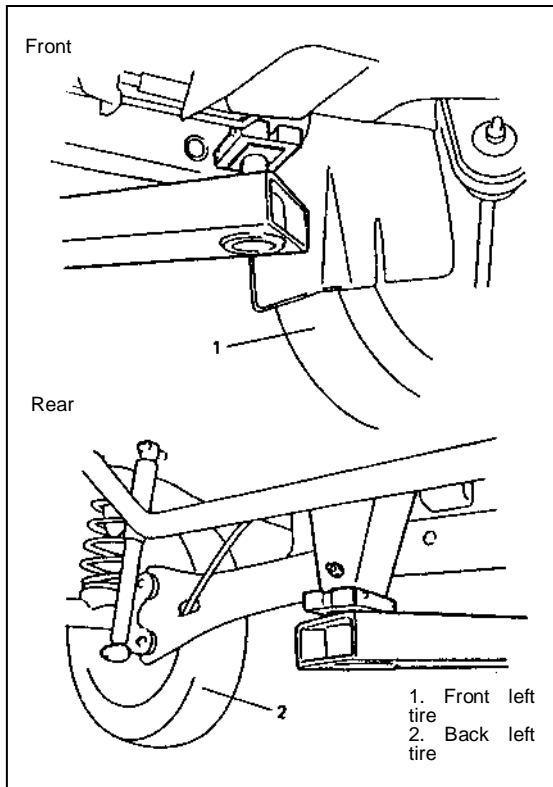




Contents			Chapter
Volume I	Introductions	Introductions	0A
		Maintenance and lubrication	0B
	Heating, ventilation and air-conditioning	Heating and ventilation	1A
		Air-conditioner	1B
	Supplemental inflatable restraint system and security system	Supplemental inflatable restraint system	2A
		Car security system	2B
	Steering mechanism, suspension, wheel and tire	Steering mechanism, suspension, wheel and tire	3
		Front wheel alignment	3A
		Rack and pinion	3B
		Rotary table and steering column (without airbag)	3C
		Front suspension	3D
		Back suspension	3E
		Wheel and tire	3F
	Propeller shaft	Propeller shaft	4
	Brake system	Brake	5
		Anti-Lock Brake System (ABS) (Optional)	5A

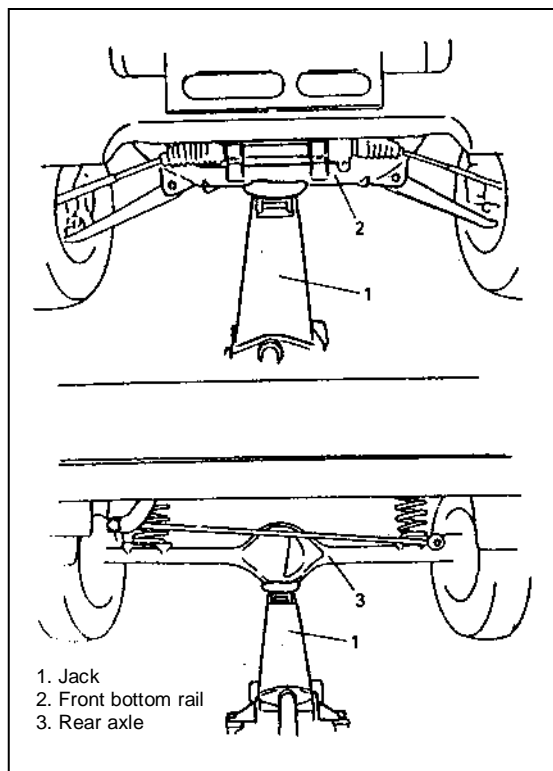
Contents			Chapter
Volume II	Engine	Engine	6
		Cooling system of engine	6A
		Fuel system of engine	6B
		Repair on management system of engine	6C
		Mechanical part of engine	6D
	Transmission and clutch	Manual transmission	7A
		Clutch	7B
		Differential	7C
	Electrical system of the body		8
	Repair on the body		9



Main points of raising vehicle

Warning:

- In the course of repairing vehicle with raising device, the balance of the vehicle shall be taken into consideration all the time, as the balance of the vehicle will change due to dismantling of only one part or component.
- Check and make sure that the jack will not contact the brake pipe, fuel pipe, bracket and other components before raising the vehicle.
- In the course of the jack contacting the frame, the contact position is shown in the left diagram (the left and the right positions are the same.) After the four wheels are levitated slightly, shake the frame at two sides to make sure that the vehicle will not fall down before starting repair.
- Make sure that the raising device is locked after the vehicle is raised.



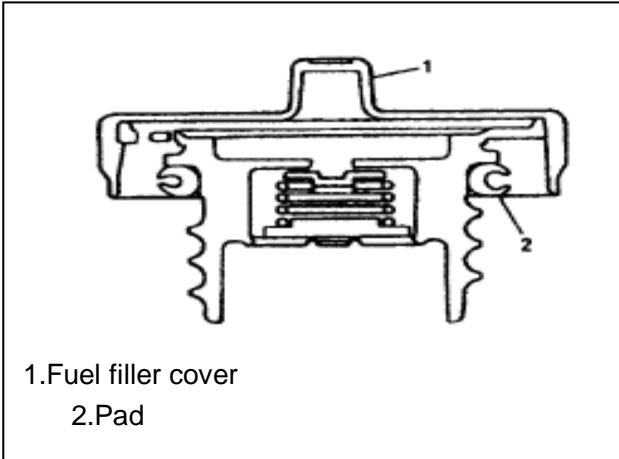
In the course of using a jack:

In the course of raising the front end or rear of a vehicle with one jack, make sure that the jack is against the front rail or rear axle of the installation parts of the engine.

Raise the front end or rear of a vehicle in the course of repair provided that one safety bench is placed under the vehicle body. For the safety sake, check the vehicle body and make sure that the vehicle will not fall away from the bench. The vehicle shall be supported in a stable manner.

Warning:

- Do not place the jack against the suspension (such as stabilizer bar) or the floor on the ground that such operation will cause deformation.
- In the case of only the front end or the rear of the vehicle raised, make sure that the wheels are blocked for the safety sake. Support the vehicle on the bench after raising the vehicle. Conducting repair under the condition of raising the vehicle just with iack is extremelv dangerous.



Fuel

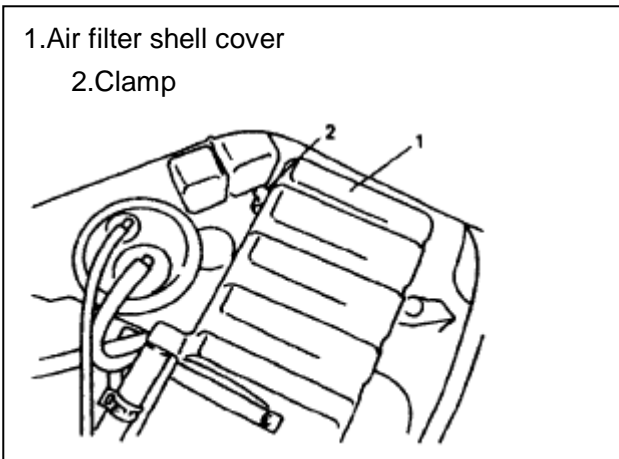
5.1 Fuel tank cover

Check

Check the pad of fuel tank cover through visionary inspection, and replace it if damaged.

Cautions:

Replace it with new cover in the same specification; otherwise it will cause defects to the work.



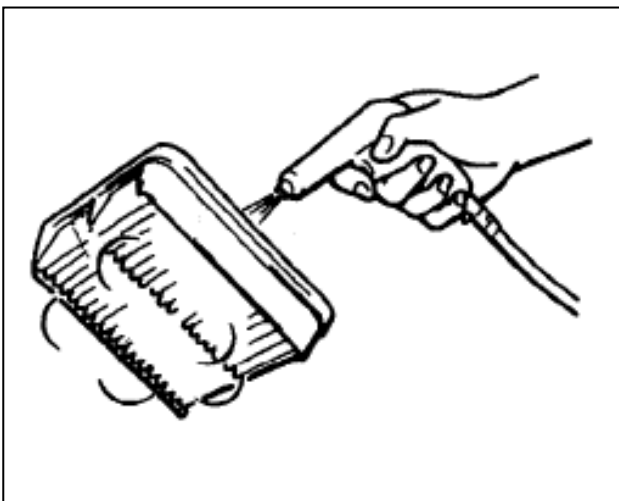
5.2 Air filter cartridge

Replace

Notes:

Replace the air filter cartridge frequently if under dusty condition. As for the replacing interval, consult with the dealer.

Replace the air filter cartridge as per the procedures set forth in Chapter 6.



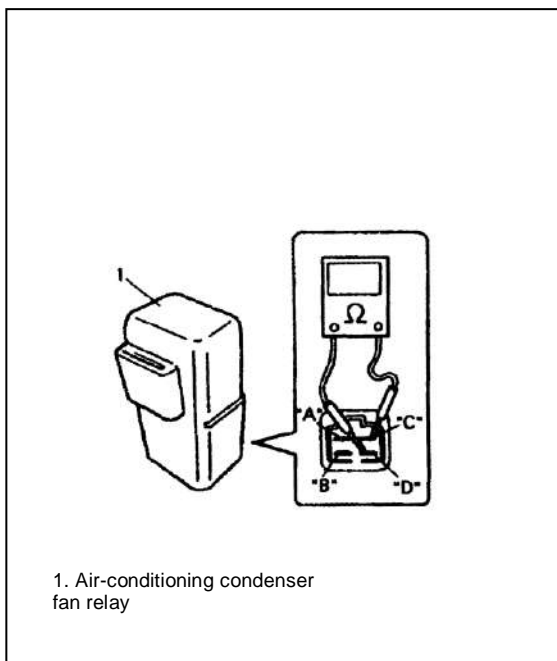
Check and clean

1) Check whether the air filter cartridge is dirty, damaged or greasy through visionary inspection.

2) Clean the cartridge through the vent with compressed air.

Notes:

Conduct the cleaning once or more for each 2,500km (1,500mile) if the vehicle is running on a dusty road.



Air-conditioning condenser fan relay

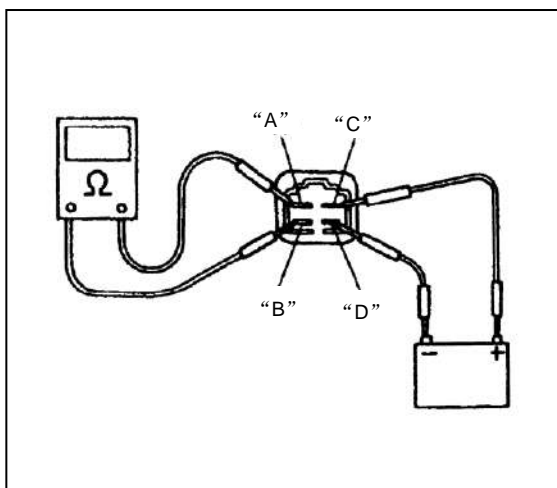
Check

Check the resistance between each two terminals listed in the following table.

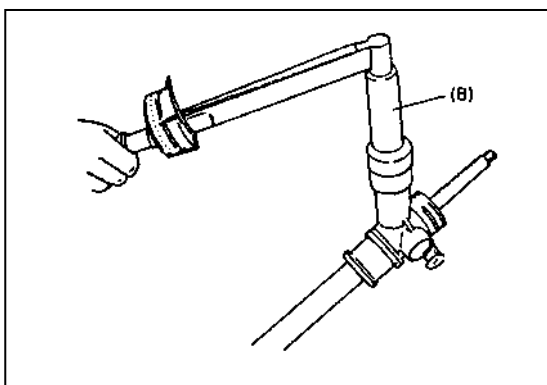
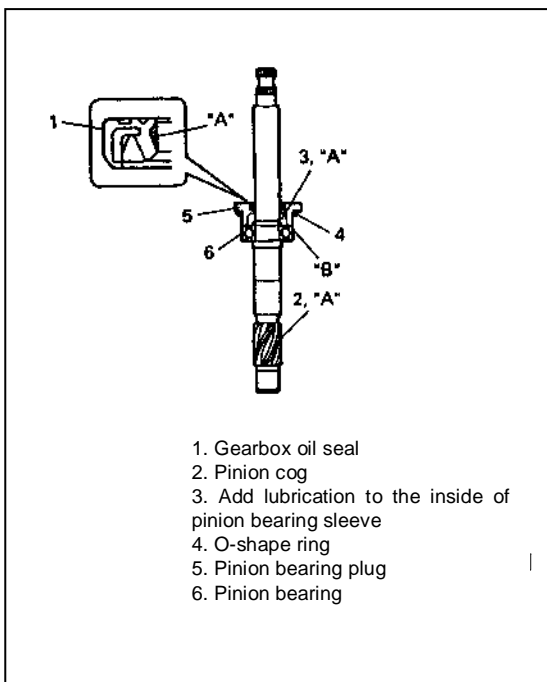
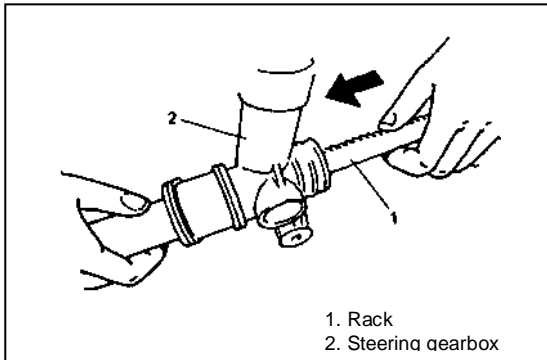
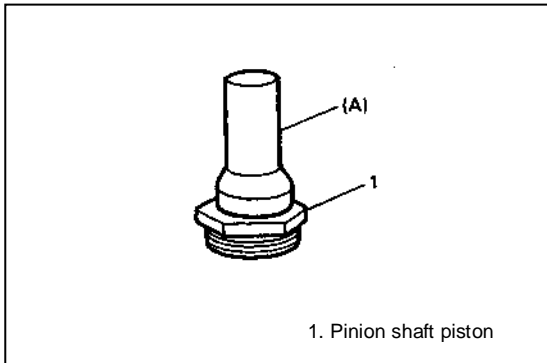
The resistance between "A" and "B" terminal: ∞ (indefinite)

The resistance between "C" and "D" terminal: 80-100 Ω at 20°C (68°F).

If the check result reaches the regulations, conduct another check. Otherwise, replace it.



When connecting the storage battery to "C" and "D" terminal, check whether the terminal between "A" and "B" breaks over. If any defect is found, replace it.



Reinstallation

The installation is conducted in reverse order used for dismantling provided that the following items are taken into consideration:

1) Install the oil seal of pinion bearing to the pinion shaft piston with special tool.

Special tool:

(A): 09925~98210

2) Add lubrication to the clamp of oil seal.

3) Add lubrication to the surface and the surrounding of central cog of the rack.

4) Slide the rack into the steering gearbox as per the illustrated direction.

Cautions:

The inside of steering gear sleeve is subject to process with special varnish. As it is fragile, care shall be given to installing rack to steering gearbox for the purpose of preventing any damage.

5) Add lubrication to the cog surrounding of pinion, pinion bearing and opening of gearbox oil seal.

"A": Lubrication

6) Add tightening adhesive to the thread of pinion bearing.

"B": Tightening adhesive

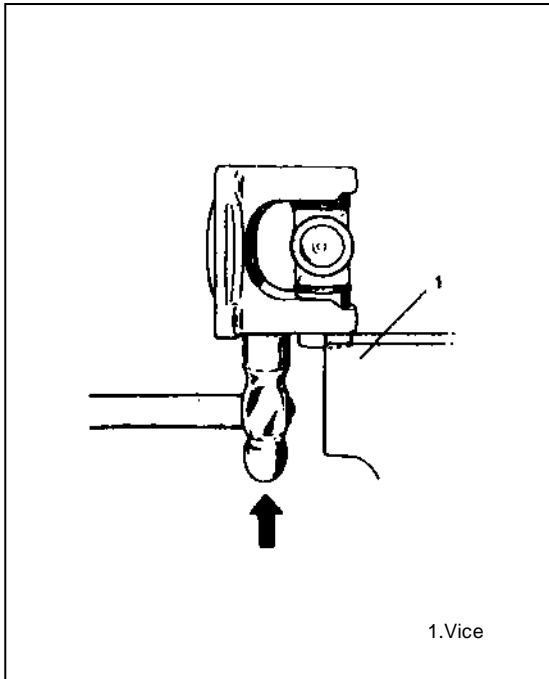
7) Install pinion assembly, and tighten pinion bearing plug with the required moment.

Special tool (43mm wrench)

(B): 09944-20011

Tightening moment of bearing plug

95N • m (9.5kg • m, 69.0 lb-ft)

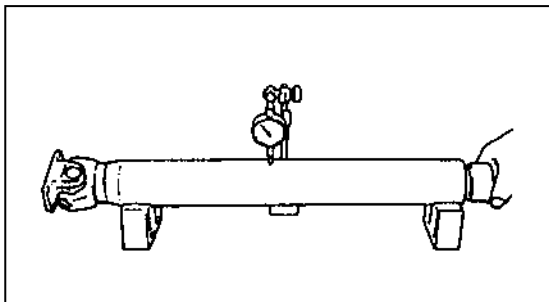


Dismantling flange yoke

Pull out the bearing housing washer at the side of flange yoke in the same method as 1) and 2). Clamp the bearing housing washer with a vice, and knock at the flange yoke, and take out the housing washer, (shown in the diagram). Dismount the bearing housing washer at the opposite side in the same method.

Notes:

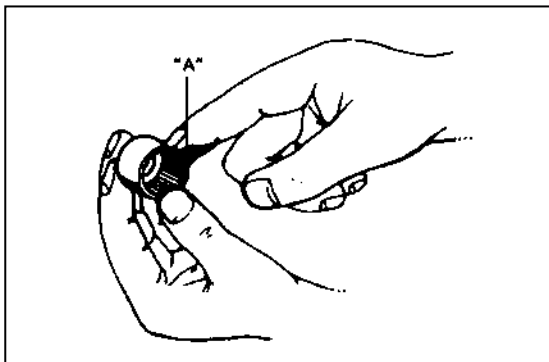
- Do not lose the needle roller in the bearing housing washer when dismantling the cross bearing housing washer.
- Install the dismantled bearing on the cross axle temporarily for ensuring the installation on the original position.



Check

Check whether the propeller shaft and flange yoke are damaged and check the radial bounce of propeller shaft. If there is any damage or the radial bounce exceeds the limit value, replace the propeller shaft or flange yoke.

Limit scope of radial bounce: 0.7mm (0.028in)

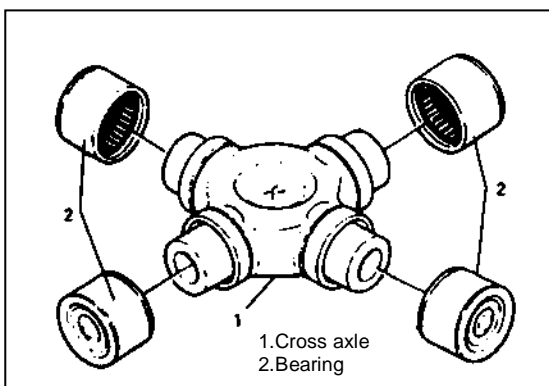


Assembly

Notes:

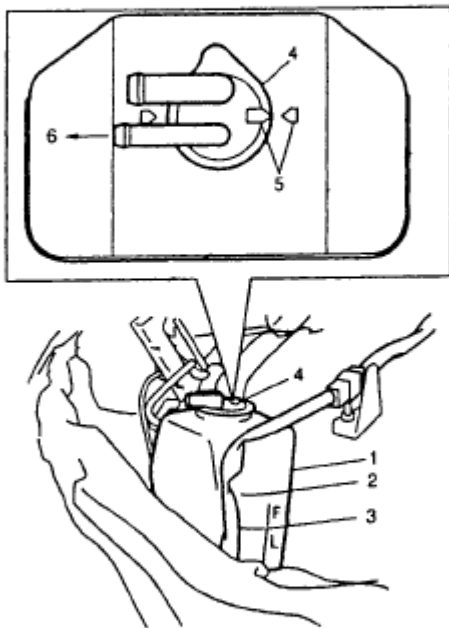
- Make sure that the needle rollers in the cross bearing housing washer are installed in place correctly.
- Add lubrication to the cross bearing housing washer.

"A": Grease **99000-25030**



Cautions:

Use new bead lock, cross axle and bearing for reinstalling. Using dismantled bead lock, cross axle and bearing is forbidden.



1. storage water tank
2. sign of full water level
3. sign of low water level
4. storage water tank cap
5. aligning sign
6. to water pipe (tee junction)

Liquid level of coolant

To check liquid level, open engine bonnet and observe the transparent storage water tank of coolant.

It is not necessary to open the radiator cap when checking the liquid level of coolant.

Warning:

To avoid the danger of scald:

- Do not open water storage tank cap when coolant is boiling.
- Do not open radiator cap when engine and radiator are heat. Boiling liquid and steam may spray out under pressure due to opening radiator cap earlier.

Check the liquid level of coolant in storage water tank when engine cools down.

Normal liquid level of coolant should locate between “Full” and “Low” on storage water tank.

When the liquid level is lower than the “Low”, open storage water tank and fill up enough coolant to make the level reach the “Full”. Then replace the cap and keep the signs on cap and water tank aligning.

Notes:

- If you use coolant of the same quality, it is not necessary to add extra inhibitors or additives to protect the system. Because they are harmful to the system and it is unnecessary waste as well.
- Keep the arrows on storage water tank and cap aligning when replacing storage water tank cap.

Maintenance of cooling system

Warning:

To avoid the danger of scald:

Do not open water storage tank cap when coolant is boiling.

Do not open radiator cap when engine and radiator are heat.

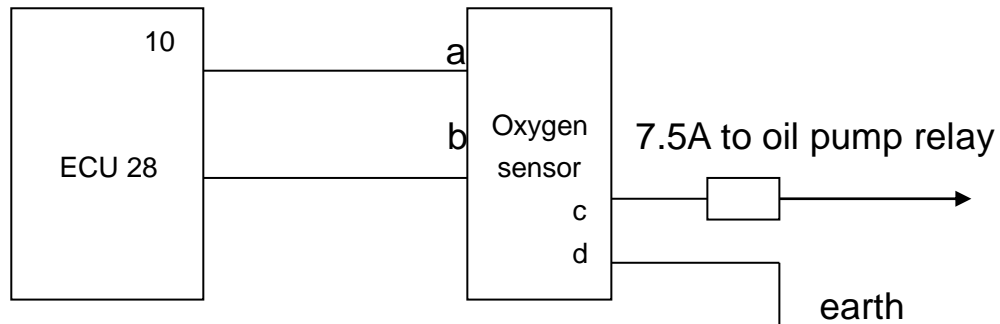
Boiling liquid and steam may spray out under pressure due to opening radiator cap earlier.

Cooling system should be maintained as follows:

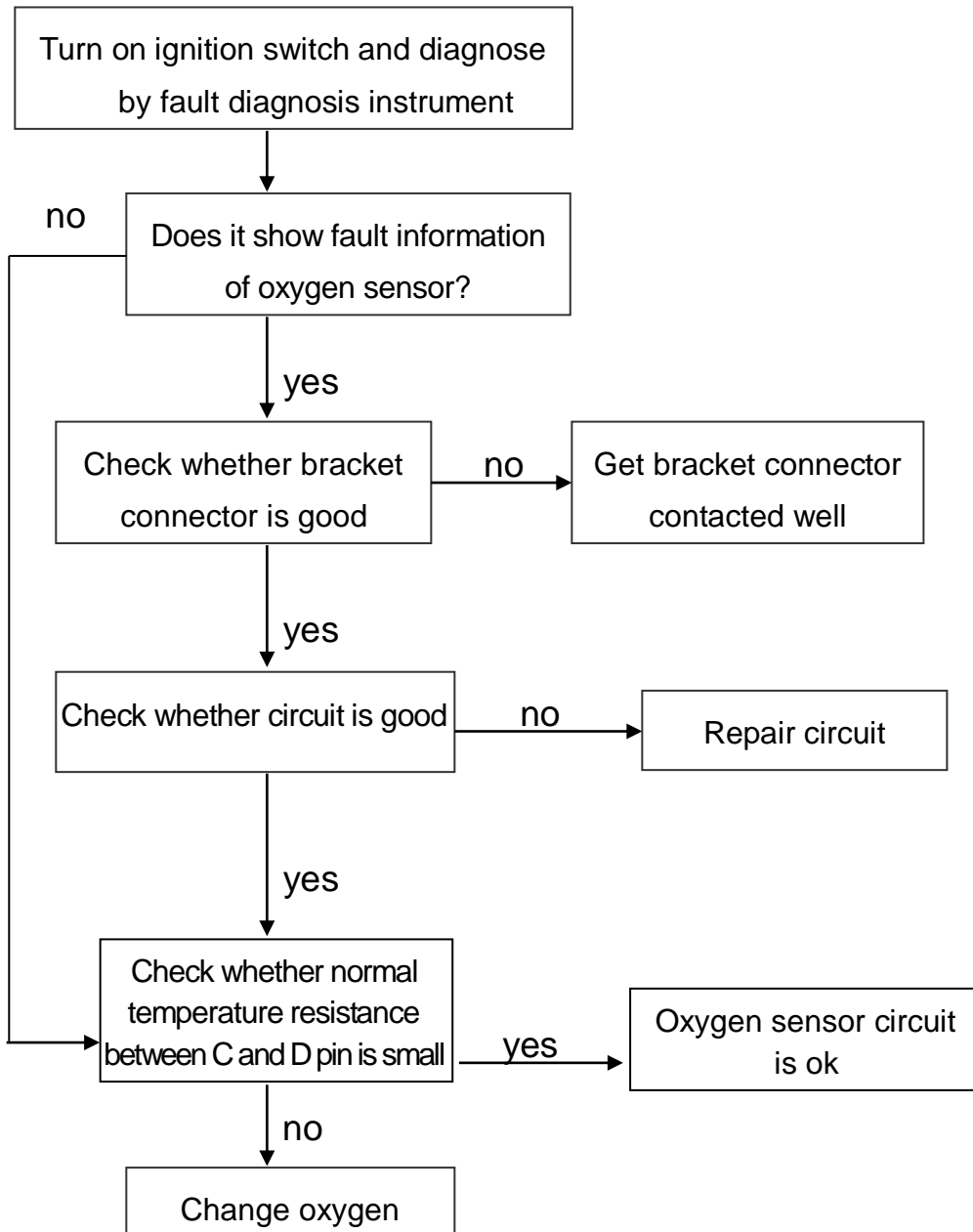
- 1) Check whether cooling system leak or is damaged.
- 2) Disassemble radiator cap after engine cools down, then wash radiator cap and filler with clean water.
- 3) Check whether the liquid level of coolant is correct

3.8 Circuit of oxygen sensor

Circuit diagram



Fault diagnosis



Working principle:

ECU sends electrical pulse to wiring coil of fuel injector and forms a magnetic field force. When the magnetic field force increases to a degree enough to overcome the resultant force of return spring pressure, pin valve gravity and friction force, pin valve starts to rise, it starts to spray fuel. When fuel pulse stops, pin valve is closed by the pressure of return spring.

Technical characteristic parameter:

Measure	Value			Unit
	Minimum	Typical	Maximum	
Working pressure (pressure difference)		300		kPa
Resistance of fuel injector at 20°C	11.4		12.6	Ω

Allowable fuel:

Fuel injector only can use fuel which meets the national standard GB 17930-1999 *Motor Unleaded Gasoline* of People's Republic of China and stipulation of GWKB 1-1999 *Motor Gasoline Hazardous Substance Control Standard* of National Environmental Protection Standard.

Fault symptoms and diagnosis method:

Symptoms: bad idle speed, bad accelerating, fail to start (difficult to start), etc.

General fault causes: lack of maintenance, which makes fuel injector accumulated by colloid and out of control.

Notes during maintenance:

1. To install easily, it is recommended to coat clean non-silicon engine oil on upper o-ring washer which connects with fuel distributing pipe. Pay attention not to let engine oil penetrate in fuel injector and spray hole.

2. Install fuel injector in fuel injector, the direction is perpendicular to the base direction, then fix it on the base by clamps.

Notes:

- According to location mode, fuel injector clamp have axial direction clamp and axial diameter clamp, don't make a mistake.
- When install axial direction fuel injector, ensure the bayonet in the middle of clamp completely snap in the groove of fuel injector and bayonets on the two end of clamp completely snap the flanging of fuel injector base.
- When install fuel injector which have requirements of axial direction and axial diameter location, use axial direction and axial diameter location clamp, make locating block of fuel injector and locating pin of fuel injector base located in the relevant grooves of locating clamp respectively.

3. Install fuel injector by hand, don't knock fuel injector by hammer and other tools.

4. When disassemble or re-install fuel injector, must change o-ring washer. Don't damage the sealing face of fuel injector.

5. Don't pull the supporting washer of o-ring out of fuel injector. Try to avoid damaging pipe head o-ring, supporting ring, spray hole plate and electric plug of fuel injector during installation. If any of them damaged, don't use it.

6. After installation, check the sealing performance of fuel distributing pipe assemble. It is qualified if there is no leakage.

7. Disassemble failure parts by hand. Disassemble clamps of fuel injector at first, then pull fuel injector out of fuel injector base. After disassembling, ensure to keep fuel injector base clean.

Ordinary measuring method:

(Unplug) Turn digital multi-meter to ohm shift, connect two instrument pens with two pins of fuel injector, rated insistance is 11-17Ω at 20°C.

Recommendation: do washing analysis to fuel injector by special washing analysis instrument of fuel injector per 20000km.

D: the hole diameter of the cylinder to be rebored.

A: the measured piston diameter.

B: piston clearance=0.02–0.04mm

C: hone residue=0.02mm

5) Rebore and hone the cylinder to the calculated size.

Notes:

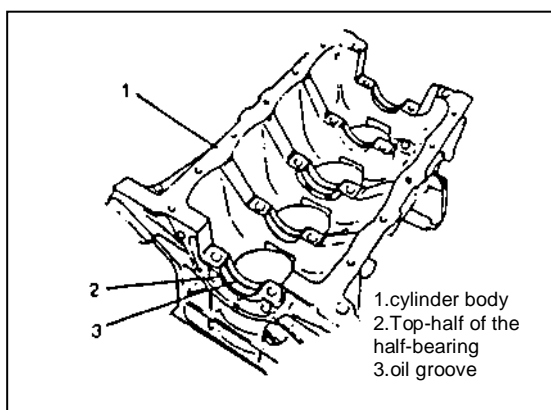
Before reboring, install all the master bearing covers in place and tighten them to the regulated requirements, for avoiding the deformation of bearing hole.

6) After honing, measure the piston clearance.

installing

Notes:

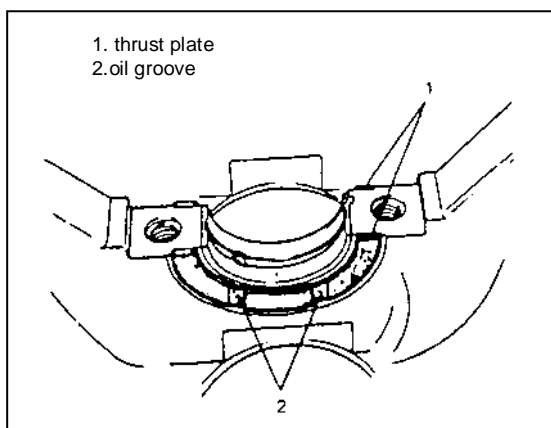
- All the parts to be installed shall be completely clean.
- Make sure to smear engine oil onto the crankshaft journal, shaft journal half-bearing, thrust plate, tie rod shaft journal, and the tie rod shaft journal half-bearing, piston, piston ring and cylinder hole.
- The shaft journal half-bearing, half-bearing cover, tie rod, tie rod half-bearing, tie rod half-bearing cover,



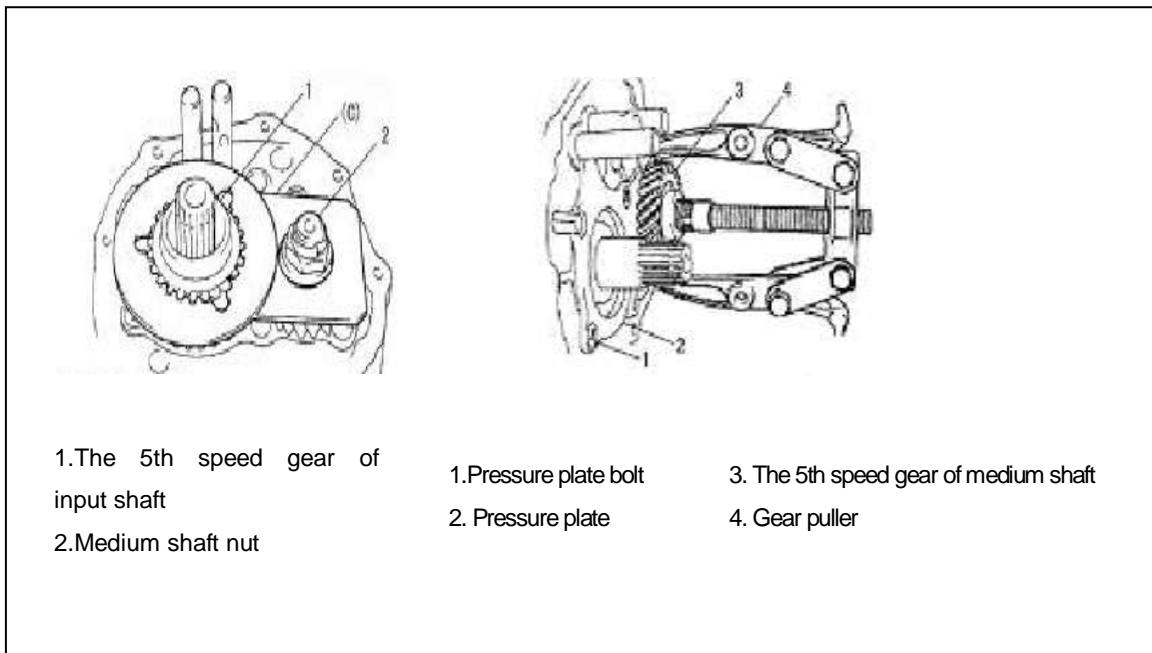
1) install the master half-bearing to cylinder body.

There is an oil groove on a half of the master half-bearing. Install this half onto the cylinder body, and install the other half without oil groove onto the half-bearing cover.

make sure that these two halves of the master half-bearing are in the same size.



2) install the thrust plate onto the cylinder body between the No.2 and No.3 cylinder. Align the side with oil groove to the crankshaft plate.



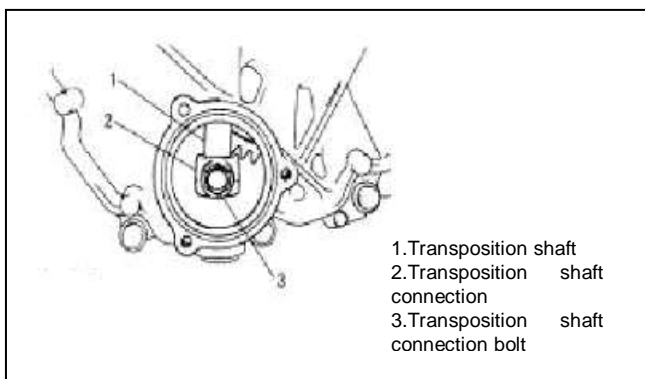
6) Dismount special tool: the 5th speed gear of input shaft, quill bearing, and dismount the 5th speed gear of medium shaft .If the spline of the 5th speed gear of medium shaft is over-tightened, loosen it a little with gear puller.

7) Dismount pressure plate bolt and dismount the pressure plate, and dismount the adjustable shim of medium shaft.

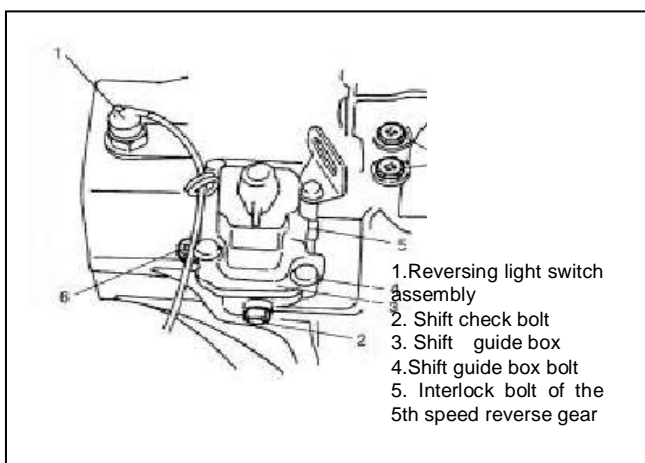
2. Dismantle gear mechanism and shift mechanism.

1) Dismount the reversing light switch assembly.

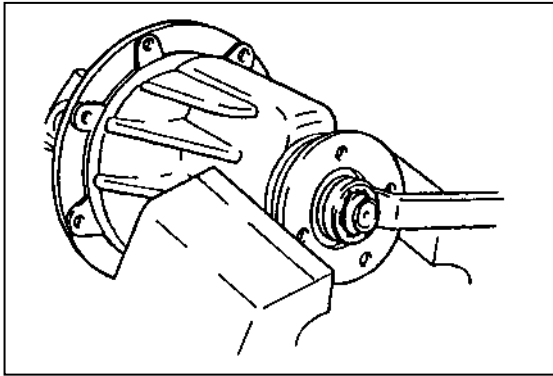
2) Put the transmission shift to the neutral position, and dismount the cover bolt from the left box cover, and dismount the cover.



3) Dismount transposition shaft connection bolt.



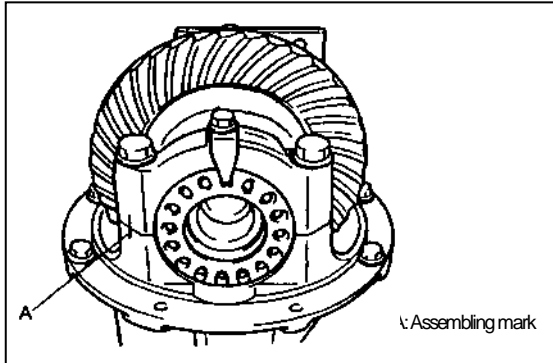
4) Dismount the check bolt of shift and the guide box bolt of shift, and dismount the guide box of shift, and pull out the transposition shaft assembly.



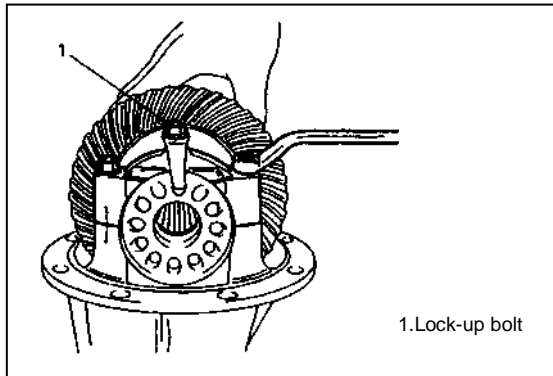
Device repair

Dismantling

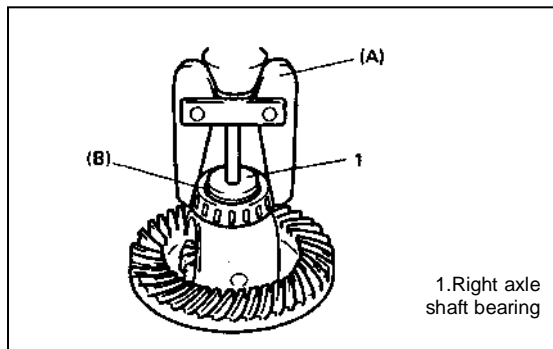
1) Clamp the flange, and unscrew the adjustable nut at the end of the conic driving gear shaft.



2) Make marks on each bearing cover of the differential. The bearing cover is used for tightening axle shaft bearing. Making marks is for identifying the bearing, as the bearings are divided into two types: left and right. The marks will be helpful for identifying and installing when reassembling the bearings.



3) After unscrewing the lock-up bolts and bearing cover bolt, dismantle the left/right bearing cover, and take out the differential assembly from the main reducer shell.

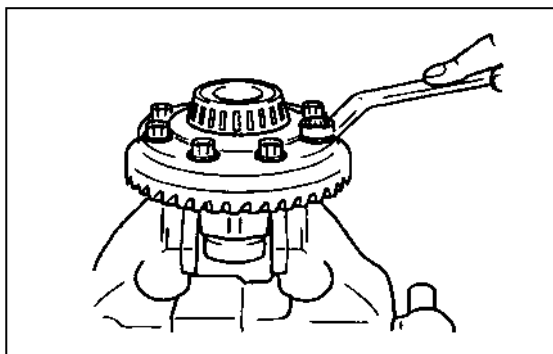


4) Dismount the right axle shaft bearing from the differential shell through special tool.

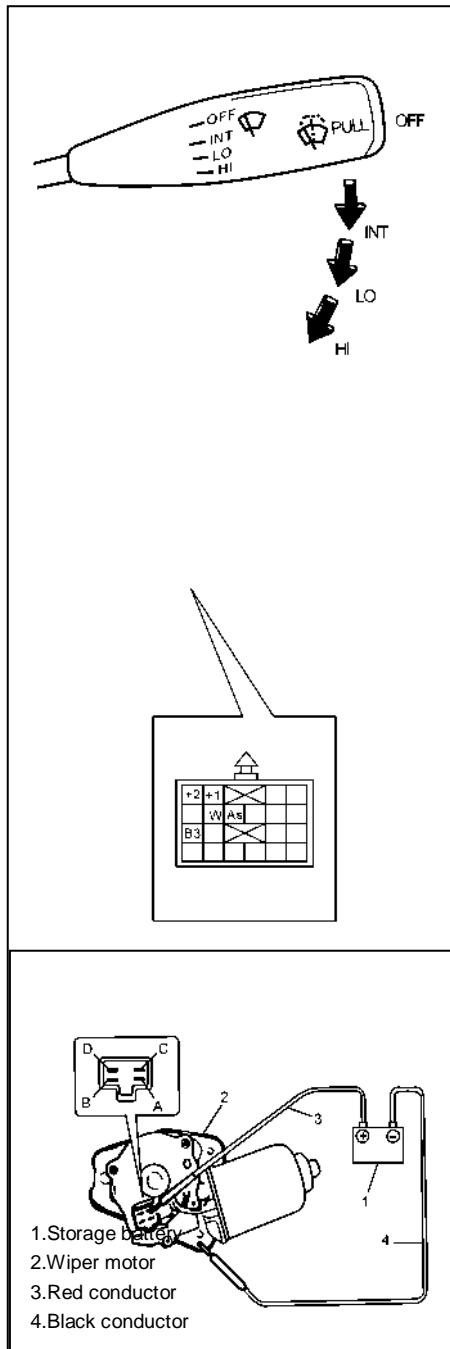
Special tool

(A) :09913-60910

(B) :09913-85230



5) Unscrew the bolt fastening the conic follower gear to the differential shell, and dismount the gear.



Windshield wiper

Front wiper and cleanser

Front wiper / cleanser switch

Check

- 1) Dismantle the negative conductor from the storage battery.
- 2) Disconnect the connection-peg of the integral switch conductor.
- 3) Check whether the circuit of each switch position is connected with a multimeter, shown as the following table.

Terminal Conductor color	B3	+2	+1	As
Wiper switch	Y/B1	B1/R	B1	B1/W
OFF			○—○	○—○
INTERMITTENT			○—○	○—○
LOW SPEED	○—○		○—○	
HIGH SPEED	○—○	○—○		

Terminal Conductor color	B3	W
Cleanser switch	Y/B1	B/B1
OFF		
ON	○—○	○—○

Dismantling and installing

For dismantling and installing, see the detailed instructions of the “integral switch, steering bottom shaft” in this Handbook.

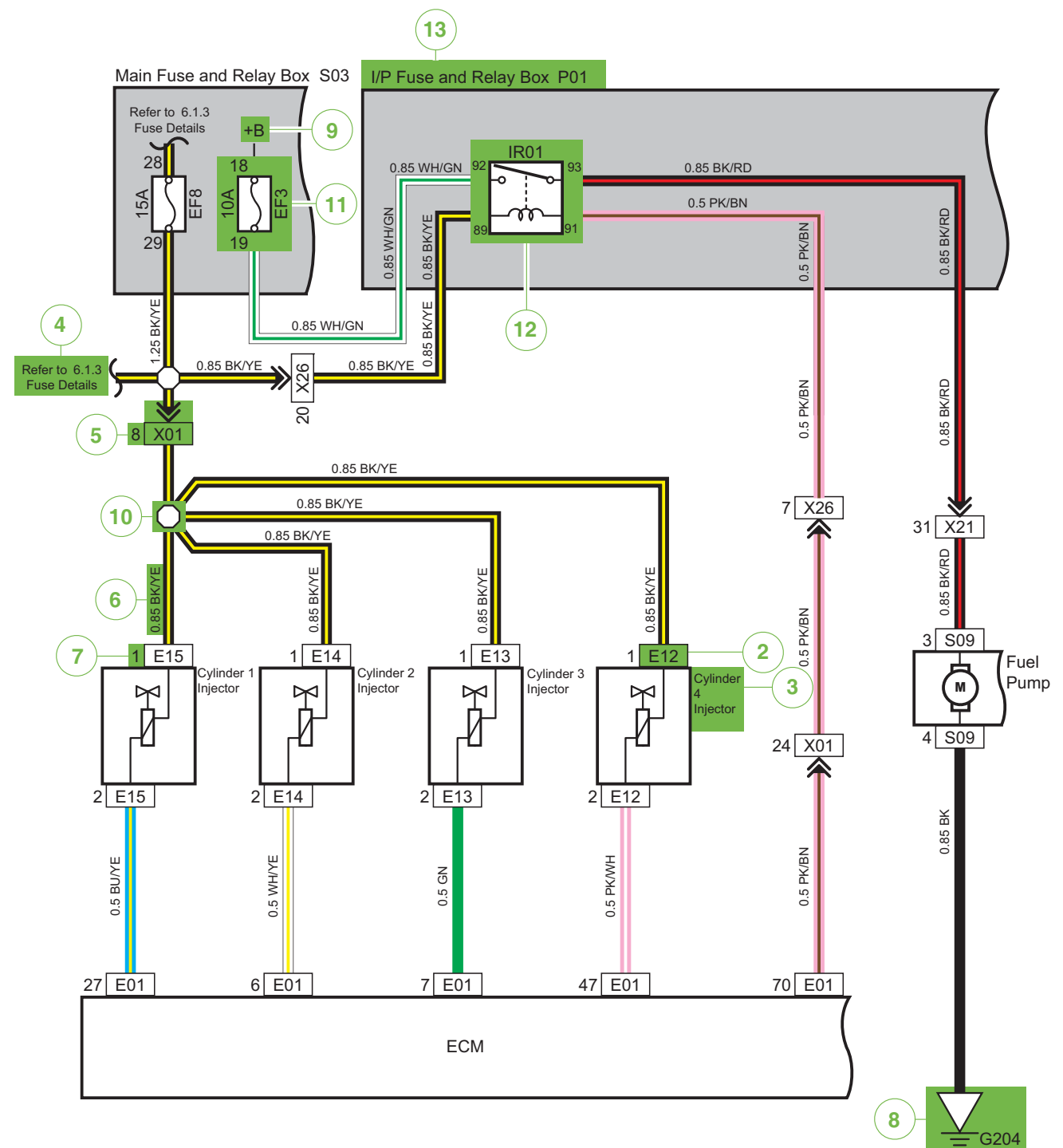
Wiper motor

Check

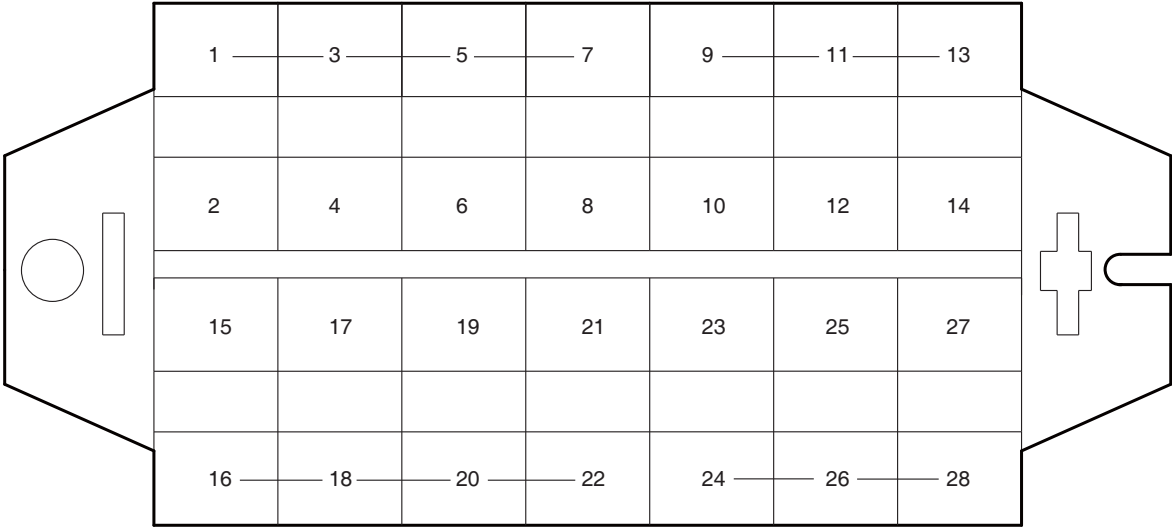
- 1) Use 12V storage battery, shown as the left diagram. Connect the (+) terminal of the storage battery to the “A” terminal, and connect the (-) terminal to the bracket (wiper grounding). If the motor is running at the speed of 44-52rpm, it indicates that the wiper motor is normal.

When checking, connect the (+) terminal of the storage battery to terminal “B”, and connect the (-) terminal to the bracket (wiper grounding). If the motor is running at the high speed of 64 to 78 rpm, it indicates that the wiper motor is normal.

Fuel System



I/P Fuse and Relay Box



P01