

# WIPER AND WASHER SYSTEMS

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# GENERAL DESCRIPTION

## WIPER AND WASHER SYSTEMS

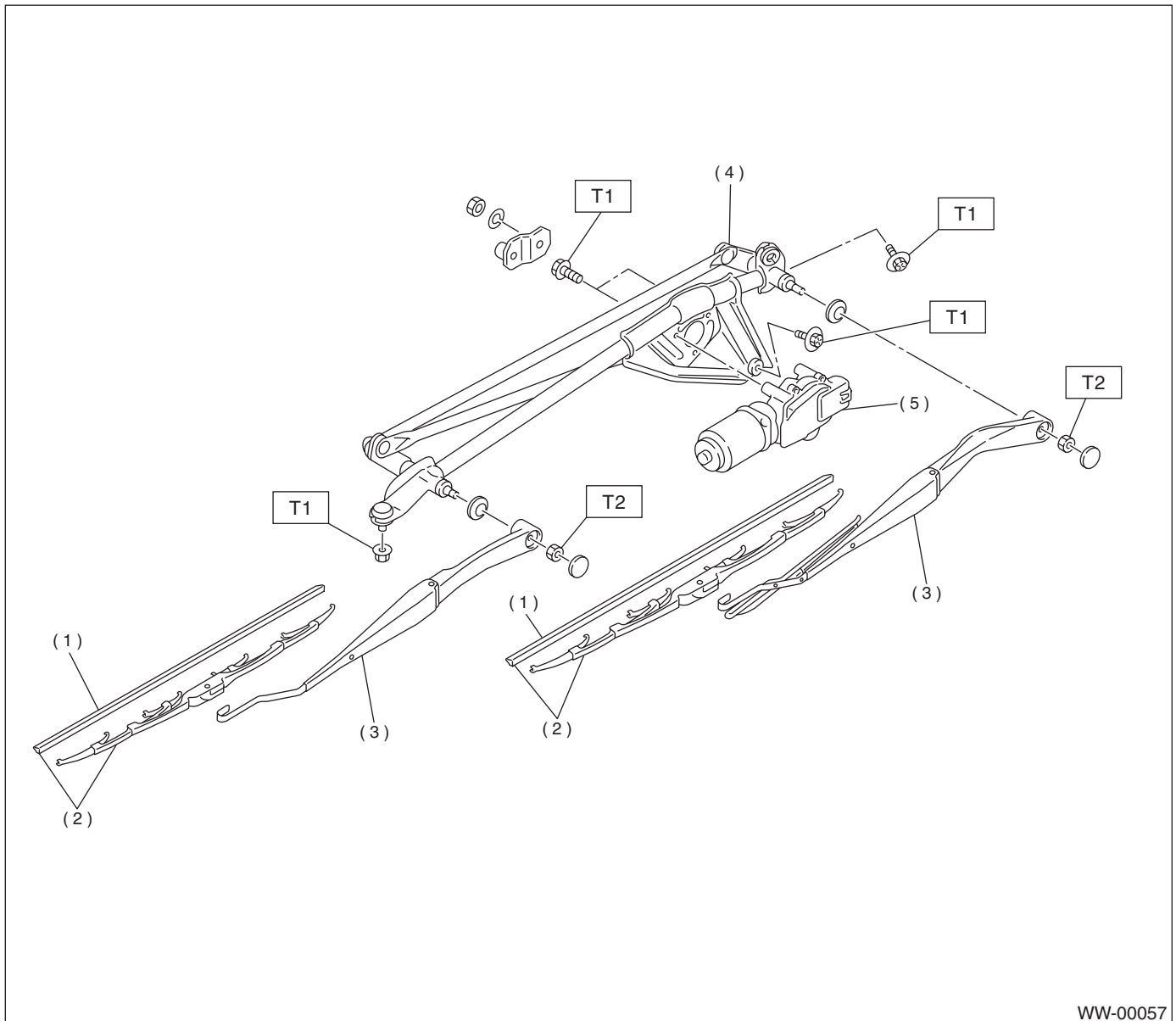
### 1. General Description

#### A: SPECIFICATIONS

Front wiper motor	Input	12 V — 72 W or less
Front washer motor	Pump type	Centrifugal
	Input	12 V — 36 W or less

#### B: COMPONENT

##### 1. FRONT WIPER



- (1) Wiper rubber
- (2) Wiper blade ASSY
- (3) Wiper arm

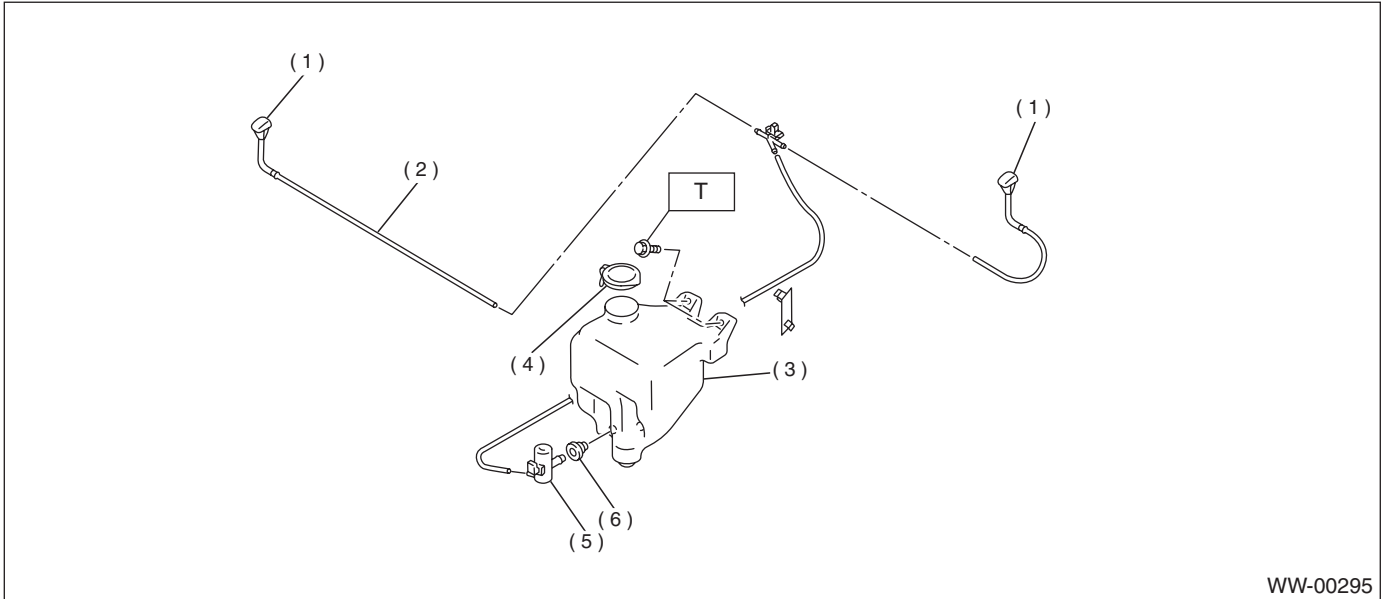
- (4) Wiper link
- (5) Wiper motor

**Tightening torque: N·m (kgf·m, ft·lb)**

**T1: 6.0 (0.61, 4.4)**

**T2: 20 (2.0, 14.5)**

### 2. WASHER TANK



WW-00295

- (1) Washer nozzle
- (2) Washer hose
- (3) Washer tank
- (4) Washer tank cap
- (5) Front washer motor
- (6) Grommet

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**Tightening torque: N·m (kgf·m, ft·lb)**  
**T: 6.0 (0.6, 4.3)**

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## GENERAL DESCRIPTION

### WIPER AND WASHER SYSTEMS

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#### **C: CAUTION**

- Reconnect connectors and hoses securely. After reconnecting, confirm that each function operates normally.
- Be careful that wire harnesses of airbag system pass near electrical parts and switches.
- Wire harnesses and connectors of all airbag system are yellow color. Do not use a tester on these circuits.
- Care must be taken when installing the piping hose so that no bending, jamming, etc. are caused.
- If even a little oil or grease such as silicon oil gets in the tank and washer passages, an oil film easily forms on the glass, causing the wiper to chatter and judder. Therefore, be careful not to let this happen.

# WIPER AND WASHER SYSTEM

WIPER AND WASHER SYSTEMS

## 2. Wiper and Washer System

### A: SCHEMATIC

<Ref. to WI-168, Wiper and Washer System (Front).>

### B: INSPECTION

Symptom	Repair order
Wiper and washers do not operate.	(1) Wiper fuse (F/B No. 14, 15) (2) Combination switch (3) Wiper motor (4) Wiring harness
Wipers do not operate in LO or HI.	(1) Combination switch (2) Wiper motor (3) Wiring harness
Wipers do not operate in INT.	(1) Combination switch (2) Wiper motor (3) Wiring harness
Washer motor does not operate.	(1) Washer switch (2) Washer motor (3) Wiring harness
Wipers do not operate when washer switch is ON.	(1) Washer motor (2) Wiring harness
Washer fluid spray does not spurt normally.	(1) Washer motor (2) Washer hose and nozzle

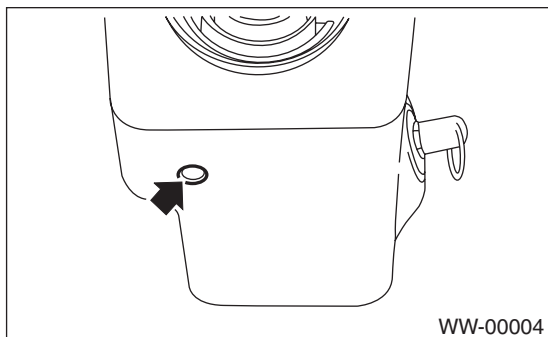
# COMBINATION SWITCH (WIPER)

## WIPER AND WASHER SYSTEMS

### 3. Combination Switch (Wiper)

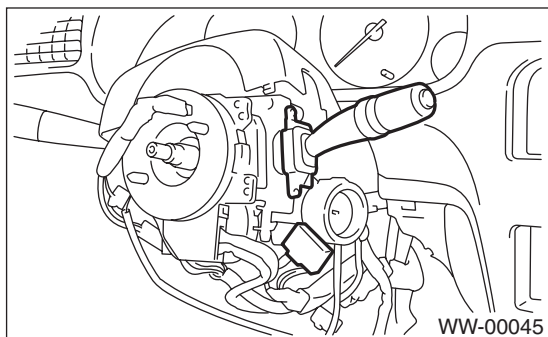
#### A: REMOVAL

1) Remove screw to remove a steering column cover.



2) Disconnect harness connectors from combination switches.

3) Remove screw to remove combination switch.

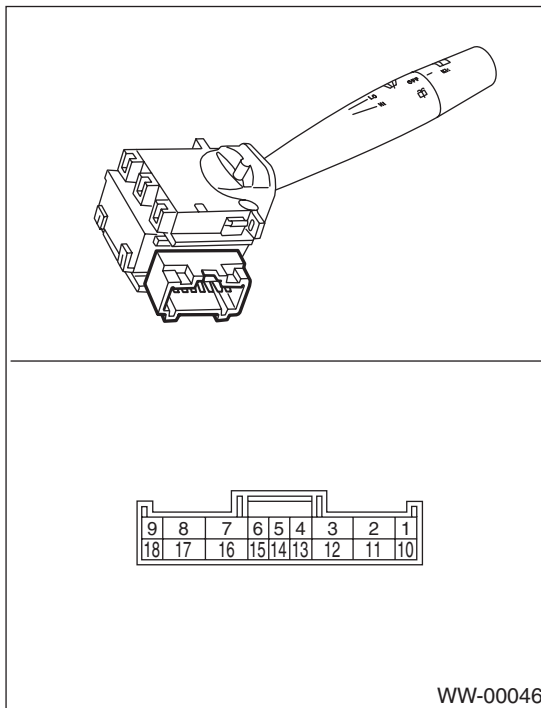


#### B: INSTALLATION

Install in the reverse order of removal.

#### C: INSPECTION

• Inspect the continuity between each connector terminal.

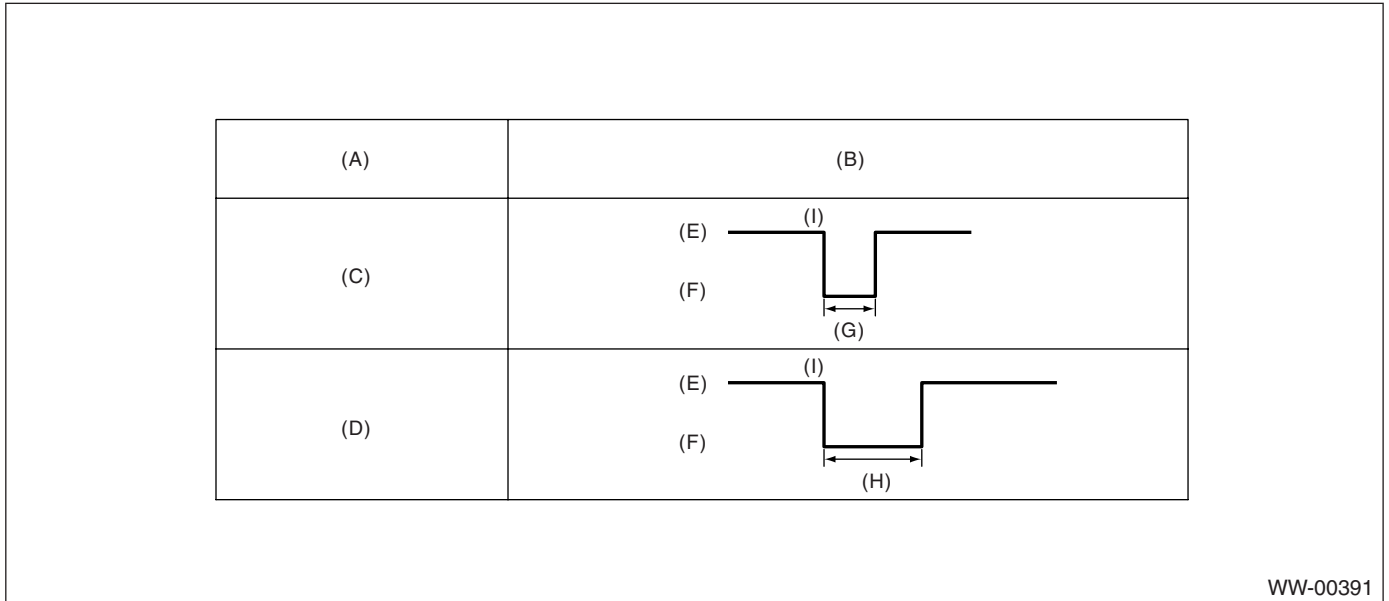


	Switch position	Terminal No.	Standard
FRONT	LO	7 and 17	Less than 1 $\Omega$
	HI	8 and 17	Less than 1 $\Omega$
	Washer ON	2 and 11	Less than 1 $\Omega$

If continuity is not as specified, replace the switch.

# COMBINATION SWITCH (WIPER)

- Intermittent operation inspection (inspection by wiper switch only)
  - 1) Connect wiper switch terminal 17 to the battery positive terminal, and terminals 2 and 16 to the battery negative terminal.
  - 2) Turn the wiper switch to INT.
  - 3) Connect the battery positive terminal to wiper switch terminal 16 for 5 seconds.
  - 4) Connect the battery negative terminal to wiper switch terminal 16, and measure the voltage between terminals 7 and 2 when the intermittent operation is performed.
  - 5) Perform the above procedures 1) to 4) when the intermittent control switch is at the MIN and MAX positions.



- (A) Switch position
- (B) Voltage
- (C) MIN.
- (D) MAX.

- (E) 12 V
- (F) 0 V
- (G) Approx. 2 sec.
- (H) Approx. 17 sec.

- (I) Connect the battery terminal to terminal 16 in step 4.

**Standard for time when the INT is stopped:**

**At MIN: Approximately 2 seconds**

**At MAX: Approximately 17 seconds**

If operation is not as specified, replace the switch.

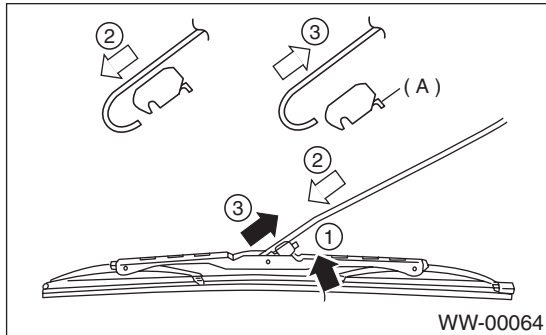
# WIPER BLADE

## WIPER AND WASHER SYSTEMS

### 4. Wiper Blade

#### A: REMOVAL

While pushing locking clip (A) up, pull out blade from arm to arrow direction.

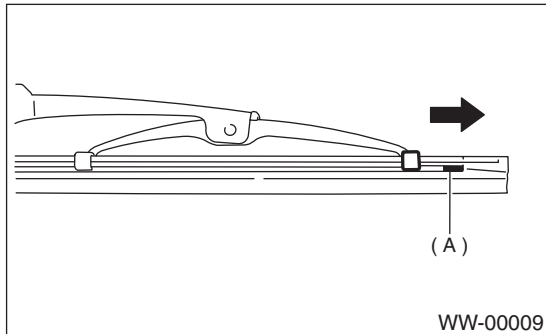


#### B: INSTALLATION

- 1) Install in the reverse order of removal.
- 2) Confirm that clip was locked securely.

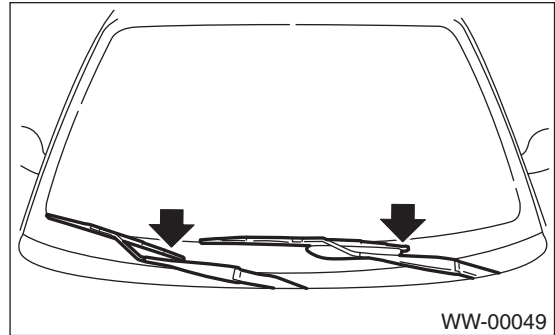
#### C: DISASSEMBLY

Pull on side (A) of the wiper rubber stopper and remove the rubber from the blade assembly.

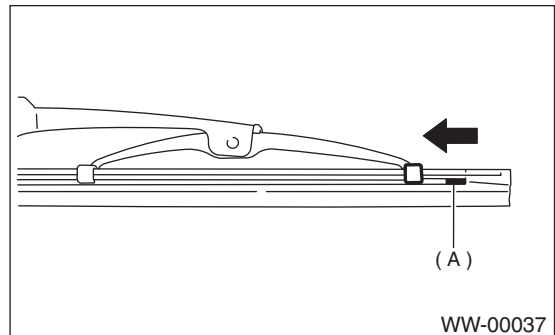


#### D: ASSEMBLY

- 1) Insert the wiper rubber onto the blade so that the stopper is in the position shown (at the bottom of the wiper arm).



- 2) Make sure the wiper rubber is securely fastened to the pull stopper (A).



#### E: INSPECTION

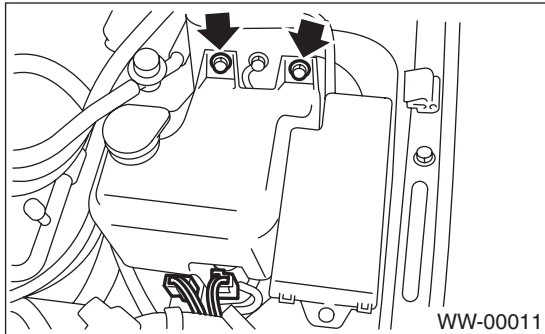
- 1) When the wiper does not perform well, inspect the following:
  - Make sure the movable part of the blade assembly moves smoothly.
  - Make sure the wiper rubber is not deformed or damaged.
- 2) Replace with a new part if damage is found.



## 5. Washer Tank and Motor

### A: REMOVAL

- 1) Open front hood.
- 2) Remove the 2 bolts, hose and connector and then remove the tank.



### B: INSTALLATION

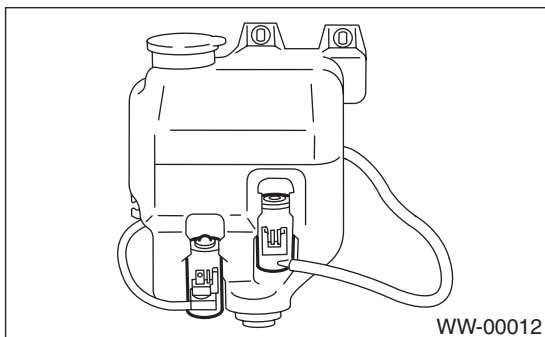
Install in the reverse order of removal.

#### *Tightening torque:*

**6.0 N·m (0.6 kgf-m, 4.3 ft-lb)**

### C: DISASSEMBLY

Remove washer motor from tank.

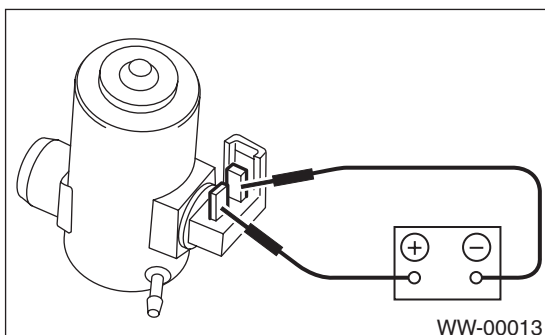


### D: ASSEMBLY

- 1) Assemble in the reverse order of disassembly.
- 2) Confirm that water does not leak from installation area of motor.

### E: INSPECTION

Apply battery voltage to the connector terminal of the washer motor and make sure the motor operates.



### 6. Front Wiper Arm

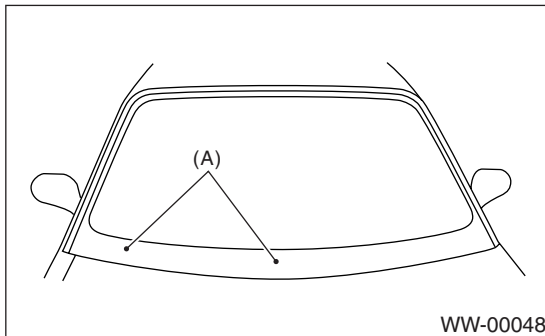
#### A: REMOVAL

- 1) Open front hood.
- 2) Remove cap.
- 3) Remove nut to remove arm.



#### B: INSTALLATION

- 1) Install in the reverse order of removal.
- 2) Operate wiper once.
- 3) Align wiper blade to ceramic print point mark (A) of front window pane.

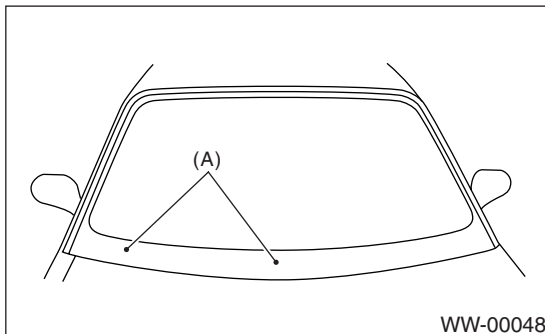


#### Tightening torque:

Refer to **COMPONENT** in *General Description*. <Ref. to WW-2, **FRONT WIPER, COMPONENT**, *General Description*.>

#### C: ADJUSTMENT

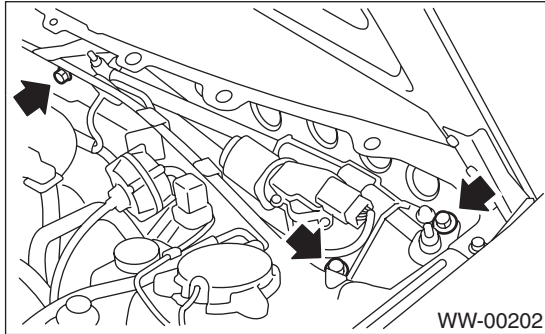
Operate wiper once. Align wiper blade to ceramic print point mark (A) of front window pane.



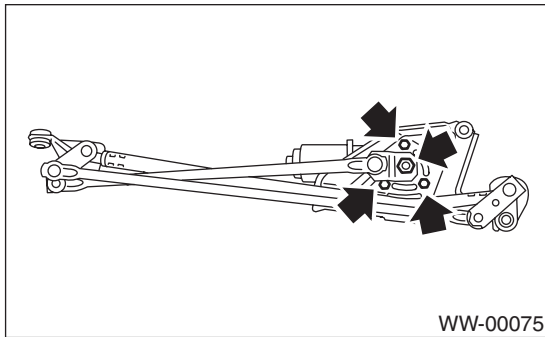
## 7. Front Wiper Motor and Link

### A: REMOVAL

- 1) Disconnect ground cable from battery.
- 2) Remove cowl panel. <Ref. to EI-29, REMOVAL, Cowl Panel.>
- 3) Disconnect connector of motor.
- 4) Remove bolts and nuts to remove wiper link.



- 5) Remove bolts and nuts to remove motor.



### B: INSTALLATION

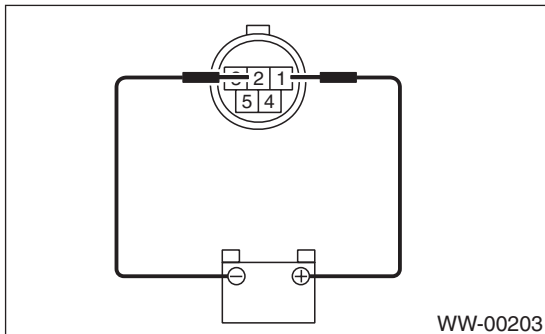
Install in the reverse order of removal.

#### Tightening torque:

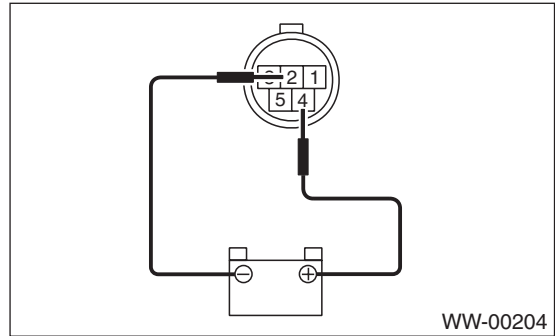
Refer to **COMPONENT** in *General Description*. <Ref. to WW-2, **FRONT WIPER, COMPONENT**, *General Description*.>

### C: INSPECTION

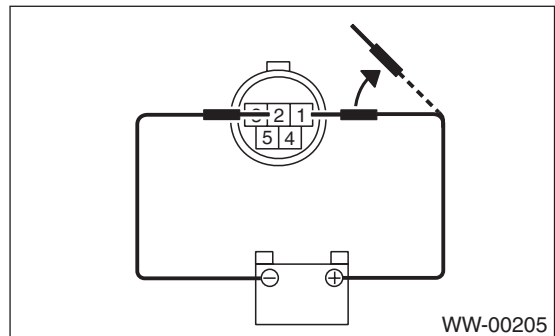
- 1) When battery is connected to terminal of connectors, confirm that motor operates at low speed.



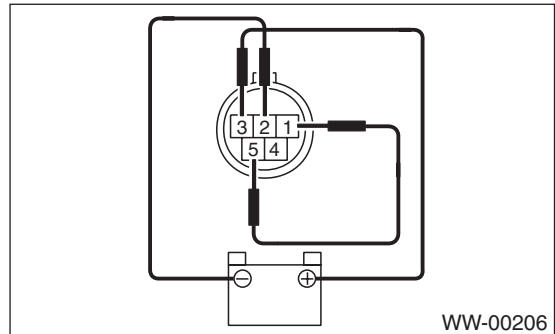
- 2) When battery is connected to terminal of connectors, confirm that motor operates at high speed.



- 3) Connect battery to terminals of connector, and remove terminal connection with motor rotated at low speed, and stop wiper motor through operation.



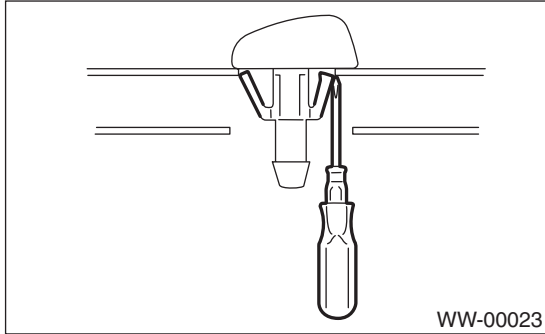
- 4) Connect battery and confirm that motor stops at automatic stop position after motor operates at low speed again.



### 8. Front Washer Nozzle

#### A: REMOVAL

- 1) Remove the washer hose from the washer nozzle.
- 2) Open the clips on the underside of the front hood with a thin screwdriver or other tool, and remove the washer nozzle.



#### B: INSTALLATION

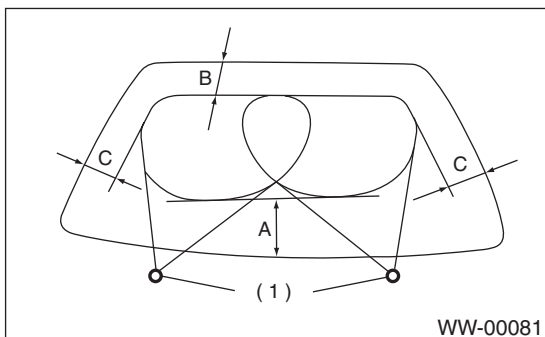
Install in the reverse order of removal.

#### C: INSPECTION

- Make sure the nozzle and hose are not clogged.
- Make sure the hose is not bent.
- Make sure the washer injection positions are the same as the ones shown in the figure.

#### *Injection position:*

- A: 300 mm (11.81 in)**
- B: 100 mm (3.94 in)**
- C: 200 mm (7.87 in)**



(1) Nozzle

If the injection positions are not as specified, replace the nozzle.