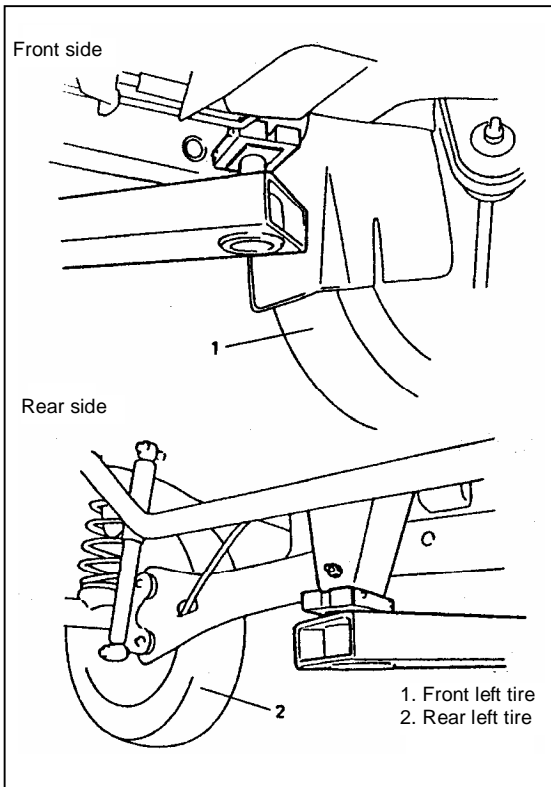


CONTENTS			SECTION
Volume I	General Description	General Description	<u>0A</u>
		Maintenance and Lubrication	<u>0B</u>
	Heating and Air Conditioning	Heater and Ventilation	<u>1A</u>
		Air Conditioning	<u>1B</u>
	Steering, Suspension, Wheel and Tyre	Steering, Suspension, Wheel and Tyre	<u>2</u>
		Front Wheel Positioning	<u>2A</u>
	Drive Shafts Brake System	Rack and Pinion	<u>2B</u>
		Steering Wheel and Steering Column (not Equipped with Air Bag)	<u>2</u>
		Front Suspension	<u>2</u>
		Rear Suspension	<u>2</u>
		Wheel and Tyre	<u>2</u>
		Propeller Shaft	<u>3</u>
		Brake	<u>4</u>

CONTENTS			SECTIONS
Volume II	Engine	Engine	<u>5</u>
		Engine Cooling System	<u>5A</u>
		Engine Fuel System	<u>5B</u>
		Service of Engine Control System	<u>5</u>
		Engine Mechanical	<u>5</u>
	Transmission and Clutch	Manual Transmission	<u>6A</u>
		Clutch	<u>6B</u>
		Rear Differential	<u>6</u>
	Body Electrical System		<u>7</u>
	Body Service		<u>8</u>



Vehicle Hoist Points

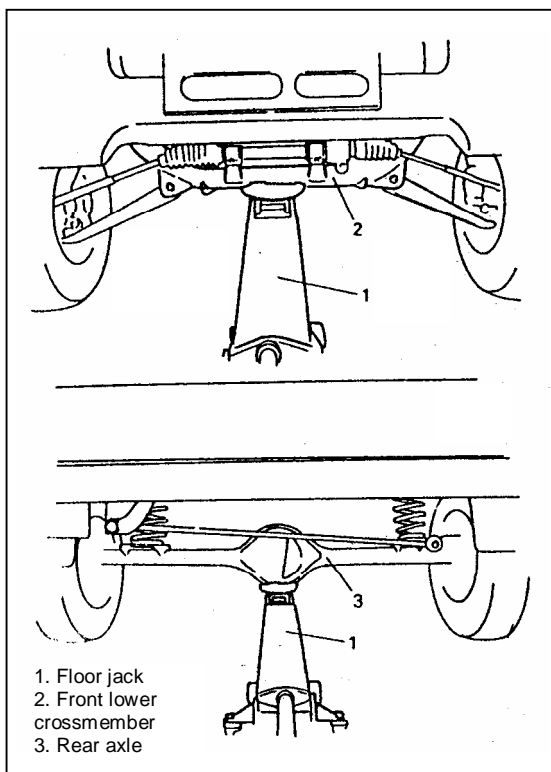
WARNING:

- I Before applying hoist to under body, always take vehicle balance throughout service into consideration. Vehicle balance on hoist may change depending on what part to be removed.
- I Before lifting up the vehicle, check to be sure that end of hoist arm is not in contact with brake pipe, fuel pipe, bracket or any other part.
- I When using frame contract hoist, apply hoist as shown in figure (right and left at the same position). Lift up the vehicle till 4 tires are little off the ground and make sure that the vehicle will not fall off by trying to move vehicle body in both ways. Work can be started only after this confirmation.
- I Make absolutely sure to lock hoist after vehicle is hoisted up.

When Using a Jack:

In raising front or rear vehicle end off the floor by jacking, be sure to put the jack against the front end of the engine mounting member or rear axle.

To perform service with either front or rear vehicle end jacked up, be sure to place safety stands under body so that body is securely supported. And then check to ensure that body does not slide on safety stands. The vehicle is held stable for safety's sake.



Warning:

- I Never apply jack against suspension part (i.e., stabilizer, etc.) or vehicle floor, or it may get deformed.
- I If the vehicle to be jacked up only at the front or rear end, be sure to block the wheels on ground in order to ensure safety. After the vehicle is jacked up, be sure to support it on stands. It is extremely dangerous to do any work on the vehicle raised on jack alone.

6-3 Brake Fluid

INSPECTION

- 1) Check around master cylinder and reservoir for fluid leakage.

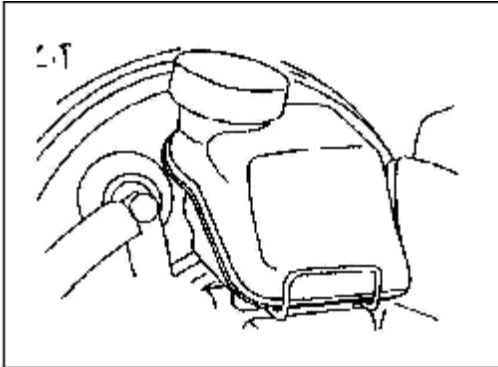
If found leaky, repair immediately.

- 2) Check fluid level.

If fluid level is lower than the minimum level of reservoir, refilling is necessary. Fill reservoir with specified brake fluid.

Brake fluid: Refer to reservoir tank cap.

For the details, refer to “On-vehicle Service” of SECTION 4.



Caution:

Since brake system of this vehicle is factory-filled with brake fluid indicated on reservoir tank cap, do not use or mix different type of fluid when refilling; otherwise serious damage will occur. Do not use old or used brake fluid, or any fluid from an unsealed container.

Change

Replace brake fluid as follows:

Drain existing fluid from brake system completely. Fill system with above recommended fluid and carry out air purge operation.

For air purging procedures, refer to SECTION 4.

6-4 Brake Pedal

INSPECTION

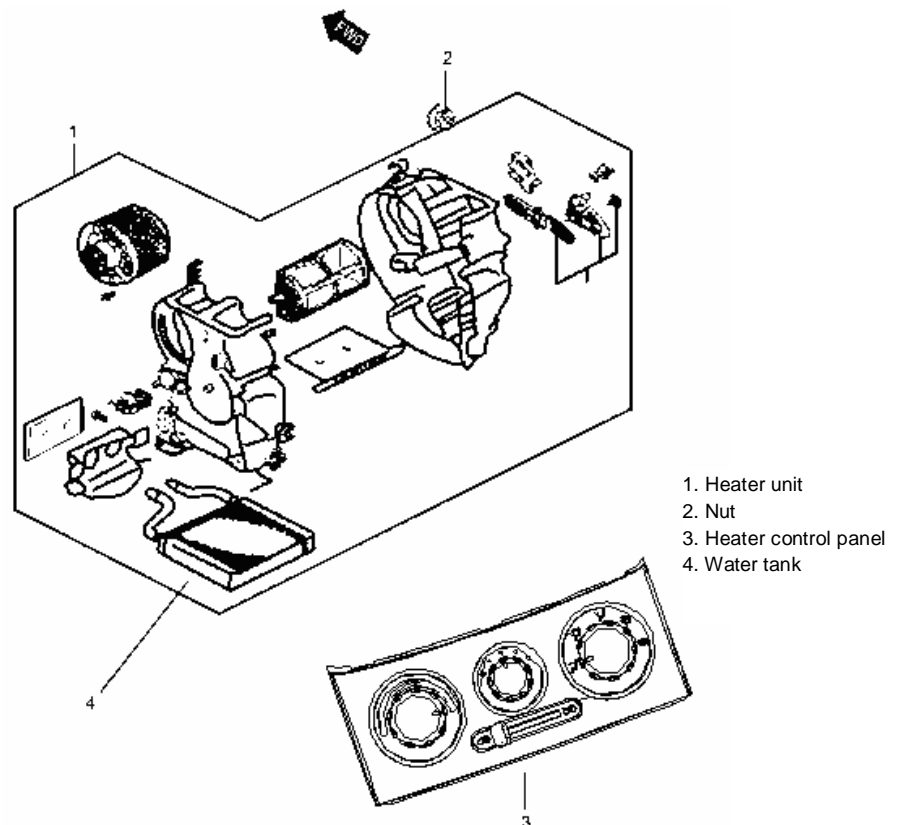
Check brake pedal travel.

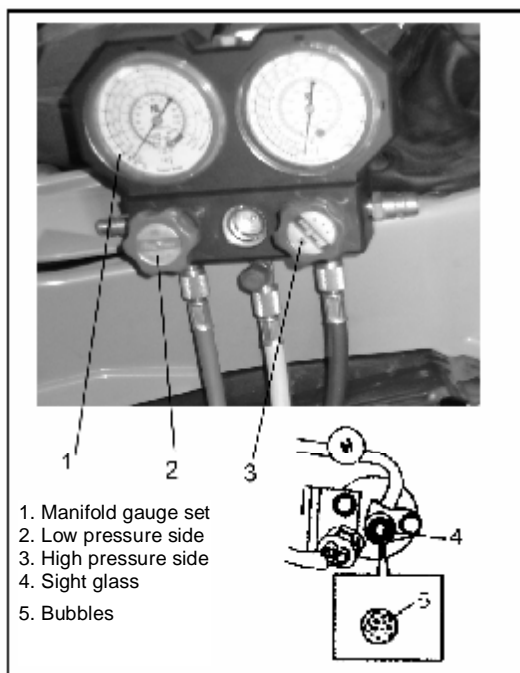
For checking procedure, refer to “Pedal Travel Check” of SECTION 4.

DIAGNOSIS

Trouble	Possible Cause	Correction
Heater blower won't work even when its switch is ON.	Blower fuse blown Blower resistor faulty Blower motor faulty Wiring or grounding faulty	Replace fuse to check for short. Check continuity. Replace motor. Repair as necessary.
Incorrect temperature output	Control cables broken or binding Water valve broken Air throttle clogged Heater water tank core leaking or clogged Heater water pipe leaking or clogged	Check cables. Replace water valve. Repair or replace air throttle. Repair or replace water tank core. Replace water pipe.

HEATER UNIT





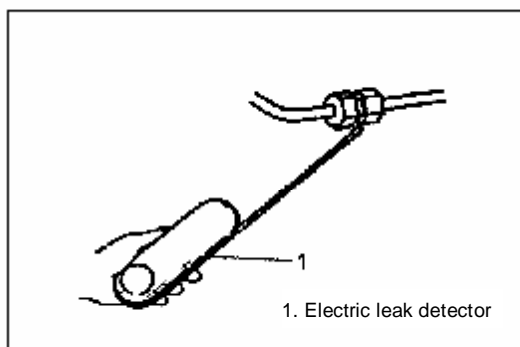
- (6) After the system has been charged with specified amount (700-750g) of refrigerant or when low and high pressure gauge have indicated specified value below respectively, close low pressure side valve of manifold gauge set. At this time, look into the sight glass and check that there are no bubbles in it, which means that the system is fully charged.

Low pressure gauge

When charged with specified amount:
About 200-300 kpa (2-3 kg-cm², 29-43 psi)
(at air temperature 25-35°C (77-95°F))

High pressure gauge

When charged with specified amount:
About 1370-1670 kpa (13.7-16.7 kg-cm², 200-244 psi) (at air temperature 25-35°C (77-95°F))



INSPECTING A/C SYSTEM FOR LEAKS

Using an electric leak detector, carefully check the system for leakage.

WARNING:

To prevent explosions or fires, make sure that there are no flammables in the vicinity.

When exposed to fire, the refrigerant turns into a poisonous gas (phosgene). (Do not put it over fire.)

DETACHING MANIFOLD GAUGE SET

WARNING:

High pressure-side is naturally under high pressure. Care should be taken to protect eyes and skin.

1) Close low pressure-side valve of manifold gauge set. (High pressure-side valve is closed during the process of charging.)

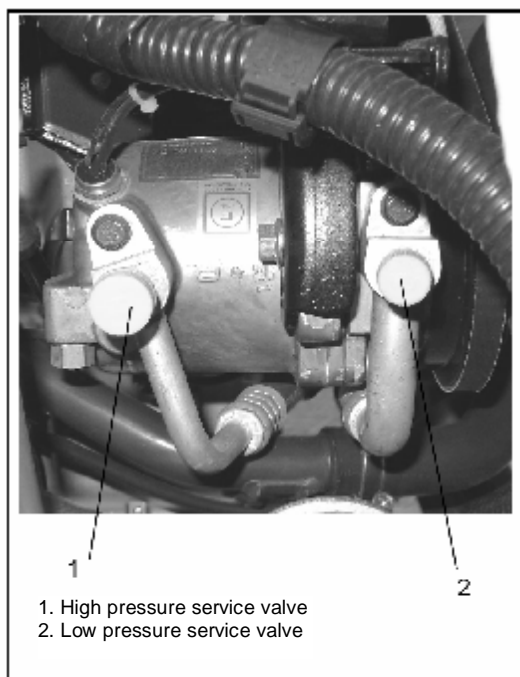
Valve).

2) Close refrigerant container valve.

3) Stop engine.

4) Using a shop rag, remove charging hoses from compressor service valves. This operation must be performed rapidly.

5) Put caps on service valves.



General Diagnosis

Since the problems in steering, suspension, wheels and tyres involve several systems, they must all be considered when diagnosing. To avoid using the wrong symptom, always road test the vehicle first. Proceed with the following preliminary inspection and correct any defects which are found.

- 1) Inspect tyres for proper pressure and uneven wear.
- 2) Raise vehicle on a hoist and inspect front and rear suspension and rack and pinion for loose or damaged parts.
- 3) Spin front wheels. Inspect for out-of-round tyres, out-of-balance tyres, bent rims, loosen and/or rough wheel bearings.

Condition	Possible Cause	Correction
Vehicle driving (Off Tracking)	<ul style="list-style-type: none"> Mismatched or uneven tyres Improper tyre pressure Broken or sagging springs Radial tyre warped by lateral force Disturbed front end alignment Brake dragging in one road wheel Loose, bent or broken front or rear suspension parts 	Replace tyre. Adjust tyre pressure. Replace spring. Replace tyre. Check and adjust front end alignment. Repair front brake. Tighten or replace suspension parts.
Abnormal or Excessive Tyre Wear	<ul style="list-style-type: none"> Sagging or broken springs Tyre out of balance Disturbed front end alignment Faulty strut (damper) Hard driving Overloaded vehicle Not changing tyre Worn or loose road wheel bearing Wobbly wheel or tyre Tyres not adequately inflated 	Replace spring. Adjust balance or replace tyre. Check and adjust front end alignment. Replace strut. Replace tyre. Replace tyre. Replace or change tyre. Replace wheel bearing. Replace wheel or tyre. Adjust tyre pressure.
Wheel Tramp	<ul style="list-style-type: none"> Blister in tyre or broken tyre Improper strut (damper) 	Replace tyre. Replace strut.
Shimmy, Shake or Vibration	<ul style="list-style-type: none"> Tyre or wheel out of balance Damaged or worn wheel bearings Worn steering tie rod Worn left and right front suspension arm Excessive wheel radial runout Blister in tyre or broken tyre Excessively loaded radial runout of tyre/wheel assembly Disturbed front end alignment Loose or worn steering linkage Loose steering gear case mounting bolts 	Balance wheels or replace tyre and/or wheel. Replace wheel bearing. Replace steering tie rod. Replace front suspension arm. Repair or replace wheel and/or tyre. Replace tyre. Replace tyre or wheel. Check and adjust front end alignment. Tighten or replace steering linkage. Tighten steering gear case bolts.
Hard Steering	<ul style="list-style-type: none"> Tyre not adequately inflated Gripping of steering tie rod ball joint or left and right front suspension arm ball joint Disturbed front end alignment Rack and pinion not properly adjusted Gripping of steering column 	Inflate tyres to proper pressure. Replace steering tie rod ball joint or front suspension arm. Check and adjust front end alignment. Check and adjust rack and pinion torque. Repair or replace.



DIAGNOSIS

STEERING WHEEL PLAY CHECK

Check steering wheel for play and rattle, holding vehicle in straight forward condition on the ground.

Steering wheel play "a": 0-30 mm (0-1.18 in.)

If steering wheel play is not within specification, inspect as follows and replace if found defective.

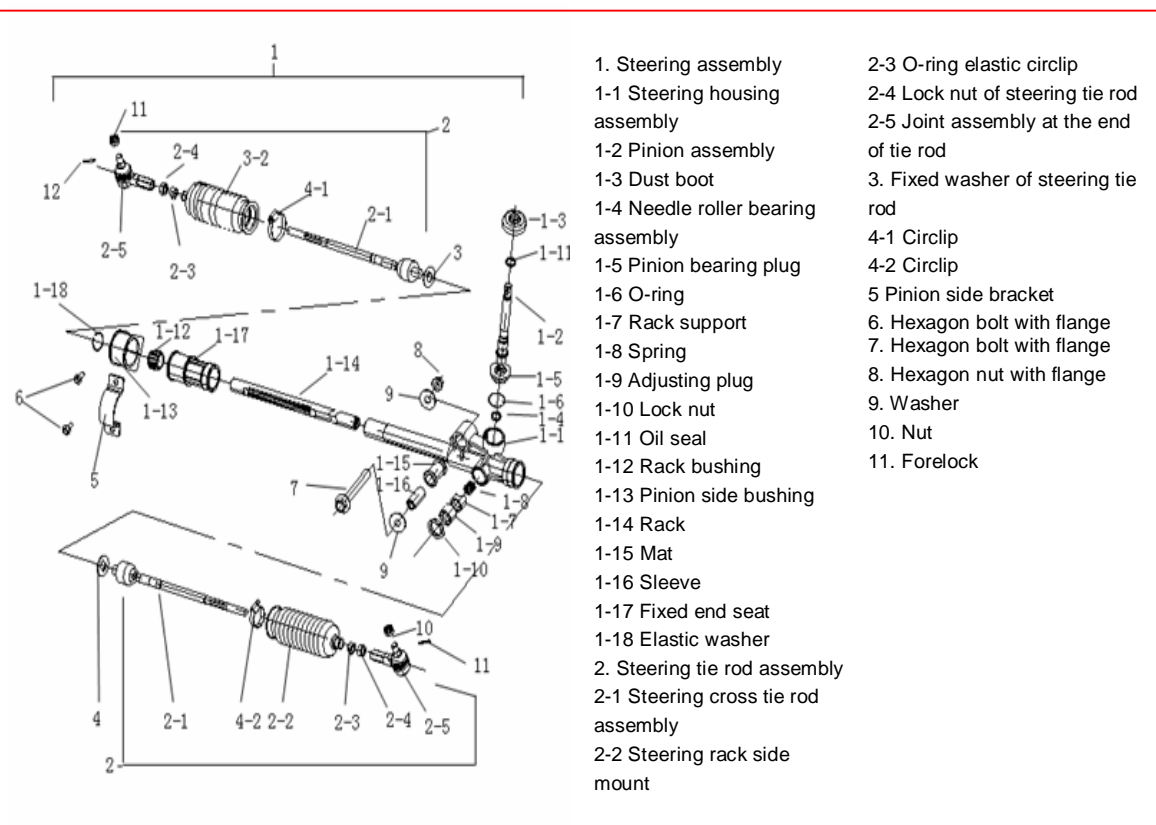
- I Tie rod end ball stud for wear (ball stud should move when more than 2 kg-cm torque is applied.)
- I Lower ball joint for wear
- I Steering shaft joint for wear
- I Steering pinion or rack gear for wear or breakage
- I Each part for looseness

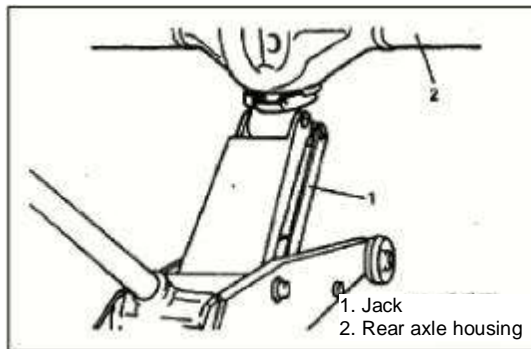
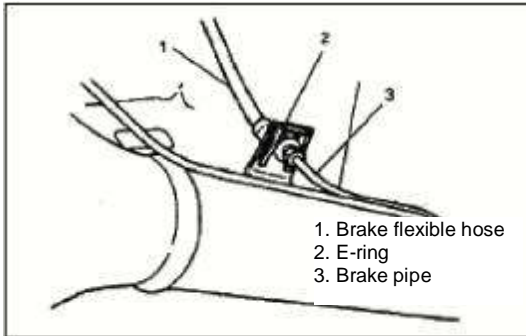
ON-VEHICLE SERVICE

LUBRICATION

When inner parts of the steering gear case were disassembled, they should be washed clean before reassembly. It is recommended to use the grease as shown below.

GREASE: Lithium grease (applicable for -40°C - 130°C (104°F - 266°F))



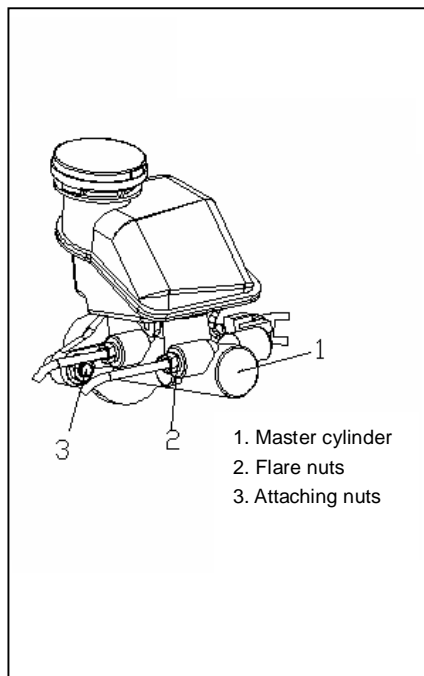
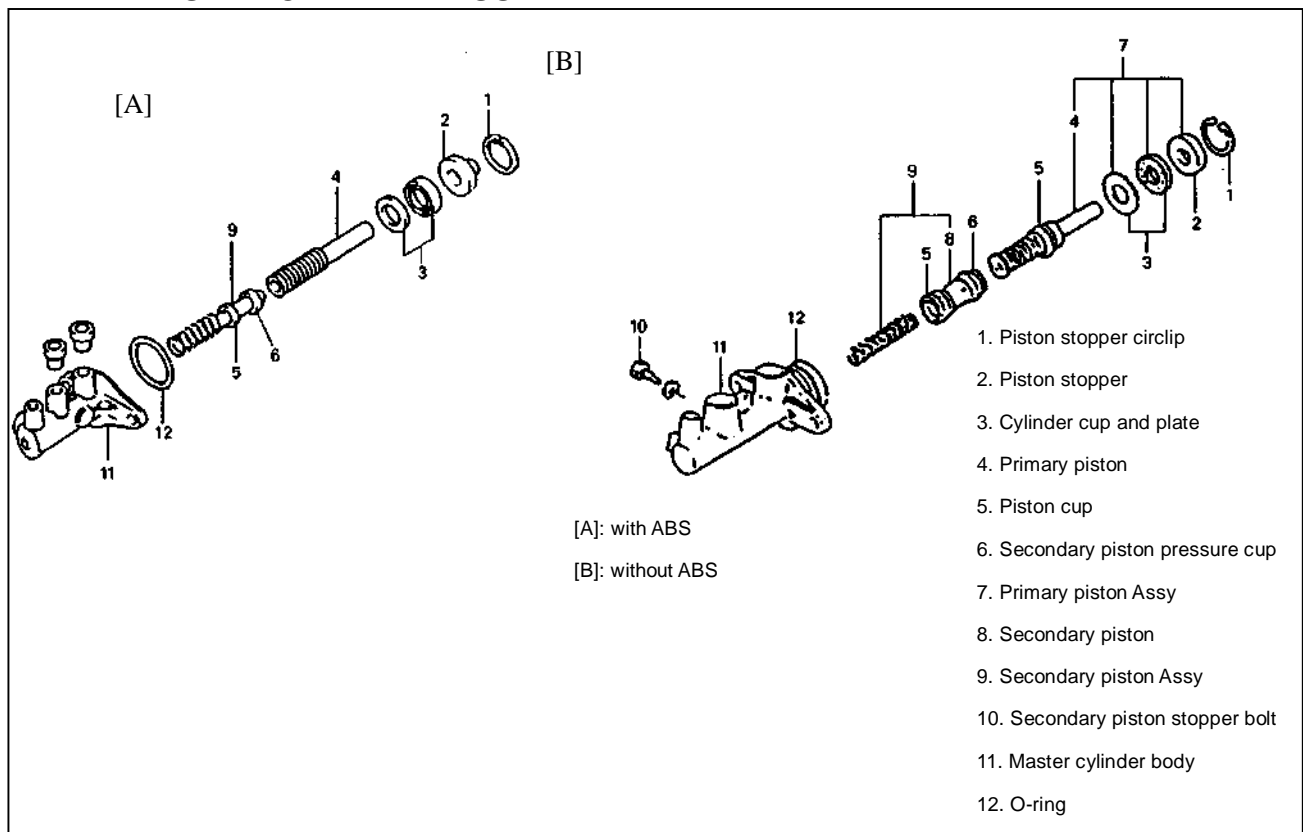


REAR AXLE HOUSING

REMOVAL

- 1) Hoist vehicle and remove rear wheels (right & left).
- 2) Remove rear axle shafts; refer to steps 2) to 7) of "REAR AXLE SHAFT REMOVAL" in this section.
- 3) Disconnect brake pipe from flexible hose and remove E-ring.
- 4) Remove brake pipe clamps and pipes from axle housing.
- 5) Remove wheel speed sensor harness clamps from axle housing (if equipped with ABS).
- 6) Remove differential carrier assembly, refer to Section 7E.
- 7) Disconnect LSPV spring from rear axle housing; refer to "LSPV REMOVAL" of Section 5(if equipped with ABS)
- 8) For jobs hereafter, support rear axle housing by using floor jack under axle housing.
- 9) Remove spring, shock absorber and relevant attachments for spring installation.
- 10) Rear axle gradually.
- 11) Remove rear axle housing.

BRAKE MASTER CYLINDER ASSEMBLY



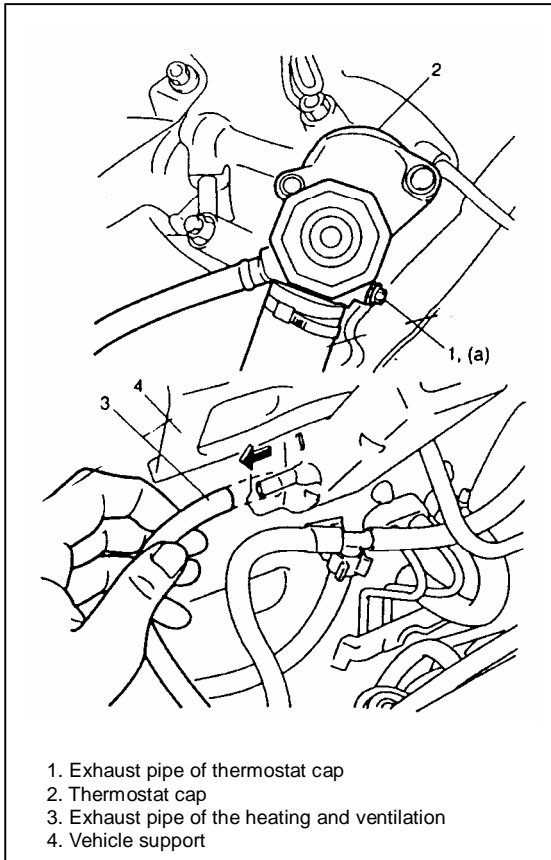
REMOVAL

- 1) Clean around reservoir cap and take out fluid with syringe.
- 2) Disconnect reservoir house.
- 3) Disconnect brake pipes from master cylinder.

CAUTION:

Do not allow brake fluid to get on painted surface.

- 4) Remove two attaching nuts.
- 5) Remove master cylinder.



7) Disassemble the water tank and open the cap of water tank, empty the liquid and wash the inside tank with soap and clean water.

Fill clean water and discharge and wash with clean water, then empty. Reinstall the water tank

8) Add the coolant (high-quality 50 ethanediol: 50 water) into the radiator and water tank.

Loosen the exhaust pipe of heating and ventilation core and the exhaust screw of the thermostat cap to release the air in the cooling system; in addition, add coolant into the radiator until the coolant flows out of the exhaust hold of the thermostat cap. Then tighten the exhaust screw of the thermostat cap.

Tightening Torque

(a) =3.0 N.m (0.3 kg-m, 2.2 lb-ft)

9) Fill the radiator to the level of the end of filling hole and the water tank to the level of "Full" mark. Cover the cap of water tank.

10) Connect the exhaust pipe of the heating and ventilation core.

11) Operate the engine when the radiator cap is open until the hoses on the upper part of the radiator become heat. Fill the radiator with coolant until reaching the filler.

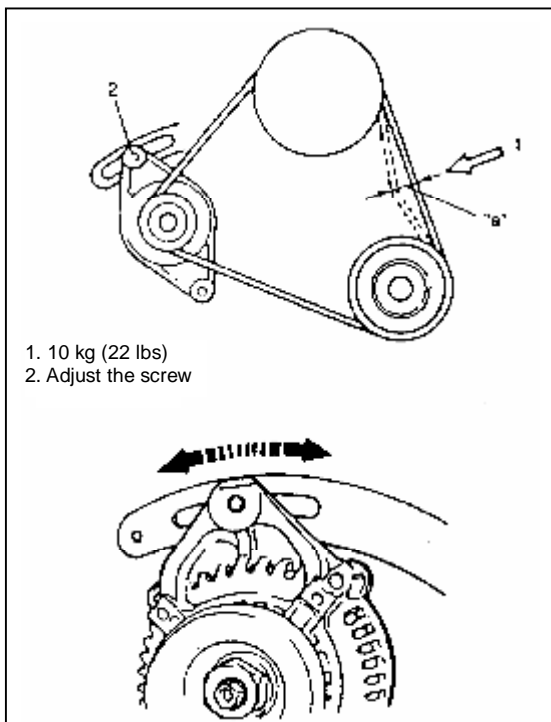
12) Stop the engine and the install radiator cap, ensuring the mark of the cap parallel to the radiator. Add coolant to the radiator after the engine is cooling down.

13) Please repeat Step 9) to Step 12) if there is still air in the cooling system.

Tension of Engine/ Water Pump Drive Belt

Warning:

- Cut off the negative wire prior to inspecting and adjusting the tension of belt.
- Read the "Warning" in "Maintenance of Cooling System"



1) Inspect the belt for breakage, cut, distortion, wear and dirt. If requiring for replace a new belt, please refer to the "Engine/ Water Pump Drive Belt" in the "Charge System" Section.

2) Inspect the tension of the belt. If the belt drops 6-8 mm (0.24-0.31 in.) under the pressure of the thumb (about 10 kg or 22 lb), the tension of the belt is under normal status.

Tension of belt ("a": 6-8 mm (0.24-0.31in.)

Deflection under the pressure of the thumb

Note:

Adjust the pressure of belt to 5-7 mm (0.20-0.28 in.) after replace a new belt.

3) If the belt is too tight or loose, adjust the expansion to a normal status by moving the engine.

4) Tighten the adjusting screw of belt and the support screw of the engine.

5) Connect the negative wire to the connector of the battery.

Technical Performance Parameters

Volume	Value			Unit
	Minimum	Type	Maximum	
Resistance under 20°C room temperature	774	860	946	Ω
Induction	310	370	430	mH
Output voltage of crankshaft (416 revolutions per minute)	>1650			mV

Installation cautions

The induction speed sensor is installed by means of press-in rather than hammering. Recommend using the partly sealed bolt M6×12 for mounting the induction speed sensor. Tightening torque: $8\pm 2\text{Nm}$.

Air gap between the induction speed sensor and the pulsed disc: 0.8 to 1.2 mm.

Dimension d (see following figure): 4.7mm.

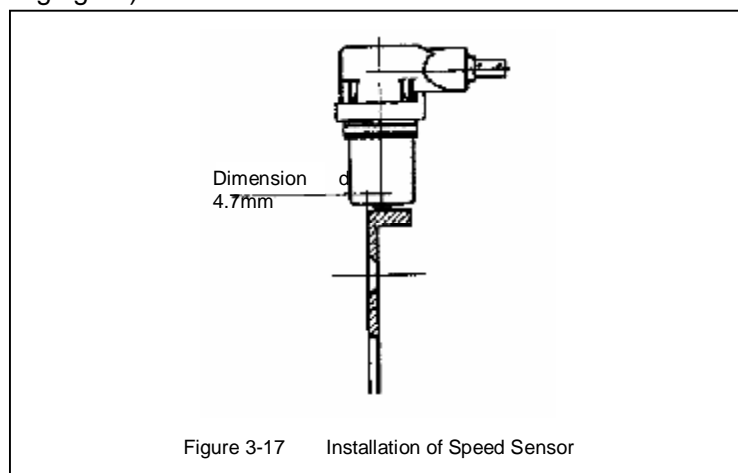


Figure 3-17 Installation of Speed Sensor

Troubles and Judgment

Troubles: not start, etc.

Possible Causes:

1. Man-made troubles.
2. Demagnetization of magnetic steel under high temperature operation for a long time.

Serve caution: use the method of press-in rather than hammering.

Measuring Method:

1. (Disconnect the connector) Switch the digital multi-meter to the ohm range. Respectively connect the two probe pens with the pin 2 and pin 3 of the sensor. The nominal resistance is $860\Omega\pm 10\%$ during 20°C.

2. (Connect the connector) Switch the digital multi-meter to the AC voltage range. Respectively connect the two probe pens with pin 2 and pin 3 of the sensor and start the engine. The voltage is output at this time. (recommend using the vehicle oscilloscope for inspecting)

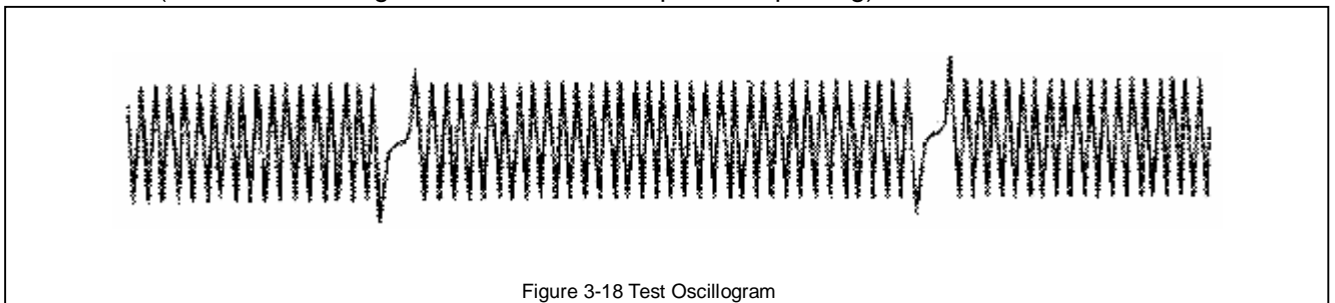
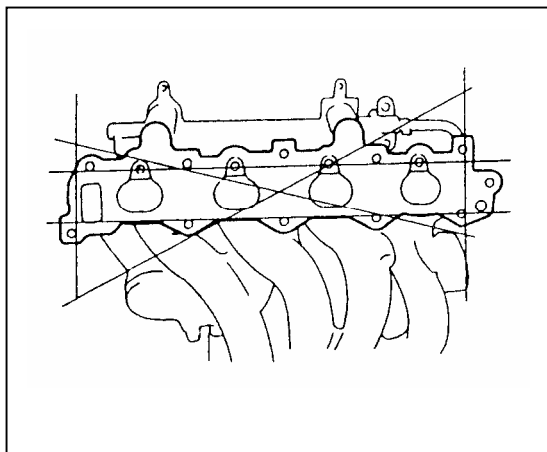


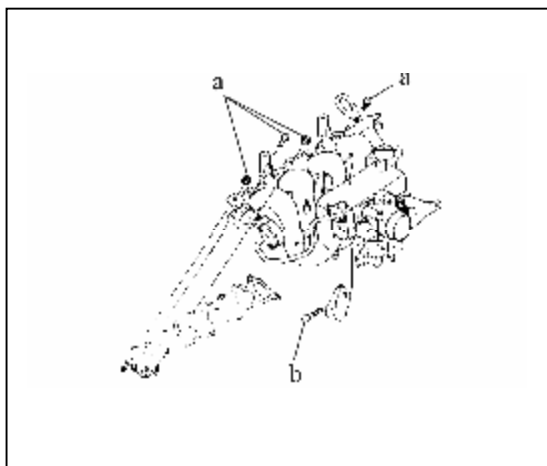
Figure 3-18 Test Oscillogram



Inspection

- There are 6 places inspected by ruler and thickness gauge. If the following deformation limit is exceeded, level the surface or replace inlet manifold

Deformation limit: 0.07mm (0.003in.)



Assembly

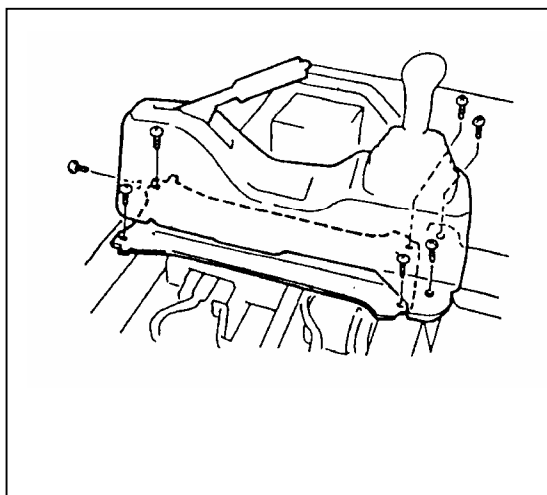
Install in the reverse order of disassembly and pay attention to the following items:

- Use the new inlet manifold gasket.
- Tighten bolts and nuts as per specified torque.

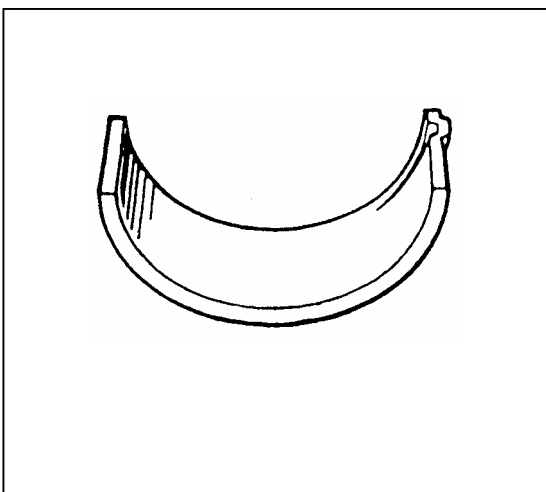
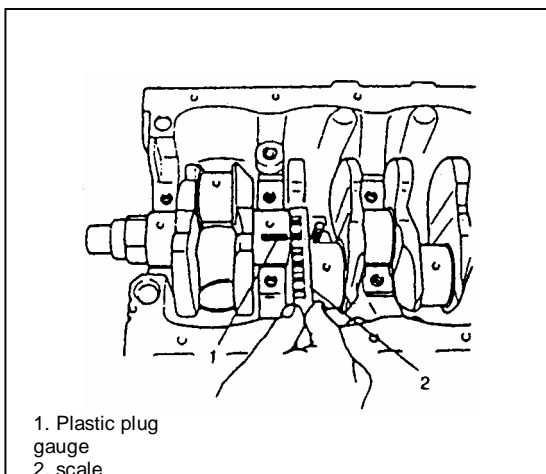
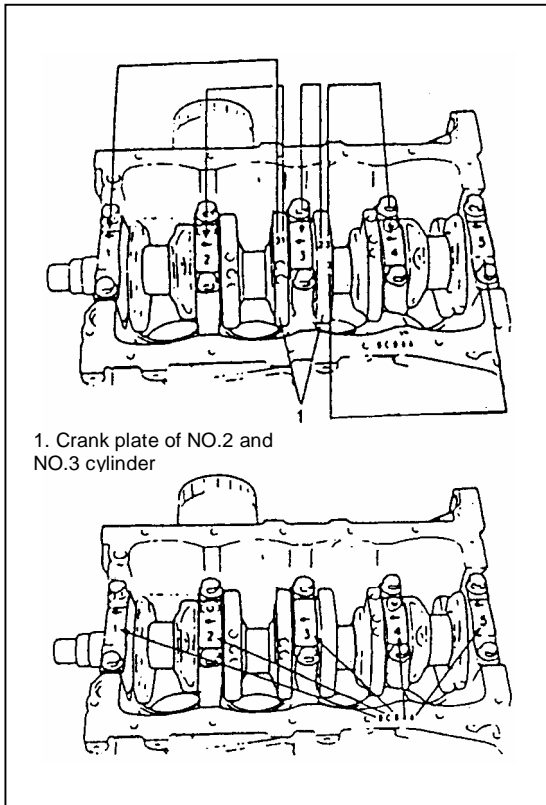
Tightening torque

(a):23N·m (2.3kg-m, 7.71kg-ft)

(b):50N·m (5.0kg-m, 36.5lb-ft)



- Connect shift cable to gear lever, refer to the installation of shift control in Section 7A.
- Connect the parking brake cable to the brake parking lever and refer to the inspection and adjustment of parking brake in Section 5 to adjust the parking brake.
- Adjust the clearance of accelerator cable.
- Check and ensure all the disassembled parts return to the original location, assemble all the required parts.
- Install centre cross member in engine compartment.
- Refill liquid to cooling system and exhaust the air in system.
- Adjust the tightness of engine driving belt.
- After assembly, turn the ignition switch to ON but the engine is set to OFF, inspect whether there is oil leakage.
- Start engine finally, inspect whether the engine cooling system is leaking.



4) Consider the stamping numbers on the crank plate of No.2, No.3 cylinder and the stamping letters on the mating surface of cylinder, ensure the new standard bearing shell on journal with reference to the table.

For example: If the stamping number on the crank plate is "1" and the stamping letter is "B" on the mating surface, install No.4 shell onto the journal.

		Stamping number on crank plate (journal diameter)		
		1	2	3
Stamping letter on the mating surface (aperture of bearing cap)	A	5	4	3
	B	4	3	2
	C	3	2	1
		New standard bearing shell		

5) Inspect the bearing shell clearance of newly-selected standard bearing shell with plastic plug gauge. If the clearance still exceeds limit value, use the next thicker bearing shell and inspect clearance.

6) During replacing crankshaft or cylinder body, select new standard bearing shell with reference to the stamping numbers on new crankshaft or stamping letters on the mating surface of new cylinder body.

Thickening bearing shell (0.25mm)

- The enlarged size bearing shell of 0.25mm is useful, the bearing shell is of one type of thickness. Its thickness is 2.119~2.125mm.

The steel back of bearing shell is stamped with "0.25"mark.

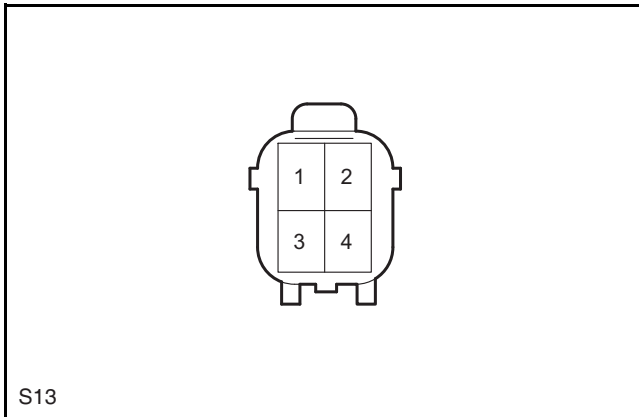
TIGHTENING TORQUE

Fastening portion	Tightening Torque		
	N·m	Kg-m	lb-ft
1.Flywheel bolts	78	7.8	56.5
2.Clutch cover bolts	23	2.3	16.5

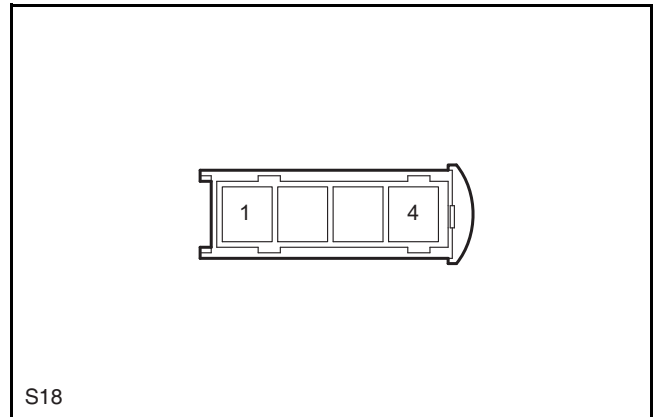
REQUIRED SERVICE MATERIALS

MATERIAL	SUZUKI products are recommended	USE
Lithium grease	Suzuki premium A-grade grease	Clutch pedal shaft arm Clutch release fork
	SUZUKI premium grease 1(99000-25210)	Input shaft spline front end.

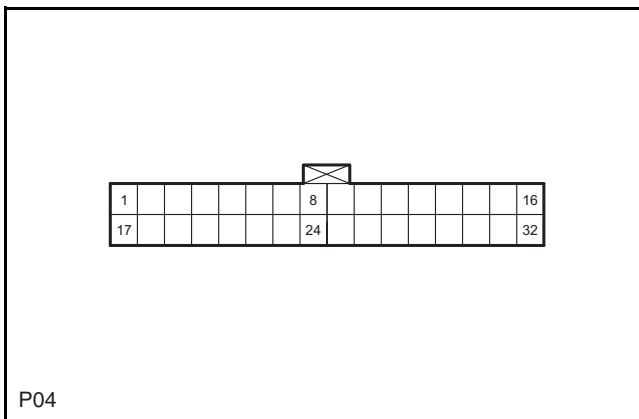
Post-Catalytic Oxygen Sensor Connector



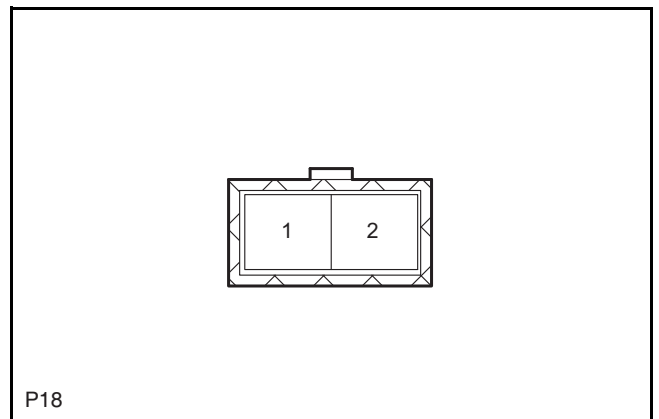
Pre-Catalytic Oxygen Sensor Connector



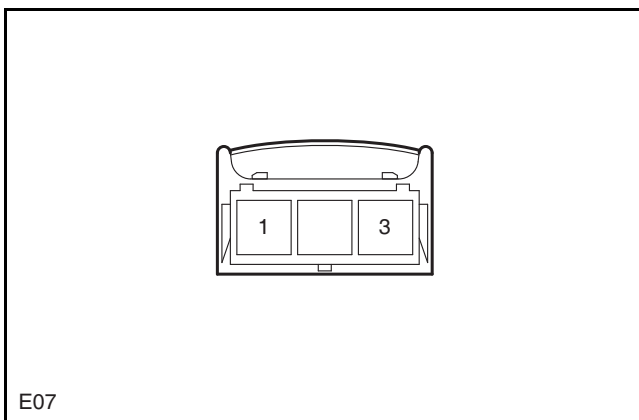
Instrument Cluster Connector



Evaporator Temperature Sensor Connector



Throttle Position Sensor Connector



Coolant Temperature Sensor Connector

