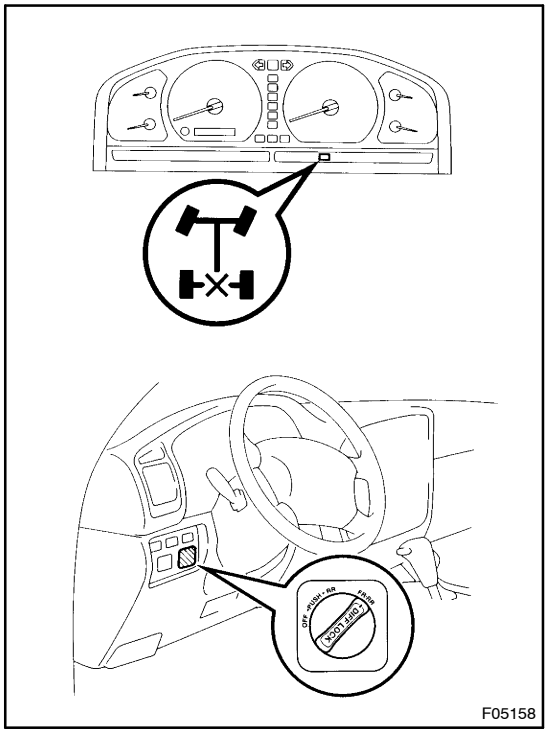


DIFFERENTIAL LOCKING SYSTEM (Rigid Front Suspension)

SA1BT–01

ON–VEHICLE INSPECTION

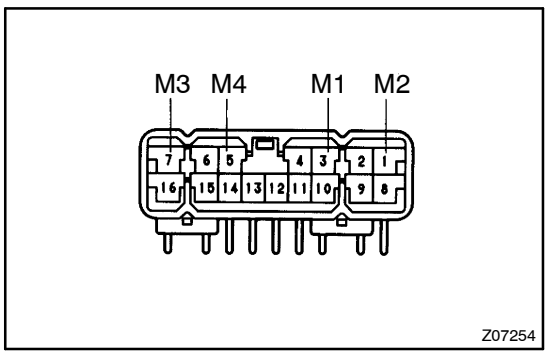
1. INSPECT DIFFERENTIAL LOCK SYSTEM

(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) Keep the L4 condition.
(3) When the Diff. lock control switch is set to the RR position, the indicator light (rear side) is turned on.
Differential lock is applied to the rear wheels 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 at the OFF position, the indicator light goes off.
Differential lock is released for the rear wheel at this time.
(5) When the Diff. lock control switch is set to the FR/RR position, the indicator lights (front side and rear side) are turned on.
Differential lock is applied for the both front wheels and rear wheels at this time.



(6) 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.

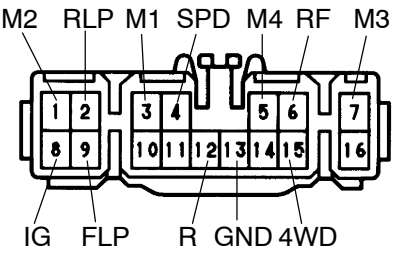
Switch position	Terminal	Specified value
RR	M1 – M2	0.5 V or less (No change)
FR/RR	M3 – M4	0.5 V or less (No change)

(7) Check that the indicator lights blink when the transfer shift lever is shifted to a position other than L4.
(8) Return the Diff. lock control switch to OFF.
(9) Stop the engine and lower the vehicle.

2. INSPECT DIFF. LOCK SYSTEM CIRCUIT

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

Wire Harness Side

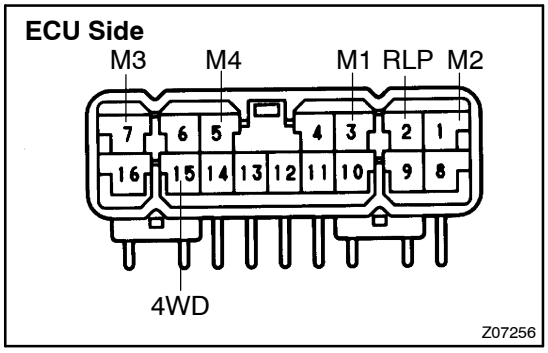


(b) Inspect the system circuit with the connector disconnected.
Disconnect the connector from the 4WD control ECU and inspect the connector on the wire harness side, as shown in the table.

Symbols (Terminal No.)	Trouble part	Condition	Specified value
M1 – M2	RR Diff. Lock Actuator	–	Less than 100 Ω
M3 – M4	FR Diff. Lock Actuator		
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 Diff. Lock Position Switch	Ignition switch ON with indicator light (Rear) ON	About 0 V
		Ignition switch ON with indicator light (Rear) OFF	10 – 14 V
FLP – Body ground	Front Diff. Lock Position Switch	Ignition switch ON with indicator light (Front) ON	About 0 V
		Ignition switch ON with indicator light (Front) OFF	10 – 14 V
4WD – Body ground	L4 Position Switch	Ignition switch ON with transfer L4 position	About 0 V
		Ignition switch ON with transfer without L4 position	10 – 14 V
R – Body ground	Differential Lock Control Switch	Ignition switch ON with Diff. lock control switch RR or FR/RR	10 – 14 V
		Ignition switch ON with Diff. lock control switch OFF	About 0 V
RF – Body ground		Ignition switch ON with Diff. lock control switch FR/RR	10 – 14 V
		Ignition switch ON with Diff. lock control switch OFF or RR	About 0 V

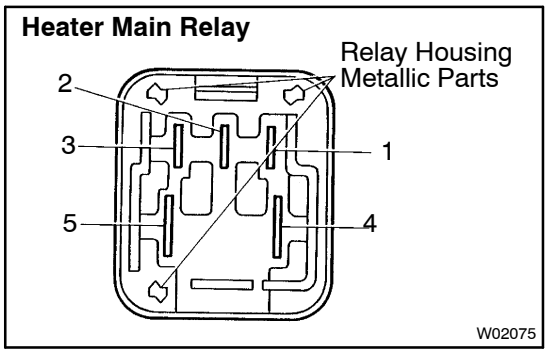
HINT:
When the signals that lock the front differential and free the rear differential enter the ECU from the Diff. lock control switch, (when battery voltage is inputted to terminal 6 (RF) of ECU and about 0 V is inputted to terminal 12 (R)), the indicator lights keep blinking until the ignition switch is turned OFF, or the ECU receives other signals which set both differentials free and identifies that those differential are free (Fail–safe function).
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) Shift the transfer shift lever to L4 position.
(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 value
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 → RR	
M2 – M1	RR → OFF	
M3 – M4	OFF or RR → FR/RR	
M4 – M3	FR/RR → OFF or RR	



3. INSPECT DIFF. LOCK COMPONENTS

(a) Inspect the relay operation.

(1) Jack up the vehicle.

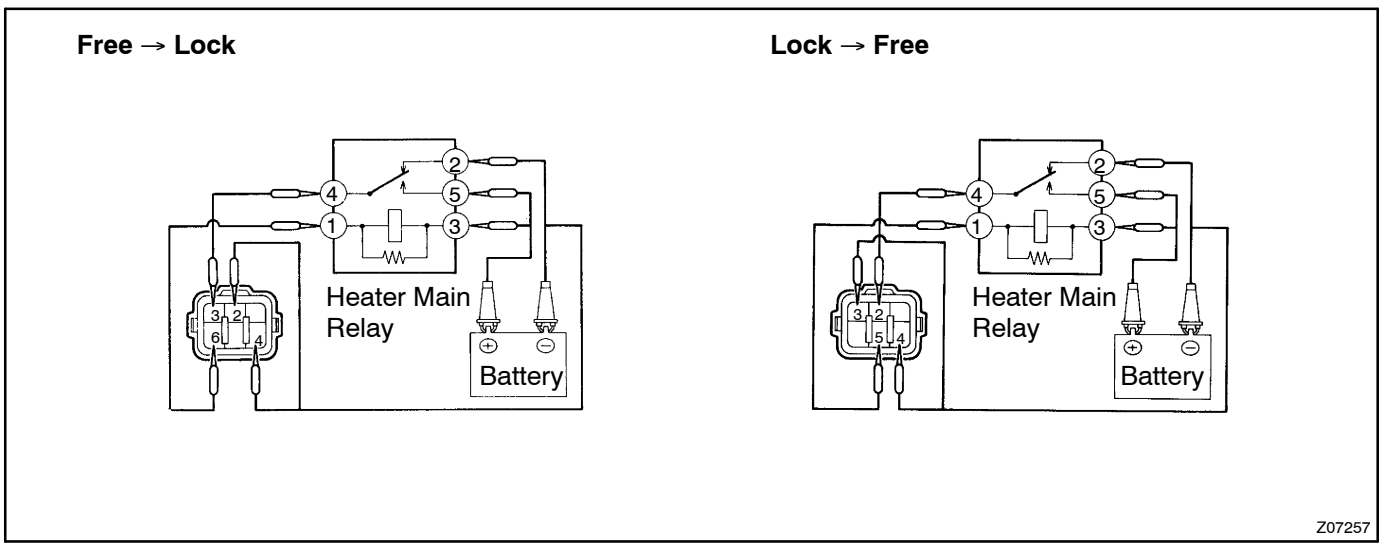
(2) Use a heater main relay and connect it, as shown below.

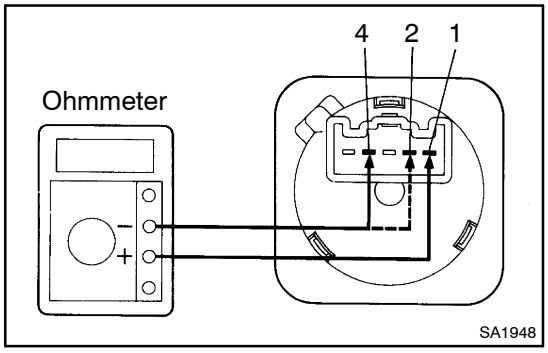
NOTICE:

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 differential lock has occurred.

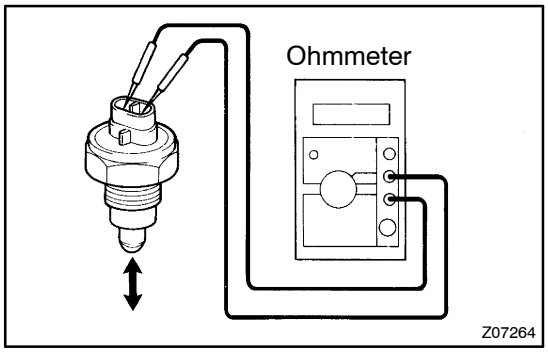
If operation is not as specified, replace the actuator.





(b) Inspect the Diff. lock control switch continuity.
(1) Inspect the switch continuity between terminal 1 and terminal 4.
(2) Inspect the switch continuity between terminal 2 and terminal 4.

HINT:
If continuity does not exist, replace the switch.



(c) Inspect the Diff. lock position switch.
(1) Check that continuity exists between terminals when the switch is pushed (differential connected position).
(2) Check that no continuity exists when the switch is free (differential disconnected position).

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

(d) Inspect the L4 position switch (See page TR–53 or TR–51).

(e) Inspect the vehicle speed sensor (See page BE–78).