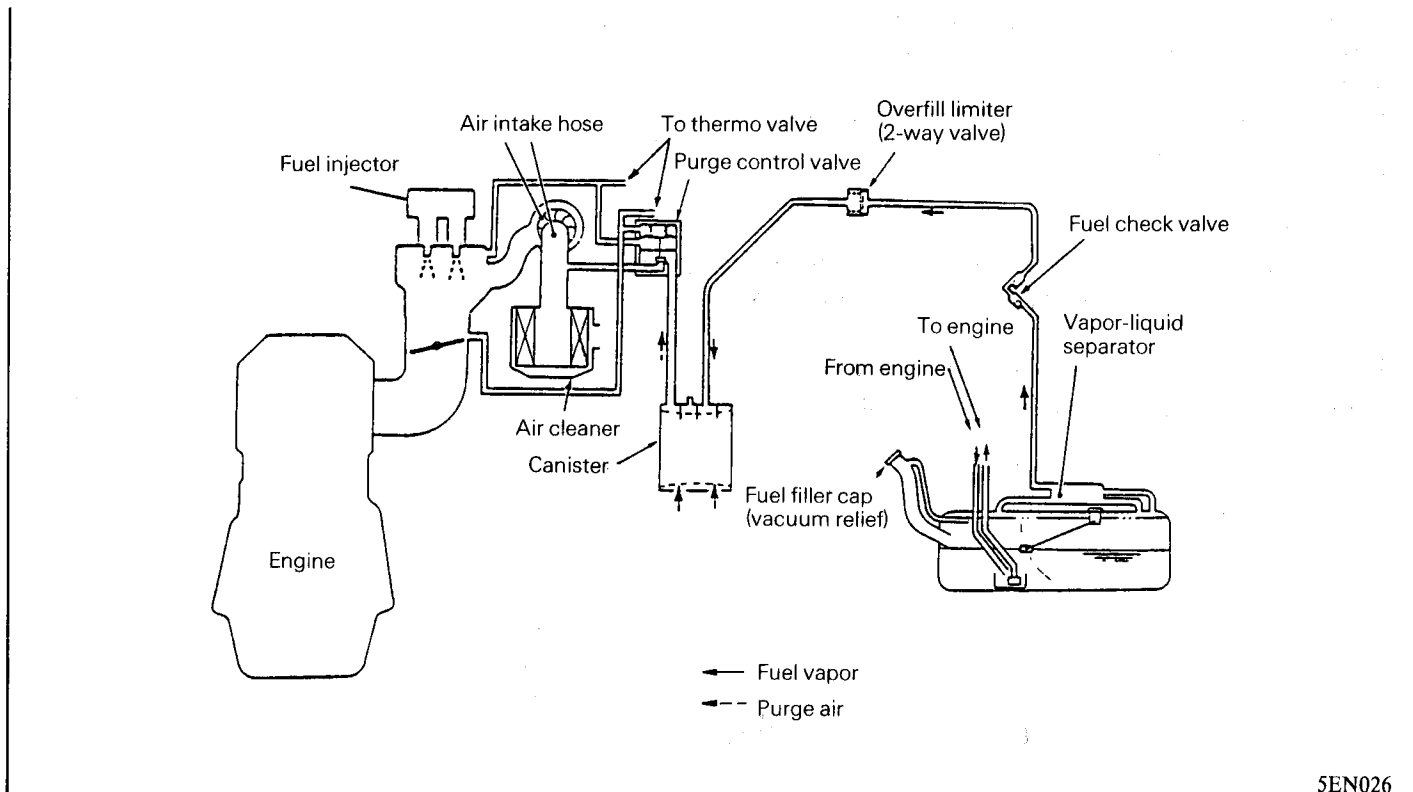


Inspection and Service Procedure

1. Remove PCV valve from rocker cover. If the valve is not clogged, a hissing noise will be heard as air passes through the valve, and a strong vacuum should be felt when a finger is placed over the valve inlet.
2. Disconnect ventilation hose from the PCV valve, and then remove PCV valve.
3. Blow from the threaded end of PCV valve. If you cannot blow through it, the PCV valve is plugged. (Y53543)
4. If the ventilation system is restricted, clean the hose and PCV valve with appropriate solvent for dissolving carbon, oil, sludge, etc.



EVAPORATIVE EMISSION CONTROL SYSTEM





In order to prevent the loss of fuel vapor from the fuel system into the atmosphere, the evaporative emission control system consists of a charcoal canister, a purge control valve, etc. While the engine is not in operation, fuel vapors generated inside the fuel tank are adsorbed and stored in the charcoal canister.

When the engine is running, the fuel vapors adsorbed in the canister are drawn into the air intake hose through the purge control valve.

The purge control valve is kept closed during idling in order to prevent vaporized fuel from entering into the air intake hose for positive control of high idle CO emission, which is a particular problem under high ambient temperatures.

When the pressure difference between the turbocharged and the throttle-ported pressures exceeds the pre-set value, the purge control valve is opened.

A thermo valve incorporated in this system for sensing the coolant temperature at the intake manifold closes the purge control valve when the coolant temperature is lower than a pre-set value in order to reduce CO and HC emissions under engine warm-up conditions, and opens the purge control valve when the coolant temperature exceeds the pre-set temperature.

Checking Evaporative Emission Control System — (except canister)

If the fuel-vapor vent line is clogged or damaged, a fuel-vapor mixture escapes into the atmosphere and will cause ineffective emission control.

Disconnect the line at both ends, and blow it clean with compressed air. Remove the filler cap from the filler pipe and check to see if there is evidence that the sealing surface to the filler pipe is improper.

The over-fill limiter (two-way valve) installed on the vapor line between the canister inlet and fuel tank outlet should be checked for correct operation.

Canister (Replace)

If or when the canister filter becomes clogged, the purge air volume will decrease and consequently, the canister capacity will be reduced.

Purge Control Valve (Check and replace as required)

For the checking of purge control valve, refer to GROUP 25.



OXYGEN SENSOR (Replace)

The oxygen sensor is a device which controls the fuel mixture. If the oxygen sensor is damaged, exhaust emissions as well as driveability will deteriorate. For detailed procedures for inspection of the sensor, refer to "Fuel System".

TURBOCHARGER AIR INTAKE HOSES (Replace)

The turbocharger air intake hoses must be replaced periodically, with new ones. The air entering through the air cleaner element may make intake air dirty, resulting in less than normal engine power.

TURBOCHARGER OIL HOSE (Replace)

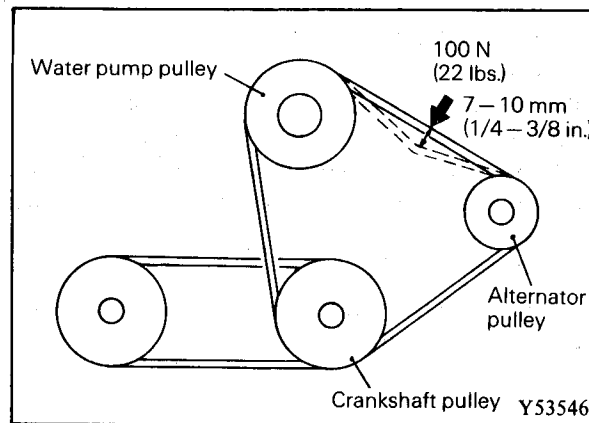
The turbocharger oil hose must be replaced periodically. Oil leakage from oil hose may provide insufficient lubrication in the turbocharger, resulting in less than normal engine power and/or damage to the turbocharger assembly.

DRIVE BELT (Check and adjust, or replace)

Inspect the drive belt for evidence of cuts and cracks. Replace, if necessary.

Check belt for proper tension. If necessary, adjust the belt tension as follows.

1. Push with a force of 100 N (22 lbs.) one belt at a point halfway between alternator pulley and water pump pulley and the other belt at a point halfway between the power steering pulley and crankshaft pulley. The belt deflection should be 7 to 10 mm (1/4 to 3/8 in.).
2. If belt deflection is not within specification, loosen alternator support bolt and alternator brace bolt, and move alternator to obtain proper belt deflection at 100 N (22 lbs.) force.
3. After adjustment, tighten the alternator support bolt, alternator brace bolt and power steering pump brace bolt to specified torque.



Part to be tightened	Torque Nm (ft.lbs.)
Alternator support bolt	20-25 (14-18)
Alternator brace bolt	12-15 (8.5-11)



COOLING SYSTEM (Check and service as required)

Check the cooling system for damaged hoses, loose or seeping connections, or other possible causes of coolant leaks.

Antifreeze

The engine cooling system is provided with a mixture of 50% ethylene glycol anti-freeze and 50% water at the time of manufacture.

Since the cylinder head and water pump body are made of aluminum alloy casting, be sure to use a 30–60% ethylene glycol antifreeze coolant to provide corrosion protection and freezing prevention.

Caution

If the concentration of the antifreeze is below 30%, the anti-corrosion property will be adversely affected. In addition, if the concentration is above 60%, both the antifreezing and engine cooling properties will decrease, adversely affecting the engine. For these reasons, be sure to maintain the concentration level within the specified range.

Measurement of Antifreeze Concentration

Run the engine until coolant is fully mixed. Drain some coolant (antifreeze), and measure temperature and specific gravity of the coolant. Determine concentration and safe working temperature. If the coolant is short of antifreeze, add antifreeze up to a concentration of 50%.

Coolant Change

1. Remove the radiator cap, radiator drain plug and engine drain plug to drain the coolant.

Caution

When removing the radiator cap, use care to avoid contact with hot coolant or steam. Place a shop towel over the cap and turn the cap counterclockwise a little to let pressure escape through the vinyl tube. After relieving the steam pressure, remove the cap by slowly turning it counterclockwise.

2. Remove the reserve tank and drain the coolant.
3. After draining coolant completely, reinstall the drain plugs and flush the engine and radiator using a radiator cleaning fluid.
4. After the flushing is completed, completely drain the cleaning fluid and install the radiator and engine drain plugs.
5. By referring to the section on coolant in GROUP 0, select an appropriate concentration for safe operating temperature within the range of 30–60%. Refill the system with a high quality ethylene glycol antifreeze at the selected concentration.

A convenient mixture is a 50 % water and 50 % antifreeze solution. [Freezing point: -36°C (-32.8°F)]

Reinstall the radiator cap.



6. After running the engine a while, check the coolant level and add coolant until the specified coolant level is maintained.
7. Add coolant to the reserve tank between the "FULL" and "LOW" mark if necessary.

Caution

Do not overfill the reserve tank.

BRAKE FLUID (Inspect fluid level and check for leaks)

1. Check to make certain that the brake fluid level is between the MAX and MIN line markings on the fluid reservoir. Fill as required. (S3Y507)
2. With disc brakes, the fluid level can be expected to fall as the brake pads wear. A rapid fluid loss indicates a leak in the brake system which should be inspected and repaired immediately.

Caution

Take care in handling brake fluid as it may cause damage to painted surfaces and should be cleaned immediately.

Change Fluid

1. Check the brake system for leakage before replacing brake fluid. Completely drain the brake fluid with the bleeder screws loosened on each brake and refill the brake system with new specified brake fluid.

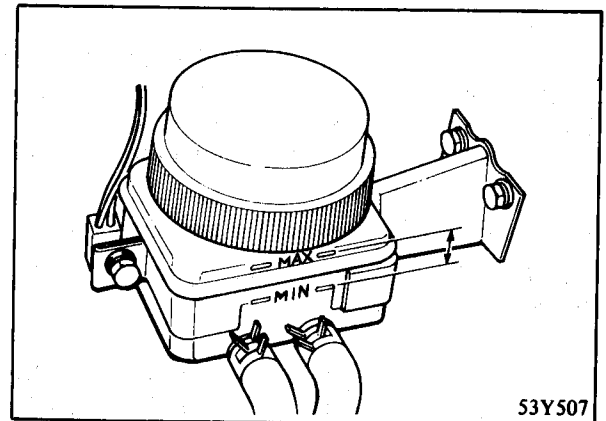
Recommended fluid
 Brake fluid conforming to DOT3

2. The reservoir cap must be fully tightened to avoid contamination from foreign matter or moisture.

DO NOT ALLOW PETROLEUM BASE FLUID TO CONTAMINATE THE BRAKE FLUID. – SEAL DAMAGE WILL RESULT –

Caution

Take care in handling brake fluid as it is harmful to the eyes and may also cause damage to painted surfaces.





BRAKE HOSES (Check for deterioration or leaks)

Inspection 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.

BRAKE

Inspect the disc brakes for pad wear and proper operation more frequently if the vehicle is driven in dusty or salty areas. The frequency of these inspections also depends upon driving conditions, such as traffic or terrain, and upon the driving techniques of the owner.

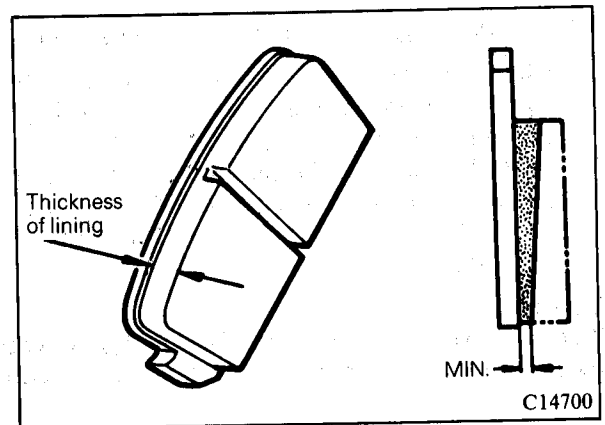
Disc Brake Pads (Inspect for wear and operation)

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

Caution

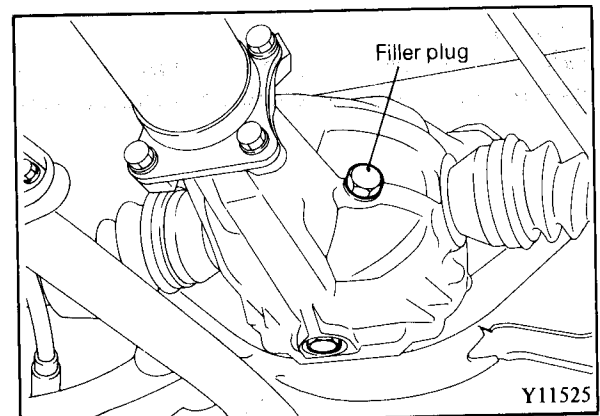
The pads for the right and left wheels should be replaced at the same time. Never "split" or intermix brake pad sets. All four pads must be replaced as a complete set.

Brake pads thickness [Limit] 1.0 mm (.04 in.)



REAR AXLE (Inspect oil level)

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





FRONT WHEEL BEARING (Inspect for grease leaks)

Inspect for evidence of grease leakage about the hub cap and the back of the hub.

If there is leakage of grease, remove the hub and its oil seal for damage.

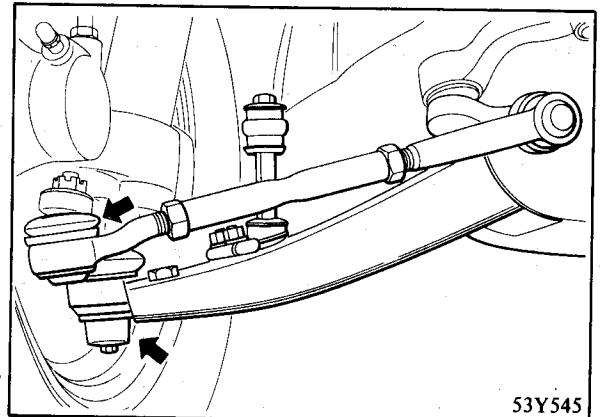
Clean the grease off the hub and bearing, and repack with the specified new grease.

BALL JOINT SEALS, STEERING LINKAGE SEALS AND DRIVE SHAFT BOOTS (Inspect for leaks and damage)

These components, which are permanently lubricated at the factory, do not require periodic lubrication.

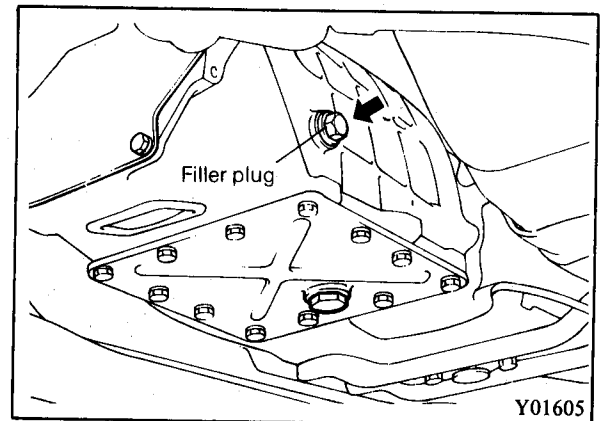
Damaged seals and boots should be replaced to prevent leakage or contamination of the grease. (53Y545)

Inspect the dust cover and boots for proper sealing, leakage and damage. Replace them if defective.



MANUAL TRANSMISSION OIL (Check oil level)

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



AUTOMATIC TRANSMISSION FLUID (Change fluid)

The fluid replacement is required every 48,000 km (30,000 miles) if the vehicle is used in severe usage conditions.



AIR CONDITIONER SYSTEM (INCLUDING COMPRESSOR BELT) (Check and service as required)

1. Inspect the belt for evidence of cuts and cracks. Replace, if necessary.
2. Check belt for proper tension. If necessary, adjust the belt tension as follows:
 - (1) Push the belt with a force of 100 N (22 lbs.) at a point halfway between the crankshaft pulley and tension pulley. The belt deflection should be 7 to 10 mm (1/4 to 3/8 in.).
 - (2) If belt deflection is not within specified limits, loosen tension pulley mounting bolt, and move the tension pulley to obtain proper belt deflection at 100 N (22 lbs.) force.

POWER STEERING OIL PUMP BELT (Check and service as required)

1. Inspect the belt for evidence of cuts and cracks. Replace, if necessary.
2. Check belt for proper tension. If necessary, adjust the belt tension as follows.
 - (1) Push the belt with a force of 100 N (22 lbs.) at a point halfway between the power steering oil pump pulley and water pump pulley. The belt deflection should be 7 to 10 mm (1/4 to 3/8 in.).
 - (2) If belt deflection is not within specified limits, loosen oil pump mounting bolt, and move the oil pump to obtain proper belt deflection at 100 N (22 lbs.) force.

POWER STEERING FLUID LEVEL (Inspect fluid level)

1. Park the vehicle on a flat, level surface, start the engine, and then turn the steering wheel several times to raise the temperature of the fluid to approximately 50°C (122°F).
2. With the vehicles still idling, turn the wheel all the way to the left and right several times.
Check the fluid in the oil reservoir for foaming or mirkiness, check the fluid level, and replenish the fluid in the oil reservoir through the oil filter if necessary.

POWER STEERING HOSES (Check for deterioration or leaks)

1. Check the hose connections for fluid leaks.
2. The power steering hoses should be replaced if there are severe surface cracking, pulling, scuffing or worn spots. Deterioration of the hoses could cause premature failure.

EXHAUST SYSTEM (CONNECTION OF MUFFLER AND PIPINGS) (Check and service as required)

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