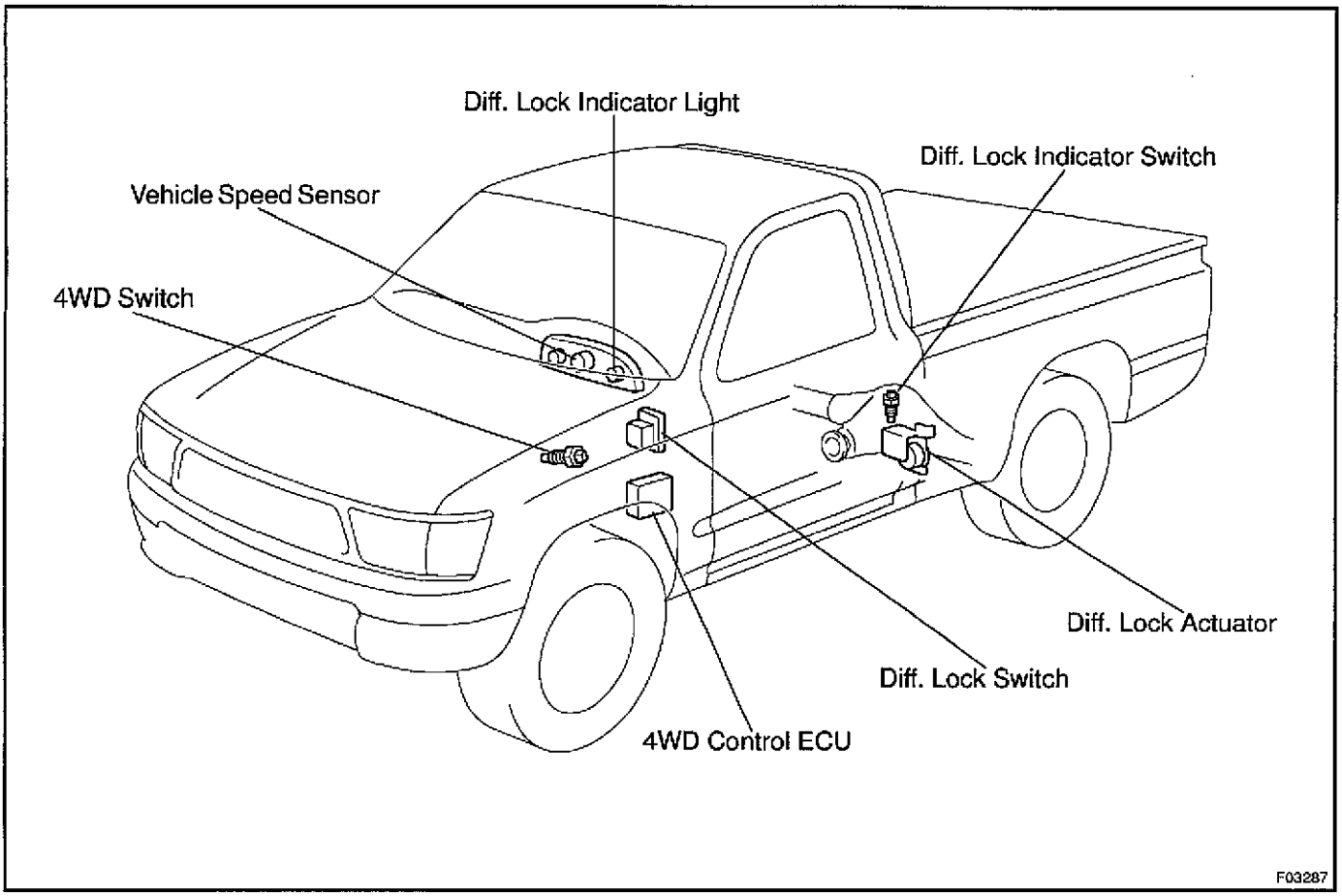
DIFFERENTIAL LOCKING SYSTEM

LOCATION

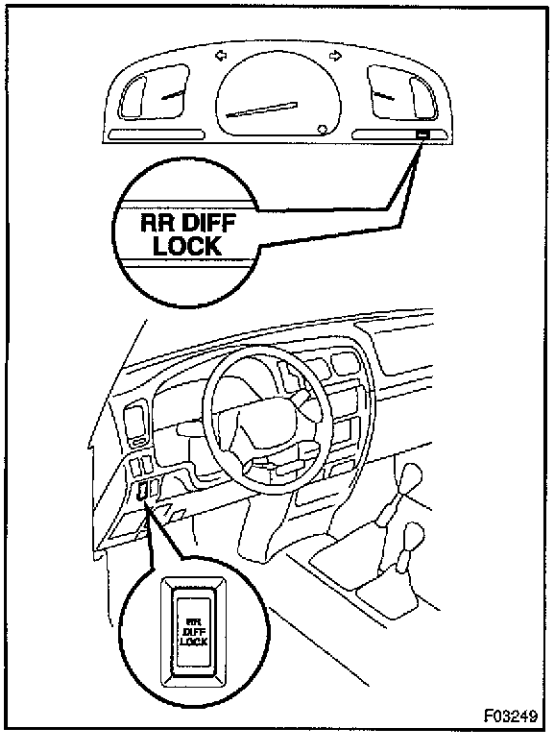
SA0BT–02



SA0BU–02

REMOVAL

REMOVE DIFF. LOCK ACTUATOR (See page SA–214)



INSPECTION

SA0BV–02

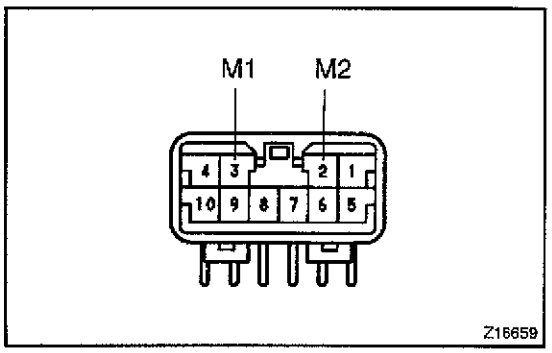
1. INSPECT DIFFERENTIAL LOCK SYSTEM

(a) Inspect the indicator light.
Check that the indicator light lights up for approx. 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 the L4 position.
(3) When the Diff. lock control switch is set to the ON position, the indicator light is turned on.
Differential lock is applied to the rear wheel at this time.

HINT:
If the gears of the differential lock system are not meshed, the indicator light remains blinking, so rotate the tires to mesh the gear.

(4) When the Diff. lock control switch is in the OFF position, the indicator light goes off.
Differential lock is released for the rear wheel at this time.



(5) Check the voltage between the terminals of the 4WD control ECU when switching the Diff. lock control switch with the speedometer, registering approx. 8 km/h (5 mph) or more.

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

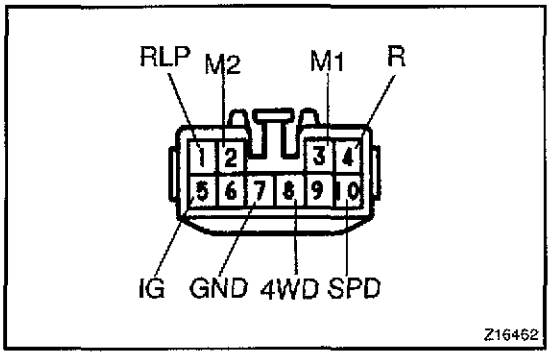
(6) Check that the indicator lights blink when 2WD mode is set.
Diff. lock is released for both the rear wheels at this time.

(7) Return the Diff. lock control switch to OFF.

(8) Stop the engine and lower the vehicle.

2. INSPECT DIFF. LOCK SYSTEM CIRCUIT

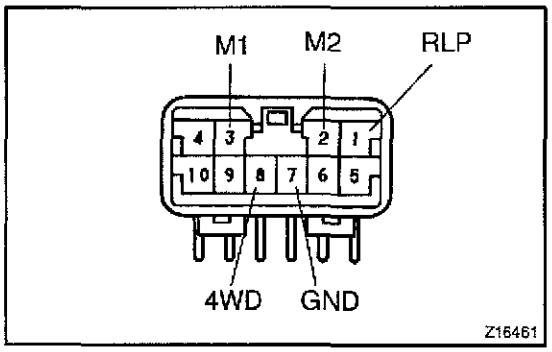
(a) Inspect the battery positive voltage.
Battery positive voltage: 10 – 14 V



(b) Inspect the system circuit with the connector disconnected.
Disconnect the connector from the 4WD control ECU and inspect the connector on the wire harness side, as shown in the table.

Symbols (Terminals No.)	Trouble part	Condition	Specified value
M_1 – M_2	RR Differential Lock Actuator	–	Less than 100 Ω
GND – Body ground	Body ground	–	Continuity
SPD – Body ground	Speed sensor	Vehicle moves slowly	1 pulse each 40 cm (15.75 in.)
IG – Body ground	DIFF Fuse	Ignition switch ON	10 – 14 V
RLP – Body ground	Rear Differential Lock Indicator Switch	Ignition switch ON with indicator light ON	About 0 V
		Ignition switch ON with indicator light OFF	10 – 14 V
4WD – Body ground	4WD Indicator Switch	Ignition switch ON with indicator light OFF	About 0 V
		Ignition switch ON with indicator light OFF	10 – 14 V
R – Body ground	Differential Lock Control Switch	Ignition switch ON with differential lock control switch ON	10 – 14 V
		Ignition switch ON with differential lock control switch OFF	About 0 V

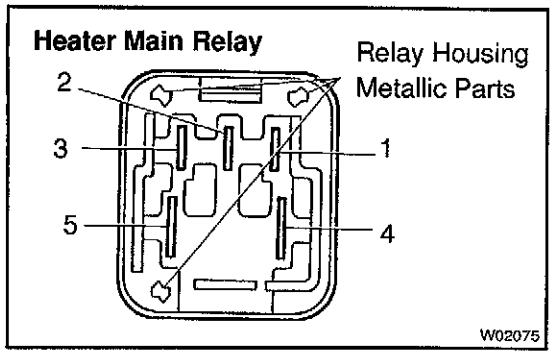
HINT:
If the circuit is not as specified, check and repair or replace the trouble part shown in the table above.



(c) Inspect the system circuit with the connector connected.
(1) Turn the ignition switch to the ON position.
(2) Keep the center Diff. lock condition.
(3) *Remove the Diff. lock ECU.*
(4) Using a voltmeter, measure the voltage when the differential lock control switch is in the position as shown below.

Tester Connection ⊕ – ⊖	Switch position	Specified valve
4WD – GND	–	0.5 V or less
RLP – GND	ON	0.5 V or less → 10 – 14 V (Approx. 1 sec.) → 0.5 V or less
M1 – M2	OFF – ON	
M2 – M1	ON – OFF	

If the circuit is not as specified, replace the ECU.
(5) Install the ECU in place.



3. INSPECT DIFF. LOCK COMPONENTS

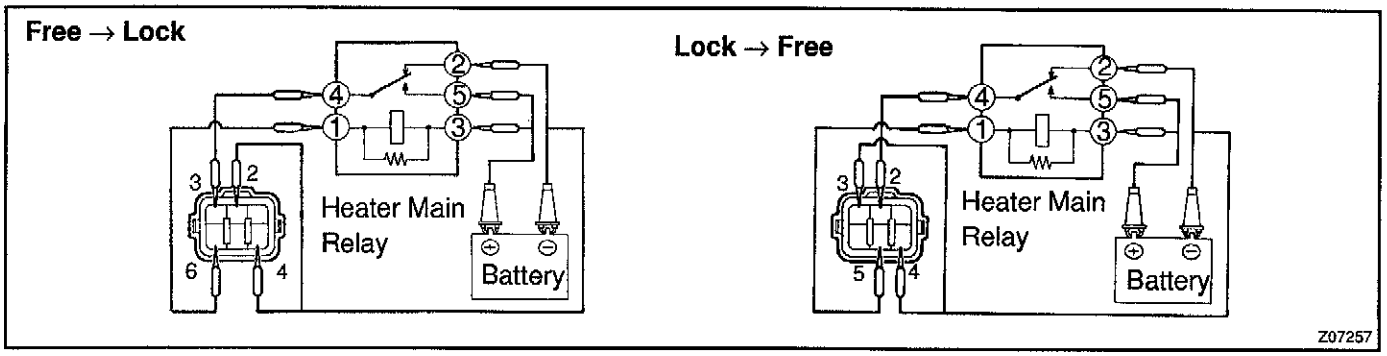
(a) Inspect the relay operation.
  (1) Jack up the vehicle.
  (2) Use a heater main relay and connect it, as shown in the chart.

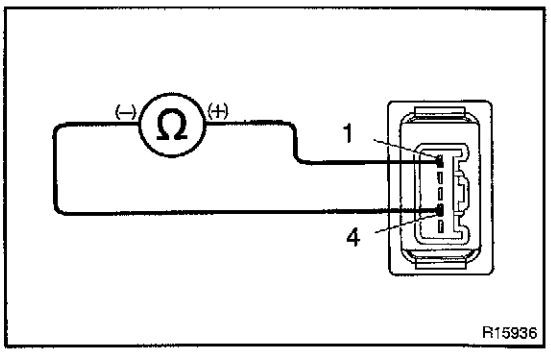
NOTICE:

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 differential lock has occurred.

If operation is not as specified, replace the actuator.

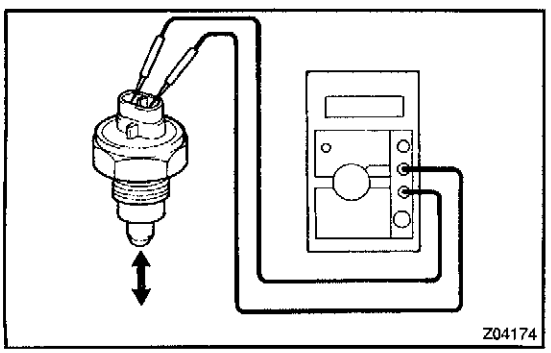




(b) Inspect the Diff. lock control switch continuity.
Inspect the switch continuity between terminal 1 and terminal 4.

HINT:

If continuity doesn't exist, replace the switch.



(c) Inspect the Diff. lock indicator switch.
  (1) Check that continuity exists between terminals when the switch is pushed (differential connected position).
  (2) Check continuity doesn't exist when the switch is free (differential disconnected position).

HINT:

If operation is not as specified, replace the switch.

(d) Inspect the transfer L4 switch (See page TR–10).

(e) Inspect the vehicle speed sensor (See page BE–50).

SA0BW-02

INSTALLATION

INSTALL DIFF. LOCK ACTUATOR (See page SA–220)