SPEED SIGNAL CIRCUIT (NAVIGATION ECU – COMBINATION METER ASSY)

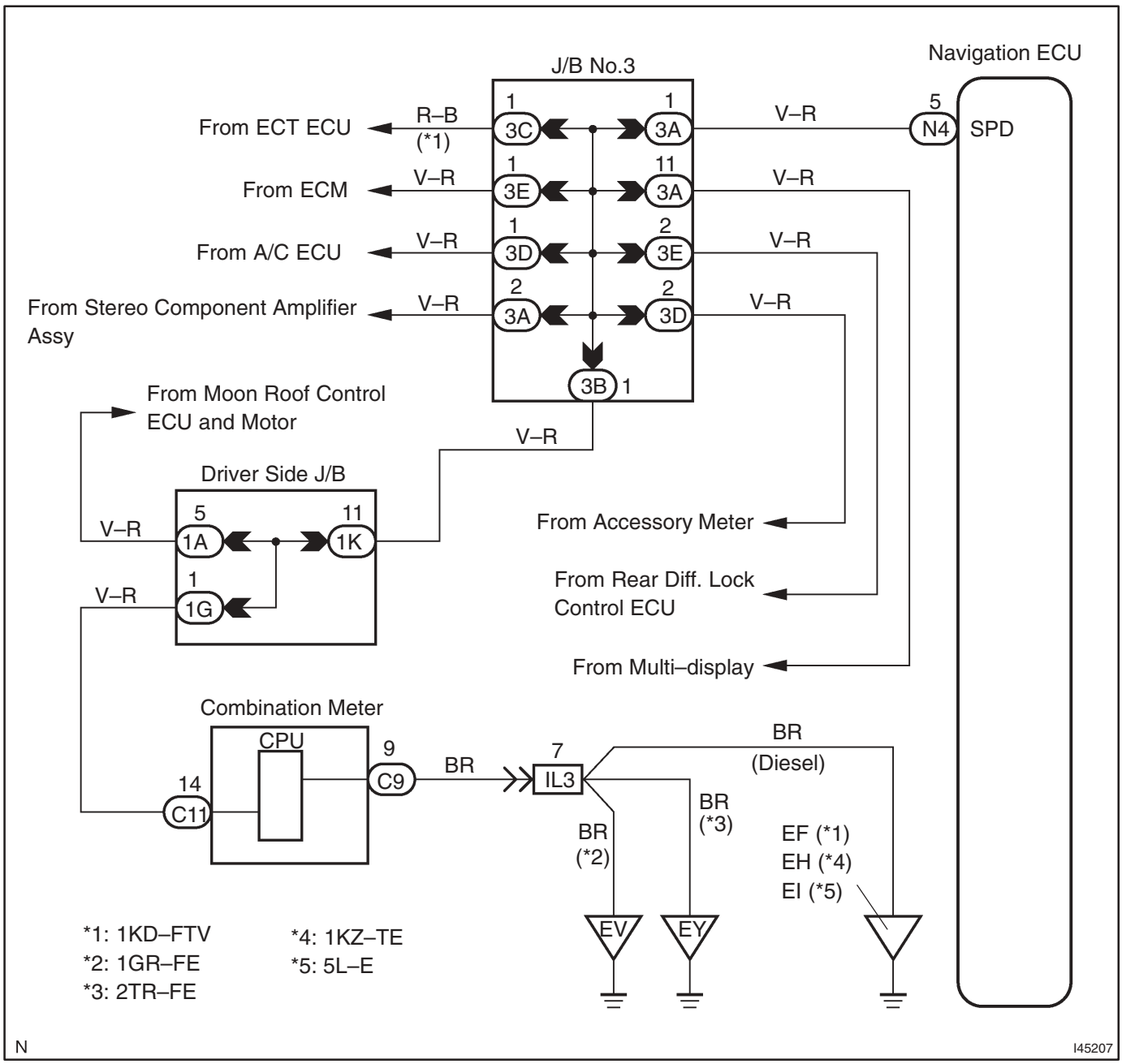
CIRCUIT DESCRIPTION

The navigation ECU receives a vehicle speed signal from the combination meter assy and information about the GPS antenna, and then adjusts vehicle position.

HINT:

- A voltage or 12 V or 5 V is output from each ECU and then input to the combination meter. The signal is changed to a pulse signal at the transistor in the combination meter. Each ECU controls the respective system based on the pulse signal.
- If a short occurs in an ECU, all systems in the diagram below will not operate normally.

WIRING DIAGRAM



INSPECTION PROCEDURE

1 CHECK OPERATION OF SPEEDOMETER

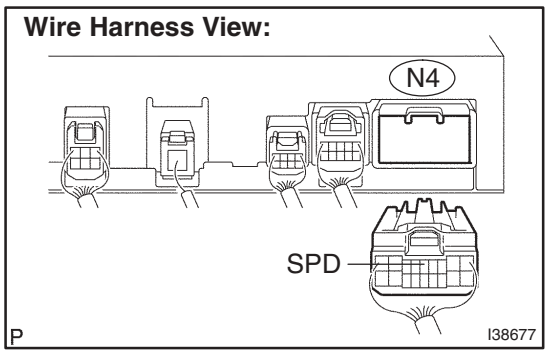
(a) Drive the vehicle and check if the function of the speedometer in the combination meter is normal.
OK: Actual vehicle speed and the speed indicated on the speedometer are the same.

HINT:
The vehicle speed sensor is functioning normally when the indication on the speedometer is normal.

NG → **CHECK COMBINATION METER ASSY (SEE PUB. NO. RM990E, PAGE 05–1559)**

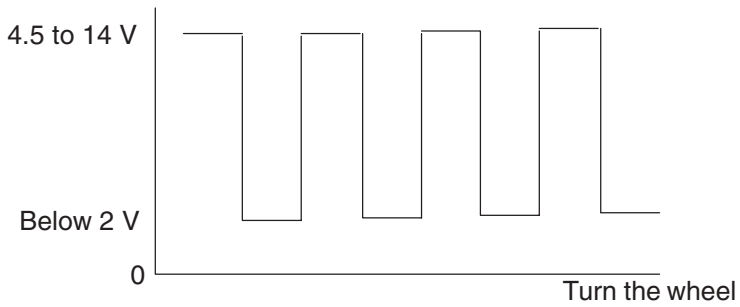
OK

2 INSPECT NAVIGATION ECU



(a) Disconnect the navigation ECU connector N4.
(b) Measure voltage.
(1) Jack up either one of the drive wheels.
(2) Move the shift lever to the neutral position.
(3) Turn the ignition switch to the ON position.
(4) Measure the voltage between terminal SPD of the navigation ECU and body ground when the drive wheels are turned slowly.

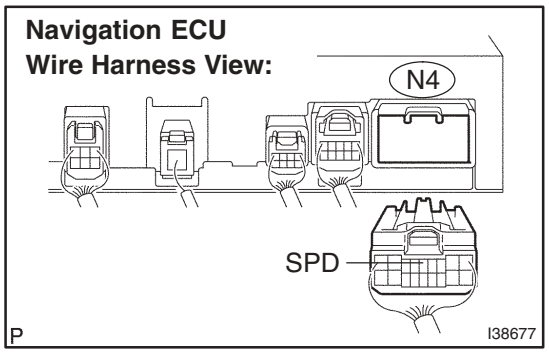
OK: Voltage pulses as shown below.



OK → **REPLACE NAVIGATION ECU (SEE PUB. NO. RM990E, PAGE 67–22)**

NG

3	CHECK HARNESS AND CONNECTOR (COMBINATION METER ASSY–NAVIGATION ECU)

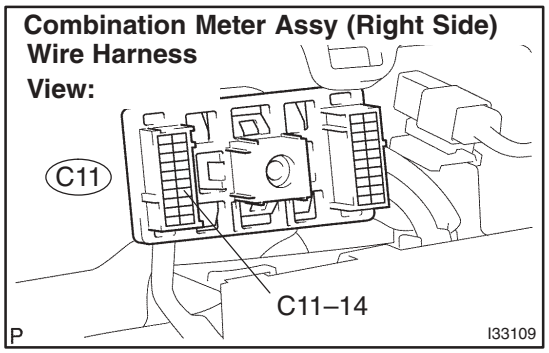


(a) Disconnect the navigation ECU connector N4 and combination meter assy connector C11.

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

Standard:

Tester connection	Condition	Specified condition
SPD – C11–14	Ignition switch OFF	Below 1 Ω

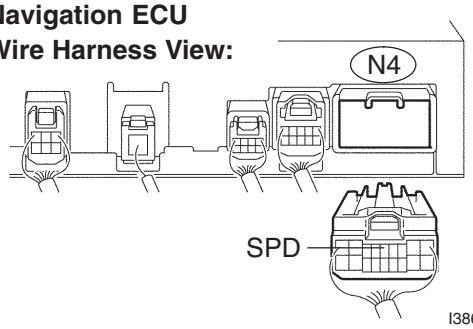


NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

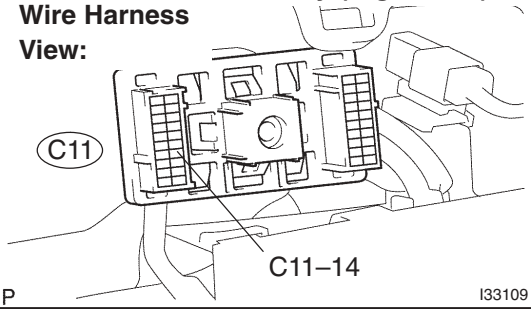
OK

4	CHECK HARNESS AND CONNECTOR (COMBINATION METER ASSY–NAVIGATION ECU)

Navigation ECU Wire Harness View:



Combination Meter Assy (Right Side) Wire Harness View:



(a) Disconnect the navigation ECU connector N4 and combination meter assy connector C11.

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

Standard:

Tester connection	Condition	Specified condition
SPD – Body ground	Ignition switch OFF	10 kΩ or higher

HINT:

If the resistance between terminal SPD and body ground is less than 10 kΩ, there may be a short in a wire harness, connector, or ECU.

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR OR CHECK EACH ECU**

OK

REPLACE COMBINATION METER ASSY (SEE PUB. NO. RM990E, PAGE 71–24)