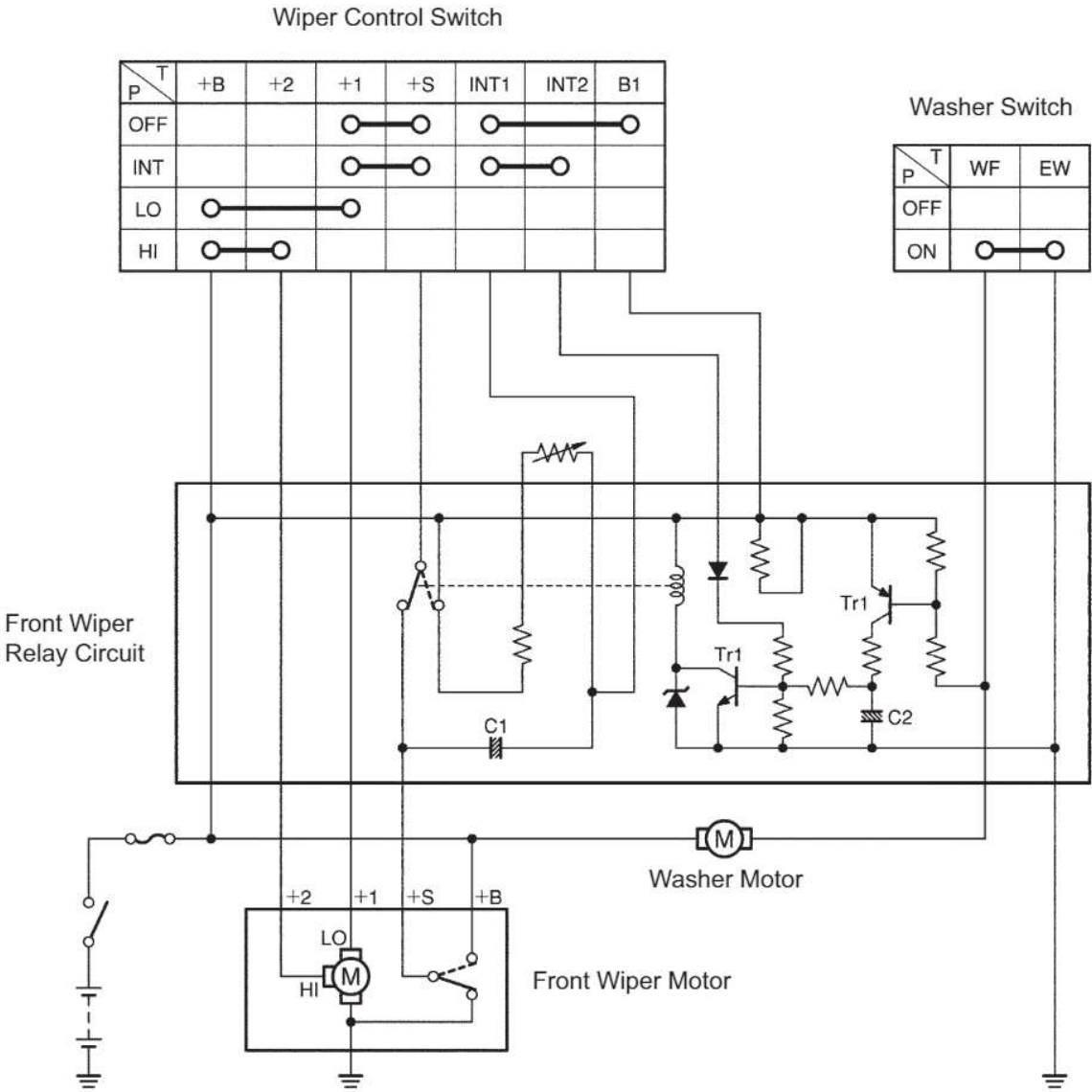


SYSTEM DIAGRAM



WW

WW-4**WIPER AND WASHER – WIPER AND WASHER SYSTEM****SYSTEM DESCRIPTION****1. WASHER LINKED OPERATION**

- (a) This system operates the front wipers at low speed immediately after a jet of washer fluid when the front washer switch is on for 0.3 second or more. The system operates the front wipers at low speed for approximately 2.2 seconds and then stops operation when the washer switch is on for 1.5 seconds or more.

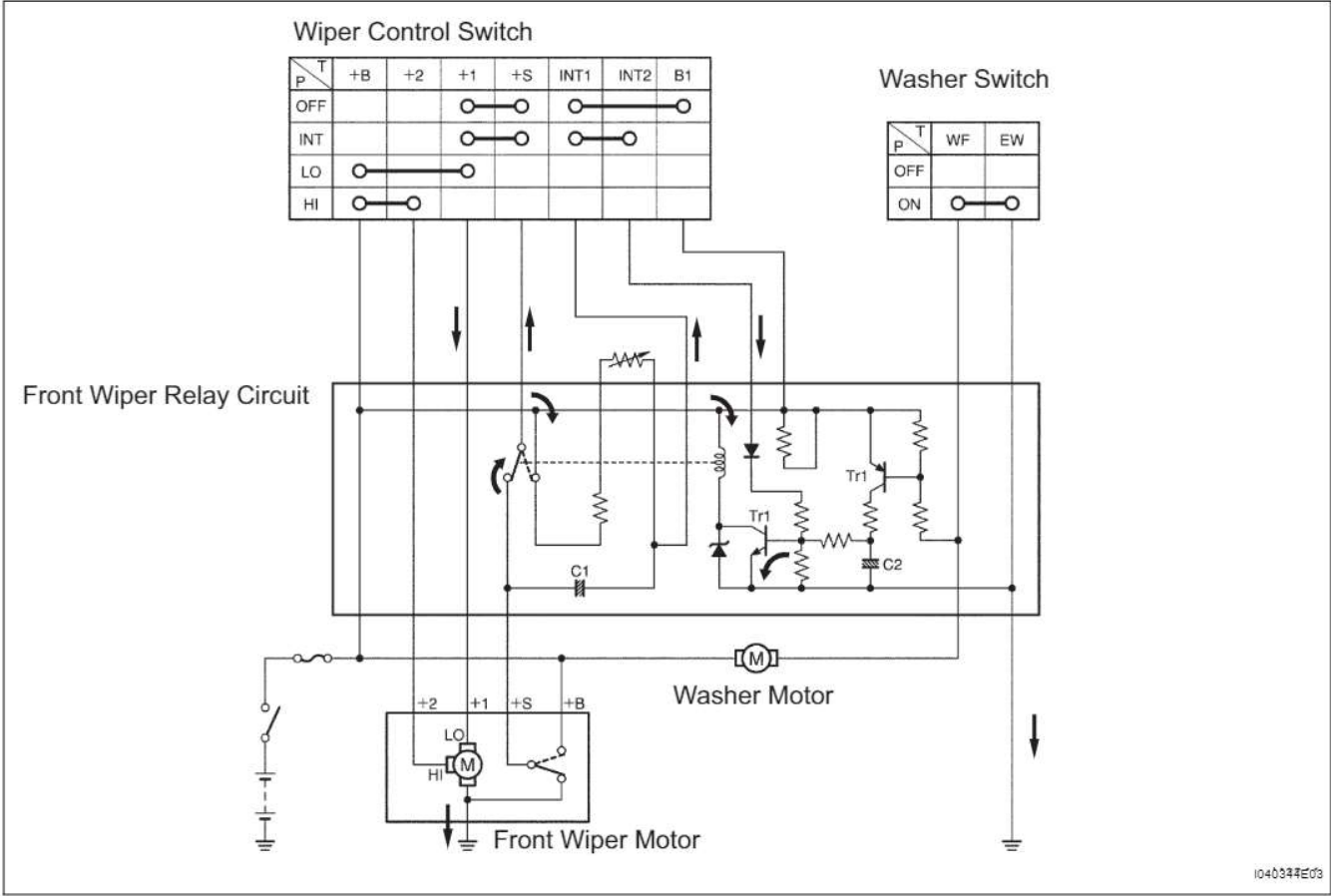
2. INTERMITTENT OPERATION

- (a) The system operates the front wipers once in approximately 1.6 to 10.7 seconds when the front wiper switch is turned to the INT position. The intermittent time can be adjusted from 1.6 to 10.7 seconds.
- (b) If the wiper control switch is turned to the INT position, current flows from the already charged capacitor C1 through terminals INT1 and INT2 of the wiper control switch, to Tr1 (transistor). When Tr1 turns on, current flows from terminal +S of the wiper control switch to terminal +1 of the wiper motor, to the wiper motor and finally to the ground, causing the wiper motor to operate. At the same time, current flows from capacitor C1 to terminal INT1 of the wiper control switch and then INT2. When the current flow from capacitor C1 ends, Tr1 turns off to stop the relay contact point and halt the wiper motor. When the relay contact point turns off, capacitor C1 begins to charge again and Tr1 remains off until charging has been completed. This period corresponds to the intermittent time. When capacitor C1 is fully charged, Tr1 turns on and then the relay contact point activates, causing the motor to operate. This cycle is the intermittent operation. The intermittent time can be adjusted by using the intermittent time adjust dial (variable resistor) to change the charge time of capacitor C1.

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WIPER AND WASHER – WIPER AND WASHER SYSTEM

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WW

WW-6

WIPER AND WASHER – WIPER AND WASHER SYSTEM

PROBLEM SYMPTOMS TABLE

1. WIPER AND WASHER SYSTEM

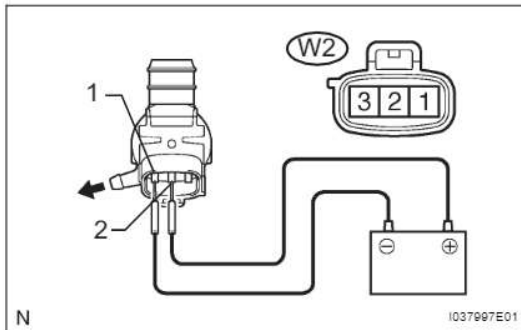
Symptom	Suspected area	See page
Wipers and washers do not operate.	1. IG1 Relay	-
	2. Windshield Wiper Switch Assembly	WW-12
	3. Wire Harness or Connector	-
Front wipers do not operate in LO or HI.	1. Windshield Wiper Switch Assembly	WW-12
	2. Windshield Wiper Motor Assembly	WW-8
	3. Wire Harness or Connector	-
Front wipers do not operate in INT.	1. Windshield Wiper Switch Assembly	WW-12
	2. Windshield Wiper Motor Assembly	WW-8
	3. Wire Harness or Connector	-
Front washer motor does not operate.	1. WASH Fuse	-
	2. Windshield Wiper Switch Assembly	WW-12
	3. Windshield Washer Motor and Pump Assembly	WW-8
	4. Wire Harness or Connector	-
Front wipers do not operate when jetting washer fluid with washer switch on.	1. Windshield Wiper Switch Assembly	WW-12
	2. Windshield Wiper Motor Assembly	WW-8
	3. Wire Harness or Connector	-
Washer fluid does not flow. (Windshield washer motor is normal.)	1. Washer Hose and Nozzle	-
When the wiper switch is off, the wiper blade does not return or the return position is wrong.	1. Windshield Wiper Motor Assembly	WW-8
	2. Wiper arm and blade installation position	WW-7
	3. Wire Harness or Connector	-

ON-VEHICLE INSPECTION

1. INSPECT WINDSHIELD WASHER MOTOR AND PUMP ASSEMBLY

(a) Operation Check

- (1) Fill the washer jar with washer fluid.
- (2) Connect the positive battery (+) lead to terminal 2 of the windshield washer motor and pump assembly, and the negative battery (-) lead to terminal 1. Check that washer fluid flows from the washer jar.



WW

WIPER AND WASHER SYSTEM

PRECAUTION

1. WASHER NOZZLE ADJUSTMENT PRECAUTION

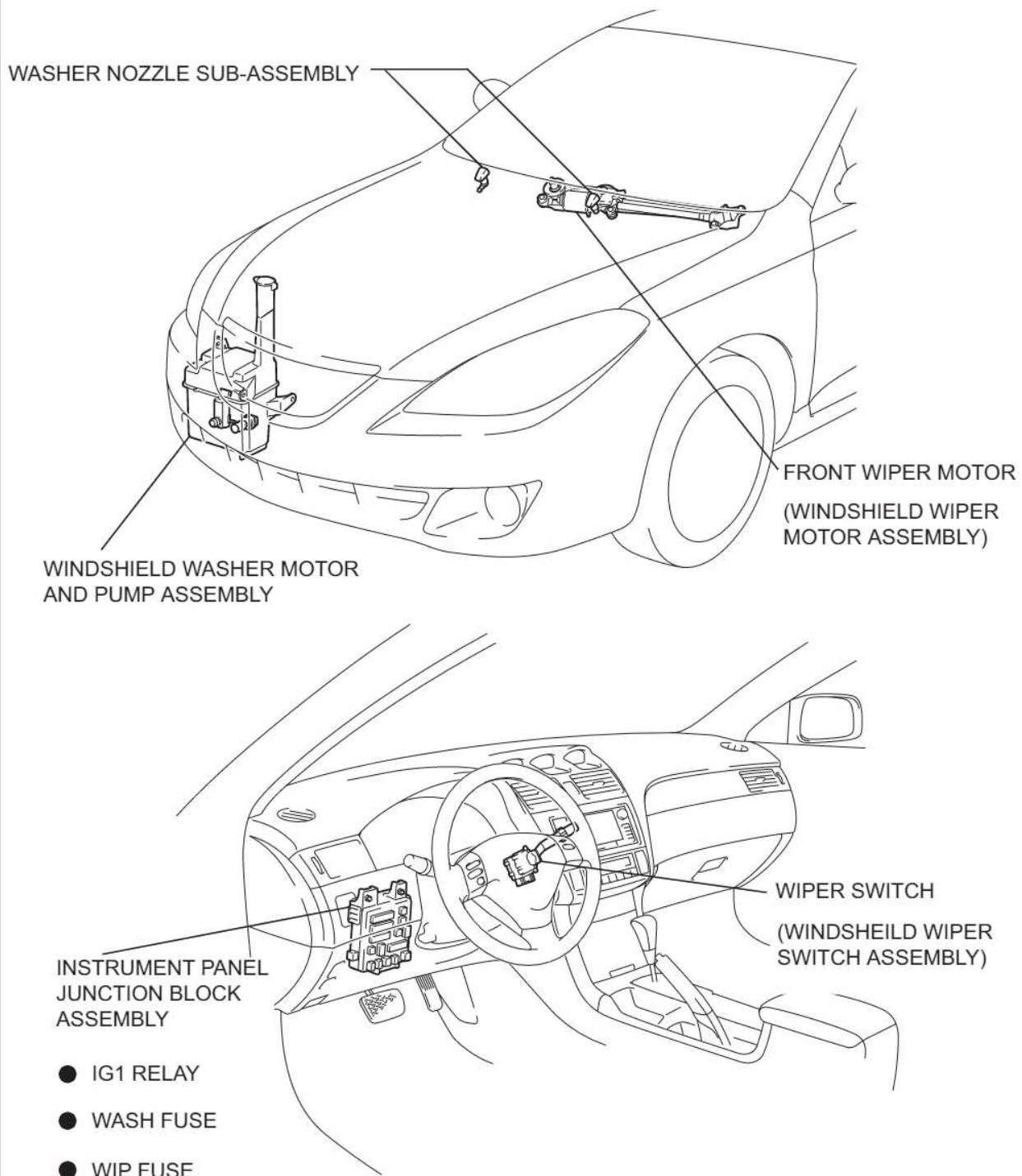
- (a) Do not clean or adjust the washer nozzle with a safety pin, etc. because;
 - (1) the washer nozzle tip is made of resin and could be damaged.
 - (2) adjustment is not necessary because the washer nozzle is a spray type.
- (b) In case the washer nozzle is clogged with wax, etc., remove it and clean the nozzle hole with a soft resin brush, etc.

WW

WW-2

WIPER AND WASHER – WIPER AND WASHER SYSTEM

PARTS LOCATION



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WIPER AND WASHER – FRONT WIPER MOTOR

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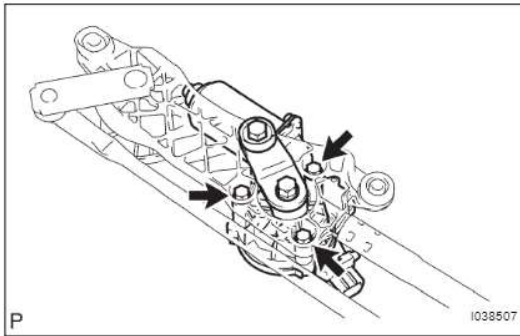
INSTALLATION

1. INSTALL WINDSHIELD WIPER MOTOR ASSEMBLY

- (a) Install the windshield wiper motor assembly with the 3 bolts.

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

- (b) Apply MP grease to the crank arm pivot of the windshield wiper motor assembly.
(c) Install the rod to the windshield wiper motor assembly.



2. INSTALL WINDSHIELD WIPER MOTOR AND LINK

- (a) Install the windshield wiper motor and link assembly with the 4 bolts.

Torque: 7.0 N*m (71 kgf*cm, 62 in.*lbf)

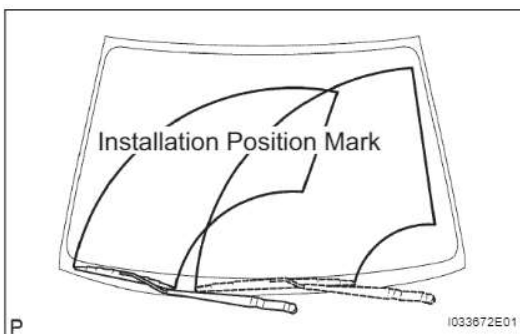
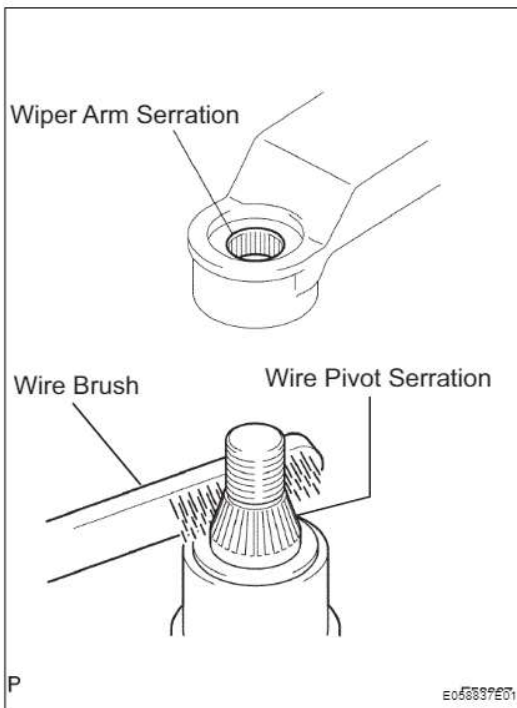
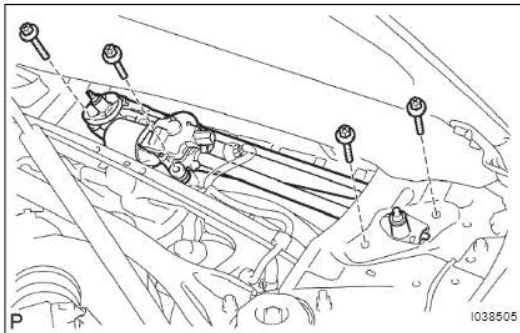
- (b) Connect the connector.

3. INSTALL WINDSHIELD WIPER ARM AND BLADE ASSEMBLY RH

- (a) Operate the wiper, and stop the windshield wiper motor assembly in the automatic stop position.

- (b) Clean the wiper arm serrations.

- (c) Clean the wiper pivot serration with a wire brush.



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

Torque: 20 N*m (204 kgf*cm, 15 ft.*lbf)

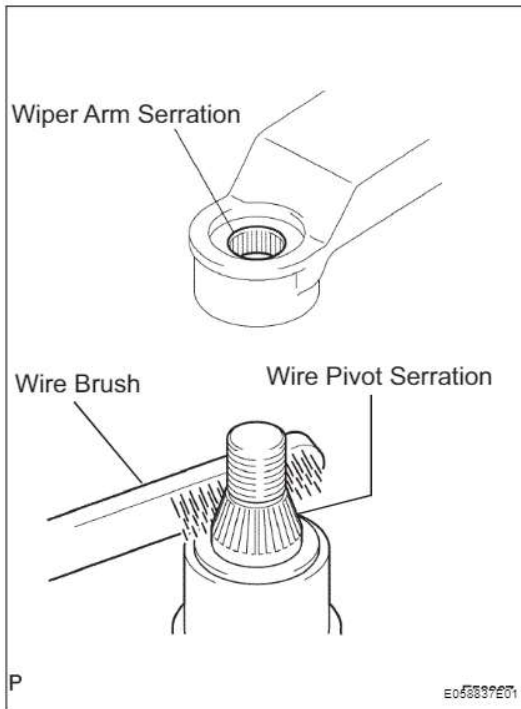
HINT:

Hold the arm hinge by hand to fasten the nut.

WW

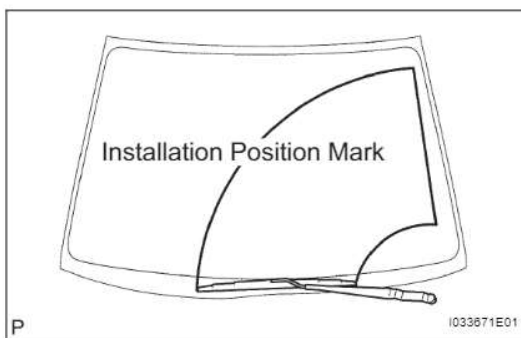
WW-10

WIPER AND WASHER – FRONT WIPER MOTOR



4. INSTALL WINDSHIELD WIPER ARM AND BLADE ASSEMBLY LH

- (a) Clean the wiper arm serrations.
- (b) Clean the wiper pivot serration with a wire brush.



- (c) Install the FR wiper arm and blade assembly LH with the nut in the position as shown in the illustration.

Torque: 20 N*m (204 kgf*cm, 15 ft.*lbf)

HINT:

Hold the arm hinge by hand to fasten the nut.

WIPER AND WASHER – FRONT WIPER MOTOR

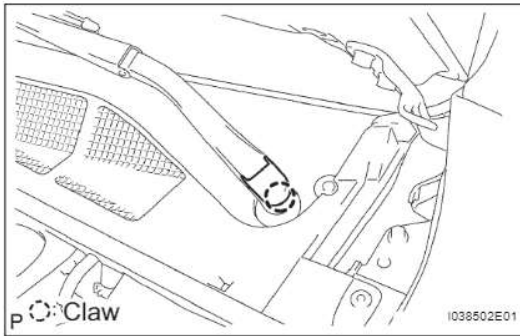
WW-7

FRONT WIPER MOTOR

REMOVAL

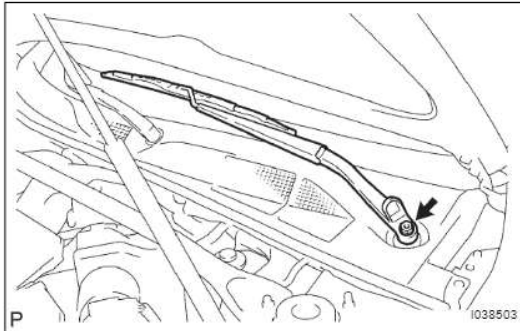
1. REMOVE WINDSHIELD WIPER ARM COVER

- (a) Disengage the claw, and remove the windshield wiper arm cover.



2. REMOVE WINDSHIELD WIPER ARM AND BLADE ASSEMBLY LH

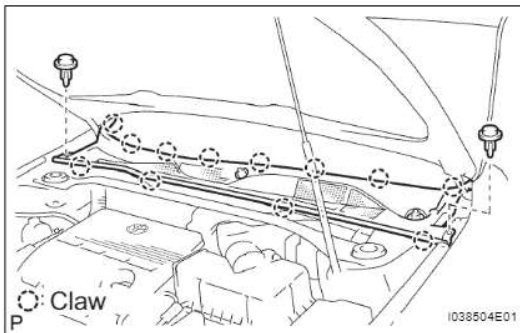
- (a) Remove the nut and the windshield wiper arm and blade assembly LH.



3. REMOVE WINDSHIELD WIPER ARM AND BLADE ASSEMBLY RH

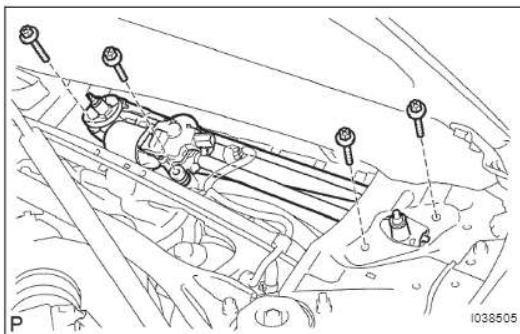
4. REMOVE COWL TOP VENTILATOR LOUVER SUB-ASSEMBLY

- (a) Remove the 2 clips.
(b) Disengage the 12 claws, and remove the cowl top ventilator louver sub-assembly.



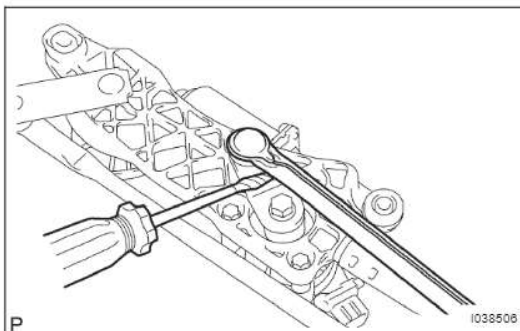
5. REMOVE WINDSHIELD WIPER MOTOR AND LINK

- (a) Disconnect the connector.
(b) Remove the 4 bolts and the windshield wiper motor and link assembly.



6. REMOVE WINDSHIELD WIPER MOTOR ASSEMBLY

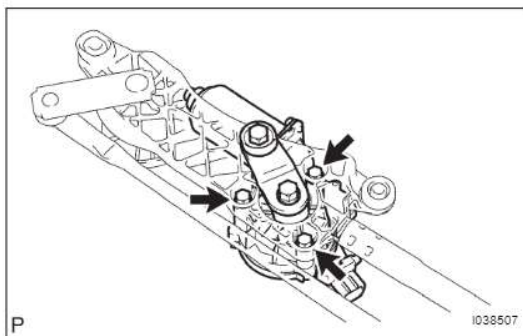
- (a) Using a screwdriver, disconnect the rod at the crank arm pivot of the windshield wiper motor assembly.
HINT:
Tape up the screwdriver tip before use to avoid damage.



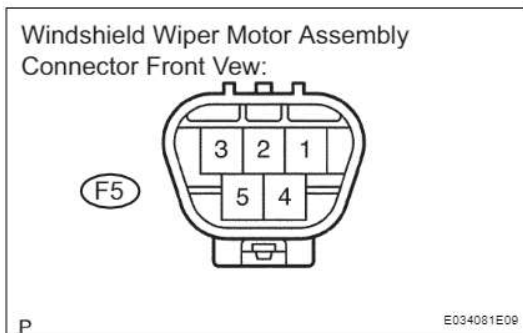
WW

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WIPER AND WASHER – FRONT WIPER MOTOR



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



INSPECTION

1. INSPECT WINDSHIELD WIPER MOTOR ASSEMBLY

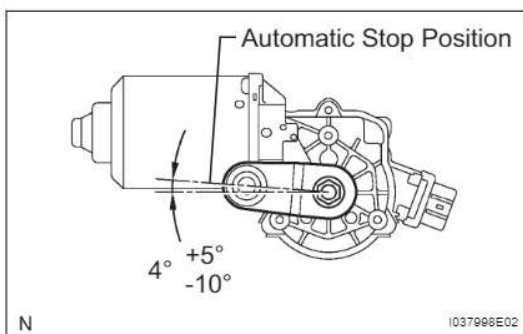
- (a) LO Operation Check
- (1) Connect the positive battery (+) lead to terminal 1 (+1) of the connector and the negative battery (-) lead to terminal 5 (E) of the connector, and check that the motor operates at low speed (LO).
- (b) HI Operation Check
- (1) Connect the positive battery (+) lead to terminal 4 (+2) of the connector and the negative battery (-) lead to terminal 5 (E), and check that the motor operates at high speed (HI).
- (c) Automatic Stop Operation Check
- (1) Connect the positive battery (+) lead to terminal 1 (+1) of the connector and the negative battery (-) lead to terminal 5 (E) of the connector. With the motor being rotated at low speed (LO), disconnect terminal 1 (+1) to stop the wiper motor operation at any position except the automatic stop position.
 - (2) Using SST, connect terminals 1 (+1) and 3 (S), and the positive battery (+) 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.

Standard:

Refer to the illustration to the left.



WW

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.
- Installation is in the reverse order of removal.

1. REMOVE FRONT WIPER BLADE LH

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

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

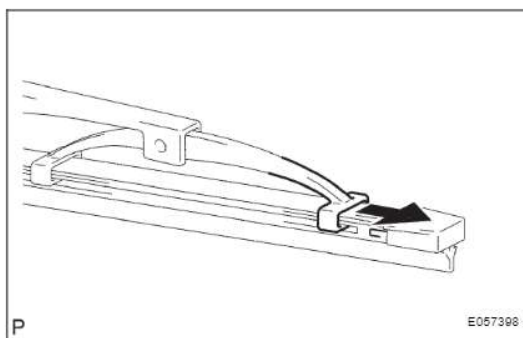
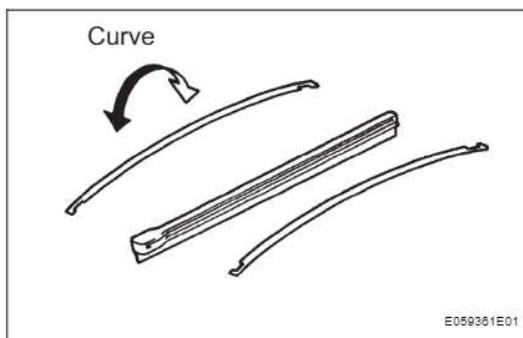
INSTALLATION

1. INSTALL WIPER RUBBER LH

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

NOTICE:

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



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

NOTICE:

- Push 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 that of the driver's side.

WW

WW-14**WIPER AND WASHER – WIPER SWITCH**

INSTALLATION

1. INSTALL WINDSHIELD WIPER SWITCH ASSEMBLY
2. INSTALL STEERING COLUMN COVER
3. INSTALL STEERING COLUMN COVER LOWER

WW

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WIPER AND WASHER – WIPER SWITCH

WIPER SWITCH

REMOVAL

HINT:

Installation is in the reverse order of removal.

1. REMOVE STEERING COLUMN COVER LOWER

HINT:

(See page [SR-5](#)).

2. REMOVE STEERING COLUMN COVER

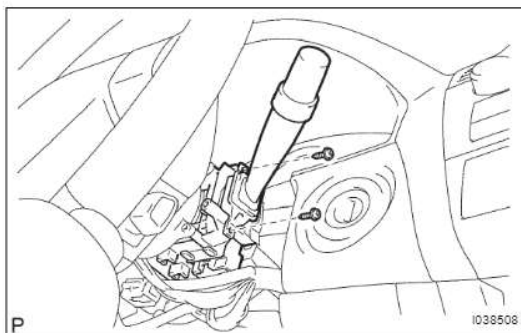
HINT:

(See page [SR-5](#)).

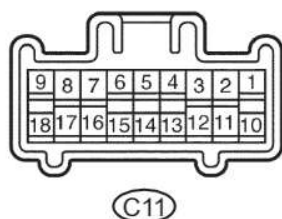
3. REMOVE WINDSHIELD WIPER SWITCH ASSEMBLY

(a) Disconnect the connector.

(b) Remove the 2 screws and the windshield switch assembly.



Windshield Wiper Switch Assembly
Connector Front View:



INSPECTION

1. INSPECT WINDSHIELD WIPER SWITCH ASSEMBLY

(a) Measure the resistance according to the value(s) in the table below.

Standard resistance:**Front Wiper Switch**

Switch position	Tester connection	Specified resistance
OFF	C11-16 (+S) - C11-7 (+1)	Below 1 Ω
INT	C11-16 (+S) - C11-7 (+1)	Below 1 Ω
LO	C11-17 (+B) - C11-7 (+1)	Below 1 Ω
HI	C11-17 (+B) - C11-8 (+2)	Below 1 Ω

Front Washer Switch

Switch position	Tester connection	Specified resistance
OFF	C11-2 (EW) - C11-11 (WF)	10 k Ω or higher
ON	C11-2 (EW) - C11-11 (WF)	Below 1 Ω

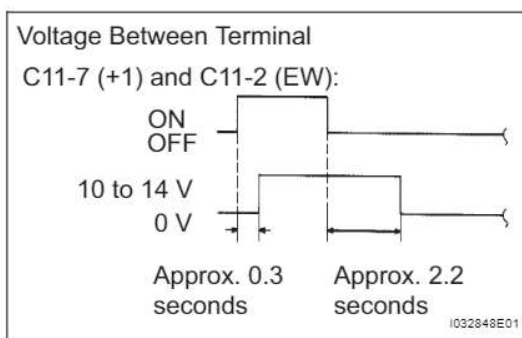
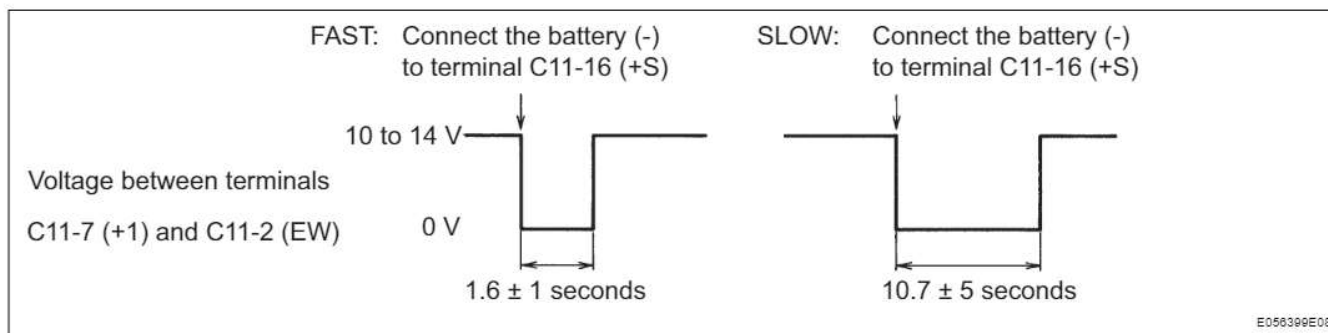
(b) Intermittent Operation Check

- (1) Connect the voltmeter (+) terminal to terminal C11-7 (+1) of the connector and the voltmeter (-) terminal to terminal C11-2 (EW).
- (2) Connect the positive battery (+) lead to terminal C11-17 (+B) of the connector and the negative battery (-) lead to terminals C11-2 (EW) and C11-16 (+S).
- (3) Turn the wiper switch to the INT position.
- (4) Connect the positive battery (+) lead to terminal C11-16 (+S) of the connector for 5 seconds.

WIPER AND WASHER – WIPER SWITCH

WW-13

- (5) Connect the negative battery (-) lead to terminal C11-16 (+S) of the connector. Operate the intermittent wiper relay and measure the voltage between terminals C11-7 (+1) and C11-2 (EW).

Standard:**Refer to the illustration below.**

- (c) Front Washer Operation Check
- (1) Turn the wiper switch to the OFF position.
 - (2) Connect the positive battery (+) lead to terminal C11-17 (+B) of the connector, and the negative battery (-) to terminals C11-16 (+S) and C11-2 (EW).
 - (3) Connect the voltmeter (+) terminal to terminal C11-7 (+1) of the connector and the voltmeter (-) terminal to terminal C11-2 (EW). Measure the voltage between terminals C11-7 (+1) and C11-2 (EW) when turning the washer switch ON and OFF respectively.

Standard:**Refer to the illustration to the left.**

WW