

## EXPLANATION OF MANUAL CONTENTS

Indicates procedures to be performed before the work in that section is started, and procedures to be performed after the work in that section is finished.

**Component Diagram**

A diagram of the component parts is provided near the front of each section in order to give a reader a better understanding of the installed condition of component parts.

Indicates (by symbols) where lubrication is necessary.

**Maintenance and Servicing Procedures**

The numbers provided within the diagram indicate the sequence for maintenance and servicing procedures.

- Removal steps:  
The part designation number corresponds to the number in the illustration to indicate removal steps.
- Disassembly steps:  
The part designation number corresponds to the number in the illustration to indicate disassembly steps.
- Installation steps:  
Specified in case installation is impossible in reverse order of removal steps. Omitted if installation is possible in reverse order of removal steps.
- Reassembly steps:  
Specified in case reassembly is impossible in reverse order of disassembly steps. Omitted if reassembly is possible in reverse order of disassembly steps.

**Classifications of Major Maintenance/Service Points**

When there are major points relative to maintenance and servicing procedures (such as essential maintenance and service points, maintenance and service standard values, information regarding the use of special tools, etc.), these are arranged together as major maintenance and service points and explained in detail.



: Indicates that there are essential points for removal or disassembly.



: Indicates that there are essential points for installation or reassembly.

**Symbols for Lubrication, Sealants and Adhesives**

Information concerning the locations for lubrication and for application of sealants and adhesives is provided, by using symbols, in the diagram of component parts or on the page following the component parts page, and explained.



: Grease  
(multipurpose grease unless there is a brand or type specified)



: Sealant or adhesive



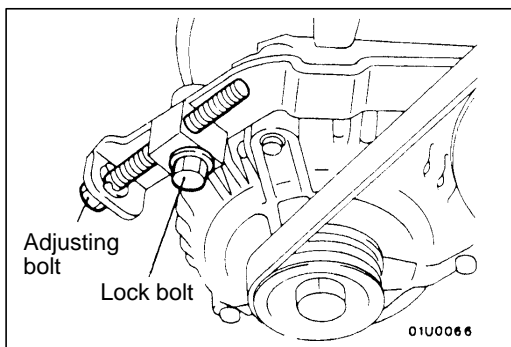
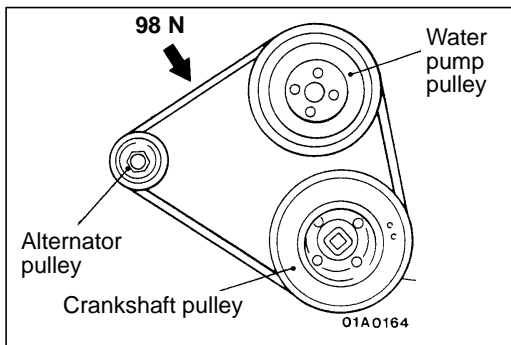
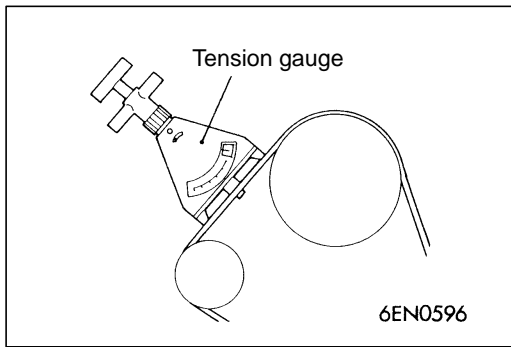
: Brake fluid or automatic transmission fluid



: Engine oil, gear oil or air conditioner compressor oil



: Adhesive tape or butyl rubber tape



## ON-VEHICLE SERVICE

11100090326

### DRIVE BELT TENSION CHECK AND ADJUSTMENT

#### ALTERNATOR DRIVE BELT TENSION CHECK

Use a belt tension gauge to check that the belt tension is at the standard value at a point half-way between the two pulleys as shown in the illustration. In addition, press this section with a force of 98 N and check that the amount of belt deflection is at the standard value.

#### Standard value:

Tension N	294–490
Deflection (Reference value) mm	7.0 – 9.0

#### ALTERNATOR DRIVE BELT TENSION ADJUSTMENT

1. Loosen the nut of the alternator pivot bolt.
2. Loosen the lock bolt.
3. Use the adjusting bolt to adjust the belt tension and belt deflection to the standard values.

#### Standard value:

Items	When a used belt is installed	When a new belt is installed
Tension N	343–441	490–686
Deflection (Reference value) mm	7.5 – 8.5	5.5 – 7.5

4. Tighten the nut of the alternator pivot bolt.

**Tightening torque: 22 Nm**

5. Tighten the lock bolt.

**Tightening torque: 22 Nm**

6. Tighten the adjusting bolt.

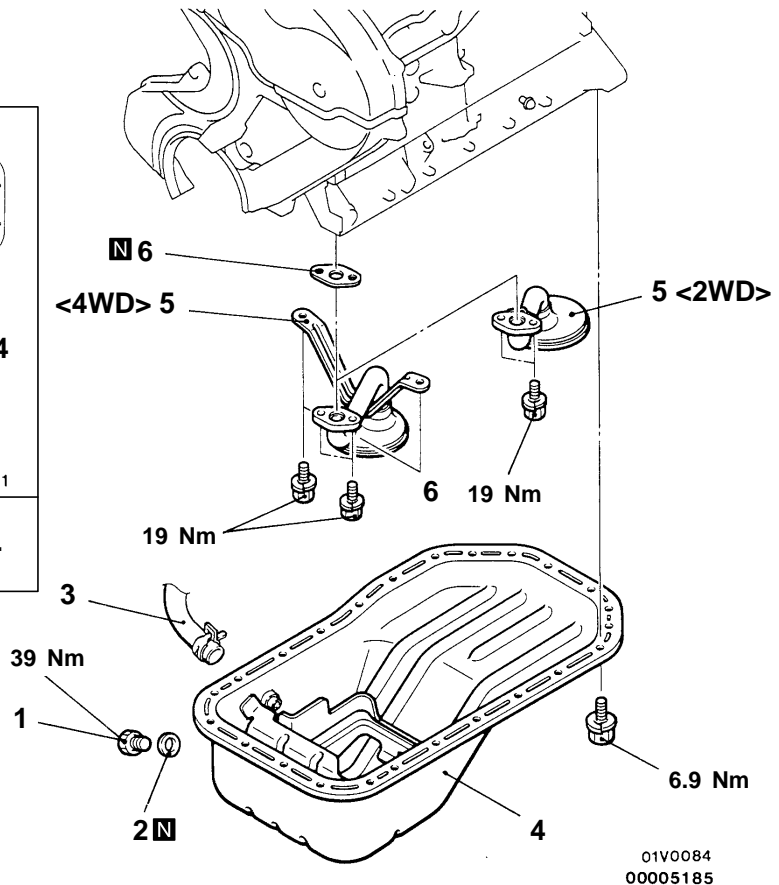
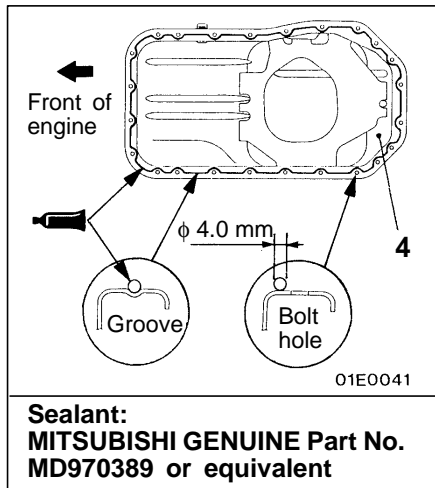
**Tightening torque: 9.8 Nm**

# OIL PAN AND OIL SCREEN

## REMOVAL AND INSTALLATION

**Pre-removal and Post-installation Operation**

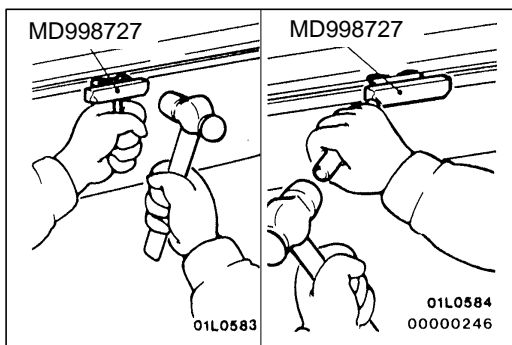
- Under Cover Removal and Installation
- Engine Oil Draining and Supplying  
(Refer to GROUP 12 – On-vehicle Service.)



**Removal steps**

- ▶B◀
1. Drain plug
  2. Drain plug gasket
  3. Oil return hose connection

- ◀A▶ ▶A◀
4. Oil pan
  5. Oil screen
  6. Gasket



**REMOVAL SERVICE POINT**



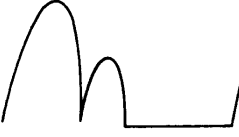



◀A▶ OIL PAN REMOVAL

1. Remove oil pan bolts.
2. Tap the special tool in between the oil pan and cylinder block.
3. Slide the special tool by tapping it at an angle to remove the oil pan.

EXAMPLES OF ABNORMAL WAVEFORMS

NOTE

1. The size of the waveform patterns differs largely, depending on the adjustment of the variable knob on the analyzer.
2. Identification of abnormal waveforms is easier when there is a large output current (regulator is not operating). (Waveforms can be observed when the headlamps are illuminated.)
3. Check the conditions of the charging warning lamp (illuminated/not illuminated). Also, check the charging system totally.

Abnormal waveforms	Problem cause	Abnormal waveforms	Problem cause
<p>Example 1</p>  <p>A7EL0120</p>	<ul style="list-style-type: none"> <li>• Open diode</li> </ul>	<p>Example 4</p>  <p>A7EL0123</p>	<ul style="list-style-type: none"> <li>• Short in stator coil</li> </ul>
<p>Example 2</p>  <p>A7EL0121</p>	<ul style="list-style-type: none"> <li>• Short in diode</li> </ul>	<p>Example 5</p>  <p>A7EL0124</p> <p>At this time, the charging warning lamp is illuminated.</p>	<ul style="list-style-type: none"> <li>• Open supplementary diode</li> </ul>
<p>Example 3</p>  <p>A7EL0122</p>	<ul style="list-style-type: none"> <li>• Broken wire in stator coil</li> </ul>	<p>Example 5</p>  <p>A7EL0124</p> <p>At this time, the charging warning lamp is illuminated.</p>	

**A/T CONTROL COMPONENT CHECK**

23100140222

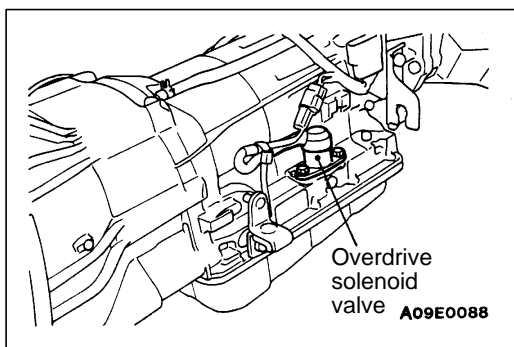
**INHIBITOR SWITCH CHECK**

Refer to P.23-14.

**OVERDRIVE SOLENOID VALVE CHECK**

23101120010

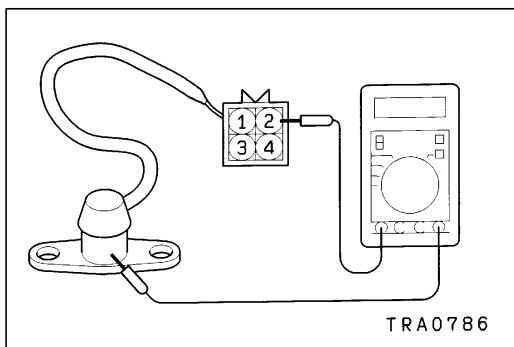
1. Disconnect the overdrive solenoid valve connector.



2. Measure the resistance between terminal (2) of the overdrive solenoid valve connector and the body earth.

**Standard value: Approx. 13 Ω**

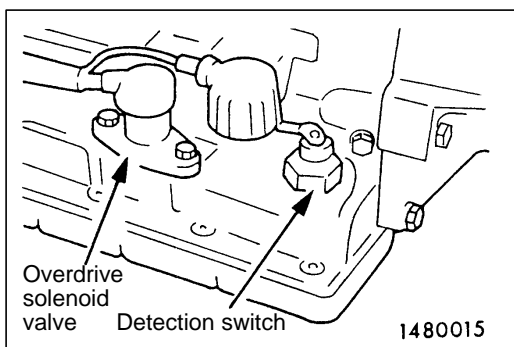
3. If the resistance is not within the standard value, replace the overdrive solenoid valve.



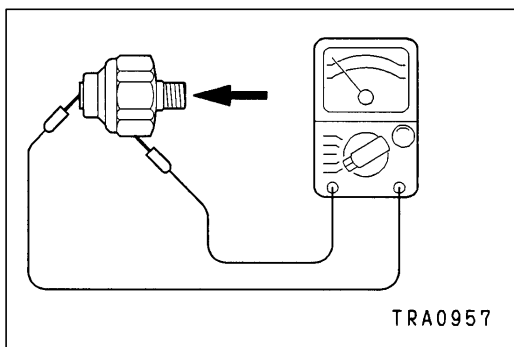
**DETECTION SWITCH CHECK**

23101140016

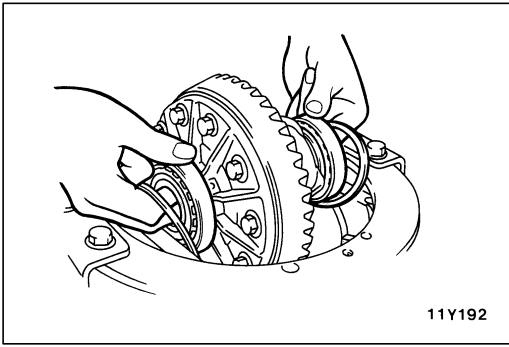
1. Remove the detection switch from the transmission case.



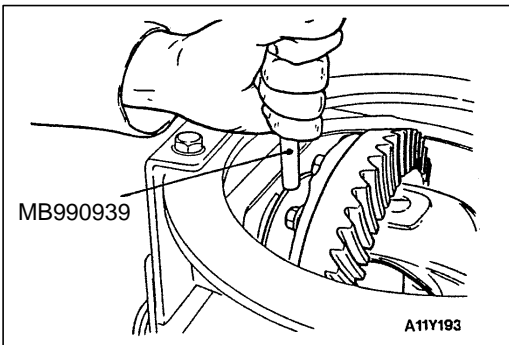
2. While blowing the low-compressed air into the switch, check the continuity between terminal and switch body.



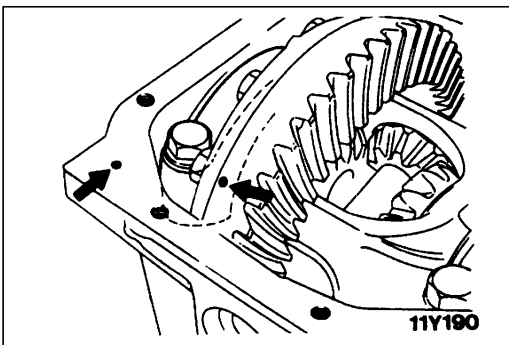
Item	Continuity
Pressure not applied	No continuity (Infinite resistance)
Pressure applied	Continuity (0 Ω)



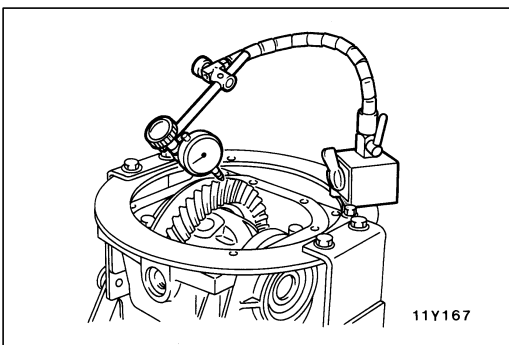
4. Install the side bearing adjusting spacers and differential case assembly, as shown in the illustration, to the gear carrier.



5. Tap the side bearing adjusting spacers with the special tool to fit them to the side bearing outer race.



6. Align the mating marks on the gear carrier and the bearing cap, and then tighten the bearing cap.

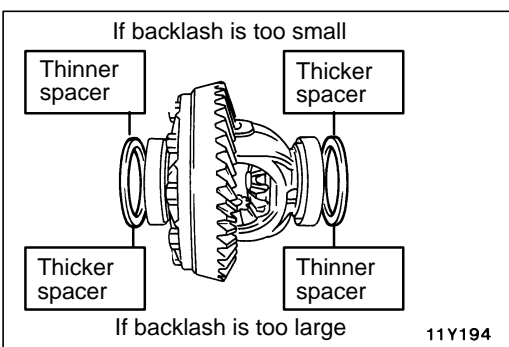


7. With the drive pinion locked in place, measure the drive gear backlash with a dial indicator on the drive gear.

**NOTE**

Measure at four points or more on the circumference of the drive gear.

**Standard value: 0.11 – 0.16 mm**



8. Change the side bearing adjusting spacers as illustrated, and then adjust the drive gear backlash between the drive gear and the drive pinion.

**NOTE**

When increasing the number of side bearing adjusting spacers, use the same number for each, and as few as possible.

9. Check the drive gear and drive pinion for tooth contact. If poor contact is evident, make adjustment. (Refer to P. 26-43.)

## SERVICE SPECIFICATIONS

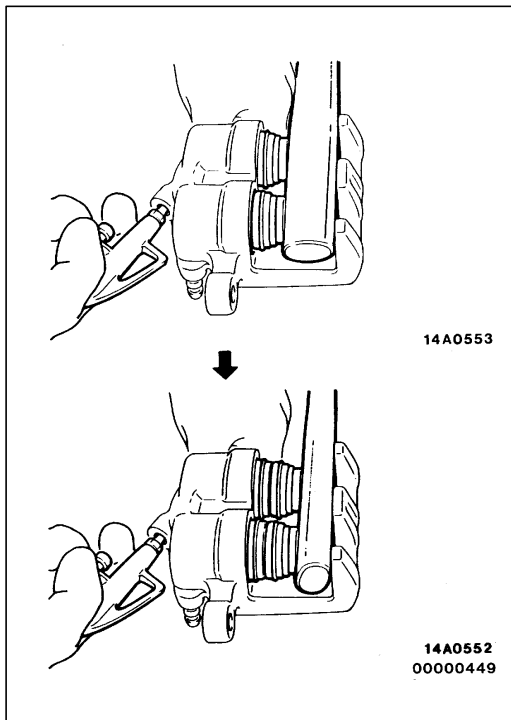
33200030088

Items		Standard value	Limit
Toe-in	At the centre of tyre thread mm	0 – 7	–
	Toe-angle (per wheel)	2WD	0° – 0°19'
		4WD <Vehicles with 205/80 R16 tyre>	0° – 0°16'
		4WD <Vehicles with 31 x 10.50 R15 tyre>	0° – 0°15'
Camber		0°10' – 1°10' (Difference between right and left within 30')	–
Caster	2WD	1°45' – 3°45' (Difference between right and left within 30')	–
	4WD	1°15' – 3°15' (Difference between right and left within 30')	–
Kingpin inclination	2WD	15°00'	–
	4WD	14°50'	–
Shock absorber attaching dimension mm		1 – 2	–
Upper arm ball joint starting torque Nm	2WD	0.8 – 3.4	–
Strut bar attaching dimension mm		79	–
Lower arm ball joint end play mm		–	0.5
Lower arm bush press-fitting force kN		9.8	–
Clearance between bump stopper and bump stopper bracket mm	4WD	21 – 23	–
Stabilizer link assembly attaching dimension mm	4WD	16 – 18	–

## SEALANT

33200050015

Item	Specified sealant
Upper arm ball joint dust cover <2WD>	3M ATD Part No. 8661 or equivalent



## DISASSEMBLY SERVICE POINTS

When disassembling the disc brakes, disassemble both sides (left and right) as a set.

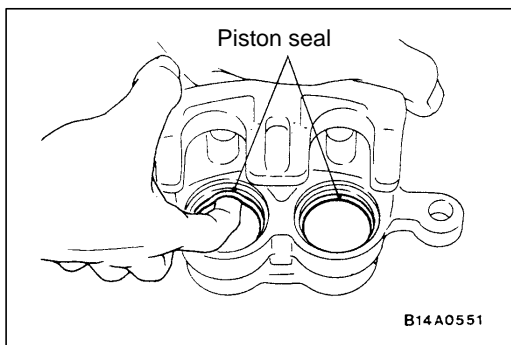
### ◀A▶ PISTON BOOT/PISTON REMOVAL

Pump in compressed air through the brake hose installation hole and remove the piston and piston boot.

#### Caution

When removing the pistons, be sure to use the handle of a plastic hammer and adjust the height of the two pistons while pumping air slowly in so that the pistons protrude evenly.

Do not remove one piston completely before trying to remove the other piston because it will become impossible to remove the second piston.



### ◀B▶ PISTON SEAL REMOVAL

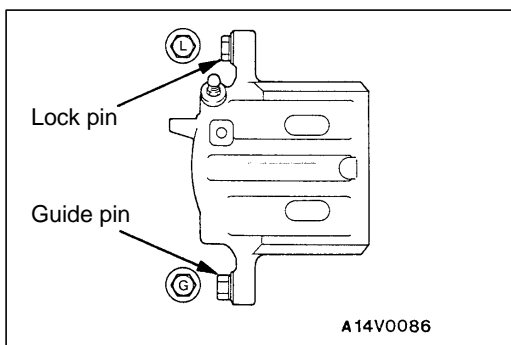
- (1) Remove piston seal with finger tip.

#### Caution

Do not use a screwdriver or other tool to prevent damage to inner cylinder.

- (2) Clean piston surface and inner cylinder with trichloro-ethylene, alcohol or specified brake fluid.

**Specified brake fluid: DOT3 or DOT4**



## REASSEMBLY SERVICE POINT

### ▶A▶ LOCK PIN/GUIDE PIN INSTALLATION

Install the lock pin and the guide pin to the caliper body as shown in the illustration..

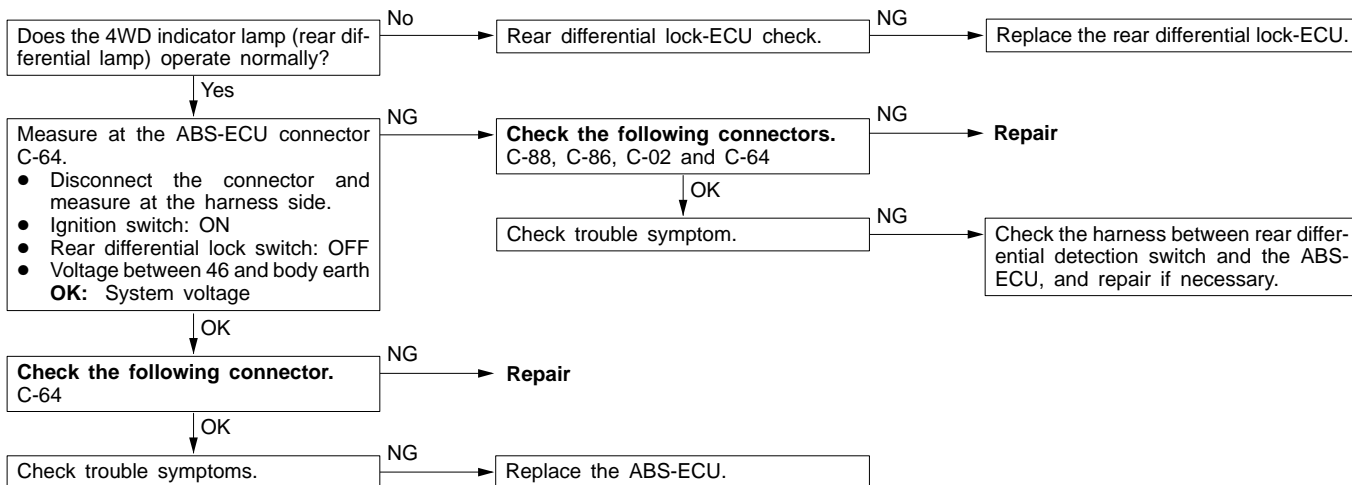
## INSPECTION

35200630015

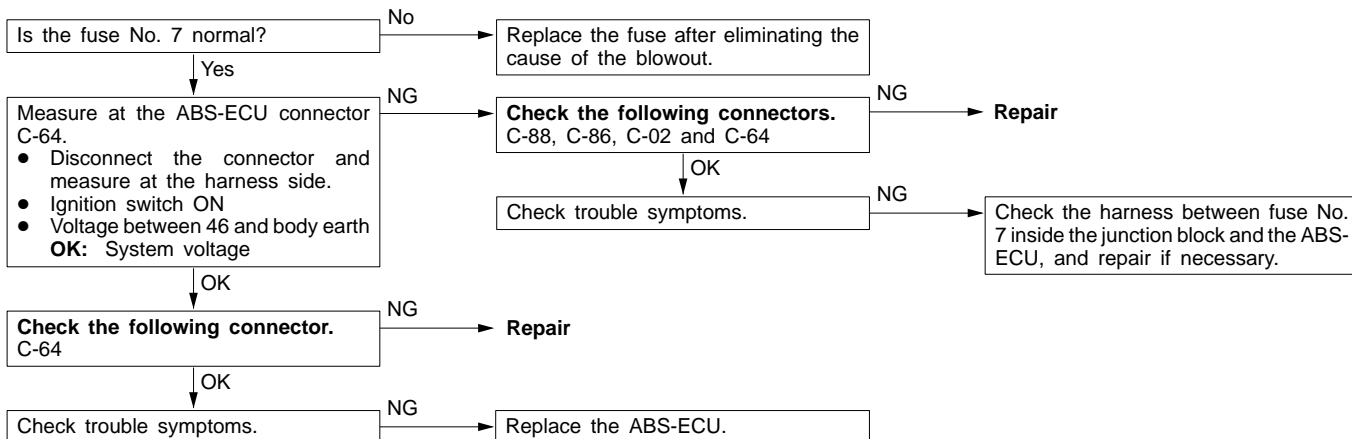
- Check cylinder for wear, damage or rust.
- Check piston surface for wear, damage or rust.
- Check caliper body or sleeve for wear.
- Check pad for damage or adhesion of grease, check backing metal for damage.



Code No. 27 Rear differential lock detection switch <Vehicles with rear differential lock>	Probable cause
The ABS-ECU determines that an open circuit occurs in rear differential detection switch system.	<ul style="list-style-type: none"> <li>• Malfunction of wiring harness or connector</li> <li>• Malfunction of rear differential lock-ECU</li> <li>• Malfunction of ABS-ECU</li> </ul>

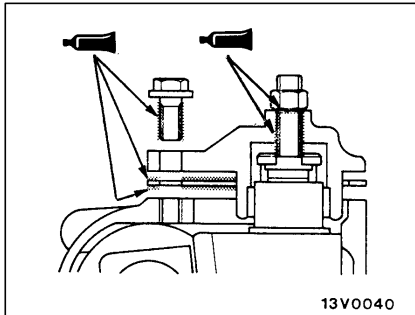


Code No. 27 Rear differential lock detection switch <Vehicles without rear differential lock>	Probable cause
For vehicles without rear differential lock, battery positive voltage is applied to the ABS-ECU terminal No. 46. This code is output when this line is interrupted.	<ul style="list-style-type: none"> <li>• Malfunction of wiring harness or connector</li> <li>• Malfunction of ABS-ECU</li> </ul>

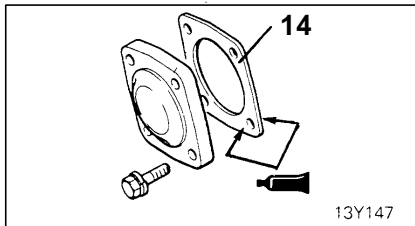


DISASSEMBLY AND REASSEMBLY

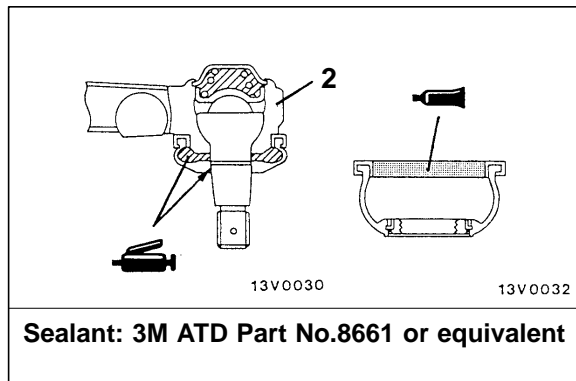
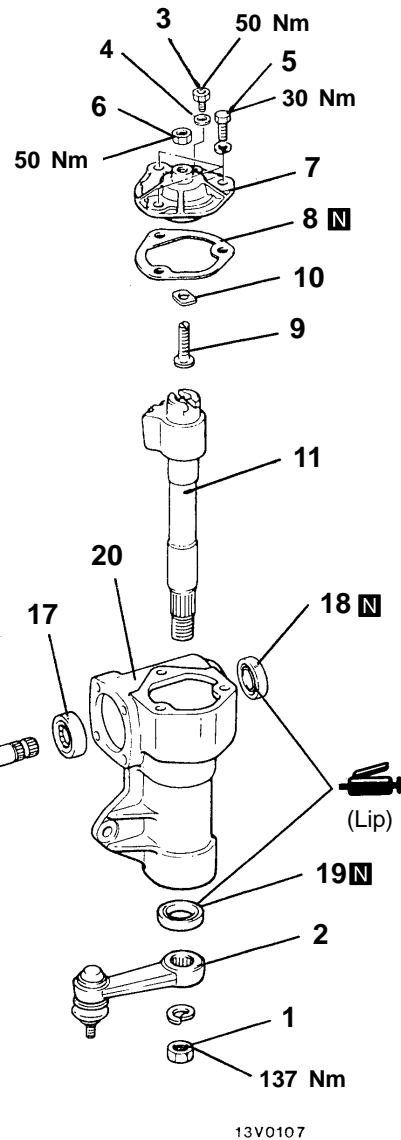
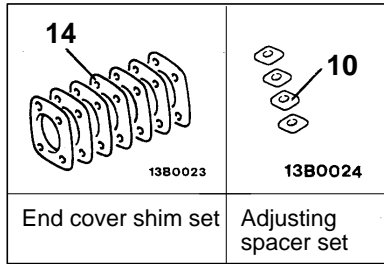
37100240042



Sealant:  
3M ATD Part No.8661 or equivalent



Sealant:  
3M ATD Part No.8661 or equivalent



00005030

Disassembly steps

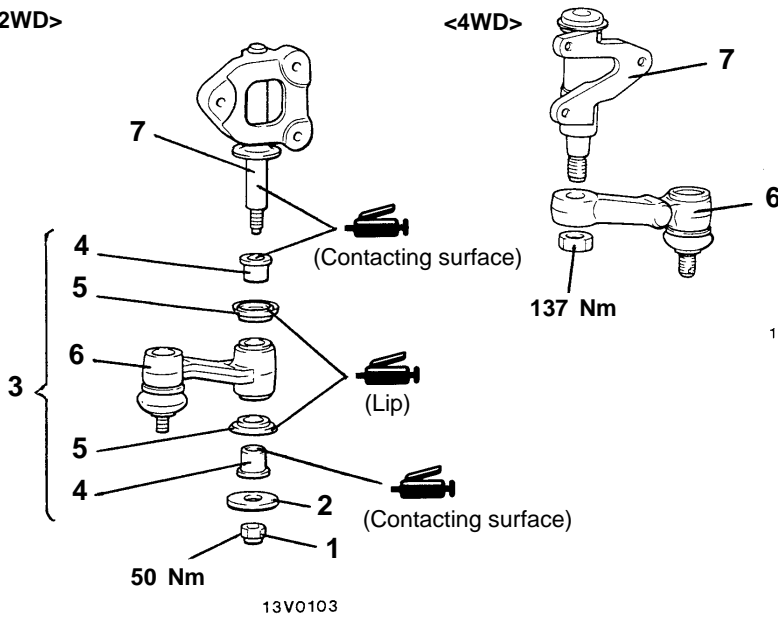
- ▶H◀ ● Steering gear backlash check
- ◀A▶ ▶G▶ 1. Jam nut
- 2. Pitman arm
- 3. Breather plug
- 4. Gasket
- 5. Seal bolt
- ▶F▶ ● Mainshaft total starting torque adjustment
- 6. Lock nut
- ◀B▶ 7. Side cover
- 8. Packing
- 9. Adjusting bolt
- ▶E▶ ● Cross-shaft axial play adjustment

- ◀C▶ 10. Adjusting spacer
- 11. Cross-shaft
- 12. Bolt
- ▶D▶ ● Mainshaft starting torque adjustment
- 13. End cover
- 14. Adjusting shim
- 15. Bearing
- ▶C▶ 16. Mainshaft assembly
- 17. Bearing
- ▶B▶ 18. Oil seal
- ▶A▶ 19. Oil seal
- 20. Gear box housing

DISASSEMBLY AND REASSEMBLY

Idler Arm

<2WD>

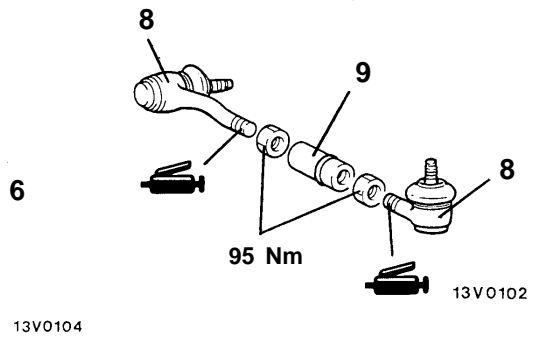


Idler arm disassembly steps

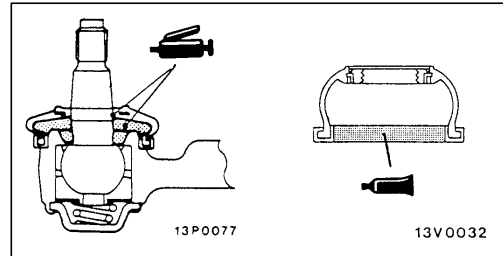
1. Self-locking nut
2. Washer
3. Idler arm assembly
4. Bushing
5. Oil seal
6. Idler arm
7. Idler arm support



Tie rod assembly



13V0104



Sealant:  
3M ATD Part No.8661 or equivalent

00004899

Tie rod disassembly steps

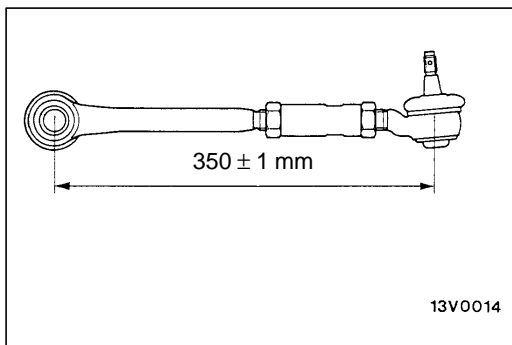
- ▶A◀ 8. Tie rod end assembly
9. Pipe

REASSEMBLY SERVICE POINTS

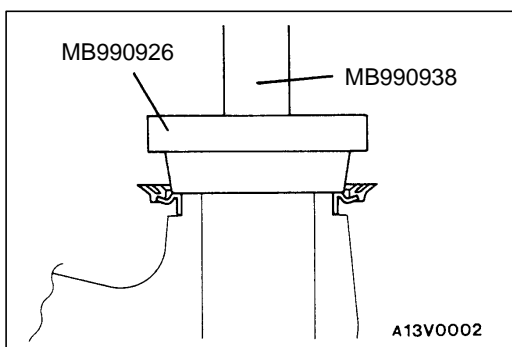
▶A◀ TIE-ROD END INSTALLATION

1. Apply multipurpose grease to the threaded section of the tie-rod end.
2. Screw in the right and left tie-rod ends to the pipe by the same amount, and then and provisionally tighten the tie-rod end fixing nut.

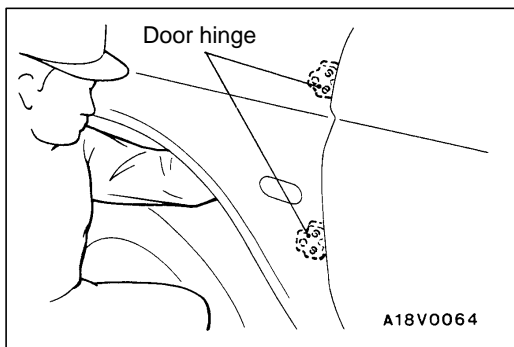
▶B◀ OIL SEAL INSTALLATION



13V0014



A13V0002

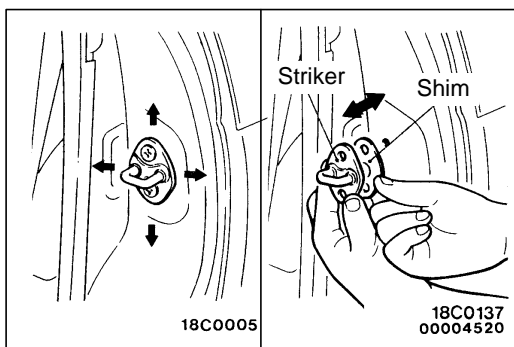


## ON-VEHICLE SERVICE

42300090081

### DOOR FIT ADJUSTMENT

1. If the clearance between the door and body is uneven, remove the splash shield, loosen the mounting bolt of the body side door hinges from inside the fender, and then move the door to adjust so that the clearance is even.
2. If the door opening and closing is heavy, adjust the meshing of the striker and the door latch (in the longitudinal direction) by adding shims to the striker and by moving the striker up and down or to the left and right.

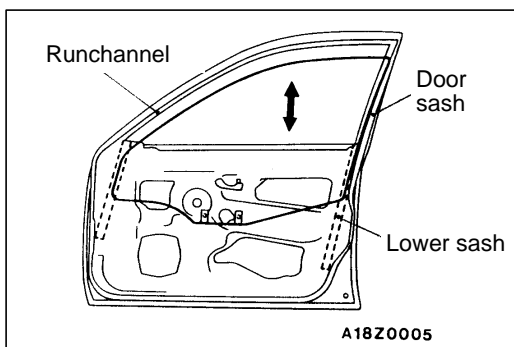
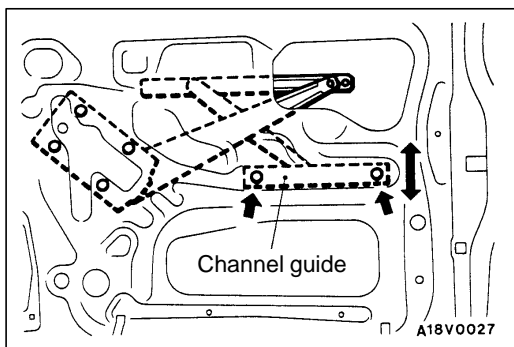


### DOOR WINDOW GLASS ADJUSTMENT

42300100135

Check that the window glass moves smoothly and touches the glass runchannel firmly when it is fully raised and fully lowered. If the window glass doesn't move properly, adjust by the following procedure.

1. Remove the door trim and waterproof film. (Refer to P.42-34, 35.)
2. Raise the window glass, loosen the channel guide mounting bolts and adjust the vertical tilt of the glass.



### ADJUSTMENT AND REPLACEMENT WHEN THERE IS A MALFUNCTION OF THE POWER WINDOWS

42900190048

If the window glass automatically starts moving downwards at the wrong time while it is being raised, carry out the following adjustment or replacement procedures.

1. Remove the door trim and waterproof film. (Refer to P.42-34, 35.)
2. Remove the window regulator assembly from the door window glass, and then raise and lower the door window glass by hand to check the operation force.

#### NOTE

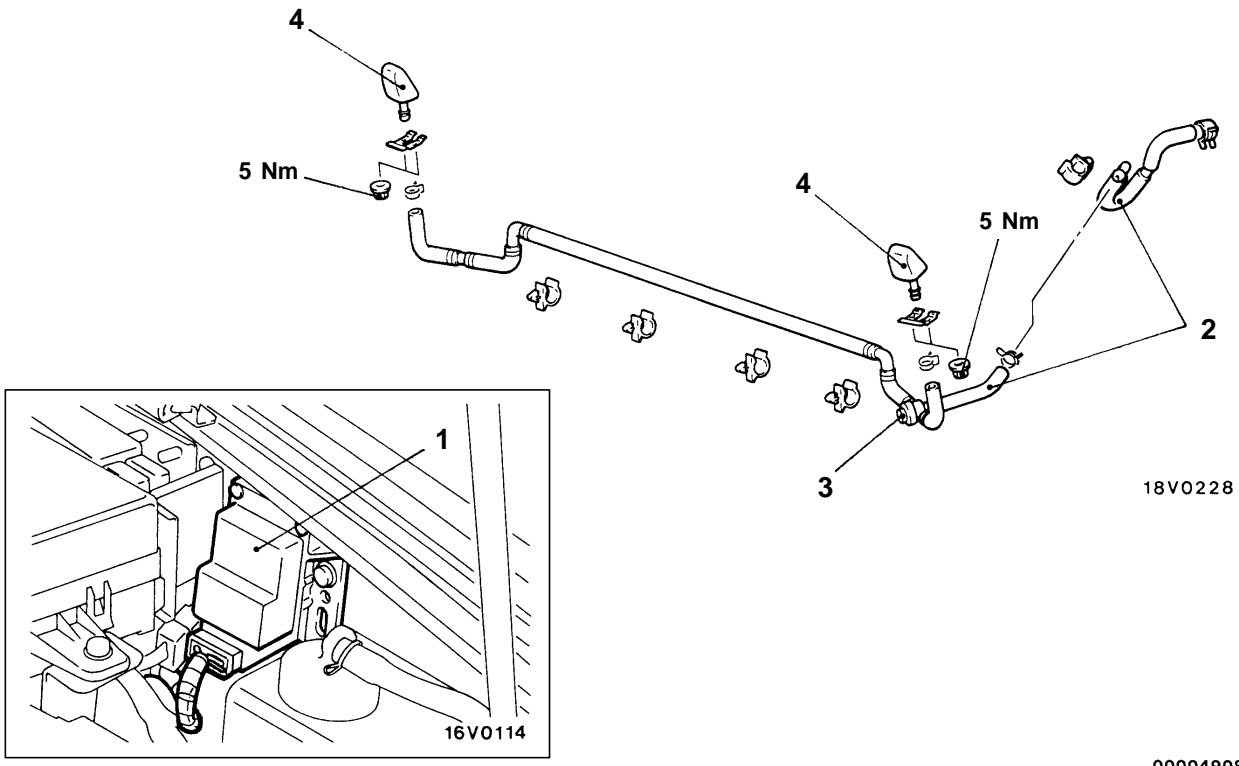
Insert a cushion or similar object to prevent damage to the glass if it should happen to fall down.

3. If the door window glass does not move up and down smoothly, check or repair the following points.
  - Check the installation condition of the runchannel.
  - Repair the twisting in the door sash.
  - Check the installation condition of the lower sash or the center sash.

**HEADLAMP WASHER**

51100970077

**REMOVAL AND INSTALLATION**



18V0228

00004908

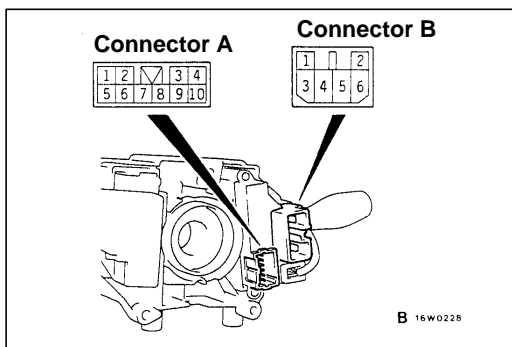
- 1. Headlamp washer relay

**Washer nozzle and check valve removal steps**

- Washer fluid draining
- Front bumper (Refer to P.51-3.)
- 2. Washer hose
- 3. Check valve
- 4. Washer nozzle

**NOTE**

- 1. For removal and installation of the column switch assembly (built-in headlamp washer switch), refer to GROUP 37A – Steering Wheel and Shaft.
- 2. For removal and installation of the washer tank, refer to P.51-9.



B 16W0228

**INSPECTION**

51100980070

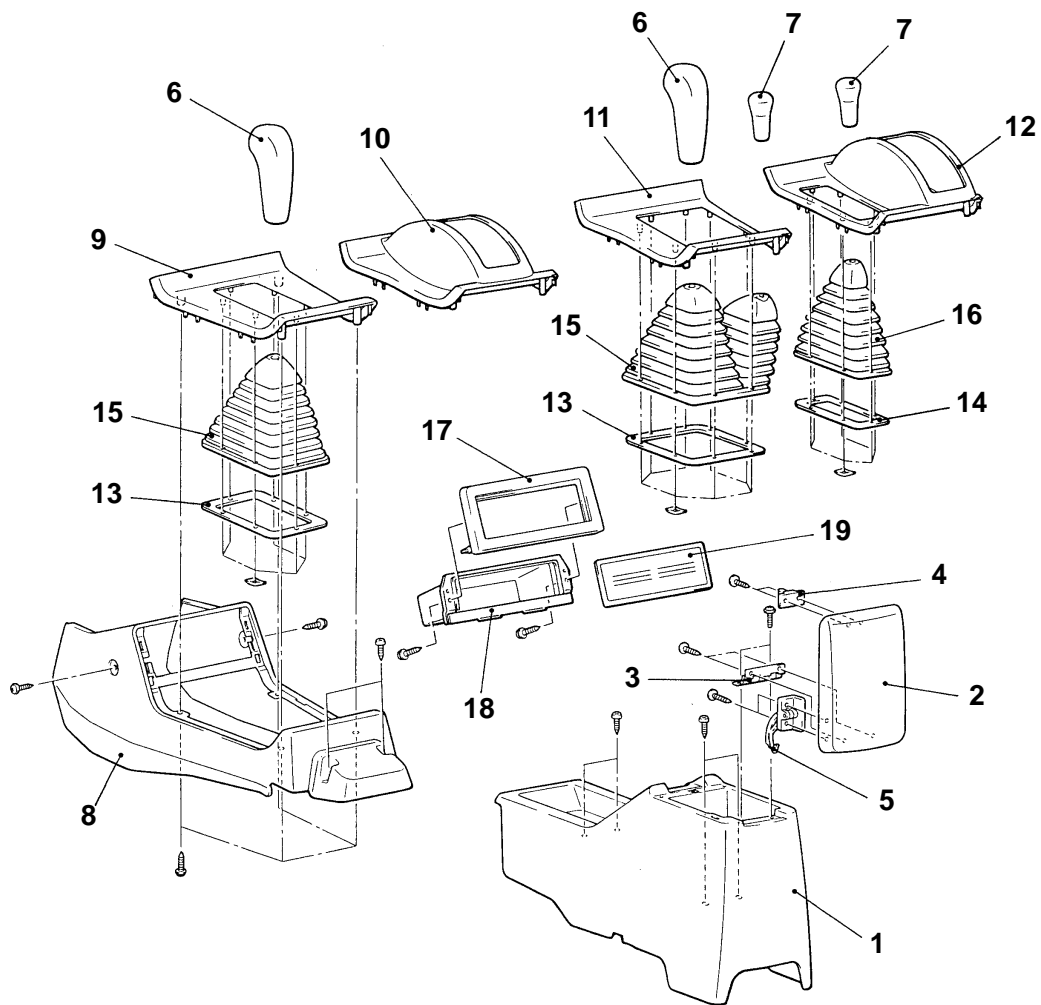
**COLUMN SWITCH (HEADLAMP WASHER SWITCH) CHECK**

Check the continuity between terminal (2) of connector A and terminal (1) of connector B with headlamp washer switch in ON position.

**FLOOR CONSOLE**

52100220124

**REMOVAL AND INSTALLATION**



A19V0053

**Removal steps**

- |  |   |
|--|---|
| <ol style="list-style-type: none"> <li>1. Rear floor console assembly</li> <li>2. Console lid</li> <li>3. Console lid hinge</li> <li>4. Striker</li> <li>5. Stopper</li> <li>6. Transmission shift lever knob &lt;M/T&gt;</li> <li>7. Transfer shift lever knob &lt;4WD&gt;</li> <li>8. Front floor console assembly</li> <li>9. Console panel A &lt;2WD-M/T&gt;</li> <li>10. Console panel B &lt;2WD-A/T&gt;</li> </ol> | <ol style="list-style-type: none"> <li>11. Console panel C &lt;4WD-M/T&gt;</li> <li>12. Console panel D &lt;4WD-A/T&gt;</li> <li>13. Shift lever boots reinforcement &lt;M/T&gt;</li> <li>14. Transfer lever boots reinforcement &lt;4WD-A/T&gt;</li> <li>15. Shift lever boots &lt;M/T&gt;</li> <li>16. Transfer lever boots &lt;4WD-A/T&gt;</li> <li>17. Console panel</li> <li>18. Box &lt;Vehicles without SRS&gt;</li> <li>19. Radio plug &lt;Vehicles with SRS&gt;</li> </ol> |
|--|---|

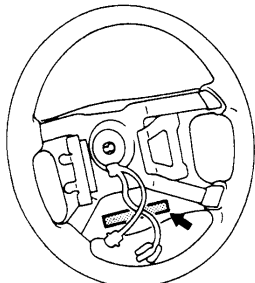
# WARNING/CAUTION LABELS

5240030063

A number of caution labels relating to the SRS are found in the vehicle, as shown in the following illustration. Follow label instructions when servicing

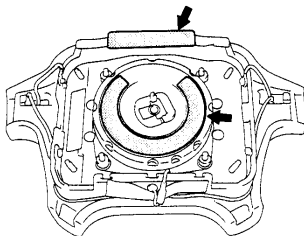
SRS. If labels are dirty or damaged, replace them with new ones.

Steering wheel



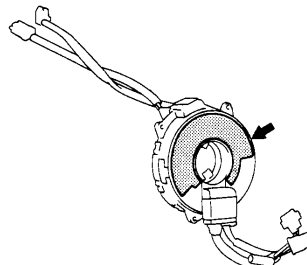
19N0245

Air bag module



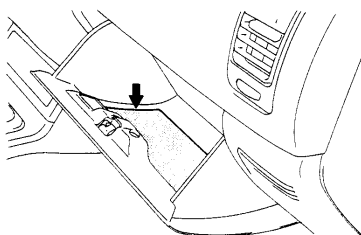
19V0059

Clock spring



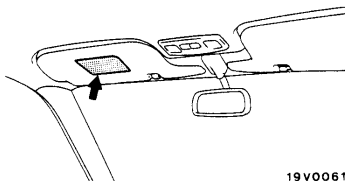
19X0015

Glove box



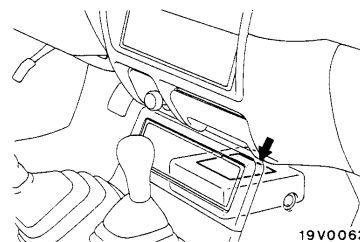
19V0060

Sun visor



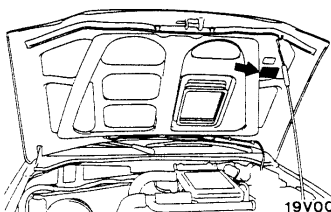
19V0061

SDU



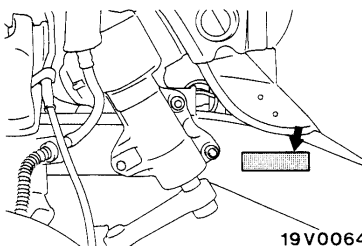
19V0062

Hood



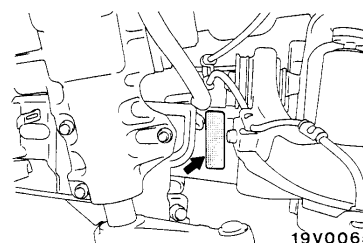
19V0063

Frame <2WD>



19V0064

Frame <4WD>



19V0065

0005050