

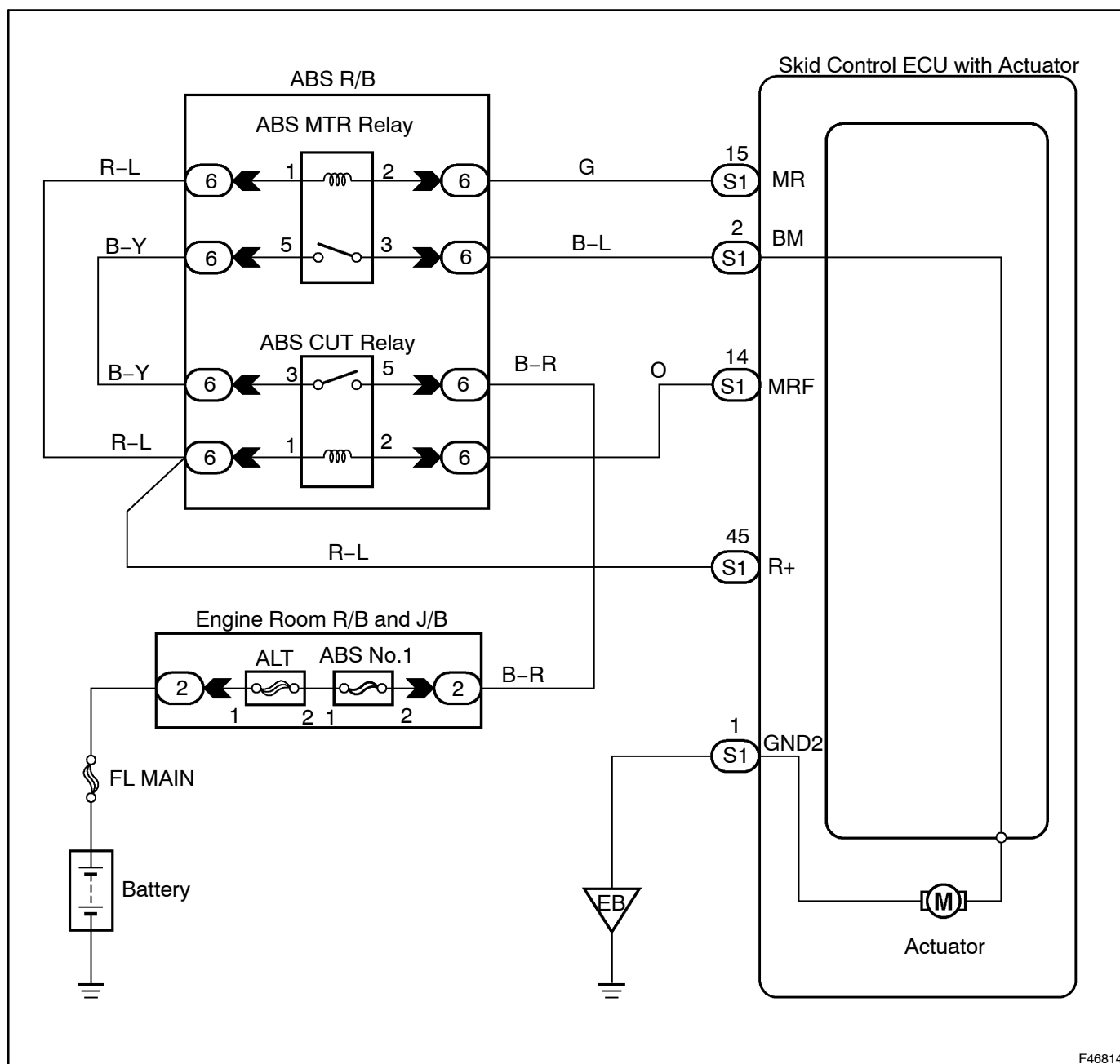
DTC	C0273/13	OPEN CIRCUIT IN ABS MOTOR RELAY CIRCUIT
DTC	C0274/14	B+ SHORT CIRCUIT IN ABS MOTOR RELAY CIRCUIT
DTC	C1361/91	SHORT CIRCUIT IN ABS MOTOR FAIL SAFE RELAY CIRCUIT

CIRCUIT DESCRIPTION

- The ABS motor relays consist of 2 relays that are included in the ABS R/B.
- The ABS cut relay is turned on after turning the ignition switch to the ON position. If the DTCs for 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 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 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.	<ul style="list-style-type: none"> • ABS No.1 fuse • ABS MTR relay • ABS MTR relay circuit • ABS 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.	<ul style="list-style-type: none"> • ABS No.1 fuse • ABS MTR relay • ABS MTR relay circuit • ABS R/B
C1361/91	All 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.	<ul style="list-style-type: none"> • ABS No.1 fuse • ABS R/B • ABS CUT relay • ABS CUT relay circuit

WIRING DIAGRAM



F46814

INSPECTION PROCEDURE

HINT:

Start the inspection from step 1 when using the intelligent tester and start from step 2 when not using the intelligent tester.

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	Vehicle Condition / Test Details
ABS Motor Relay	Turns ABS motor relay ON or OFF	ON: Motor relay ON OFF: Motor relay OFF

OK:

The operation sound of the ABS motor should be heard.

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Go to step 2

OK

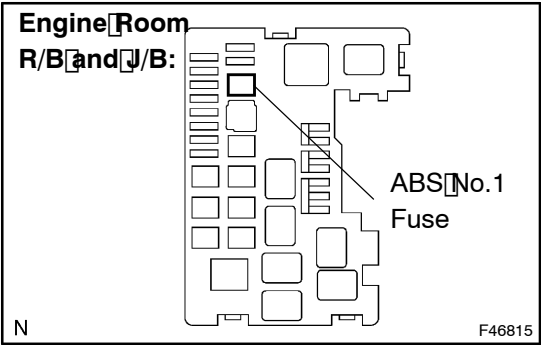
REPLACE ABS & TRACTION ACTUATOR ASSY (SEE PAGE 32-20)

NOTICE:

When replacing the ABS & TRACTION actuator assy, perform zero point calibration (see page 05-610).

2

INSPECT FUSE (ABS NO.1 FUSE)



- (a) Remove the ABS No.1 fuse from engine room R/B and J/B.
- (b) Measure the resistance according to the value(s) in the table below.

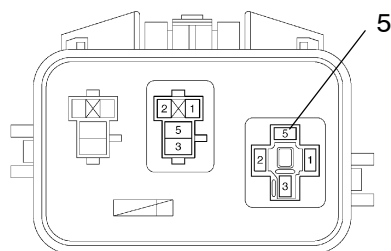
Standard:

ABS No.1 fuse	Below 1Ω (Continuity)
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CHECK FOR SHORT IN ALL HARNESS AND CONNECTOR CONNECTED TO FUSE AND REPLACE FUSE

OK

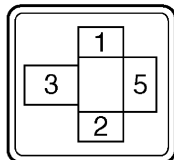
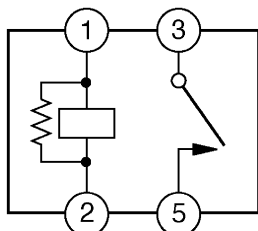
3 CHECK TERMINAL VOLTAGE(ABS MOTOR RELAY 5 TERMINAL OF ABS R/B)**ABS R/B:**

I37487

- Remove the ABS MTR relay from the ABS R/B.
- Turn the ignition switch to the ON position.
- 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

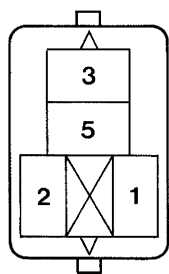
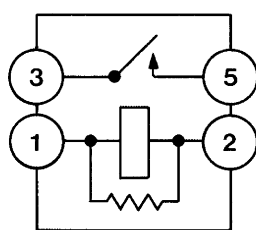
NG**REPAIR OR REPLACE HARNESS OR CONNECTOR****OK****4 INSPECT ABS MOTOR RELAY**

B57491

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

Standard:

Tester Connection	Connection	Specified resistance
3 – 5	Always	10 kΩ or higher (No continuity)
3 – 5	Apply B+ between terminals 1 and 2	Below 1 Ω

NG**REPLACE ABS MOTOR RELAY****OK****5 INSPECT ABS CUT RELAY**

B16200

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

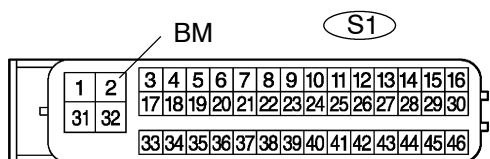
Standard:

Tester Connection	Connection	Specified resistance
3 – 5	Always	10 kΩ or higher (No continuity)
3 – 5	Apply B+ between terminals 1 and 2	Below 1 Ω

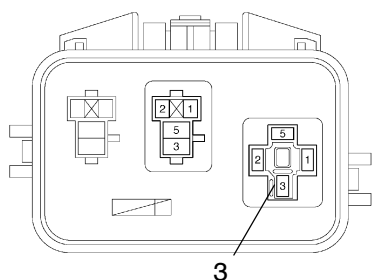
NO**REPLACE ABS CUT RELAY****OK**

6 CHECK HARNESS AND CONNECTOR (ABS MOTOR RELAY - SKID CONTROL ECU)

Skid Control ECU:



ABS R/B:



I37488

- (a) Disconnect the Skid control ECU S1 connector.
 (b) Measure the resistance according to the value(s) in the table below.

Standard:

Tester Connection	Specified Condition
S1-2 (BM) - 3 (ABS R/B)	Below 1 Ω

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

Standard:

Tester Connection	Specified Condition
S1-2 (BM) - Body Ground	10 k Ω or higher

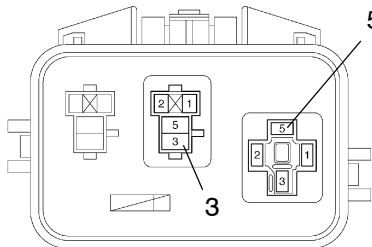
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REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

7 CHECK HARNESS AND CONNECTOR (ABS MOTOR RELAY - ABS CUT RELAY)

ABS R/B:



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- (a) Remove the ABS motor relay and ABS CUT relay from ABS 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

REPLACE ABS & TRACTION ACTUATOR ASSY (SEE PAGE 32-20)

NOTICE:

When replacing the ABS & TRACTION actuator assy, perform zero point calibration (see page 05-610).