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

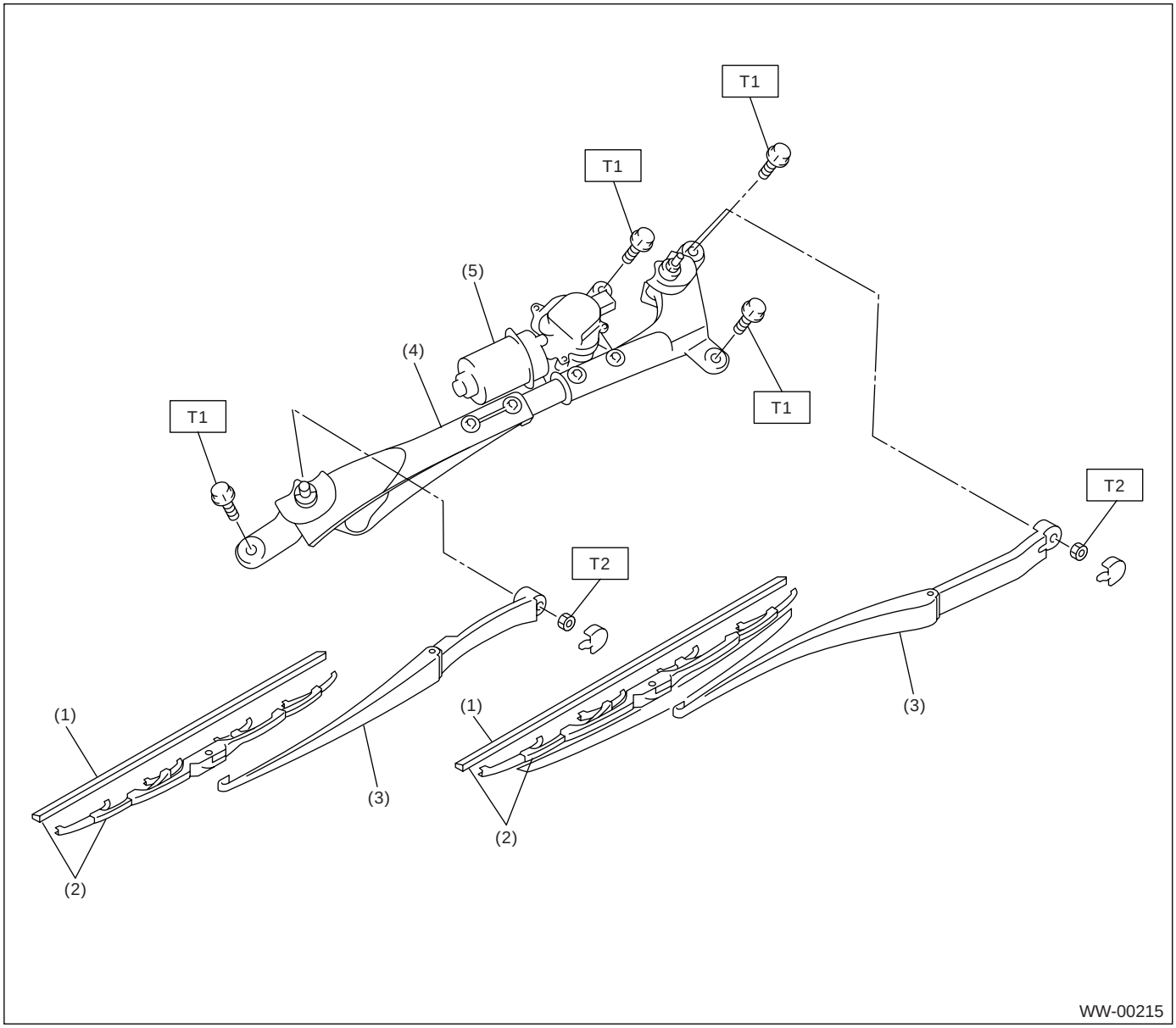
A: SPECIFICATION

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

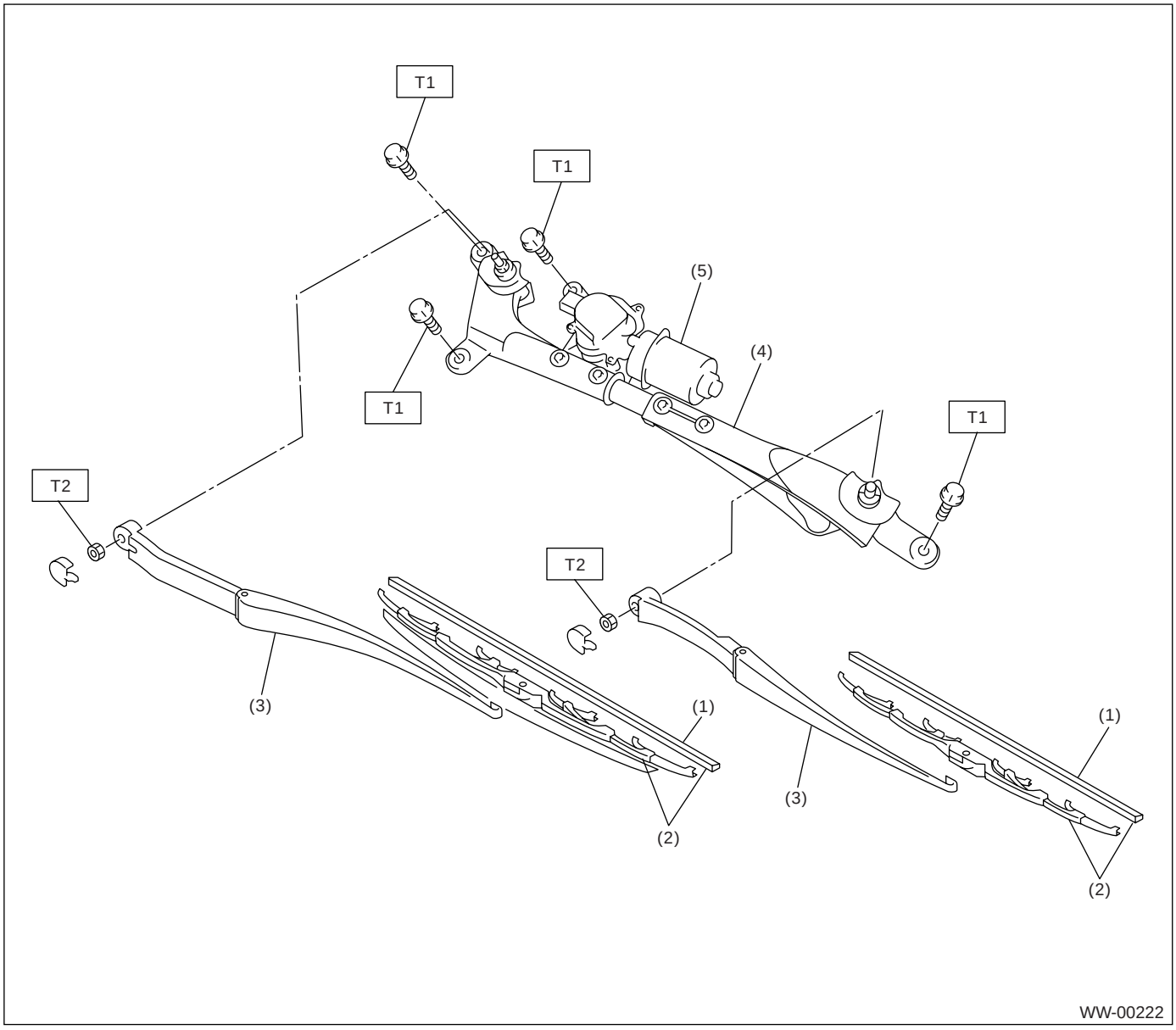
- LHD model



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

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

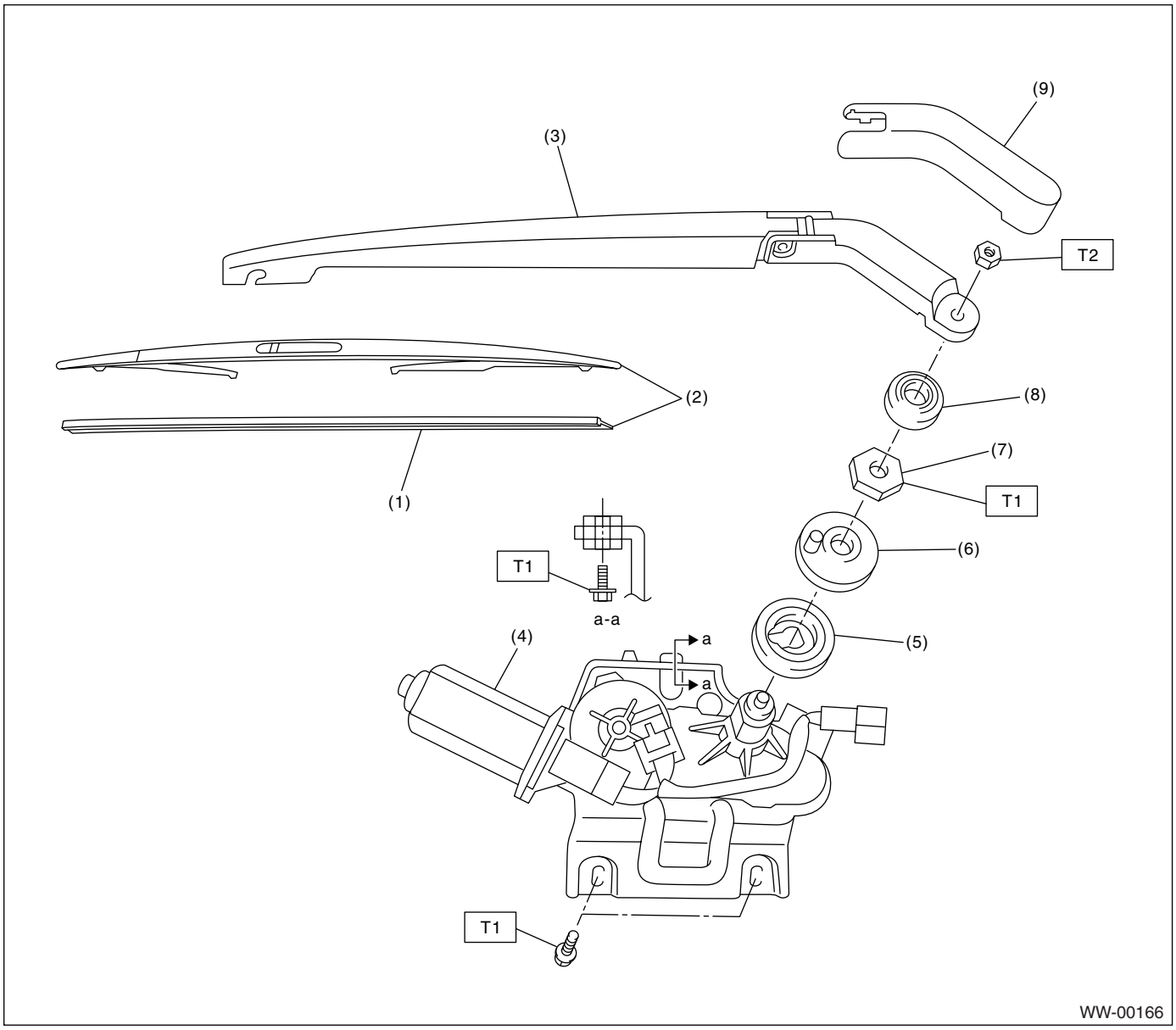
- RHD model



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

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

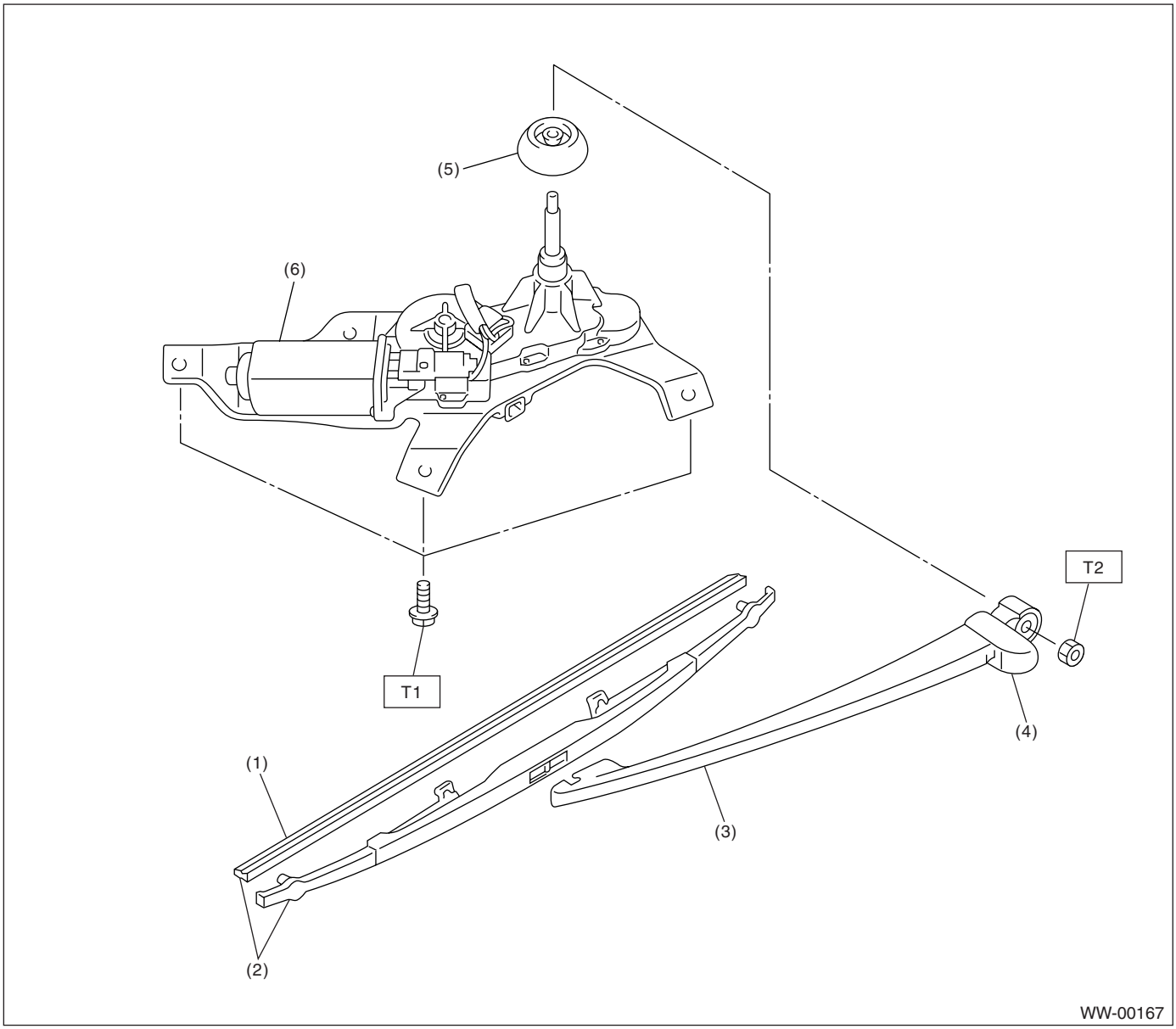
2. REAR WIPER (SEDAN MODEL)



(1) Wiper rubber
(2) Wiper blade ASSY
(3) Wiper arm
(4) Wiper motor ASSY
(5) Cushion
(6) Nozzle & hose ASSY
(7) Nut
(8) Cap
(9) Wiper arm cover

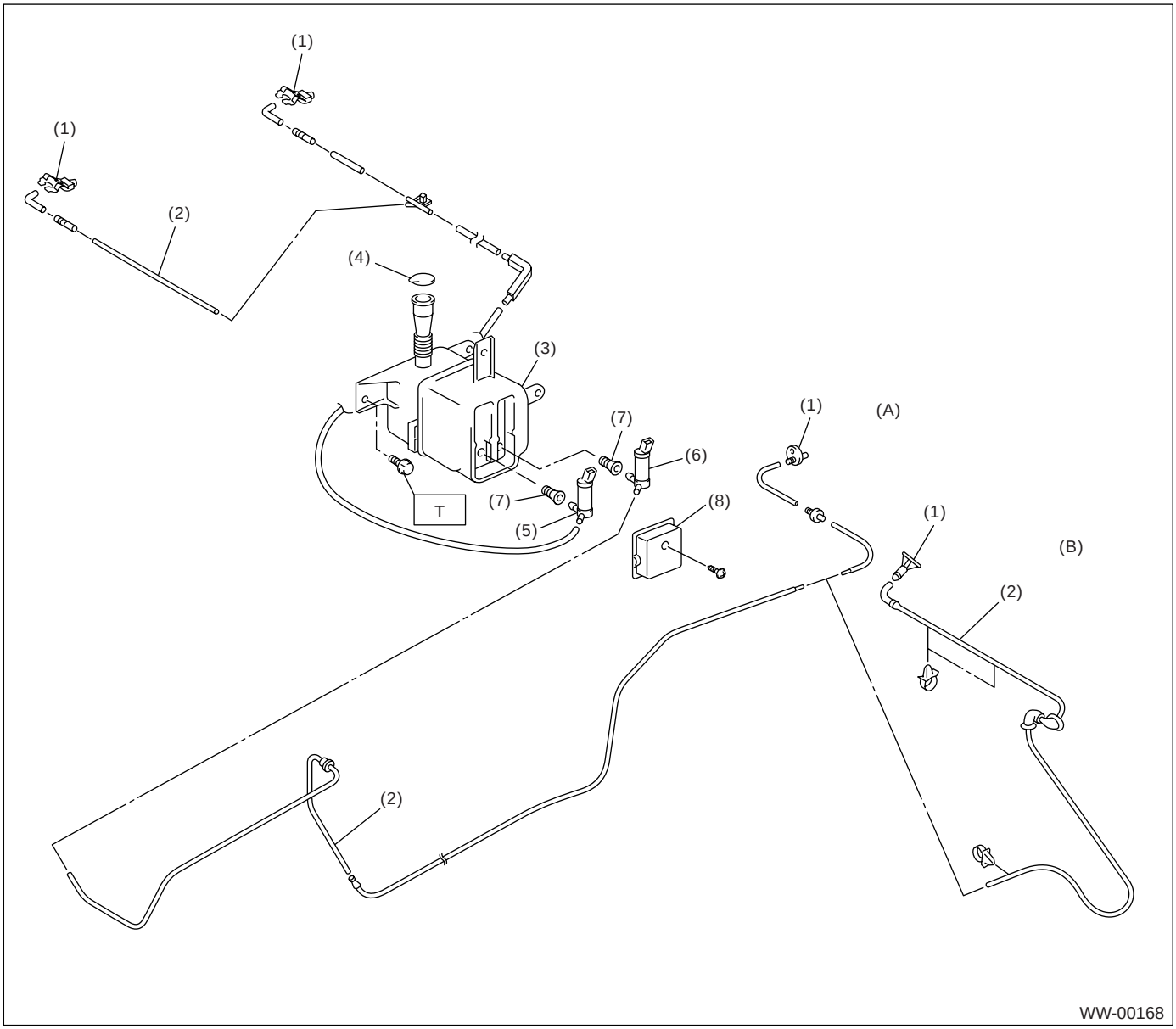
Tightening torque: N·m (kgf-m, ft-lb)
T1: 7.5 (0.76, 5.5)
T2: 8.0 (0.82, 5.9)

3. REAR WIPER (WAGON MODEL)



(1)	Wiper rubber	(4)	Wiper arm cover	***Tightening torque: N·m (kgf-m, ft-lb)***
(2)	Wiper blade ASSY	(5)	Cap	***T1: 7.5 (0.77, 6.0)***
(3)	Wiper arm	(6)	Wiper motor ASSY	***T2: 8.0 (0.82, 5.9)***

4. WASHER TANK



(A)	Sedan model	(B)	Wagon model
(1)	Washer nozzle	(5)	Front washer motor
(2)	Washer hose	(6)	Rear washer motor
(3)	Washer tank	(7)	Grommet
(4)	Washer tank cap	(8)	Washer motor cover

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

C: CAUTION

- Connect the connectors and hoses securely during reassembly.
- After reassembly, make sure functional parts operate smoothly.
- Be careful that wiring harnesses of airbag system pass near electrical parts and switches.
- Wiring harnesses and connectors of all airbag system are yellow color. Do not use a tester equipment on these circuits.
- Care must be taken when connecting 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 is easily formed on the glass, causing the wiper to chatter and judder, therefore, be careful not to let this happen.

2. Wiper and Washer System

A: WIRING DIAGRAM

1. WIPER AND WASHER (FRONT) LHD MODEL

<Ref. to WI-324, LHD MODEL, WIRING DIAGRAM, Front Wiper and Washer System.>

2. WIPER AND WASHER (FRONT) RHD MODEL

<Ref. to WI-325, RHD MODEL, WIRING DIAGRAM, Front Wiper and Washer System.>

3. WIPER AND WASHER (REAR) LHD MODEL

<Ref. to WI-326, LHD MODEL, WIRING DIAGRAM, Rear Wiper and Washer System.>

4. WIPER AND WASHER (REAR) RHD MODEL

<Ref. to WI-327, RHD MODEL, WIRING DIAGRAM, Rear Wiper and Washer System.>

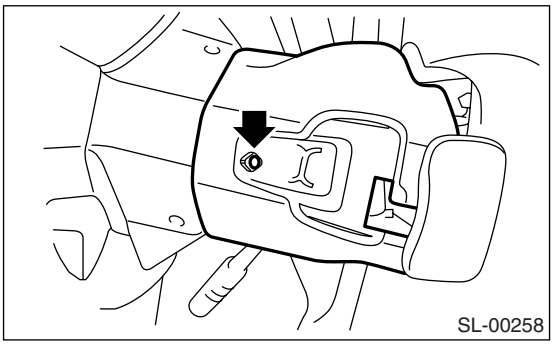
B: INSPECTION

Symptom	Repair order
Wiper and washers do not operate.	(1) Wiper fuse (Front: F/B No. 30, Rear: F/B No. 23) (2) Combination switch (3) Wiper motor ASSY (4) Wiring harness (5) Body integrated unit (rear wiper only)
Wipers do not operate in LO or HI.	(1) Combination switch (2) Wiper motor ASSY (3) Wiring harness
Wipers do not operate in INT.	(1) Combination switch (2) Wiper motor ASSY (3) Wiring harness (4) Body integrated unit (rear wiper only)
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 operate properly.	(1) Washer motor (2) Washer hose and nozzle

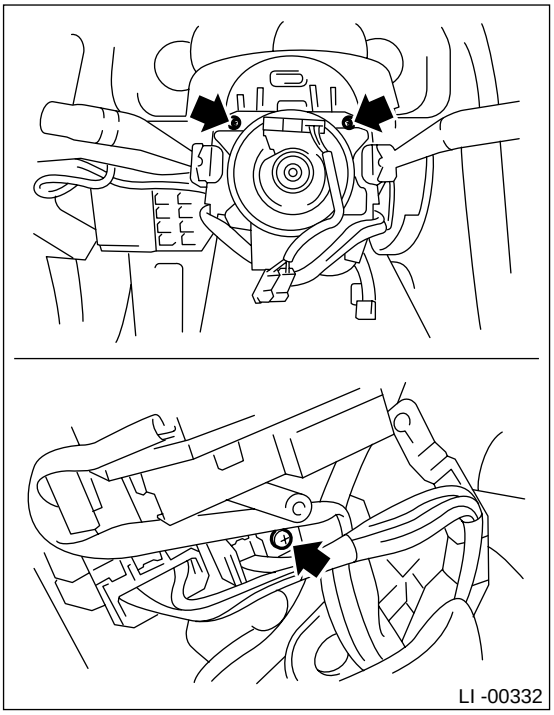
3. Combination Switch (Wiper)

A: REMOVAL

1) Disconnect the ground cable from battery.
2) Remove the instrument panel lower cover. <Ref. to EI-50, REMOVAL, Instrument Panel Lower Cover.>
3) Remove the screw to remove steering column cover (upper and lower).



4) Disconnect the connector from combination switch.
5) Remove the three screws, and pull out the combination base switch assembly toward you. (EC, EK, KS and K4 model)



6) Remove the switch securing screw to remove combination switch.

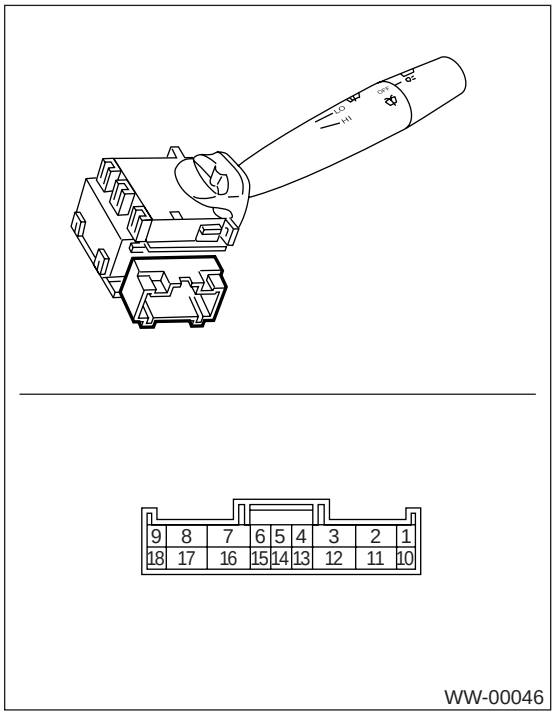
B: INSTALLATION

Install in the reverse order of removal.

C: INSPECTION

1. COMBINATION SWITCH

1) Inspect the continuity between each connector terminal.



- EC, EK, KS and K4 model

	Switch position	Terminal No.	Standard
Front	OFF	7 and 16	Less than 1 Ω
	INT	7 and 16	Less than 1 Ω
	LO	7 and 17	Less than 1 Ω
	HI	8 and 17	Less than 1 Ω
	Washer ON	2 and 11	Less than 1 Ω
Rear	Washer ON	2 and 11 12 and 10 2 and 10	Less than 1 Ω
	OFF	—	More than 1 MΩ
	INT	2 and 13	Less than 1 Ω
	ON	2 and 10	Less than 1 Ω
	Washer ON	2 and 12 12 and 10 2 and 10	Less than 1 Ω

• KA model

	Switch position	Terminal No.	Standard
Front	OFF	3 and 12	Less than 1 Ω
	INT	3 and 12	Less than 1 Ω
	LO	3 and 11	Less than 1 Ω
	HI	2 and 11	Less than 1 Ω
	Washer ON	8 and 17	Less than 1 Ω
Rear	Washer ON	8 and 16 16 and 18 8 and 18	Less than 1 Ω
	OFF	—	More than 1 MΩ
	INT	8 and 15	Less than 1 Ω
	ON	8 and 18	Less than 1 Ω
	Washer ON	8 and 16 16 and 18 8 and 18	Less than 1 Ω

2) If continuity is not as specified, replace the switch.

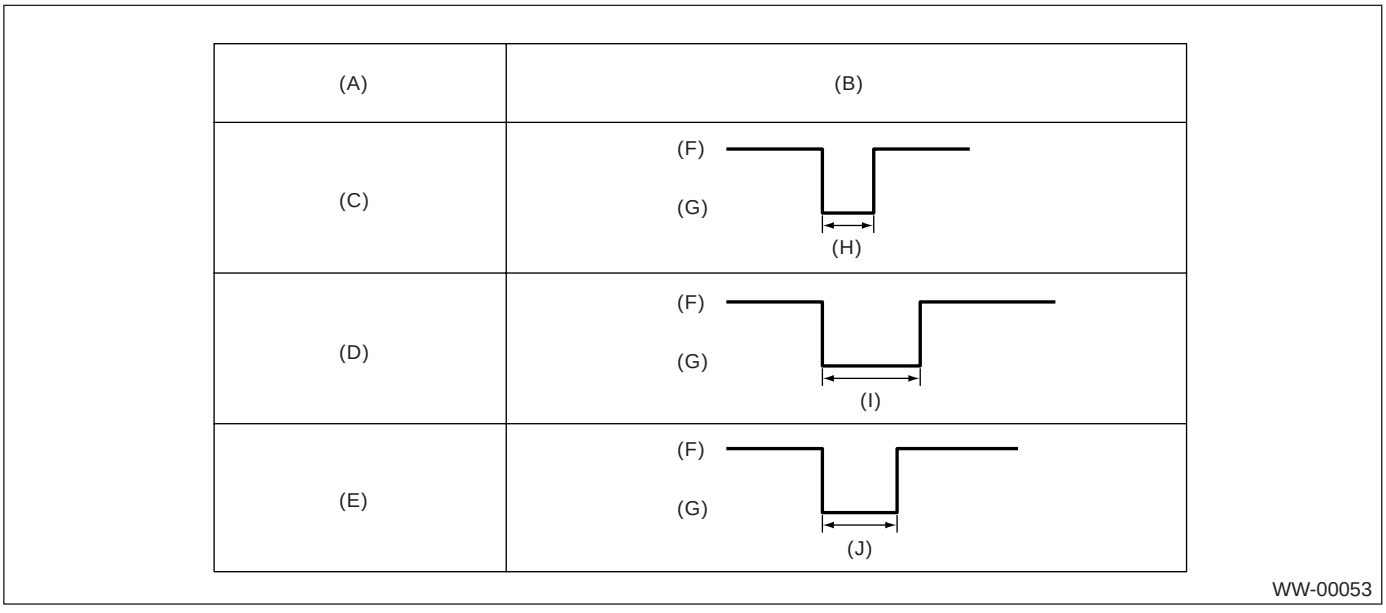
2. FRONT WIPER

1) Check with Subaru Select Monitor

Step		Check	Yes	No
1	**CHECK INPUT SIGNAL TO BODY INTEGRATED UNIT.** When the front wiper switch is operated, check the input signal using Subaru Select Monitor. 1) Connect the Subaru Select Monitor to data link connector. 2) Turn the ignition switch to ON. 3) Select {Body Integrated Unit} from the main menu. 4) Select {Current Data Display & Save}. 5) When the front wiper switch is set to LO or HI, check the input signal.	Is the input signal normal?	End.	Replace the body integrated unit. <Ref. to SL-46, Body Integrated Unit.>

2) Intermittent operation inspection
   (1) Turn the wiper switch to INT.
   (2) Adjust the intermittent control switch to MAX.
   (3) Apply the battery voltage to switch terminal No. 16 and 2 (EC, EK, KS and K4 model) or terminal No. 12 and 8 (KA model).
   (4) Measure the voltage between combination switch terminals.

Terminals
No. 7 — No. 2: EC, EK, KS and K4 model
No. 3 — No. 8: KA model



(A) Switch position
(B) Voltage
(C) MIN.
(D) MAX.
(E) Non-intermittent type
(F) 12 V
(G) 0 V
(H) Approx. 2 sec.
(I) 16±6 sec.
(J) 3±1 sec.

3) If operation is not as specified, replace the switch.

3. REAR WIPER

1) Check with Subaru Select Monitor

	Step	Check	Yes	No
1	**CHECK INPUT OF REAR WIPER.** Check the input from body integrated unit using Subaru Select Monitor. 1) Connect the Subaru Select Monitor to data link connector. 2) Turn the ignition switch to ON. 3) Select {Body Integrated Unit} from the main menu. 4) Select {Current Data Display & Save}. 5) Check the input of rear wiper switch.	Is the input normal?	Go to step **2.**	Check the rear wiper switch. <Ref. to WW-8, INSPECTION, Combination Switch (Wiper).>
2	**CHECK OUTPUT OF BODY INTEGRATED UNIT.** When the rear wiper switch is operated, check the output using Subaru Select Monitor. 1) Turn the ignition switch to ON. 2) Operate the rear wiper switch to set to each position of ON and INT. 3) At this time, check the output of body integrated unit.	When it is set to ON, is ON output continuously? When it is set to INT, is ON/OFF output repeatedly? (INT OFF time (when vehicle parked): 3 seconds for Sedan, 12 seconds for Wagon)	Check the rear wiper motor. <Ref. to WW-23, INSPECTION, Rear Wiper Motor.>	Replace the body integrated unit. <Ref. to SL-46, Body Integrated Unit.>

2) Rear wiper motor circuit check

	Step	Check	Yes	No
1	**CHECK POWER SUPPLY CIRCUIT OF REAR WIPER MOTOR.** 1) Disconnect the harness connector of rear wiper motor. 2) Turn the ignition switch to ACC. 3) Measure the voltage between the rear wiper motor harness connector terminal and chassis ground. ***Connector & terminal*** ***Sedan model*** ***(R132) No. 1 (+) — Chassis ground (−):*** ***Wagon model*** ***(D43) No. 1 (+) — Chassis ground (−):***	Is the voltage more than 10 V?	Go to step **2.**	• Check the fuse (No. 23 in fuse & relay box). • Check the fusible link (No. 7 in main fuse box).
2	**CHECK GROUND CIRCUIT OF REAR WIPER MOTOR.** 1) Turn the ignition switch to OFF. 2) Measure the resistance between the rear wiper motor harness connector terminal and chassis ground. ***Connector & terminal*** ***Sedan model*** ***(R132) No. 3 — Chassis ground:*** ***Wagon model*** ***(D43) No. 3 — Chassis ground:***	Is the resistance less than 10 Ω?	Go to step **3.**	Repair the open circuit of rear wiper motor ground cable.

Step		Check	Yes	No
3	**CHECK HARNESS BETWEEN BODY INTEGRATED UNIT AND REAR WIPER MOTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the harness connector of body integrated unit. 3) Disconnect the harness connector of rear wiper motor. 4) Measure the resistance between the harness connector terminals of body integrated unit and rear wiper motor. ***Connector & terminal*** ***Sedan model*** ***(B280) No. 1 — (R132) No. 2:*** ***(B280) No. 8 — (R132) No. 4:*** ***Wagon model*** ***(B280) No. 1 — (D43) No. 2:*** ***(B280) No. 8 — (D43) No. 4:***	Is the resistance less than 10 Ω?	Go to step **4.**	Repair the open circuit of harness between body integrated unit and rear wiper motor.
4	**CHECK OPERATION OF REAR WIPER MOTOR.** 1) Remove the rear wiper motor. 2) Check the rear wiper motor. <Ref. to WW-23, INSPECTION, Rear Wiper Motor.>	Does the rear wiper motor rotate normally?	End.	Replace the rear wiper motor.

NOTE:
Rear wiper intermittent time (AT model only)

Select lever position (AT model only)	Vehicle speed (km/h (MPH))	Intermittent stopping time (sec.)	
		Sedan	Wagon
Rev	—	Continuous operation	
Except for reverse mode	80 — (50 —)	12	3
	50 — 80 (31 — 50)	9	6
	20 — 50 (12 — 31)	6	9
	0 — 20 (0 — 12)	3	12

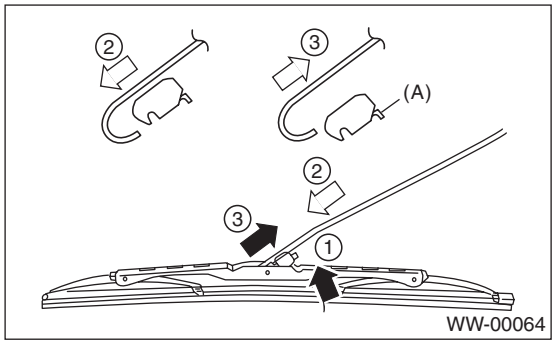
4. Wiper Blade

A: REMOVAL

CAUTION:
When replacing wiper blades or etc., be sure to stand up the driver side wiper arm first, then passenger side wiper arm next. Also, when putting the wiper arms back, be sure to start with passenger side first, then driver side next. Doing this in the reverse order may result in damage of passenger side wiper arm by hitting with driver side wiper blade.

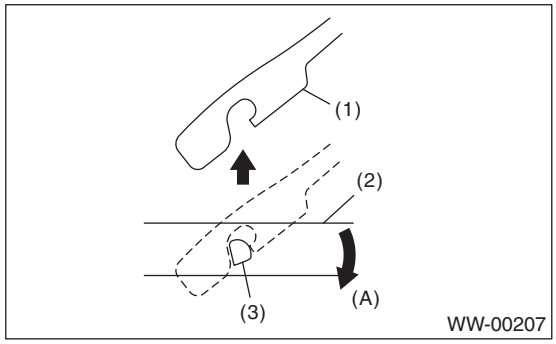
1. FRONT

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



2. REAR

Turn the blade in the direction of arrow (A) and remove it from arm.



(A) Turn the wiper blade.
(1) Wiper arm
(2) Wiper blade
(3) Installing part of wiper blade

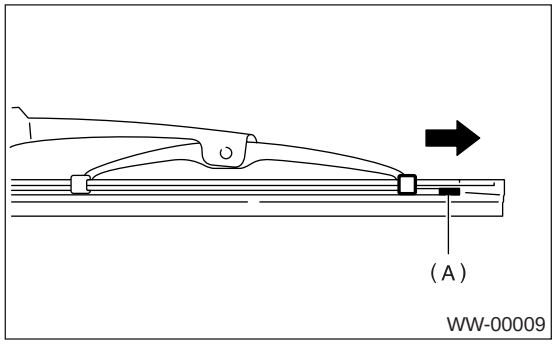
B: INSTALLATION

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

C: DISASSEMBLY

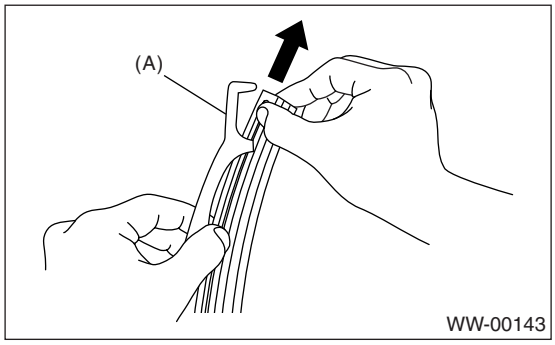
1. METAL TYPE

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



2. RESIN TYPE

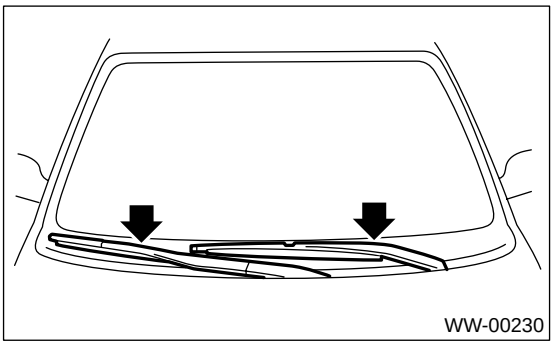
Pull the wiper rubber top slightly from the stopper (A) and pull out fully.



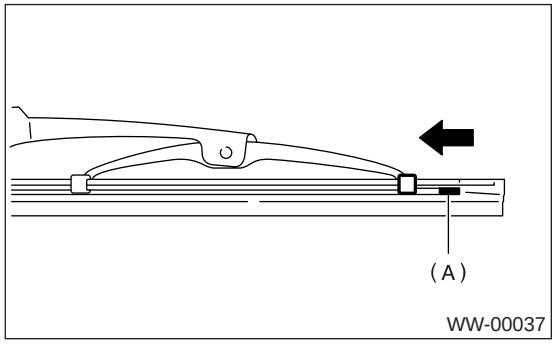
D: ASSEMBLY

1. METAL TYPE

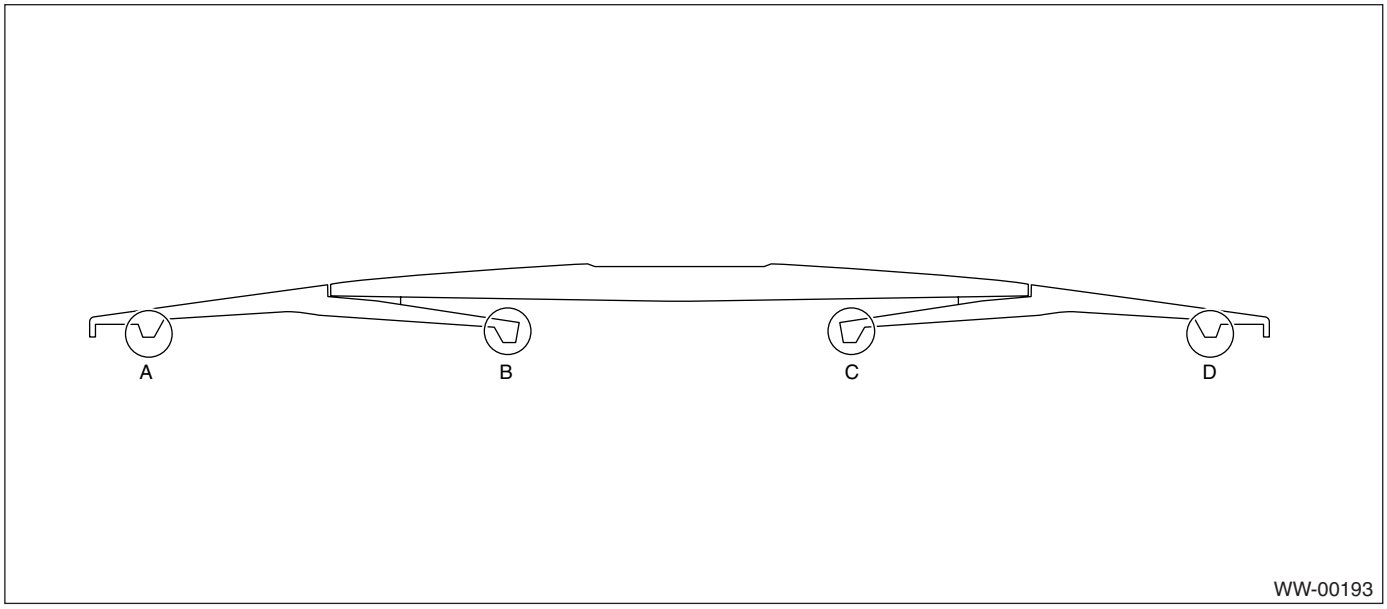
1) Insert the wiper rubber onto blade so that the stopper is in the position shown in the figure.



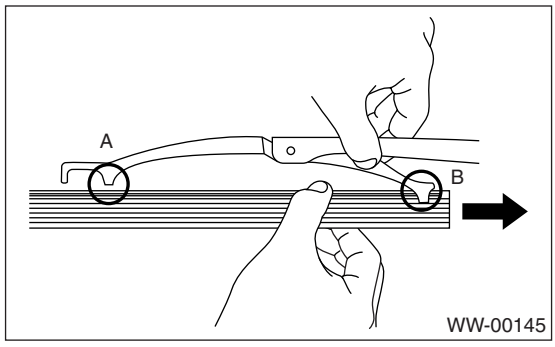
2) Make sure the wiper rubber is securely fastened to the pull stopper (A).



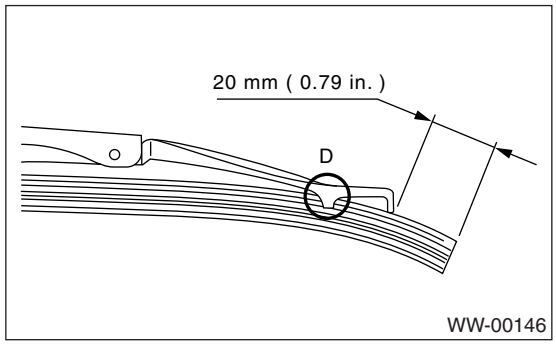
2. RESIN TYPE



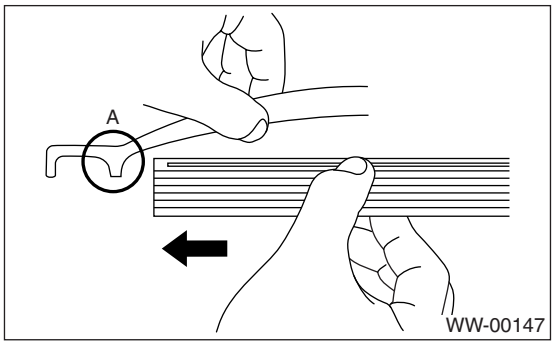
1) Insert the wiper rubber through the claw (B).



2) Insert the wiper rubber until its top end protrudes approx. 20 mm (0.79 in) from stopper (D).



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



E: INSPECTION

1) When the wiper does not perform well, inspect the followings:

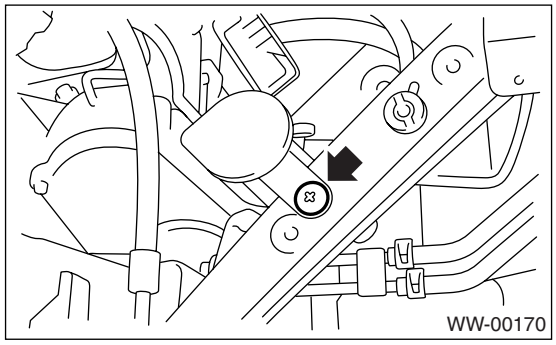
- Make sure the movable part of the wiper blade assembly moves smoothly.
- Make sure the wiper rubber is not deformed or damaged.

2) If damaged, replace with new one.

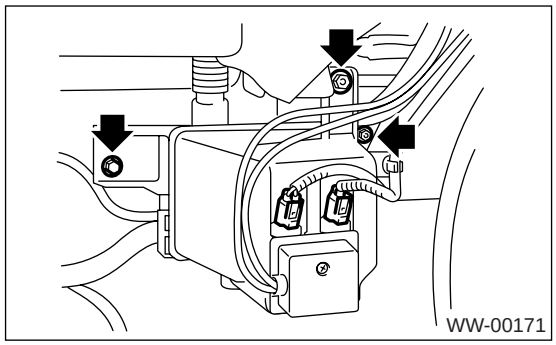
5. Washer Tank and Motor

A: REMOVAL

1) Open the hood.
2) Disconnect the ground cable from battery.
3) Remove the front bumper. <Ref. to EI-30, REMOVAL, Front Bumper.>
4) Remove the clip holding washer water supply tap.



5) Remove the two bolts and one nut, hose, connector and washer motor cover, and then remove the washer tank.



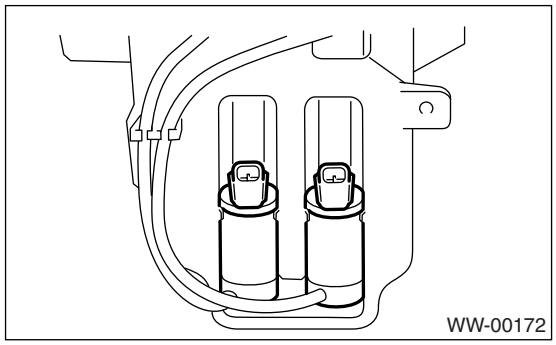
B: INSTALLATION

Install in the reverse order of removal.

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

C: DISASSEMBLY

Pull out the washer motor from tank.

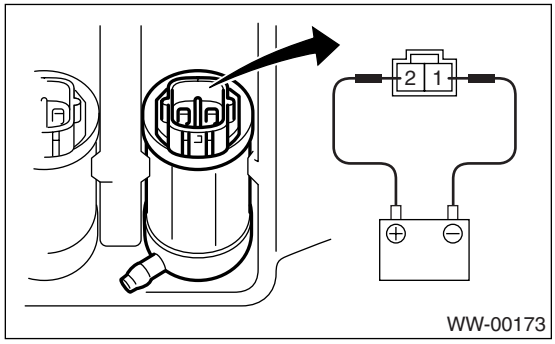


D: ASSEMBLY

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.

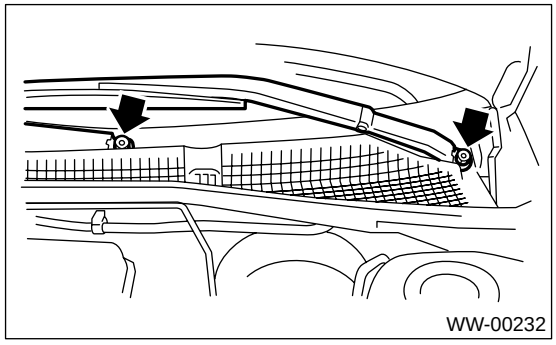


6. Front Wiper Arm

A: REMOVAL

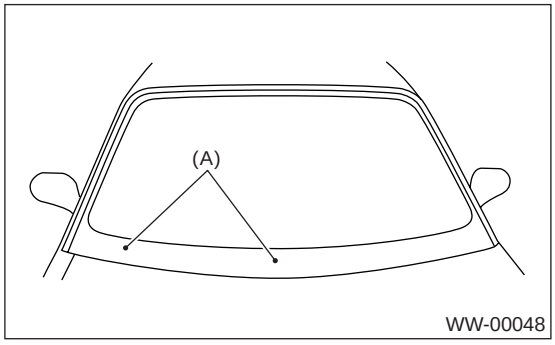
CAUTION:
When replacing wiper blades or etc., be sure to stand up the driver side wiper arm first, then passenger side wiper arm next. Also, when putting the wiper arms back, be sure to start with passenger side first, then driver side next. Doing this in the reverse order may result in damage of passenger side wiper arm by hitting with driver side wiper blade.

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



B: INSTALLATION

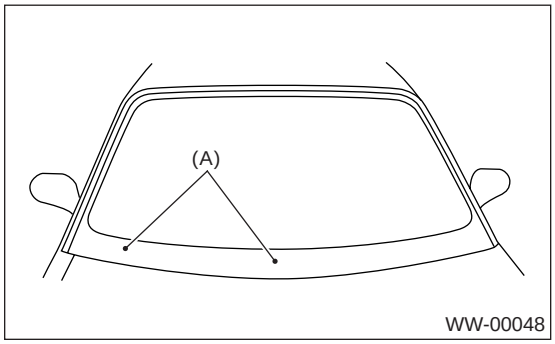
1) Install in the reverse order of removal.
2) Operate the wiper once.
3) Align the wiper blade to ceramic print point mark (A) of front window panel.



Tightening torque:
Refer to "COMPONENT" of "General Description".
<Ref. to WW-2, FRONT WIPER, COMPONENT, General Description.>

C: ADJUSTMENT

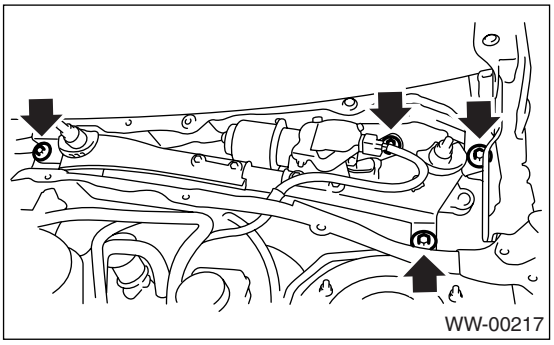
Operate the wiper once. Align the wiper blade to ceramic print point mark (A) of front window panel.



7. Front Wiper Motor and Link

A: REMOVAL

1) Disconnect the ground cable from battery.
2) Remove the cowl panel. <Ref. to EI-39, REMOVAL, Cowl Panel.>
3) Disconnect the connector of wiper motor assembly.
4) Remove the bolt to remove wiper assembly.


WW-00217

NOTE:
Wiper motor and wiper link can not be disassembled, because those are assembly part.

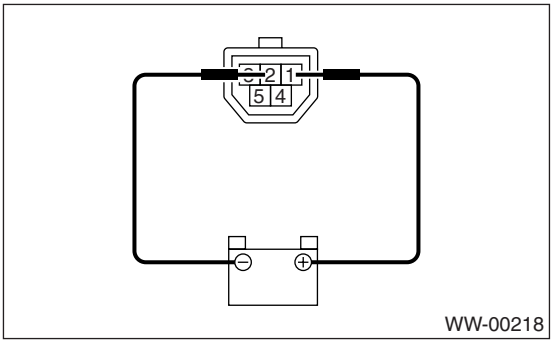
B: INSTALLATION

Install in the reverse order of removal.

Tightening torque:
Refer to "COMPONENT" of "General Description".
<Ref. to WW-2, FRONT WIPER, COMPONENT, General Description.>

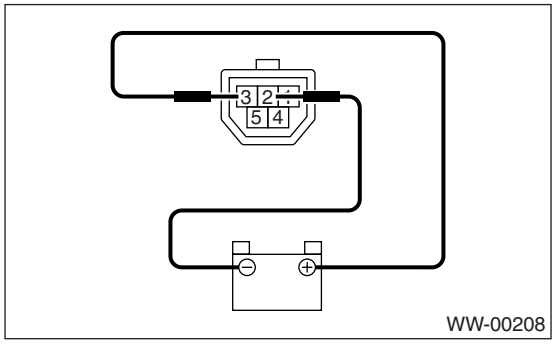
C: INSPECTION

1) When the battery is connected to the terminal of connectors, confirm that the wiper motor operates at low speed.
• LHD model



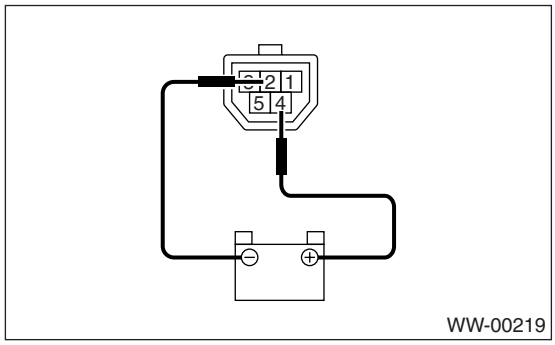
WW-00218

• RHD model



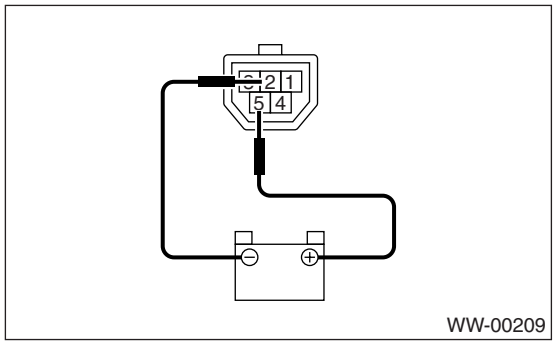
WW-00208

2) When the battery is connected to the terminal of connectors, confirm that the wiper motor operates at high speed.
• LHD model



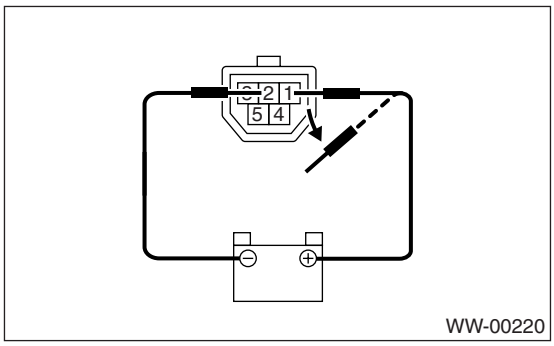
WW-00219

• RHD model



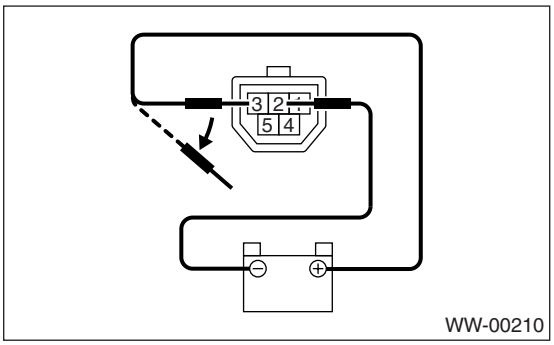
WW-00209

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



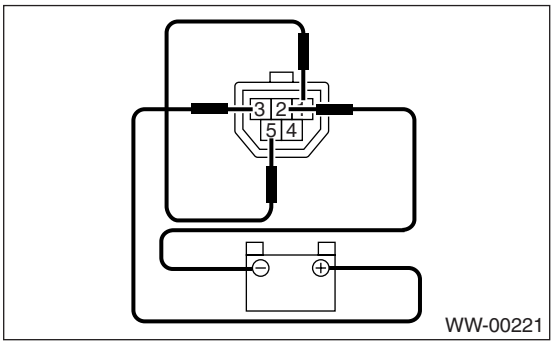
WW-00220

- RHD model

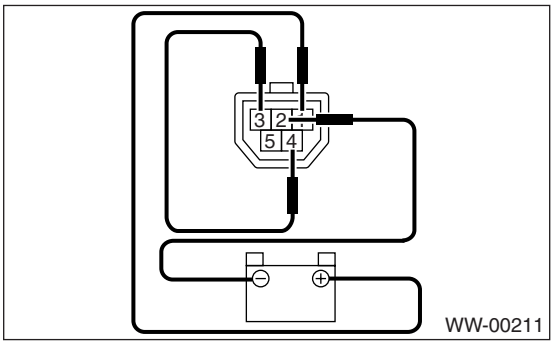


4) Connect the battery and confirm that the wiper motor stops at automatic stop position after the wiper motor operates at low speed again.

- LHD model



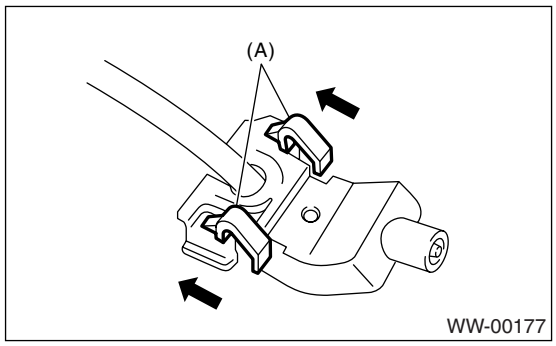
- RHD model



8. Front Washer Nozzle

A: REMOVAL

1) Remove the front hood insulator. <Ref. to EB-13, FRONT HOOD INSULATOR, REMOVAL, Front Hood.>
2) Hold the pawl of washer nozzle (A) toward the arrow direction, and remove the washer nozzle.



3) Remove the washer hose from washer nozzle.

B: INSTALLATION

1) Install in the reverse order of removal.
2) Adjust the washer nozzle position. <Ref. to WW-20, ADJUSTMENT, Front Washer Nozzle.>

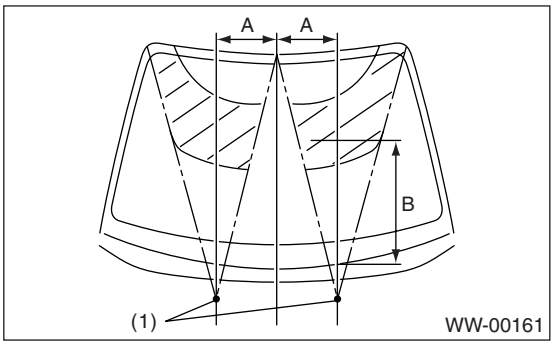
C: INSPECTION

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

D: ADJUSTMENT

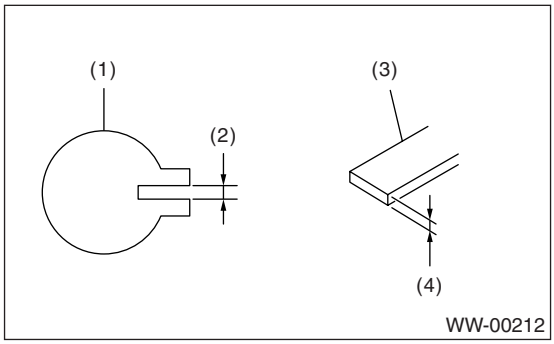
1) Turn the wiper switch to OFF position.
2) While the vehicle is at standstill, adjust the washer injection position as shown in the figure.

Injection position:
A: 250 mm (9.84 in)
B: 435 mm (17.13 in)



(1) Nozzle

Injection angle should be adjusted with 0.5 mm (0.020 in) thickness steel scale. Use maximum thickness of 0.5 mm steel scale, because the injection slit width of washer nozzle is 0.6 mm (0.024 in). Adjusting with a flat tip driver may damage the injection slit and cause the faulty injection.



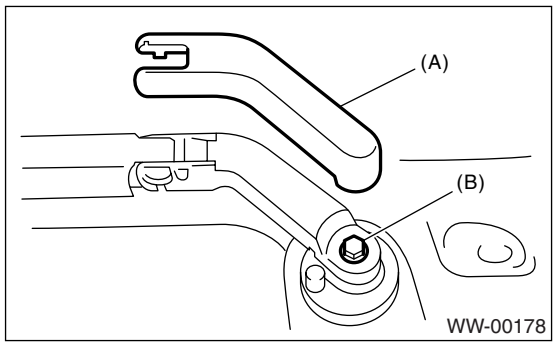
(1) Inside of washer nozzle injection
(2) 0.6 mm (0.024 in)
(3) Steel scale
(4) Max. 0.5 mm (0.020 in)

9. Rear Wiper Arm

A: REMOVAL

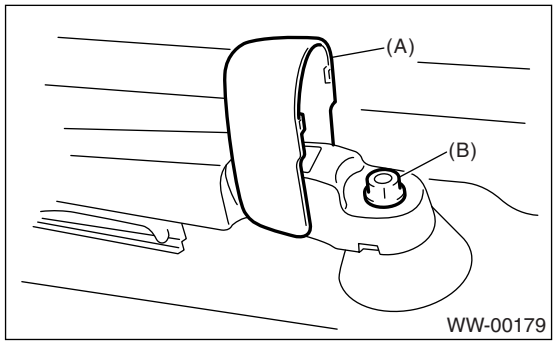
1. SEDAN MODEL

1) Detach the wiper arm cover (A).
2) Remove the nut (B) to remove wiper arm.



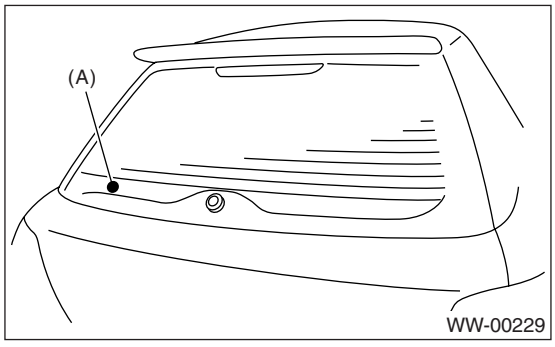
2. WAGON MODEL

1) Detach the wiper arm cover (A).
2) Remove the nut (B) to remove wiper arm.



B: INSTALLATION

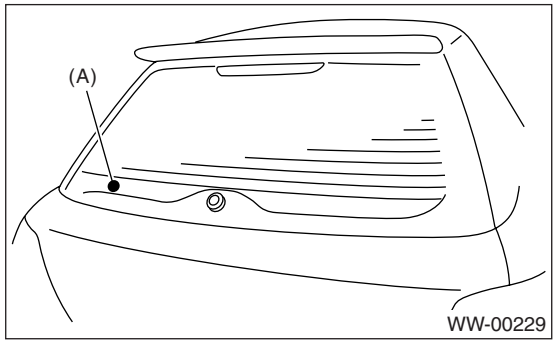
1) Install in the reverse order of removal.
2) Operate the rear wiper once.
3) Align the blade with the marking (A) of glass.



Tightening torque:
Refer to "COMPONENT" of "General Description".
<Ref. to WW-4, REAR WIPER (SEDAN MODEL), COMPONENT, General Description.>

C: ADJUSTMENT

1) Operate the rear wiper once.
2) Align the blade with the marking (A) of glass.

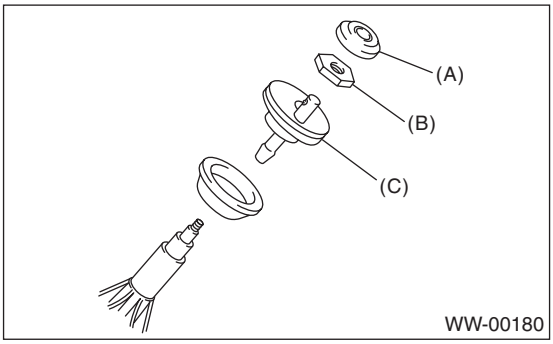


10.Rear Wiper Motor

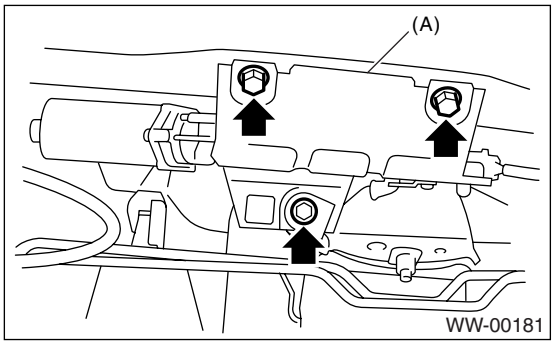
A: REMOVAL

1. SEDAN MODEL

1) Disconnect the ground cable from battery.
2) Remove the rear wiper arm. <Ref. to WW-21, SEDAN MODEL, REMOVAL, Rear Wiper Arm.>
3) Remove the cap (A) and nut (B) from rear wiper shaft.
4) Raise the nozzle & hose assembly (C) to disconnect the washer tube and remove the nozzle & hose assembly (C).

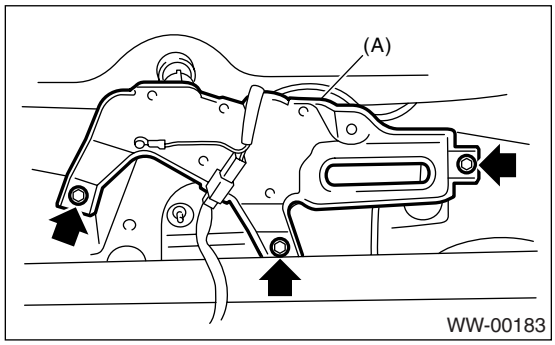


5) Disconnect the harness connector of wiper motor assembly.
6) Remove the bolts to remove wiper motor assembly (A).



2. WAGON MODEL

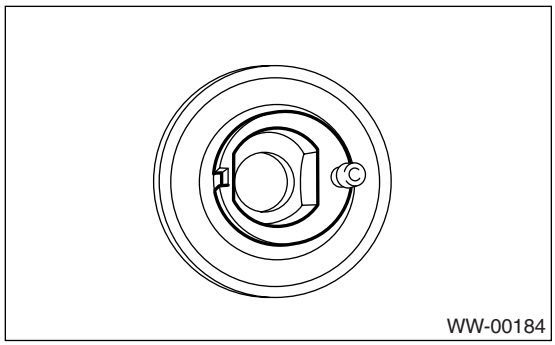
1) Disconnect the ground cable from battery.
2) Remove the rear wiper arm. <Ref. to WW-21, WAGON MODEL, REMOVAL, Rear Wiper Arm.>
3) Remove the rear gate lower trim. <Ref. to EI-69, REMOVAL, Rear Gate Trim.>
4) Disconnect the harness connector of wiper motor assembly.
5) Remove the bolts to remove wiper motor assembly (A).



B: INSTALLATION

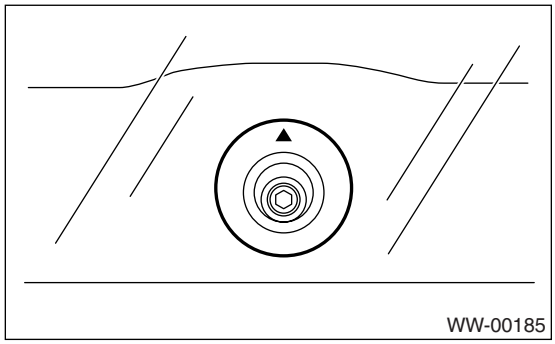
1. SEDAN MODEL

1) Install in the reverse order of removal.
2) Align the cutout of reverse side of nozzle & hose assembly with the cutout of rear wiper shaft for installation.



2. WAGON MODEL

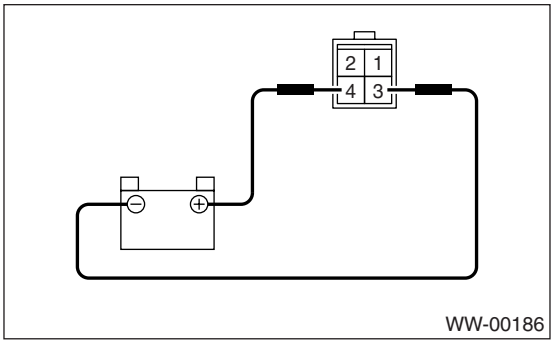
1) Install in the reverse order of removal.
2) Be sure that the pivot cap with the arrow mark facing up, as shown in the figure.



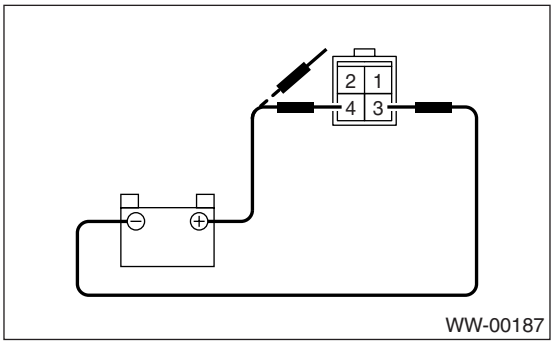
Tightening torque:
Refer to "COMPONENT" of "General Description".
<Ref. to WW-5, REAR WIPER (WAGON MODEL), COMPONENT, General Description.>

C: INSPECTION

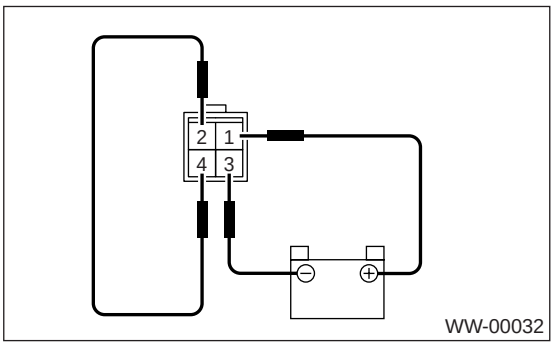
1) Connect the battery to wiper motor connector and confirm that wiper motor operates.



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



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

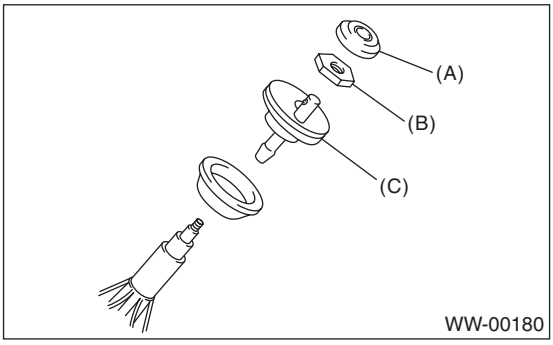


11.Rear Washer

A: REMOVAL

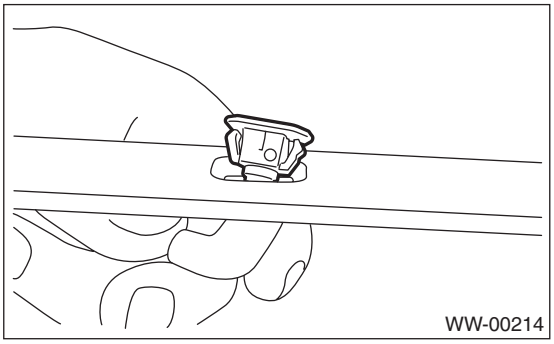
1. SEDAN MODEL

1) Remove the rear wiper arm. <Ref. to WW-21, SEDAN MODEL, REMOVAL, Rear Wiper Arm.>
2) Remove the cap (A) and nut (B) from rear wiper shaft.
3) Raise the nozzle & hose assembly (C) to disconnect the washer hose, and remove the nozzle & hose assembly (C).



2. WAGON MODEL

1) Detach the roof spoiler. <Ref. to EI-40, REMOVAL, Roof Spoiler.>
2) Remove the washer hose from washer nozzle.
3) Push the pawl of nozzle from the reverse side of roof spoiler with a flat tip screwdriver or equivalent, and remove the washer nozzle.



B: INSTALLATION

1) Install in the reverse order of removal.
2) Adjust the washer nozzle. <Ref. to WW-24, ADJUSTMENT, Rear Washer.>

C: INSPECTION

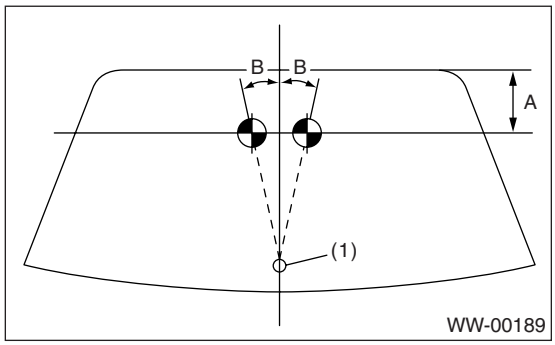
- Make sure the nozzle and hose are not clogged.
- Make sure the hose is not bent.

D: ADJUSTMENT

1) Turn the wiper switch to OFF position.
2) While the vehicle is at standstill, adjust the washer injection position as shown in the figure.

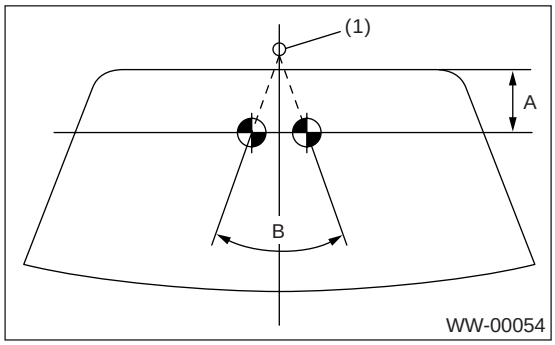
NOTE:
Injection position of rear washer nozzle is adjustable only for sedan model.

- Sedan model



(1) Nozzle
(A) 310 mm (12.20 in)
(B) 5.5°

- Wagon model



(1) Nozzle
(A) 70 mm (2.76 in)
(B) 70°