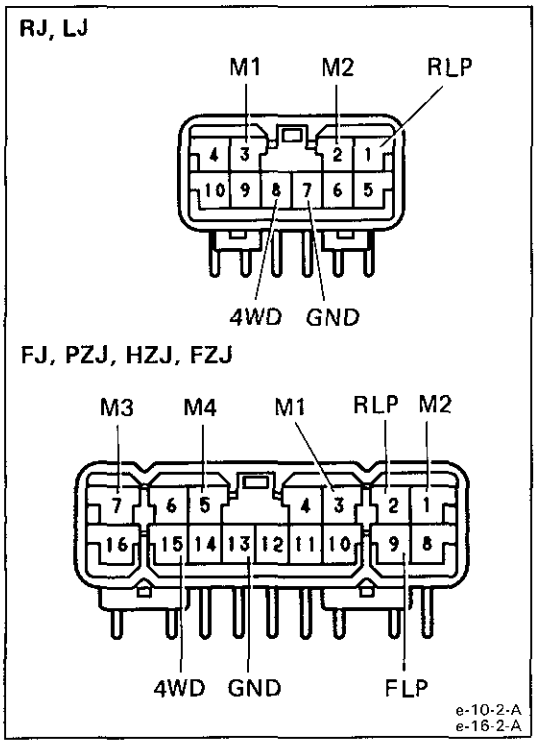


2. **INSPECT BATTERY OF VOLTAGE**

Battery voltage: 12 V Type 10 – 14.5 V
24 V Type 20 – 29 V

3. ***INSPECT SYSTEM CIRCUIT WITH CONNECTOR CONNECTED***

(a) Turn the ignition switch to ON position.

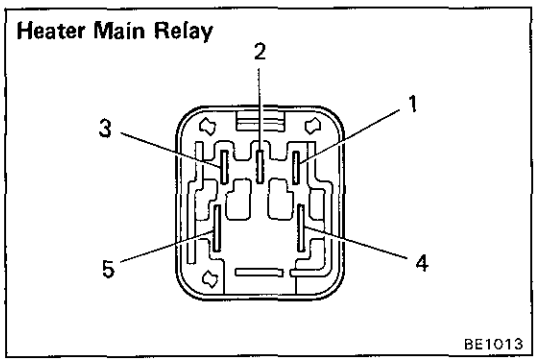
(b) Put on the 4WD switch.

(c) Remove the 4WD control ECU.

(d) Using voltmeter, measure the voltage when the differential lock control switch is in the positions as shown below.

Tester Connection ⊕ – ⊖	*Switch position*	*Specified valve*
4WD – GND	–	0.5 V or less
FLP – GND	FR·RR	
RLP – GND	RR or FR·RR	
M1 – M2	OFF → RR	0.5 V or less ↓ Battery voltage (Approx. 1 sec.) ↓ 0.5 V or less
M2 – M1	RR → OFF	
M3 –M4	OFF or RR → FR·RR	
M4 –M3	FR·RR → RR or OFF	

If the circuit is not as specified, replace the ECU.



Differential Lock Actuator

INSPECTION OF ACTUATOR

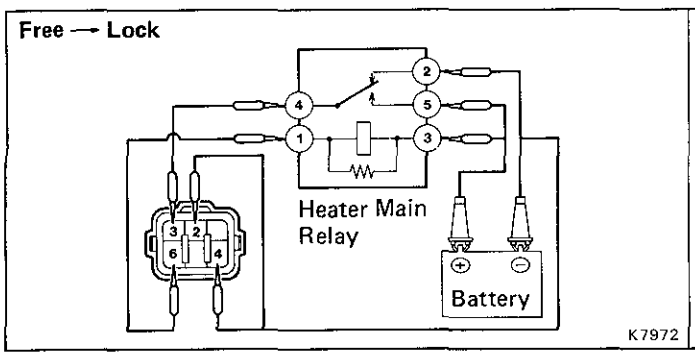
INSPECT RELAY OPERATION

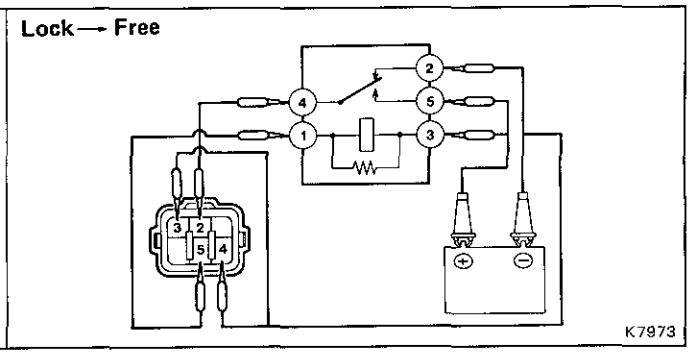
(a) Jack up the vehicle.

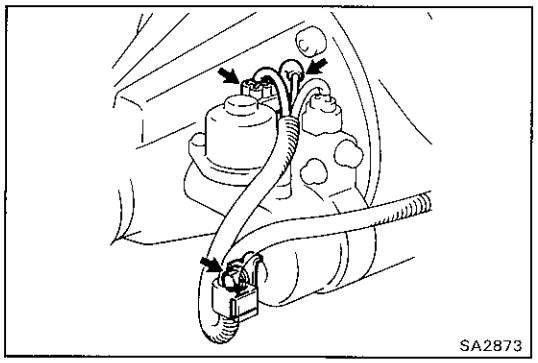
(b) Use the heater main relay and connect it as shown below.

(c) Rotate the tire and check that differential lock has occurred.

If operation is not as specified, replace the actuator.





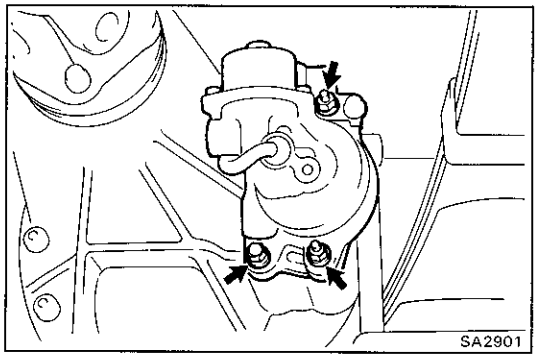

SA2873

REMOVAL AND INSTALLATION OF FRONT ACTUATOR

1. **SHIFTING FRONT DIFFENTIAL LOCK**
(See step 1 on page SA-21)

2. **REMOVE ACTUATOR**

(a) Disconnect the connector, tube and wire clamp bolts.

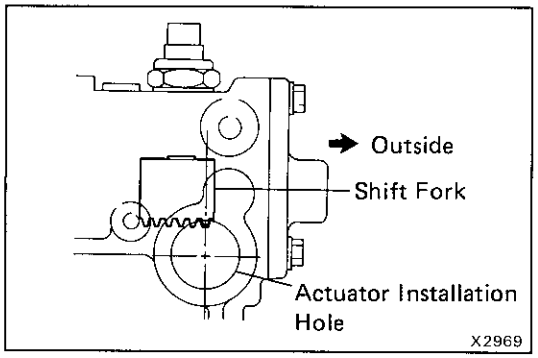

SA2901

(b) Remove the two nuts, bolt and actuator.

(c) Remove the O-ring from the actuator.

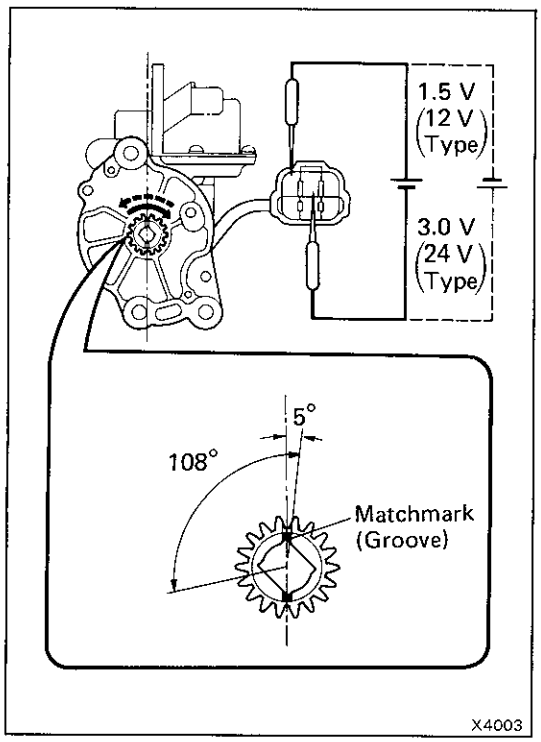
3. **INSTALL ACTUATOR**

(a) Check that the outermost rack tooth of the shift fork is virtually above the center line of the actuator installation hole.



X2969

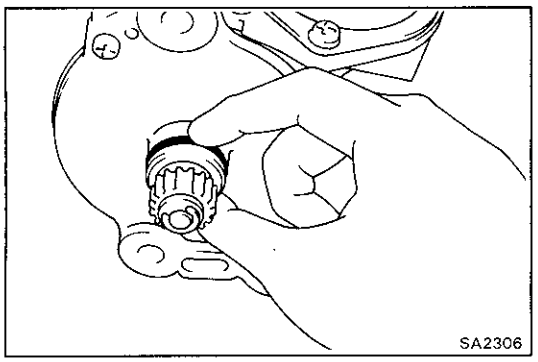
(b) Using dry cell battery (12 V type is 1.5 V, 24 V type is 3.0 V), align the matchmark on the actuator pinion with the center line of the actuator.



X4003

NOTICE:

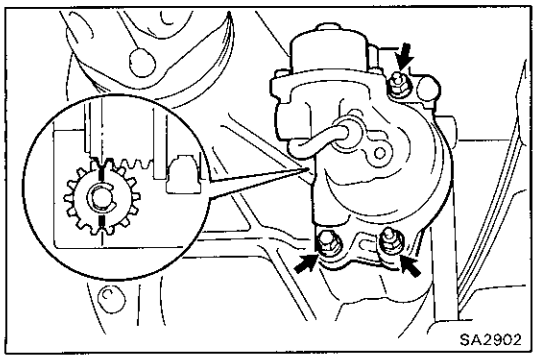
- **If the pinion of the actuator is not in the specified place, the actuator is difficult to be installed.**
- **Don't supply the battery voltage between terminals.**
- **If the matchmark comes to the extention limit of the rotation, don't electrify moreover.**



(c) Install a new O-ring to the actuator.

(d) Apply a light coat of gear oil on the O-ring.

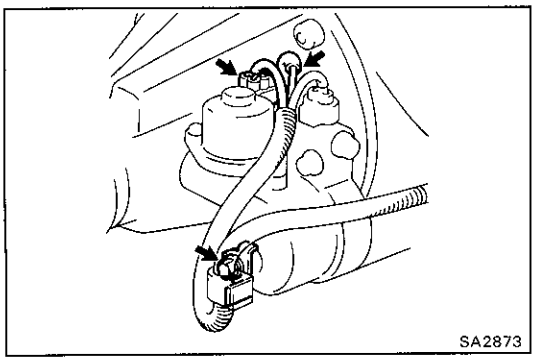
(e) Apply MP grease to the gear part of the actuator.



(f) Install the actuator to the differential with two nuts and bolt, so that the outermost rack tooth of the shift fork shall fit matchmark of the pinion of the actuator.

HINT: Do not damage the O-ring of the actuator.

Torque: 26 N·m (270 kgf·cm, 20 ft·lbf)



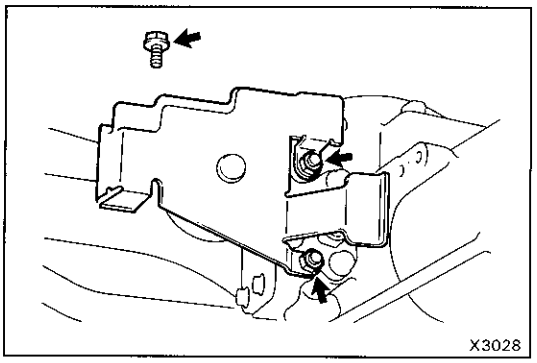
(g) Connect the wire clamp bolt, connector and tube.

HINT:

- The depth of the insertion of the bleeder tube into the hose is approx. 15 mm (0.59 in.).
- Take care that water or the equivalent shall not adhere to the connector and hose.

4. CANCEL FRONT DIFFERENTIAL LOCK

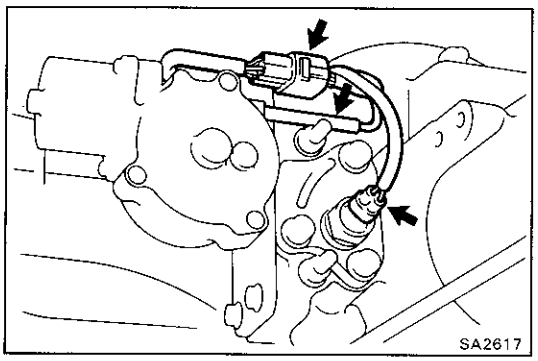
With the ignition switch ON, turn the differential lock control switch to OFF to cancel the differential lock.



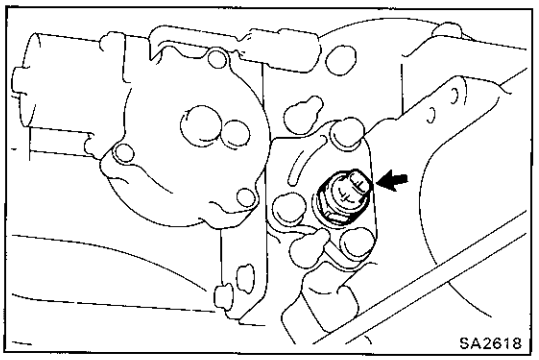
REMOVAL AND INSTALLATION OF REAR ACTUATOR (FJ, PZJ, HZJ, FZJ)

1. **SHIFTING REAR DIFFERENTIAL LOCK**
   (See Pub. No. RM183E, see page SA-129)

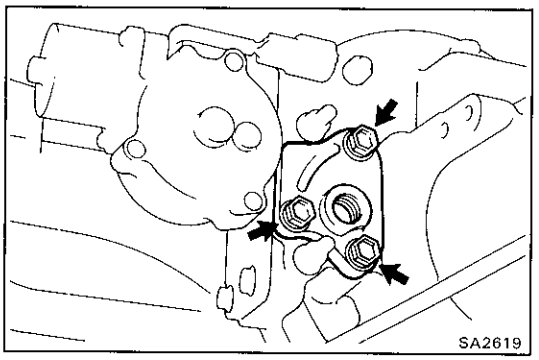
2. **REMOVE ACTUATOR PROTECTOR**
   Remove the two nuts, bolt and protector.



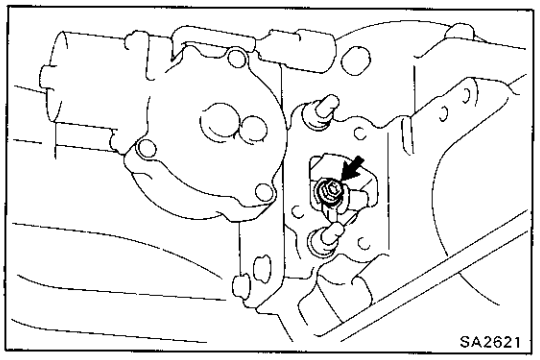
3. **DISCONNECT CONNECTORS AND TUBE**



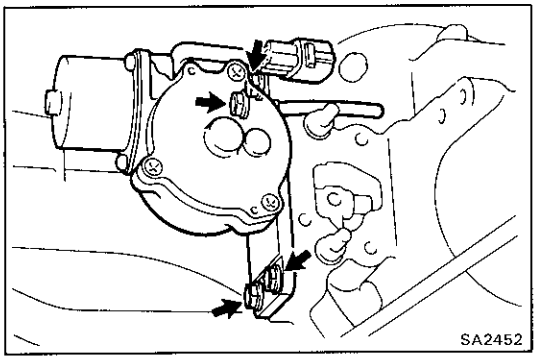
4. **REMOVE INDICATOR SWITCH**



5. **REMOVE COVER**
   (a) Remove the three bolts.
   (b) Using a brass bar and hammer, remove the cover.

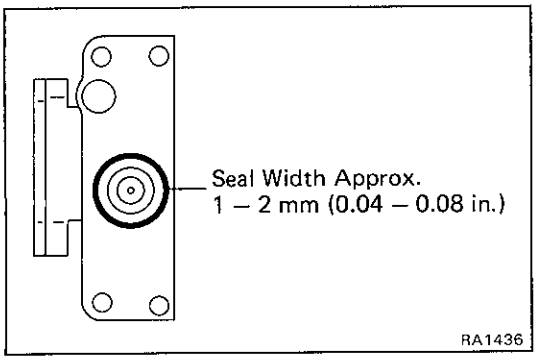


6. **REMOVE ACTUATOR**
   (a) Remove the shift fork shaft bolt.



(b) Remove the four bolts.

(c) Using a screwdriver, pry out the actuator.



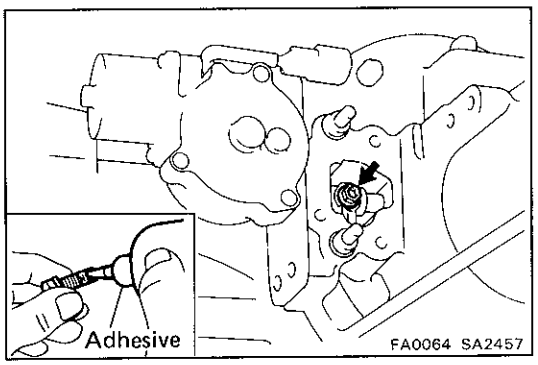
7. INSTALL ACTUATOR

(a) Clean contacting surfaces of any residual packing material using gasoline or alcohol.

(b) Apply seal packing to the actuator.

Seal packing: Part No. 08826-00090, THREE BOND 1281 or equivalent

HINT: Install the actuator within ten minutes after applying seal packing.



(c) Install the actuator to the differential and match the shaft with the shaft fork hole.

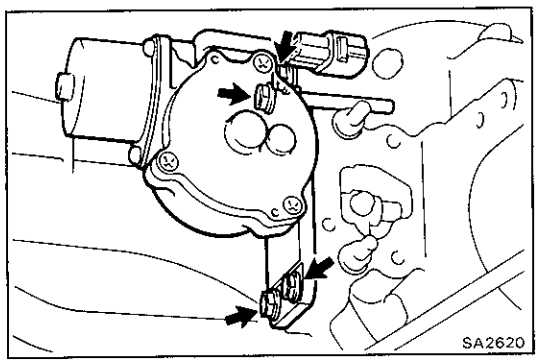
(d) Clean the threads of the set bolt and fork shaft with the white gasoline.

(e) Coat the threads of the set bolt with adhesive.

Sealer: Part No. 08833-00070, THREE BOND 1324 or equivalent

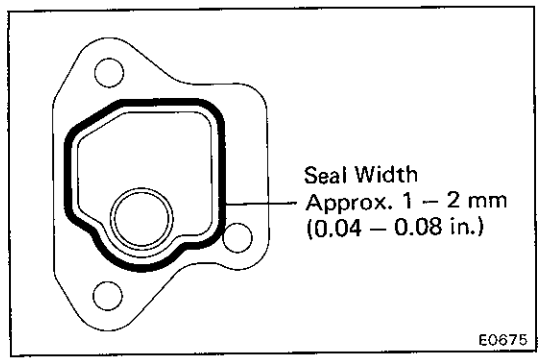
(f) Tighten the shift fork set bolt.

Torque: 20 N·m (200 kgf·cm, 14 ft·lbf)



(g) Tighten the four bolts uniformly, a little at a time.

Torque: 24 N·m (240 kgf·cm, 17 ft·lbf)



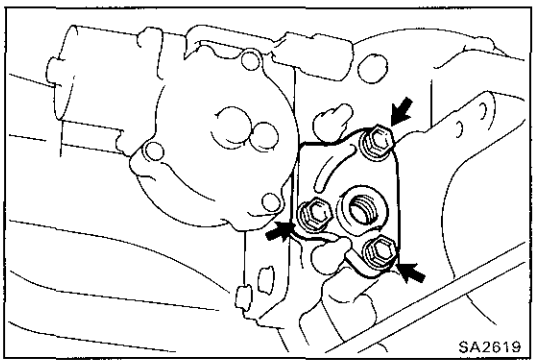
8. INSTALL COVER

(a) Clean contacting surfaces of any residual packing material using gasoline or alcohol.

(b) Apply seal packing to the cover.

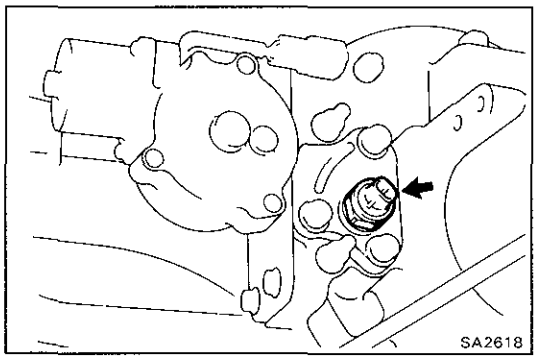
Seal packing: Part No. 08826-00090, THREE BOND 1281 or equivalent

HINT: Install the cover ten minutes after applying seal packing.



(c) Tighten the three bolts.

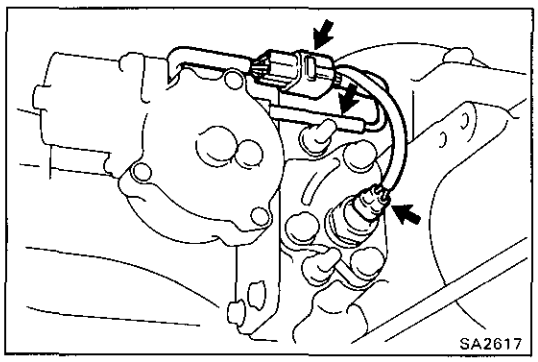
Torque: 18 N·m (185 kgf·cm, 13 ft·lbf)



9. INSTALL INDICATOR SWITCH

Install the indicator switch with a new gasket.

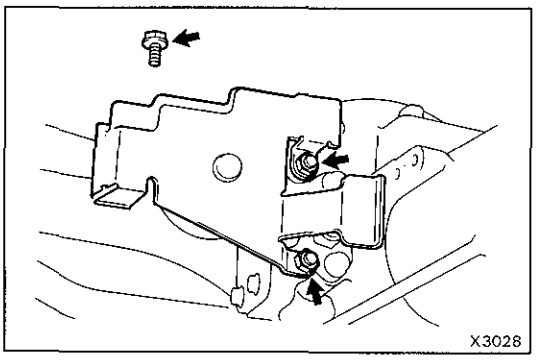
Torque: 40 N·m (410 kgf·cm, 30 ft·lbf)



10. CONNECT CONNECTORS AND TUBE

HINT:

- The depth of the insertion of the bleeder tube into the hose is approx. 15 mm (0.59 in.).
- Take care the water or equivalent shall not adhere to the connectors and hose.



11. INSTALL ACTUATOR PROTECTOR

Install the protector with the two nuts and bolt.

Torque: Nut 35 N·m (360 kgf·cm, 26 ft·lbf)
Bolt 20 N·m (200 kgf·cm, 14 ft·lbf)

12. CANCEL REAR DIFFERENTIAL LOCK

With the ignition switch ON, turn the differential lock control switch to OFF to cancel to differential lock.