

# DIFFERENTIAL LOCK - REAR

1995 Toyota Tacoma

1996 DRIVE AXLES  
Toyota - Rear Differential Lock  
Tacoma

## DESCRIPTION & OPERATION

### REAR DIFFERENTIAL LOCK SYSTEM

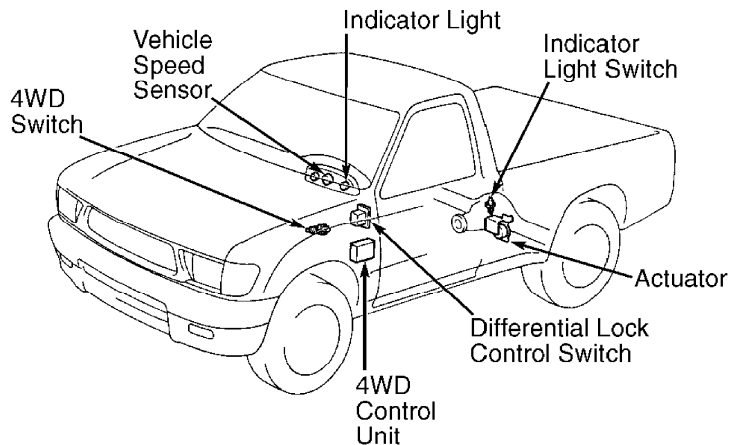
The rear differential lock system is designed to be used only when wheel spin occurs in a ditch or on a slippery or uneven surface. The indicator light will blink when switch is turned on as system completes locking operation. After the differential is locked, the light will stop blinking and remain on. On vehicles with manual transmission, it may be necessary to depress the clutch pedal, push the differential lock switch and slowly release the clutch pedal.

**NOTE:** The Anti-lock Brake System (ABS) does not operate when the rear differential is locked. It is normal for the ABS warning light to be on at this time.

When the differential lock control switch is off, the differential lock actuator is not activated. The differential lock sleeve (which is meshed to the differential case) is not engaged with the left side spider gear. The differential will operate as a conventional differential.

When the differential lock control switch is on, the differential lock actuator slides the differential lock sleeve into the left side spider gear. The differential case and side gear are locked by the sleeve to provide differential (positive traction) control.

The sliding of the differential lock sleeve is accomplished by an electric motor, which is controlled by the 4WD control unit in response to signals from the rear differential lock switch and from other switches and sensors. See Fig. 1. The motor is built into the rear differential lock actuator.



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Fig. 1: Location Of Rear Differential Lock System Components  
Courtesy of Toyota Motor Sales, U.S.A., Inc.

## TROUBLE SHOOTING

**NOTE:** Before performing trouble shooting procedures, ensure 4WD mode is set. When switching differential from free to lock or vice-versa, the indicator light will blink if the gears of the differential lock sleeve are not engaged. If this occurs, when the tires are rotated to apply power to the differential, the differential locks and the indicator light comes on.

## **INDICATOR LIGHTS DO NOT LIGHT UP**

Differential Lock Control System Off

Check for blown fusible link or blown GAUGE fuse. Ensure bulb, wiring harness, and ground circuit are okay. Repair circuit(s) or replace components as necessary.

Differential Lock Control System Off

Check for blown DIFF or 4WD fuse. Ensure rear differential lock control switch is okay. Ensure 4WD control unit, wiring harness, and ground circuit are okay. Repair circuit(s) or replace components as necessary.

## **DIFFERENTIAL LOCK DOES NOT OPERATE**

Ensure rear differential lock control switch, actuator, and rear differential carrier are okay. Ensure 4WD control unit, wiring harness, and ground circuit are okay. Repair circuit(s) or replace components as necessary.

## **DIFFERENTIAL LOCK DOES NOT RELEASE**

Ensure vehicle speed sensor is okay. Ensure 4WD control unit, wiring harness, and ground circuit are okay. Repair circuit(s) or replace components as necessary.

## **REAR DIFFERENTIAL LOCK SYSTEM**

1) Raise vehicle off ground so all 4 wheels can rotate. Start engine and place transfer case shift lever in 4WD position. Turn rear differential lock system on and ensure indicator light is on.

2) If light indicator light is blinking, rotate tires to engage differential gears. Turn rear differential lock system off and ensure indicator light goes off.

3) Turn rear differential lock system on and check voltage between 4WD control unit terminals No. 2 and 3 with wheels turning and speedometer reading about 5 MPH. See Fig. 4. Voltage should be 0.5 volt or less and steady. Ensure indicator light blinks when 2WD is set. Turn rear differential lock system off. Stop engine and lower vehicle.

## **REAR DIFFERENTIAL LOCK INDICATOR LIGHT**

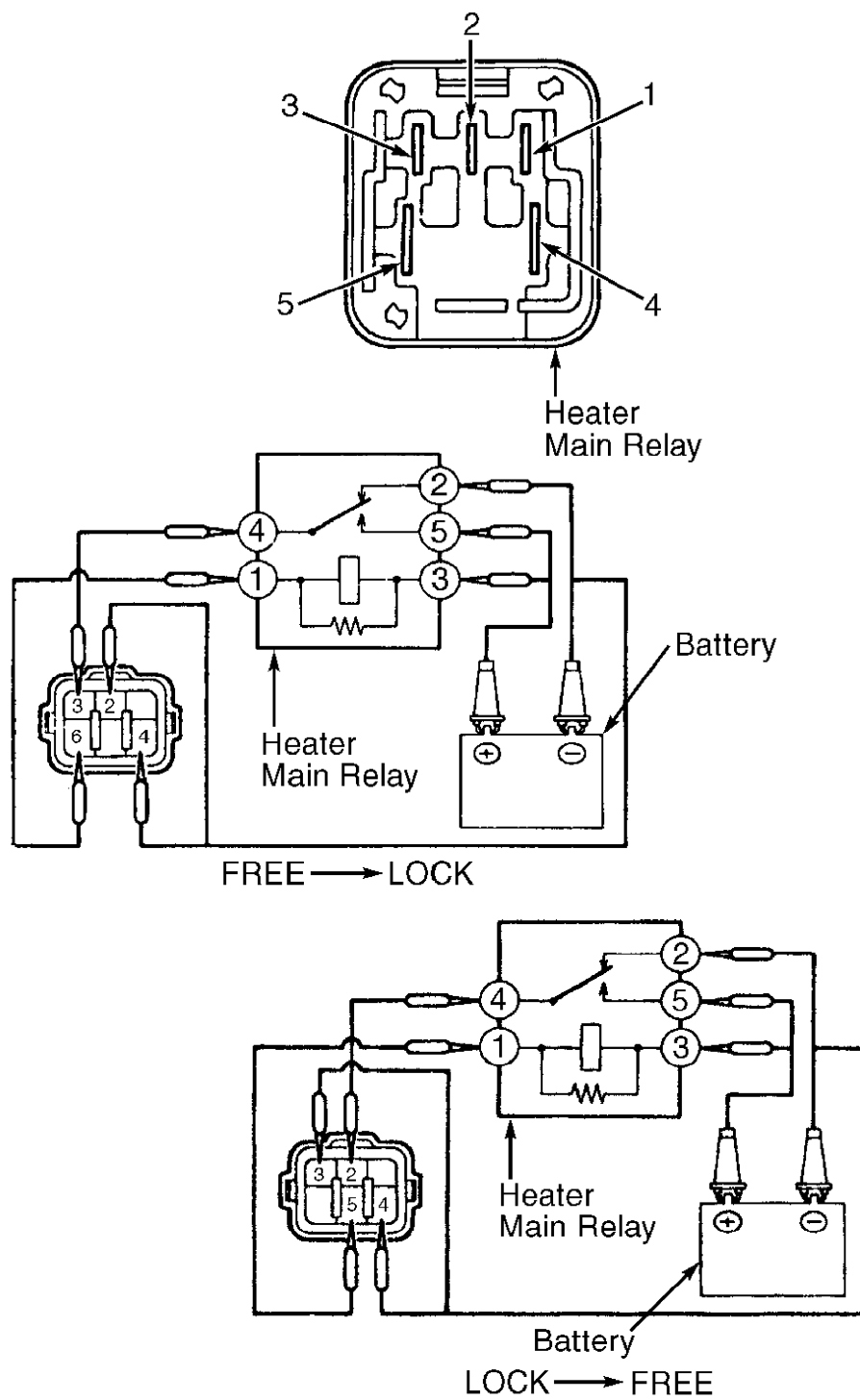
Turn ignition on. Ensure indicator light comes on for about one second when ignition is turned on.

## **TESTING**

### **REAR DIFFERENTIAL LOCK ACTUATOR**

Raise and support vehicle. Use a spare heater main relay and connect it as shown. See Fig. 2. Rotate rear tire and ensure

differential locks or is free. If differential does not operate as specified, replace actuator.



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Fig. 2: Testing Rear Differential Lock Actuator  
Courtesy of Toyota Motor Sales, U.S.A., Inc.

## REAR DIFFERENTIAL LOCK SYSTEM

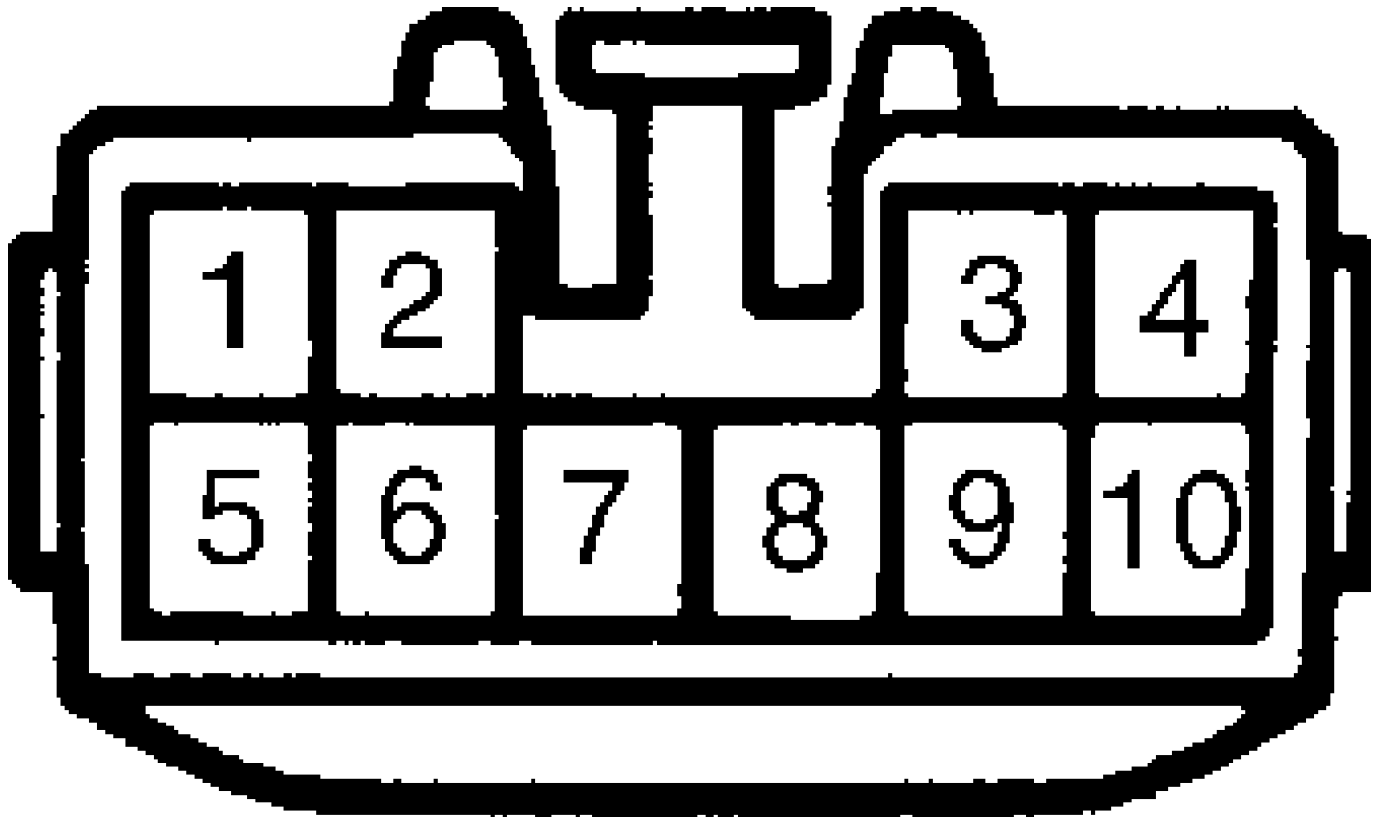
With 4WD Control Unit Disconnected

1) Ensure battery voltage is between 10-14 volts. Disconnect 4WD control unit. Ensure resistance between wiring harness connector terminals No. 2 and 3 is less than 100 ohms. See Fig. 3.

2) Ensure continuity exists between wiring harness connector terminal No. 7 and ground. Turn ignition on and move vehicle slowly (at least 5 MPH). Ensure one vehicle speed sensor pulse exists between terminal No. 10 and ground for each 16" (40 cm) of movement.

3) With ignition on, ensure battery voltage exists between wiring harness connector terminal No. 5 and ground. With ignition on and rear differential lock indicator light on, ensure voltage is close to zero between wiring harness connector terminal No. 1 and ground.

4) With ignition on and rear differential lock indicator light off, ensure battery voltage is present between wiring harness connector terminal No. 1 and ground.



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Fig. 3: Testing Rear Differential Lock Control System (4WD Control Unit Disconnected)  
Courtesy of Toyota Motor Sales, U.S.A., Inc.

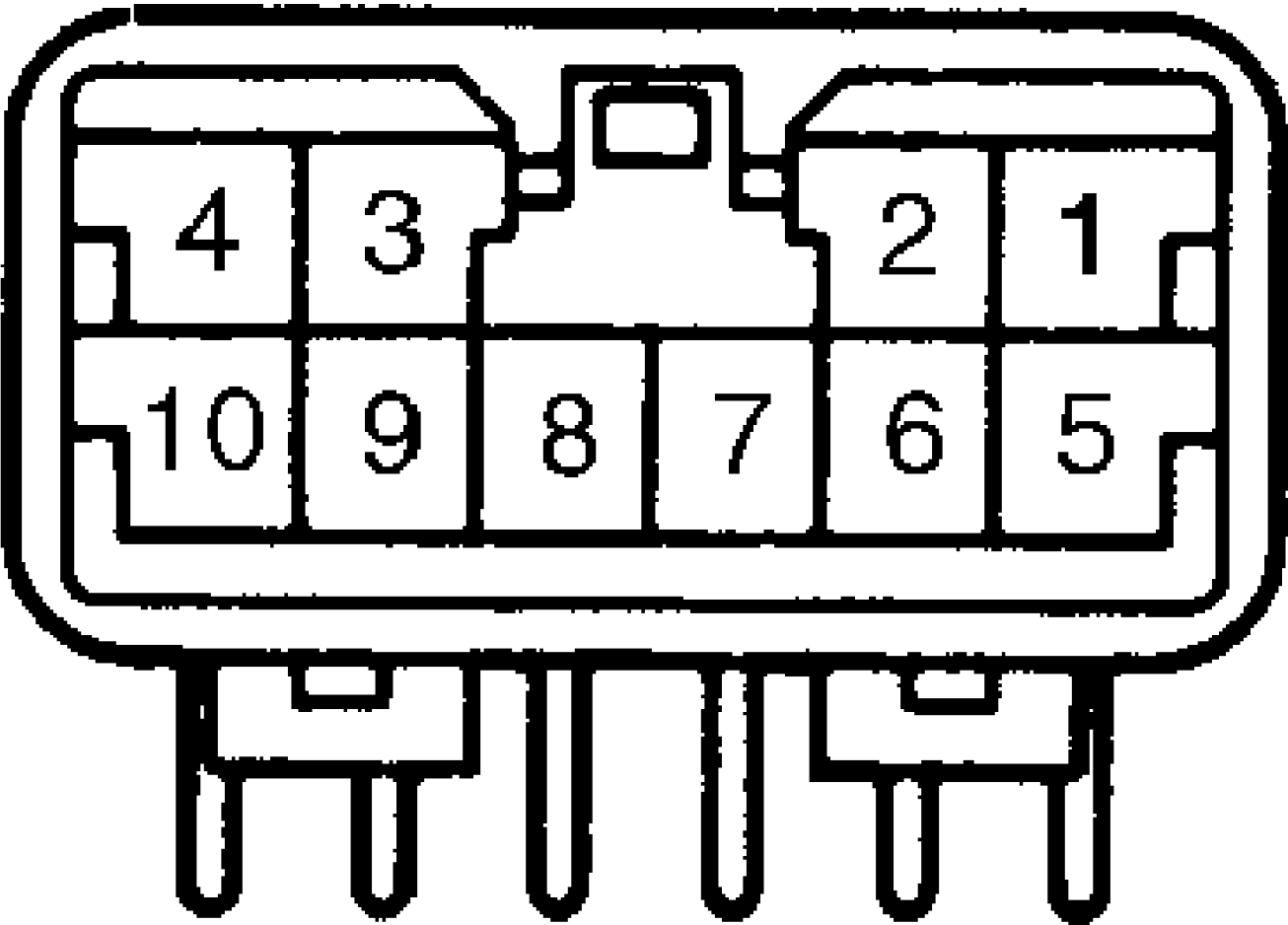
5) With ignition on and 4WD indicator light on, ensure voltage is close to zero between wiring harness connector terminal No. 8 and ground. With ignition on and 4WD indicator light off, ensure battery voltage is present between wiring harness connector terminal No. 8 and ground.

6) With ignition on and rear differential lock control switch on, ensure battery voltage is present between wiring harness connector terminal No. 4 and ground.

7) With ignition on and rear differential lock control switch off, ensure voltage is close to zero between wiring harness connector terminal No. 4 and ground. If rear differential lock system circuits do not test as specified, repair circuit(s) or replace components as necessary.

With 4WD Control Unit Connected

Turn ignition on. Ensure rear differential lock system is in locked position. With differential control switch in positions indicated, check voltage values at 4WD control unit. See TESTING REAR DIFFERENTIAL LOCK CONTROL SYSTEM TABLE. If voltage is not as specified, replace 4WD control unit.



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Fig. 4: Testing Rear Differential Lock Control System (4WD Control Unit Connected)  
Courtesy of Toyota Motor Sales, U.S.A., Inc.

TESTING REAR DIFFERENTIAL LOCK CONTROL SYSTEM TABLE

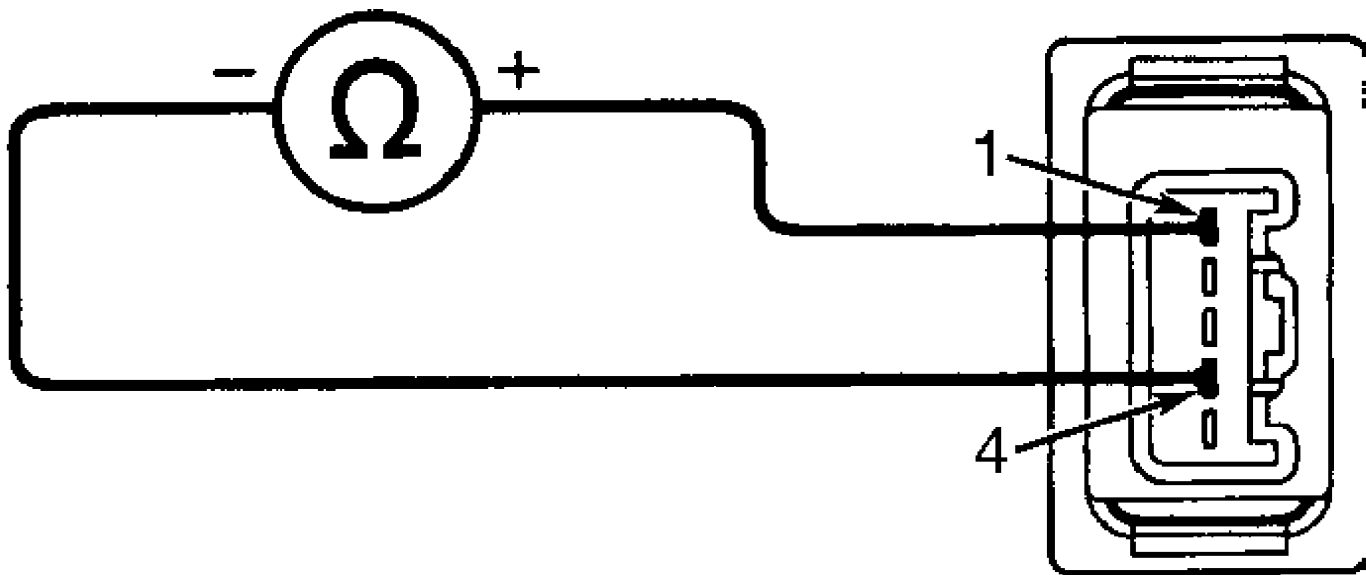
Check Voltage (1) Between Terminal No.	Switch Position	Specified Voltage
1 & 7 .....	On .....	0.5 Or Less

3 & 2	.....	Off-On	.....	(2)	10-14
2 & 3	.....	On-Off	.....	(2)	10-14

- (1) - Connect voltmeter positive lead to first terminal listed, and negative lead to second terminal.
- (2) - Voltage is present for about one second then drops down to 0.5 volt or less.

**REAR DIFFERENTIAL LOCK**  
CONTROL SWITCH

Check rear differential lock control switch continuity between switch terminals No. 1 and 4. See Fig. 5. If no continuity exists, replace switch.



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Fig. 5: Testing Rear Differential Lock Control Switch  
Courtesy of Toyota Motor Sales, U.S.A., Inc.

**CENTER DIFFERENTIAL LOCK**  
INDICATOR LIGHT SWITCH

With switch off (released), ensure no continuity exists between switch terminals. With switch on (pushed in), ensure continuity exists between switch terminals. Replace indicator light switch if continuity is not as specified.

**REMOVAL & INSTALLATION**

**REAR DIFFERENTIAL LOCK ACTUATOR**  
& INDICATOR LIGHT SWITCH

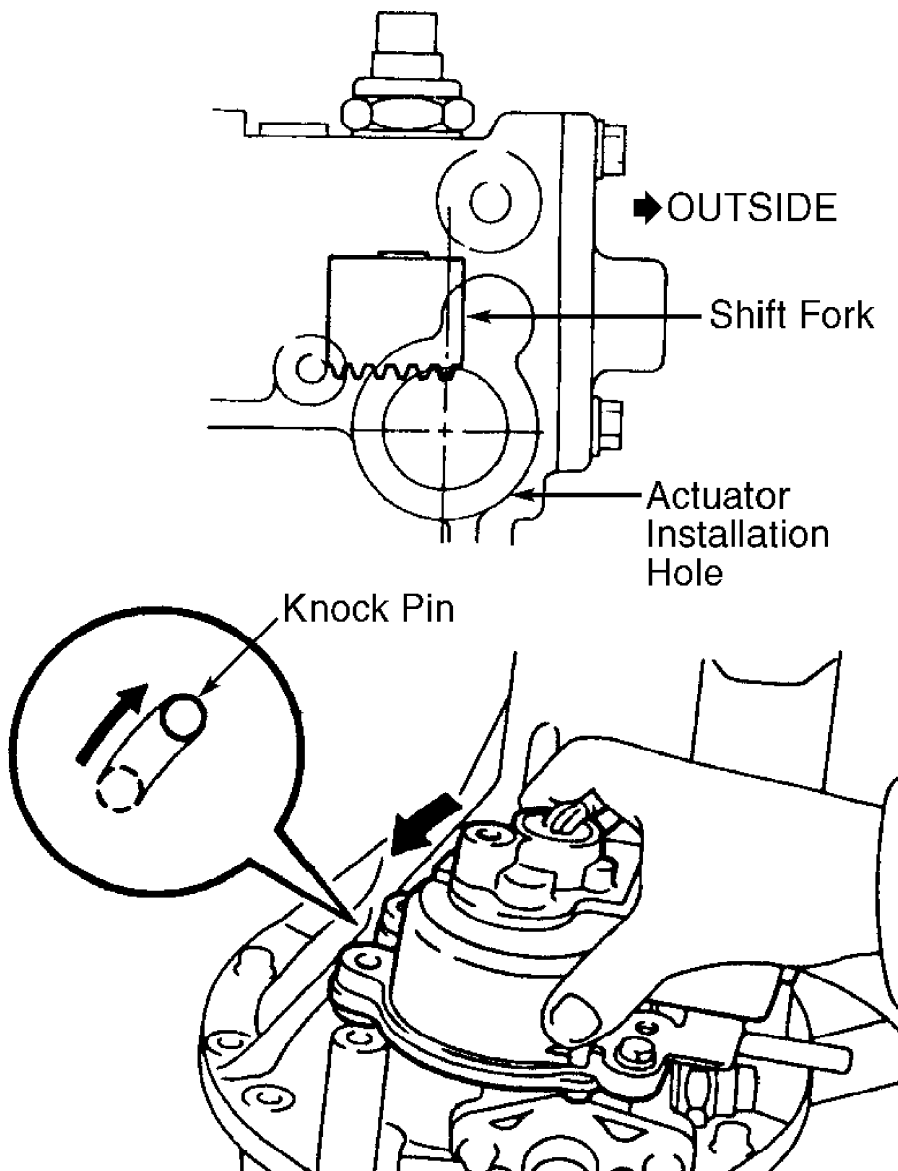
Removal  
Remove bolt and rear differential lock actuator from side of differential carrier. See Fig. 1. Remove "O" ring. Remove indicator light switch and gasket.

Installation

1) Install indicator light switch and gasket. Tighten switch to 30 ft. lbs. (40 N.m). Install actuator and ensure outermost rack tooth of shift fork is above centerline of actuator installation hole. See Fig. 6.

2) Ensure match marks of actuator pinion are within 0-5 degrees clockwise above the centerline of actuator. If match marks are not as specified, rotate pinion by applying voltage to actuator. See Fig. 7.

NOTE: DO NOT apply battery voltage directly between terminals. If the match marks reach their limit of rotation, immediately stop applying voltage.



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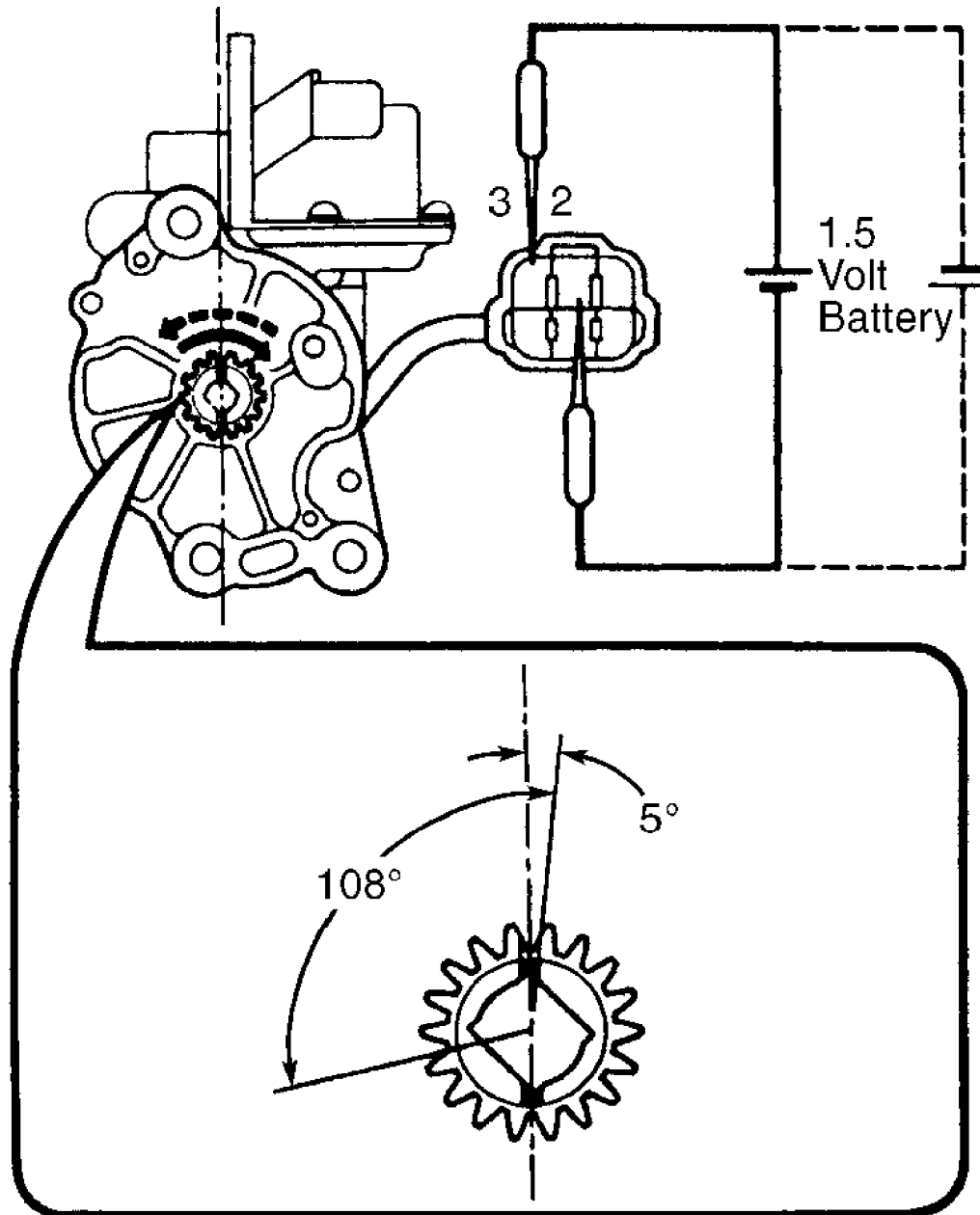
Fig. 6: Installing Rear Differential Lock Actuator  
Courtesy of Toyota Motor Sales, U.S.A., Inc.

3) Lightly lubricate a NEW "O" ring with gear oil and install on actuator. Apply multipurpose grease to actuator gear. Using care

not to damage "O" ring, install actuator so that long hole on the actuator side fits with knock pin on carrier side.

4) Align actuator with the long hole and rotate actuator counterclockwise when the knock pin reaches right-hand side. See Fig. 6.

5) Install actuator and bolt on differential carrier so that outermost rack tooth of the shift fork will fit the match marks of the actuator pinion. Tighten actuator bolt to 19 ft. lbs. (26 N.m).



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Fig. 7: Rotating Rear Differential Lock Actuator  
Courtesy of Toyota Motor Sales, U.S.A., Inc.



