DTC	C0273/13	OPEN CIRCUIT IN ABS MOTOR RELAY CIRCUIT

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

DTC	C1361/91	SHORT CIRCUIT IN ABS MOTOR FAIL SAFE RELAY CIRCUIT

CIRCUIT DESCRIPTION

- The ABS motor relays consist of 2 relays are included in the engine room No.3 R/B.
- The ABS cut relay is turned on after turning the ignition switch to the ON position. If the DTCs in the ABS pump motor circuit are memorized, the ABS cut relay cuts off the power supply to the ABS motor relay and performs the fail safe.
- While any of the ABS, BA, TRC and VSC is operating, the skid control ECU (included in the actuator) turns the ABS motor relay on to operate the actuator pump motor.
- If the voltage applied to the ABS motor relays (+BM) drops below the condition that detects the DTCs due to the shortage of the battery or alternator output, the DTCs may be memorized.

DTC No.	DTC Detecting Condition	Trouble Area
C0273/13	When any of the following (1 to 2) is detected: (1) All of the following conditions continue for at least 0.12 seconds. • IG1 voltage is between 9.5 and 17.2 V. • During initial check. • ABS, BA, TRC, and VSC are in operation. • Relay contact is open when the relay is ON. (2) All of the following conditions continue for at least 0.12 seconds. • IG1 voltage is less than 9.5 V. • Relay contact remains open when the relay is ON.	• ABS 2 fuse • ABS MTR relay • ABS MTR relay circuit • Engine room No.3 R/B • ABS cut relay • ABS cut relay circuit
C0274/14	The following condition continues for at least 4 seconds. • Relay contact is closed when the relay is OFF.	• ABS 2 fuse • ABS MTR relay • ABS MTR relay circuit • Engine room No.3 R/B • ABS cut relay • ABS cut relay circuit
C1361/91	All of the following conditions continue for at least 4 seconds. • Immediately after turning IG switch to the ON position. • Relay contact is closed when fail–safe relay is OFF.	• ABS 2 fuse • ABS MTR relay • ABS MTR relay circuit • Engine room No.3 R/B • ABS cut relay • ABS cut relay circuit

WIRING DIAGRAM

Skid Control ECU with Actuator

Engine Room NO.3 R/B

ABS CUT Relay

ABS MTR Relay

Fusible Link Block

ABS 2   ALT

Battery

ECU

Motor Relay

Actuator

*1: LHD
*2: RHD

I39440
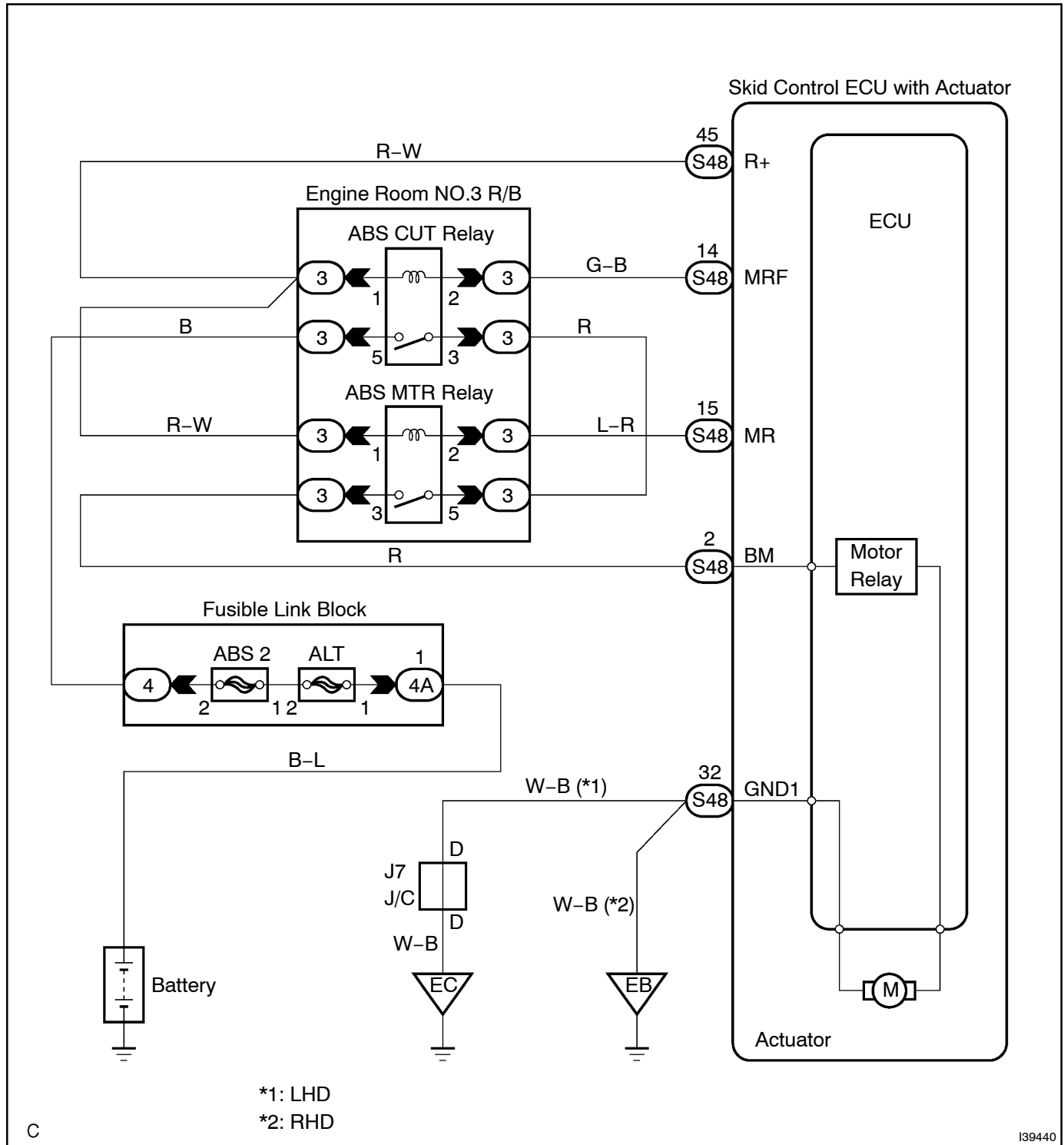
INSPECTION PROCEDURE

1	**PERFORM ACTIVE TEST BY INTELLIGENT TESTER II(ABS MOTOR RELAY OPERATION)**

(a) Connect the intelligent tester II to the DLC3.

(b) Start the engine.

(c) Select the ACTIVE TEST mode on the intelligent tester II.

(d) Check the operation sound of the ABS motor individually when operating it with the intelligent tester II.

Item	Vehicle Condition / Test Details	**Diagnostic Note**
ABS Motor Relay	Turns ABS motor relay / ON or OFF	Operation of solenoid (clicking sound) can be heard

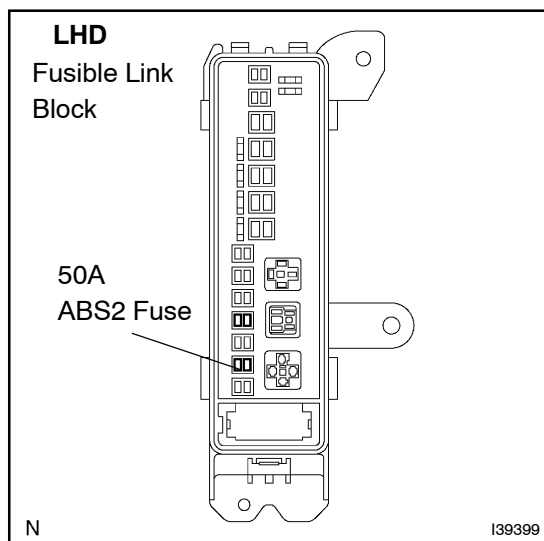**OK:**

The operation sound of the ABS motor should be heard.

NG >	**Go to step 2**

OK

| **REPLACE ABS & TRACTION ACTUATOR ASSY (SEE PAGE 32−53)** |
|---|

NOTICE:

When replacing the ABS & TRACTION actuator assy, perform zero point calibration (see page 05−387).

2 | INSPECT FUSE(ABS2 FUSE)

LHD

Fusible Link
Block

50A
ABS2 Fuse

N   I39399

(a) Remove the ABS 2 fuse from fusible link block.
(b) Measure the resistance according to the value(s) in the table below.

Standard:

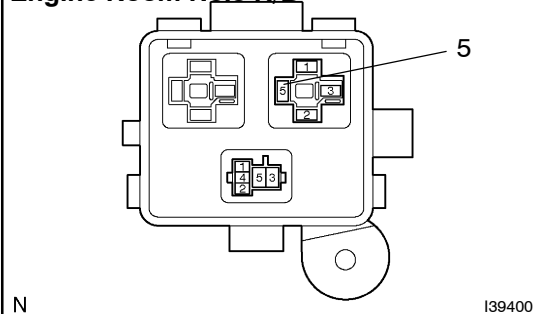| ABS 2	Below 1 Ω (Continuity)

RHD

Fusible Link
Block

50A
ABS2 Fuse

N   F47101
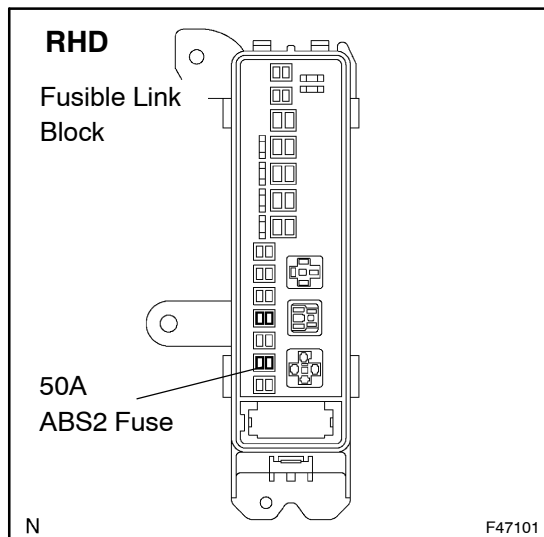
| NG | CHECK FOR SHORT IN ALL HARNESS AND CONNECTOR CONNECTED TO FUSE AND REPLACE FUSE |

OK

3	CHECK TERMINAL VOLTAGE(ABS MOTOR RELAY 5 TERMINAL OF ENGINE ROOM NO.3 R/B)

Engine Room No.3 R/B
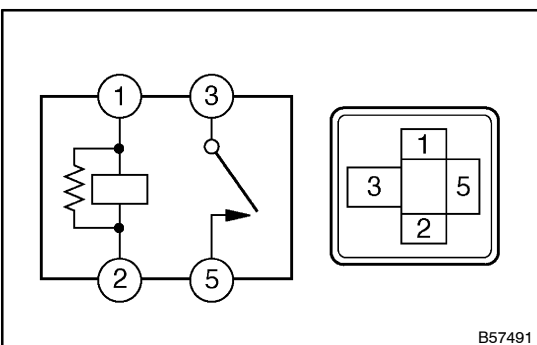
N   I39400

(a) Remove the ABS MTR relay from the engine room No.3 R/B.
(b) Turn the ignition switch to the ON position.
(c) Measure the voltage according to the value(s) in the table below.

Standard:

Tester Connection	Specified Condition
Terminals 5 – Body ground	10 to 14 V

NG ⟩ **REPAIR OR REPLACE HARNESS OR CONNECTOR**
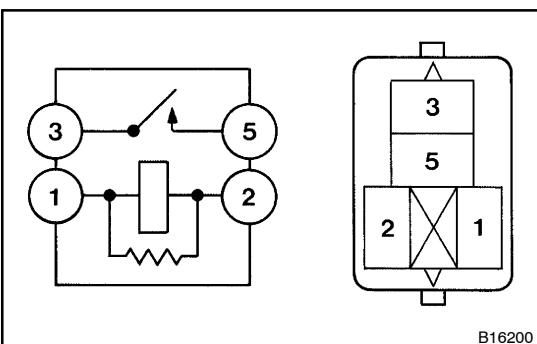
OK

4	INSPECT ABS MOTOR RELAY

B57491

(a) Measure the resistance according to the value(s) in the table below.

Standard:

Tester Connection	Connection	Specified resistance
3 – 5	Always	1 MΩ or higher (No continuity)
3 – 5	Apply B+ between terminal 1 and 2	Below 1 Ω

NG ⟩ **REPLACE ABS MOTOR RELAY**
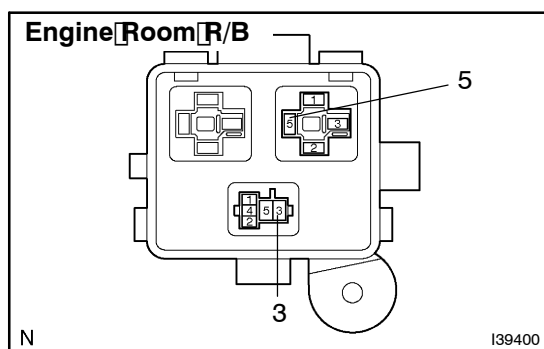
OK

5	INSPECT ABS CUT RELAY

B16200

(a) Measure the resistance according to the value(s) in the table below.

Standard:

Tester Connection	Connection	Specified resistance
3 – 5	Always	1 MΩ or higher (No continuity)
3 – 5	Apply B+ between terminal 1 and 2	Below 1 Ω

NO ⟩ **REPLACE ABS CUT RELAY**

OK

| 6 | CHECK HARNESS AND CONNECTOR(ABS MOTOR RELAY – ABS CUT RELAY) |

Engine Room R/B

(a) Remove the ABS motor relay and ABS cut relay from engine room R/B.

(b) Measure the resistance according to the value(s) in the table below.
Standard:

Tester Connection	Specified Condition
5 (ABS MOTOR Relay) – 3 (ABS cut relay)	Below 1 Ω

NG ▷ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

| 7 | CHECK HARNESS AND CONNECTOR(ABS MOTOR RELAY – SKID CONTROL ECU) |

Skid Control ECU
Connector Front View
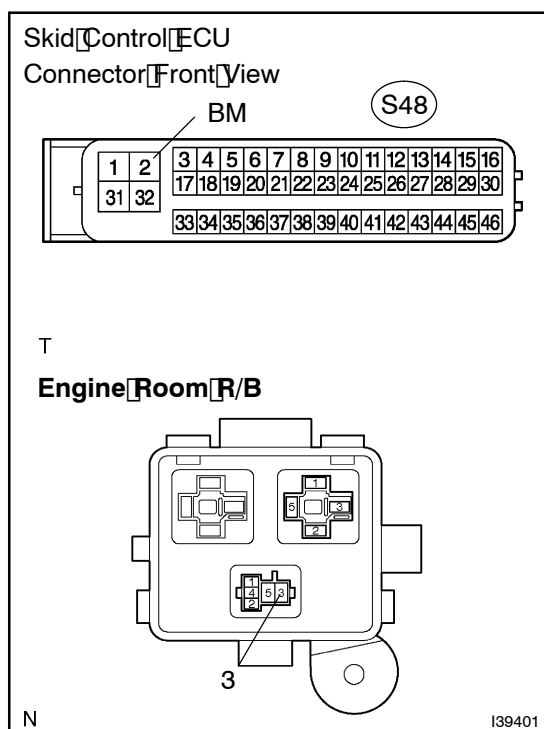
Engine Room R/B

(a) Disconnect the skid control ECU connector.

(b) Measure the resistance according to the value(s) in the table below.
Standard:

Tester Connection	Specified Condition
S48–2 (BM) – 3 (Engine room R/B)	Below 1 Ω

(c) Measure the resistance according to the value(s) in the table below.
Standard:

Tester Connection	Specified Condition
S48–2 (BM) – Body ground	1 MΩ or higher

NG ▷ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

| REPLACE ABS & TRACTION ACTUATOR ASSY(SEE PAGE 32–53) |

NOTICE:
**When replacing the ABS & TRACTION actuator assy, perform zero point calibration
(see page 05–387).**