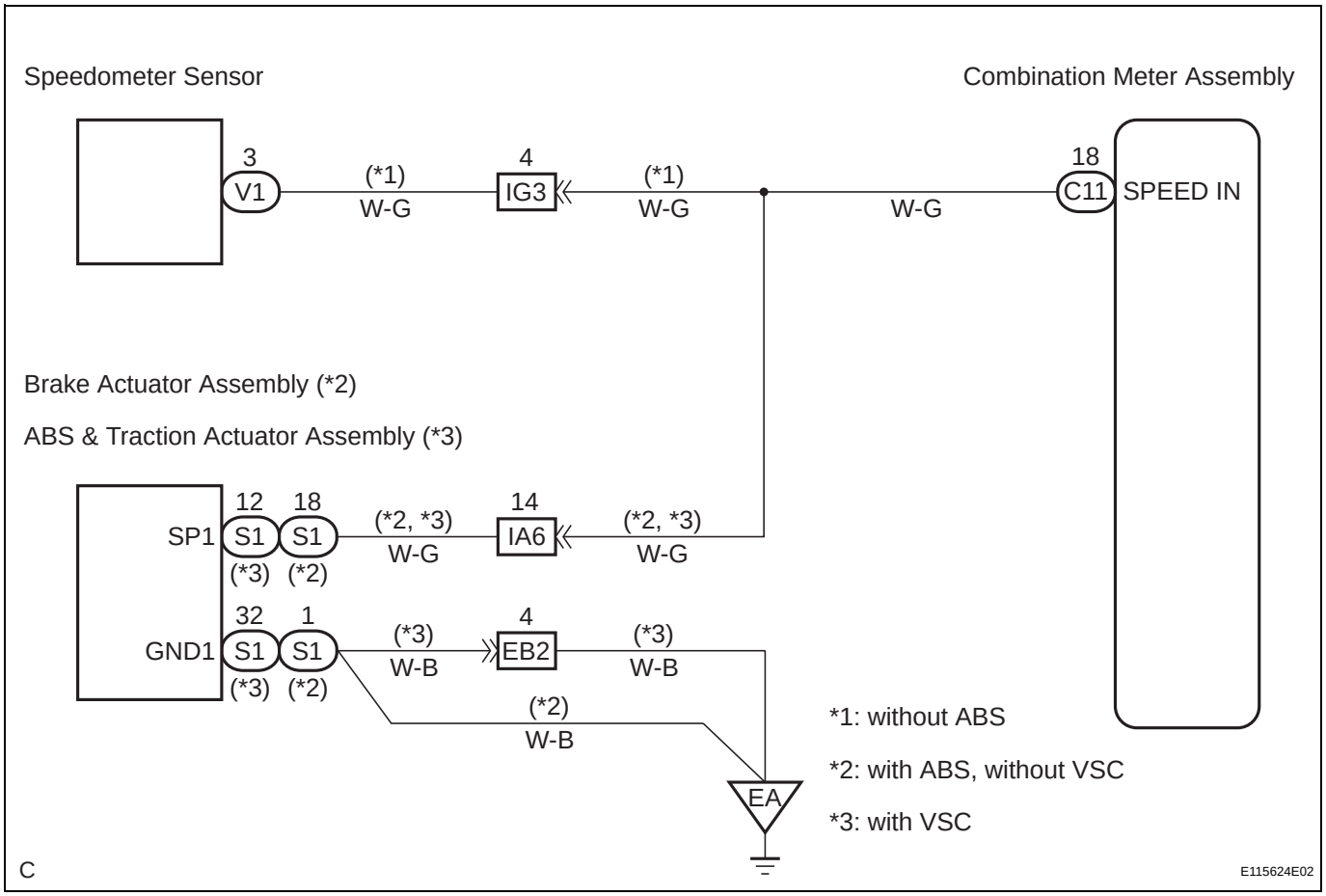
Speedometer Malfunction

DESCRIPTION

Factors that affect the indicated vehicle speed include tire size, tire inflation, and tire wear.
The speed indicated on the speedometer has an allowable margin of error. This can be tested using a speedometer tester (calibrated chassis dynamometer). For details about testing and the margin of error, see the reference chart (See page ME-15).

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:
If the vehicle speed is outside the allowable range when tested, perform the following procedure (See page ME-15).

1	SYSTEM CHECK

Result

Result	Proceed to
with ABS, with VSC	A
without ABS	B

B → **Go to step 3**

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A

2 READ VALUE OF INTELLIGENT TESTER (VEHICLE SPEED SIGNAL)

(a) Warm up the engine.
(b) Ignition switch off.
(c) Connect the intelligent tester to the DLC3.
(d) Turn the ignition switch to the ON position.
(e) Turn the tester ON.
(f) Enter following menus: DIAGNOSIS / OBD/MOBD / ABS/TRAC/VSC / DATA LIST.
(g) Check values by referring to the table below.

ABS/TRAC/VSC:

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
FR/FL/RR/RL WHEEL SPD	Vehicle speed / Min.: 0 km/h (0 mph), Max.: 255 km/h (158 mph)	Almost same as actual speed (When driving)	-

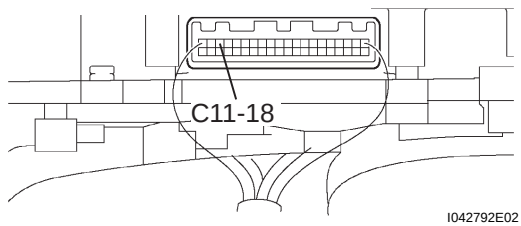
OK:
Vehicle speed displayed on the tester is almost the same as the actual vehicle speed measured using a speedometer tester (calibrated chassis dynamometer).

NG → **GO TO BRAKE CONTROL SYSTEM**

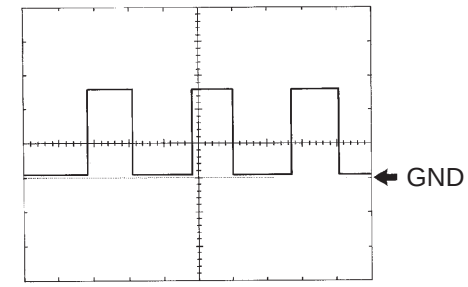
OK

3 INSPECT COMBINATION METER ASSEMBLY

Combination Meter Assembly Wire Harness View:



(a) Check the input signal waveform.
(1) Remove the combination meter with connectors still connected.
(2) Connect the oscilloscope to terminal C11-18 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., 20 ms/DIV.
Vehicle condition	Driving at approx. 20 km/h (12 mph)

OK:
The waveform is displayed as shown in the illustration.
HINT:
As the vehicle speed increases, the cycle of the signal waveform narrows.

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Result

Result	Proceed to
OK	A
NG (with ABS, without VSC)	B
NG (with VSC)	C
NG (without ABS)	D

B → **Go to step 4**

C → **Go to step 6**

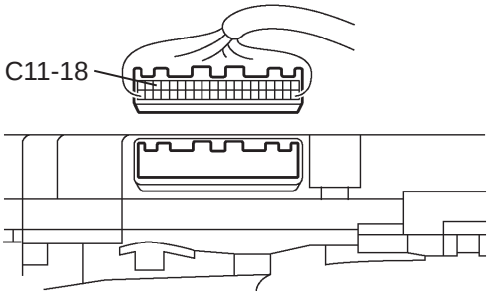
D → **Go to step 8**

A

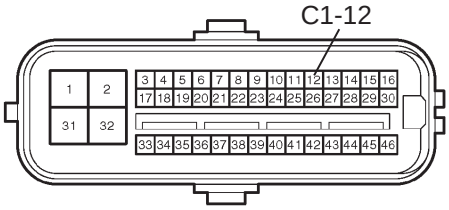
REPLACE COMBINATION METER ASSEMBLY

4 CHECK HARNESS AND CONNECTOR (COMBINATION METER - BRAKE ACTUATOR ASSEMBLY)

Combination Meter Assembly Wire Harness View:



Brake Actuator Assembly Connector Front View:



I043216E01

(a) Disconnect the C11 and S1 connectors.
(b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester connection	Condition	Specified condition
C11-18 - Body ground	Always	10 kΩ or higher
C11-18 - S1-12	Always	Below 1 Ω

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

OK

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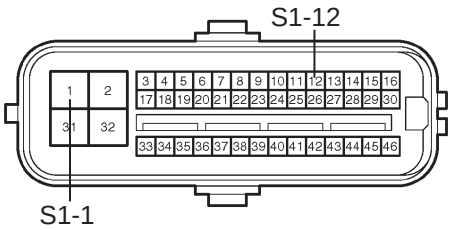
5 INSPECT BRAKE ACTUATOR ASSEMBLY

Brake Actuator Assembly Connector Front View:



N I043702E01

(a) Disconnect the S1 connector.
(b) Measure the voltage according to the value(s) in the table below.
Standard voltage

Tester connection	Condition	Specified condition
S1-12 - Body ground	Turn the ignition switch to the ON position	10 to 14 V

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

Tester connection	Condition	Specified condition
S1-1 - Body ground	Always	Below 1 Ω

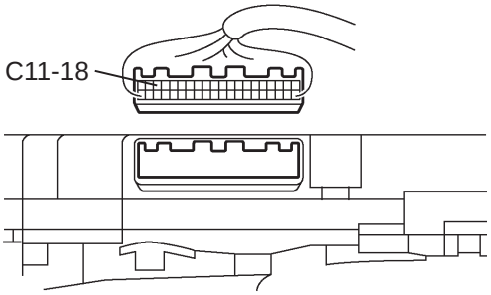
NG → **REPLACE COMBINATION METER ASSEMBLY**

OK

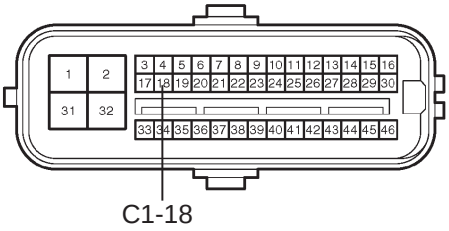
REPLACE BRAKE ACTUATOR ASSEMBLY

6 CHECK HARNESS AND CONNECTOR (COMBINATION METER - ABS & TRACTION ACTUATOR ASSEMBLY)

Combination Meter Assembly Wire Harness View:



ABS & Traction Actuator Assembly Connector Front View:



I043216E02

(a) Disconnect the C11 and S1 connectors.
(b) Measure the resistance according to the value(s) in the table below.
Standard resistance

Tester connection	Condition	Specified condition
C11-18 - Body ground	Always	10 kΩ or higher
C11-18 - S1-18	Always	Below 1 Ω

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

OK

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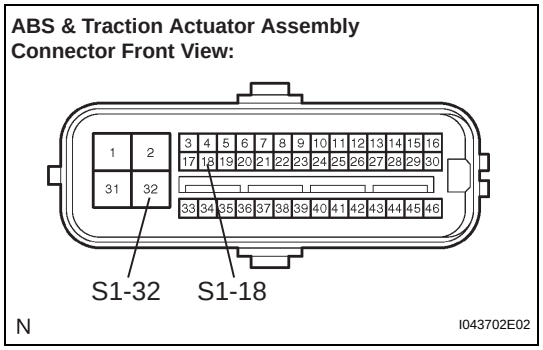
7 INSPECT ABS & TRACTION ACTUATOR ASSEMBLY



(a) Disconnect the S1 connector.
(b) Measure the voltage according to the value(s) in the table below.
Standard voltage

Tester connection	Condition	Specified condition
S1-18 - Body ground	Turn the ignition switch to the ON position	10 to 14 V

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

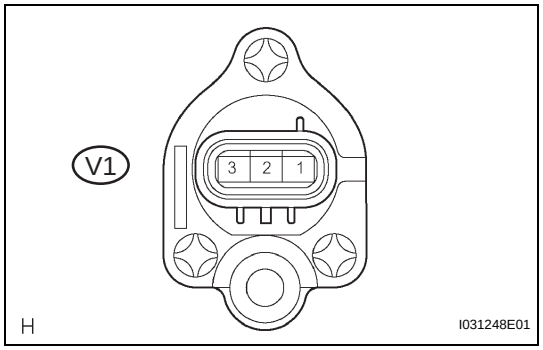
Tester connection	Condition	Specified condition
S1-32 - Body ground	Always	Below 1 Ω

NG → **REPLACE BRAKE ACTUATOR ASSEMBLY**

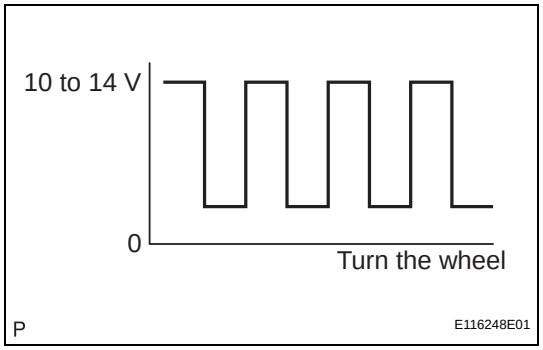
OK

REPLACE ABS & TRACTION ACTUATOR ASSEMBLY

8 INSPECT SPEEDOMETER SENSOR



(a) Check voltage.
(1) Shift the shift lever to neutral.
(2) Jack up either of the front wheel.
(3) Turn the ignition switch to the ON position.



(4) Measure voltage between terminals 2 and 3 of speed sensor when the front wheel is turning slowly.
Standard voltage:
Voltage is generated intermittently.

NG → **REPLACE SPEEDOMETER SENSOR**

OK

REPLACE HARNESS OR CONNECTOR (SPEEDOMETER SENSOR CIRCUIT)

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