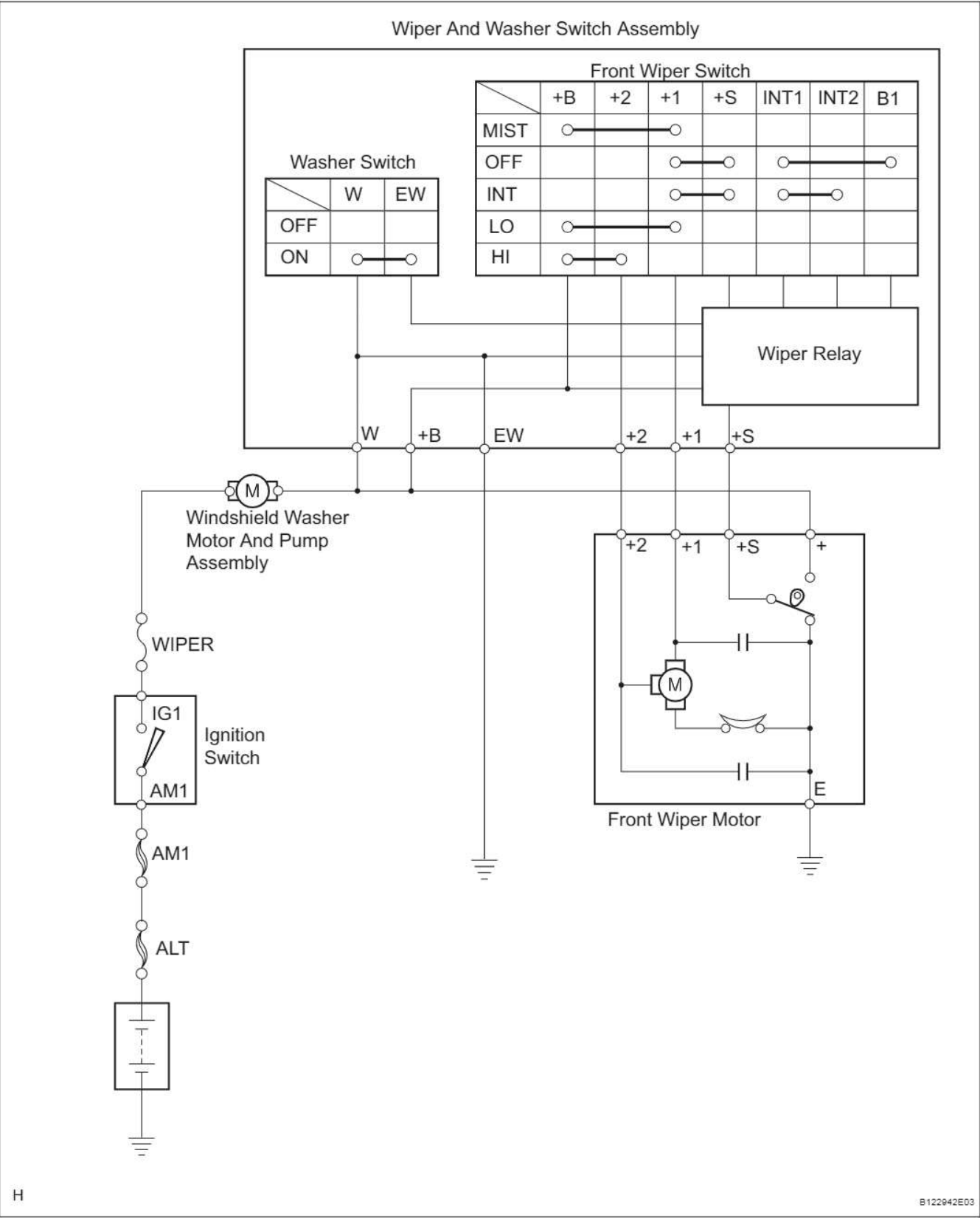


WW-4

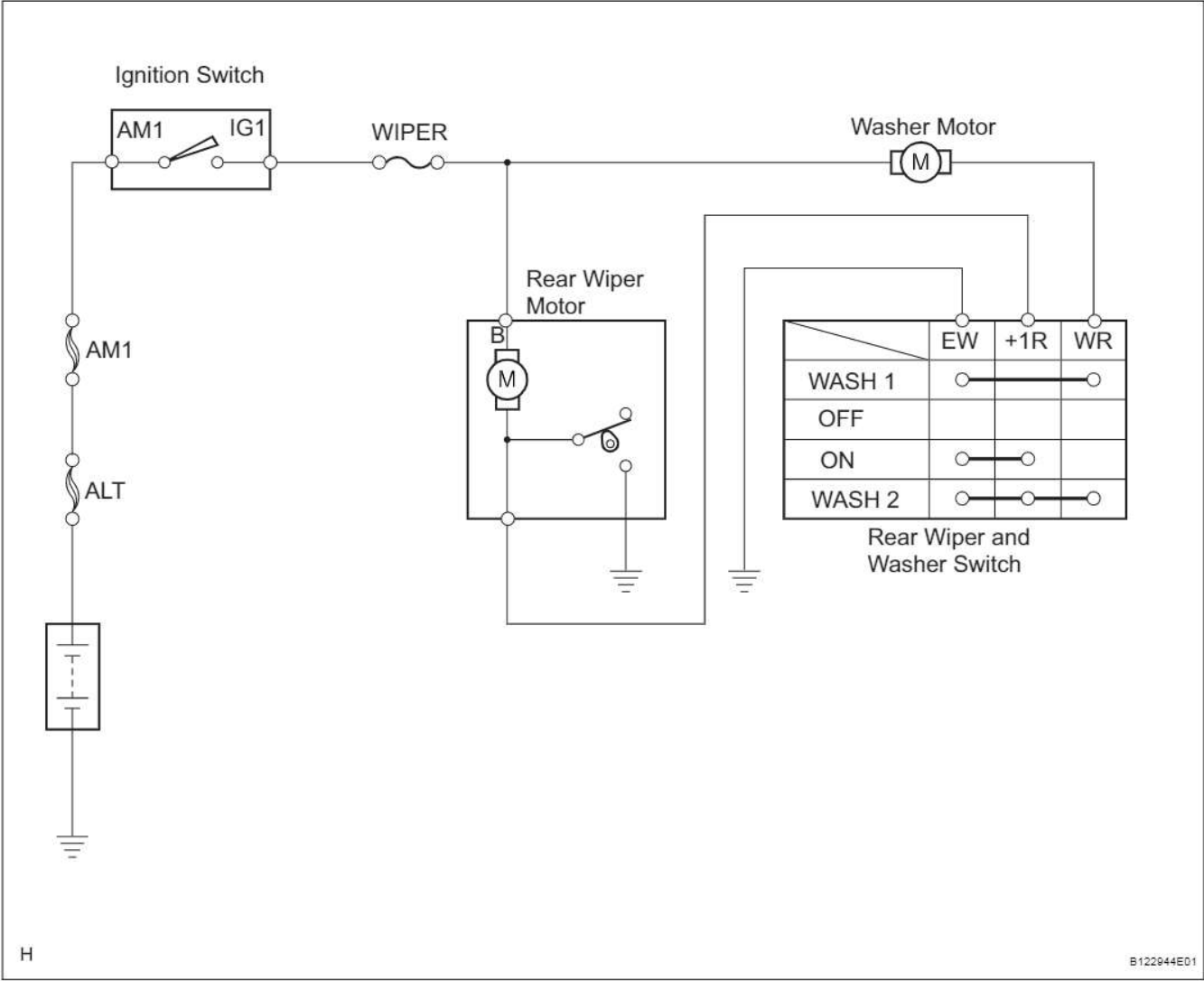
WIPER AND WASHER – WIPER AND WASHER SYSTEM

SYSTEM DIAGRAM



WIPER AND WASHER – WIPER AND WASHER SYSTEM

WW-5



WW-6

WIPER AND WASHER – WIPER AND WASHER SYSTEM

PROBLEM SYMPTOMS TABLE

HINT:

Use the table below to help determine the cause of the problem symptom. The potential causes of the symptoms are listed in order of probability in the "Suspected Area" column of the table. Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.

Wiper and washer system

Symptom	Suspected area	See page
Front wipers do not operate.	1. WIPER fuse	-
	2. Windshield wiper switch assembly	WW-22
	3. Windshield wiper motor assembly	WW-9
	4. Wire harness	-
Front wipers do not operate in the LO or HI position.	1. Windshield wiper switch assembly	WW-22
	2. Windshield wiper motor assembly	WW-9
	3. Wire harness	-
Front wipers do not operate in the INT position.	1. Windshield wiper switch assembly	WW-22
	2. Windshield wiper motor assembly	WW-9
	3. Wire harness	-
Front washer motor does not operate.	1. WIPER fuse	-
	2. Windshield wiper switch assembly	WW-22
	3. Washer motor	WW-25
	4. Wire harness	-
Front wiper do not operate when washer switch is in the ON position.	1. Windshield wiper switch assembly	WW-22
	2. Windshield wiper motor assembly	WW-9
	3. Wire harness	-
Rear wiper and washers do not operate.	1. WIPER fuse	-
	2. Rear wiper switch	WW-22
	3. Wire harness	-
Rear washer motor does not operate.	1. WASH fuse	-
	2. Rear washer switch	WW-22
	3. Washer motor	WW-25
	4. Wire harness	-
Rear washers do not operate when washer switch is in the ON position.	1. Rear wiper switch	WW-22
	2. Rear wiper motor	WW-16
	3. Wire harness	-
Washer fluid does not flow.	1. Washer hose and nozzle	-
When the wiper switch is off, the wiper blade does not retract or retracts in the wrong position.	1. Windshield wiper motor assembly (Wiper arm and blade set position)	WW-9
The wiper blade is in contact with the body.	1. Windshield wiper motor assembly (Wiper arm and blade set position)	WW-9

WIPER AND WASHER – FRONT WIPER RUBBER

WW-15

INSTALLATION

HINT:

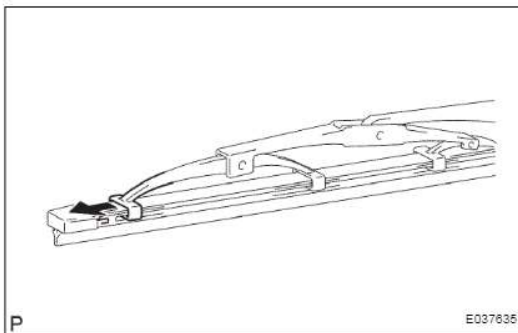
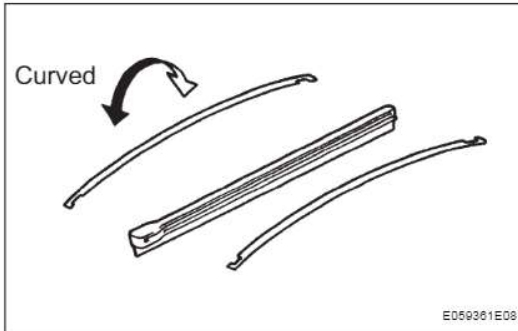
- Use the same procedures for the RH side and LH side.
- The procedures listed below are for the LH side.

1. INSTALL WIPER RUBBER LH

- (a) Install the 2 wiper rubber backing plates on the wiper rubber.

NOTICE:

Be sure to install the wiper rubber backing plates in the correct direction.



- (b) Install the wiper rubber so that the head part (longer side) of the wiper rubber faces the arm axle side.

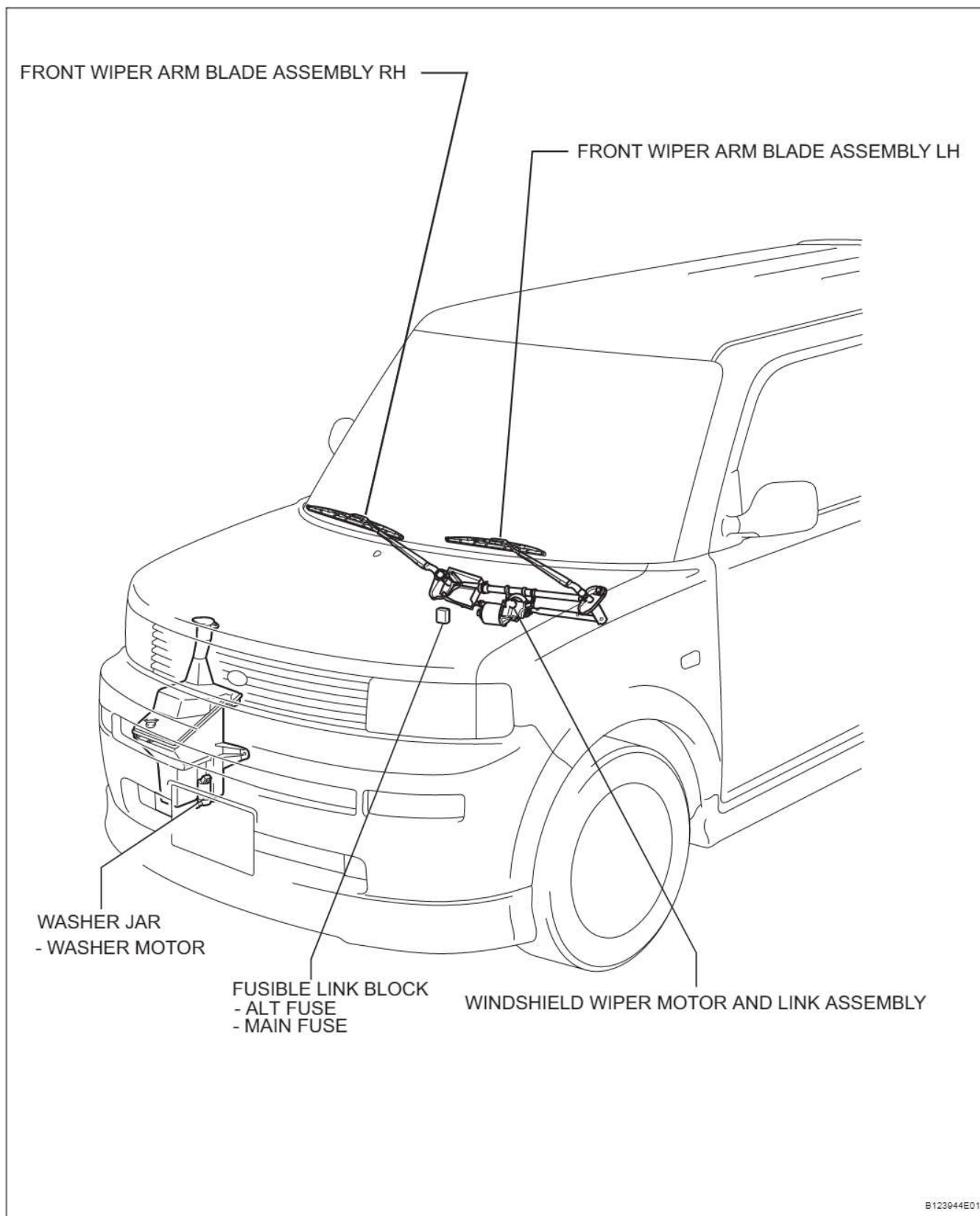
NOTICE:

- Push in the front wiper blade into the grooves of the wiper rubber to engage them completely.
- Put back the wiper arm of the passenger side before putting back the driver side wiper arm.

WW

WIPER AND WASHER SYSTEM

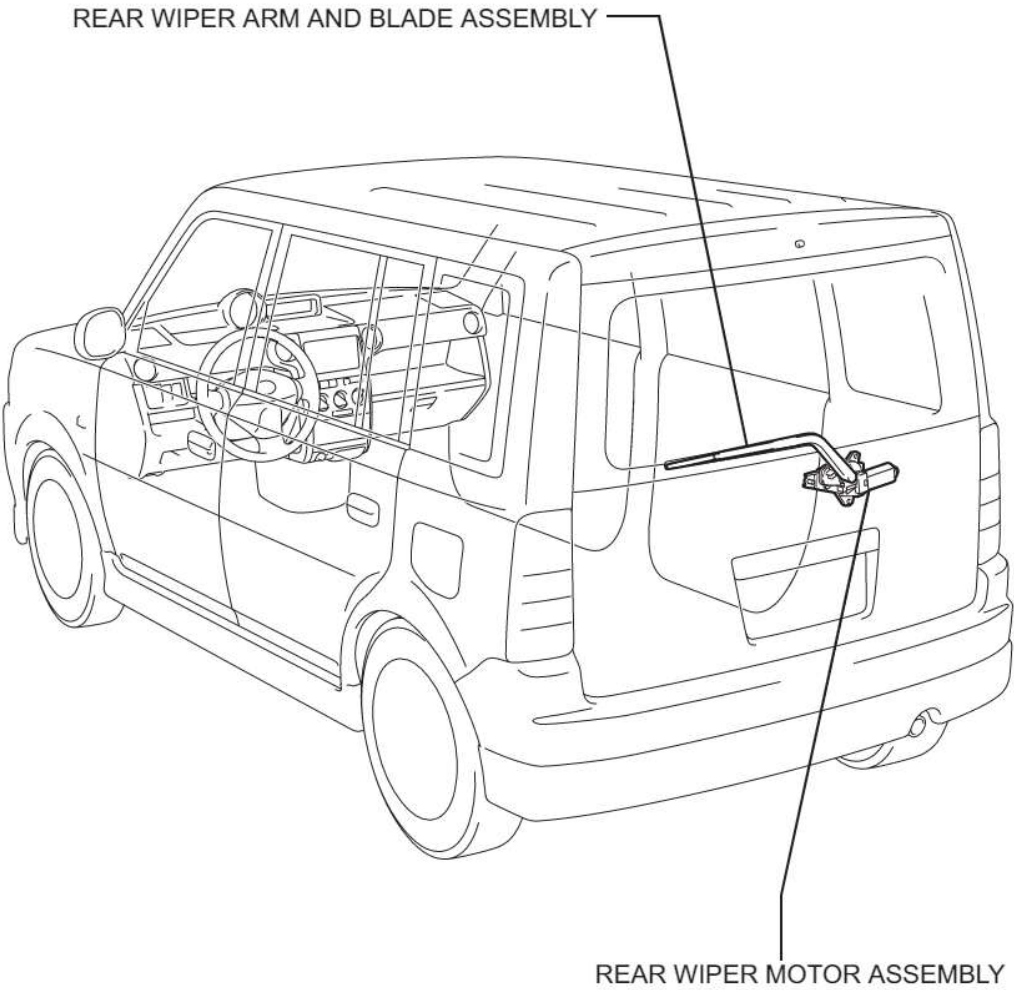
PARTS LOCATION



WW-2

WIPER AND WASHER – WIPER AND WASHER SYSTEM

WW



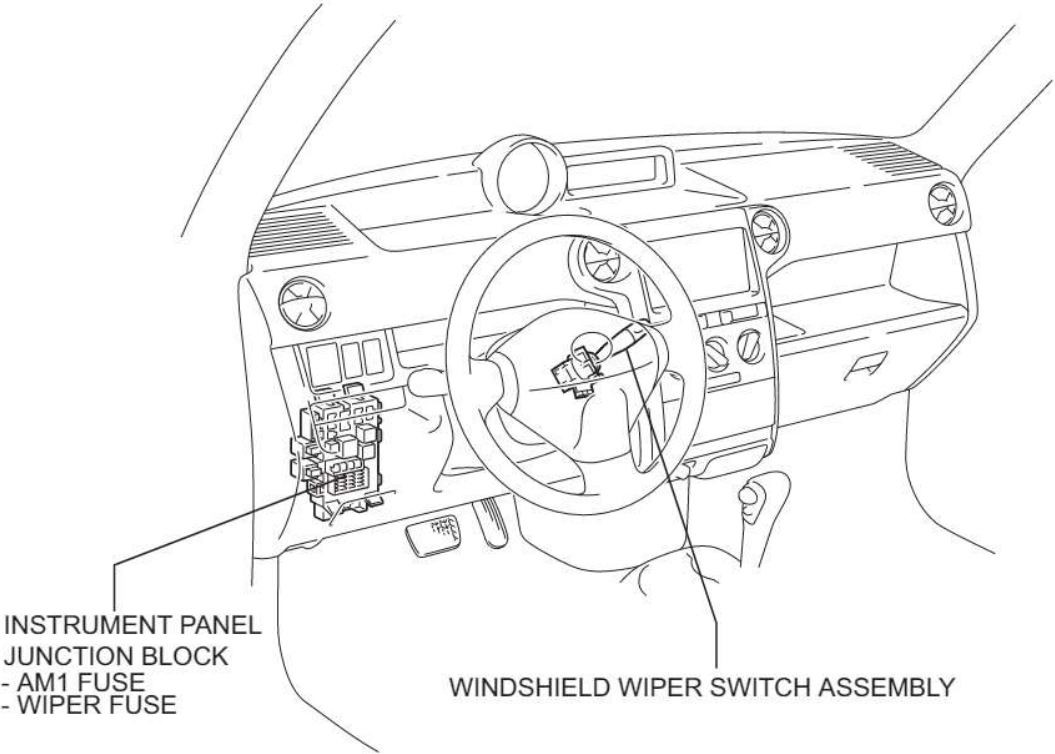
P

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WIPER AND WASHER – WIPER AND WASHER SYSTEM

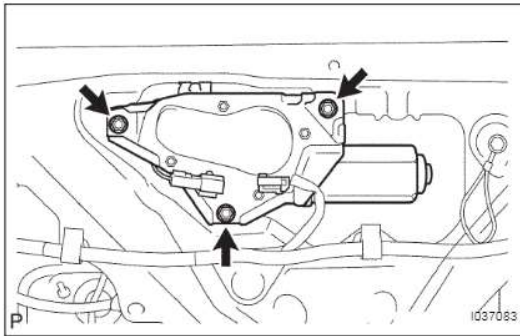
WW-3

WW



WIPER AND WASHER – REAR WIPER MOTOR

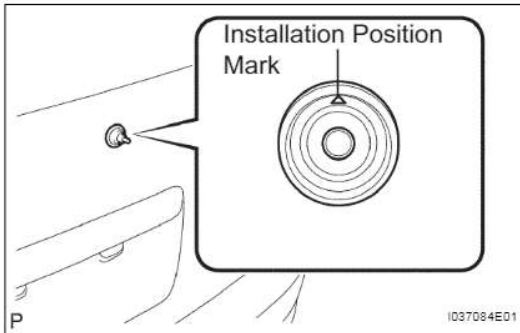
WW-17



INSTALLATION

1. INSTALL REAR WIPER MOTOR ASSEMBLY

- (a) Install the wiper motor with the 3 bolts.
Torque: 5.4 N*m (55 kgf*cm, 47 in.*lbf)
- (b) Connect the connector.

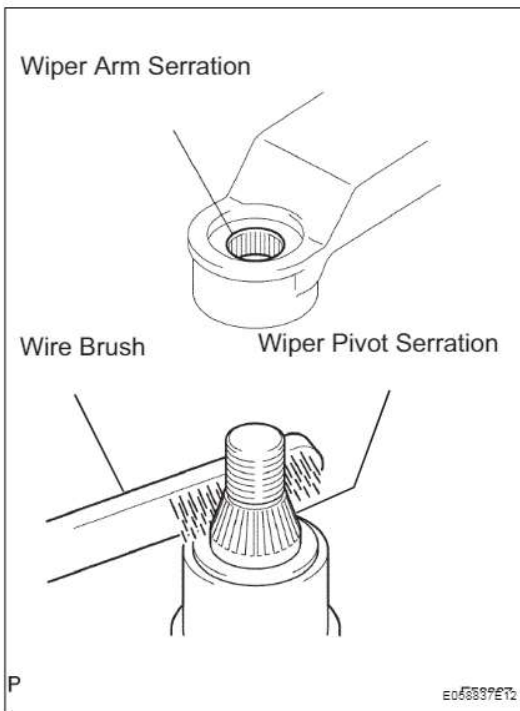


2. INSTALL REAR WIPER MOTOR GROMMET

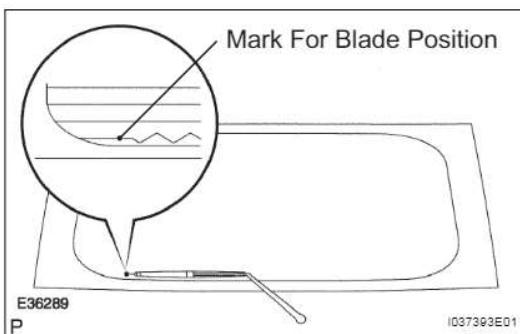
- (a) Install the rear wiper motor grommet as shown in the illustration.

3. INSTALL REAR WIPER ARM AND BLADE ASSEMBLY

- (a) Operate the wiper, and stop the wiper motor at the automatic stop position.



- (b) Scrape off the serration part of the wiper arm with a round file or equivalent.
- (c) Clean the wiper pivot serration with a wiper brush.



- (d) Install the wiper arm with the nut in the position as shown in the illustration.

Torque: 5.4 N*m (55 kgf*cm, 47 in.*lbf)

HINT:

Hold down the arm hinge by hand in order to fasten the nut.

- (e) Operate the wiper while running water or washer fluid over the window, and check the wiping condition and that the rear wiper does not hit against the vehicle's body.

WW-18**WIPER AND WASHER – REAR WIPER MOTOR**

4. **INSTALL BACK DOOR TRIM BOARD** (See page [ED-41](#))
5. **CONNECT CABLE TO NEGATIVE BATTERY TERMINAL**

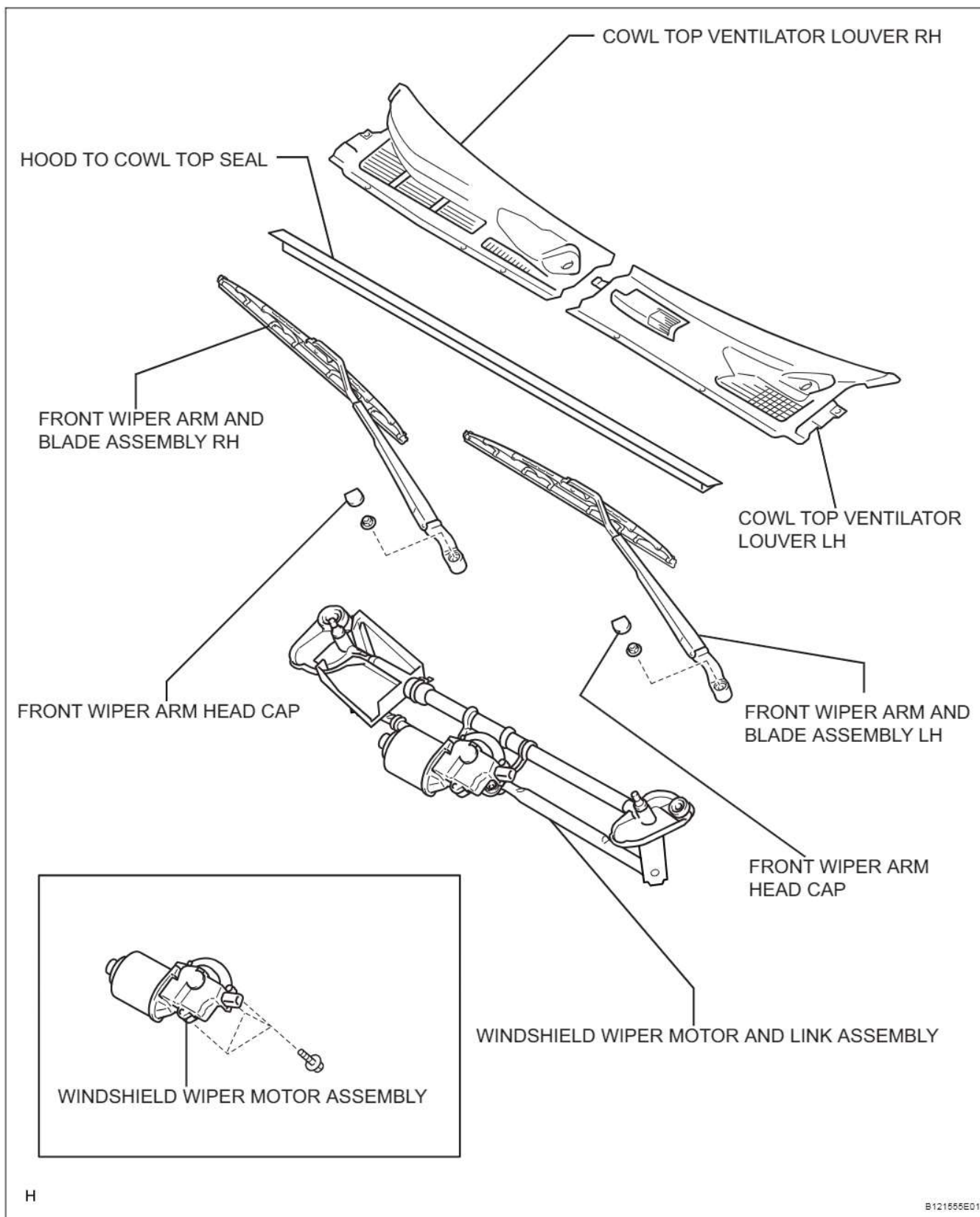
WW

WIPER AND WASHER – FRONT WIPER MOTOR AND LINK

WW-7

FRONT WIPER MOTOR AND LINK

COMPONENTS



WW-8

WIPER AND WASHER – FRONT WIPER MOTOR AND LINK

REMOVAL

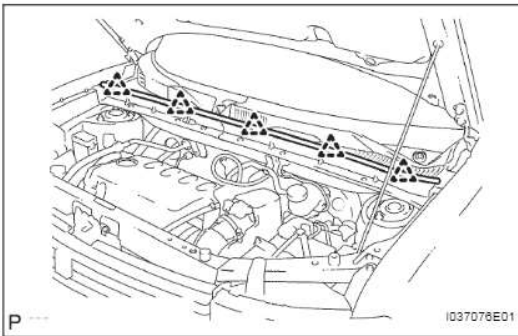
1. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

CAUTION:

Wait at least 90 seconds after disconnecting the cable from the negative (-) battery terminal to prevent airbag and seat belt pretensioner activation.

2. REMOVE FRONT WIPER ARM HEAD CAP
3. REMOVE FRONT WIPER ARM AND BLADE ASSEMBLY RH
4. REMOVE FRONT WIPER ARM AND BLADE ASSEMBLY LH
5. REMOVE HOOD TO COWL TOP SEAL

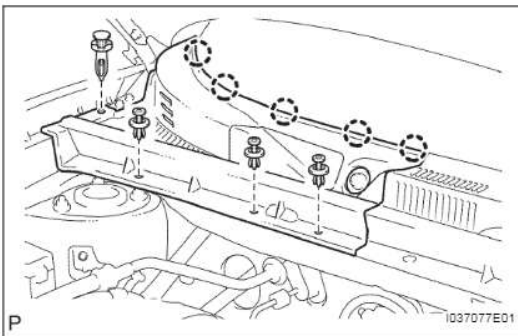
(a) Using a clip remover, remove the 5 clips and seal.



6. REMOVE COWL TOP VENTILATOR LOUVER RH

(a) Using a clip remover, remove the 4 clips.

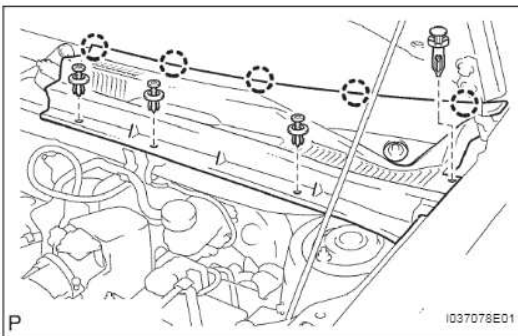
(b) Detach the 5 claws and remove the ventilator louver.



7. REMOVE COWL TOP VENTILATOR LOUVER LH

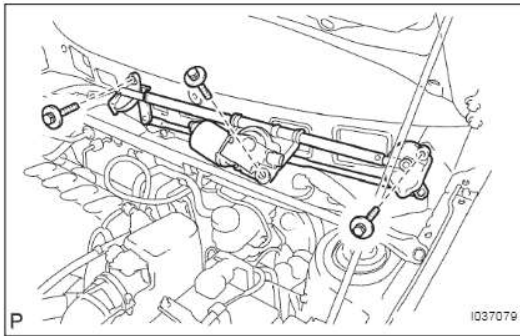
(a) Using a clip remover, remove the 4 clips.

(b) Detach the 5 claws and remove the ventilator louver.



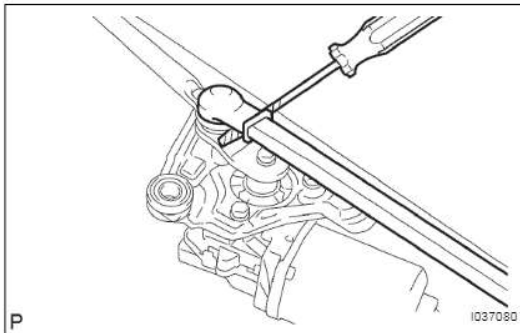
WIPER AND WASHER – FRONT WIPER MOTOR AND LINK

WW-9

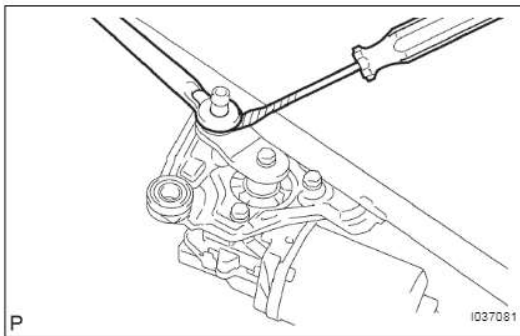


8. REMOVE WINDSHIELD WIPER MOTOR AND LINK ASSEMBLY

- (a) Disconnect the connector.
- (b) Remove the 3 bolts and the wiper motor and link.



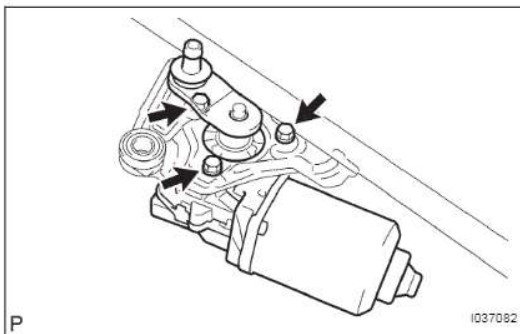
9. REMOVE WINDSHIELD WIPER MOTOR ASSEMBLY



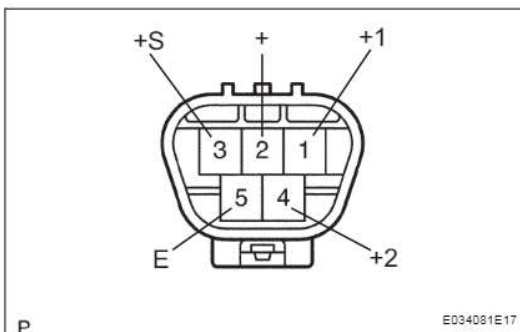
- (a) Using a screwdriver, disconnect the 2 rods at the crank arm pivot of the wiper motor.

HINT:

Tape the screwdriver tip before use to avoid damage.



- (b) Remove the 3 bolts and the wiper motor.



INSPECTION

1. INSPECT WINDSHIELD WIPER MOTOR ASSEMBLY

- (a) Check the LO operation
 - (1) Connect the battery's positive (+) lead to terminal 1 (+1) and the negative (-) lead to terminal 5 (E), and check that the motor operates at low speed (LO).

OK:

Motor operates at low speed (LO).

WW-10

WIPER AND WASHER – FRONT WIPER MOTOR AND LINK

WW

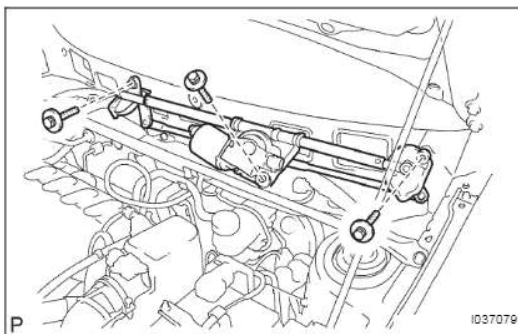
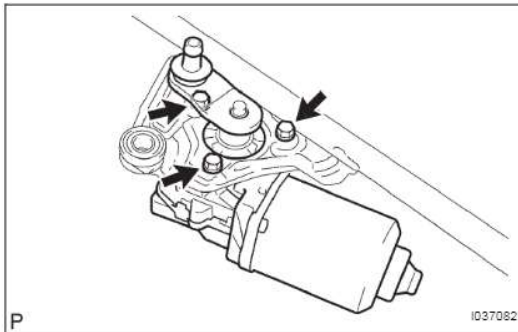
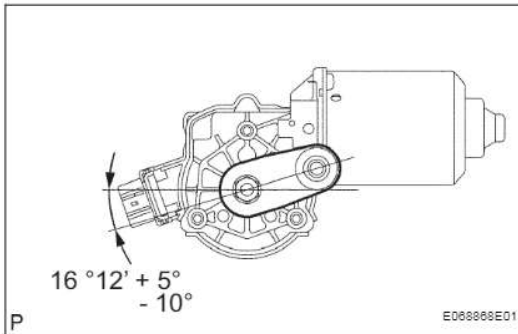
- (b) Check the HI operation.
- (1) Connect the battery's positive (+) lead to terminal 4 (+2) and the negative lead to terminal 5 (E), and check that the motor operates at high speed (HI).

OK:**Motor operates at high speed (HI).**

- (c) Check the automatic stop operation.
- (1) Connect the battery's positive (+) lead to terminal 1 (+1) and the negative (-) lead to terminal 5 (E). With the motor rotating at low speed (LO), disconnect terminal 1 (+1) to stop the wiper motor operation at any position other than the automatic stop position.
 - (2) Using SST, connect terminal 1 (+1) and 3 (S). Then connect the battery's positive (+) lead to terminal 2 (+) to restart the motor operation at low speed (LO).

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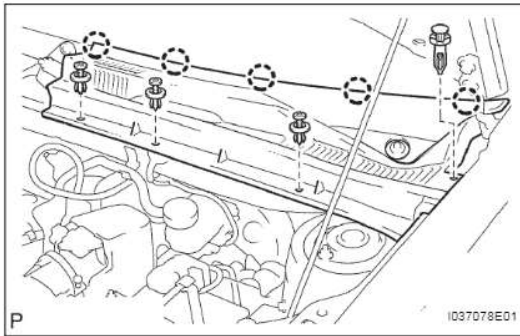
- (3) Check that the motor stops automatically at the automatic stop position.

OK:**Refer to illustration on left.****If the result is not as specified, replace the motor assembly.****INSTALLATION****1. INSTALL WINDSHIELD WIPER MOTOR ASSEMBLY**

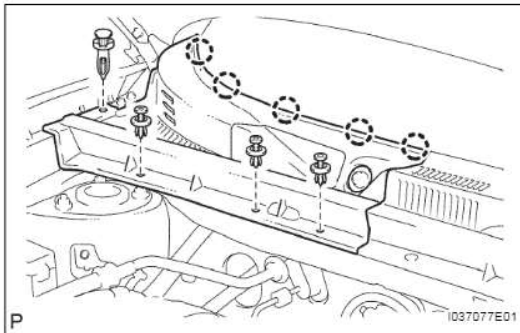
- Install the wiper motor to the wiper link with the 3 bolts.
Torque: 5.4 N*m (55 kgf*cm, 47 in.*lbf)
- Apply grease to the crank arm pivot of the wiper motor.
- Install the 2 rods to the wiper motor.

2. INSTALL WINDSHIELD WIPER MOTOR AND LINK ASSEMBLY

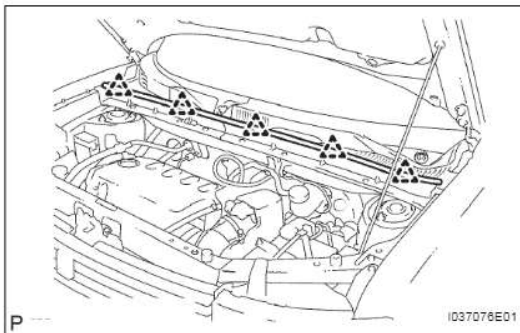
- Install the wiper motor and link with the 3 bolts.
Torque: 5.4 N*m (55 kgf*cm, 47 in.*lbf)
- Connect the connector.

WIPER AND WASHER – FRONT WIPER MOTOR AND LINK**WW-11****3. INSTALL COWL TOP VENTILATOR LOUVER LH**

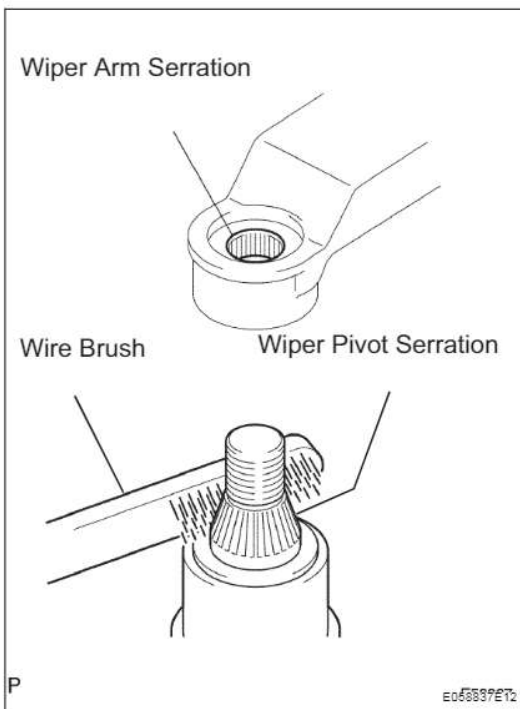
- (a) Attach the 5 claws to install the ventilator louver.
- (b) Install the 4 clips.

**4. INSTALL COWL TOP VENTILATOR LOUVER RH**

- (a) Attach the 5 claws to install the ventilator louver.
- (b) Install the 4 clips.

**5. INSTALL HOOD TO COWL TOP SEAL**

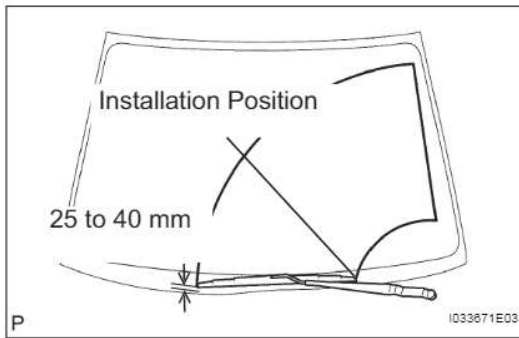
- (a) Attach the 5 clips to install the seal.

**6. INSTALL FRONT WIPER ARM AND BLADE ASSEMBLY LH**

- (a) Operate the wiper, and stop the windshield wiper motor at the automatic stop position.
- (b) Scrape off the serration part of the wiper arm with a round file or equivalent.
- (c) Clean the wiper pivot serration with a wire brush.

WW-12

WIPER AND WASHER – FRONT WIPER MOTOR AND LINK



- (d) Install the wiper arm and blade with the nut in the position shown in the illustration.

Torque: 20 N*m (205 kgf*cm, 15 ft.*lbf)

Installation position mark:

25 to 40 mm (0.98 to 1.57 in.)

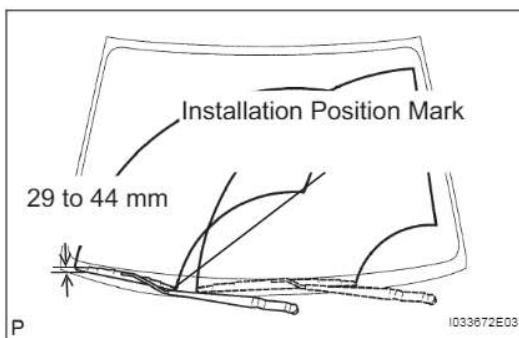
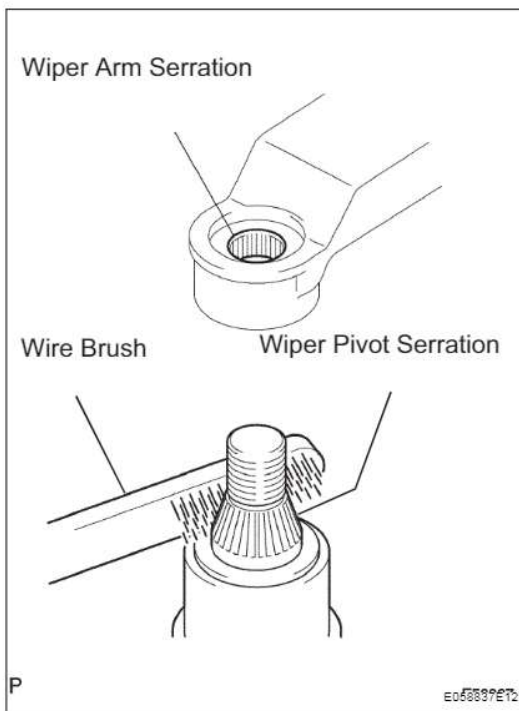
HINT:

Hold down the arm hinge by hand in order to fasten the nut.

- (e) Operate the wiper while running water or washer fluid over the window, and check the wiping condition and that the rear wiper does not hit against the vehicle's body.

7. INSTALL FRONT WIPER ARM AND BLADE ASSEMBLY RH

- (a) Operate the wiper, and stop the wiper motor at the automatic stop position.
 (b) Scrape off the serration part of the wiper arm with a round file or equivalent.
 (c) Clean the wiper pivot serration with a wire brush.



- (d) Install the wiper arm and blade with a nut in the position shown in the illustration.

Torque: 20 N*m (205 kgf*cm, 15 ft.*lbf)

Installation position mark:

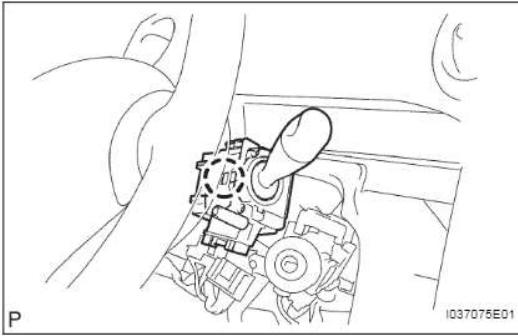
29 to 44 mm (1.14 to 1.73 in.)

HINT:

Hold down the arm hinge by hand in order to fasten the nut.

8. INSTALL WINDSHIELD WIPER ARM HEAD CAP

9. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

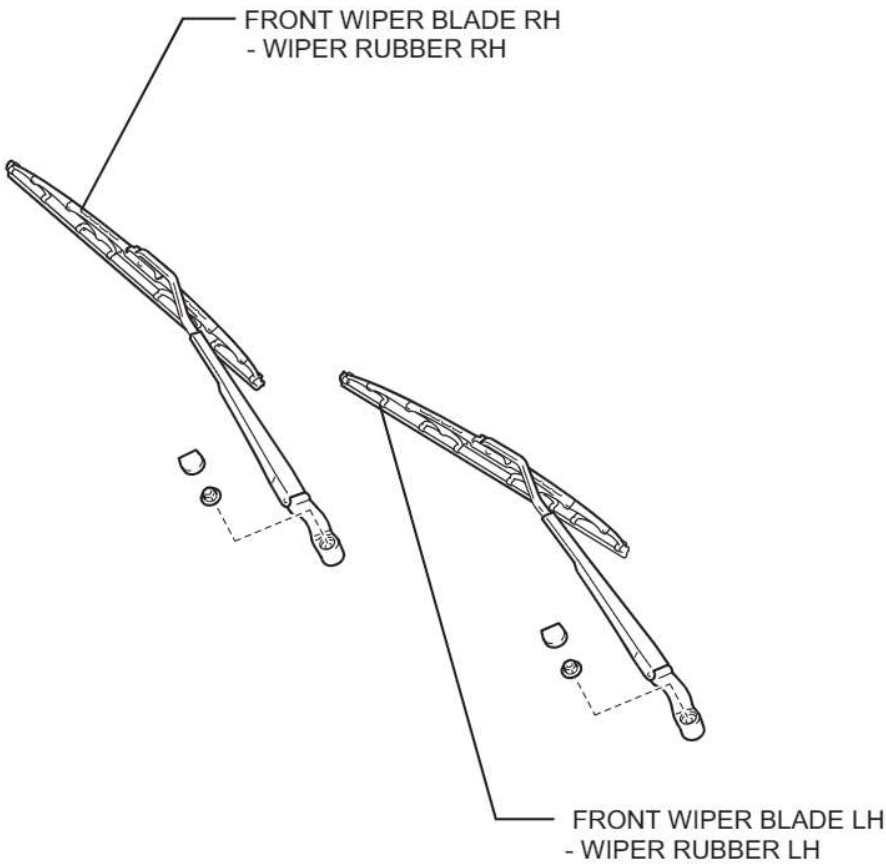
WW-24**WIPER AND WASHER – WIPER SWITCH****INSTALLATION**

- 1. INSTALL WINDSHIELD WIPER SWITCH ASSEMBLY**
 - (a) Attach the claw to install the wiper switch.
 - (b) Connect the connector.
- 2. INSTALL STEERING COLUMN COVER (See page [SR-18](#))**
- 3. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL**

WW

FRONT WIPER RUBBER

COMPONENTS



WW-14**WIPER AND WASHER – FRONT WIPER RUBBER**

REMOVAL**HINT:**

- Use the same procedures for the RH side and LH side.
- The procedures listed below are for the LH side.

1. REMOVE FRONT WIPER BLADE LH

- (a) Remove the wiper blade from the wiper arm.

NOTICE:

Do not fold down the front wiper arm with the front wiper blade being removed from it.

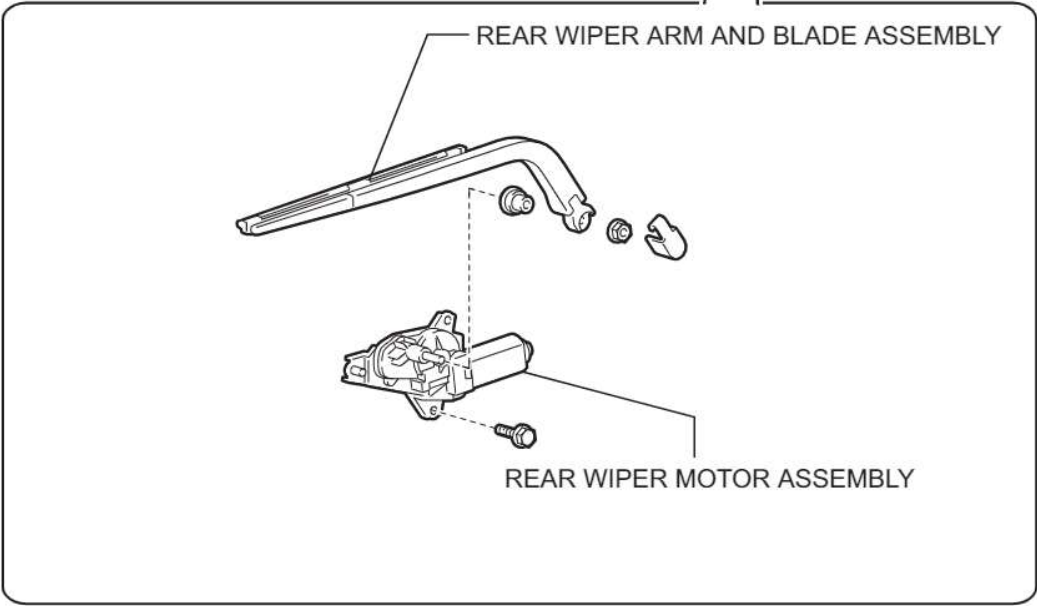
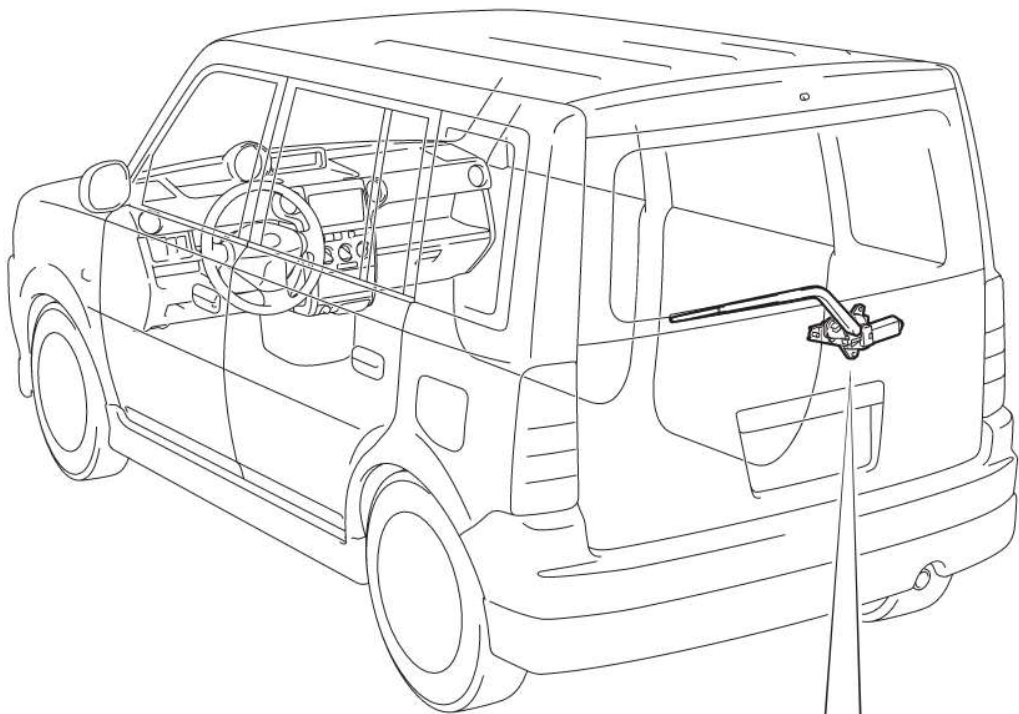
2. REMOVE WIPER RUBBER LH

- (a) Remove the wiper rubber from the wiper blade.
- (b) Remove the 2 wiper rubber backing plates from the wiper rubber.

WW

REAR WIPER MOTOR
COMPONENTS

WW



WW-16

WIPER AND WASHER – REAR WIPER MOTOR

REMOVAL

1. **DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL**

CAUTION:

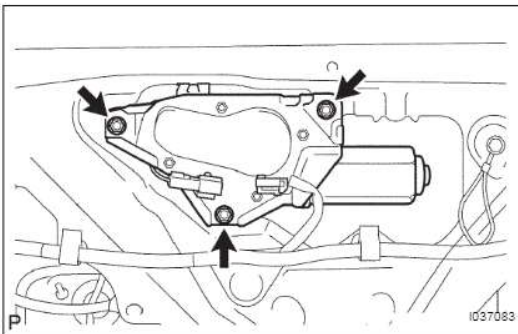
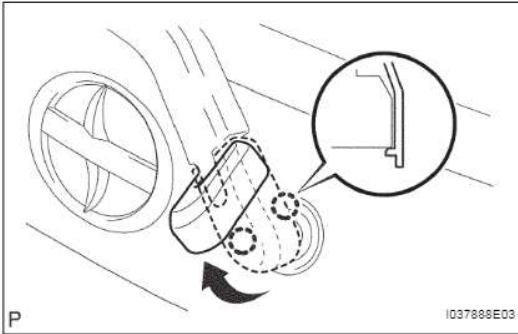
Wait at least 90 seconds after disconnecting the cable from the negative (-) battery terminal to prevent airbag and seat belt pretensioner activation.

2. **REMOVE BACK DOOR TRIM BOARD** (See page [ED-38](#))

3. **REMOVE REAR WIPER ARM AND BLADE ASSEMBLY**

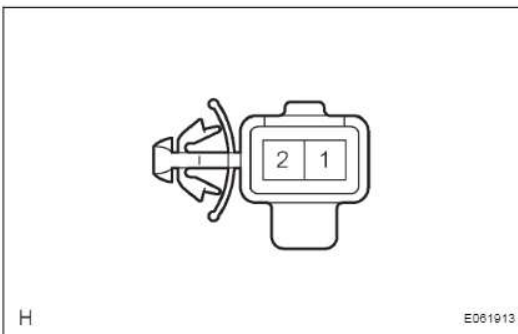
- (a) Detach the 2 claws and open the cover.
- (b) Remove the nut and rear wiper arm.

4. **REMOVE REAR WIPER MOTOR GROMMET**



5. **REMOVE REAR WIPER MOTOR ASSEMBLY**

- (a) Disconnect the connector.
- (b) Remove the 3 bolts and rear wiper motor.



INSPECTION

1. **INSPECT REAR WIPER MOTOR ASSEMBLY**

- (a) Check operation.
 - (1) Connect the battery's positive (+) lead to terminal 1 of the connector and the negative (-) lead to terminal 2, and check that the rear wiper motor operates.

NOTICE:

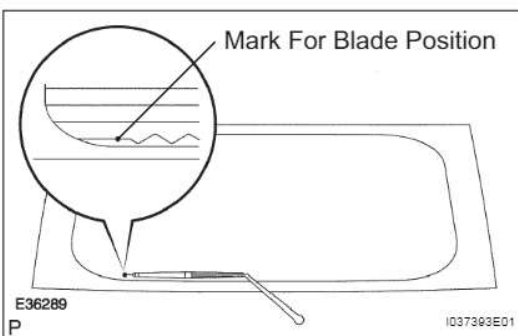
The body earth should be connected.

- (b) Check automatic stop position operation.
 - (1) Connect the battery's positive (+) lead to terminal 1 and negative (-) lead to terminal 2.

NOTICE:

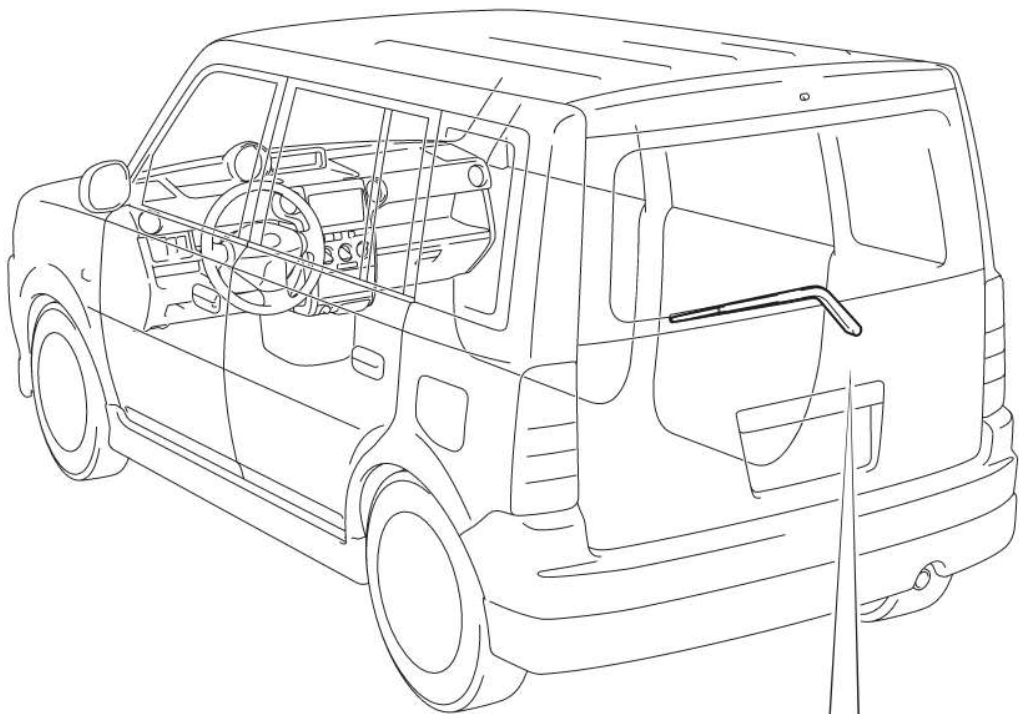
The body earth should be connected.

- (2) With the motor being rotated, disconnect terminal 1 (+B) and terminal 3 (+1) to stop the motor operation at any position other than the automatic stop position.
- (3) Connect the battery's positive (+) lead to terminal 1. Check that the motor is restarted and automatically stops.



REAR WIPER RUBBER
COMPONENTS

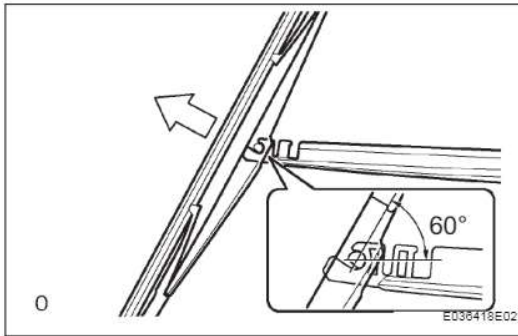
WW



REAR WIPER BLADE
- REAR WIPER RUBBER

WW-20

WIPER AND WASHER – REAR WIPER RUBBER



REMOVAL

1. REMOVE REAR WIPER BLADE

- (a) Raise the wiper blade to the position as where the claw detach with a click sound, as shown in the illustration.

NOTICE:

Be careful not to break the claw.

- (b) Pull the rear wiper blade straight from the wiper arm toward the left side of the vehicle.

NOTICE:

Do not fold the rear wiper arm with the rear wiper blade having been removed from it.

2. REMOVE REAR WIPER RUBBER

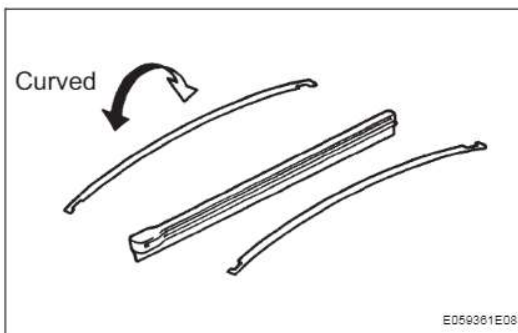
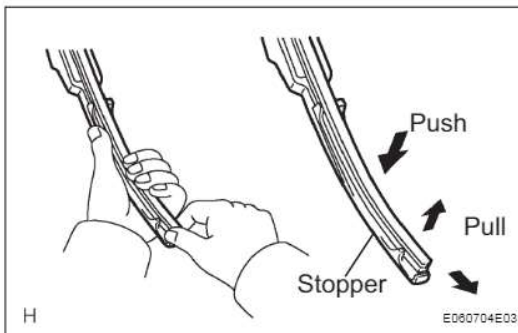
- (a) Pull on the end of the wiper rubber protruding from the blade stopper as shown in the illustration.

NOTICE:

Do not forcibly pull out the wiper rubber as, the backing plates will be deformed or the blade claw will be damaged.

HINT:

Pushing the rubber from the ends towards the middle will allow it to be removed more easily.



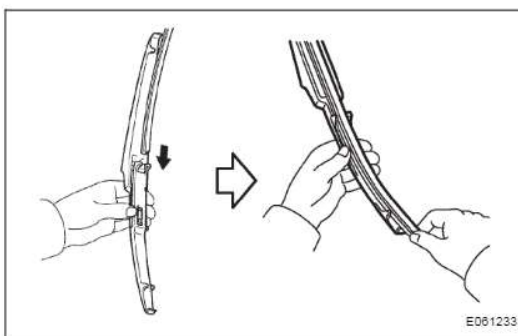
INSTALLATION

1. INSTALL REAR WIPER RUBBER

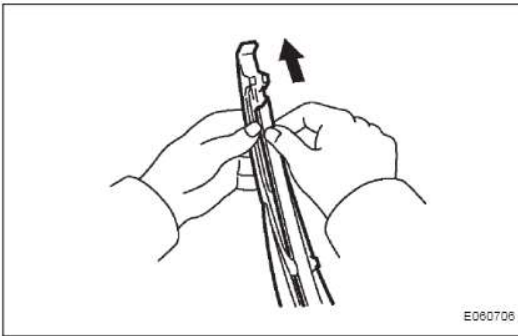
- (a) Install the 2 wiper rubber backing plates to the wiper rubber.

NOTICE:

Be sure to install the wiper rubber backing plates in the right direction.



- (b) Insert the wiper rubber from the claw position of the middle of the wiper blade into the end position.

WIPER AND WASHER – REAR WIPER RUBBER**WW-21**

- (c) After passing the wiper rubber through the end side claw, allow it to stick out from the rear end stopper and slide it through the front tip side claw.

2. INSTALL REAR WIPER BLADE

- (a) Attach the rear wiper blade to the wiper.

HINT:

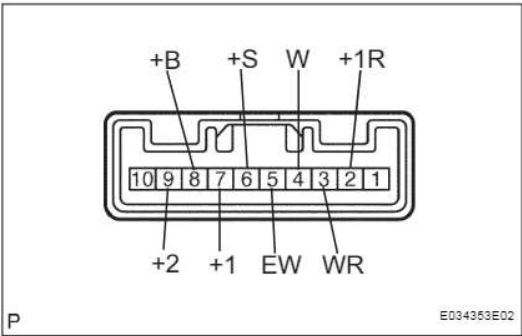
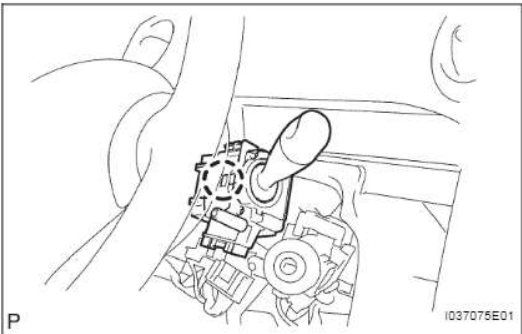
Install the wiper blade so that a click sound is heard.

WW

WIPER SWITCH

REMOVAL

1. DISCONNECT CABLE FROM NEGATIVE BATTERY
TERMINAL
CAUTION:
Wait at least 90 seconds after disconnecting the
cable from the negative (-) battery terminal to
prevent airbag and seat belt pretensioner activation.
2. REMOVE STEERING COLUMN COVER (See page
SR-10)
3. REMOVE WINDSHIELD WIPER SWITCH ASSEMBLY
(a) Disconnect the connector.
(b) Using a screwdriver, detach the claw and pull out
the wiper switch.
HINT:
Tape the screwdriver tip before use.



INSPECTION

1. INSPECT WINDSHIELD WIPER SWITCH ASSEMBLY
(a) Measure the resistance of the switch.
Standard resistance:
Front wiper switch

Tester Connection	Switch Condition	Specified Condition
7 (+1) - 8 (+B)	MIST	Below 1 Ω
6 (+S) - 7 (+1)	OFF	Below 1 Ω
6 (+S) - 7 (+1)	INT	Below 1 Ω
7 (+1) - 8 (+B)	LO	Below 1 Ω
8 (+B) - 9 (+2)	HI	Below 1 Ω

Front washer switch

Tester Connection	Switch Condition	Specified Condition
4 (W) - 5 (EW)	OFF	10 kΩ or higher
4 (W) - 5 (EW)	ON	Below 1 Ω

Rear wiper switch

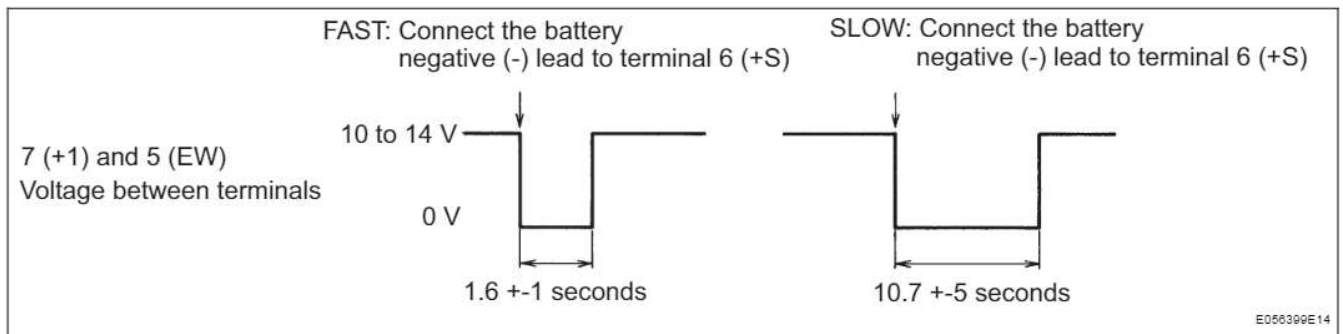
Tester Connection	Switch Condition	Specified Condition
3 (WR) - 5 (EW)	WASH 1	Below 1 Ω
2 (+1R) - 3 (WR) - 5 (EW)	OFF	10 kΩ or higher
2 (+1R) - 5 (EW)	ON	Below 1 Ω
3 (WR) - 2 (+1R) - 5 (EW)	WASH 2	Below 1 Ω

If the result is not as specified, replace the switch assembly.

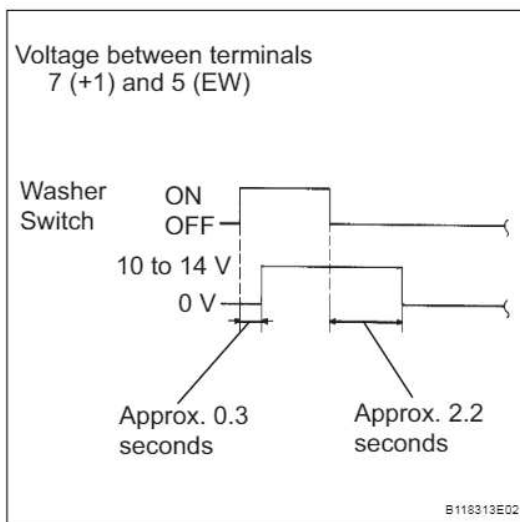
WIPER AND WASHER – WIPER SWITCH

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- (b) Check the intermittent operation
- (1) Connect the voltmeter's positive (+) lead to terminal 7 (+1) and the voltmeter's negative (-) lead to terminal 5 (EW).
 - (2) Connect the battery's positive (+) lead to terminal 8 (+B) and the battery's negative (-) lead to terminals 5 (EW) and 6 (+S).
 - (3) Turn the wiper switch to the INT position.
 - (4) Connect the battery's positive (+) lead to terminal 6 (+S) for 5 seconds.
 - (5) Connect the battery's negative (-) lead to terminal 6 (+S). Operate the intermittent wiper relay and check the voltage between terminals 7 (+1) and 5 (EW).

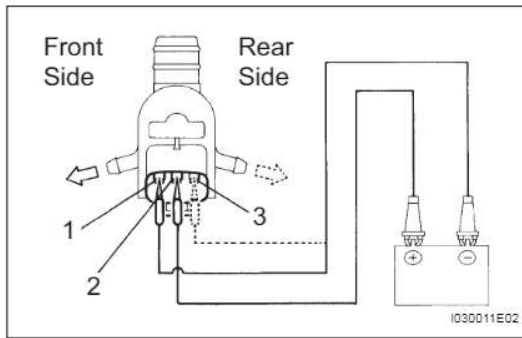
OK:**Refer to illustration.**

If the result is not as specified, replace the switch assembly.



- (c) Check the front washer operation.
- (1) Turn the wiper switch off.
 - (2) Connect the battery's positive (+) lead to terminal 8 (+B) and the battery's negative (-) lead to terminal 6 (+S) and 5 (EW).
 - (3) Connect the voltmeter's positive (+) lead to terminal 7 (+1) and the voltmeter's negative (-) lead to terminal 5 (EW).
- (d) Turn the washer switch on and off, and check voltage between terminal 7 (+1) and 5 (EW). If the result is not as specified, replace the switch assembly.

OK:**Refer to illustration.**



WASHER MOTOR

ON-VEHICLE INSPECTION

1. INSPECT WASHER MOTOR

HINT:

This check should be performed with the windshield washer motor and pump installed to the washer jar.

- (a) Fill the washer jar with washer fluid.
- (b) Check the motor (front side)
 - (1) Connect the battery's positive (+) lead to terminal 2 of the washer motor and pump, and the negative (-) lead to terminal 1.
 - (2) Check that washer fluid flows from the washer jar.

OK:

Washer fluid flows from washer jar.

If the result is not as specified, replace the washer motor and pump assembly.

- (c) Check the motor (rear side)
 - (1) Connect the battery's positive (+) lead to terminal 2 of the washer motor and pump, and the battery negative (-) lead to terminal 3.
 - (2) Check that washer fluid flows the washer jar.

OK:

Washer fluid flows from washer jar.

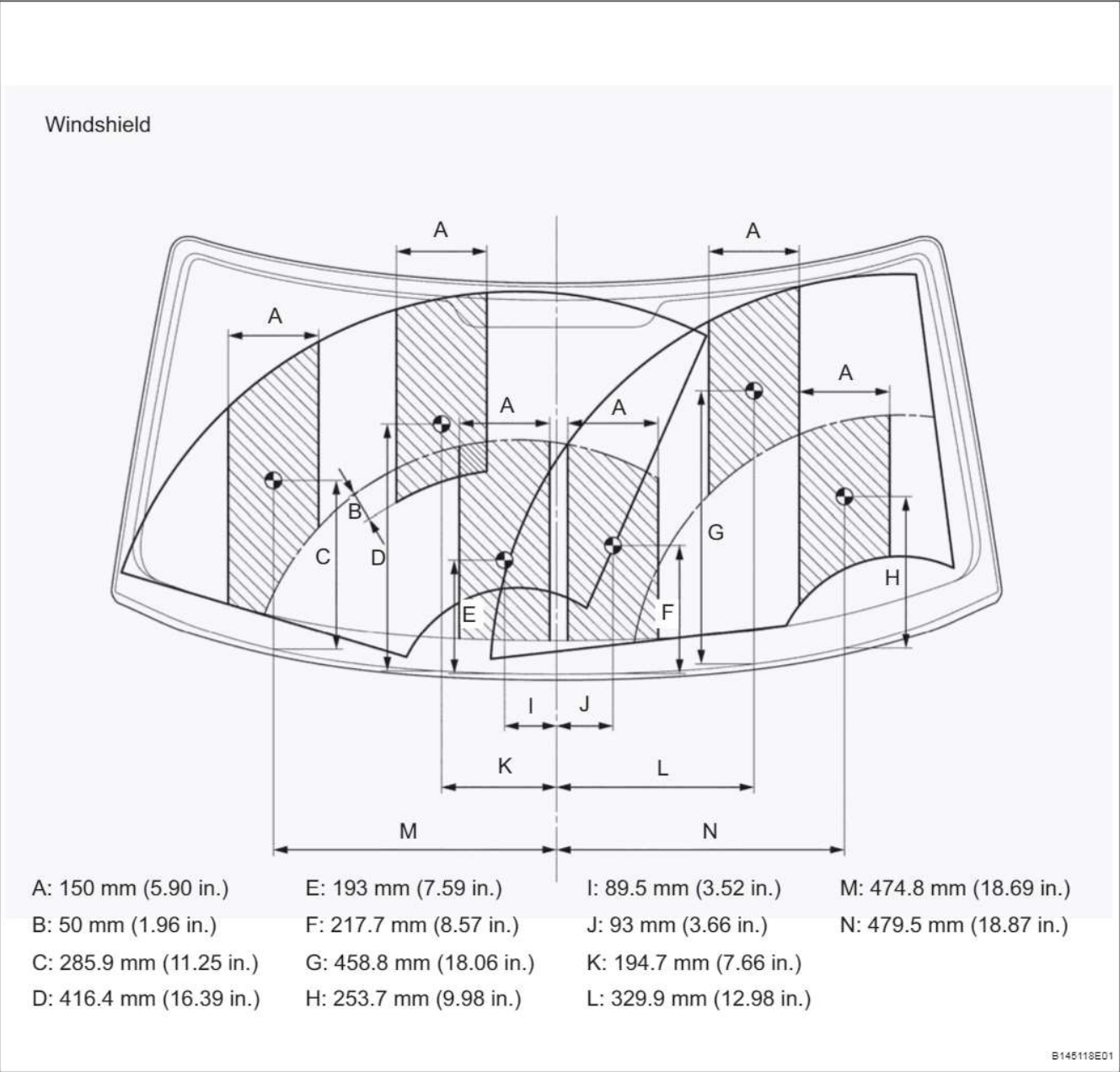
If the result is not as specified, replace the washer motor and pump assembly.

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WASHER NOZZLE

ADJUSTMENT

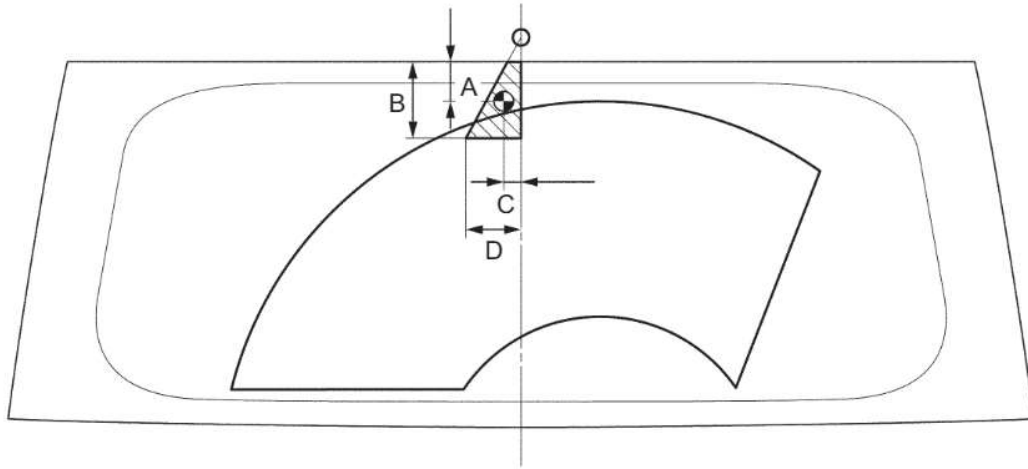
1. INSPECT WASHER NOZZLE
- (a) With the engine running, check that the point where the washer fluid hits the windshield and the rear window is within the range indicated by the hatched line.



WIPER AND WASHER – WASHER NOZZLE

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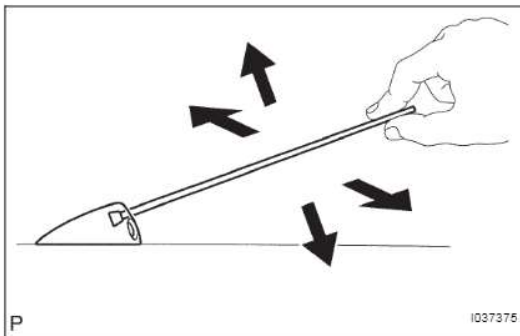
Rear Window



A: 50 mm (1.96 in.)
 B: 100 mm (3.93 in.)
 C: 20 mm (0.78 in.)
 D: 70 mm (2.75 in.)

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2. ADJUST WASHER NOZZLE

- (a) Using a pin, adjust the direction of the washer nozzle.

NOTICE:

Use a pin that the end is not sharp.