

<b>DTC</b>	<b>RrDEF, FOOT</b>	<b>ENGINE COOLANT TEMPERATURE COMMUNICATION CIRCUIT</b>
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## CIRCUIT DESCRIPTION

The sensor connected to the ECM detects the engine coolant temperature. Based on the detected temperature, the engine is warmed up when the engine is cold.

Except 2AZ-FE models:

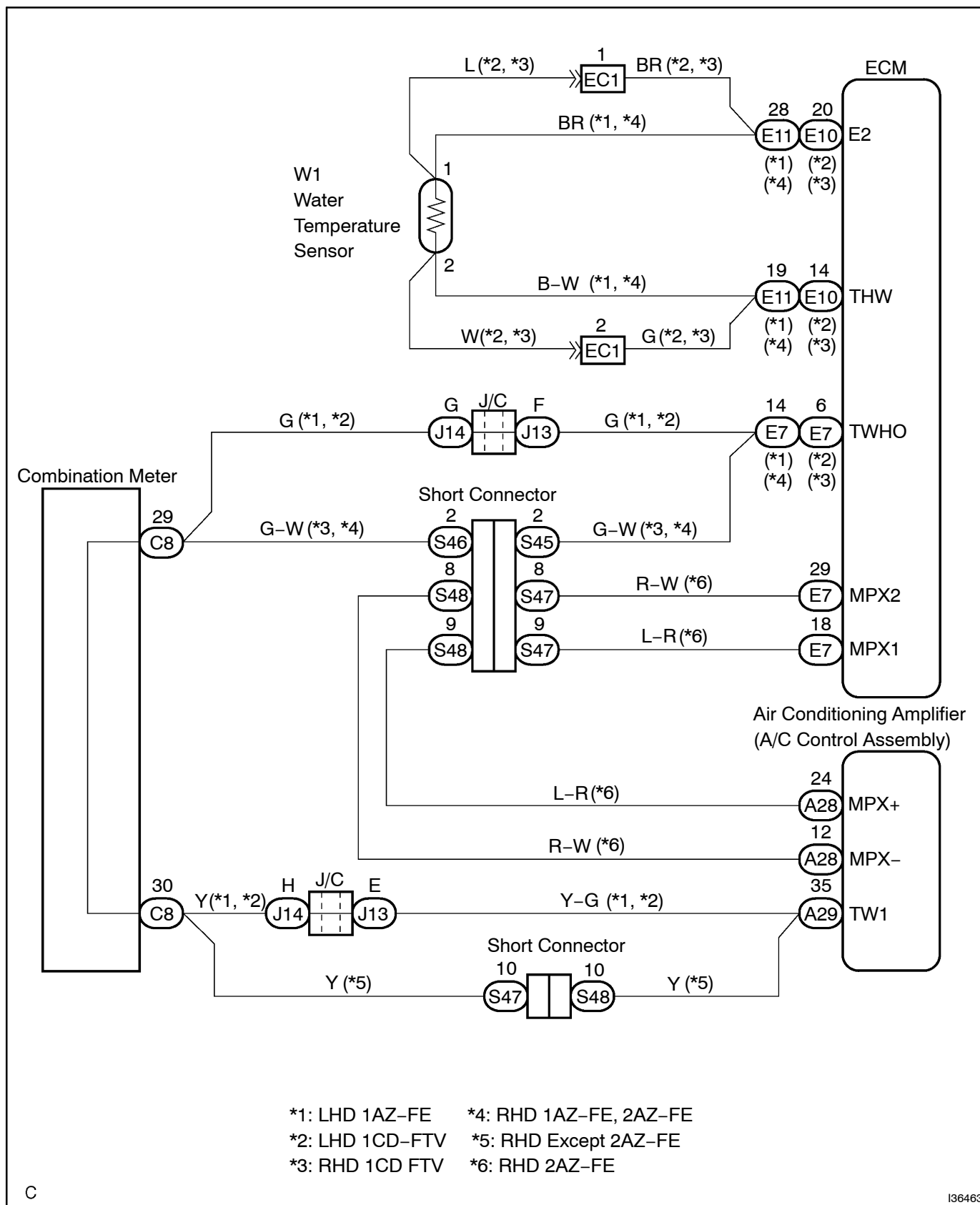
The sensor sends a signal to the ECM, and then the signal is transmitted to the A/C amplifier via the combination meter.

2AZ-FE models:

The sensor sends a signal to the ECM, and then the signal is transmitted to the A/C amplifier via BEAN.

DTC No.	Detection Item	Trouble Area
DrDEF, FOOT	Open or short in engine coolant temperature communication circuit	<ul style="list-style-type: none"> <li>• Engine coolant temperature sensor</li> <li>• ECM</li> <li>• Harness or connector between engine coolant temperature sensor and ECM</li> </ul> <p>Except 2AZ-FE model:</p> <ul style="list-style-type: none"> <li>• Harness or connector between ECM and combination meter</li> <li>• Harness or connector between combination meter and A/C amplifier</li> <li>• Combination meter</li> <li>• A/C amplifier</li> </ul> <p>2AZ-FE model:</p> <ul style="list-style-type: none"> <li>• A/C amplifier</li> <li>• Multiplex communication system</li> </ul>

## WIRING DIAGRAM



## INSPECTION PROCEDURE

### 1 DIAGNOSTIC TROUBLE CODE CHECK

Is DTC P0115/15, P0116/16, P0117/17 or P0118/18 output?

NO

Go to step 2

YES

GO TO ENGINE CONTROL SYSTEM (SEE PUB. NO. RM864E ON PAGE 05-5 or 05-154)

### 2 CHECK MALFUNCTION IN WATER TEMPERATURE GAUGE (SEE PUB. NO. RM864E ON PAGE 05-661)

NG

REPLACE COMBINATION METER ASSEMBLY  
(SEE PUB. NO. RM864E ON PAGE 71-19)

OK

### 3 CONFIRM MODEL

Result:

A: RHD 2AZ-FE

B: LHD, RHD Except 2AZ-FE

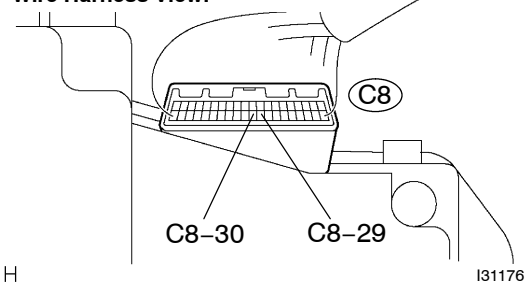
A

Go to step 6

B

### 4 INSPECT COMBINATION METER

Combination Meter Connector  
Wire Harness View:



- Remove the combination meter with the connector still connected.
- Measure the resistance according to the value(s) in the table below.

**Standard:**

Tester connection	Condition	Specified condition
C8-29 - C8-30	Always	Below 1 $\Omega$
C8-29 - Body ground	Always	10 k $\Omega$ or higher

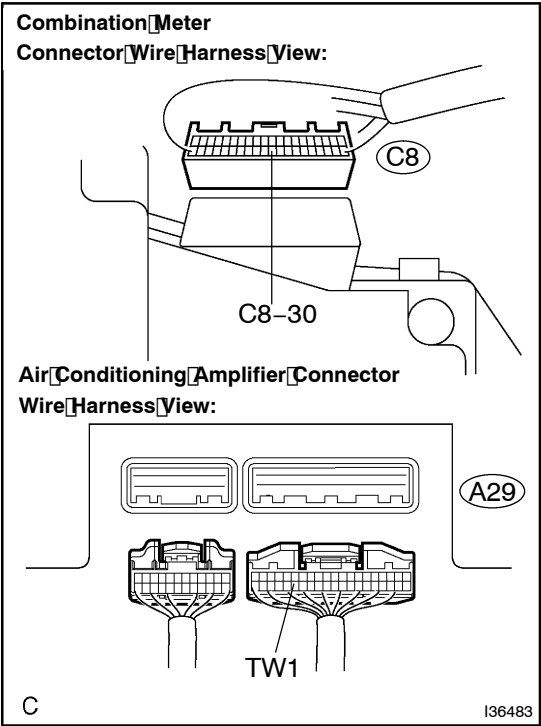
NG

REPLACE COMBINATION METER  
(SEE PUB. NO. RM864E ON PAGE 71-19)

OK

5

CHECK HARNESS AND CONNECTOR (COMBINATION METER - AIR CONDITIONING AMPLIFIER) (SEE PAGE 01-32)



- (a) Disconnect the connectors from the combination meter and A/C amplifier.
- (b) Measure the resistance according to the value(s) in the table below.

Standard:

Tester connection	Condition	Specified condition
C8-30 - A29-35 (TW1)	Always	Below 1 $\Omega$
C8-30 - Body ground	Always	10 k $\Omega$ or higher

NG

REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

6

REPLACE AIR CONDITIONING AMPLIFIER (SEE PUB. NO. RM864E ON PAGE 55-96)

HINT:

If the problem still occurs after replacing the A/C amplifier, replace the ECM as there may be a problem in the ECM.

NG

REPLACE ECM

OK

END