DTC	C1251/51	PUMP MOTOR IS LOCKED/OPEN CIRCUIT IN PUMP MOTOR GROUND

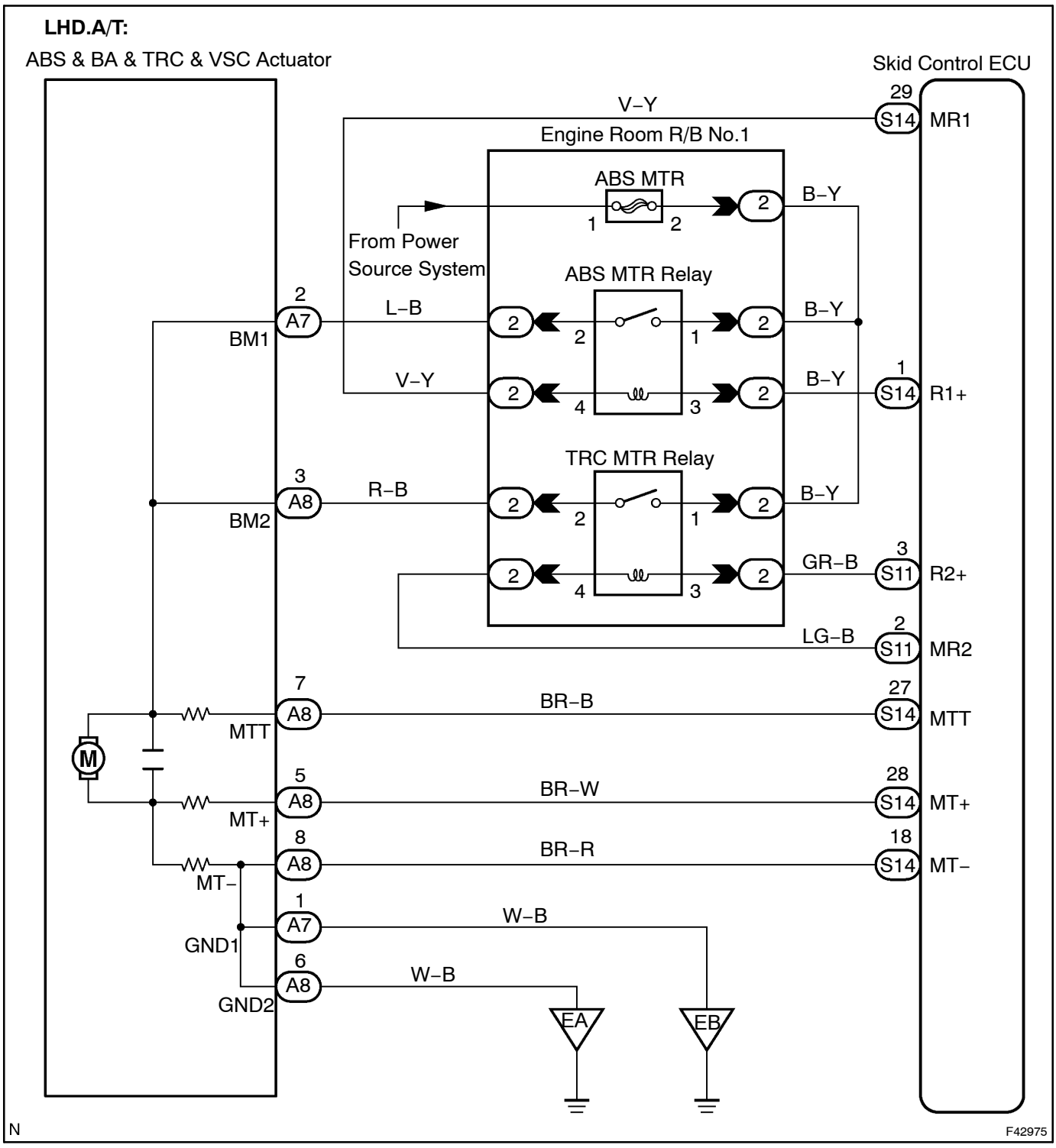
DTC	C1252/52	BRAKE BOOSTER PUMP MOTOR ON TIME ABNORMALLY LONG

DTC	C1253/53	BRAKE BOOSTER PUMP MOTOR CIRCUIT

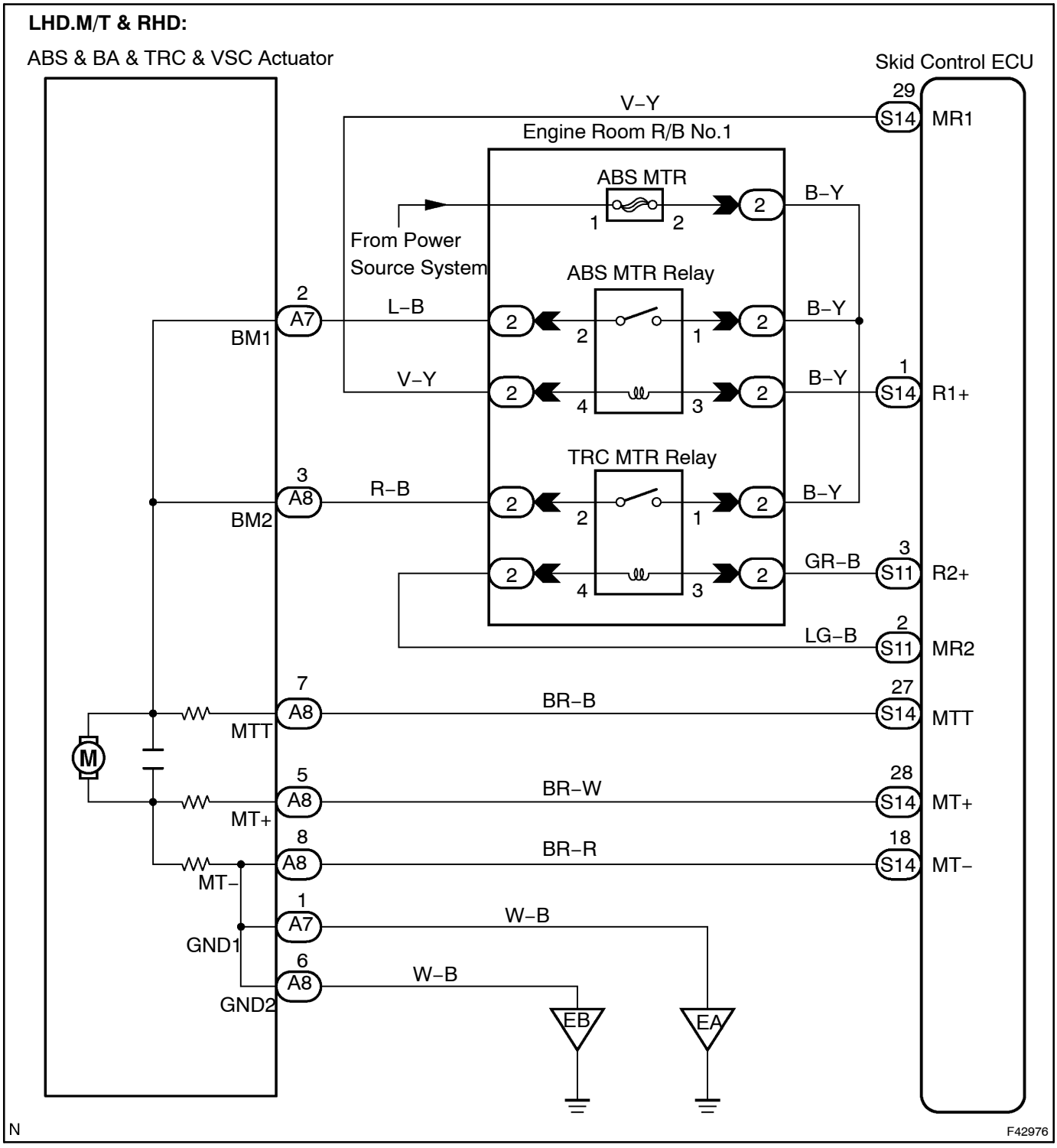
CIRCUIT DESCRIPTION

DTC No.	DTC Detecting Condition	Trouble Area
C1251/51	Either of the following 1. or 2. is detected: 1. After turning the ignition switch ON, the current of more than 28A flows to the motor for more than 1 sec. 2. After turning the ignition switch ON, less than 7A change in current is detected more than 3 times in a low when the motor is ON.	Hydraulic brake booster pump motor
C1252/52	After the ignition switch has been turned ON, when the power is supplied to the pump motor for more than 5 minutes.	• Hydraulic brake booster pump motor • Hydraulic brake booster pump motor circuit • Pressure switch (PH or PL)
C1253/53	When any of the following 1. through 4. is detected: 1. After turning the ignition switch ON, open in the relay coil is detected for more than 1 sec. 2. When the pressure switch does not control motor driving, the status that the motor relay is always ON continues for more than 1 sec. due to short circuit. 3. When the pressure switch (PH) detects the low pressure or while the pump motor operates to increase the pressure, the status that the motor relay does not turn ON continues for more than 0.2 sec. 4. When pressure switch does not control motor driving, the status that the motor relay is always ON due to the welded contact continues for more than 2 sec.	• ABS or TRC motor relay • ABS or TRC motor relay circuit • Hydraulic brake booster pump motor circuit

WIRING DIAGRAM



LHD.M/T & RHD:


ABS & BA & TRC & VSC Actuator
Skid Control ECU
29
S14
MR1
V–Y
Engine Room R/B No.1
ABS MTR
1
2
2
B–Y
From Power
Source System
ABS MTR Relay
2
A7
BM1
L–B
2
2
1
2
B–Y
V–Y
2
4
3
2
B–Y
1
S14
R1+
TRC MTR Relay
3
A8
BM2
R–B
2
2
1
2
B–Y
2
4
3
2
GR–B
3
S11
R2+
LG–B
2
S11
MR2
7
A8
MTT
BR–B
27
S14
MTT
M
5
A8
MT+
BR–W
28
S14
MT+
8
A8
MT–
BR–R
18
S14
MT–
1
A7
GND1
W–B
6
A8
GND2
W–B
EB
EA
N
F42976

INSPECTION PROCEDURE

HINT:
Start the inspection from step 1 in case of using the hand–held tester and start from step 2 in case of not using hand–held tester.

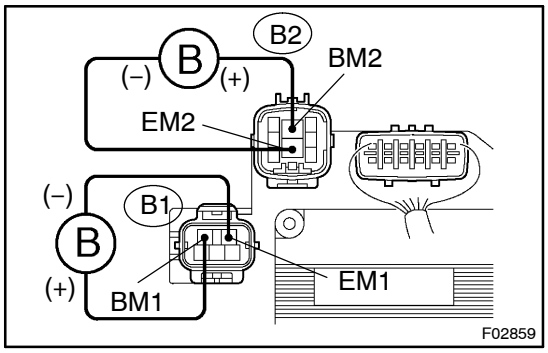
1	INSPECT ABS AND TRC MOTOR RELAY OPERATION

(a) Connect the hand–held tester to the DLC3.
(b) Turn the ignition switch ON and push the hand–held tester main switch ON.
(c) Select the ACTIVE TEST mode on the hand–held tester.
(d) Check the operation sound of the ABS and TRC MTR relays individually when operating it with the hand–held tester.
OK:
The operation sound of the ABS and TRC MTR relay should be heard.

NG → **Go to step 6**

OK

2	INSPECT BRAKE BOOSTER PUMP MOTOR OPERATION



(a) Disconnect the 2 connectors (B1 and B2) from the brake master cylinder.
(b) Connect the battery positive (+) lead to BM1 or BM2 terminal and battery negative (–) lead to EM1 or EM2 terminal of the brake master cylinder (pump motor) connector.
OK:
The operation sound of the pump motor should be head.

NG → **REPLACE BRAKE BOOSTER PUMP ASSY**

OK

3	INSPECT PRESSURE SWITCH(PH)

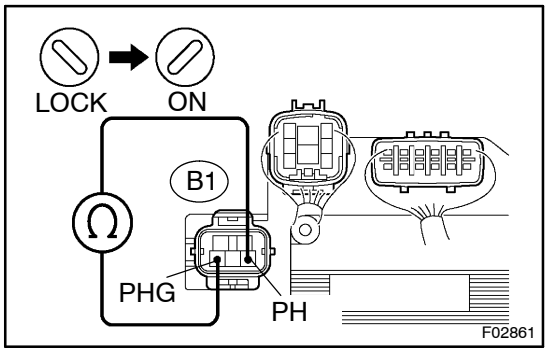
IN CASE OF USING HAND–HELD TESTER:

(a) Connect the hand–held tester to the DLC3.
(b) Turn the ignition switch ON and push the hand–held tester main switch ON.
(c) Select the DATALIST mode on the hand–held tester.
(d) Depress the brake pedal more than 40 times with the ignition switch OFF then turn the ignition switch ON and check the pressure switch (PH) condition.

HINT:
When a pressure in power supply system is released, reaction force becomes lightly.

OK:
”OFF” turns to ”ON”.

HINT:
OFF: Low pressure
ON: High pressure



IN CASE OF NOT USING HAND–HELD TESTER:

(a) Disconnect the connector (B1) from the brake master cylinder.
(b) With the ignition switch OFF, depress the brake pedal more than 40 times to decrease the accumulator pressure.

HINT:
When a pressure in power supply system is released, reaction force becomes lightly.

(c) Measure resistance between terminals PH and PHG of brake master cylinder connector.
OK:
Resistance: 0.9 – 1.1 kΩ
(d) Connect the connector (B1) to the brake master cylinder.
(e) Disconnect the connector (B1) after ignition switch has been ON and the pump motor has stopped.
(f) Measure resistance between terminals PH and PHG of brake master cylinder.
OK:
Resistance: 0 Ω

HINT:
After inspection, connect the connector and clear the DTC (See page 05–730).

NG → **REPLACE BRAKE MASTER CYLINDER**

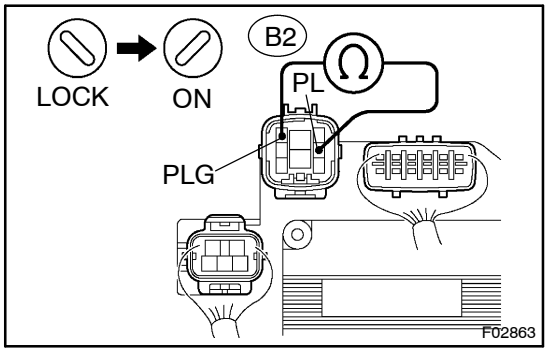
OK

4	INSPECT PRESSURE SWITCH(PL)

IN CASE OF USING HAND–HELD TESTER:

(a) Connect the hand–held tester to the DLC3.
(b) Turn the ignition switch ON and push the hand–held tester main switch ON.
(c) Select the DATALIST mode on the hand–held tester.
(d) Depress the brake pedal more than 40 times with the ignition switch OFF then turn the ignition switch ON and check the pressure switch (PL) condition.

HINT:
When a pressure in power supply system is released, reaction force becomes lightly.
"OFF" turns to "ON".
HINT:
OFF: Low pressure
ON: High pressure



IN CASE OF NOT USING HAND–HELD TESTER:

(a) Disconnect the connector (B2) from the brake master cylinder.
(b) With the ignition switch OFF, depress the brake pedal more than 40 times to decrease the accumulator pressure.

HINT:
When a pressure in power supply system is released, reaction force becomes lightly.

(c) Measure resistance between terminals PL and PLG of brake master cylinder.
OK:
Resistance: 5.1 – 6.3 kΩ
(d) Connect the connector (B2) to the brake master cylinder.
(e) Disconnect the connector (B2) after ignition switch has been ON and the pump motor has stopped.
(f) Measure resistance between terminals PL and PLG of brake master cylinder.
OK:
Resistance: 1.0 kΩ

HINT:
After inspection, connect the connector and clear the DTC (See page 05–730).

NG → **REPLACE BRAKE MASTER CYLINDER**

OK

5	CHECK HARNESS AND CONNECTOR(BRAKE MASTER CYLINDER – SKID CONTROL ECU)

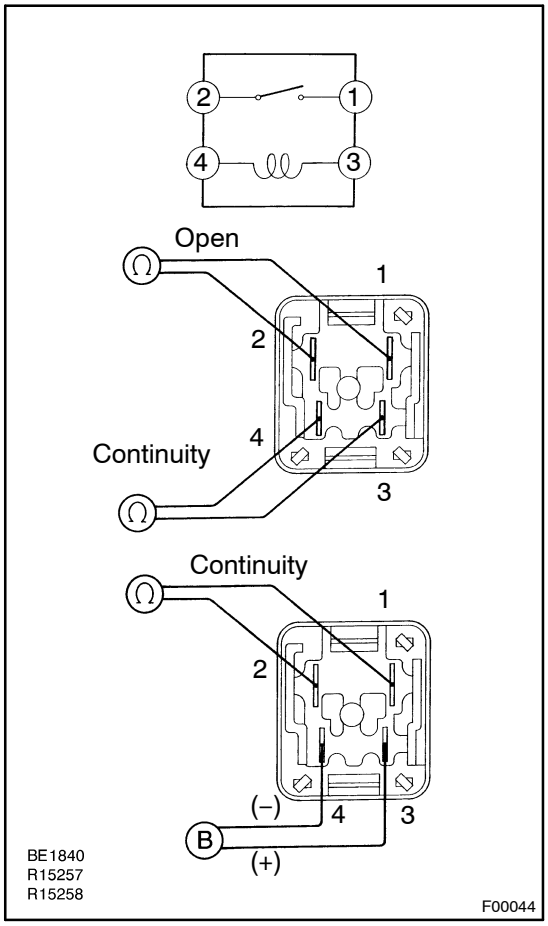
(a) Check for open and short circuit in harness and connector between pressure switch circuit of the brake master cylinder and skid control ECU (See page 01–36).

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

CHECK AND REPLACE SKID CONTROL ECU ASSY

6	INSPECT ABS AND TRC MOTOR RELAY



(a) Remove the ABS MTR relay and TRC MTR relay from the engine room R/B.

(b) Check continuity between each pair of terminal of motor relay.

OK:

Terminals 3 and 4	Continuity (Reference value *1)
Terminals1 and 2	Open

*1:

ABS MTR relay: 62 Ω

TRC MTR relay: 54 Ω

(c) Apply battery positive voltage between terminals 3 and 4.

(d) Check continuity between terminals.

OK:

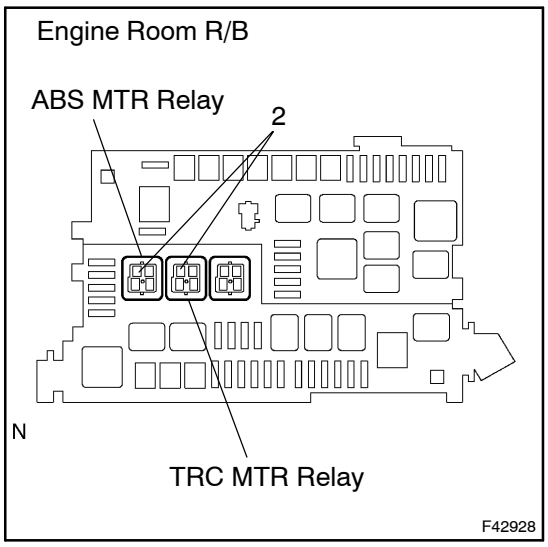
Terminals 1 and 2	Continuity

NG → **REPLACE SKID CONTROL RELAY**

NG → **REPLACE TRACTION CONTROL OR VSC RELAY**

OK

7	INSPECT ENGINE ROOM RELAY BLOCK



(a) Measure the voltage between terminal 2 of engine room R/B and body ground.
OK:
Voltage: 10 – 14 V

NG	CHECK AND REPLACE HARNESS AND CONNECTOR

OK

8	CHECK HARNESS AND CONNECTOR(ENGINE ROOM R/B – BRAKE MASTER CYLINDER)

(a) Check for open and short circuit in harness and connector between engine room R/B and the terminals BM1 and BM2 of the brake master cylinder (See page 01–36).

NG	REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

9	CHECK HARNESS AND CONNECTOR(BRAKE MASTER CYLINDER – SKID CONTROL ECU)

(a) Check for open and short circuit in harness and connector between each terminals MTT, MT+ and MT– of the brake master cylinder and the same one of the skid control ECU (See page 01–36).

NG	REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

CHECK AND REPLACE SKID CONTROL ECU ASSY