DTC	C0273/13	OPEN CIRCUIT IN ABS MTR RELAY CIRCUIT

DTC	C0274/14	B+ SHORT CIRCUIT IN ABS MTR RELAY CIRCUIT

CIRCUIT DESCRIPTION

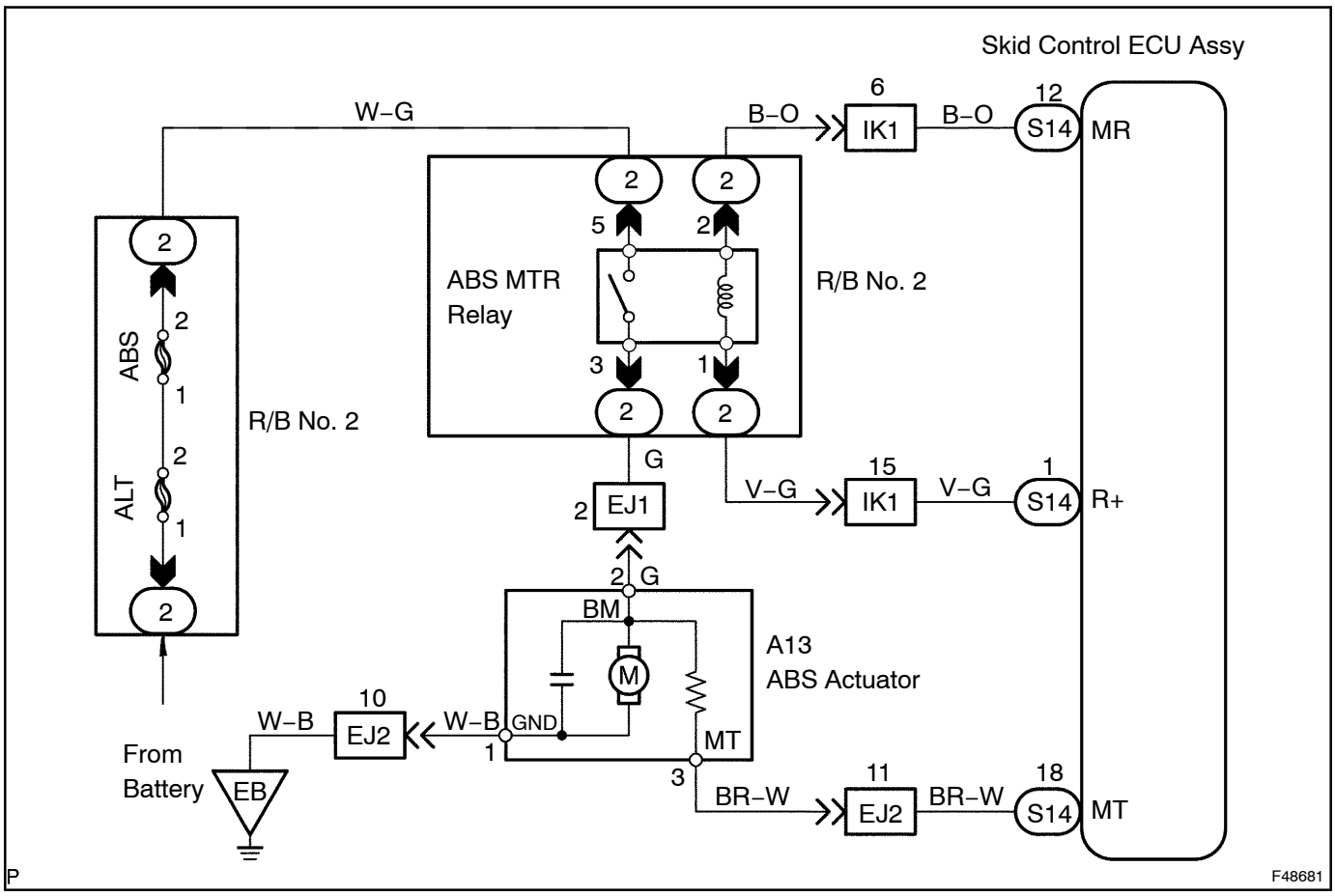
The ABS MTR relay supplies power to the ABS pump motor. While the ABS is activated, the ECU turns the motor relay ON and operates the ABS pump motor.

DTC No.	DTC Detection Condition	Trouble Area
C0273/13	Conditions 1 and 2 continue for 0.2 sec. or more: 1. ECU terminal IG1 voltage is 19 to 36 V in initial check or ABS operation, and motor relay is ON; however, contact point of motor relay is OFF. 2. ECU terminal IG1 is 19 V or less, and motor relay is ON; however, contact point of motor relay does not become ON.	• ABS MTR relay • ABS MTR relay circuit • Battery
C0274/14	When motor relay is OFF and terminal MT open for 4 sec. or more, contact point of motor relay is ON for 4 sec. or more.	• ABS MTR relay • ABS MTR relay circuit • Battery

HINT:

- If the brake pedal is depressed firmly, the brake force may become lowered.
- Fail–safe function:
  If any trouble occurs in the ABS MTR relay circuit, the ECU will cut off current to the ABS SOL MAIN relay and prohibit ABS controls and BRAKE ASSIST.

WIRING DIAGRAM



INSPECTION PROCEDURE

HINT:
Start the inspection from step 1 if using the hand–held tester. If not, start from step 2.

1	**PERFORM ACTIVE TEST BY HAND–HELD TESTER (ABS MTR RELAY OPERATION)**

(a) Connect the hand–held tester (with 24 V VIM) to the DLC3.
(b) Start the engine.
(c) Select the ACTIVE TEST on the hand–held tester.
(d) Check the operation of the ABS MTR relay and operating sound of the ABS motor.

Skid control ECU assy:

Item	Vehicle Condition / Test Details	Diagnostic Note
ABS MOT RELAY	ABS motor relay / ON or OFF	–

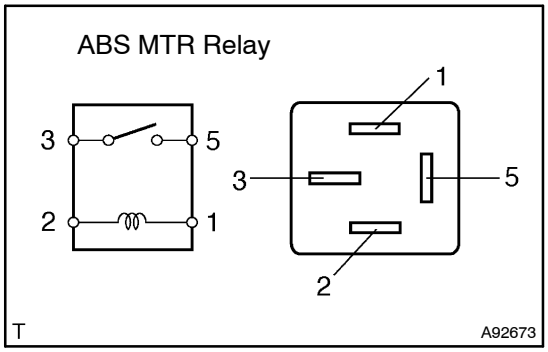
Result:

Result	Proceed To
ABS MTR Relay does not operate but operation sound of the ABS pump motor is heard	A
ABS MTR relay operates but operation sound of the ABS pump motor is not heard	B
ABS MTR relay operates and operation sound of the ABS pump motor is heard	C

B	Go to step 3
C	Go to step 4

A

2 INSPECT RELAY (Marking: ABS MTR)



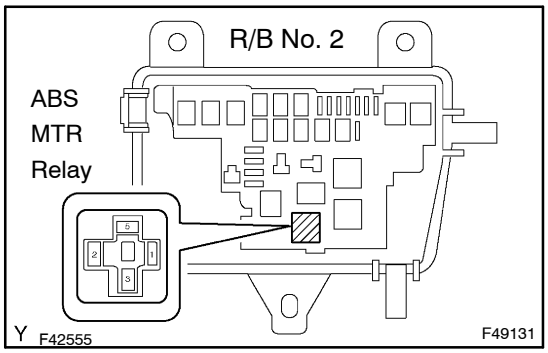
(a) Measure the resistance according to the tale below.
Standard:

Tester Connection	Specified Condition
3 – 5	10 kΩ or higher
3 – 5	Below 1 Ω (when battery voltage is applied to terminals 1 and 2)

NG	REPLACE RELAY

OK

3 CHECK ABS MTR RELAY (VOLTAGE)



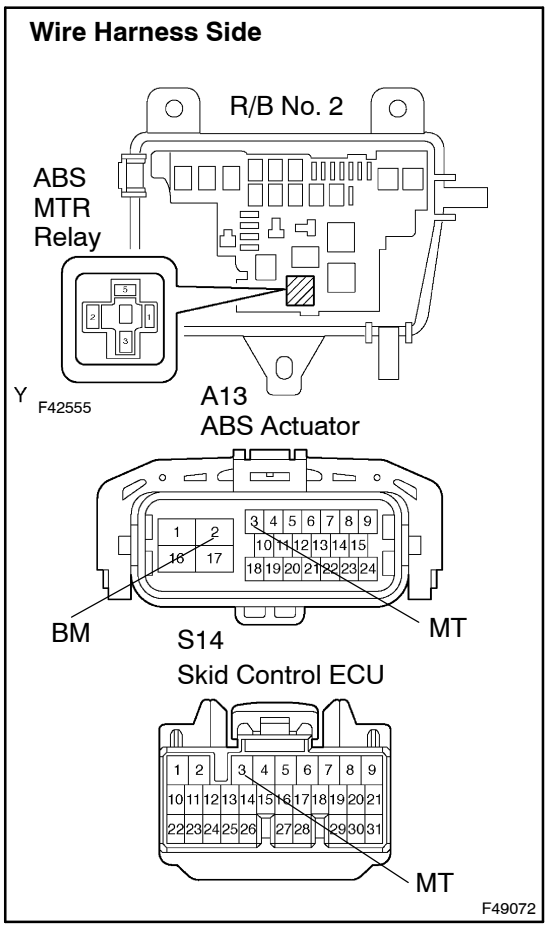
(a) Remove the ABS MTR relay from the R/B No. 2.
(b) Measure the voltage according to the table below.
Standard:

Tester Connection	Specified Condition
Terminals 5 – Body ground	20 to 32 V

NG	REPAIR OR REPLACE HARNESS AND CONNECTOR

OK

4 CHECK WIRE HARNESS (ABS MTR RELAY – SKID CONTROL ECU ASSY)



(a) Remove the ABS MTR relay.
(b) Disconnect the S14 ECU connector.
(c) Disconnect the A13 actuator connector.
(d) Measure the resistance according to the table below.

Standard:

Tester Connection	Specified Condition
R/B No.2 ABS MTR relay terminals 3 – A13–2 (+BM)	Below 1 Ω
A13–3 (MT) – S14–18 (MT)	Below 1 Ω
A13–2 (BM) – A13–3 (MT)	33 ± 1.65 Ω

HINT:
There is a resistance of 33 ± 1.65 Ω between terminals A13–2 and 3 of the ABS actuator.

NG → **REPAIR OR REPLACE HARNESS, CONNECTOR AND ABS ACTUATOR**

OK

5 CHECK CONDITION (EACH CONNECTION)

(a) Check if the same code is still output after the DTC is deleted. Then check the condition of each connection.

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

OK

REPLACE SKID CONTROL ECU ASSY (See page 01–27)