# BODY SECTION

This service manual has been prepared to provide SUBARU service personnel with the necessary information and data for the correct maintenance and repair of SUBARU vehicles.
This manual includes the procedures for maintenance, disassembling, reassembling, inspection and adjustment of components and diagnostics for guidance of experienced mechanics.
Please peruse and utilize this manual fully to ensure complete repair work for satisfying our customers by keeping their vehicle in optimum condition. When replacement of parts during repair work is needed, be sure to use SUBARU genuine parts.

All information, illustration and specifications contained in this manual are based on the latest product information available at the time of publication approval.

## BODY SECTION

# WIPER AND WASHER SYSTEMS

WW

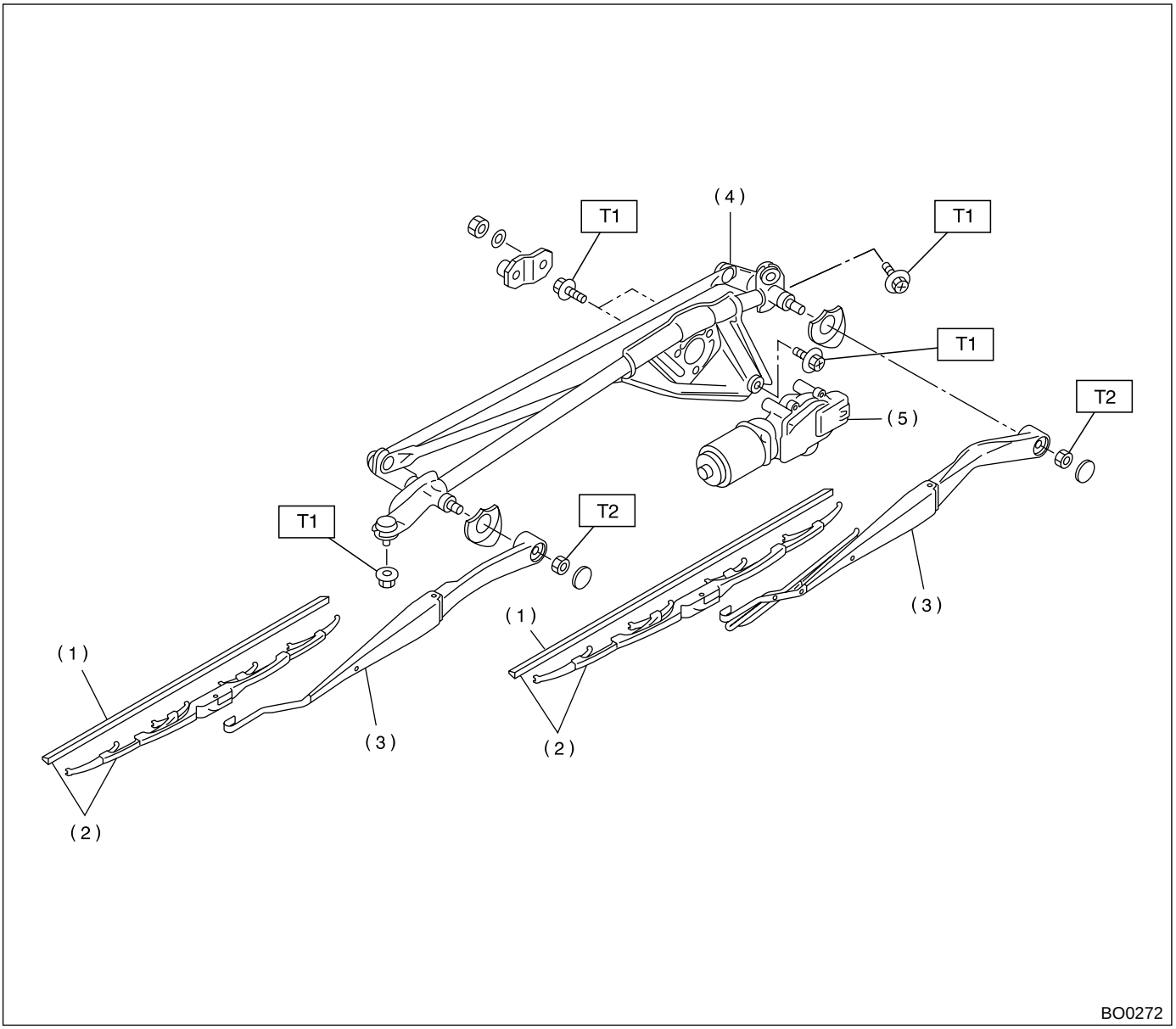
# 1. General Description

## A: SPECIFICATIONS

| | | |
|---|---|---|
| Front wiper motor | Input | 12 V — 72 W or less |
| Rear wiper motor | Input | 12 V — 42 W or less |
| Front washer motor | Pump type | Centrifugal |
| | Input | 12 V — 36 W or less |
| Rear washer motor | Pump type | Centrifugal |
| | Input | 12 V — 36 W or less |

## B: COMPONENT

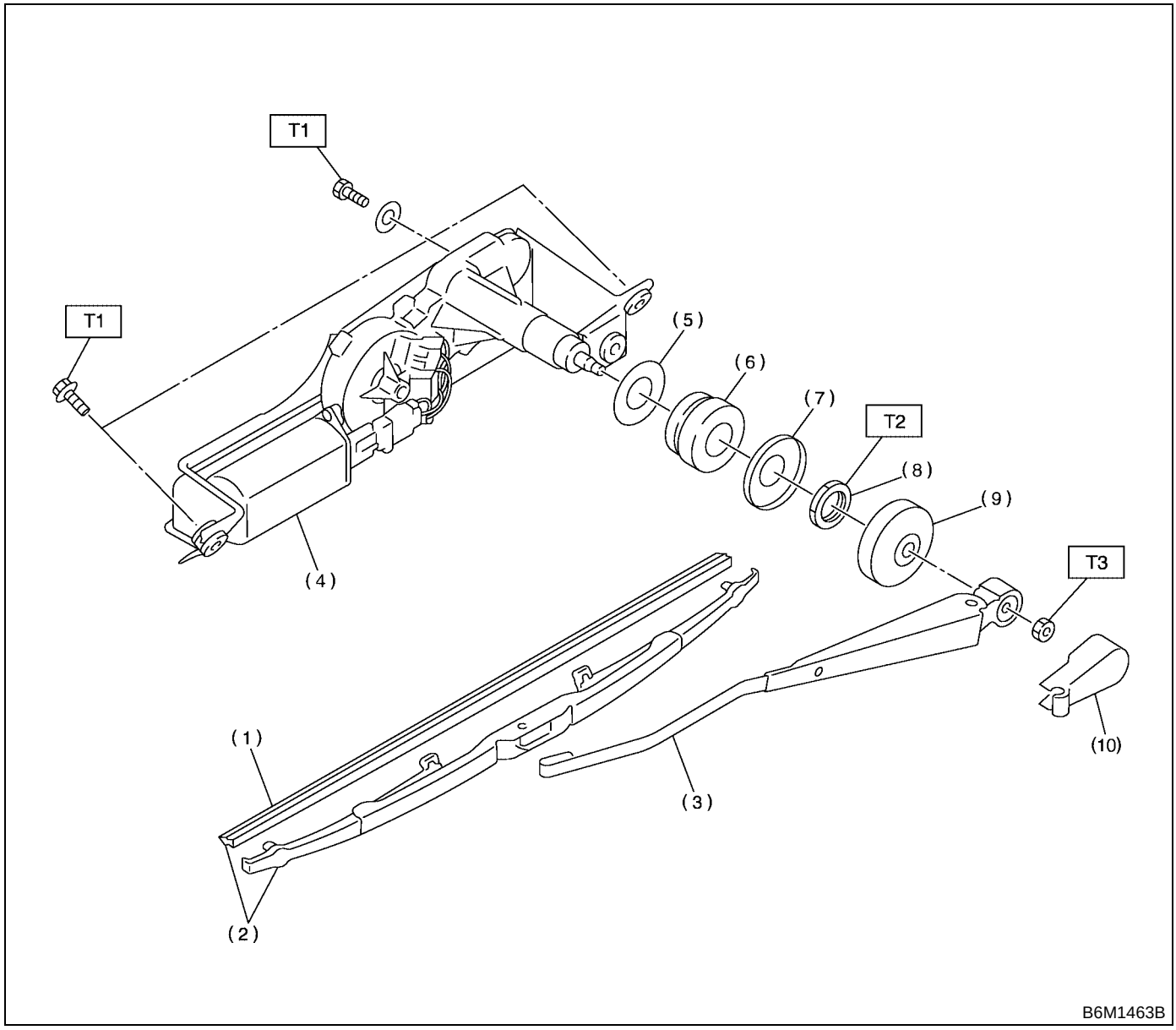
### 1. FRONT WIPER




(1) Wiper rubber
(2) Wiper blade ASSY
(3) Wiper arm
(5) Wiper motor

***Tightening torque: N·m (kgf-m, ft-lb)***
***T1: 6.0 (0.61, 4.4)***
***T2: 20 (2.0, 14.5)***

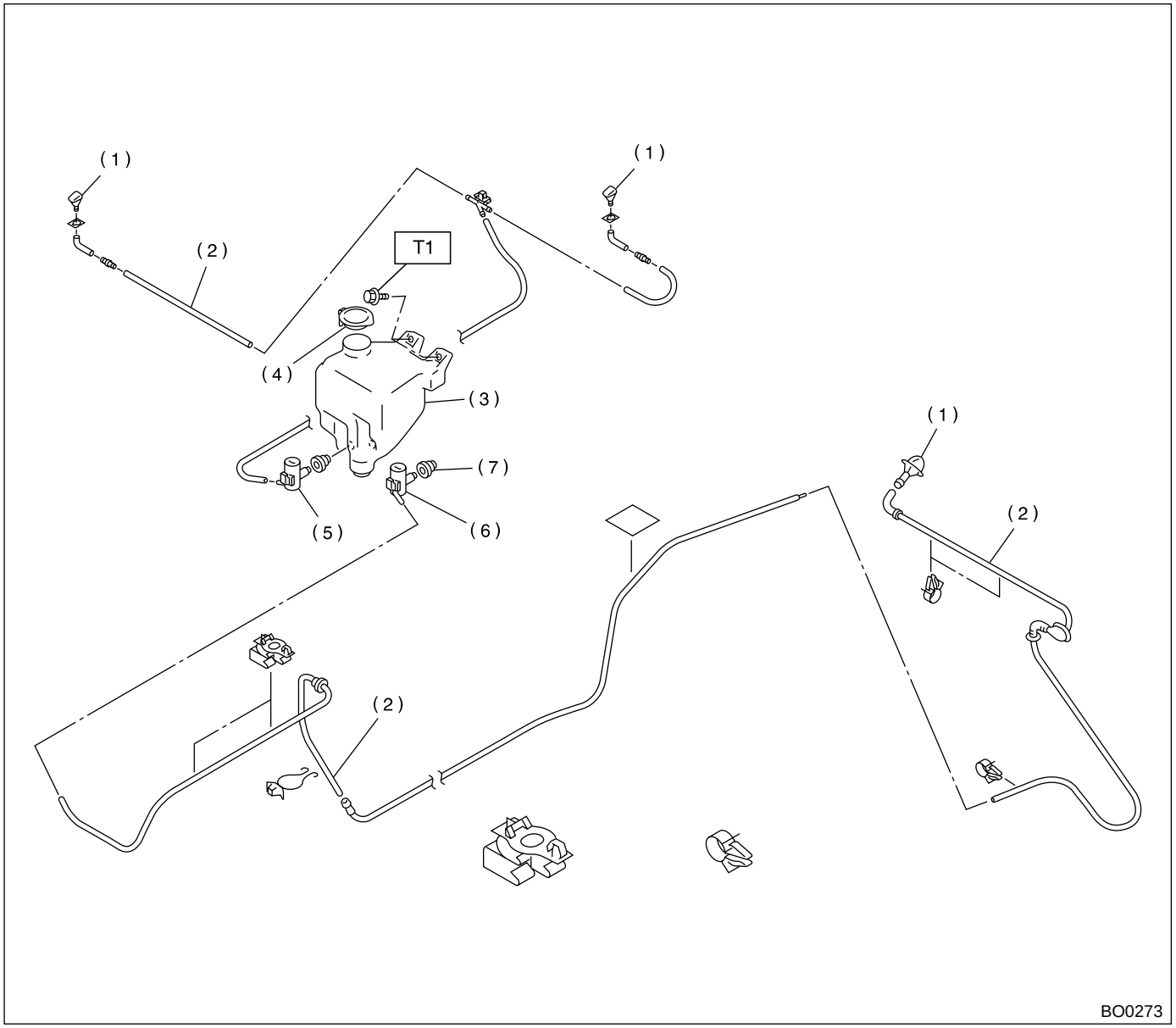
## 2. REAR WIPER




(1) Wiper rubber
(2) Wiper blade ASSY
(3) Wiper arm
(4) Wiper motor
(5) Spacer A
(6) Cushion
(7) Spacer B
(8) Nut
(9) Cap
(10) Wiper arm cover

***Tightening torque: N·m (kgf-m, ft-lb)***
***T1: 5.9 (0.6, 4.3)***
***T2: 7.4 (0.75, 5.4)***
***T3: 7.8 (0.8, 5.6)***

## 3. WASHER TANK




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

***Tightening torque: N·m (kgf-m, ft-lb)***
***T: 6.0 (0.61, 4.4)***

## C: CAUTION

- Reconnect connectors and hoses securely.

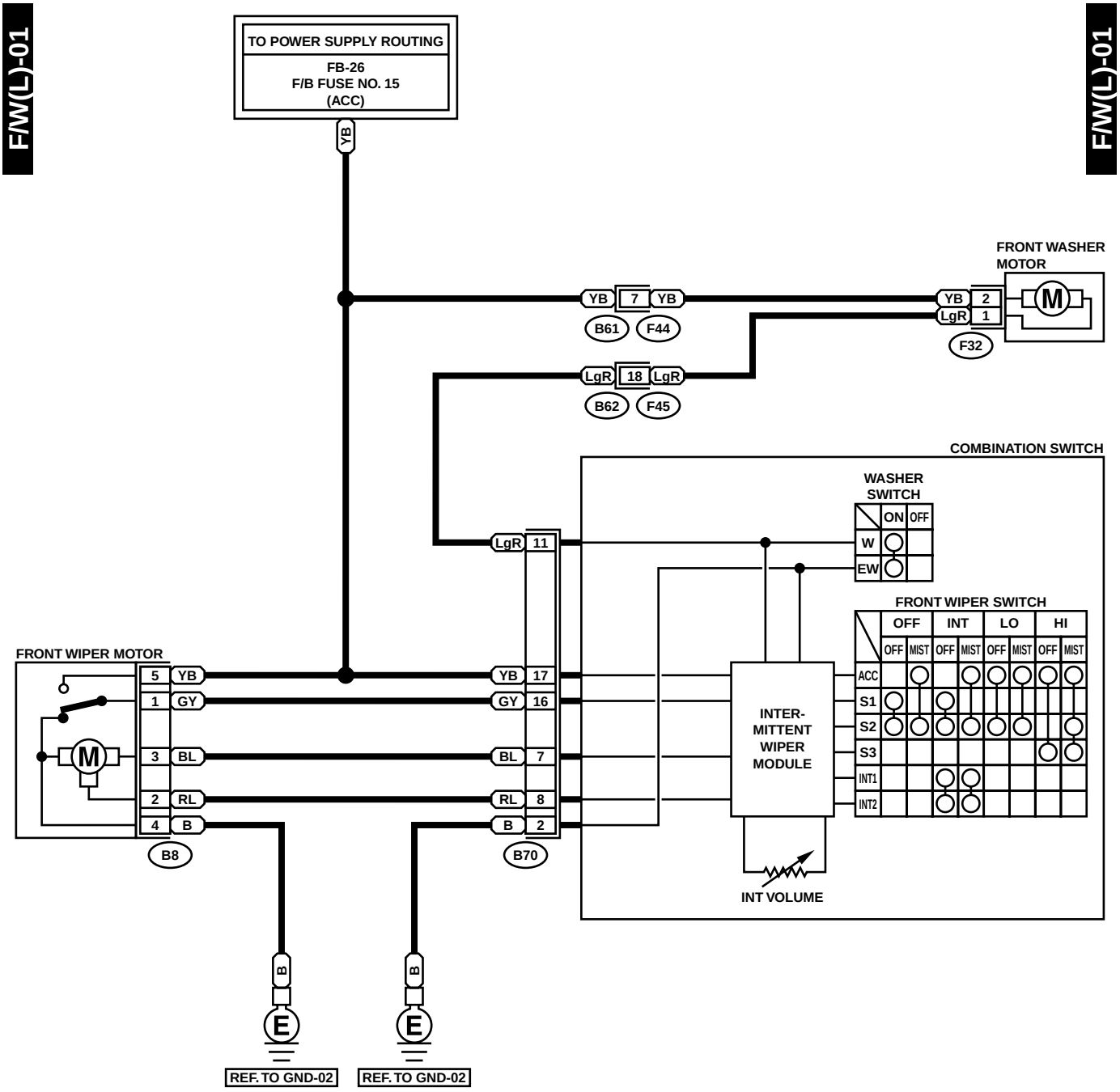
After reconnecting, confirm that each function operates normally.

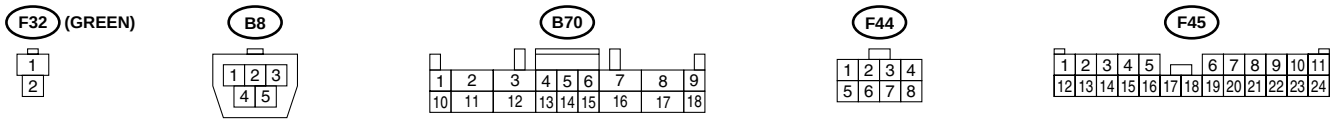
- Be careful that wire harnesses of airbag system pass near electrical parts and switches.
- Wire harnesses and connectors of all airbag system are yellow color. Do not use a tester on these circuits.
- Care must be taken when installing the piping hose so that no bending, jamming, etc. are caused.
- 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.

# 2. Wiper and Washer System

## A: SCHEMATIC

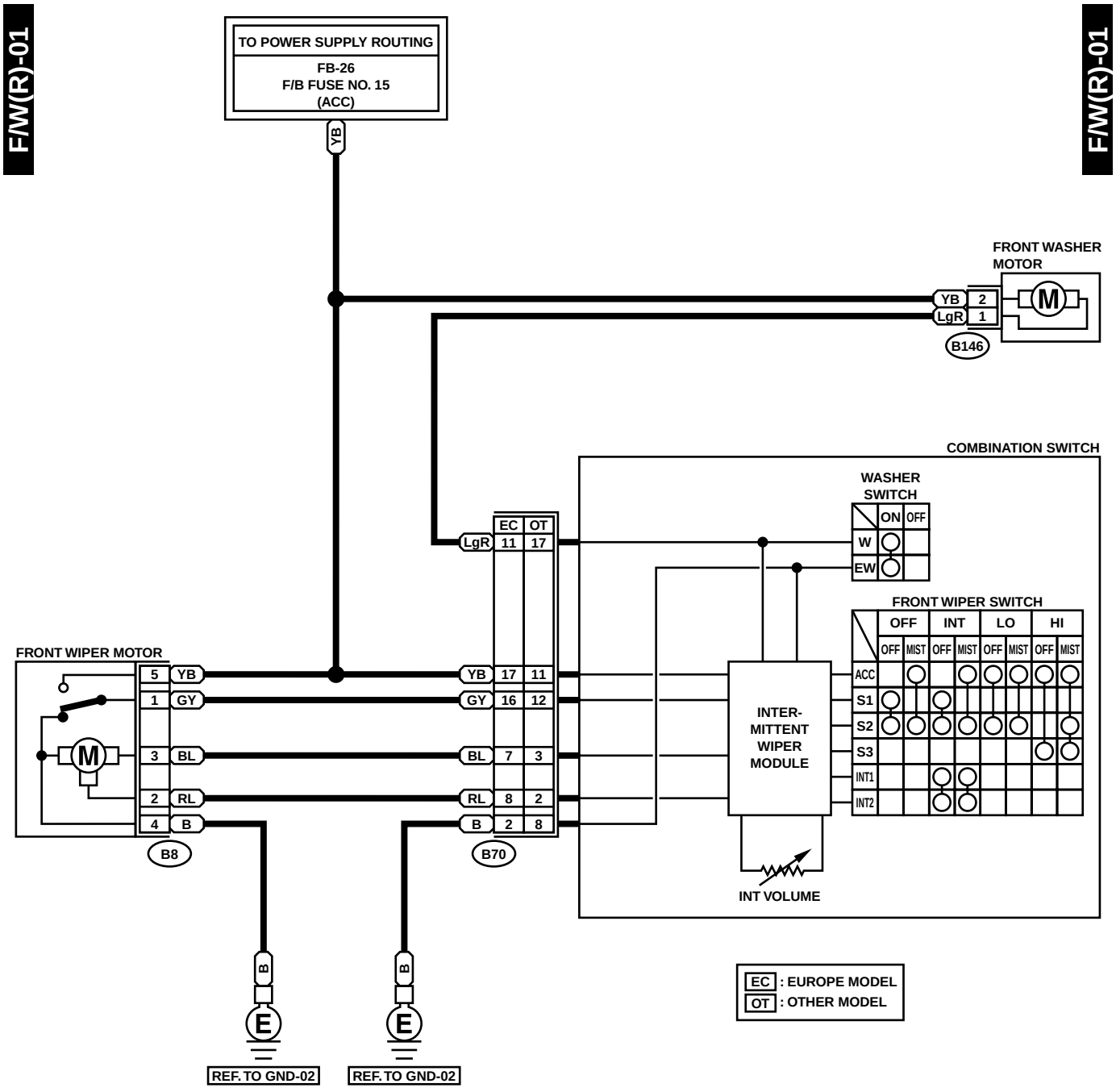
## 1. WIPER AND WASHER (FRONT) LHD MODEL




GL50-20

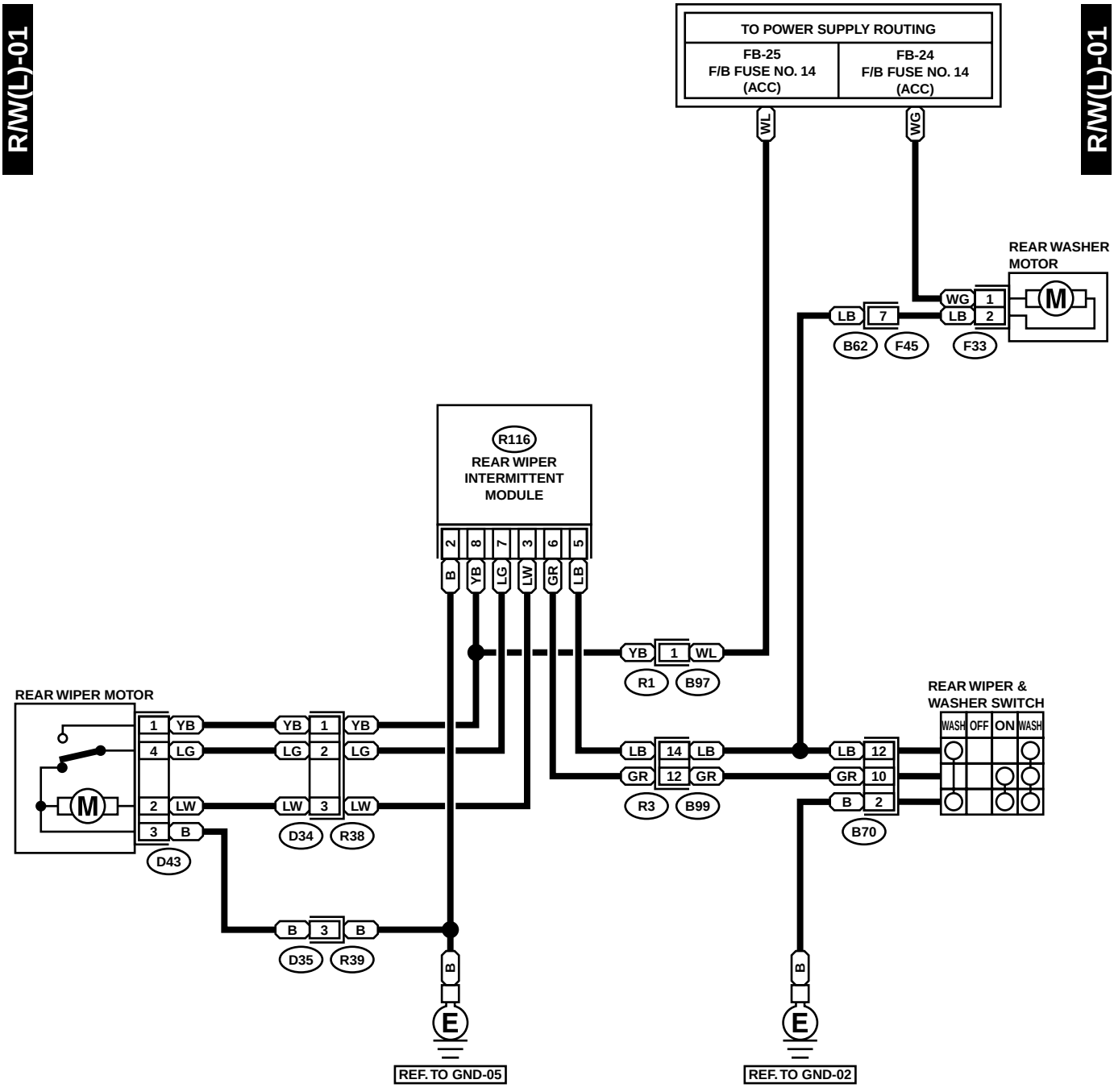
## 2. WIPER AND WASHER (FRONT) RHD MODEL

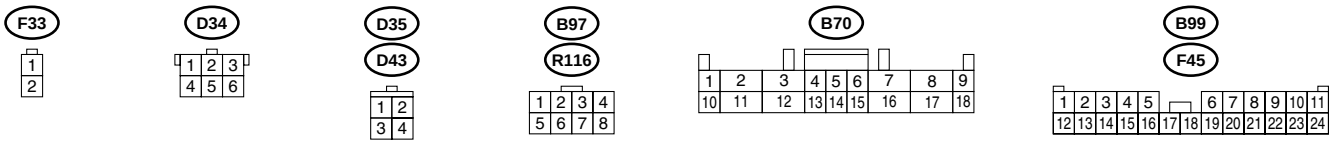




GR50-20

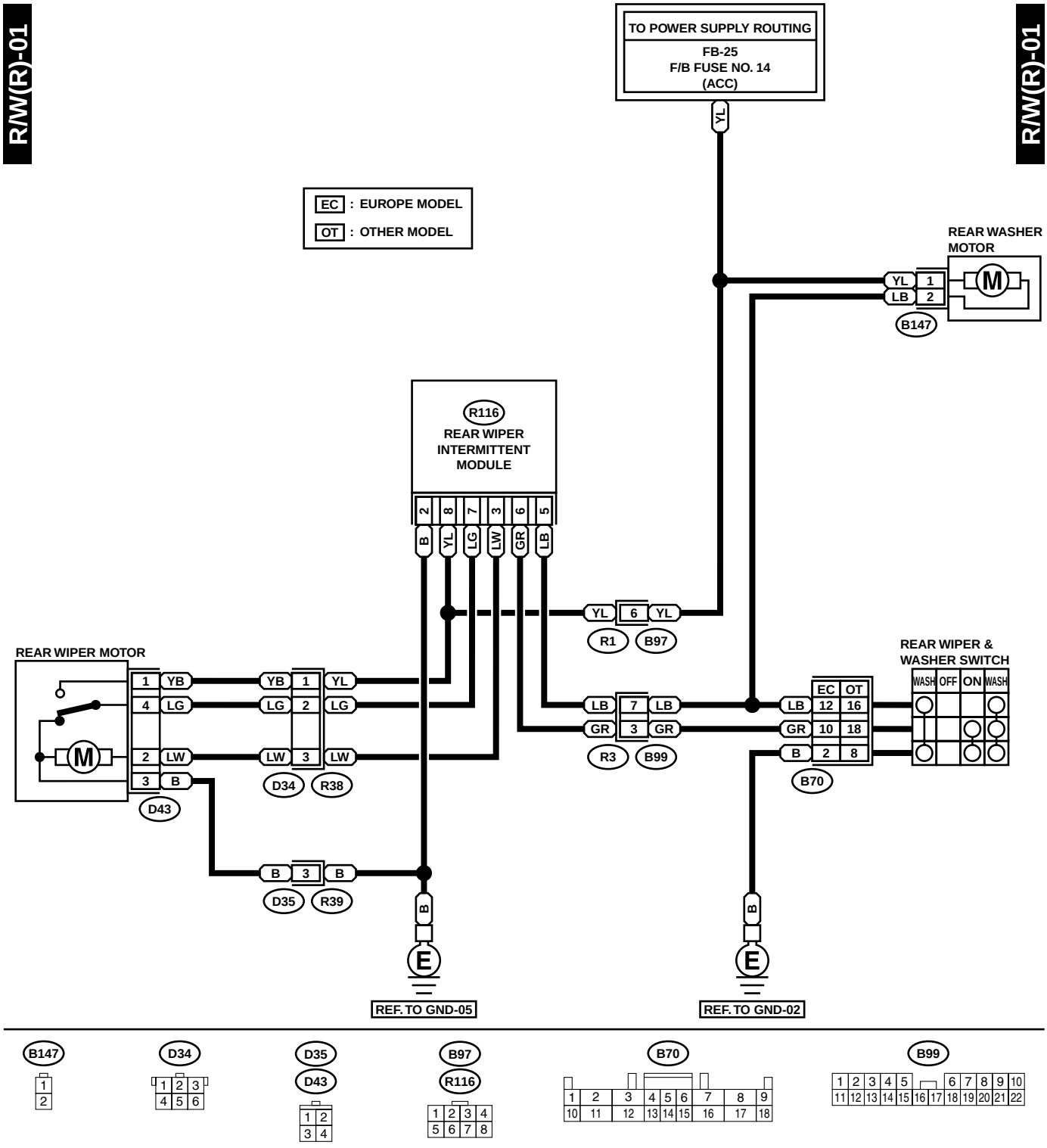
## 3. WIPER AND WASHER (REAR) LHD MODEL




GL51-20

## 4. WIPER AND WASHER (REAR) RHD MODEL




GR51-20

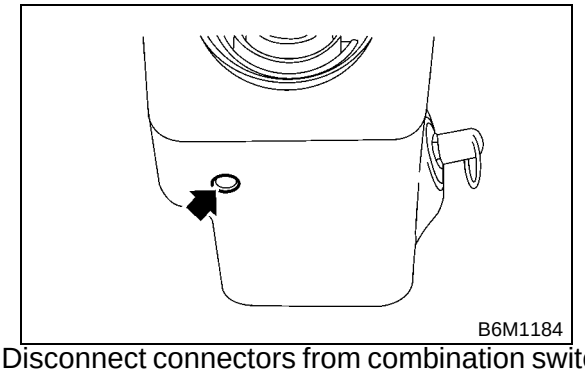
## B: INSPECTION

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

# 3. Combination Switch (Wiper)

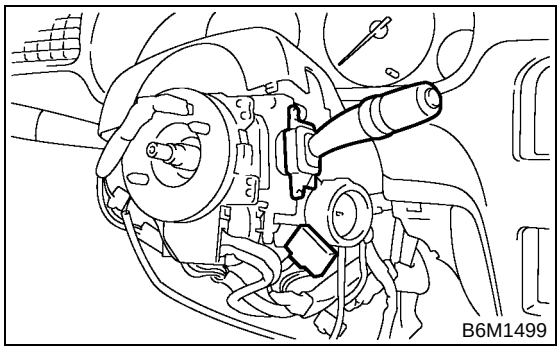
## A: REMOVAL

1) Loosen screw to remove a steering column cover.




2) Disconnect connectors from combination switches.

3) Loosen screw to remove combination switch.

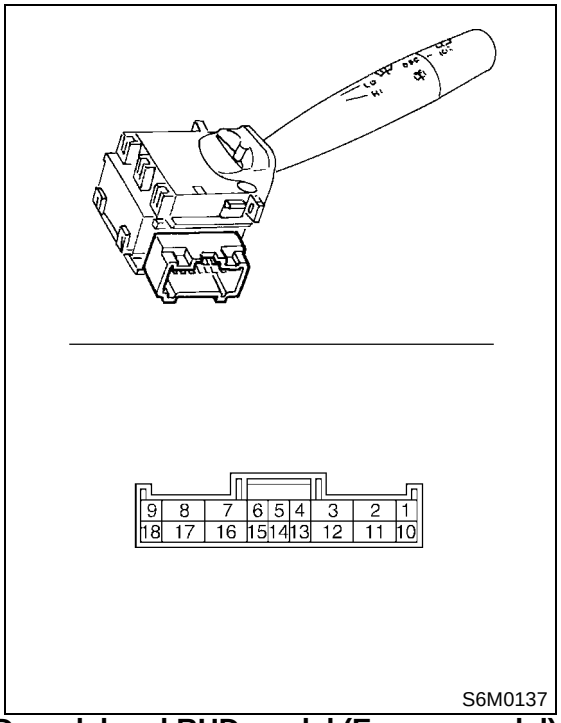



## B: INSTALLATION

Install in the reverse order of removal.

## C: INSPECTION

• Inspect the continuity between each connector terminal.




**LHD model and RHD model (Europe model):**

| | Switch position | Test connection | Specified condition |
|---|---|---|---|
| FRONT | OFF | 7 — 16 | Continuity |
| | INT | 7 — 16 | Continuity |
| | LO | 7 — 17 | Continuity |
| | HI | 8 — 17 | Continuity |
| | Washer ON | 2 — 11 | Continuity |
| REAR | Washer ON | 2 — 10 — 12 | Continuity |
| | OFF | — | No continuity |
| | ON | 2 — 10 | Continuity |
| | Washer ON | 2 — 10 — 12 | Continuity |

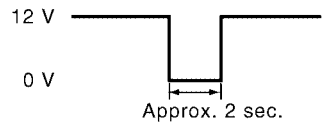
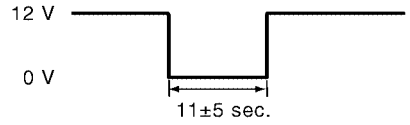
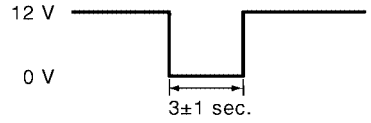
If continuity is not as specified, replace the switch.

**RHD model (Except Europe model):**

| | Switch position | Test connection | Specified condition |
|---|---|---|---|
| FRONT | OFF | 3 — 12 | Continuity |
| | INT | 3 — 12 | Continuity |
| | LO | 3 — 11 | Continuity |
| | HI | 2 — 11 | Continuity |
| | Washer ON | 8 — 17 | Continuity |
| REAR | Washer ON | 8 — 16 — 18 | Continuity |
| | OFF | — | No continuity |
| | ON | 8 — 18 | Continuity |
| | Washer ON | 8 — 16 — 18 | Continuity |

If continuity is not as specified, replace the switch.

• Intermittent operation inspection
1) Turn the wiper switch to INT.
2) Adjust the intermittent control switch to MAX.
3) Apply battery voltage to switch terminals 16 and 2, and inspect the voltage of terminals 7 and 2. (Measure the voltage from after the second time the wiper stops.)

| Switch position | Voltage |
|---|---|
| MIN. |  |
| MAX. |  |
| Non variable type |  |



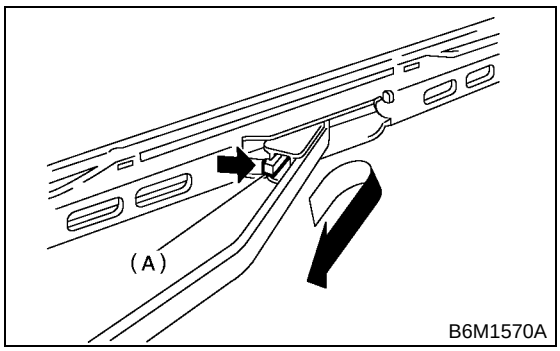
B6M1465A

If operation is not as specified, replace the switch.

# 4. Wiper Blade

## A: REMOVAL

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



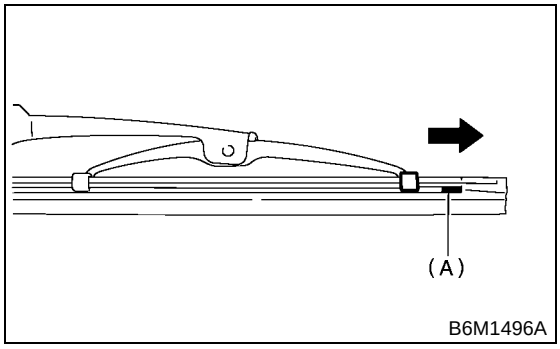

## B: INSTALLATION

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

## C: DISASSEMBLY

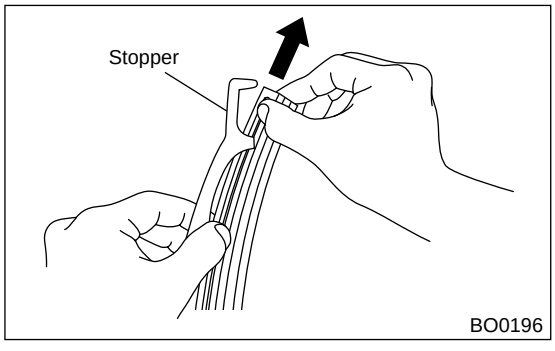
### 1. METAL TYPE

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




### 2. RESIN TYPE

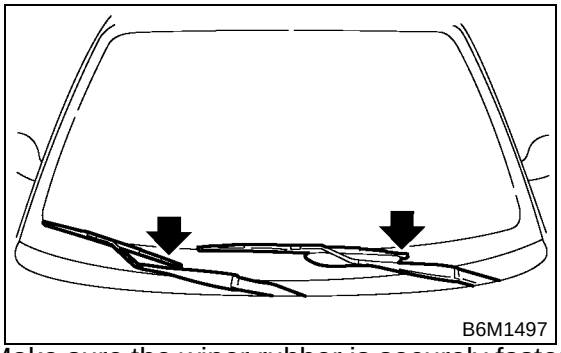
Pull the wiper rubber top slightly from the stopper and pull out fully.



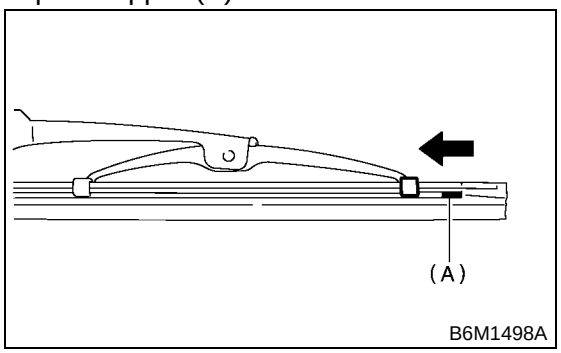

## D: ASSEMBLY

### 1. METAL TYPE

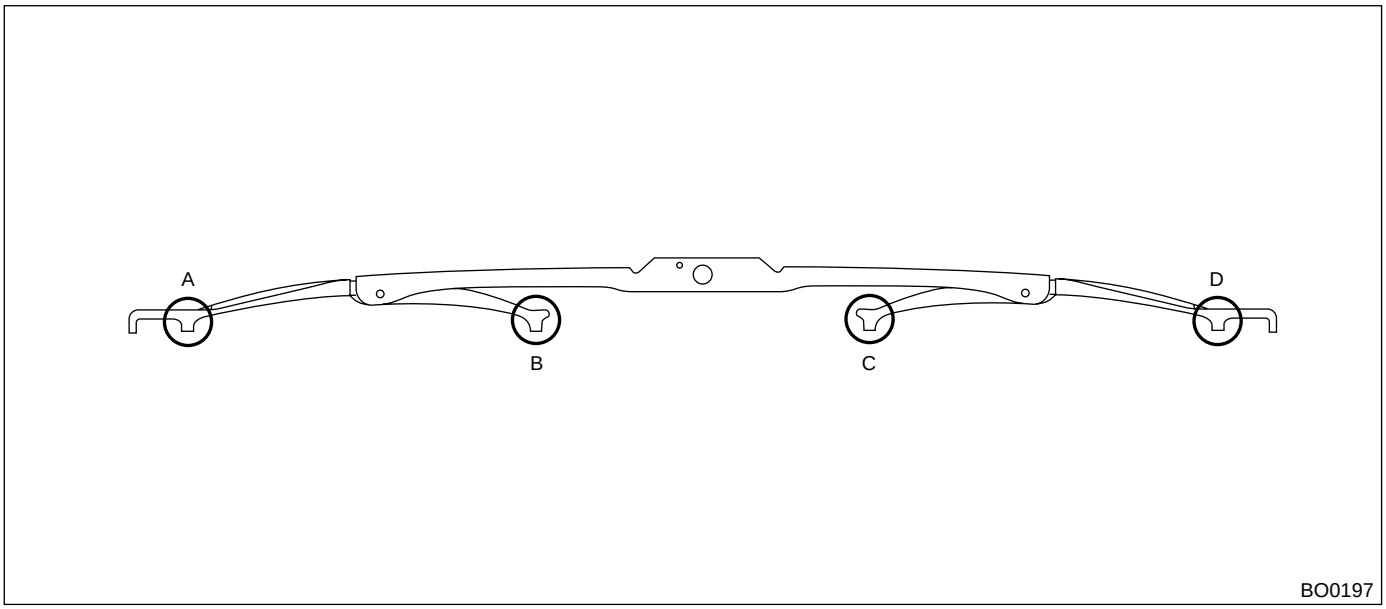
1) Insert the wiper rubber onto the blade so that the stopper is in the position shown.



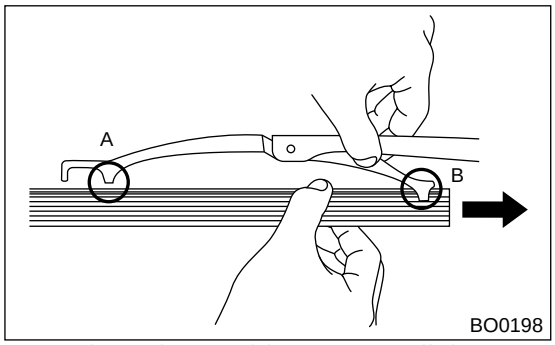

2) Make sure the wiper rubber is securely fastened to the pull stopper (A).



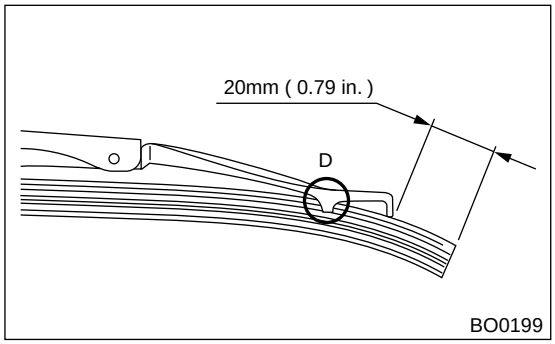
## 2. RESIN TYPE



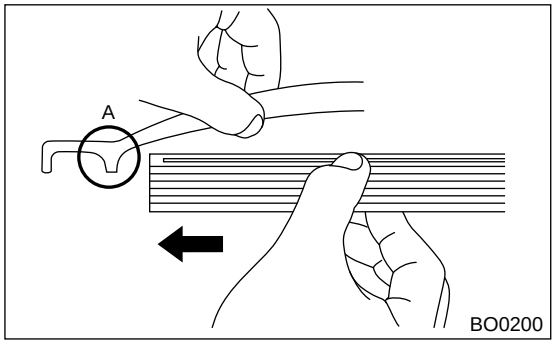

1) Insert the wiper rubber through the claw (B).




2) Insert the wiper rubber top until it protrudes about 20mm (0.79 in) from the stopper (D).




3) Insert the wiper rubber into the claw (A).




## E: INSPECTION

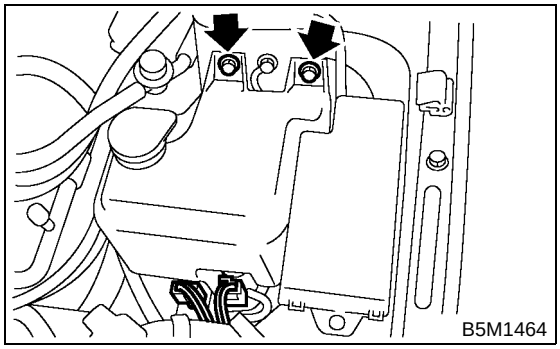
1) When the wiper does not perform well, inspect the following:
- Make sure the movable part of the blade assembly moves smoothly.
- Make sure the wiper rubber is not deformed or damaged.

2) Replace with a new part if damage is found.

# 5. Washer Tank and Motor

## A: REMOVAL

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

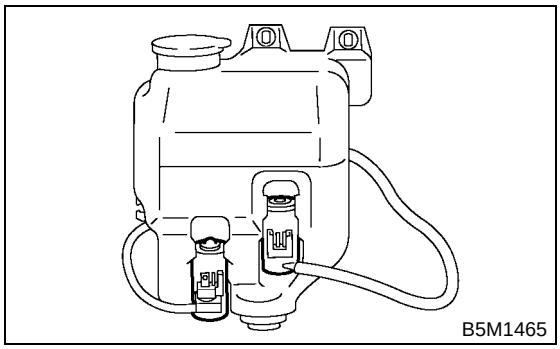



## B: INSTALLATION

Install in the reverse order of removal.

## C: DISASSEMBLY

Pull out washer motor from tank.

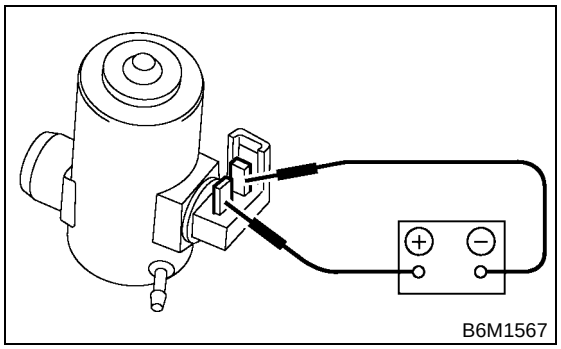



## D: ASSEMBLY

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.

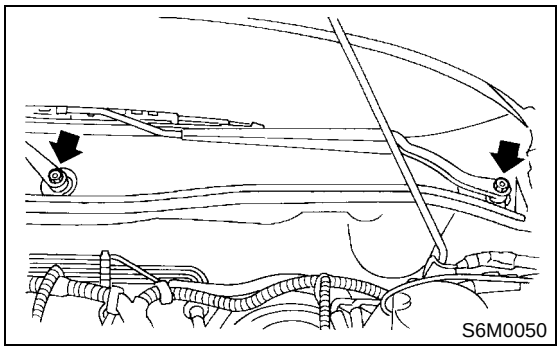


# 6. Front Wiper Arm

## A: REMOVAL

NOTE:
The positions for RHD model are symmetrically opposite.

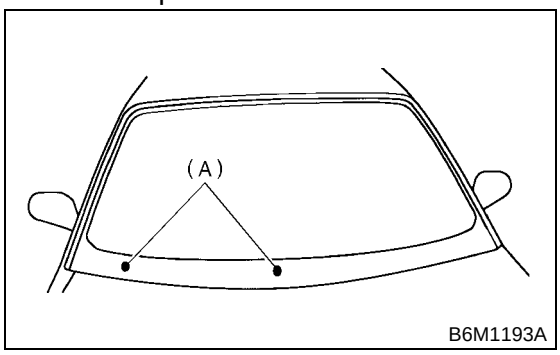
1) Open hood.
2) Remove cap.
3) Loosen nut to remove arm.




## B: INSTALLATION

NOTE:
The positions for RHD model are symmetrically opposite.

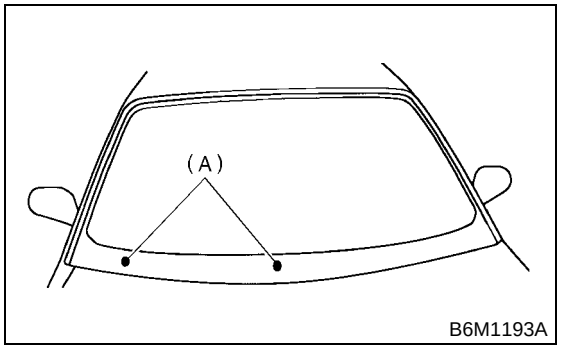
1) Install in the reverse order of removal.
2) Operate wiper once.
3) Align wiper blade to ceramic print point mark (A) of front window pane.




## C: ADJUSTMENT

NOTE:
The positions for RHD model are symmetrically opposite.

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

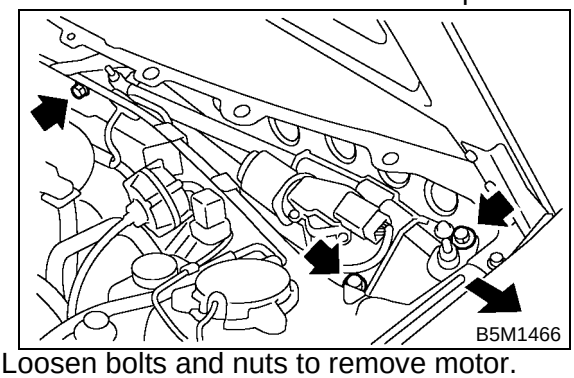


# 7. Front Wiper Motor and Link

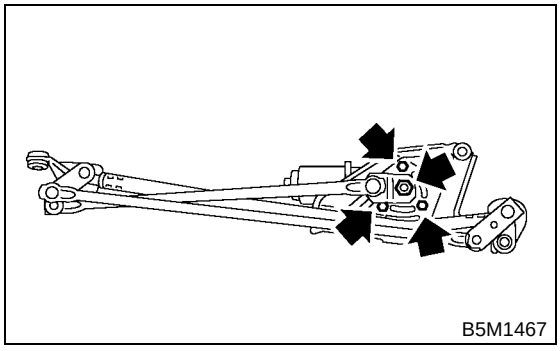
## A: REMOVAL

NOTE:
The positions for RHD model are symmetrically opposite.

1) Remove cowl panel. <Ref. to EI-17, REMOVAL, Cowl Panel.>
2) Disconnect connector of motor.
3) Loosen bolts and nuts to remove wiper link.

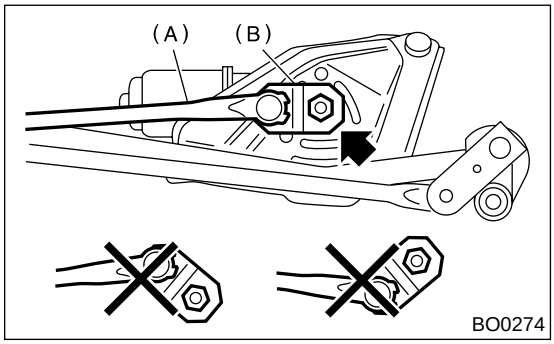



4) Loosen bolts and nuts to remove motor.




## B: INSTALLATION

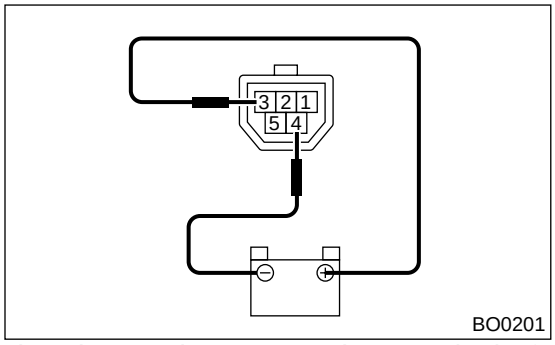
1) Tighten the nut where rod (A) and link plate (B) is aligned in straight line.



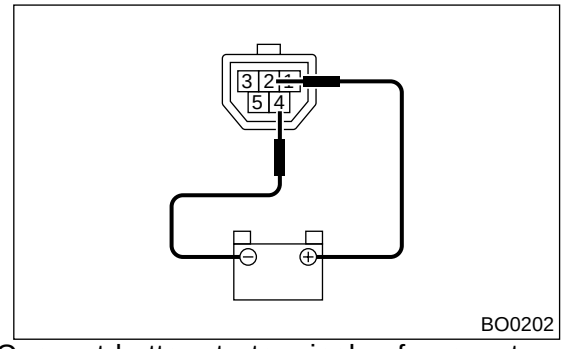

2) Install in the reverse order of removal.

## C: INSPECTION

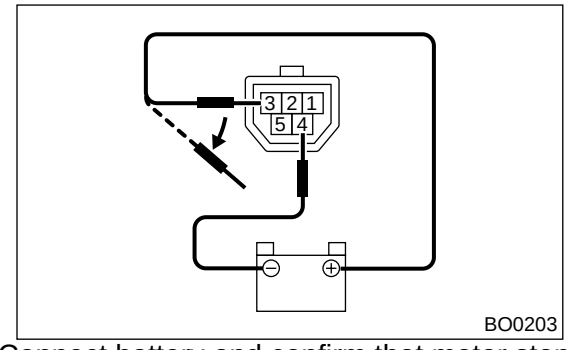
1) When battery is connected to terminal of connectors, confirm that motor operates at low speed.



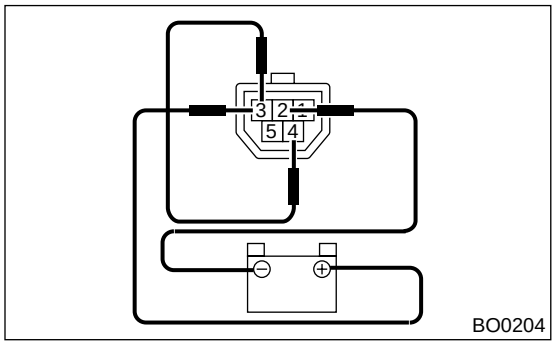

2) When battery is connected to terminal of connectors, confirm that motor operates at high speed.




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

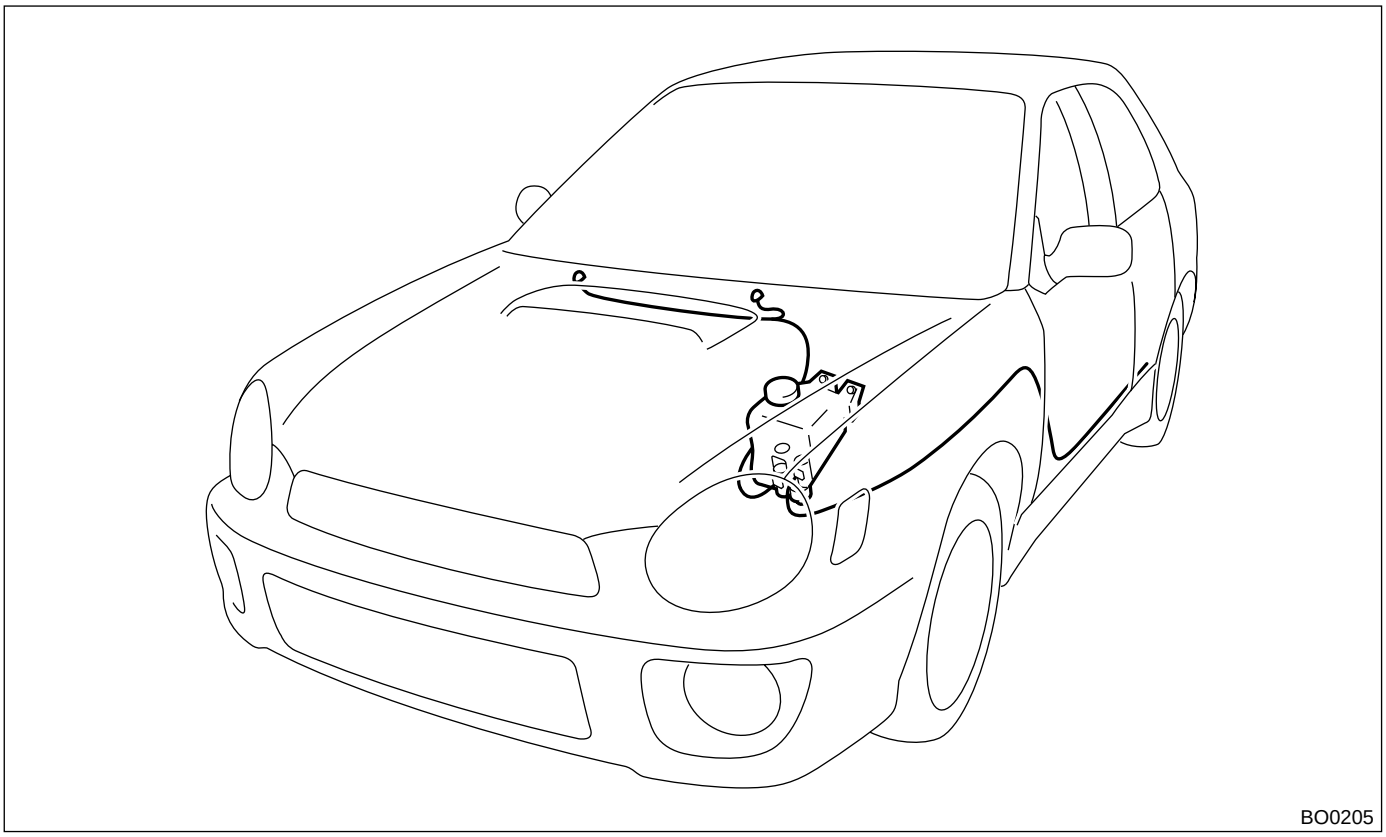



4) Connect battery and confirm that motor stops at automatic stop position after motor operates at low speed again.



# 8. Front Washer

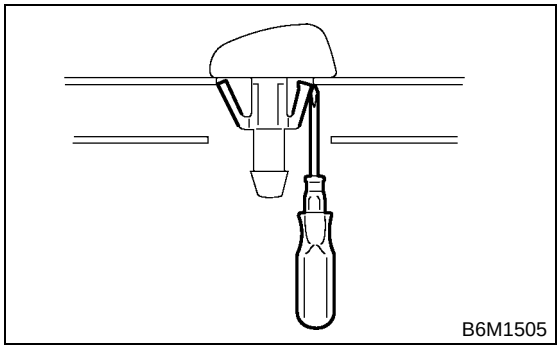
## A: LOCATION




## B: REMOVAL

### 1. NOZZLE

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




## C: INSTALLATION

### 1. NOZZLE

1) Install in the reverse order of removal.
2) Adjust the position of the washer liquid sprayer. <Ref. to WW-19, ADJUSTMENT, Front Washer.>

## D: INSPECTION

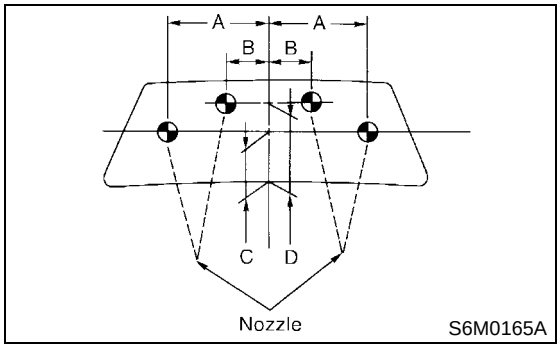
- Make sure the nozzle and hose are not clogged.
- Make sure the hose is not bent.

## E: ADJUSTMENT

NOTE:
Adjustment positions for left-handed vehicle. Carry out left-right symmetry for adjustment positions for right-handed vehicle.

1) Turn wiper switch to OFF position.
2) When vehicle stops, adjust washer injection position as shown in the figure.

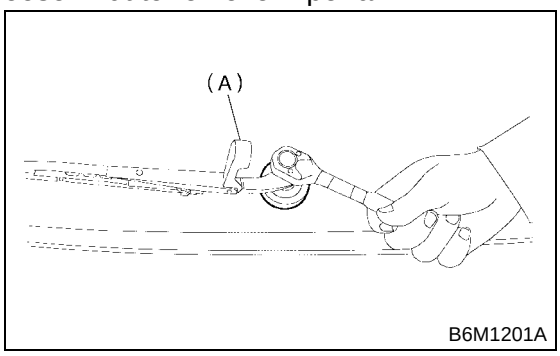
***Injection position:***
***A: 350 mm (13.78 in)***
***B: 162 mm (6.38 in)***
***C: 300 mm (11.81 in)***
***D: 500 mm (19.69 in)***



# 9. Rear Wiper Arm

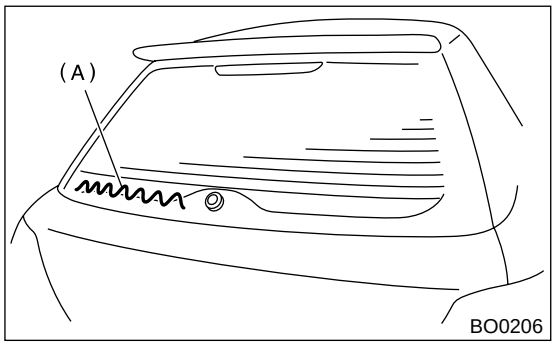
## A: REMOVAL

1) Raise wiper arm cover (A).
2) Loosen nut to remove wiper arm.



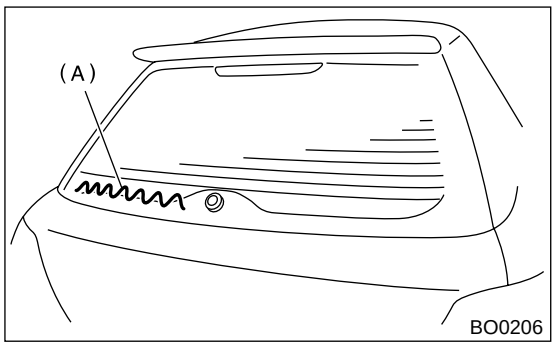

## B: INSTALLATION

1) Install in the reverse order of removal.
2) Operate rear wiper once.
3) Align blade to rear defogger heat wire (A).




## C: ADJUSTMENT

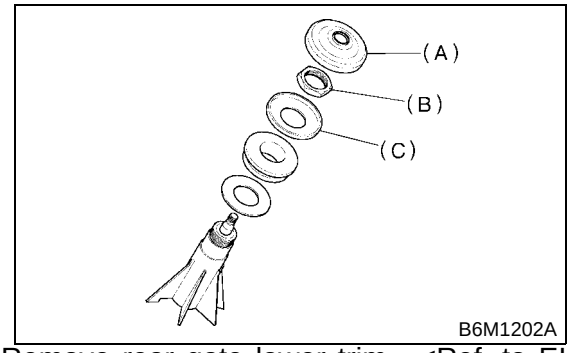
1) Operate rear wiper once.
2) Align blade to rear defogger heat wire (A).



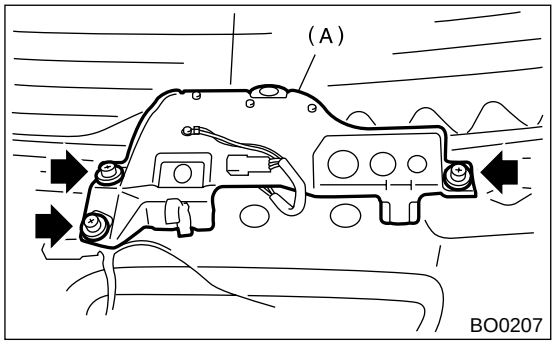
# 10.Rear Wiper Motor

## A: REMOVAL

1) Remove rear wiper arm.
2) Remove cap (A), nut (B), and spacer (C) from rear wiper shaft.

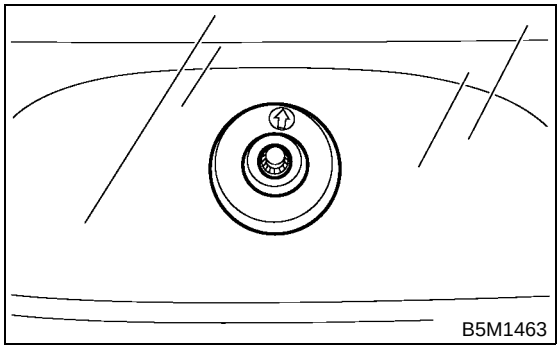



3) Remove rear gate lower trim. <Ref. to EI-34, REMOVAL, Rear Gate Trim.>
4) Unclip clip of harness and disconnect connector of wiper motor.
5) Loosen bolts to remove wiper motor assembly (A).



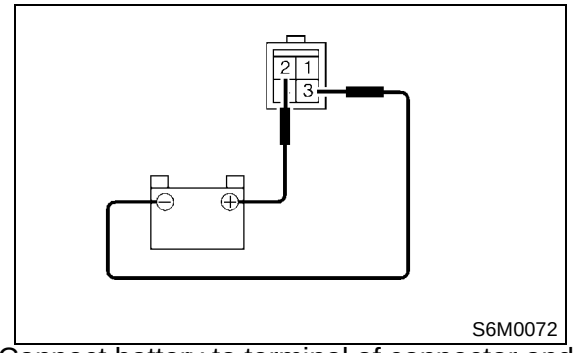

## B: INSTALLATION

1) Install in the reverse order of removal.
2) Install rear wiper cushion with the arrow mark facing up, as shown in the figure.

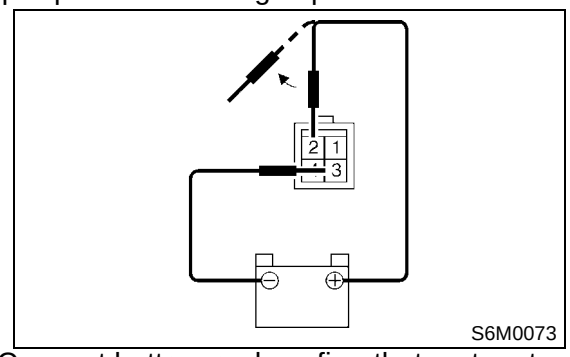



## C: INSPECTION

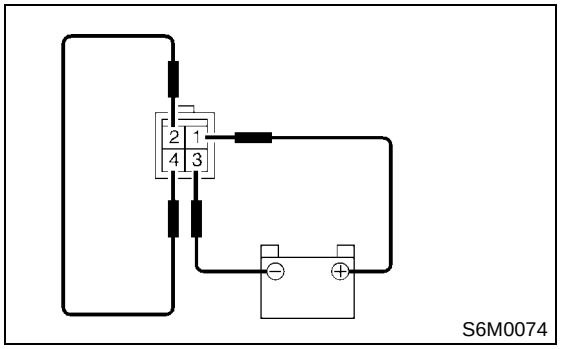
1) Connect battery to wiper motor connector and confirm that wiper motor operates.




2) Connect battery to terminal of connector and remove terminal connections with motor rotated, and stop wiper motor through operation.

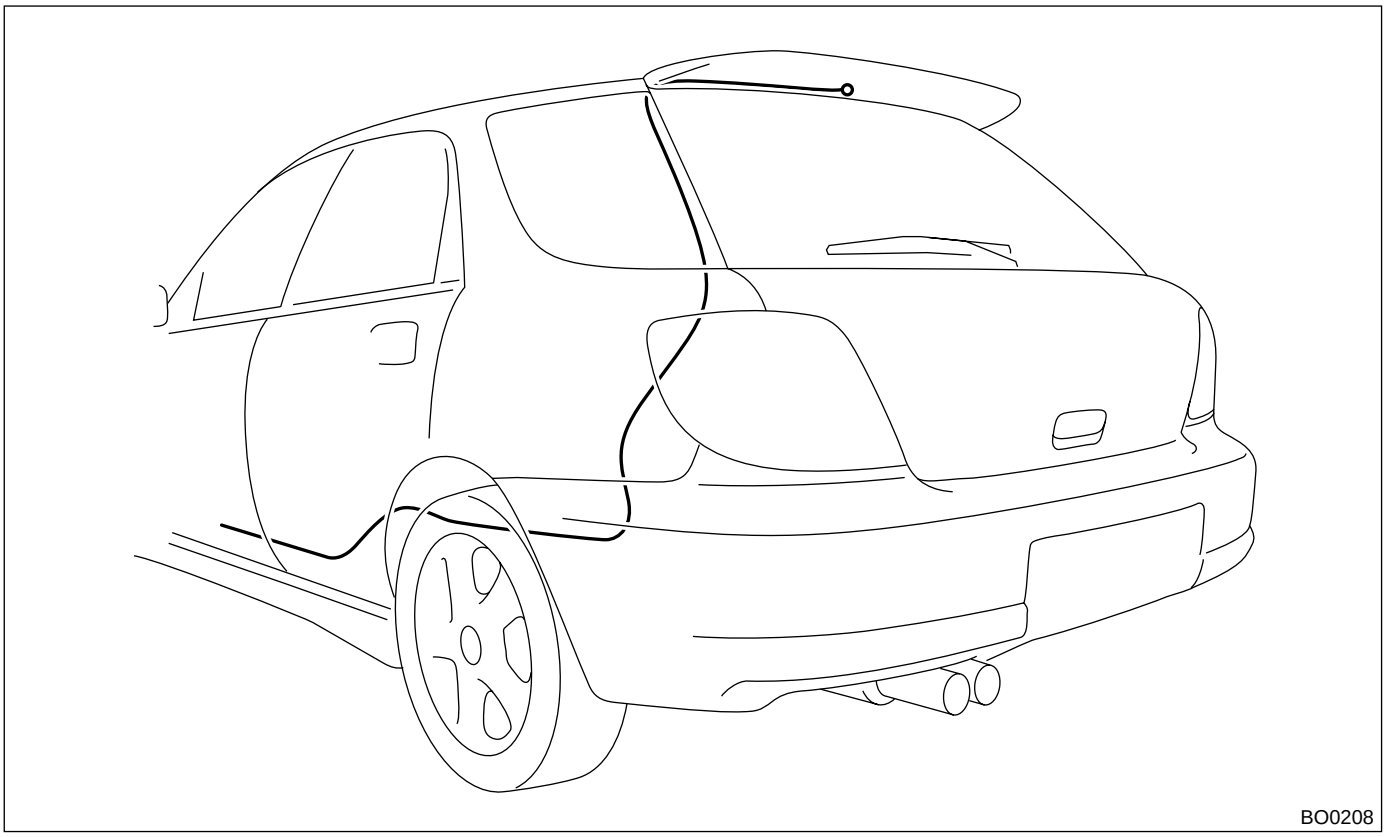



3) Connect battery and confirm that motor stops at automatic stop position after motor operates at low speed again.



# 11.Rear Washer

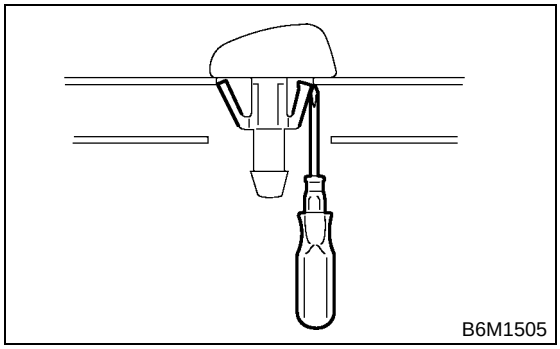
## A: LOCATION




## B: REMOVAL

### 1. NOZZLE

1) Remove the high-mount stop light. <Ref. to LI-54, REMOVAL, High-mounted Stop Light.>
2) Remove the washer hose from the washer nozzle.
3) Open the clips on the underside of the hood with a thin screwdriver or other tool, and remove the washer nozzle.




## C: INSTALLATION

### 1. NOZZLE

1) Install in the reverse order of removal.
2) Adjust the position of the washer liquid sprayer. <Ref. to WW-23, ADJUSTMENT, Rear Washer.>

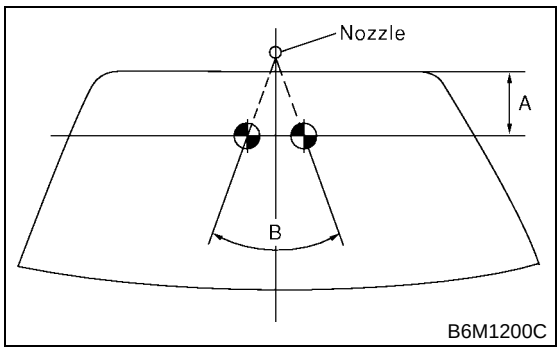
## D: INSPECTION

- Make sure the nozzle and hose are not clogged.
- Make sure the hose is not bent.

## E: ADJUSTMENT

1) Turn wiper switch to OFF position.
2) When vehicle stops, adjust washer injection position as shown in the figure.

***Injection position:***
***A: 39 mm (1.54 in)***
***B: 72°***

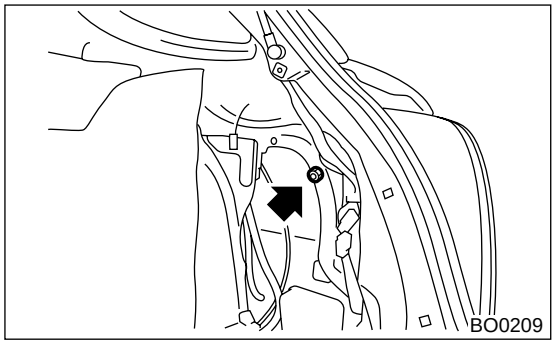


# 12.Wiper Control Relay

## A: REMOVAL

### 1. WAGON

1) Remove right quarter lower trim. <Ref. to EI-30, REMOVAL, Rear Quarter Trim.>
2) Loosen nut to remove control unit.




## B: INSTALLATION

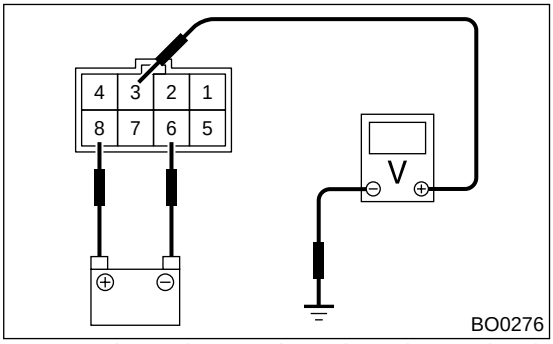
### 1. WAGON

Install in the reverse order of removal.

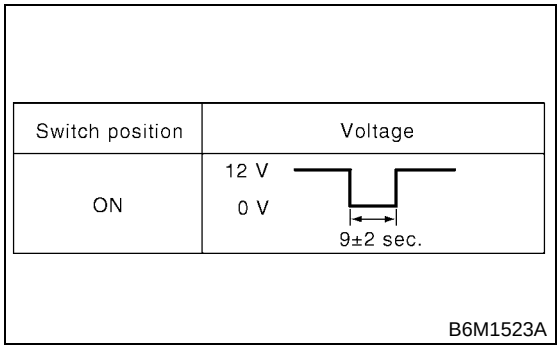
## C: INSPECTION

### 1. WAGON

1) Disconnect the connector from the wiper control relay.
2) Connect the positive (+) lead from the battery to terminal 8 and the negative (–) lead to terminal 6. Connect the positive (+) lead from the voltmeter to terminal 3 and negative lead to ground.




3) Measure the voltage when the wiper relay is operated.




If operation is not as specified, replace the switch.