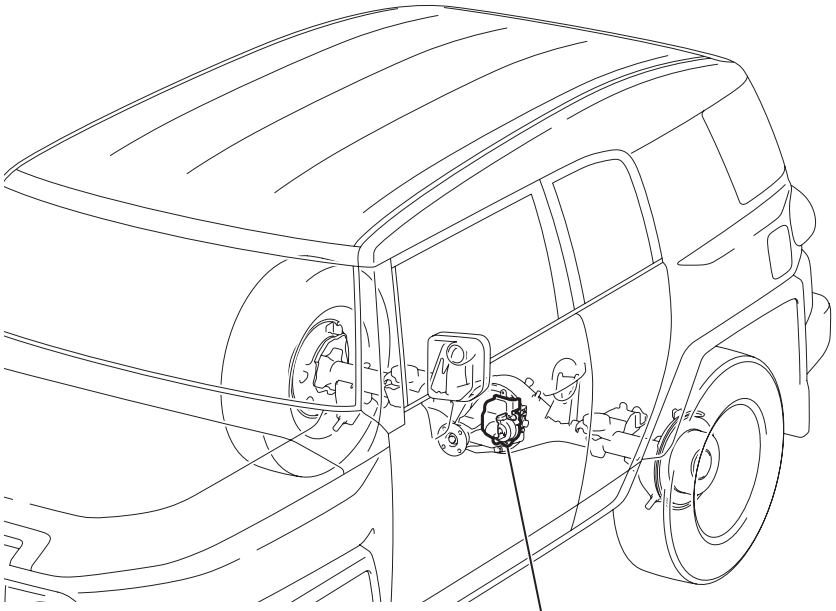
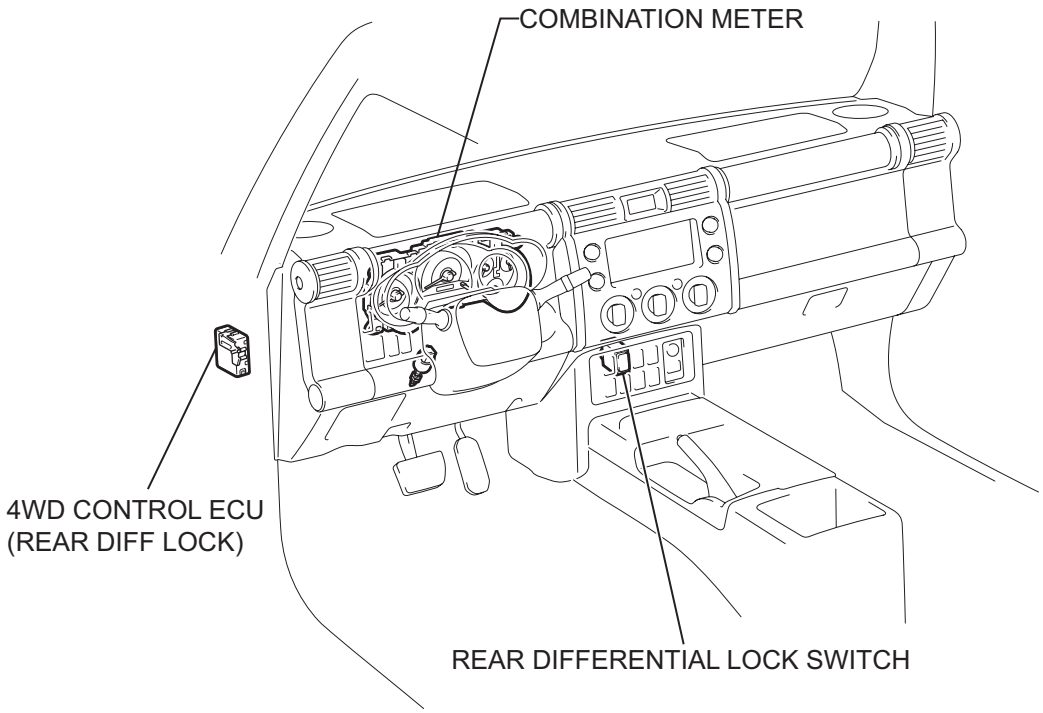
DIFFERENTIAL LOCK SYSTEM

PARTS LOCATION





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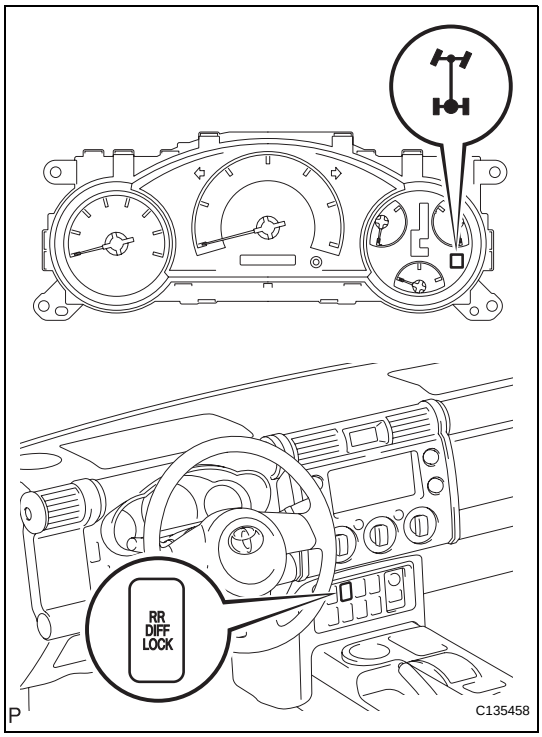
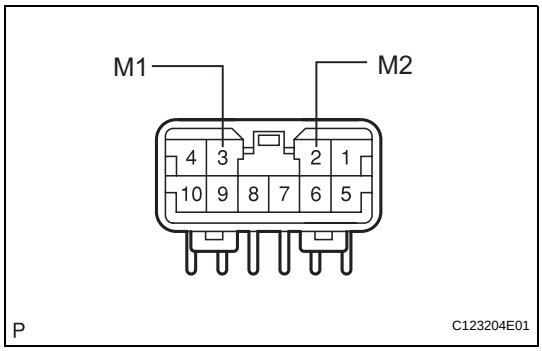


INSPECTION

1. INSPECT DIFFERENTIAL LOCK SYSTEM

(a) Inspect the indicator light.
  (1) Check that the indicator light lights up for approximately 1 second when the ignition switch is turned ON.

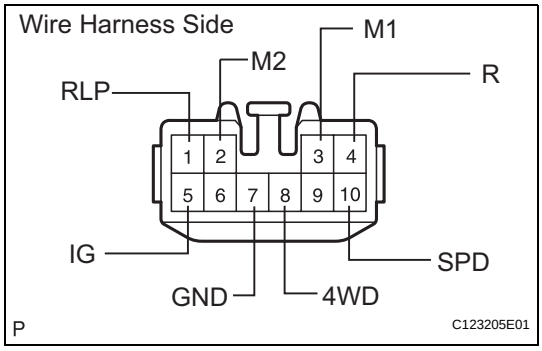
(b) Inspect the differential lock operation.
  (1) Jack up the vehicle then start the engine.
  (2) Shift the transfer shift lever to L position.
  (3) When the differential lock control switch is set to the ON position, the indicator light is pushed on. Differential lock is applied to the rear wheel at this time.
  HINT:
  If the gears of the differential lock system are not engaged, the indicator light remains blinking, so rotate the tires to engage the gear.
  (4) When the differential lock control switch is in the OFF position, the indicator light goes off. The rear differential lock is released at this time.



  (5) Check the voltage between the terminals of the four wheel drive control ECU when switching the differential control ON, with the speedometer registering approximately 5 mph (8 km/h) or more.
  Standard voltage

Switch position	Terminal	Specified value
ON	M1 - M2	0.5 V or less (No change)

  (6) Return the differential lock control switch to OFF.
  (7) Stop the engine and lower the vehicle.



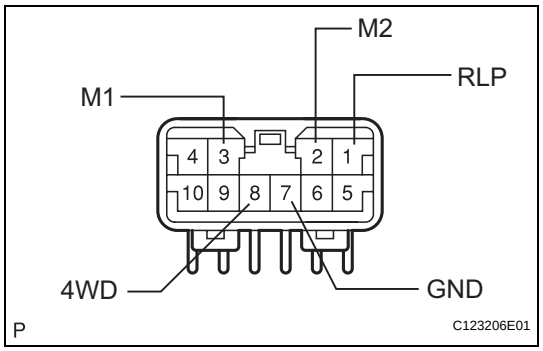
2. CHECK WIRE HARNESS AND CONNECTOR

(a) Inspect the system circuit with the connector disconnected.
  (1) Disconnect the connector from the four wheel drive control ECU and inspect the connector on the wire harness side, as shown in the table.
  Standard

Tester Connection	Trouble Part	Condition	Specified value
M1 - M2	Rear differential lock actuator	-	Less than 100 Ω
GND - Body ground	Body ground	-	Continuity
SPD - Body ground	Speed sensor	Vehicle moves slowly	1 pulse 40 cm (15.75 in.)
IG - Body ground	Differential fuse	Ignition switch ON	11 to 14 V

Tester Connection	Trouble Part	Condition	Specified value
RLP - Body ground	Rear differential lock indicator switch	Ignition switch ON with indicator light ON	Approx. 0 V
		Ignition switch ON with indicator light OFF	11 to 14 V
4WD - Body ground (4WD)	L position switch	Ignition switch ON with transfer shift lever except L	Approx. 0 V
		Ignition switch ON with transfer shift lever L	11 to 14 V
R - Body ground	Differential lock control switch	Ignition switch ON with differential lock control switch ON	11 to 14 V
		Ignition switch ON with differential lock control switch OFF	Approx. 0 V

HINT:
If the circuit is not as specified, check and repair or replace the trouble part shown in the table above.



3. CHECK FOUR WHEEL DRIVE CONTROL ECU

(a) Inspect the system circuit with the connector connected.
(1) Turn the ignition switch to the ON position.
(2) Shift the transfer shift lever to the L position.
(3) Using a voltmeter, measure the voltage when the differential lock control switch is in the position, as shown in the table.

Standard voltage

Tester connection	Switch position	Specified value
4WD - GND	-	0.5 V or less
RLP - GND	ON*	0.5 V or less
M1 - M2	OFF → ON	0.5 V or less → 11 to 14 V (approx. 1 sec.) → 0.5 V or less
M2 - M1	ON → OFF	

HINT:
*The rear differential should be locked mechanically.
If the circuit is not as specified, replace the ECU.

(4) Install the ECU in place.

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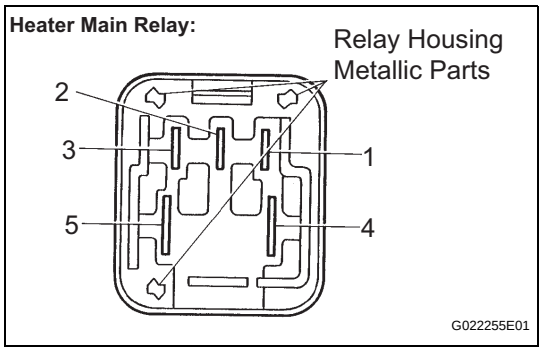


4. INSPECT DIFFERENTIAL LOCK COMPONENTS

(a) Inspect the relay operation.

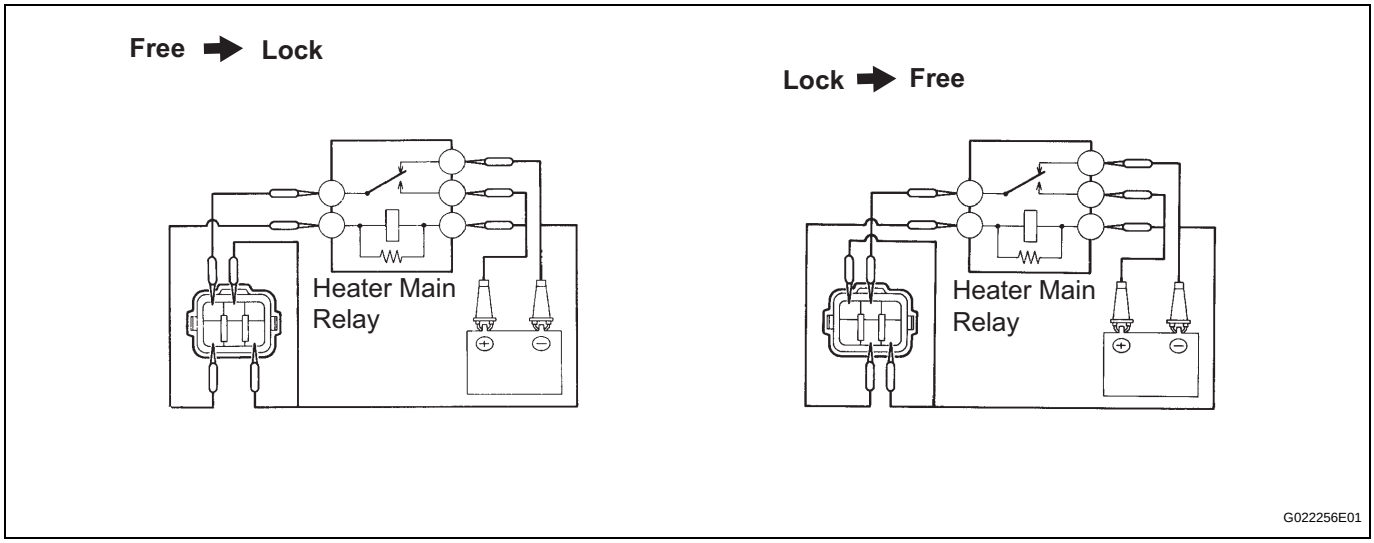
(1) Jack up the vehicle.

(2) Use a heater main relay and connect it, as shown below.

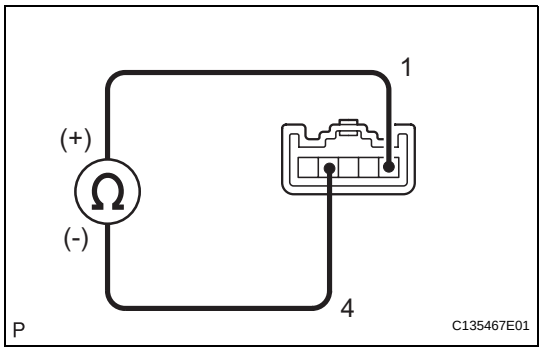
NOTICE:

Connect the terminals being careful not to touch the neighboring terminals or metallic parts of the relay housing.

(3) Rotate the tire and check that the differential locks.



If the operation is not as specified, replace the actuator.



5. INSPECT REAR DIFFERENTIAL LOCK SWITCH

(a) Inspect the differential lock switch.

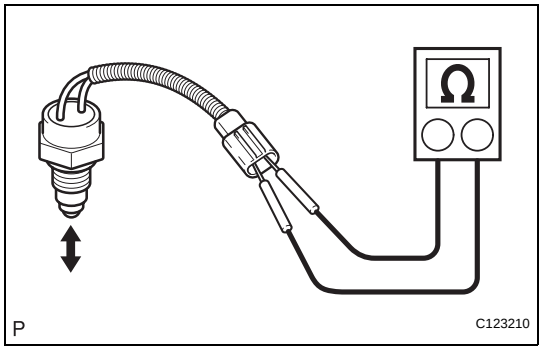
(1) Inspect the resistance between terminals 1and 4.

Standard resistance:

Below 1 Ω

HINT:

If the result is not as specified, replace the switch.



6. INSPECT REAR DIFFERENTIAL LOCK INDICATOR SWITCH

(a) Inspect the No. 4 transfer indicator switch.

(1) Measure the resistance between the terminals when the switch is pushed (differential connected position).

Standard resistance:

Below 1 Ω

(2) Measure the resistance between the terminals when switch is released (differential disconnected position).

Standard resistance:

10 kΩ or higher

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HINT:
If the operation is not as specified, replace the switch.

(b) Inspect the L position switch (see page TF-45).
(c) Inspect the vehicle speed sensor (see page BC-47).