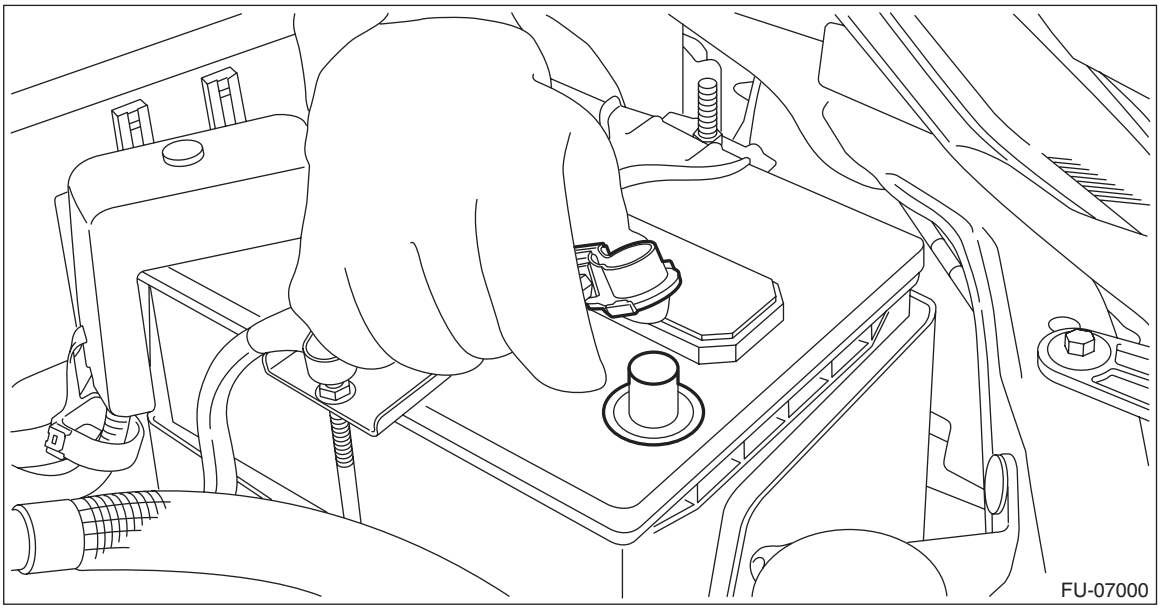
16.Tumble Generator Valve Assembly

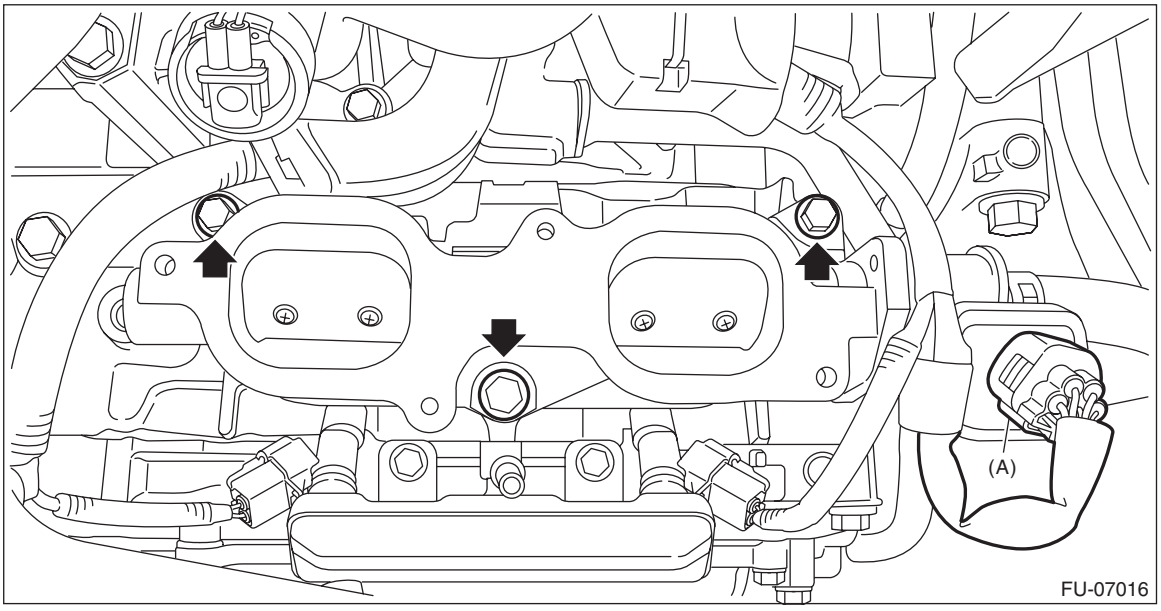
A: REMOVAL

1) Release the fuel pressure. <Ref. to FU(H4DO)-107, RELEASING OF FUEL PRESSURE, PROCEDURE, Fuel.>
2) Disconnect the ground cable from battery.

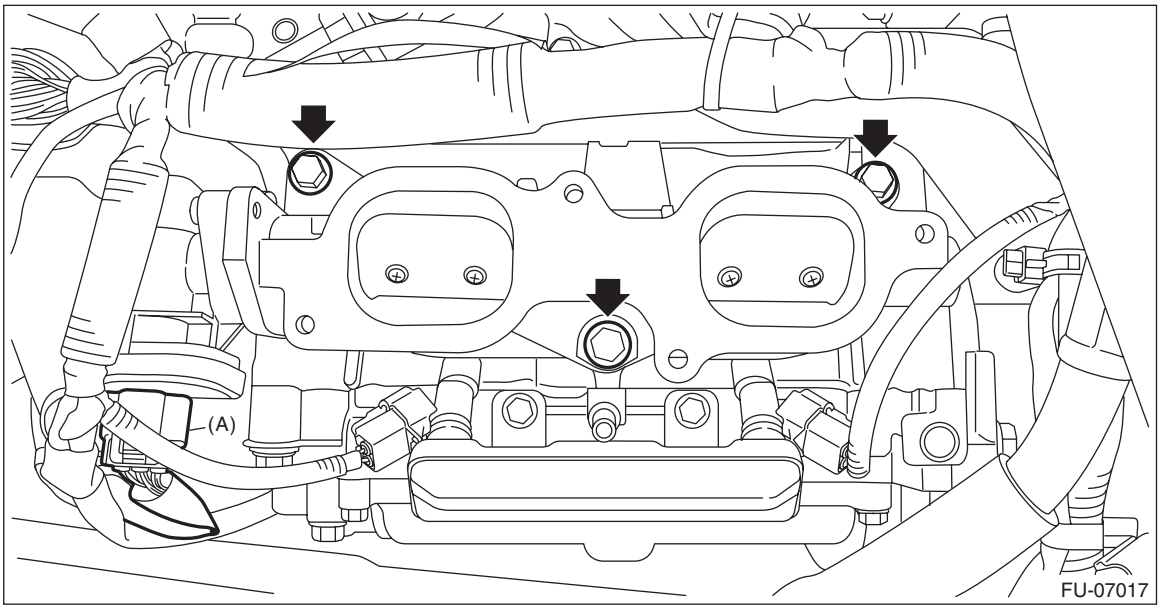


3) Open the fuel filler lid and remove the fuel filler cap.
4) Remove the intake manifold. <Ref. to FU(H4DO)-23, REMOVAL, Intake Manifold.>
5) Disconnect the connector (A) from the tumble generator valve assembly.
6) Remove the tumble generator valve assembly from the cylinder head.

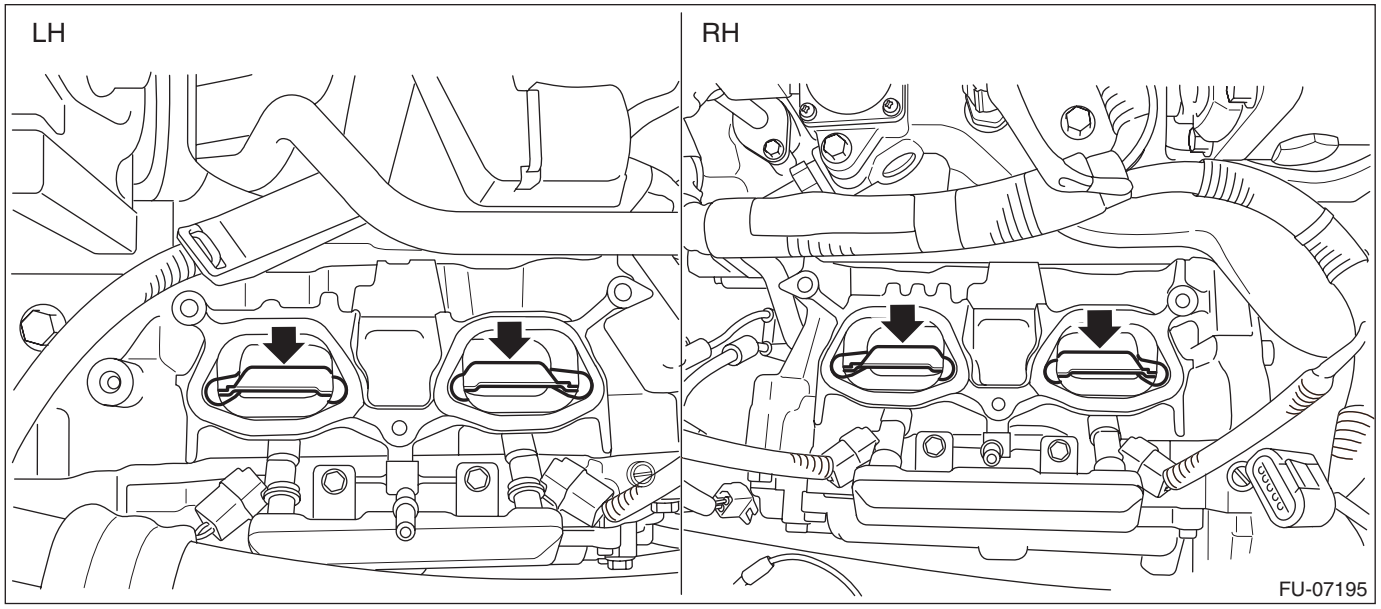
- LH side



- RH side



7) Remove the cylinder head plate from cylinder head.



B: INSTALLATION

Install in the reverse order of removal.

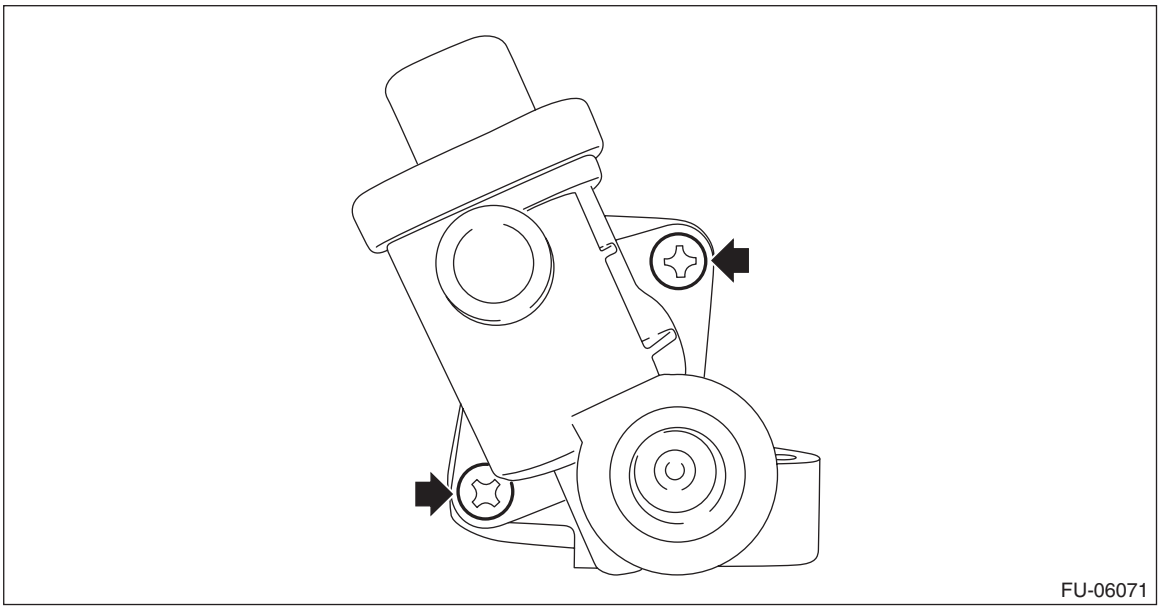
NOTE:
Use a new gasket.

Tightening torque:
25 N·m (2.5 kgf-m, 18.4 ft-lb)

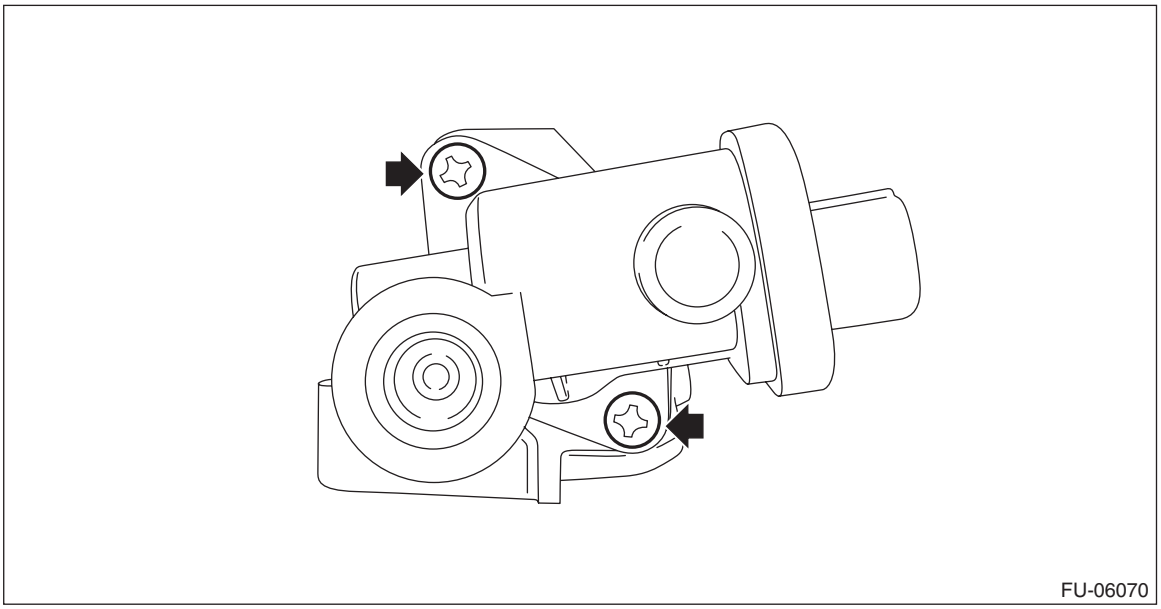
C: DISASSEMBLY

1) Remove the tumble generator valve actuator from the tumble generator valve.

- LH side



- RH side



D: ASSEMBLY

Assemble in the reverse order of disassembly.

NOTE:
Use a new gasket.

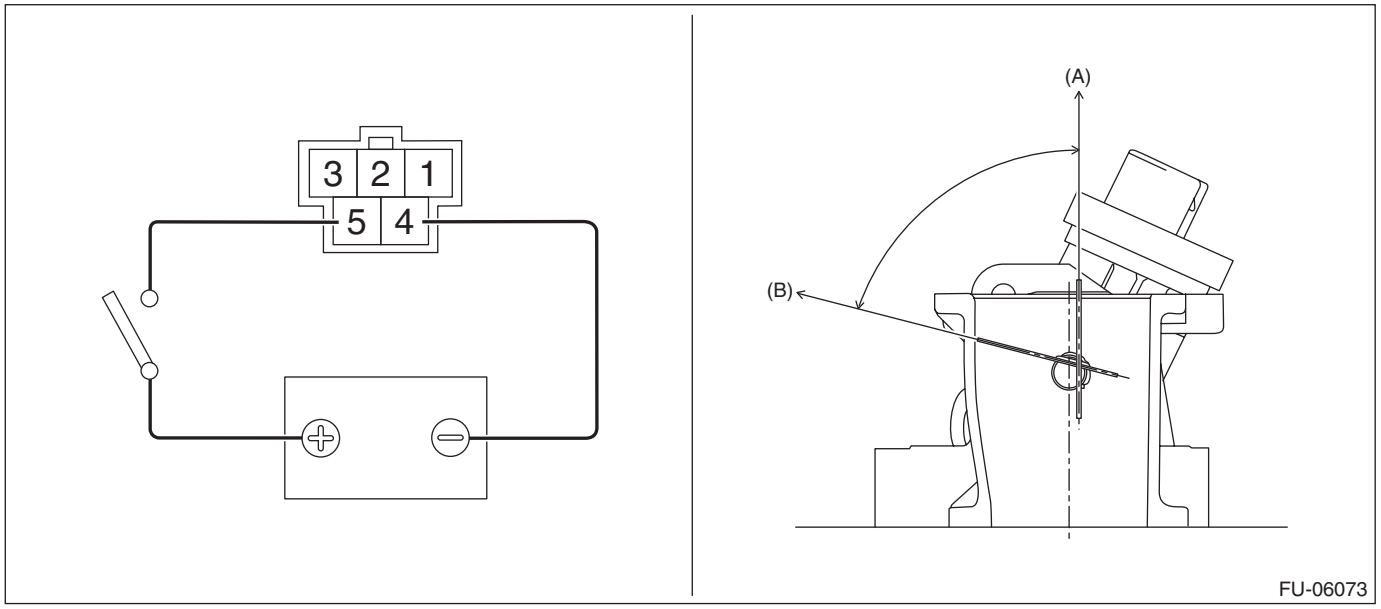
Tightening torque:
6 N·m (0.6 kgf-m, 4.4 ft-lb)

E: INSPECTION

1. CHECK MOTOR

1) Connect the battery positive terminal to terminal No. 5 and the battery ground terminal to terminal No. 4, and check that the valve is fully opened on LH side and the valve is fully closed on RH side.

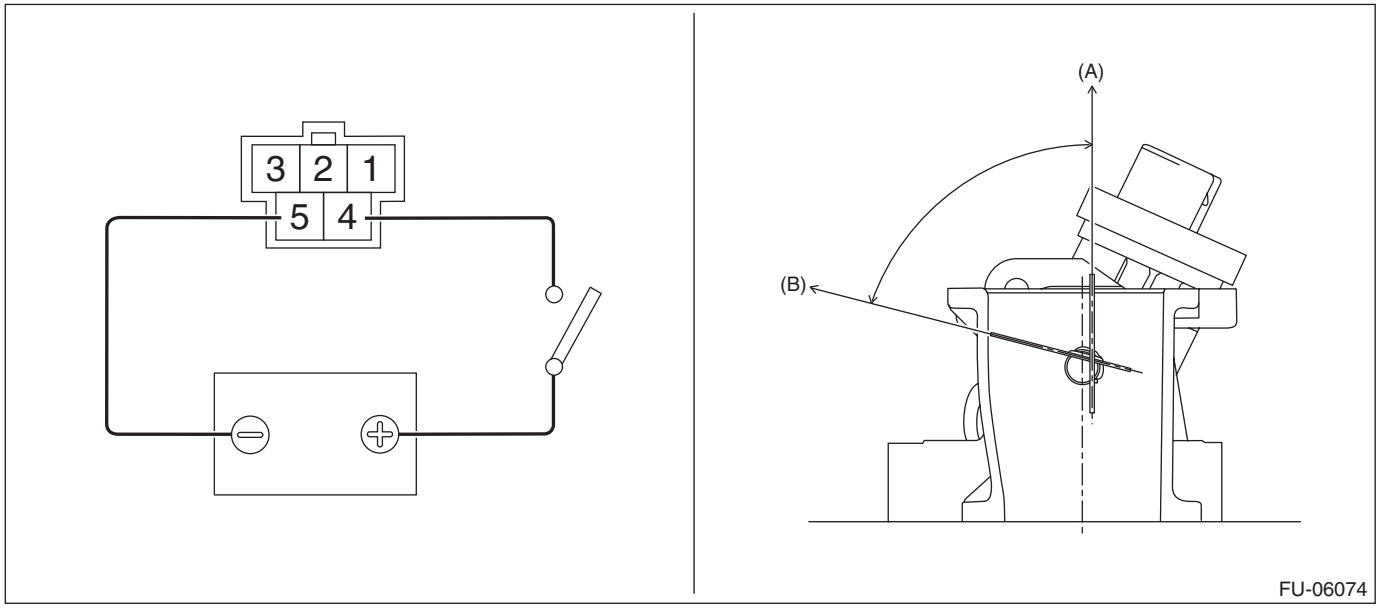
CAUTION:
Do not power the motor for more than 10 seconds.



(A) Full open (B) Full closed

2) Connect the battery positive terminal to terminal No. 4 and the battery ground terminal to terminal No. 5, and check that the valve is fully closed on LH side and the valve is fully opened on RH side.

CAUTION:
Do not power the motor for more than 10 seconds.



(A) Full open (B) Full closed

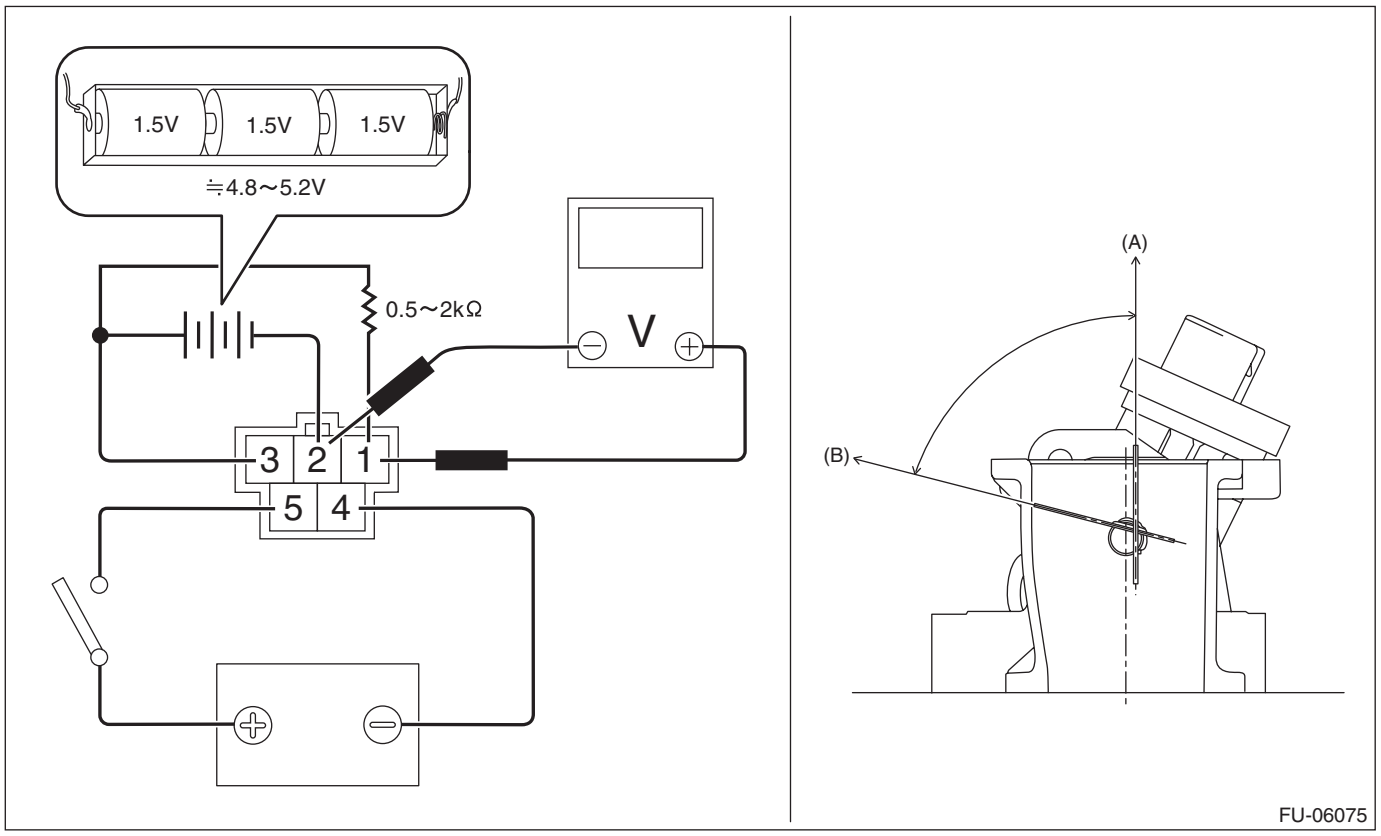
2. CHECK SENSORS

1) Connect dry-cell battery positive terminal to terminal No. 3 and dry-cell battery ground terminal to terminal No. 2, and connect the resistance (0.5 — 2 kΩ) between dry-cell battery positive terminal and terminal No. 1.

NOTE:
- Use new dry-cell batteries.
- Using circuit tester, check the voltage of a single dry-cell battery is 1.6 V or more. And also check the voltage of three batteries in series is between 4.8 V and 5.2 V.

2) Connect the circuit tester positive terminal to terminal No. 1, and the circuit tester negative terminal to terminal No. 2.
3) Connect the battery positive terminal to terminal No. 5 and the battery ground terminal to terminal No. 4, and measure the voltages with the valve fully opened on LH side and with the valve fully closed on RH side.

CAUTION:
Do not power the motor for more than 10 seconds.



(A) Full open (B) Full closed

Terminal No.	Standard
1 (+) and 2 (–)	LH side: Approx. 5 V (when 25°C (77°F)) RH side: Approx. 0 — 0.5 V (when 25°C (77°F))

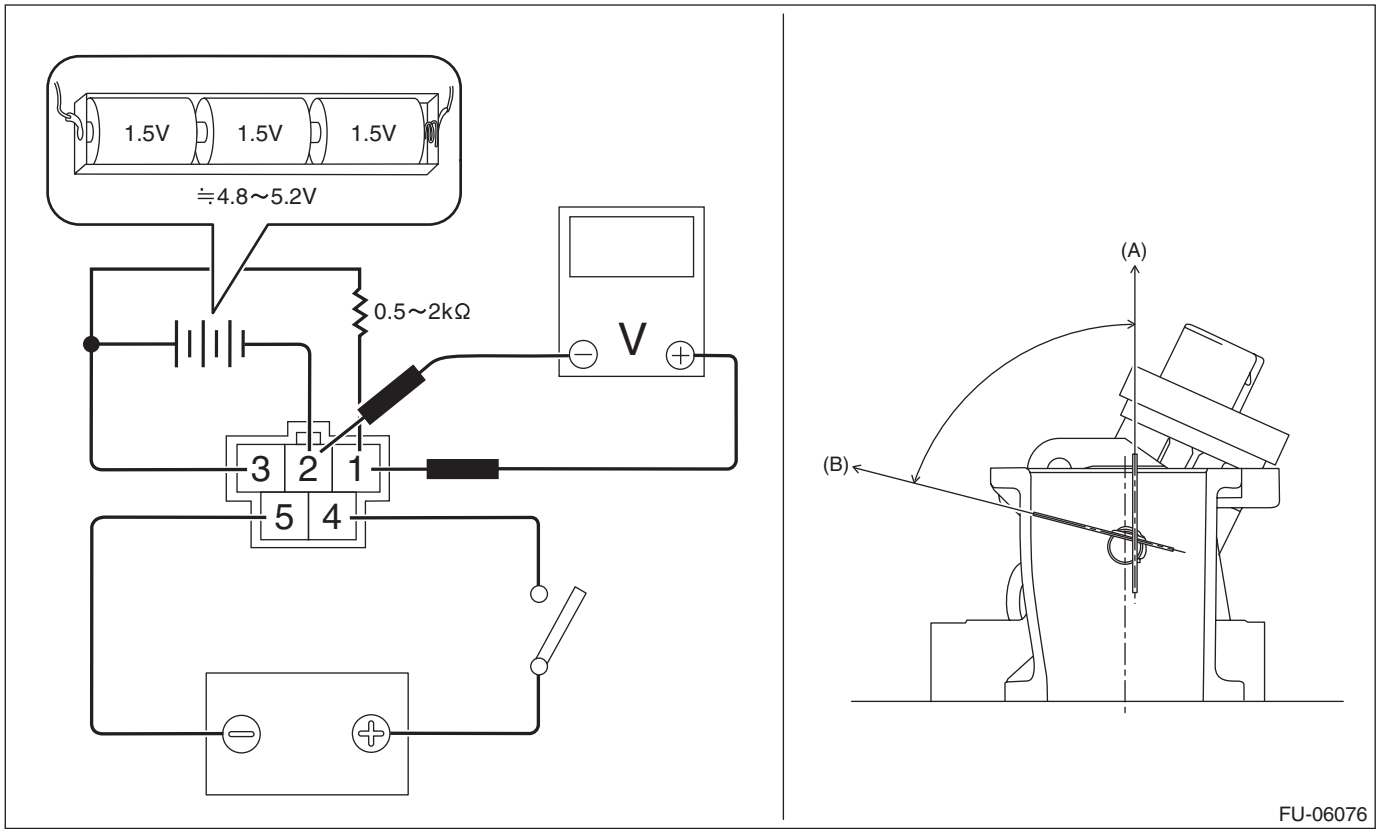
4) Connect dry-cell battery positive terminal to terminal No. 3 and dry-cell battery ground terminal to terminal No. 2, and connect the resistance (0.5 — 2 kΩ) between dry-cell battery positive terminal and terminal No. 1.

NOTE:
- Use new dry-cell batteries.
- Using circuit tester, check the voltage of a single dry-cell battery is 1.6 V or more. And also check the voltage of three batteries in series is between 4.8 V and 5.2 V.

5) Connect the circuit tester positive terminal to terminal No. 1, and the circuit tester negative terminal to terminal No. 2.

6) Connect the battery positive terminal to terminal No. 4 and the battery ground terminal to terminal No. 5, and measure the voltages with the valve fully closed on LH side and with the valve fully opened on RH side.

CAUTION:
Do not power the motor for more than 10 seconds.



(A) Full open (B) Full closed

Terminal No.	Standard
1 (+) and 2 (–)	LH side: Approx. 0 — 0.5 V (when 25°C (77°F)) RH side: Approx. 5 V (when 25°C (77°F))

3. OTHER INSPECTIONS

1) Check that the tumble generator valve assembly has no deformation, cracks or other damages.
2) Check tumble generator valve assembly for contamination or clogging.