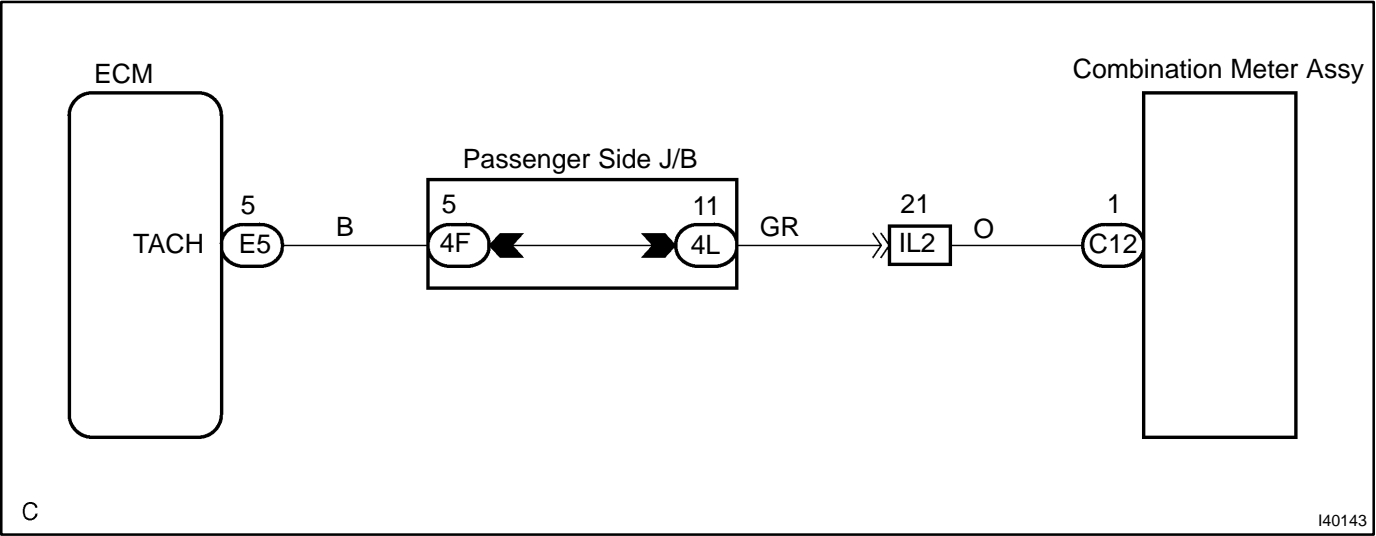


MALFUNCTION IN TACHOMETER

WIRING DIAGRAM



INSPECTION PROCEDURE

1 PERFORM ACTIVE TEST BY HAND-HELD TESTER

(a) Operate the hand-held tester 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 71-18)

OK

2 READ VALUE OF HAND-HELD TESTER(ENGINE SPEED SIGNAL)

(a) Operate the hand-held tester 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 71-18)**3 READ VALUE OF HAND-HELD TESTER(ENGINE SPEED SIGNAL)**

(a) Operate the hand-held tester 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:

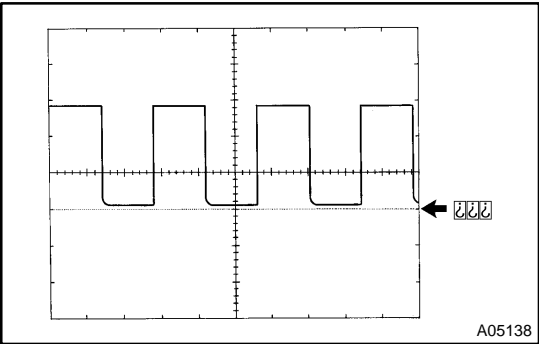
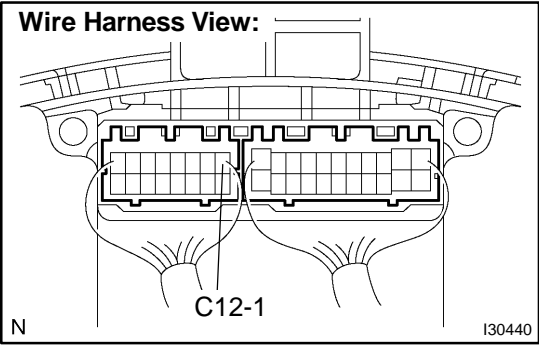
Engine speed displayed on the tester is almost the same as the actual engine speed.

NG

**GO TO ENGINE CONTROL SYSTEM
(SEE PAGE 05-5 , 05-362)**

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 C12-1 and body ground.
 - (3) Start the engine.

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

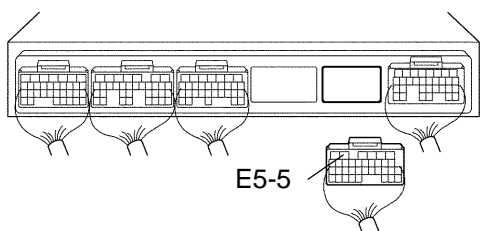
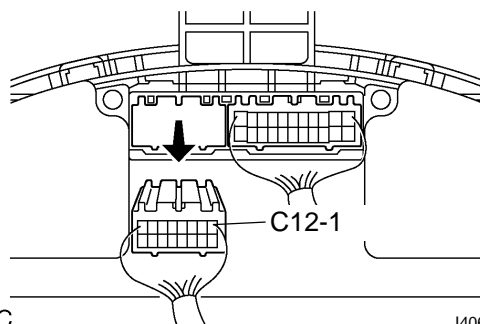
Item	Condition
Tool setting	5 V/DIV, 10 ms/DIV
Vehicle condition	Engine idle speed

OK:
As shown in the illustration

OK

NG Go to step 5

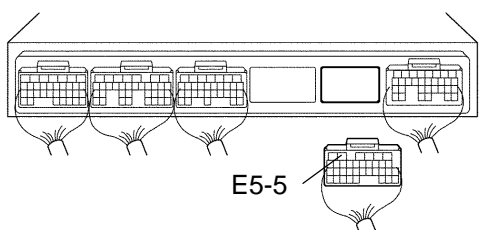
REPLACE COMBINATION METER ASSY(SEE PAGE 71-18)

**5 CHECK HARNESS AND CONNECTOR(ECM - COMBINATION METER ASSY)
(SEE PAGE 01-26)****ECM Wire Harness View:****Combination Meter Assy Wire Harness View:**

- (a) Disconnect the C12 and E5 connectors.
- (b) Measure the resistance according to the value(s) in the table below.

Standard:

Tester Connection	Condition	Specified Condition
C12-1 - E5-5	Always	Below 1 Ω
C12-1 - Body ground	Always	10 k Ω 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 71-18)****OK****GO TO ENGINE CONTROL SYSTEM(SEE PAGE 05-5 , 05-366)**