for Preparation Click here

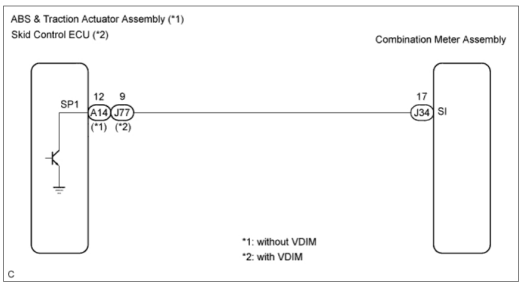
DESCRIPTION

- The meter CPU receives vehicle speed signals from this circuit.
- The vehicle speed sensor detects the voltage that varies according to the vehicle speed.
- The ABS & traction actuator assembly supplies power to the vehicle speed sensor.
- The ABS & traction actuator assembly detects vehicle speed signals based on the pulses of the voltage.
- The ABS & traction actuator assembly transmits vehicle speed signals as pulses to the meter CPU.
- The meter CPU calculates the vehicle speed converting 4 pulses to 1 revolution.

HINT:

If the vehicle has a VDIM function, the skid control ECU is built into the ABS & traction actuator assembly.

WIRING DIAGRAM



INSPECTION PROCEDURE

HINT:

Before starting circuit inspection, check tire size and tire pressure.

1.PERFORM ACTIVE TEST BY INTELLIGENT TESTER

a. Connect the tester to the DLC3.

b. Turn the engine switch on (IG).

c. Turn the tester ON.

d. Enter the following menus: Diagnosis / Body / Combination Meter / Active Test.

e. Check the values by referring to the table below.

Combination Meter:

Item	Test Details	Diagnostic Note
Speed Meter Operation	0, 40, (24), 80 (48), 120 (72), 160 (96), 200 (120) km/h (mph)	-

OK:
Needle indication is within the allowable range.

NG → REPLACE COMBINATION METER ASSEMBLY

OK ↓

2.READ VALUE OF INTELLIGENT TESTER

a. Connect the intelligent tester to the DLC3.

b. Turn the engine switch on (IG).

c. Turn the tester ON.

d. Enter the following menus: Diagnosis / Body / Combination Meter / Data List.

e. Check the values by referring to the table below.

Combination Meter:

Item	Measurement Item/Range (Display)	Normal Condition	Diagnostic Note
Vehicle Speed Meter	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 step 3

OK ↓

REPLACE COMBINATION METER ASSEMBLY

3.READ VALUE OF INTELLIGENT TESTER

a. Connect the intelligent tester to the DLC3.

b. Turn the engine switch on (IG).

c. Turn the tester ON.

d. Enter the following menus: Diagnosis / Power Train / ABS/VSC/TRAC / Data List.

e. Check the values by referring to the table below.

ABS/VSC/TRAC:

Item	Measurement Item/Range (Display)	Normal Condition	Diagnostic Note
(FL/FR/RL/RR) Wheel Spd	Vehicle speed/Min.: 0 km/h (0 mph), Max.: 326 km/h (202 mph)	Almost same as actual speed (When driving)	-

OK:
Vehicle speed displayed on the tester is almost the same as the actual vehicle speed.

NG → GO TO BRAKE CONTROL SYSTEM

OK ↓

4.INSPECT COMBINATION METER ASSEMBLY

a. Disconnect the A14 (*1) / J77 (*2) connector.

b. Measure the voltage according to the value(s) in the table below.

Standard voltage:

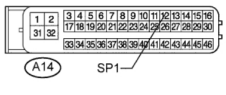
Tester Connection	Condition	Specified Condition
A14-12 (SP1) (*1) - Body ground	Engine switch on (IG)	10 to 14 V
J77-9 (SP1) (*2) - Body ground	Engine switch on (IG)	10 to 14 V

*1: without VDIM
*2: with VDIM

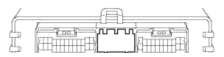
Result:

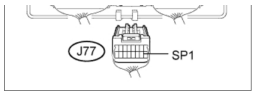
Result	Proceed to
OK	A
NG (without VDIM)	B
NG (with VDIM)	C

ABS & Traction Actuator Assembly (*1)
Wire Harness View:



Skid Control ECU (*2)
Wire Harness View:





B	Go to step 6
C	Go to step 7

A

5.INSPECT COMBINATION METER ASSEMBLY

a. Check the input signal waveform.

i. Remove the combination meter assembly with the connector(s) still connected.

ii. Connect the oscilloscope to terminals J34-17 (SI) and body ground.

iii. Turn the engine switch on (IG).

iv. Turn the wheel slowly.

v. 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)

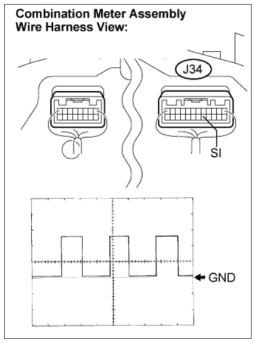
OK:
The waveform is displayed as shown in the illustration.

HINT:

As the vehicle speed increases, the cycle of the signal waveform narrows.

Result

Result	Proceed to
OK	A
NG (without VDIM)	B
NG (with VDIM)	C



B	REPLACE ABS & TRACTION ACTUATOR ASSEMBLY
C	REPLACE SKID CONTROL ECU

A

REPLACE COMBINATION METER ASSEMBLY

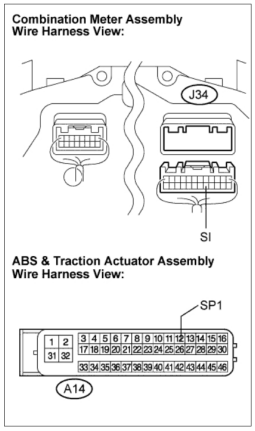
6.CHECK HARNESS AND CONNECTOR (COMBINATION METER - ABS & TRACTION ACTUATOR ASSEMBLY)

a. Disconnect the J34 and A14 connectors.

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

Standard resistance:

Tester Connection	Condition	Specified Condition
A14-12 (SP1) - J34-17 (SI)	Always	Below 1 Ω
A14-12 (SP1) - Body ground	Always	10 kΩ or higher



NG	REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE COMBINATION METER ASSEMBLY

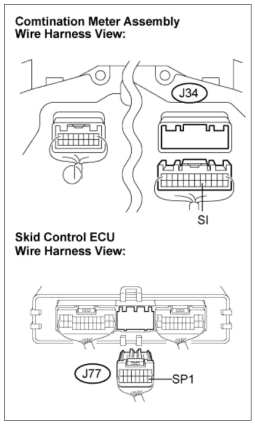
7.CHECK HARNESS AND CONNECTOR (COMBINATION METER - SKID CONTROL ECU)

a. Disconnect the J34 and J77 connectors.

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

Standard resistance:

Tester Connection	Condition	Specified Condition
J77-9 (SP1) - J34-17 (SI)	Always	Below 1 Ω
J77-9 (SP1) - Body ground	Always	10 kΩ or higher



NG	REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE COMBINATION METER ASSEMBLY

Before starting circuit inspection, check tire size and tire pressure.

1.PERFORM ACTIVE TEST BY INTELLIGENT TESTER