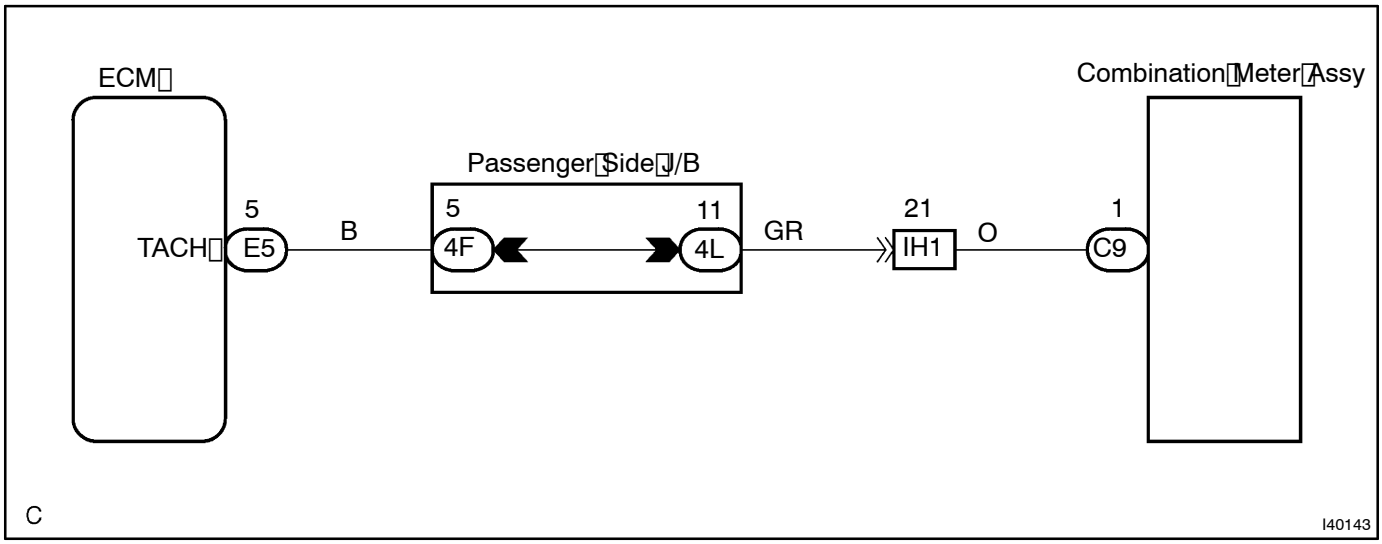
MALFUNCTION IN TACHOMETER

WIRING DIAGRAM



INSPECTION PROCEDURE

1	PERFORM ACTIVE TEST BY INTELLIGENT TESTER II

(a) Operate the intelligent tester II according to the steps on the display and select the "ACTIVE TEST".

METER:

Item	Test Details	Diagnostic Note
TACHOMETER	0rpm / 1000rpm / 2000rpm / 3000rpm / 4000rpm / 5000rpm / 6000rpm / 7000rpm	–

OK:

Needle indication is normal.

NG → **REPLACE COMBINATION METER ASSY (SEE PAGE 71–17)**

OK

2	READ VALUE OF INTELLIGENT TESTER II(ENGINE SPEED SIGNAL)

(a) Operate the intelligent tester II according to the steps on the display and select the "DATA LIST".

METER:

Item	Measurement Item/ Range (Display)	Normal Condition	Diagnostic Note
TACHO METER	Engine speed / Min.: 50 rpm, Max.: 12,750 rpm	Almost same as actual engine speed (When engine is running)	–

OK:

Engine speed displayed on the tester is almost the same as the actual engine speed.

NG → **Go to step 3**

OK

REPLACE COMBINATION METER ASSY (SEE PAGE 71–17)

3 READ VALUE OF INTELLIGENT TESTER II(ENGINE SPEED SIGNAL)

(a) Operate the intelligent tester II according to the steps on the display and select the ”DATA LIST”.

ALL (ECM):

Item	Measurement Item/ Range (Display)	Normal Condition	Diagnostic Note
ENGINE SPD	Engine speed / Min.: 50 rpm, Max.: 12,750 rpm	Almost same as actual engine speed (When engine is running)	–

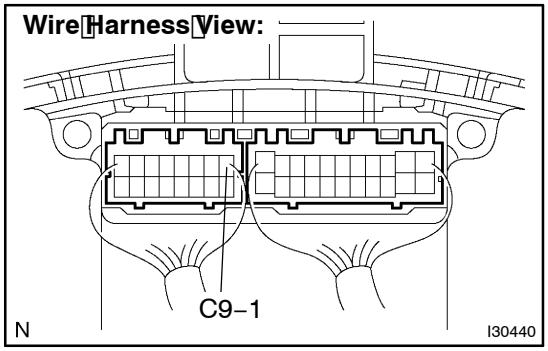
OK:

Engine speed displayed on the tester is almost the same as the actual engine speed.

NG → **GO TO ENGINE CONTROL SYSTEM (SEE PAGE 05–4)**

OK

4 INSPECT COMBINATION METER ASSY



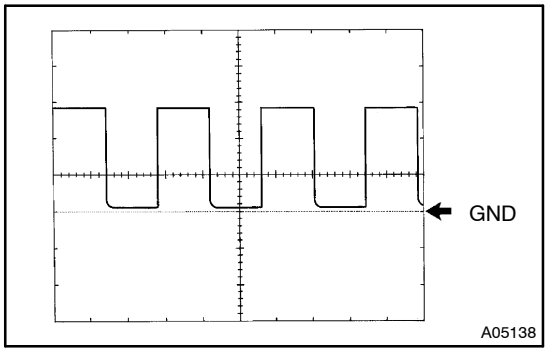
INSPECTION USING OSCILLOSCOPE

(a) Check the input signal waveform.

(1) Remove the combination meter assy.

(2) Connect the oscilloscope to the terminals C9–1 and body ground.

(3) Start the engine.



(4) Check the signal waveform according to the condition (s) in the table below.

Item	Condition
Tool setting	5 V/DIV, 10 ms/DIV
Vehicle condition	Engine idle speed

OK:

As shown in the illustration

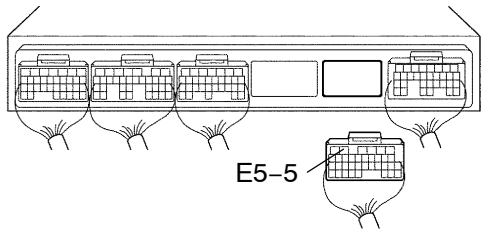
NG → **Go to step 5**

OK

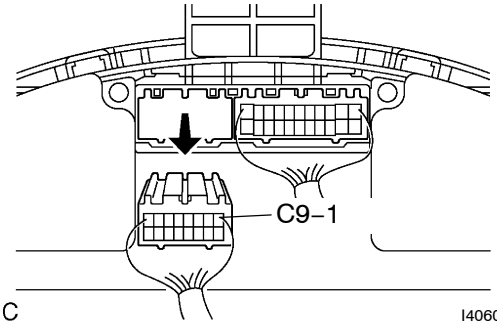
REPLACE COMBINATION METER ASSY (SEE PAGE 71–17)

5	CHECK HARNESS AND CONNECTOR(ECM – COMBINATION METER ASSY) (SEE PAGE 01–23)

ECM Wire Harness View:



Combination Meter Assy Wire Harness View:



(a) Disconnect the C9 and E5 connectors.
(b) Measure the resistance according to the value(s) in the table below.

Standard:

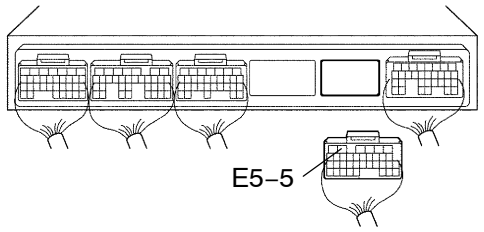
Tester Connection	Condition	Specified Condition
C9–1 – E5–5	Always	Below 1 Ω
C9–1 – Body ground	Always	10 kΩ or higher

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

OK

6	INSPECT COMBINATION METER ASSY

ECM Wire Harness View:



(a) Disconnect the E5 connector.
(b) Measure the voltage according to the value(s) in the table below.

Standard:

Tester Connection	Condition	Specified Condition
E5–5 – Body ground	Ignition switch ON	10 to 14 V

NG → **REPLACE COMBINATION METER ASSY (SEE PAGE 71–17)**

OK

GO TO ENGINE CONTROL SYSTEM(SEE PAGE 05–4)