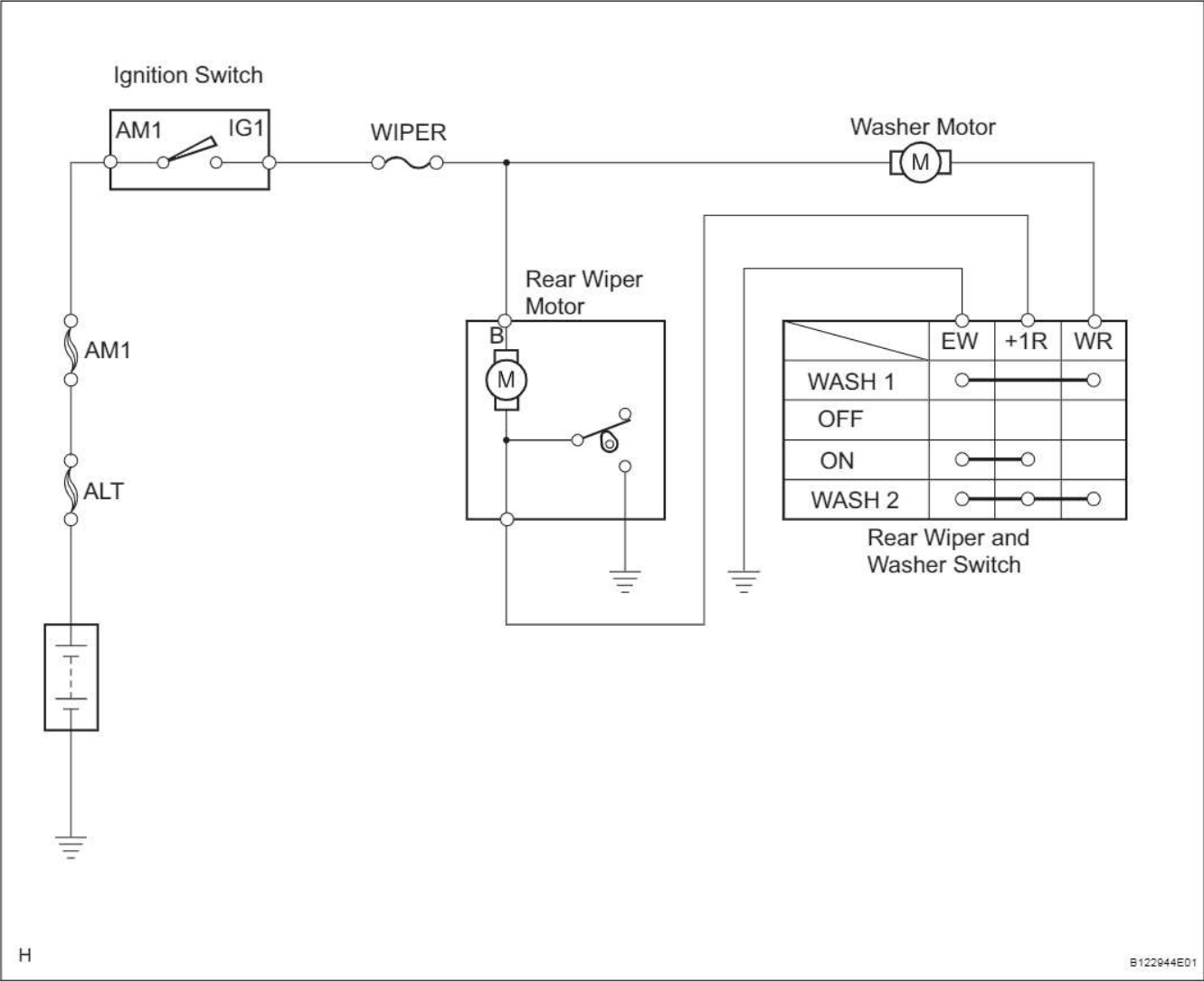


## WW



WW-4

WIPER AND WASHER – WIPER AND WASHER SYSTEM



## WIPER AND WASHER – WIPER AND WASHER SYSTEM

## WW-5

## 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-21    |
|                                                                                       | 3. Windshield wiper motor assembly                                    | WW-8     |
|                                                                                       | 4. Wire harness                                                       | -        |
| Front wipers do not operate in LO or HI.                                              | 1. Windshield wiper switch assembly                                   | WW-21    |
|                                                                                       | 2. Windshield wiper motor assembly                                    | WW-8     |
|                                                                                       | 3. Wire harness                                                       | -        |
| Front wipers do not operate in INT.                                                   | 1. Windshield wiper switch assembly                                   | WW-21    |
|                                                                                       | 2. Windshield wiper motor assembly                                    | WW-8     |
|                                                                                       | 3. Wire harness                                                       | -        |
| Front washer motor does not operate.                                                  | 1. WIPER fuse                                                         | -        |
|                                                                                       | 2. Windshield wiper switch assembly                                   | WW-21    |
|                                                                                       | 3. Washer motor                                                       | WW-24    |
|                                                                                       | 4. Wire harness                                                       | -        |
| Front wipers do not operate when washer switch is in ON position.                     | 1. Windshield wiper switch assembly                                   | WW-21    |
|                                                                                       | 2. Windshield wiper motor assembly                                    | WW-8     |
|                                                                                       | 3. Wire harness                                                       | -        |
| Rear wiper and washers do not operate.                                                | 1. WIPER fuse                                                         | -        |
|                                                                                       | 2. Rear wiper switch                                                  | WW-21    |
|                                                                                       | 3. Wire harness                                                       | -        |
| Rear wiper does not operate.                                                          | 1. Rear wiper switch assembly                                         | WW-21    |
|                                                                                       | 2. Rear wiper motor                                                   | WW-16    |
|                                                                                       | 3. Wire harness                                                       | -        |
| Rear washer motor does not operate.                                                   | 1. WASH fuse                                                          | -        |
|                                                                                       | 2. Rear washer switch assembly                                        | WW-21    |
|                                                                                       | 3. Washer motor                                                       | -        |
|                                                                                       | 4. Wire harness                                                       | -        |
| Rear wiper does not operate when washer switch is in ON position.                     | 1. Rear wiper switch assembly                                         | WW-21    |
|                                                                                       | 2. Rear wiper motor                                                   | WW-24    |
|                                                                                       | 3. Wire harness                                                       | -        |
| Washer fluid does not flow.                                                           | 1. Washer hose and nozzle                                             | -        |
| When wiper switch is off, wiper blade does not retract or retracts in wrong position. | 1. Windshield wiper motor assembly (Wiper arm and blade set position) | WW-8     |
| Wiper blade is in contact with body.                                                  | 1. Windshield wiper motor assembly (Wiper arm and blade set position) | WW-8     |

WW

## WIPER AND WASHER – FRONT WIPER RUBBER

WW-15

## INSTALLATION

## HINT:

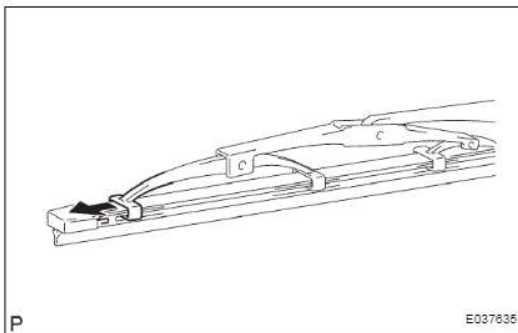
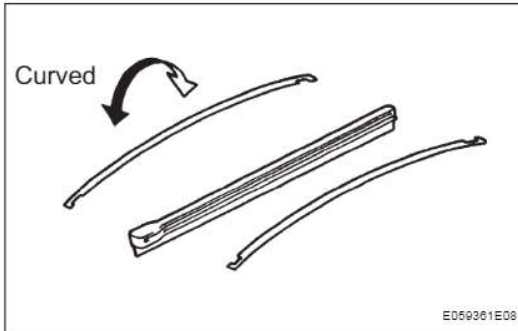
- Use the same procedures for the RH side and LH side.
- The procedures listed below are for the LH side.

## 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.

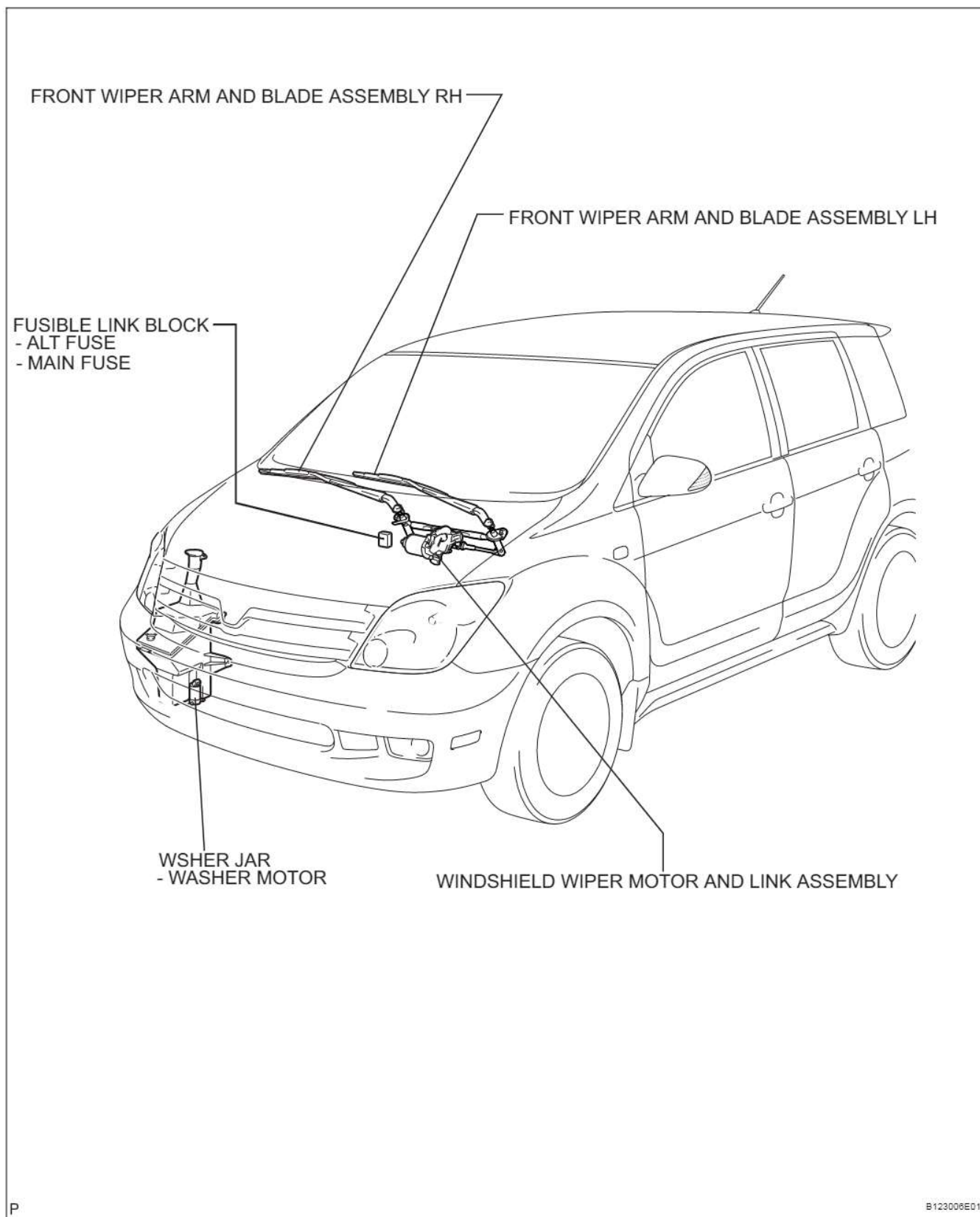
**NOTICE:**

- Push in the 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

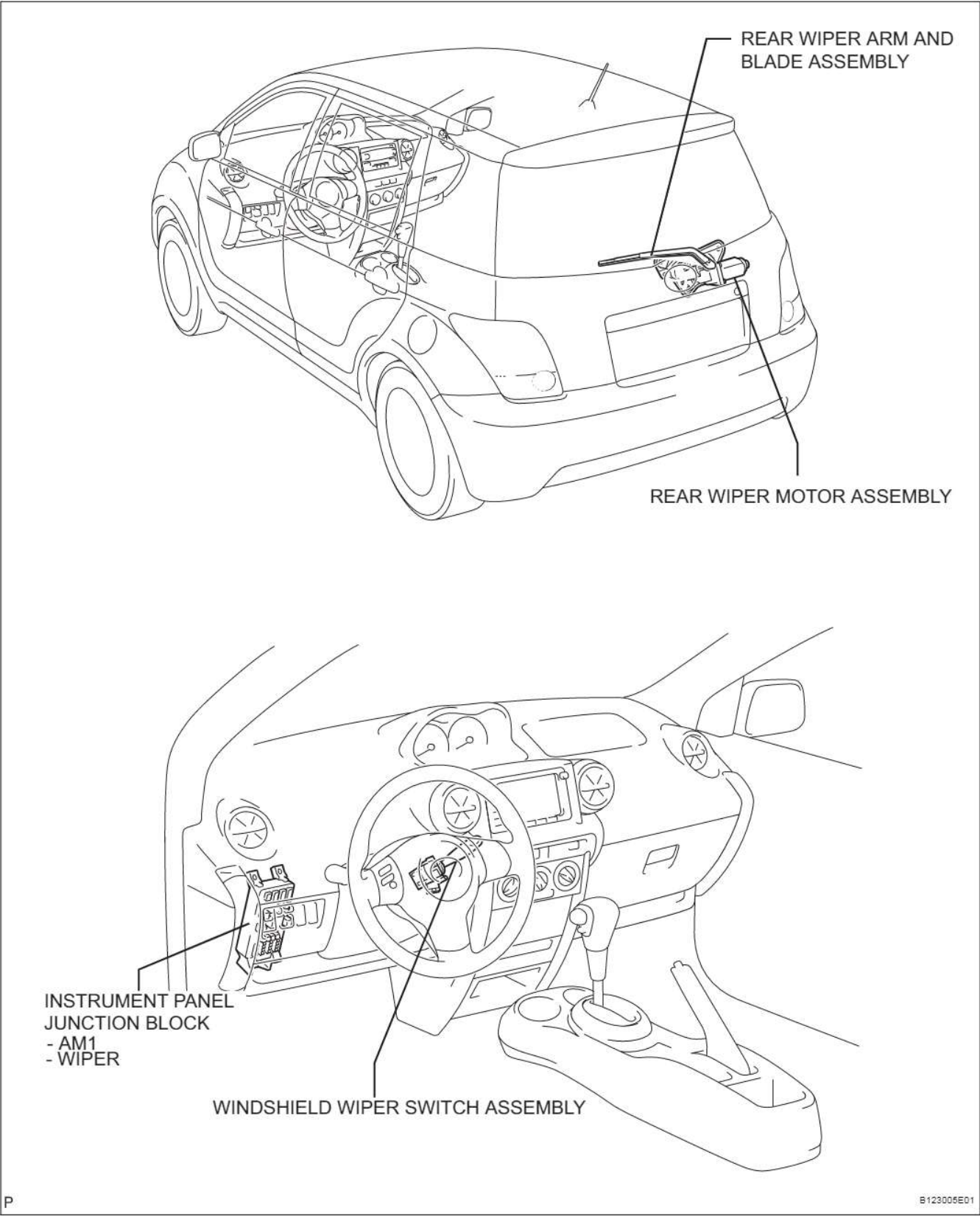
## PARTS LOCATION



WW-2

WIPER AND WASHER – WIPER AND WASHER SYSTEM

WW



## WIPER AND WASHER – REAR WIPER MOTOR

WW-17

## REMOVAL

1. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

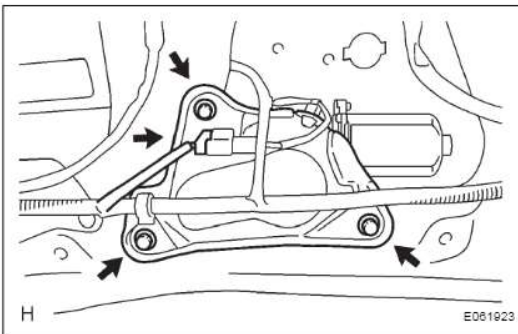
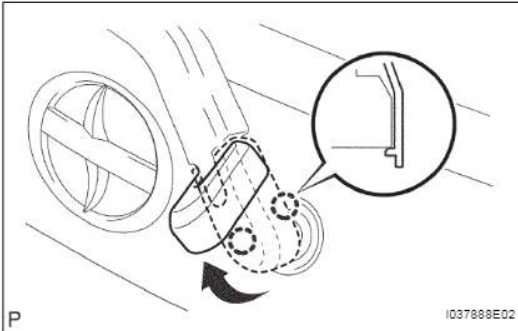
## CAUTION:

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 ASSEMBLY  
(See page [ED-36](#))

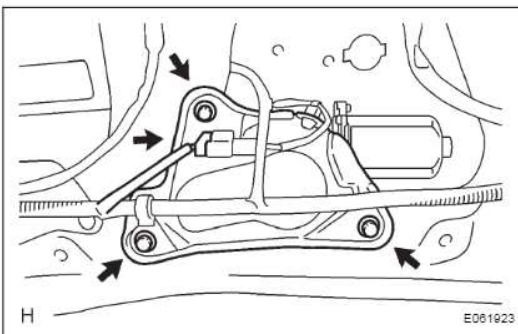
3. REMOVE REAR WIPER ARM

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



4. REMOVE REAR WIPER MOTOR ASSEMBLY

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



## INSTALLATION

1. INSTALL REAR WIPER MOTOR ASSEMBLY

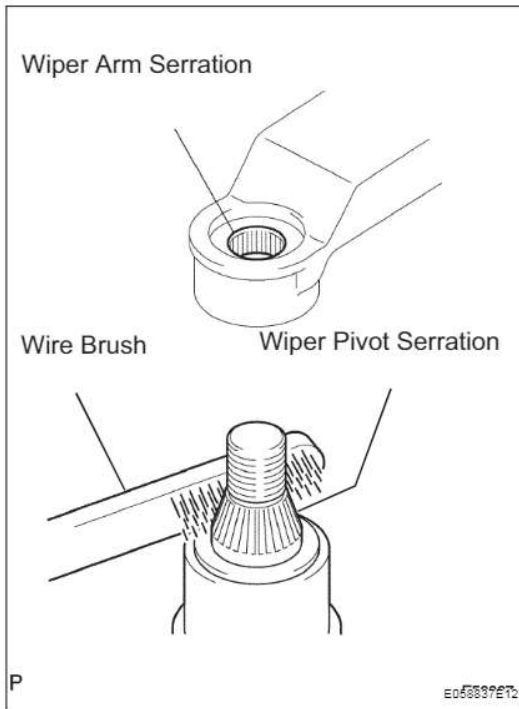
- (a) Install the wiper motor with the 3 bolts.  
**Torque: 5.5 N\*m (56 kgf\*cm, 49 in.\*lbf)**
- (b) Connect the connector.

2. INSTALL REAR WIPER ARM

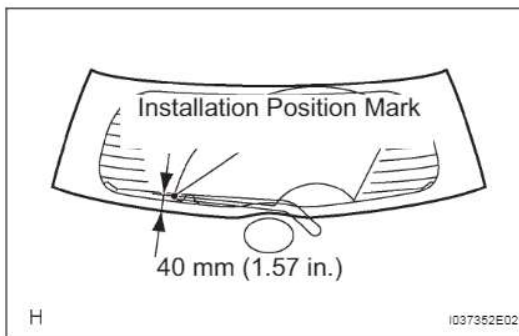
- (a) Operate the wiper, and stop the wiper motor at the automatic stop position.

## WW-18

## WIPER AND WASHER – REAR WIPER MOTOR



- (b) Scrape off the serrated 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 with the nut in the position shown in the illustration.  
**Torque: 5.5 N\*m (56 kgf\*cm, 49 in.\*lbf)**  
**HINT:**  
 Hold down the arm hinge by hand in order to fasten the nut.

### 3. INSTALL BACK DOOR TRIM BOARD ASSEMBLY

### 4. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

### 5. PERFORM INITIALIZATION

- (a) Perform initialization (see page [IN-23](#)).

#### NOTICE:

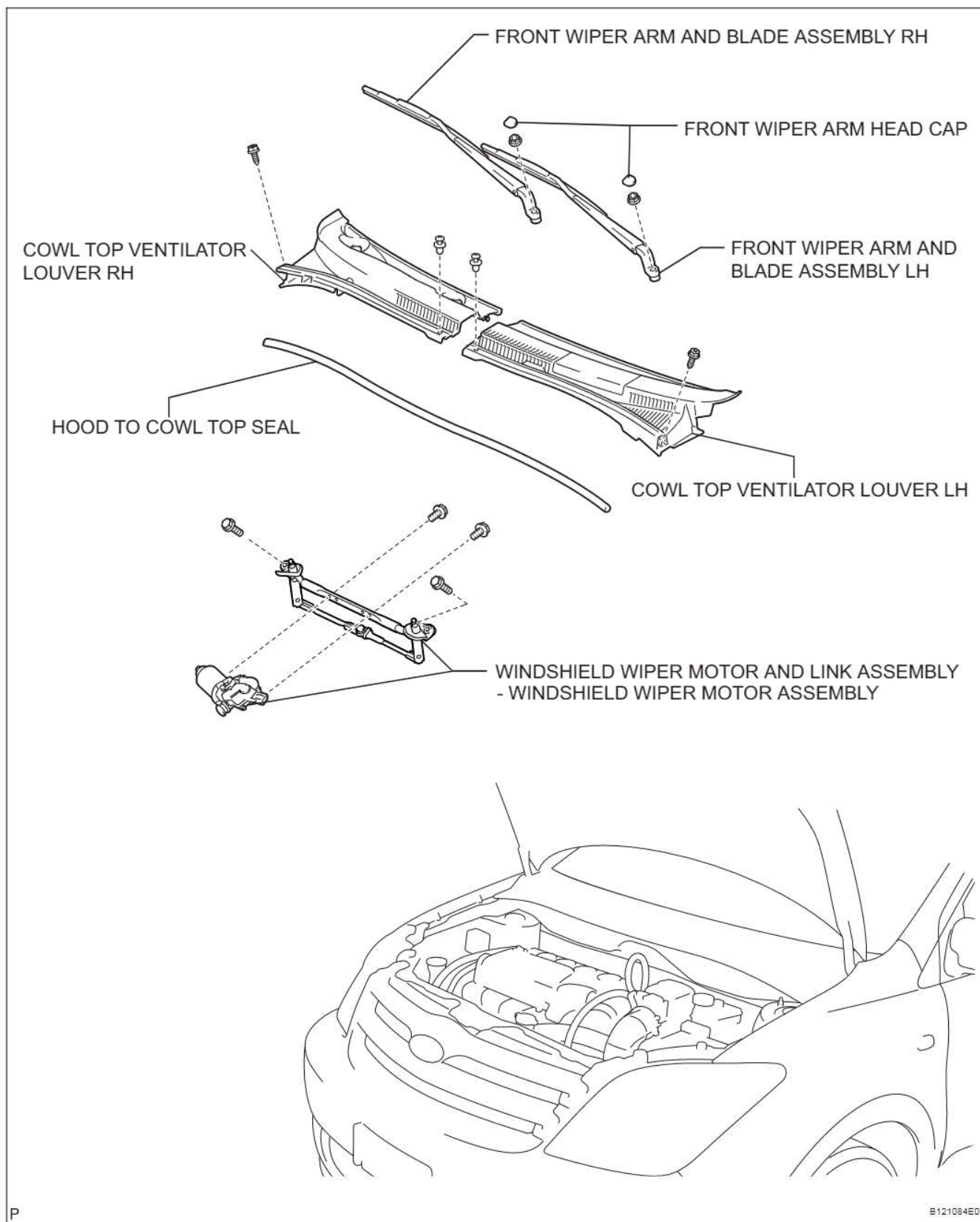
Certain systems need to be initialized after disconnecting and reconnecting the cable from the negative (-) battery terminal.

## WW-6

## WIPER AND WASHER – FRONT WIPER MOTOR AND LINK

## FRONT WIPER MOTOR AND LINK

## COMPONENTS



P

B121084E01

**WIPER AND WASHER – FRONT WIPER MOTOR AND LINK****WW-7****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 LH**

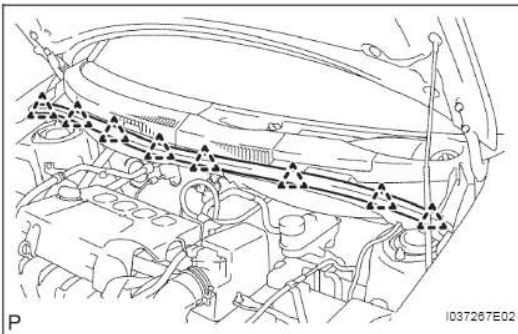
(a) Operate the wiper and stop the wiper motor at the automatic stop position.

4. **REMOVE FRONT WIPER ARM AND BLADE ASSEMBLY RH**

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

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

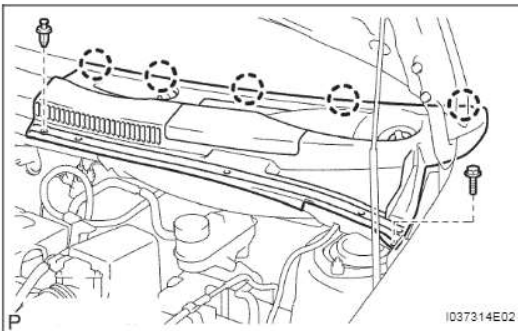
(a) Using a clip remover, remove the 8 clips and seal.



6. **REMOVE COWL TOP VENTILATOR LOUVER LH**

(a) Remove the clip and bolt.

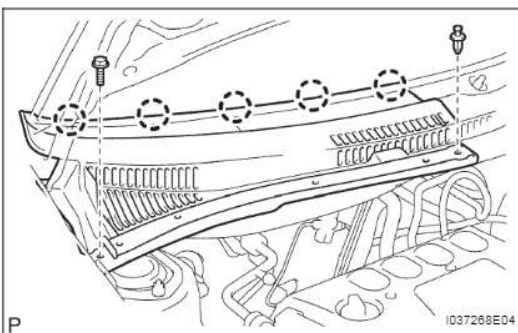
(b) Detach the 5 claws and remove the ventilator louver.



7. **REMOVE COWL TOP VENTILATOR LOUVER RH**

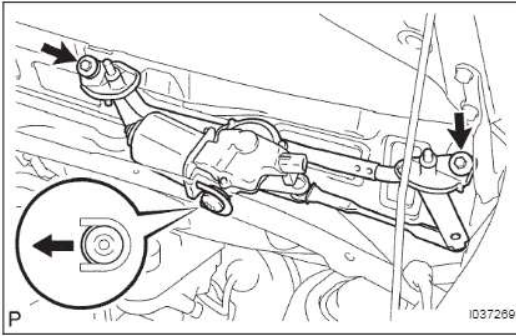
(a) Remove the clip and bolt.

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



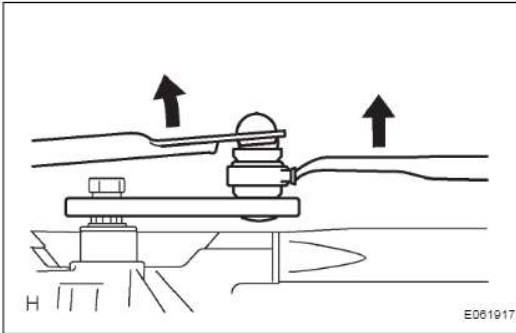
## WW-8

## WIPER AND WASHER – FRONT WIPER MOTOR AND LINK



### 8. REMOVE WINDSHIELD WIPER MOTOR AND LINK ASSEMBLY

- Disconnect the connector of the wiper motor.
- Remove the 2 bolts.
- Slide the wiper link to the vehicle's passenger side. Remove the meshing of the rubber pin and remove the wiper motor and link.

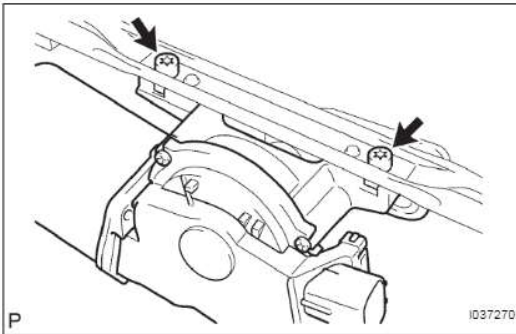


### 9. REMOVE WINDSHIELD WIPER MOTOR ASSEMBLY

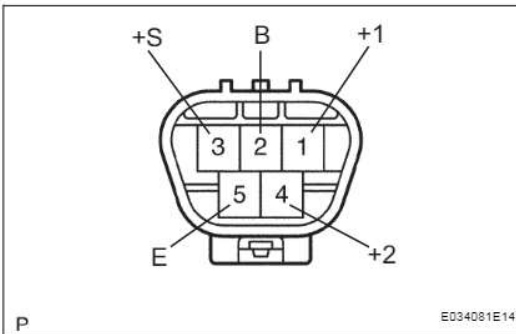
- Using a screwdriver, remove the meshing of the 2 rods at the crank arm pivot of the wiper motor.

HINT:

Tape the screwdriver tip before use.



- Remove the 2 "torx" bolts and windshield wiper motor.



## INSPECTION

### 1. INSPECT WINDSHIELD WIPER MOTOR ASSEMBLY

- Check the LO operation.
  - 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).**

- Check the HI operation.
  - 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).**

## WIPER AND WASHER – FRONT WIPER MOTOR AND LINK

WW-9

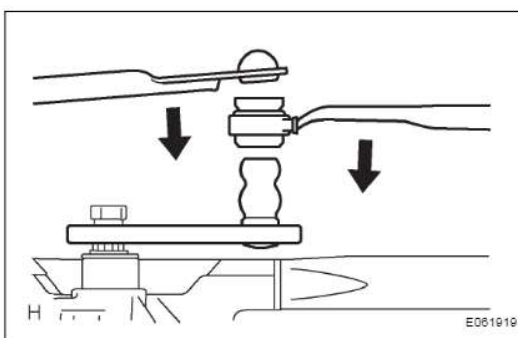
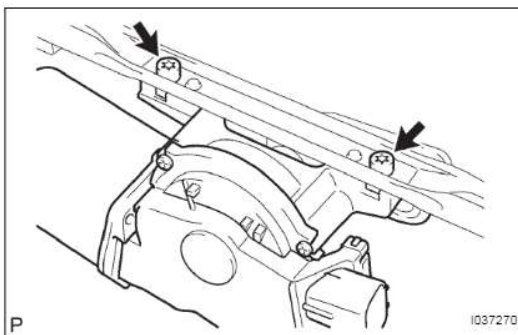
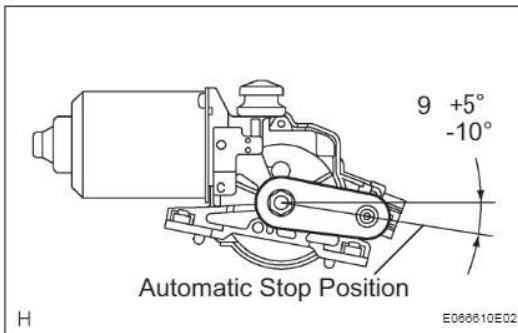
- (c) Check the automatic stop operation.
- (1) Connect the battery's positive (+) lead to terminal 1 (+1) and the negative (-) lead to terminal 5 (E). With the motor rotating at low speed (LO), disconnect terminal 1 (+1) to stop the wiper motor operation at any position other than the automatic stop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

**SST 09843-18040**

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

**OK:****Refer to illustration.**

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

**INSTALLATION****1. INSTALL WINDSHIELD WIPER MOTOR ASSEMBLY**

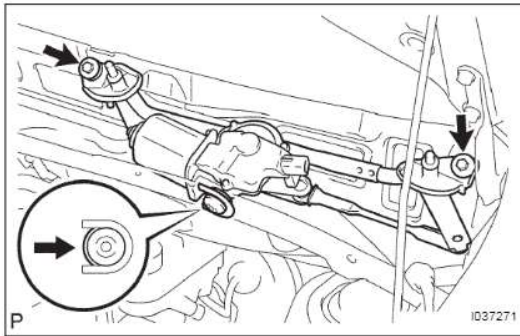
- (a) Install the wiper motor to the wiper link with the 2 "torx" screws.

**Torque: 7.5 N\*m (76 kgf\*cm, 66 in.\*lbf)**

- (b) Apply grease to the crank arm pivot of the wiper motor.
- (c) Install the 2 rods to the wiper motor.

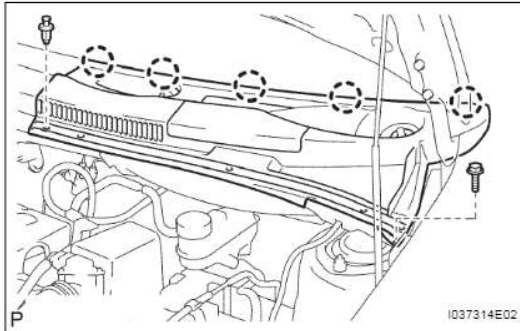
## WW-10

## WIPER AND WASHER – FRONT WIPER MOTOR AND LINK



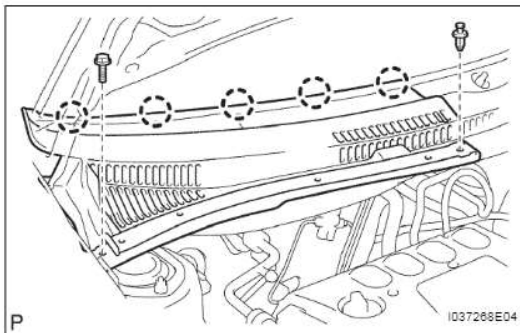
## 2. INSTALL WINDSHIELD WIPER MOTOR AND LINK ASSEMBLY

- (a) Install the wiper motor and link with the 2 bolts.  
**Torque: 5.4 N\*m (55 kgf\*cm, 47 in.\*lbf)**
- (b) Connect the connector.



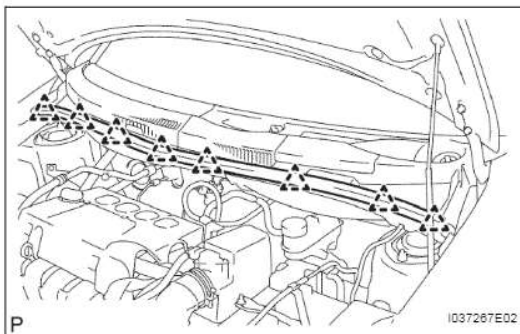
## 3. INSTALL COWL TOP VENTILATOR LOUVER LH

- (a) Attach the 5 claws to install the ventilator louver.
- (b) Install the clip and bolt.



## 4. INSTALL COWL TOP VENTILATOR LOUVER RH

- (a) Attach the 5 claws to install the ventilator louver.
- (b) Install the clip and bolt.

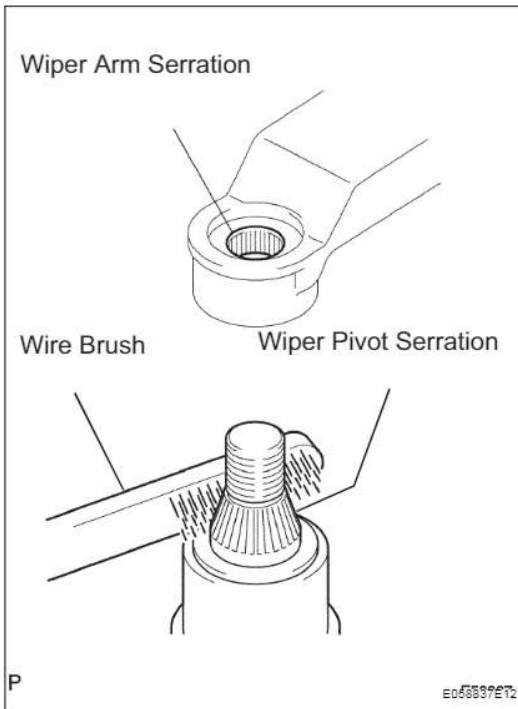


## 5. INSTALL HOOD TO COWL TOP SEAL

- (a) Attach the 8 clips to install the seal.

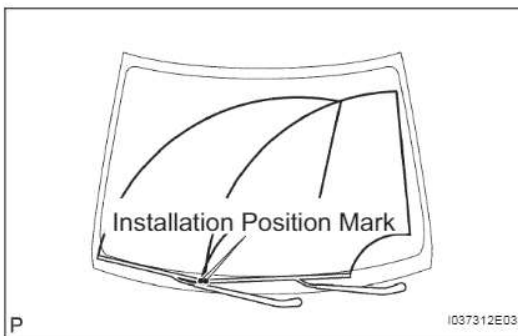
## WIPER AND WASHER – FRONT WIPER MOTOR AND LINK

WW-11



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

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

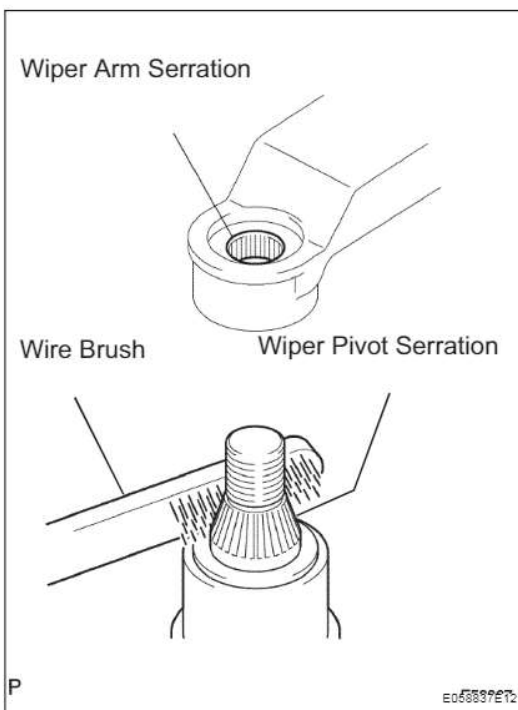


- Install the wiper arm and blade with the nut in the position shown in the illustration.

**Torque: 26 N\*m (265 kgf\*cm, 19 ft.\*lbf)**

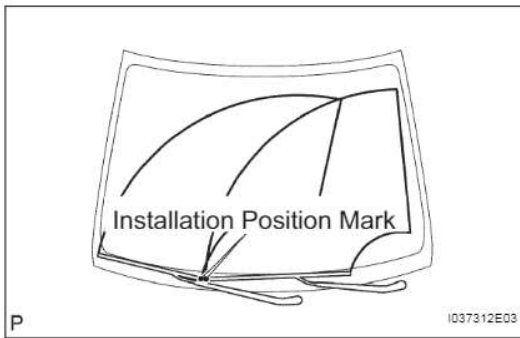
**HINT:**

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



## 7. INSTALL FRONT WIPER ARM AND BLADE ASSEMBLY RH

- Operate the wiper, and stop the wiper motor at the automatic stop position.
- Scrape off the serrated part of the wiper arm with a round file or equivalent.
- 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: 26 N\*m (265 kgf\*cm, 19 ft.\*lbf)**

**HINT:**

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

**8. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL**

**9. PERFORM INITIALIZATION**

- (a) Perform initialization (see page [IN-23](#)).

**NOTICE:**

Certain systems need to be initialized after disconnecting and reconnecting the cable from the negative (-) battery terminal.

**WW**

## INSTALLATION

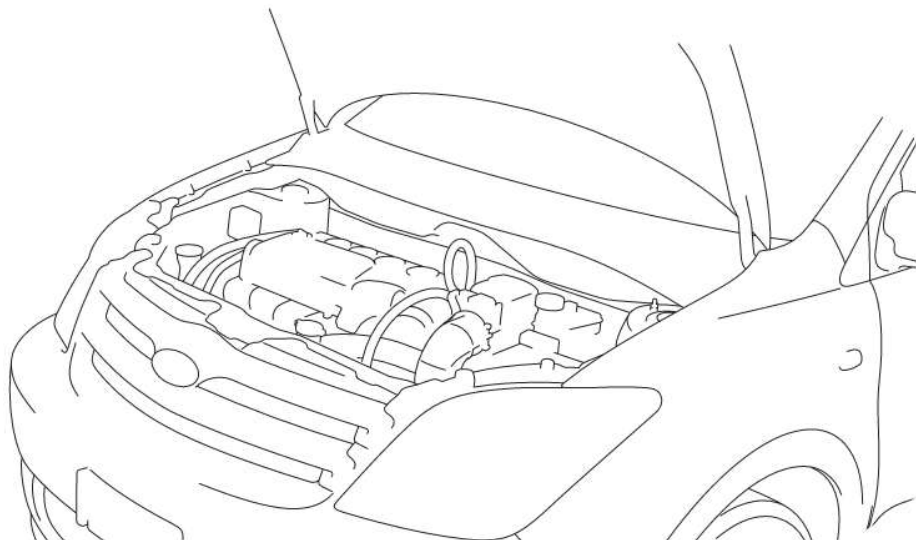
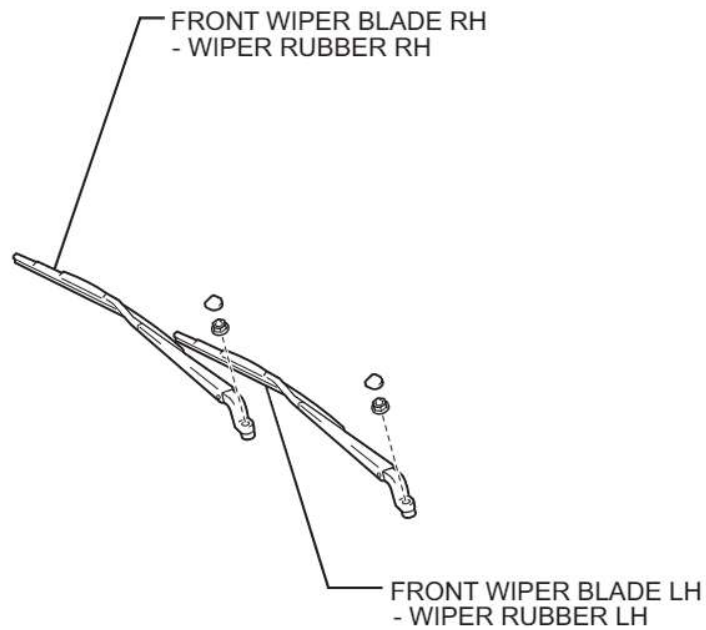
1. **INSTALL WINDSHIELD WIPER SWITCH ASSEMBLY**
  - (a) Attach the claw to install the wiper switch.
  - (b) Connect the connector.
2. **INSTALL STEERING COLUMN COVER** (See page [SR-13](#))
3. **CONNECT CABLE TO NEGATIVE BATTERY TERMINAL**
4. **PERFORM INITIALIZATION**
  - (a) Perform initialization (see page [IN-23](#)).

**NOTICE:**

Certain systems need to be initialized after disconnecting and reconnecting the cable from the negative (-) battery terminal.

**WW**

## FRONT WIPER RUBBER COMPONENTS



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

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**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 wiper arm with the wiper blade being removed from it.**

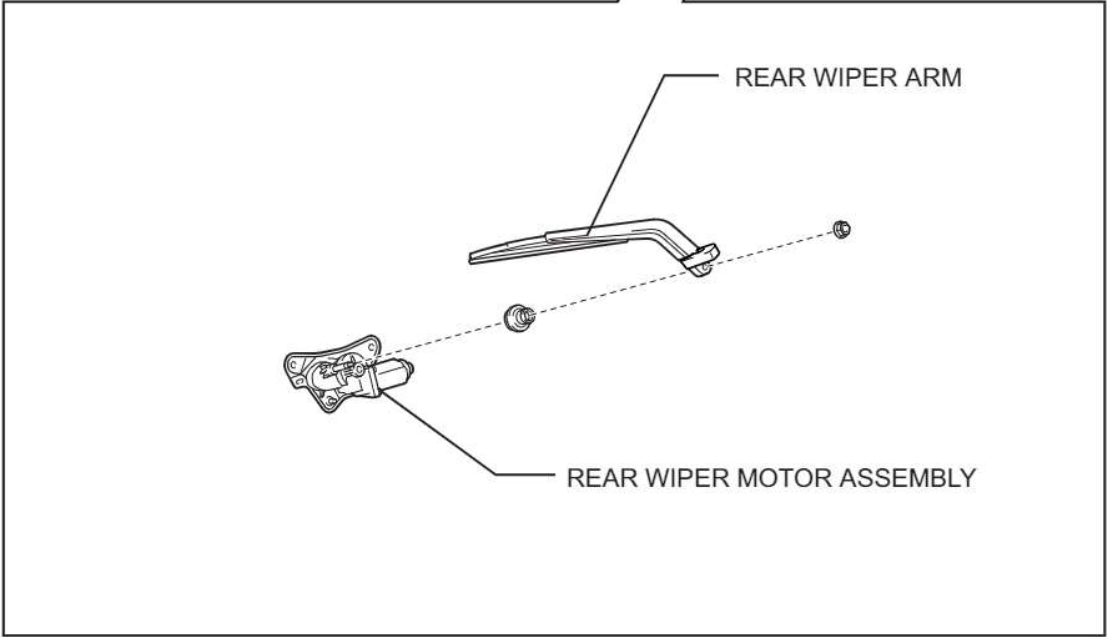
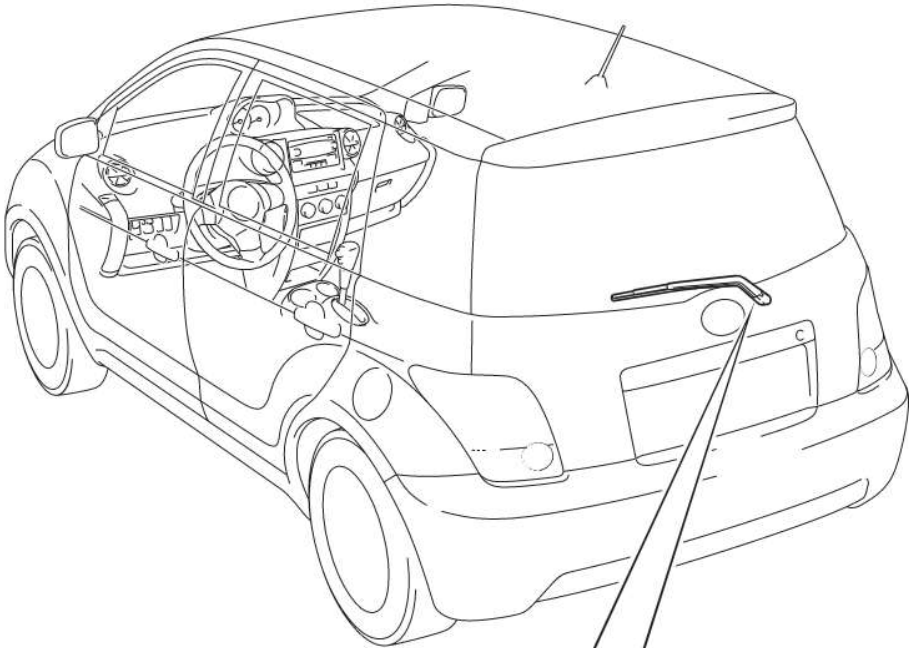
**2. REMOVE WIPER RUBBER LH**

- (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

## ON-VEHICLE INSPECTION

## 1. CHECK REAR WIPER MOTOR ASSEMBLY

(a) Check the automatic stop position operation.

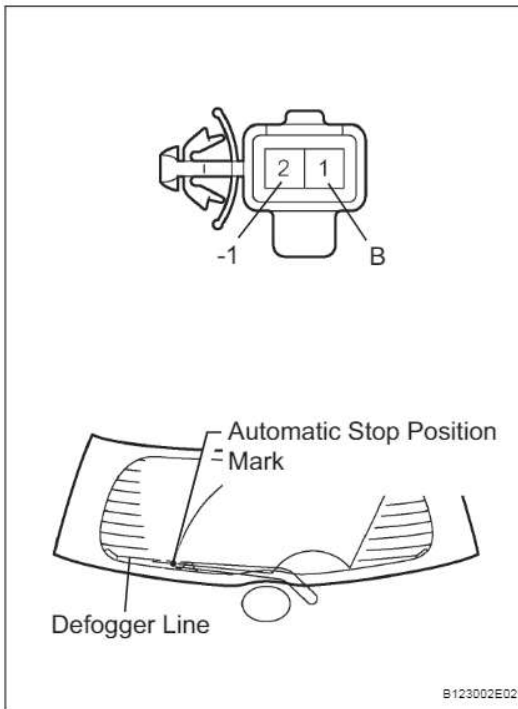
- (1) Connect the battery's positive (+) lead to terminal 1 (B) and the negative (-) lead to terminal 2 (-1).

**NOTICE:****The body earth should be connected.**

- (2) With the motor being rotated, disconnect terminal 1 (B) and terminal 2 (-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 stops automatically at the automatic stop position.

**OK:****Refer to illustration.**

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

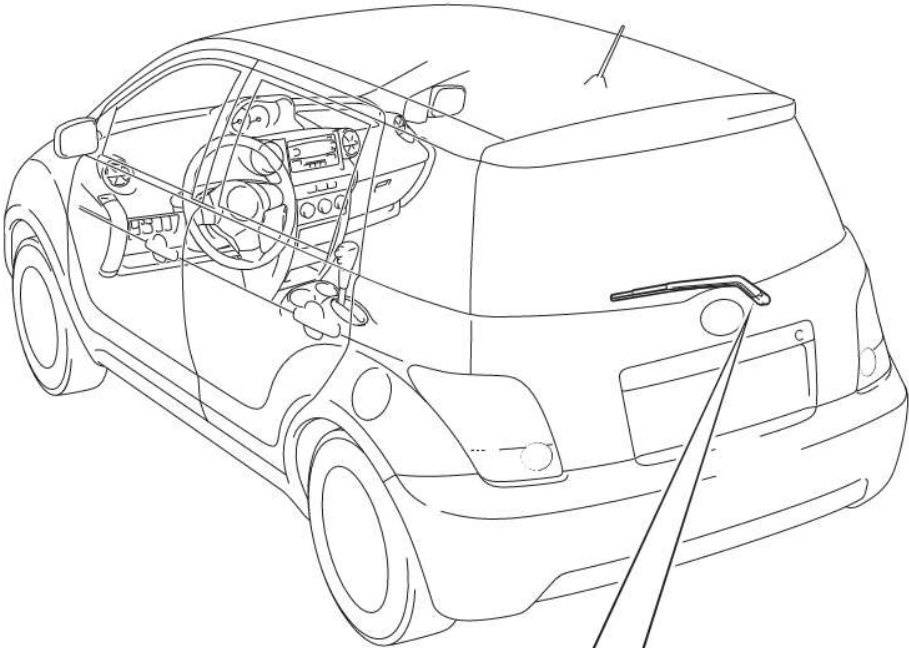


WW-18

WIPER AND WASHER - REAR WIPER RUBBER

REAR WIPER RUBBER  
COMPONENTS

WW

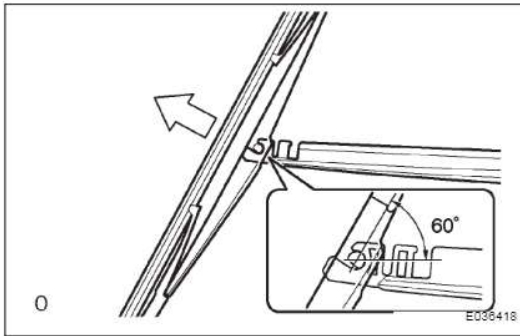


REAR WIPER BLADE  
- REAR WIPER RUBBER



## WIPER AND WASHER – REAR WIPER RUBBER

WW-19



## REMOVAL

## 1. REMOVE REAR WIPER BLADE

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

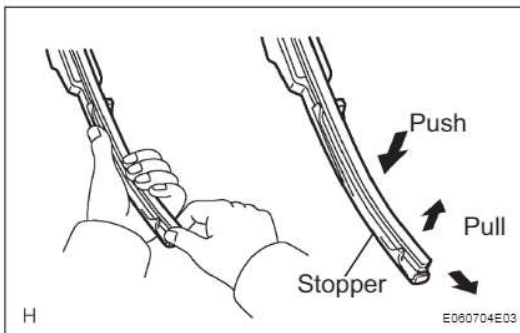
**NOTICE:**

**Be careful not to break the claw.**

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

**NOTICE:**

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



## 2. REMOVE REAR WIPER RUBBER

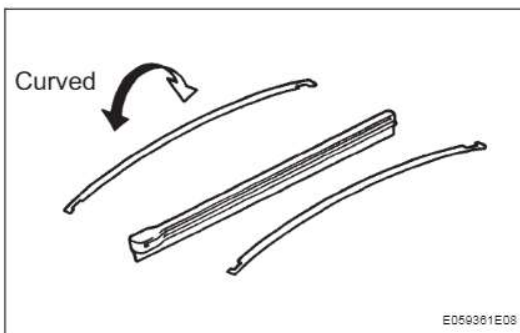
- (a) Pull on the end of the wiper rubber protruding from the blade stopper as shown in the illustration.

**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.



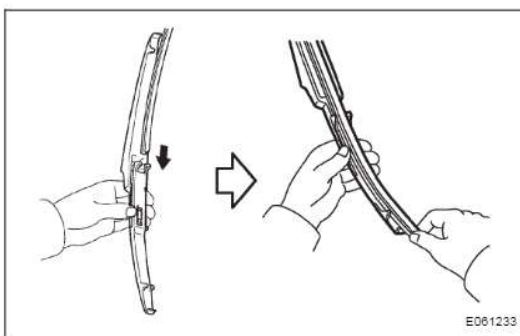
## INSTALLATION

## 1. INSTALL REAR WIPER RUBBER

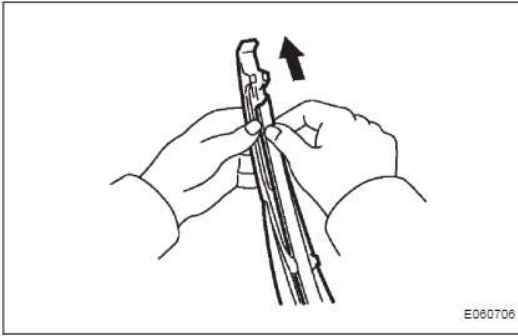
- (a) Install the 2 wiper rubber backing plates to the wiper rubber.

**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.

**WW-20****WIPER AND WASHER – REAR WIPER RUBBER**

- (c) After passing the wiper rubber through the rear 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 wiper blade to the wiper.

HINT:

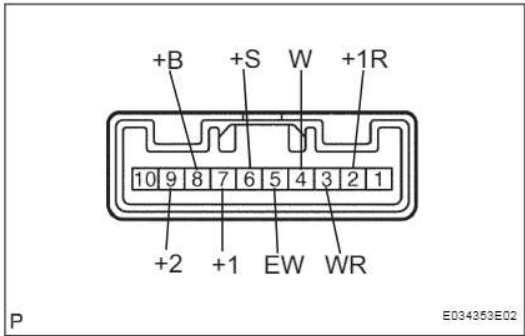
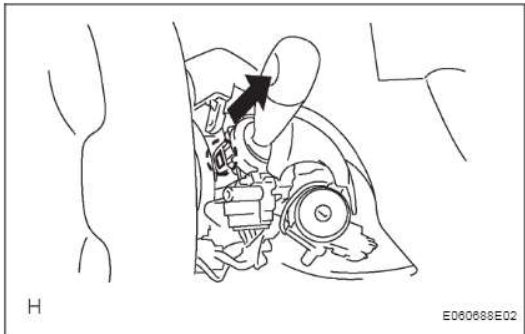
Install the wiper blade so that a click sound is heard.

**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-7](#))
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             | Below 1 Ω           |
| 2 - 3 - 5                 | OFF              | 10 kΩ or higher     |
| 2 (+1R) - 5 (EW)          | ON               | Below 1 Ω           |
| 3 (WR) - 2 (+1R) - 5 (EW) | ON + WASH        | Below 1 Ω           |

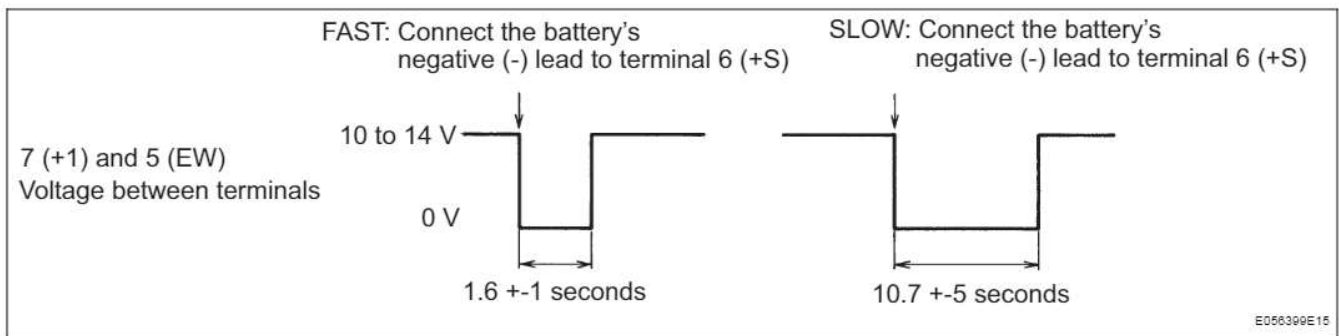
If the result is not as specified, replace the switch assembly.

(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).

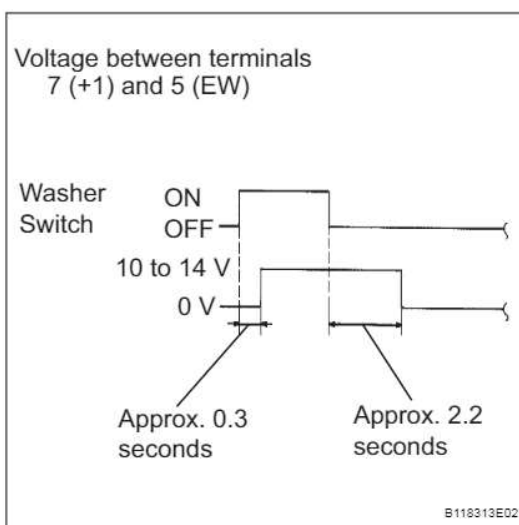
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## WIPER AND WASHER – WIPER SWITCH

- (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.****WW**

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



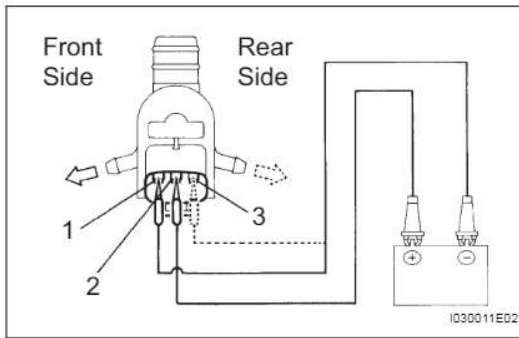
- (c) Check the front washer operation.
  - (1) Turn the wiper switch off.
  - (2) Connect the battery's positive (+) lead to terminal 8 (+B) and the battery's negative (-) lead to terminals 6 (+S) and 5 (EW).
  - (3) Connect the voltmeter's positive (+) lead to terminal 7 (+1) and the voltmeter's negative (-) lead to terminal 5 (EW).
  - (4) Turn the washer switch on and off, and check the voltage between terminals 7 (+1) and 5 (EW).

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

**OK:****Refer to illustration.**

## WW-24

## WIPER AND WASHER – WASHER MOTOR



## WASHER MOTOR

## ON-VEHICLE INSPECTION

## 1. CHECK 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 negative (-) lead to terminal 3.

- (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.

WW

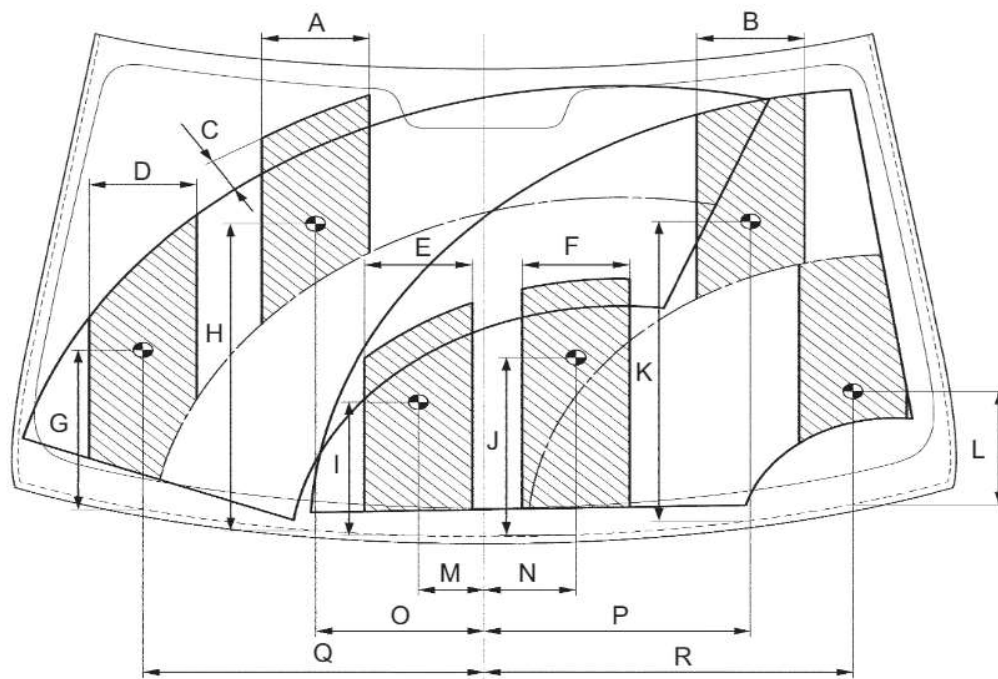
## WASHER NOZZLE

### ADJUSTMENT

#### 1. CHECK 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.

Windshield

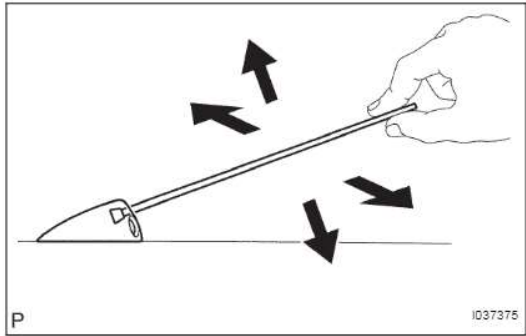
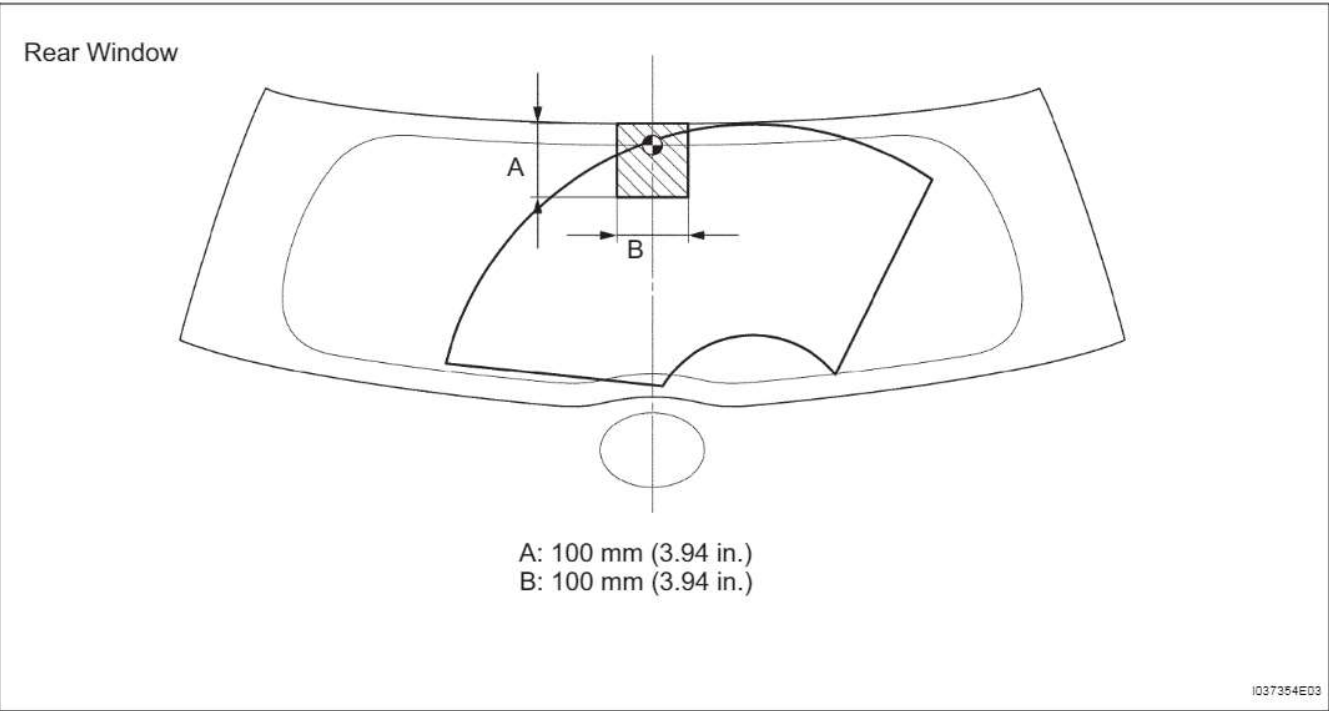


|                         |                         |
|-------------------------|-------------------------|
| A: 150 mm (5.91 in.)    | J: 322.4 mm (12.69 in.) |
| B: 150 mm (5.91 in.)    | K: 548.7 mm (21.60 in.) |
| C: 50 mm (1.97 in.)     | L: 211.3 mm (8.7 in.)   |
| D: 150 mm (5.91 in.)    | M: 98.3 mm (3.69 in.)   |
| E: 150 mm (5.91 in.)    | N: 123.4 mm (4.86 in.)  |
| F: 150 mm (5.91 in.)    | O: 233.2 mm (9.18 in.)  |
| G: 292.2 mm (11.50 in.) | P: 361.4 mm (14.22 in.) |
| H: 556.3 mm (22.02 in.) | Q: 470 mm (18.50 in.)   |
| I: 243.1 mm (9.57 in.)  | R: 503 mm (19.81 in.)   |

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WIPER AND WASHER – WASHER NOZZLE



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.