

WIPER AND WASHER SYSTEM

PRECAUTION

1. PRECAUTION FOR DISCONNECTING THE BATTERY CABLE

NOTICE:

When disconnecting the cable from the negative (-) battery terminal, initialize the following systems after the cable is reconnected.

System Name	See procedure
Lighting System (Adaptive Front-Lighting System)	LI-17
Sliding Roof Control System	RF-4 and RF-22
Power Window Control System	WS-12
Power Back Door System	ED-33

2. PRECAUTION OF WASHER NOZZLE ADJUSTMENT

- (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 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.

PARTS LOCATION

FRONT WIPER MOTOR ASSEMBLY

FRONT WINDSHIELD WIPER MOTOR ASSEMBLY

WASHER NOZZLE

- FRONT WIPER ARM AND BLADE ASSEMBLY

- FRONT WIPER MOTOR

- FRONT WIPER LINK ASSEMBLY

RAIN SENSOR

WASHER FLUID TANK ASSEMBLY

- FRONT WASHER MOTOR AND PUMP ASSEMBLY

- REAR WASHER MOTOR ASSEMBLY

- WASHER FLUID LEVEL SWITCH

- HEADLIGHT CLEANER CONTROL RELAY

HEADLIGHT WASHER ACTUATOR

FUSIBLE LINK BLOCK

- ALT FUSE

- ECU-B FUSE

- INP-J/B FUSE

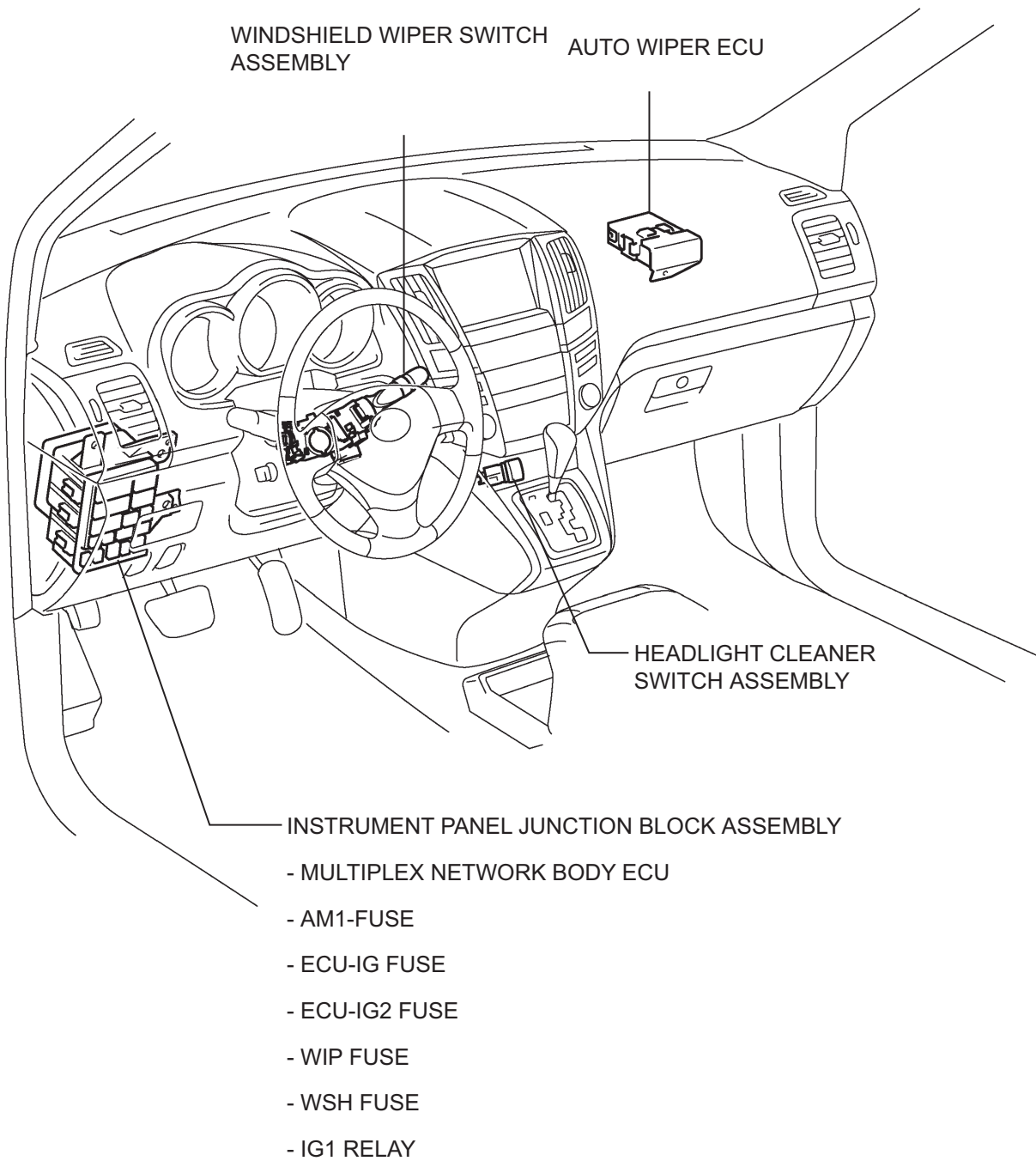
- H-LP CLN FUSE

REAR WASHER NOZZLE

REAR WIPER ARM AND BLADE ASSEMBLY

- REAR WIPER MOTOR

- REAR WIPER ARM AND BLADE



WW

SYSTEM DESCRIPTION

1. AUTOMATIC WIPER SYSTEM

- (a) The auto wiper system receives the signal from the rain sensor that is installed on the upper part of the windshield and operates the front wiper in accordance with the amount of rain.
It operates when the windshield wiper switch is in the AUTO position and enables the rain sensor to adjust its sensitivity by the rain sensor adjust switch.
- (b) The auto wiper system receives the vehicle speed signal from the multiplex communication system and operates the front wiper in accordance with the vehicle speed.

2. HEADLIGHT CLEANER SYSTEM

- (a) The headlight cleaner system operates when the headlights are ON and the headlight cleaner switch is pushed ON. It also operates when the headlights are ON and the front wiper washer system is operating. However, it does not operate when the daytime running light system is operating.

HOW TO PROCEED WITH TROUBLESHOOTING

1 VEHICLE BROUGHT TO WORKSHOP

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2 CUSTOMER PROBLEM ANALYSIS

NEXT

3 PROBLEM SYMPTOM CONFIRMATION

NEXT

4 CHECK BODY MULTIPLEX COMMUNICATION SYSTEM

(a) Check if the DTC is output.



MULTIPLEX DTC OUTPUTS (PROCEED TO "BODY MULTIPLEX COMMUNICATION SYSTEM")



NO MULTIPLEX DTC (GO TO STEP 5)

5 PROBLEM SYMPTOM CONFIRMATION

NEXT

6 SYMPTOM SIMULATION

NEXT

7 PROBLEM SYMPTOMS TABLE

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NEXT

WW

9	TERMINALS OF ECU
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NEXT

10	IDENTIFICATION OF PROBLEM
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11	REPAIR OR REPLACE
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12	CONFIRMATION TEST
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NEXT

WW	END
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CUSTOMIZE PARAMETERS

HINT:

The following items can be customized.

NOTICE:

- After confirming whether the items of the customer's request is applicable or not for the customized items, perform the customize operation.
- Be sure to record the current value before customizing.
- In case of performing the troubleshooting, pay attention as there is a possibility that the function is OFF by customizing. (Example: In case of the symptom in which "The wireless operation does not function", check that the wireless operation is not OFF by customizing, then perform the troubleshooting.)

WIPER

Display (Item)	Default	Contents	Setting
SPEED MODE (Speed mode)	Avail	Function to change to the intermittent operation when the vehicle comes to stop (0 vehicle speed) from running condition in case that the wiper switch is at the LO position.	NOT AVAIL / AVAIL
AUTO WIPER (Auto wiper)	Avail	Function to operate the wiper automatically when it is raining	NOT AVAIL / AVAIL
REWIPE CONTROL (Rewipe control)	SPD MOD	Function to change time until operating the wiper to prevent dropping after having used the washer.	OFF / 3 s / SPD MOD

PROBLEM SYMPTOMS TABLE

FRONT WIPER AND WASHER SYSTEM (W/O AUTO WIPER SYSTEM)

Symptom	Suspected area	See page
Front wiper system do not operate.	1. IG1 relay	-
	2. FR WIP fuse	-
	3. Windshield wiper switch assembly	WW-49
	4. Windshield wiper motor assembly	WW-37
	5. Wire harness or connector	-
Front wipers do not operate in LO or HI.	1. Windshield wiper switch assembly	WW-49
	2. Windshield wiper motor assembly	WW-37
	3. Wire harness or connector	-
Front wipers do not operate in INT.	1. Windshield wiper switch assembly	WW-49
	2. Windshield wiper motor assembly	WW-37
	3. Wire harness or connector	-
Front washer motor does not operate.	1. WASHER fuse	-
	2. Windshield wiper switch assembly	WW-49
	3. Windshield washer motor assembly	-
	4. Wire harness or connector	-
Front wiper do not operate when front washer switch is ON.	1. Windshield wiper switch assembly	WW-49
	2. Windshield wiper motor assembly	WW-37
	3. Wire harness or connector	-
Washer fluid does not operate.	Washer hose and nozzle	-
When front wiper switch is in HI position, the wiper blade is in contact with the body.	1. Front wiper arm installation position	-
	2. Windshield wiper motor assembly	WW-37
When the front wiper switch is OFF, the wiper blade does not retract or retract in the wrong position.	1. Front wiper arm installation position	-
	2. Windshield wiper motor assembly	WW-37

FRONT WIPER AND WASHER SYSTEM (W/AUTO WIPER SYSTEM)

Symptom	Suspected area	See page
Front wipers do not operate.	1. Power source circuit	WW-32
	2. Wiper and washer switch circuit	WW-14
	3. Front wiper motor circuit	WW-11
	4. Windshield wiper relay assembly	--
Front wipers do not operate in LO or HI.	1. Power source circuit	WW-32
	2. Wiper and washer switch circuit	WW-14
	3. Front wiper motor circuit	WW-11
	4. Windshield wiper relay assembly	-
Front wipers do not operate when front washer switch is ON.	1. Wiper and washer switch circuit	WW-14
	2. Front wiper motor circuit	WW-11
	3. Windshield wiper relay assembly	-
Auto wiper system does not operate.	1. Power source circuit	WW-32
	2. Wiper and washer switch circuit	WW-14
	3. Front wiper motor circuit	WW-11
	4. Rain sensor circuit	WW-19
	5. Rain sensor	WW-67
	6. Windshield wiper relay assembly	-
Front washer motor does not operate.	1. WASHER fuse	-
	2. Wiper and washer switch circuit	WW-14
	3. Windshield wiper relay assembly	-
Washer fluid does not operate.	Washer hose and nozzle	-

Symptom	Suspected area	See page
When front wiper switch is in HI position, the wiper blade is in contact with the body.	1. Front wiper arm installation position	-
	2. Windshield wiper motor assembly	WW-37
When the front wiper switch is OFF, the wiper blade does not retract or retract in the wrong position	1. Front wiper arm installation position	-
	2. Windshield wiper motor assembly	WW-37

REAR WIPER AND WASHER SYSTEM

Symptom	Suspected area	See page
Rear wiper and washer do not operate.	1. AMI fuse	-
	2. RR WIP fuse, WASHER fuse	-
	3. IG1 relay	-
	4. Windshield wiper switch assembly	WW-49
	5. Wire harness or connector	-
Rear wiper does not operate in INT.	1. RR WIP fuse	-
	2. Windshield wiper switch assembly	WW-49
	3. Rear wiper motor assembly	WW-44
	4. Wire harness or connector	-
Rear washer motor does not operate.	1. WASHER fuse	-
	2. Windshield wiper switch assembly	WW-49
	3. Rear wiper motor assembly	WW-44
	4. Wire harness or connector	-
Rear wiper does not operate when washer switch is ON.	1. Windshield wiper switch assembly	WW-49
	2. Rear wiper motor assembly	WW-44
	3. Wire harness or connector	-
Rear washer fluid does not operate.	Washer hose and nozzle	-
When rear wiper switch is in ON position, the wiper blade is in contact with the body.	1. Rear wiper blade installation position	WW-47
	2. Rear wiper motor assembly	WW-44
When the wiper switch is OFF, the wiper blade does not retract or retract in the wrong position.	1. Rear wiper blade installation position	WW-47
	2. Rear wiper motor assembly	WW-44

HEADLIGHT CLEANER SYSTEM

Symptom	Suspected area	See page
Headlight cleaner system does not operate.	1. Headlight cleaner motor and relay circuit	WW-28
	2. Headlight cleaner switch circuit	WW-21
	3. Headlight cleaner control relay	-

TERMINALS OF ECU

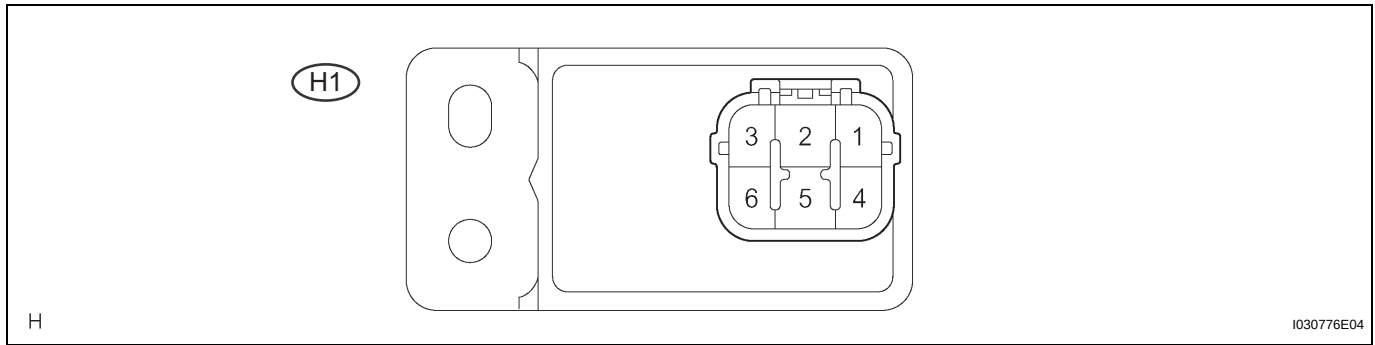
1. WINDSHIELD WIPER RELAY ASSEMBLY



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Symbols (Terminals No.)	Wiring Color	Terminal Description	Condition	Specified Condition
MPX1 (A28-1) - E (A28-12)	BR - W-B	Multiplex communication signal	Ignition switch OFF Ignition switch ON	Below 1 V Signal Waveform
VR1 (A28-3) - E (A28-12)	R - W-B	Wiper switch (Rain sensor adjust switch signal)	Ignition switch OFF Ignition switch ON	Below 1 V 4.5 to 5.5 V
FWAS (A28-6) - E (A28-12)	W - W-B	Front washer motor (operate signal)	Front washer switch OFF Front washer switch ON	10 to 14 V Below 1 V
AUTO (A28-7) - E (A28-12)	V- W-B	Wiper switch (AUTO signal)	Front wiper switch is in any position other than AUTO Front wiper switch is AUTO	10 to 14 V Below 1 V
+B (A28-8) - E (A28-12)	SB - W-B	Battery (+B circuit)	Always	10 to 14 V
VR2 (A28-9) - E (A28-12)	G - W-B	Wiper switch (Rain sensor adjust switch signal ground)	Always	0 to 5.5 V
E (A28- 12) - Body ground	W-B - Body ground	Body ground	Always	Below 1 V
+1 (A29-1) - E (A28-12)	V - W-B	Front wiper motor (LO operation signal)	Front wiper motor is OFF Front wiper motor is in LO operation	Below 1 V 10 to 14 V
+2 (A29-2) - E (A28-12)	P - W-B	Front wiper motor (HI operation signal)	Front wiper motor is OFF Front wiper motor is in HI operation	Below 1 V 10 to 14 V
+SM (A29-5) - E (A28-12)	R - W-B	Front wiper motor (Operation signal)	Front wiper motor is OFF Front wiper motor is in LO or HI operation	Below 1 V 10 to 14 V
2S (A29-6) - E (A28-12)	GR - W-B	Wiper switch (HI signal)	Front wiper switch is in any position other than HI Front wiper switch is HI	10 to 14 V Below 1 V
1S (A29-7) - E (A28-12)	SB - W-B	Wiper switch (LO signal)	Front wiper switch is in any position other than LO Front wiper switch is LO	10 to 14 V Below 1 V
ES (A29-8) - E (A28-12)	L - W-B	wiper switch (Signal source)	Front wiper switch is OFF or AUTO	Below 1 V
WIG (A29-10) - E (A28-12)	Y - W-B	Battery (Power source circuit)	Ignition switch OFF Ignition switch ON	Below 1 V 10 to 14 V

2. HEADLIGHT CLEANER CONTROL RELAY



Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
IG (H1-1) - E (H1-5)	P - W-B	Battery (Power source circuit)	Ignition switch is OFF Ignition switch is ON	Below 1 V 10 to 14 V
PB (H1-2) - E (H1-5)	B - W-B	Headlight cleaner motor (operation signal)	Headlight cleaner motor is stopped Headlight cleaner motor is operated	10 to 14 V Below 1 V
HDLO (H1-3) - E (H1-5)	L - W-B	Multiplex network body ECU (Cancel signal)	Daytime running light is stopped Daytime running light is operated	Below 1 V 10 to 14 V
H (H1-4) - E (H1-5)	W - W-B	Headlight cleaner switch (Operate signal)	Headlight cleaner switch is OFF Headlight switch is HEAD and headlight cleaner switch is ON	Below 1 V 10 to 14 V
E (H1-5) - Body ground	W-B - Body ground	Body ground	Always	Below 1 V
FRWA (H1-6) - E (H1-5)	V - W-B	Front washer motor (Operate signal)	Front washer switch is OFF Front washer switch is ON	10 to 14 V Below 1 V

DATA LIST / ACTIVE TEST

1. READ DATA LIST

HINT:

Using the intelligent tester's Data List allows switch, sensor, actuator and other item values to be read without removing any parts. Reading the Data List early in troubleshooting is one way to save time.

- Connect the intelligent tester to the DLC3.
- Turn the ignition switch to the ON position.
- Read the Data List.

WIPER:

Item	Measurement Item / Display (Range)	Normal Condition	Diagnostic Note
F WIPER SW	Front Wiper switch / ON or OFF	ON: Front wiper is operated OFF: Front wiper is not operated	-
WIPER LO SW	Wiper LO switch input / ON or OFF	ON: Front wiper switch is in LO position OFF: Front wiper switch is in any position other than LO	-
WIPER HI SW	Wiper HI switch input / ON or OFF	ON: Front wiper switch is in HI position OFF: Front wiper switch is in any position other than HI	-
WIPER AUTO SW	Wiper AUTO switch input / ON or OFF	ON: Front wiper switch is in AUTO position OFF: Front wiper switch is in any position other than AUTO	-
WASHER SW	Washer switch input / ON or OFF	ON: Front washer switch is in ON position OFF: Front washer switch is in OFF position	-
TIME CTL SW	Wiper volume switch position / deg	Value can be displayed.	-
SPEED MODE	Speed mode / NOT AVL or AVAIL	Customized sign can be displayed.	-
AUTO WIPER	Auto wiper / NOT AVL or AVAIL	Customized sign can be displayed.	-
REWIPE CONTROL	Rewipe control / OFF / 3 s. / SPD MOD	Customized sign can be displayed.	-

2. PERFORM ACTIVE TEST

HINT:

Performing the intelligent tester's Active Test allows relay, VSV, actuator and other items to be operated without removing any parts. Performing the Active Test early in troubleshooting is one way to save time. The Data List can be displayed during the Active Test.

- Connect the intelligent tester to the DLC3.
- Turn the ignition switch to the ON position.
- Perform the Active Test.

WIPER:

Item	Test Details	Diagnostic Note
WIPER MOT (HI)	Front wiper motor HI operation ON / OFF	-
WIPER MOT (LO)	Front wiper motor LO operation ON / OFF	-

3. FAIL-SAFE FUNCTION

- When the front wiper switch is in any position other than "OFF" and the wiper blades have been frozen, a malfunction is detected by the auto wiper ECU and the front wiper operation is stopped.

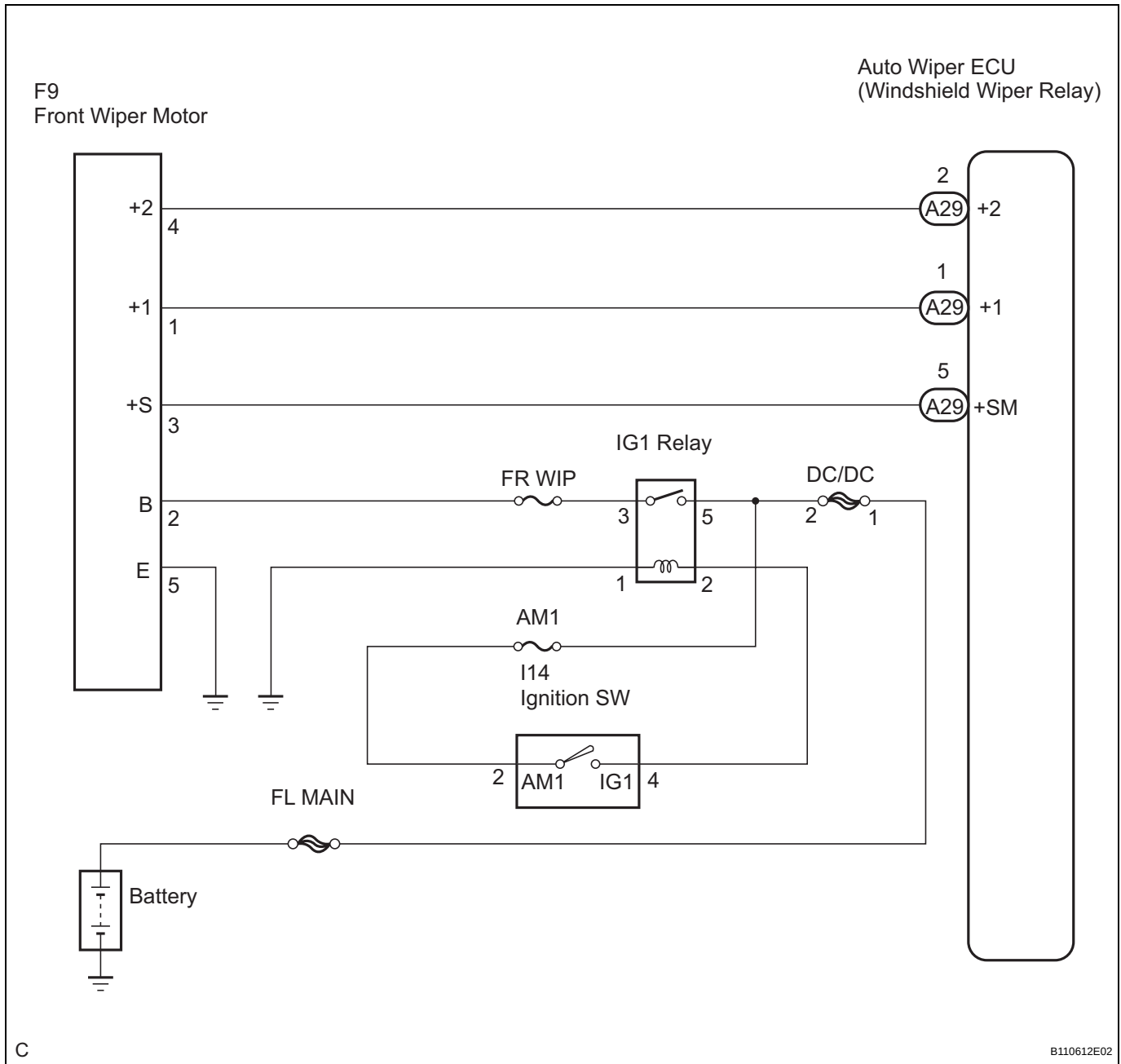
Front Wiper Motor Circuit

DESCRIPTION

The windshield wiper relay assembly controls the front wiper motor.

Even if the windshield wiper relay assembly is in failure, its circuit structure enables operation of the front wiper.

WIRING DIAGRAM



HINT:

Start the inspection from step 1 when using the intelligent tester, and start from step 2 when not using the intelligent tester.

1 PERFORM ACTIVE TEST BY INTELLIGENT TESTER

- (a) Connect the intelligent tester to the DLC3.
- (b) Turn the ignition switch to the ON position and turn the intelligent tester's main switch ON.
- (c) Select the item below in the ACTIVE TEST and then check that the relay operates.

Wiper:

Item	Test Details	Diagnostic Note
WIPER MOT (HI)	Front wiper motor HI operation ON / OFF	-
WIPER MOT (LO)	Front wiper motor LO operation ON / OFF	-

NG

Go to step 2

OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE**2 INSPECT FUSE**

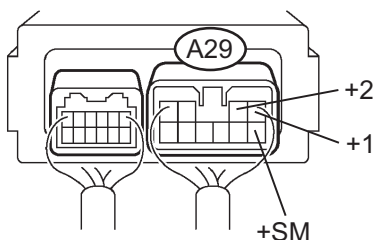
- (a) Inspect the AM1, FR WIP and INP J/B fuses.
- (1) Measure the resistance between each terminal.

Standard resistance:**Below 1 Ω**

NG

CHECK FOR SHORT IN ALL HARNESS AND COMPONENTS CONNECTED FAILURE FUSE

OK

3 INSPECT WINDSHIELD WIPER RELAY ASSEMBLY**Auto Wiper ECU
(Windshield Wiper Relay):**

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

Standard voltage

Tester Connection	Condition	Specified Condition
+1 - Body ground	Ignition switch ON, Windshield wiper switch OFF → LO	Below 1 V → 10 to 14 V
+2 - Body ground	Ignition switch ON, Windshield wiper switch OFF → HI	Below 1 V → 10 to 14 V
+SM - Body ground	Ignition switch ON, Windshield wiper in automatic stop position → any position other than automatic stop position	Below 1 V → 10 to 14 V

NG

Go to step 4

OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

4

INSPECT WINDSHIELD WIPER MOTOR ASSEMBLY

(a) Inspect the windshield wiper motor assembly (See page [WW-38](#)).

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REPLACE WINDSHIELD WIPER MOTOR ASSEMBLY

OK

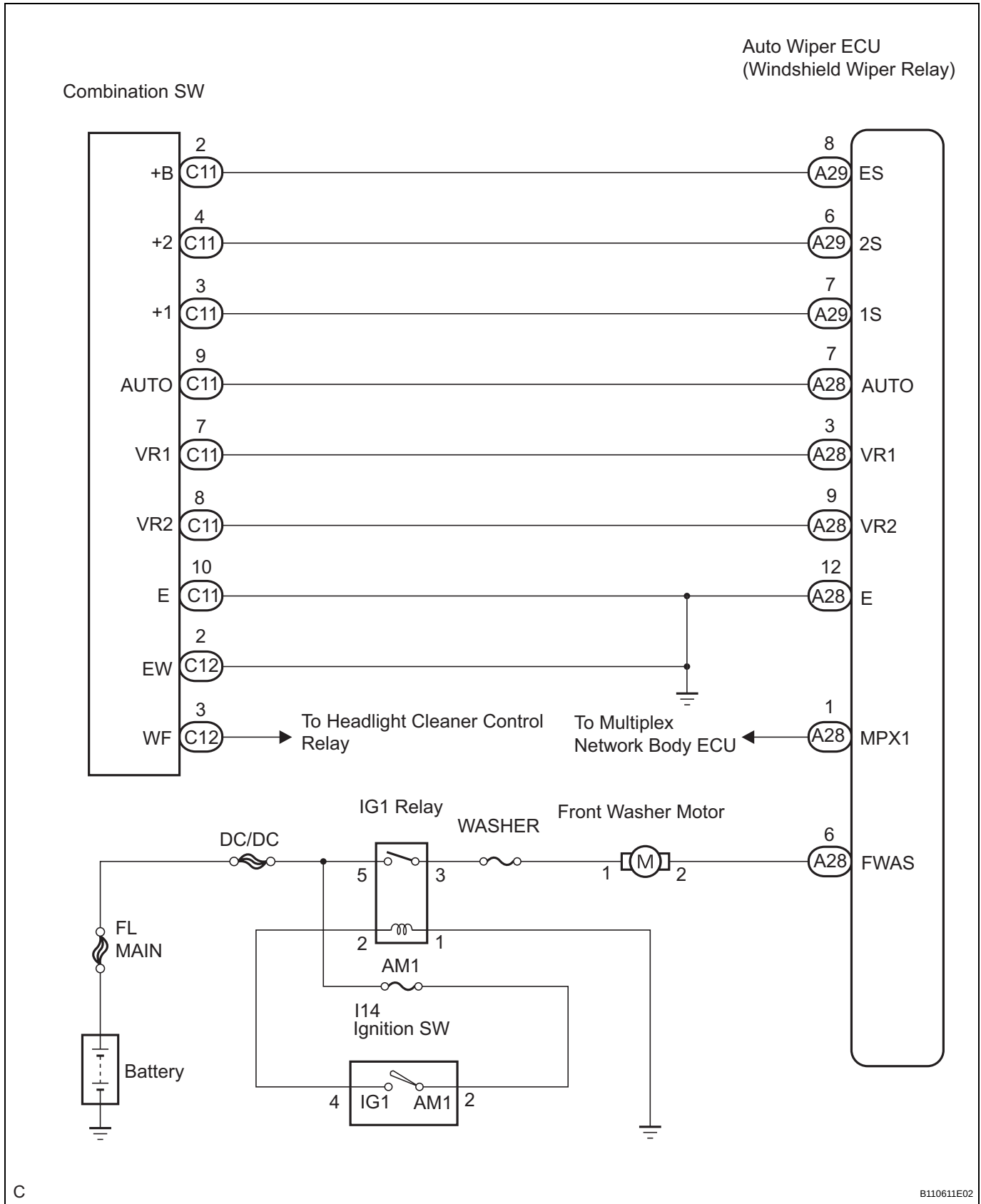
REPAIR OR REPLACE HARNESS AND CONNECTOR

Wiper and Washer Switch Circuit

DESCRIPTION

This circuit detects the state of the wiper and washer switch and sends it to the windshield wiper relay assembly.

WIRING DIAGRAM



HINT:

Start the inspection from step 1 when using the intelligent tester, and start from step 2 when not using the intelligent tester.

1 READ VALUE OF INTELLIGENT TESTER

- (a) Connect the intelligent tester to the DLC3.
- (b) Turn the ignition switch to the ON position and turn the tester main switch on.
- (c) Select the items below in the DATA LIST, and read the displays on the intelligent tester.

Wiper:

Item	Measurement Item / Display (Range)	Normal Condition	Diagnostic Note
WIPER LO SW	Wiper LO switch input / ON or OFF	ON: Front wiper switch is in LO position OFF: Front wiper switch is in any position other than LO	-
WIPER HI SW	Wiper HI switch input / ON or OFF	ON: Front wiper switch in HI position OFF: Front wiper switch is in any position other than HI	-
WIPER AUTO SW	Wiper AUTO switch input / ON or OFF	ON: Front wiper switch is in AUTO position OFF: Front switch is in any position other than AUTO	-

NG

Go to step 2

OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

2 INSPECT WINDSHIELD WIPER SWITCH ASSEMBLY

- (a) Inspect the windshield wiper switch assembly (See page [WW-50](#)).
- HINT:
Reconnect the connector.

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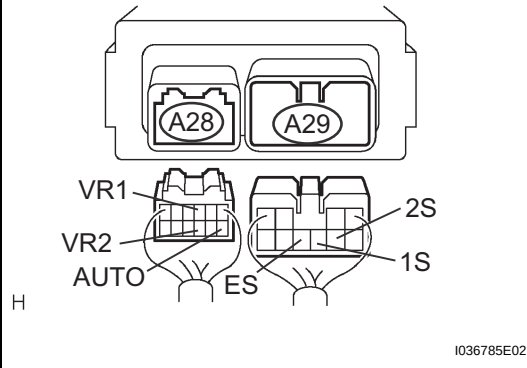
REPLACE WINDSHIELD WIPER SWITCH ASSEMBLY

OK

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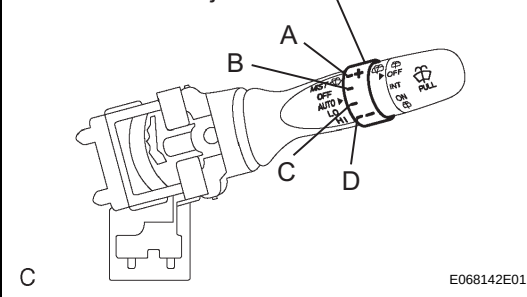
INSPECT WINDSHIELD WIPER RELAY ASSEMBLY

Auto Wiper ECU
(Windshield Wiper Relay):



(a) Disconnect the connector from the auto wiper ECU.

Rain Sensor Adjust Switch



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

Standard resistance

Tester Connection	Condition	Specified Condition
1S - ES	Windshield wiper switch MIST position	Below 1 Ω
AUTO - Body ground	Windshield wiper switch AUTO position	Below 1 Ω
1S - ES	Windshield wiper switch LO position	Below 1 Ω
2S - ES	Windshield wiper switch HI position	Below 1 Ω
VR2 - VR1	Rain sensor adjust switch "A" position	Below 1 Ω
VR2 - VR1	Rain sensor adjust switch "B" position	405 to 493 Ω
VR2 - VR1	Rain sensor adjust switch "C" position	1,400 to 1,700 Ω
VR2 - VR1	Rain sensor adjust switch "D" position	2,200 to 3,200 Ω

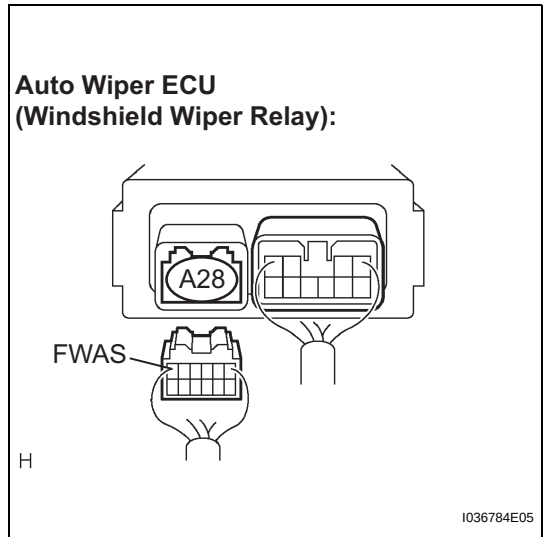
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REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

4

INSPECT WINDSHIELD WIPER RELAY ASSEMBLY



OK

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

Standard voltage

Tester Connection	Condition	Specified Condition
FWAS - Body ground	Ignition switch ON	10 to 14 V

NG

Go to step 5

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

5

INSPECT WINDSHIELD WASHER MOTOR AND PUMP ASSEMBLY

(a) Inspect the front washer motor.

NG

REPLACE WINDSHIELD WASHER MOTOR AND PUMP ASSEMBLY

OK

REPAIR OR REPLACE HARNESS OR CONNECTOR

Rain Sensor Circuit

DESCRIPTION

This circuit provides power to operate the rain sensor.

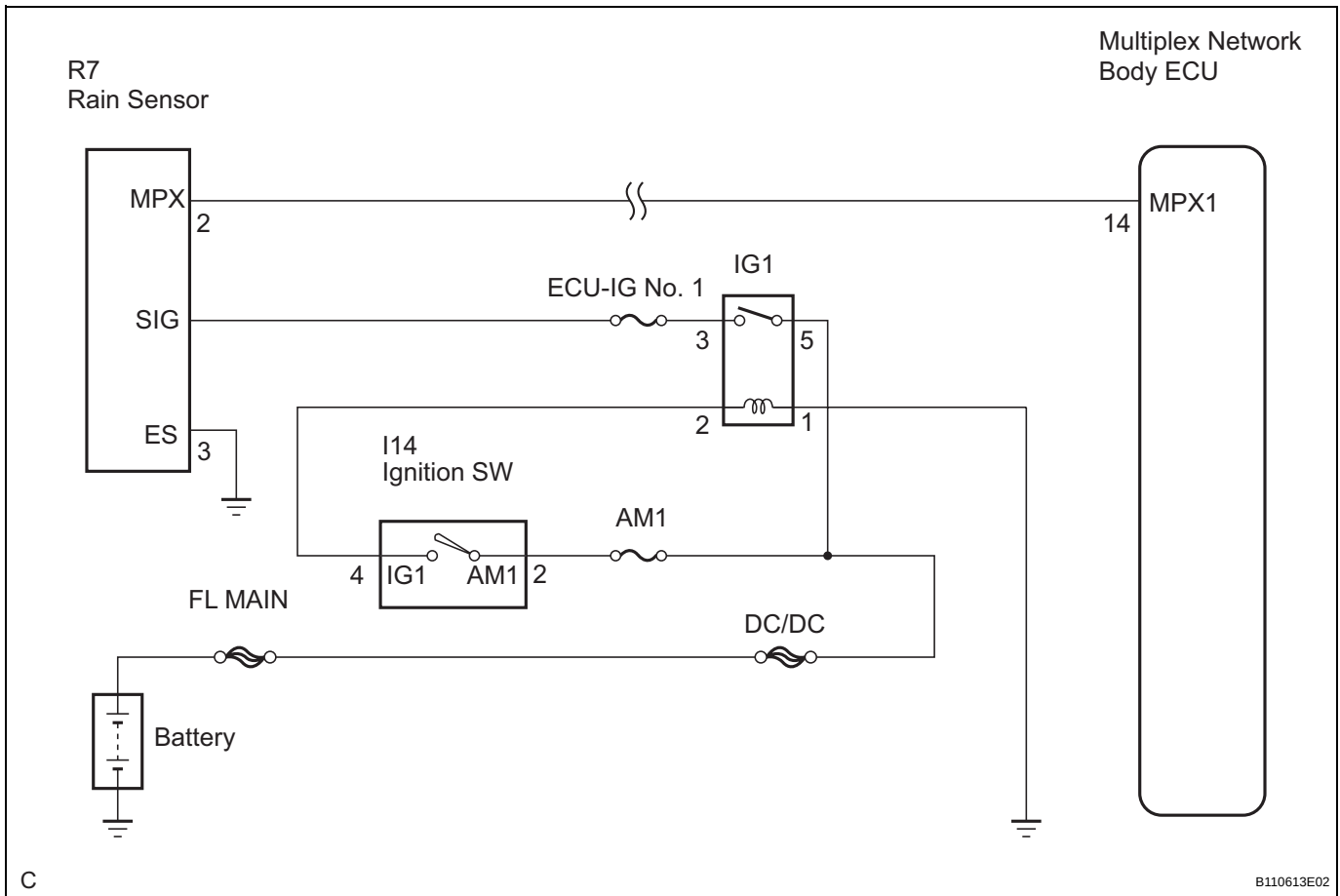
The auto wiper system operates when the wiper switch is in the AUTO position.

The rain sensor is connected to each ECU through the multiplex communication line.

When the rain sensor detects raindrops in the detection area of the windshield glass, the sensor sends a wiper control signal according to the amount of raindrops to the windshield wiper relay assembly.

When the rain sensor malfunctions, DTC of multiplex communication systems can be seen at the same time.

WIRING DIAGRAM



1 INSPECT FUSE

- (a) Inspect the AM1, ECU-IG No. 1 and INP-J/B fuses.
- (1) Measure the resistance between each terminals.

Standard resistance:

Below 1 Ω

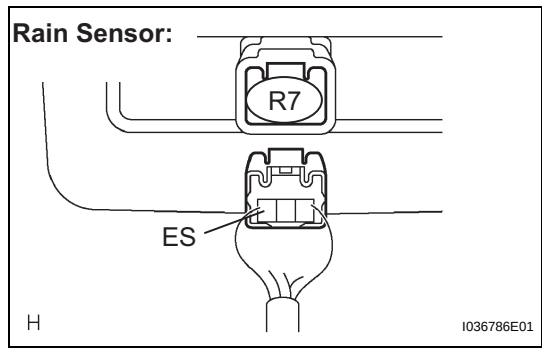
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CHECK FOR SHORT IN ALL HARNESS AND COMPONENTS CONNECTED FAILURE FUSE

OK

CHECK HARNESS AND CONNECTOR (RAIN SENSOR - BODY GROUND)

2 CHECK HARNESS AND CONNECTOR (RAIN SENSOR - BODY GROUND)



- (a) Disconnect the connector from the rain sensor.
- (b) Measure the resistance according to the value(s) in the table below.

Standard resistance

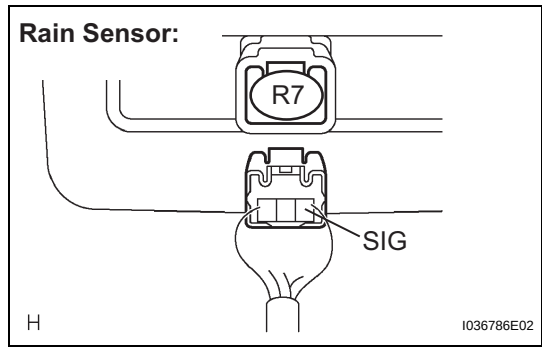
Tester Connection	Condition	Specified Condition
ES - Body ground	Always	Below 1 Ω

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REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

3 INSPECT RAIN SENSOR (RAIN SENSOR - OVERHEAD JUNCTION BLOCK)



- (a) Disconnect the connector from the rain sensor.
- (b) Measure the voltage according to the value(s) in the table below.

Standard voltage

Tester Connection	Condition	Specified Condition
SIG - Body ground	Ignition switch OFF → ON	Below 1 V → 10 to 14 V

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REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

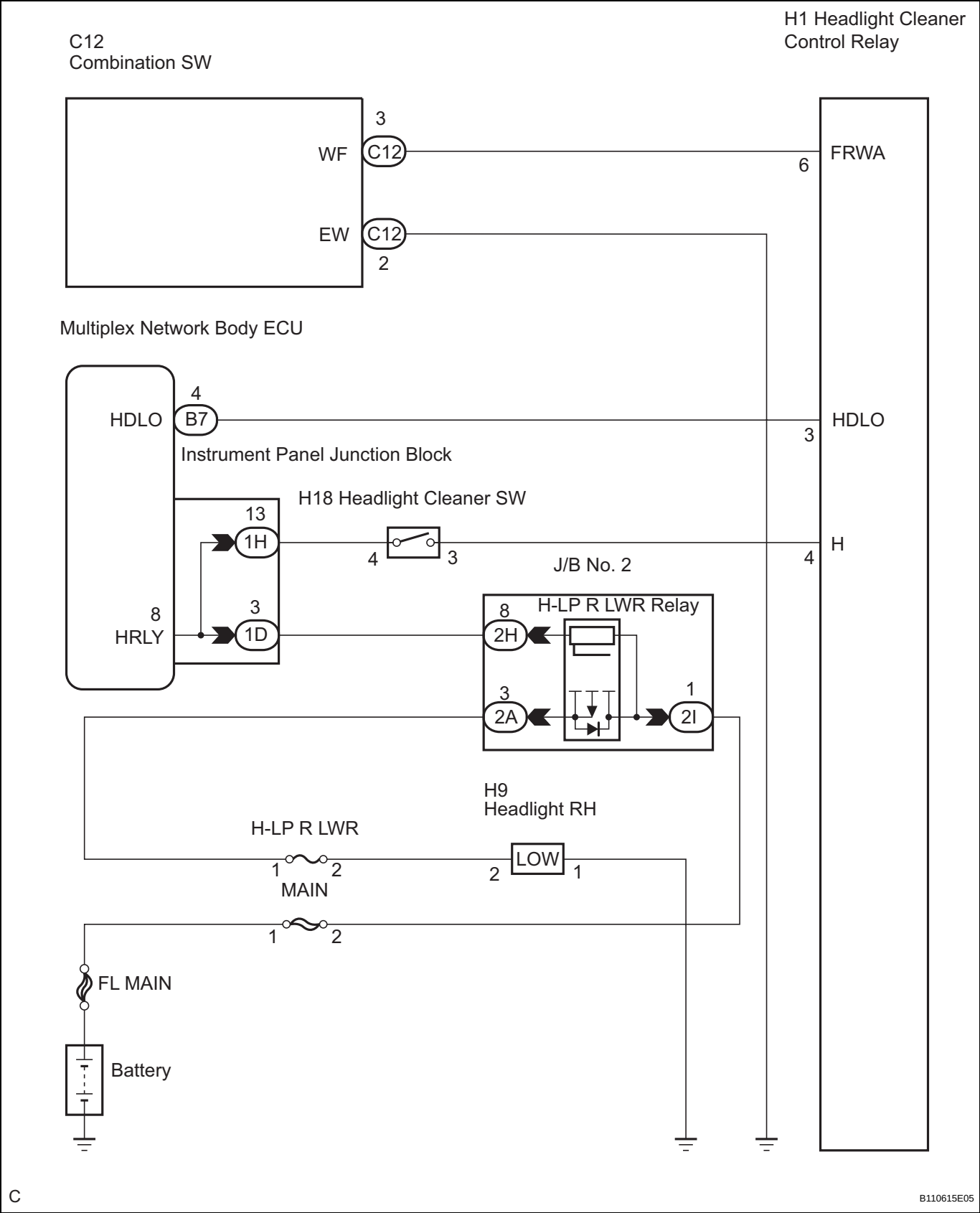
Headlight Cleaner Switch Circuit

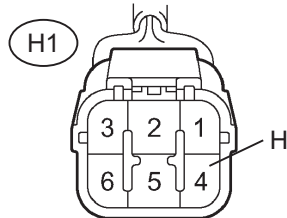
DESCRIPTION

This circuit sends the signal for the headlight cleaner control relay to operate the headlight cleaner motor and pump assembly. The signal is send when the headlight cleaner switch or the front washer switch is turned ON.

The headlight cleaner does not work while the multiplex network body computer sends the signal that the daytime running light system is in operation.

WIRING DIAGRAM



1 INSPECT HEADLIGHT CLEANER CONTROL RELAY**Headlight Cleaner Control Relay
Connector Front View:**

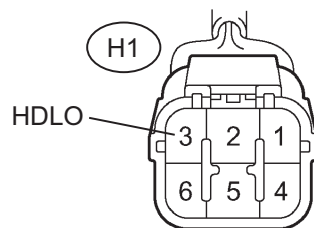
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OK

- (a) Disconnect the connector from the headlight cleaner control relay.
 (b) Measure the voltage according to the value(s) in the table below.

Standard voltage

Tester Connection	Condition	Specified Condition
H - Body ground	light control switch HEAD, headlight cleaner switch OFF → ON	Below 1 V → 10 to 14 V

NG**Go to step 4****2 INSPECT HEADLIGHT CLEANER CONTROL RELAY****WW****Headlight Cleaner Control Relay
Connector Front View:**

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OK

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

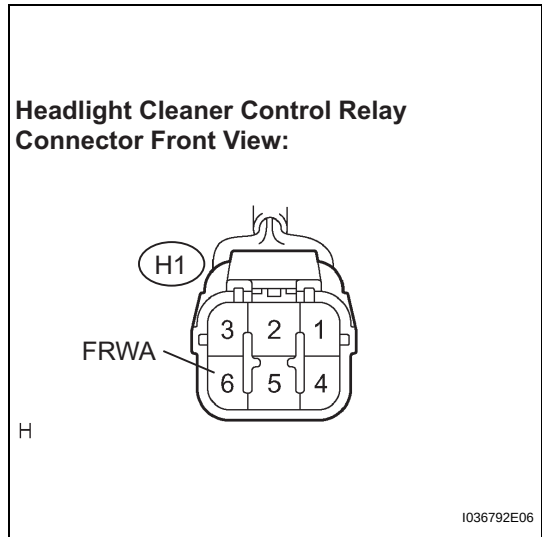
Standard voltage

Tester Connection	Condition	Specified Condition
HDLO - Body ground	Engine idling, parking brake released, Light control switch OFF and shift in any position other than P position.	10 to 14 V

NG**Go to step 6**

3

INSPECT HEADLIGHT CLEANER CONTROL RELAY



OK

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

Standard resistance

Tester Connection	Condition	Specified Condition
FRWA - Body ground	Front washer switch OFF → ON	10 kΩ or higher → Below 1 Ω

NG

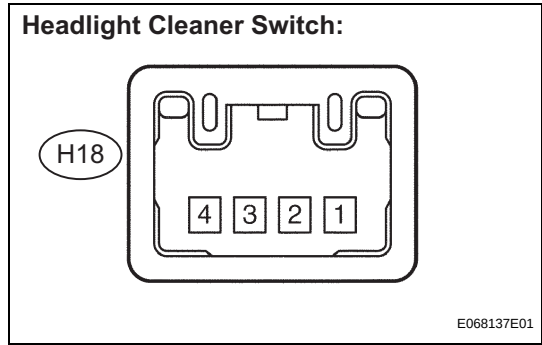
Go to step 7

WW

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

4

INSPECT HEADLIGHT CLEANER SWITCH ASSEMBLY



OK

- (a) Disconnect the connector from the headlight cleaner switch.

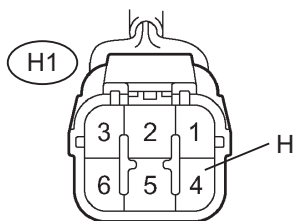
- (b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Condition
4 - 3	Headlight cleaner switch not pushed → pushed	10 kΩ or higher → Below 1 Ω

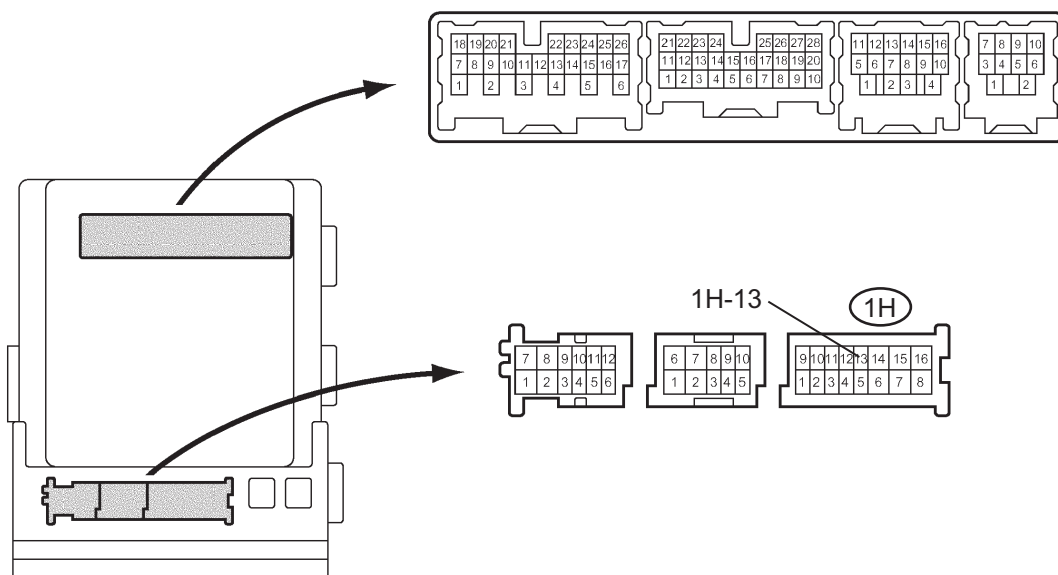
NG

REPLACE HEADLIGHT CLEANER SWITCH ASSEMBLY

5**CHECK HARNESS AND CONNECTOR (HEADLIGHT CLEANER CONTROL RELAY - INSTRUMENT PANEL J/B))****Headlight Cleaner Control
Relay Connector Front View:**

I036792E07

- (a) Disconnect the connector from the headlight cleaner control relay.
- (b) Disconnect the connector from the instrument panel J/B.

**Instrument Panel Junction Block
Assembly Back Side:**

E068613E14

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

Standard resistance

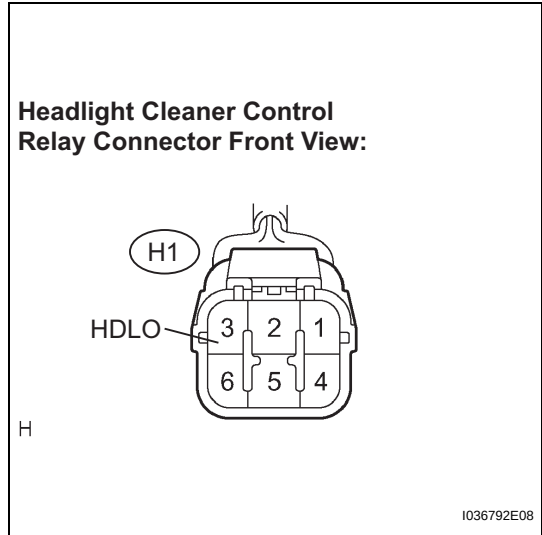
Tester Connection	Condition	Specified Condition
H - 1H-13	Headlight cleaner switch not pushed → pushed	10 k Ω or higher → Below 1 Ω
H - Body ground	Always	10 k Ω or higher

NG**REPAIR OR REPLACE HARNESS OR
CONNECTOR**

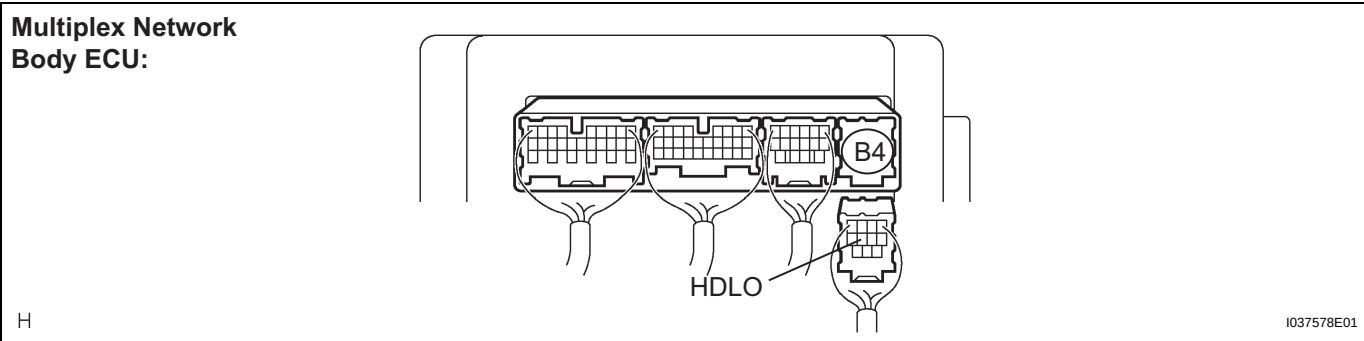
OK

REPLACE INSTRUMENT PANEL JUNCTION BLOCK ASSEMBLY

6 CHECK HARNESS AND CONNECTOR (HEADLIGHT CLEANER CONTROL RELAY - BODY ECU)



- (a) Disconnect the connector from the headlight cleaner.
- (b) Disconnect the connector from the multiplex network body ECU.



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

Standard resistance

Tester Connection	Condition	Specified Condition
HDLO - HDLO	Always	Below 1 Ω
HDLO - Body ground	Always	10 kΩ or higher

NG

REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE INSTRUMENT PANEL JUNCTION BLOCK ASSEMBLY

7**INSPECT WINDSHIELD WIPER SWITCH ASSEMBLY**

- (a) Inspect the windshield wiper switch assembly (See page [WW-50](#)).

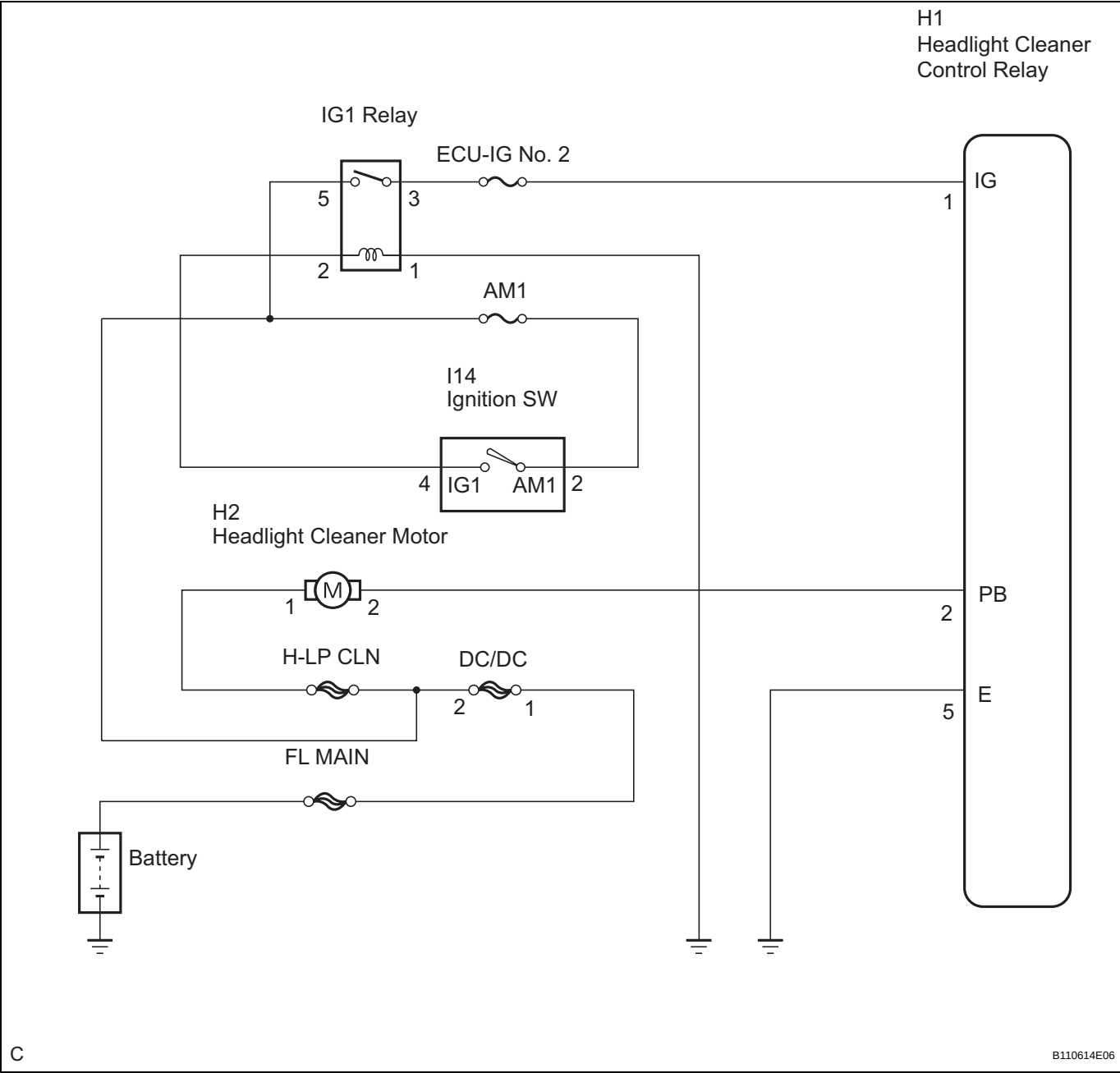
NG**REPLACE WINDSHIELD WIPER SWITCH
ASSEMBLY****OK****REPAIR OR REPLACE HARNESS OR CONNECTOR**

Headlight Cleaner Motor and Relay Circuit

DESCRIPTION

This circuit provides the headlight cleaner control relay with the power circuit. The headlight cleaner control relay sends the signal to operate from the switch, etc, to the headlight cleaner motor and pump assembly.

WIRING DIAGRAM



1 INSPECT FUSE

(a) Inspect the H-LP CLN, AM1, ECU-IG No. 2 and INP-J/B fuses.

- (1) Measure the resistance between each terminal.

Standard resistance:

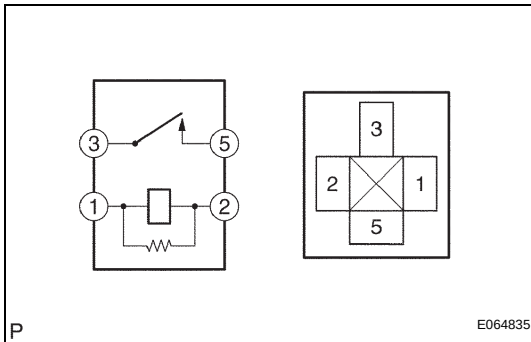
Below 1 Ω

NG

CHECK FOR SHORT IN ALL HARNESS AND COMPONENTS CONNECTED FAILURE FUSE

OK

2 INSPECT RELAY



- (a) Inspect IG1 relay continuity.

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

Standard resistance

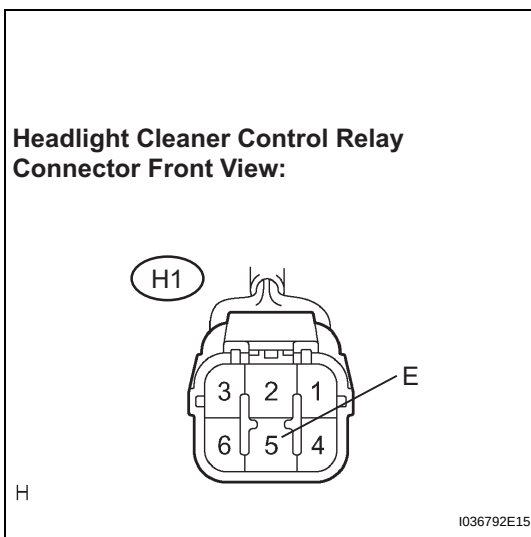
Terminal No.	Specified Condition
3 - 5	10 k Ω or higher
	Below 1 Ω (When battery voltage is applied to terminal 1 and 2)

NG

REPLACE RELAY

OK

3 CHECK HARNESS AND CONNECTOR (HEADLIGHT CLEANER CONTROL RELAY - BODY GROUND)



- (a) Disconnect the connector from the headlight cleaner relay.

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

Standard resistance

Tester Connection	Condition	Specified Condition
E - Body ground	Always	Below 1 Ω

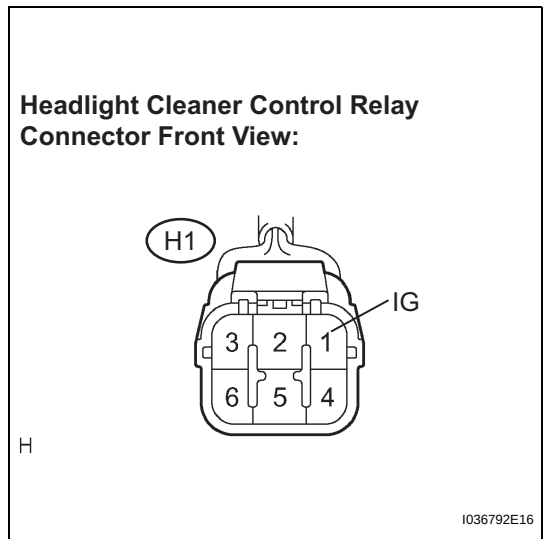
NG

REPAIR OR REPLACE HARNESS AND CONNECTOR

OK

4

INSPECT HEADLIGHT CLEANER CONTROL RELAY (POWER SOURCE CIRCUIT)



OK

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

Standard voltage

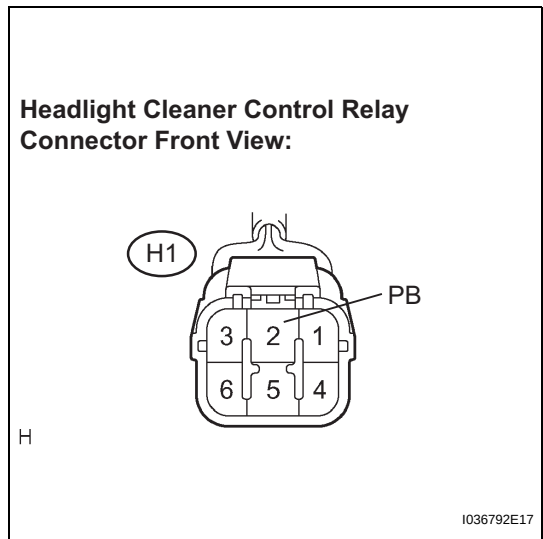
Tester Connection	Condition	Specified Condition
IG - Body ground	Ignition switch OFF → ON	Below 1 V → 10 to 14 V

NG → Go to step 6

WW

5

INSPECT HEADLIGHT CLEANER CONTROL RELAY



OK

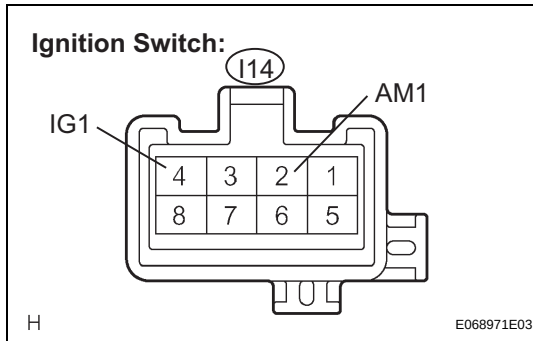
(a) Reconnect the connector.
(b) Measure the voltage according to the value(s) in the table below.

Standard voltage

Tester Connection	Condition	Specified Condition
PB - Body ground	Ignition switch ON	10 to 14 V

NG → Go to step 7

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

6 INSPECT IGNITION SWITCH

- (a) Disconnect the connector from the ignition switch.
(b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Condition
AM1 - IG1	Ignition switch OFF → ON	10 k Ω or higher → Below 1 Ω

NG**REPLACE IGNITION SWITCH****OK****REPAIR OR REPLACE HARNESS AND CONNECTOR****7 INSPECT WINDSHIELD WASHER MOTOR AND PUMP ASSEMBLY**

- (a) Inspect the windshield washer motor and pump assembly.

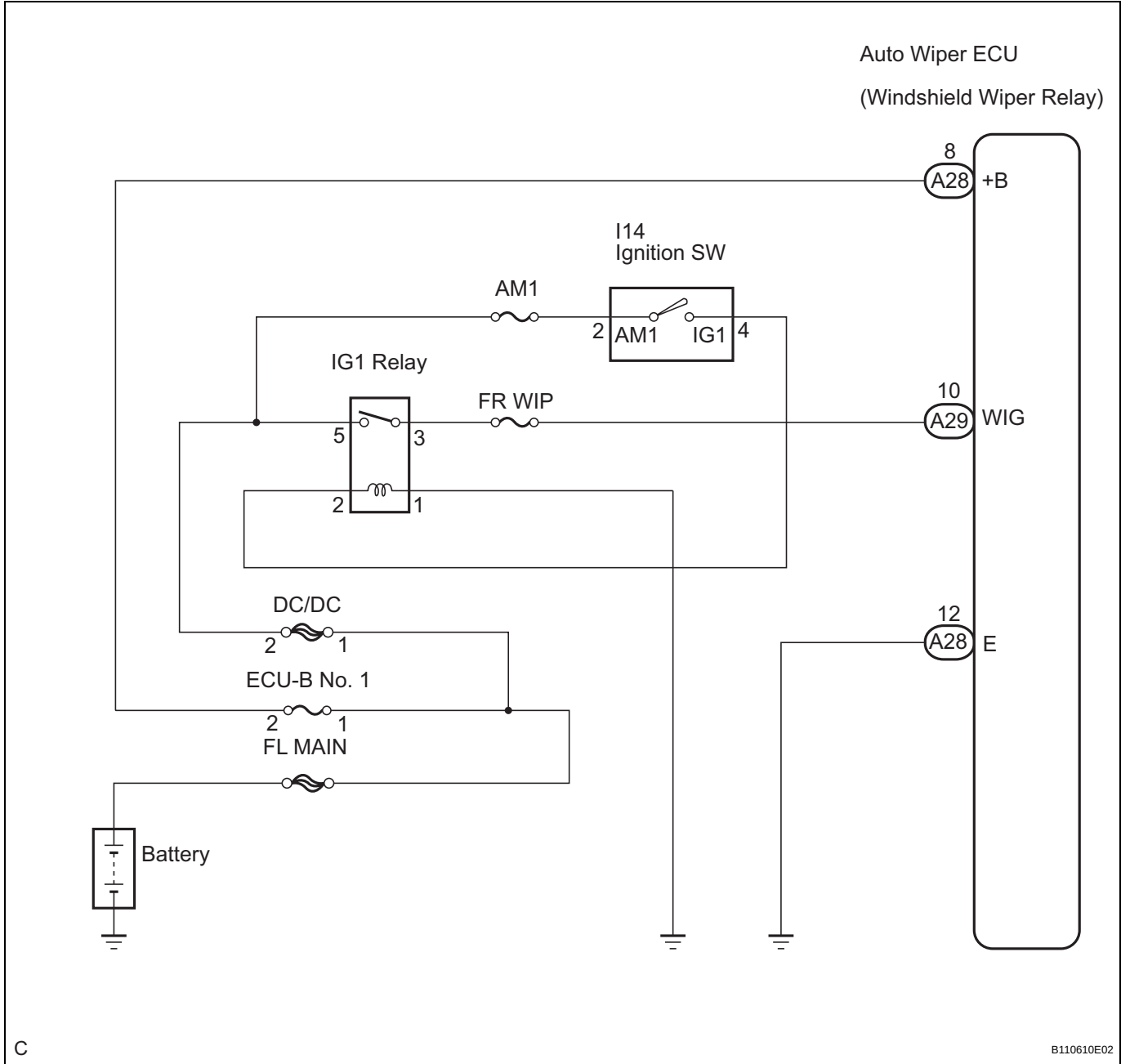
NG**REPLACE WINDSHIELD WASHER MOTOR AND PUMP ASSEMBLY****OK****REPAIR OR REPLACE HARNESS AND CONNECTOR**

Power Source Circuit

DESCRIPTION

This circuit provides power to operate the windshield wiper relay assembly.

WIRING DIAGRAM



1

INSPECT FUSE

(a) Inspect the AM1, FR WIP, ECU-B and INP-J/B fuses.

(1) Measure the resistance between each terminal.

Standard resistance:

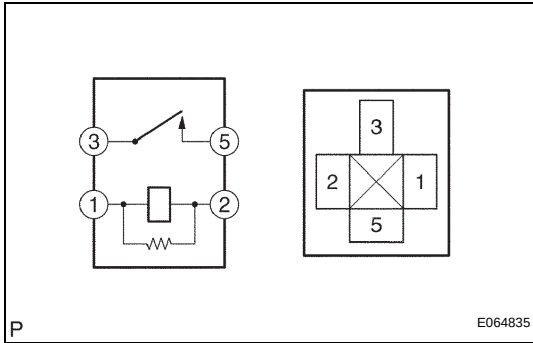
Below 1 Ω

NG

CHECK FOR SHORT IN ALL HARNESS AND COMPONENTS CONNECTED FAILURE FUSE

OK

2 INSPECT RELAY



- (a) Inspect IG1 relay continuity.
 (1) Measure the resistance according to the value(s) in the table below.

Standard resistance

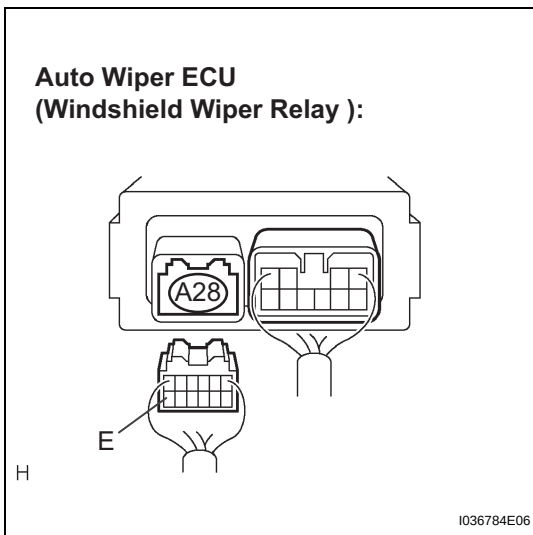
Terminal No.	Specified Condition
3 - 5	10 k Ω or higher
	Below 1 Ω (When battery voltage is applied to terminals 1 and 2)

NG

REPLACE RELAY

OK

3 CHECK HARNESS AND CONNECTOR (AUTO WIPER ECU - BODY GROUND)



- (a) Disconnect the connector from the auto wiper ECU.
 (b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connecting	Condition	Specified Condition
E - Body ground	Always	Below 1 Ω

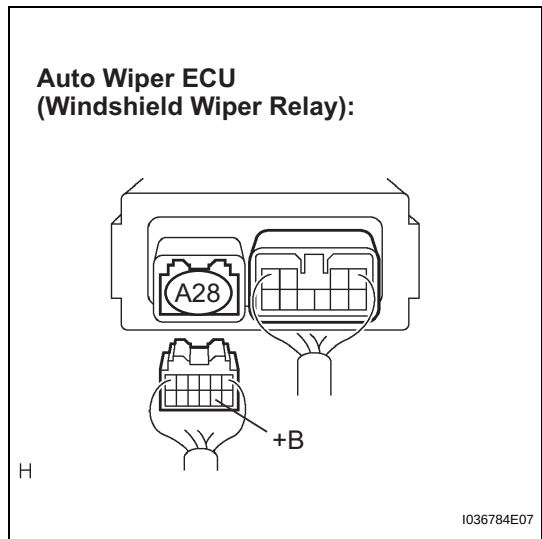
NG

REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

4

INSPECT WINDSHIELD WIPER RELAY ASSEMBLY (POWER SOURCE CIRCUIT)



- (a) Disconnect the connector from the auto wiper ECU.
- (b) Measure the voltage according to the value(s) in the table below.

Standard voltage

Tester Connection	Condition	Specified Condition
+B - Body ground	Always	10 to 14 V

NG

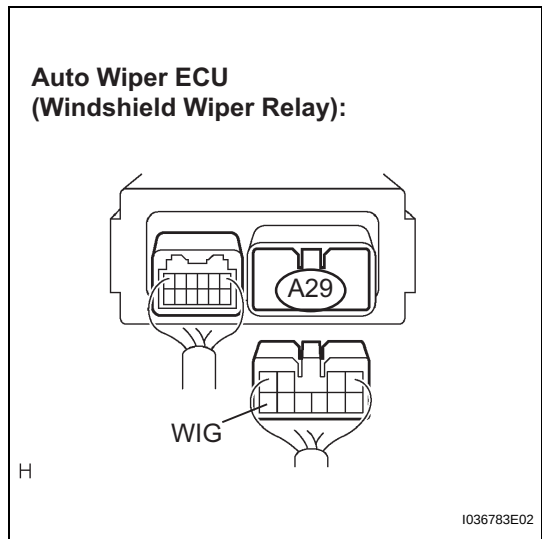
REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

WW

5

INSPECT WINDSHIELD WIPER RELAY ASSEMBLY



- (a) Disconnect the connector from the auto wiper ECU.
- (b) Measure the voltage according to the value(s) in the table below.

Standard voltage

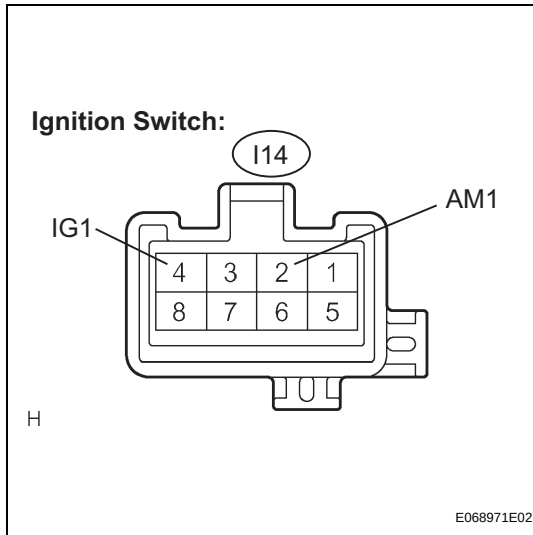
Tester Connection	Condition	Specified Condition
WIG - Body ground	Ignition Switch OFF → ON	Below 1 V → 10 to 14 V

NG

Go to step 6

OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN ON PROBLEM SYMPTOMS TABLE

6 INSPECT IGNITION SWITCH

- (a) Disconnect the connector from the ignition switch.
(b) Measure the resistance according to the value(s) in the table below.

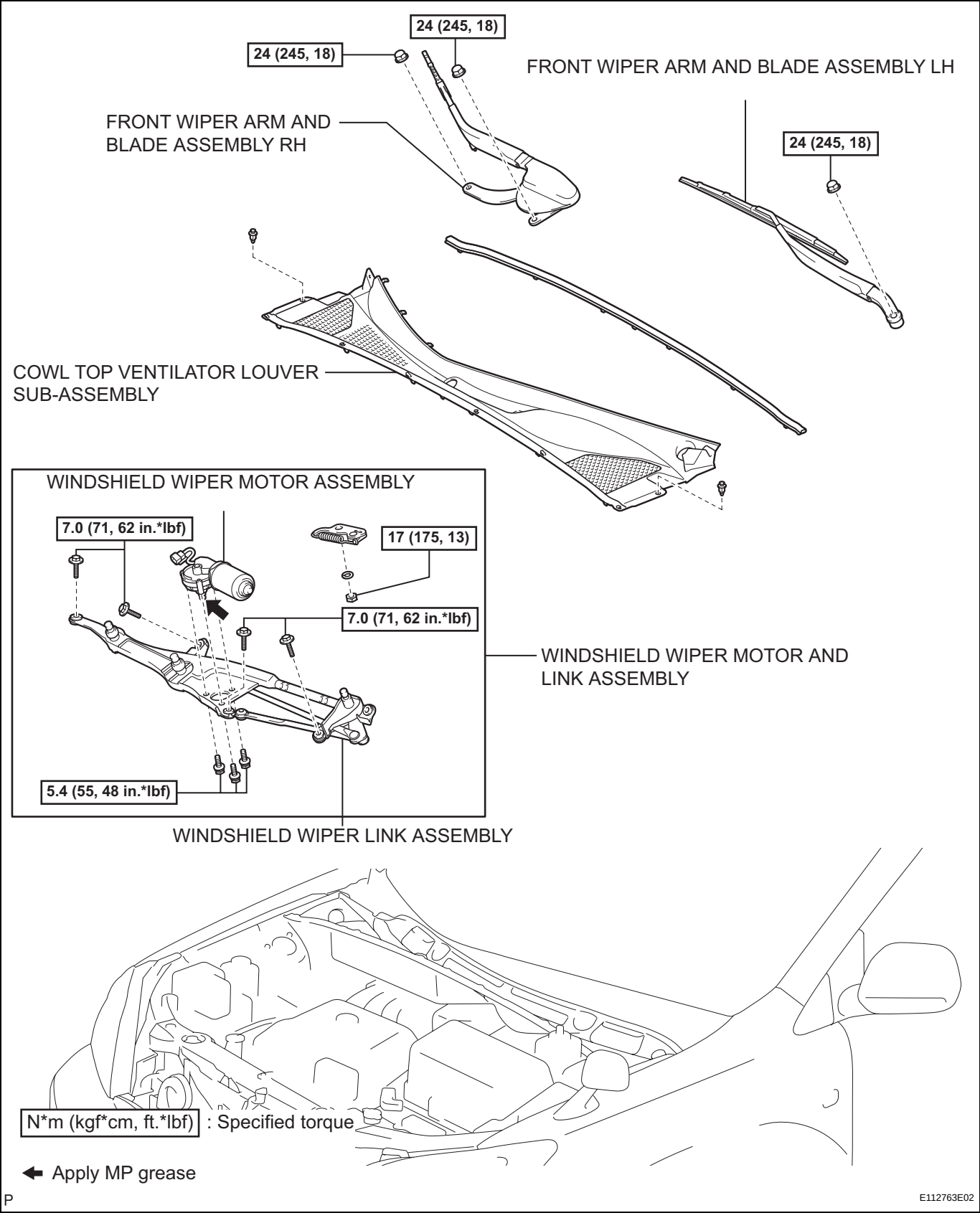
Standard resistance

Tester connection	Condition	Specified value
AM1 - IG1	Ignition switch OFF→ON	10 k Ω or higher → Below 1 Ω

NG**REPLACE IGNITION SWITCH****OK****REPAIR OR REPLACE HARNESS OR CONNECTOR****WW**

FRONT WIPER MOTOR

COMPONENTS



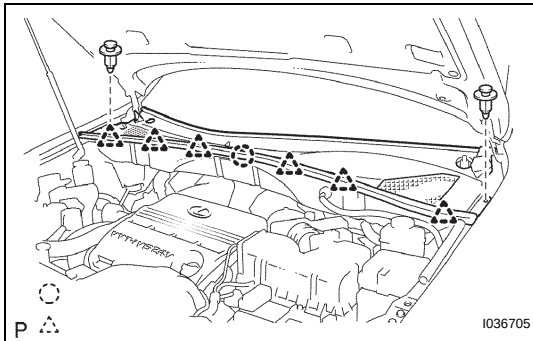
REMOVAL

1. REMOVE FRONT WIPER ARM AND BLADE ASSEMBLY RH

- Remove the 2 nuts and the front wiper arm and blade assembly RH.

2. REMOVE FRONT WIPER ARM AND BLADE ASSEMBLY LH

- Remove the nut and the front wiper arm and blade assembly LH.

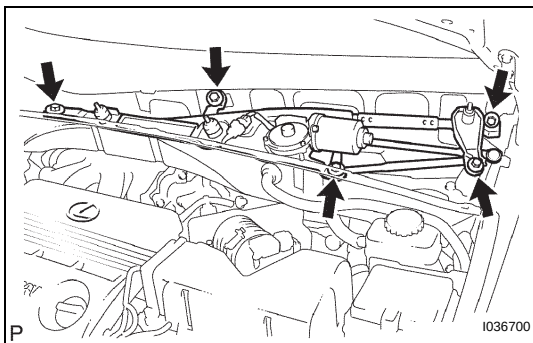


3. REMOVE COWL TOP VENTILATOR LOUVER SUB-ASSEMBLY

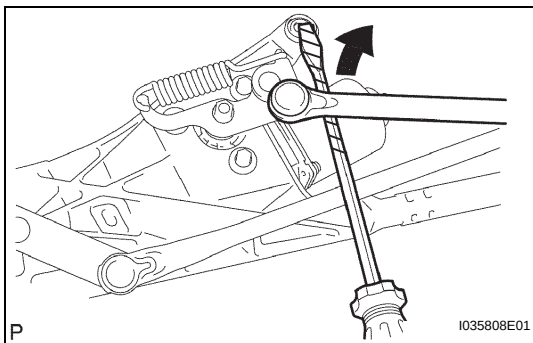
- Remove the 2 clips.
- Disengage the 6 claws and the clamp, and remove the cowl top ventilator louver sub-assembly.

4. REMOVE WINDSHIELD WIPER MOTOR AND LINK ASSEMBLY

- Disconnect the connector.

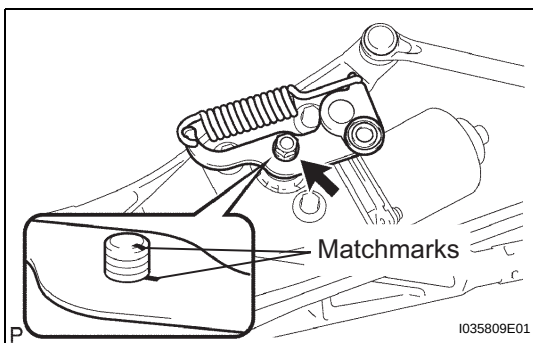


- Remove the 5 bolts and the windshield wiper motor and link assembly.

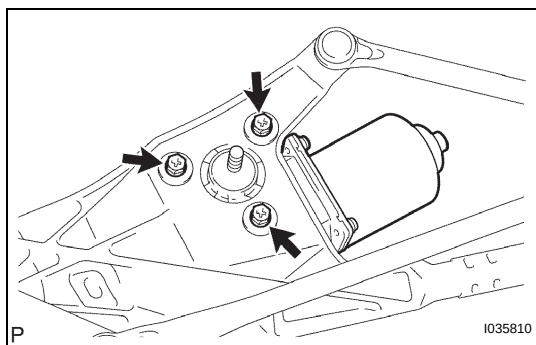


5. REMOVE WINDSHIELD WIPER MOTOR ASSEMBLY

- Using a screwdriver wrapped with protective tape, separate the rod of the wiper link assembly from the windshield wiper motor assembly as shown in the illustration.

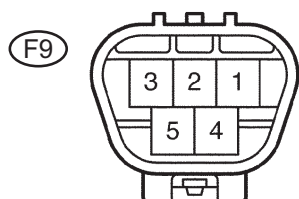


- Remove the nut and washer. Then, put the matchmarks on the crank arm assembly and windshield wiper motor assembly.



- (c) Remove the 3 bolts and windshield wiper motor assembly from the windshield wiper link assembly.

Connector Front View:

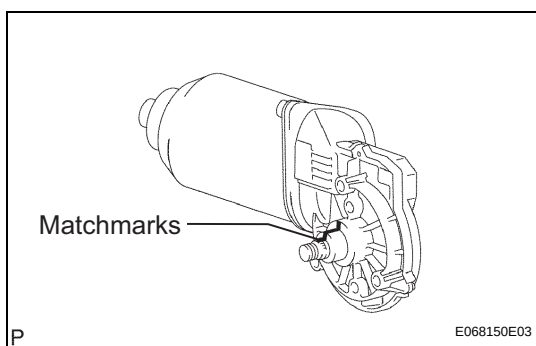


P E034081E19

INSPECTION

1. INSPECT FRONT WIPER MOTOR

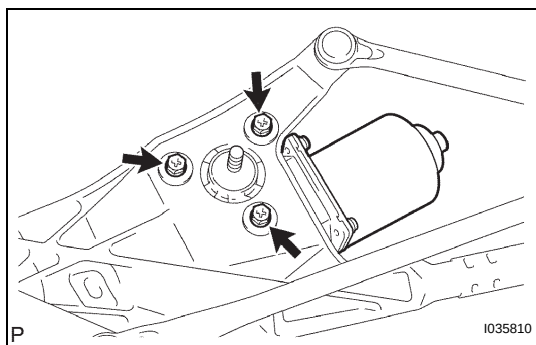
- (a) LO Operation Check
- (1) Connect the positive battery (+) lead to terminal 1 (+1) of the connector, and the negative battery (-) lead to terminal 5 (E), and check that the motor operates with low speed (LO).
- (b) HI Operation Check
- (1) Connect the positive battery (+) lead to terminal 4 (+2) of the connector, and the negative battery (-) lead to terminal 5 (E), and check that the motor operates with high speed (HI).
- (c) Automatic Stop Operation Check
- (1) Put the matchmarks on the front wiper motor.
 - (2) Connect the positive battery (+) lead to terminal 1 (+1) of the connector, and the negative battery (-) lead to terminal 5 (E). With the motor being rotated at low speed (LO), disconnect the terminal 1 (+1) to stop the wiper motor operation at position other than the matchmarks.
 - (3) Using SST, connect the terminal 1 (+1) and the terminal 3 (S), and the positive battery (+) lead to the terminal 2 (B) to restart the motor operation at low speed.
- SST 09843-18040**
- (4) Align the matchmarks with the front wiper motor.

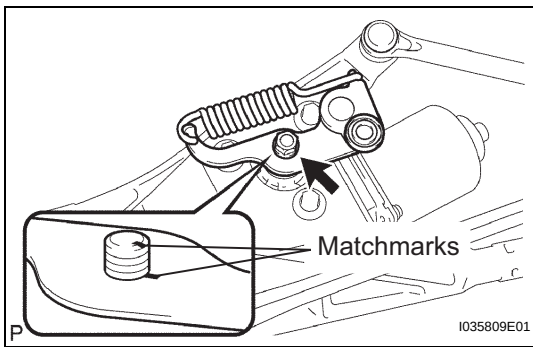


INSTALLATION

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, 48 in.*lbf)**
- (b) Apply MP grease to the crank arm pivot of the windshield wiper motor assembly.

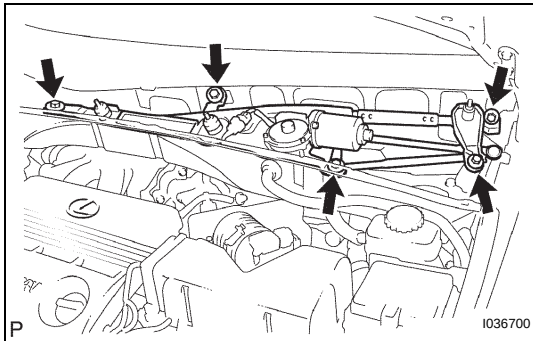




- (c) Align the matchmarks on the crank arm assembly and windshield wiper motor assembly, then install the washer and nut.

Torque: 17 N*m (175 kgf*cm, 13 ft.*lbf)

- (d) Install the rod to the crank arm pivot of the windshield wiper motor assembly.



2. INSTALL WINDSHIELD WIPER MOTOR AND LINK ASSEMBLY

- (a) Install the windshield wiper motor and link assembly with the 5 bolts.

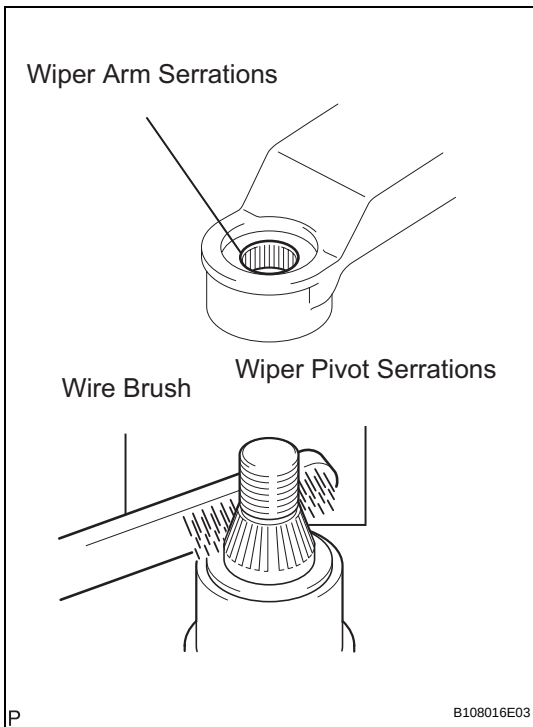
Torque: 7.0 N*m (71 kgf*cm, 62 in.*lbf)

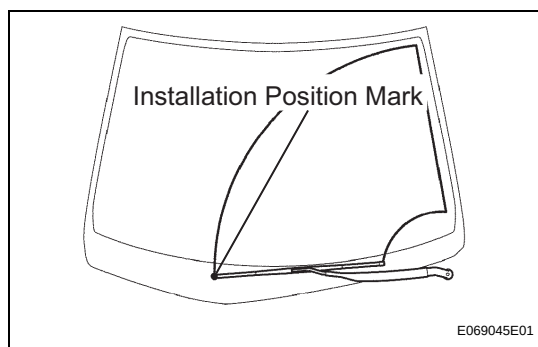
- (b) Connect the connector.

3. INSTALL COWL TOP VENTILATOR LOUVER SUB-ASSEMBLY

4. INSTALL FRONT WIPER ARM AND BLADE ASSEMBLY LH

- (a) Operate the wiper, and stop the windshield wiper motor assembly at the automatic stop position.
- (b) Clean the wiper arm serrations.
- (c) Clean the wiper pivot serrations with a wire brush (when reinstalling).





- (d) Install the front wiper arm and blade assembly LH with the nuts at the position as shown in the illustration.

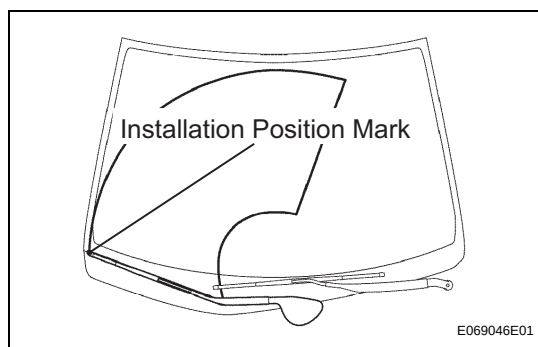
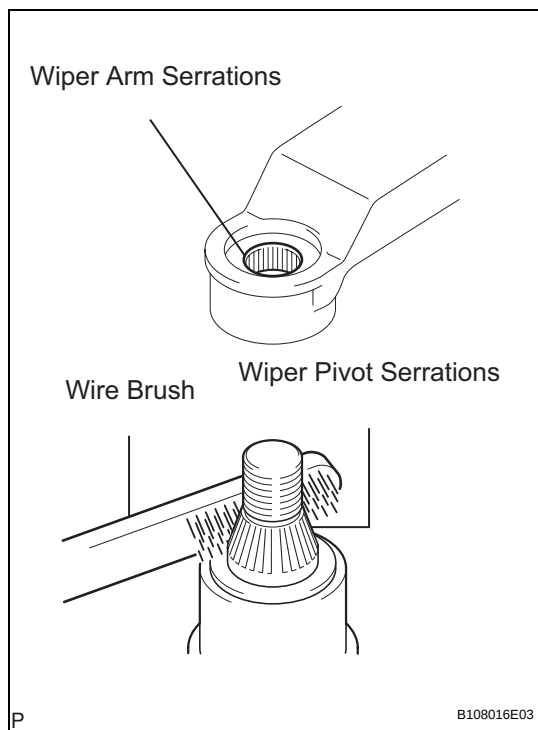
Torque: 24 N*m (245 kgf*cm, 18 ft.*lbf)

HINT:

Hold the arm hinge by hand to fasten the nut.

5. INSTALL FRONT WIPER ARM AND BLADE ASSEMBLY RH

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



- (c) Install the front wiper arm and blade assembly RH with the 2 nuts at the position as shown in the illustration.

Torque: 24 N*m (245 kgf*cm, 18 ft.*lbf)

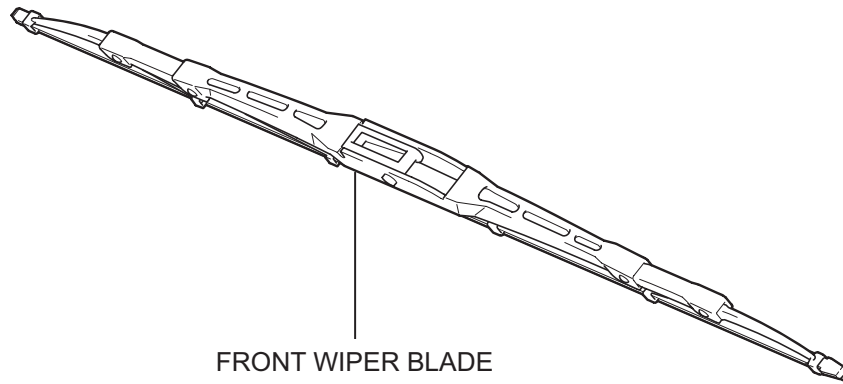
HINT:

Hold the arm hinge by hand to fasten the nut.

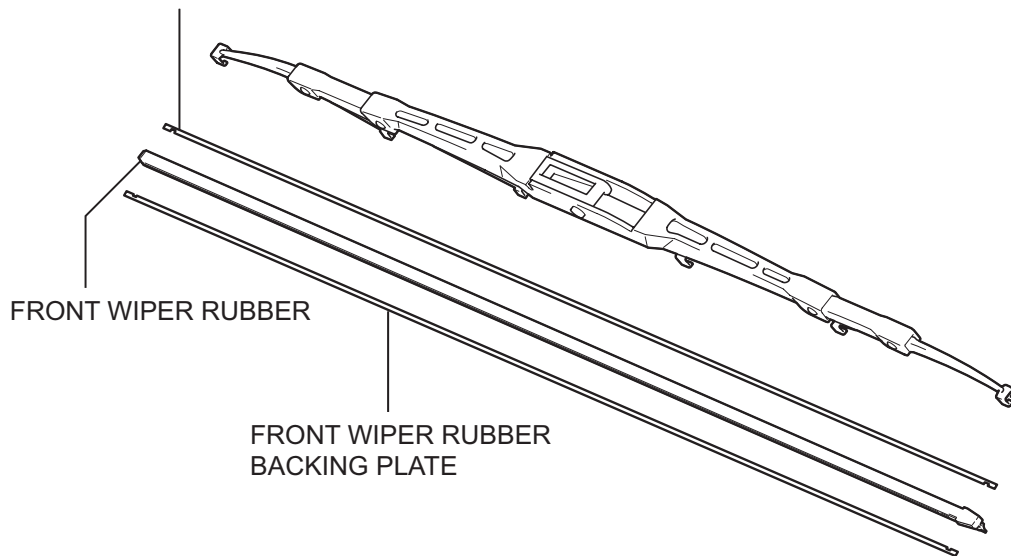
- (d) Operate the front wipers while spraying water or washer fluid on the windshield.
 (e) Make sure that the wipers function properly and there is no interference with the vehicle body.

FRONT WIPER RUBBER

COMPONENTS



FRONT WIPER RUBBER BACKING PLATE



REMOVAL

1. REMOVE FRONT WIPER BLADE

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

NOTICE:

Do not bend the front wiper arm with the front wiper blade removed, as the arm tip could damage the windshield surface.

2. REMOVE FRONT WIPER RUBBER

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

INSTALLATION

1. INSTALL FRONT WIPER RUBBER

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

NOTICE:

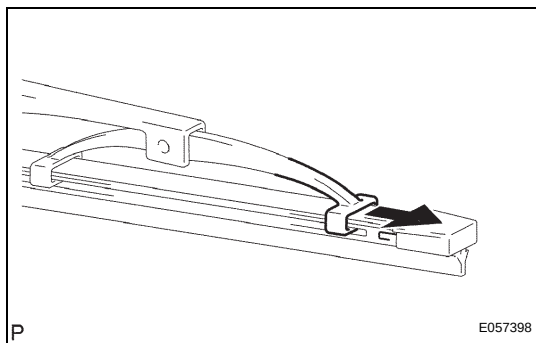
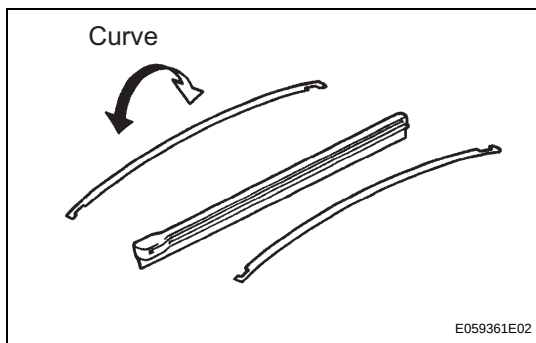
Be sure to install the wiper rubber backing plates in the correct direction.

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

NOTICE:

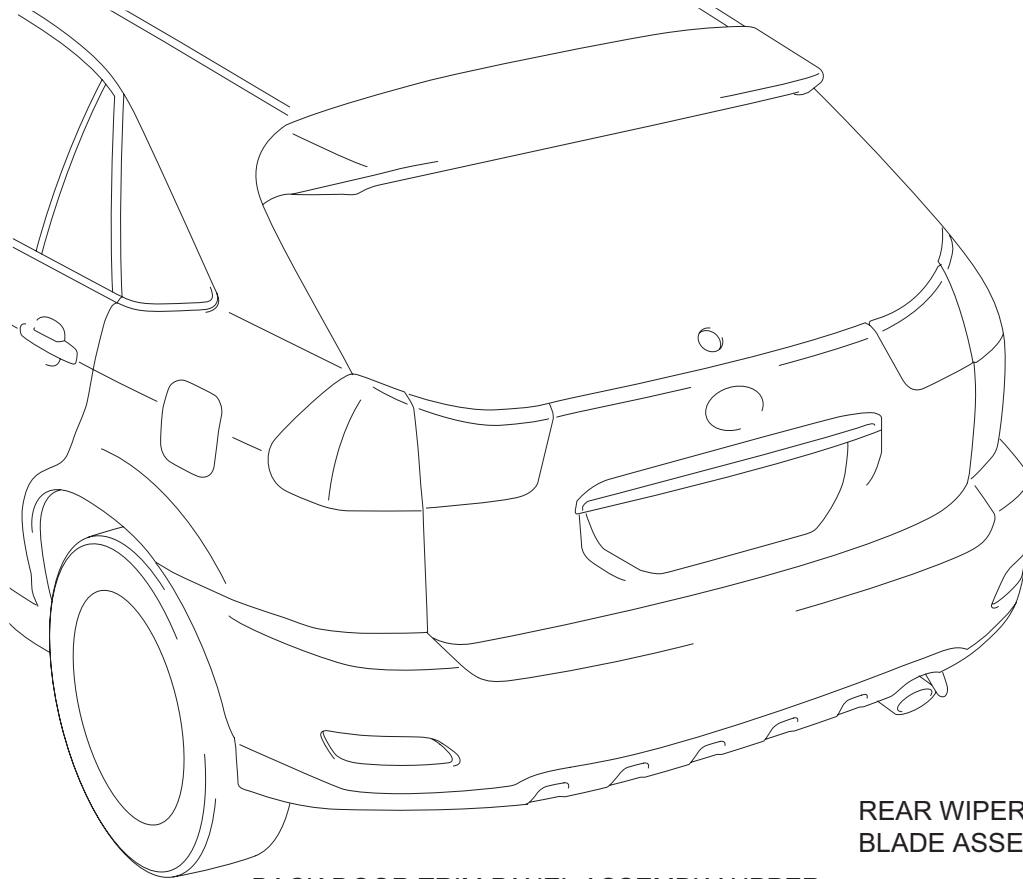
Push the front wiper blade into the grooves of the wiper rubber to engage them completely.

2. INSTALL FRONT WIPER BLADE

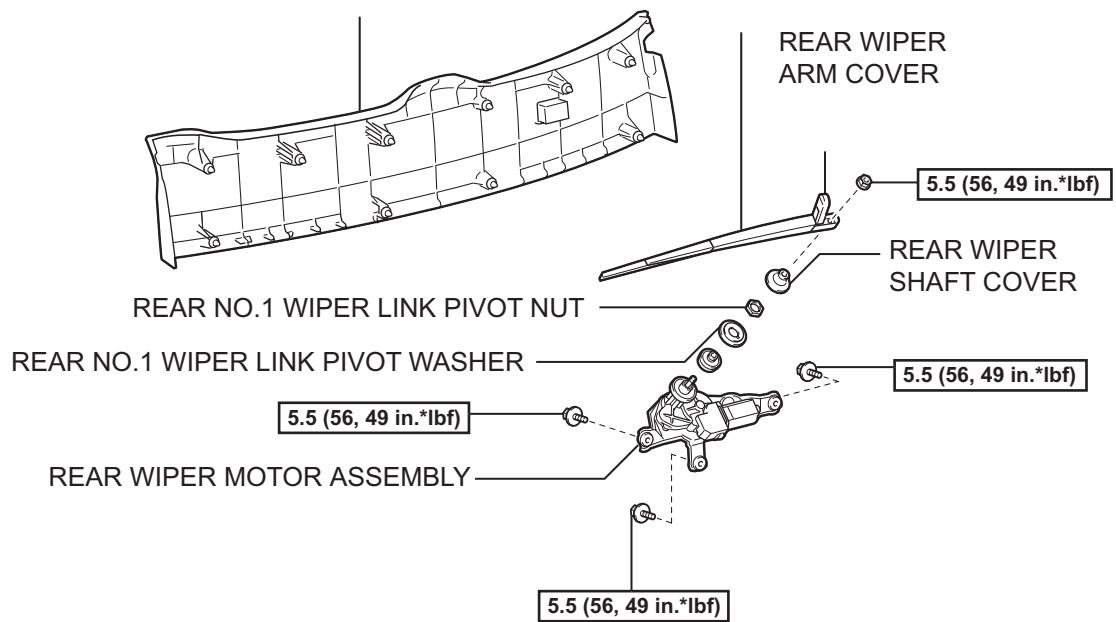


REAR WIPER MOTOR

COMPONENTS



BACK DOOR TRIM PANEL ASSEMBLY UPPER



N*m (kgf*cm, ft.*lbf) : Specified torque

WW

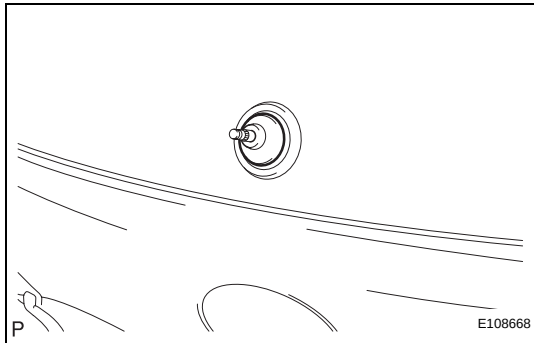
REMOVAL

1. REMOVE REAR WIPER ARM COVER

- (a) Remove rear wiper arm cover.

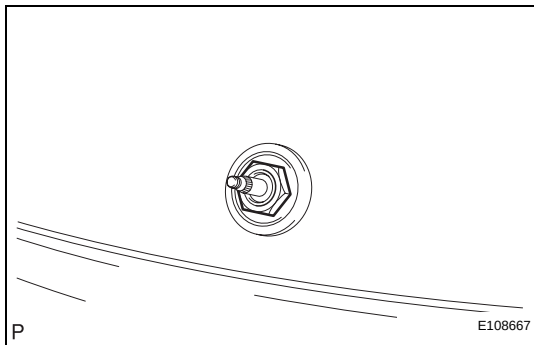
2. REMOVE REAR WIPER ARM AND BLADE ASSEMBLY

- (a) Remove the nut, rear wiper arm and blade assembly.



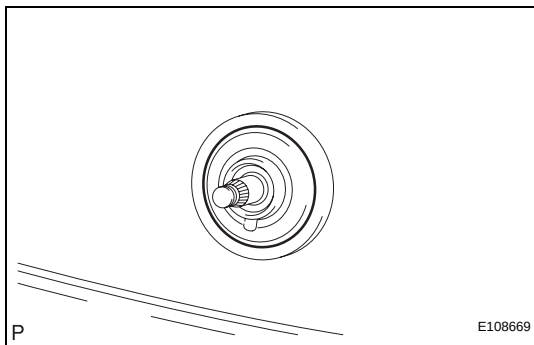
3. REMOVE REAR WIPER SHAFT COVER

- (a) Remove the rear wiper shaft cover.



4. REMOVE REAR NO.1 WIPER LINK PIVOT NUT

- (a) Using the socket wrench 27 mm (1.06 in.), remove the rear No. 1 wiper link pivot nut.



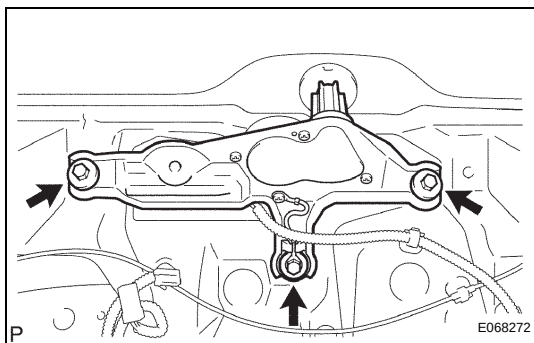
5. REMOVE REAR NO.1 WIPER LINK PIVOT WASHER

- (a) Remove the rear No. 1 wiper link pivot washer.

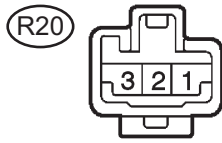
6. REMOVE BACK DOOR TRIM PANEL ASSEMBLY UPPER (See page [ED-124](#))

7. REMOVE REAR WIPER MOTOR ASSEMBLY

- (a) Disconnect the connector.



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

Connector Front View:

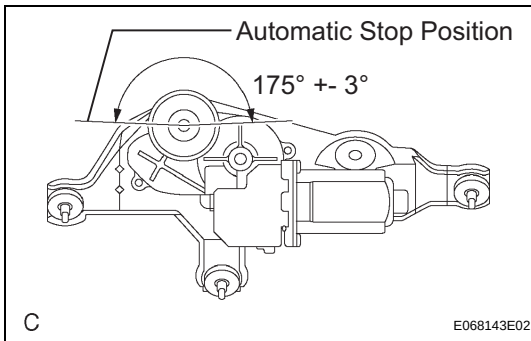
E069438E02

INSPECTION**1. INSPECT REAR WIPER MOTOR**

- (a) Connect the positive battery (+) lead to terminal 1 (+B) of the connector, the negative battery (-) lead to terminal 3 (LS) and rear wiper motor body, and check that the rear wiper motor operates.

(b) Automatic Stop Position Operation Check

- (1) Connect the positive battery (+) lead to terminal 1 (+B) of the connector, the negative battery (-) lead to terminal 3 (LS) and rear wiper motor body. With the motor being rotated disconnect the terminal 3 (LS) from the battery (-), then check that the wiper motor stops automatically at the automatic stop position.



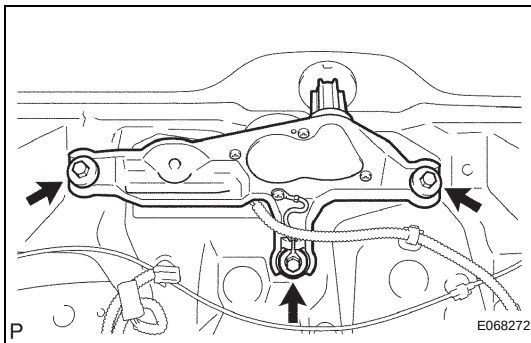
E068143E02

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

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

Torque: 5.5 N*m (56 kgf*cm, 49 in.*lbf)

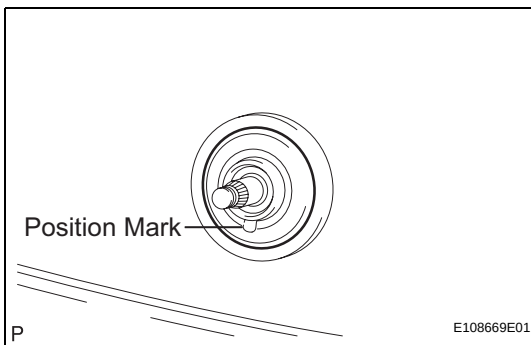
- (b) Connect the connector.

2. INSTALL BACK DOOR TRIM PANEL ASSEMBLY UPPER

E068272

3. INSTALL REAR NO.1 WIPER LINK PIVOT WASHER

- (a) Install the rear No.1 wiper link pivot washer with the position mark facing downward as shown in the illustration.



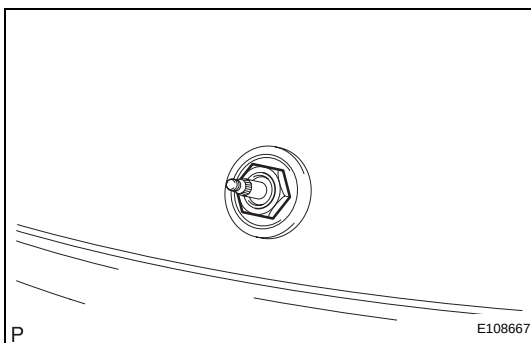
E108669E01

4. INSTALL REAR NO.1 WIPER LINK PIVOT NUT

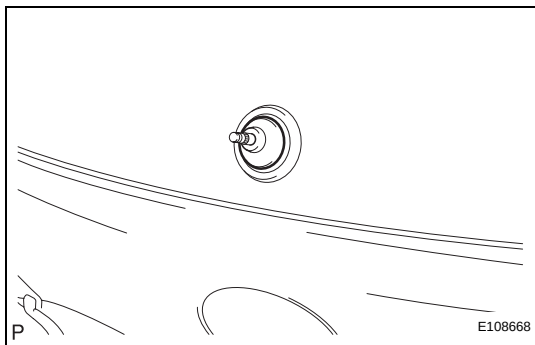
- (a) Using a socket wrench 27 mm (1.06 in.), install the rear No.1 wiper link pivot nut.

NOTICE:

Be careful not to damage the glass.



E108667

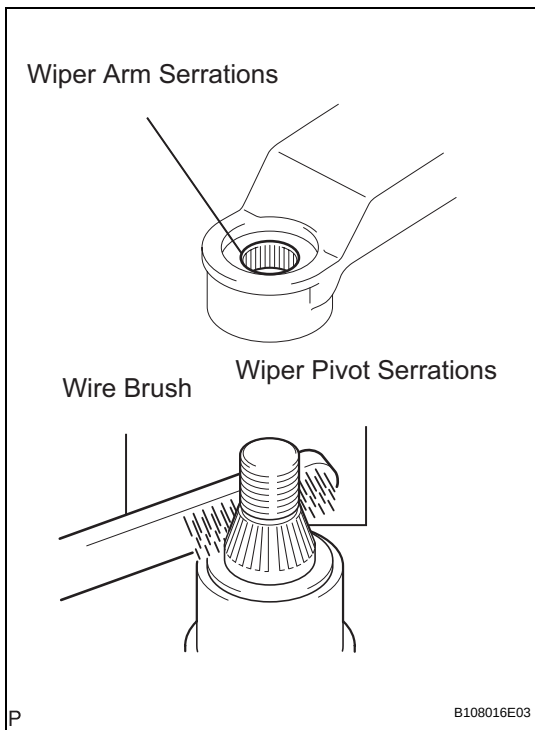


5. INSTALL REAR WIPER SHAFT COVER

- (a) Install the rear wiper shaft cover.

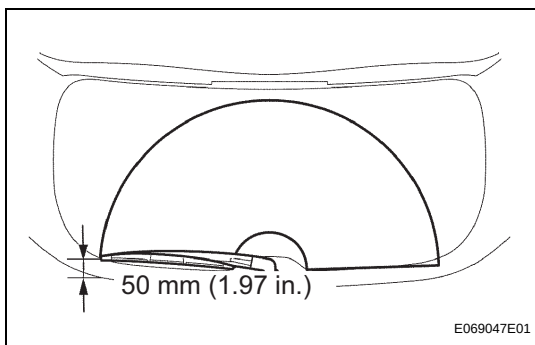
6. INSTALL REAR WIPER ARM AND BLADE ASSEMBLY

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



- (b) Clean the wiper arm serrations.

- (c) Clean the wiper pivot serrations with a wire brush (when reinstalling).



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

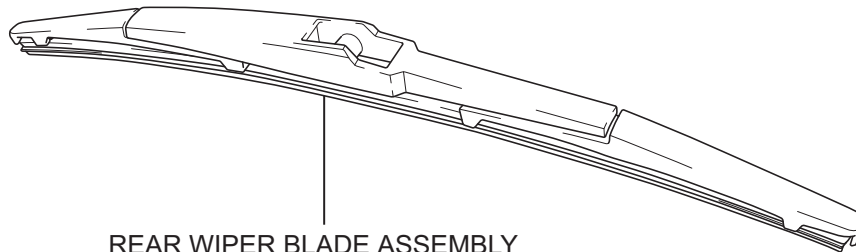
Torque: 9.8 N*m (100 kgf*cm, 87 in.*lbf)

7. INSTALL REAR WIPER ARM COVER

- (a) Install the rear wiper arm cover.
 (b) Operate the rear wiper while spraying water or washer fluid on the windshield.
 (c) Make sure that the wipers function properly and there is no interference with the vehicle body.

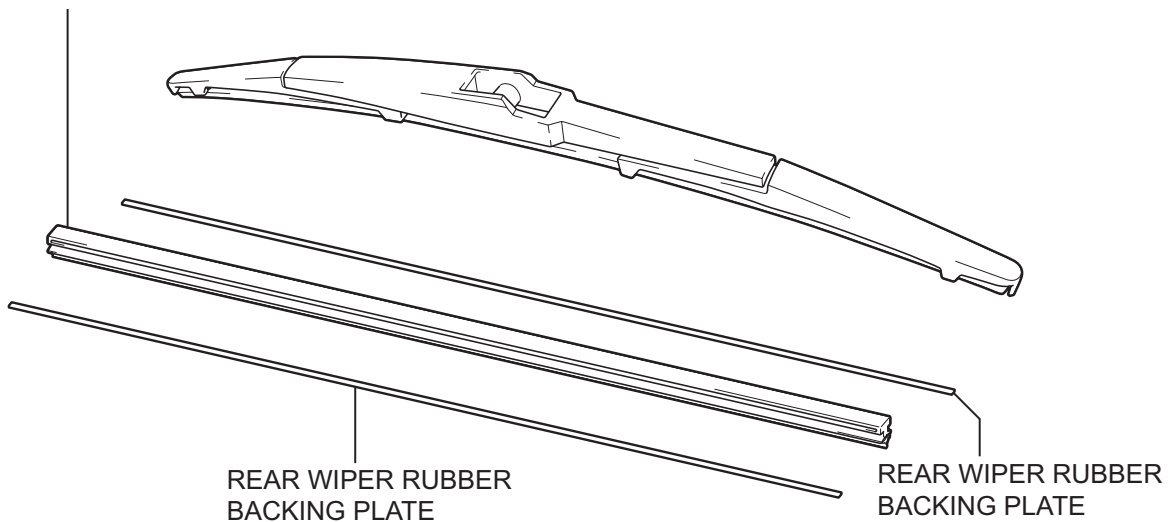
REAR WIPER RUBBER

COMPONENTS



REAR WIPER BLADE ASSEMBLY

REAR WIPER RUBBER

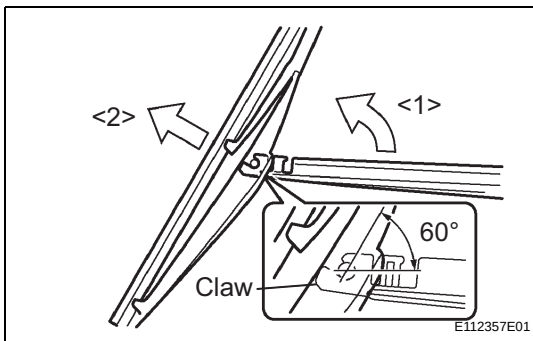


REAR WIPER RUBBER
BACKING PLATE

REAR WIPER RUBBER
BACKING PLATE

P

E110466E01



E112357E01

REMOVAL

1. REMOVE REAR WIPER BLADE ASSEMBLY

- (a) Raise the rear wiper blade to the position as shown in the illustration where the meshing of the claw disengages with a clicking sound.

NOTICE:

Be careful not to break the claw.

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

NOTICE:

Do not bend the rear wiper arm with the rear wiper blade removed, as the arm tip could damage the windshield surface.

2. REMOVE REAR WIPER RUBBER

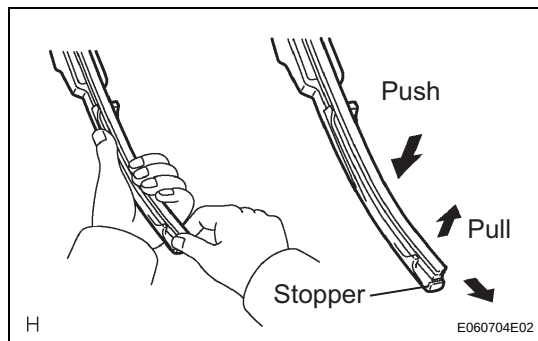
- (a) Pull the end of the wiper rubber protruding from the blade stopper as shown in the illustration.

NOTICE:

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

HINT:

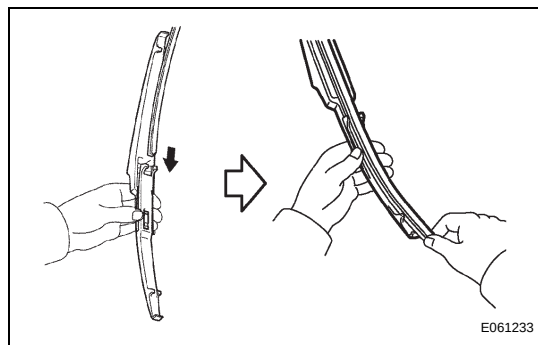
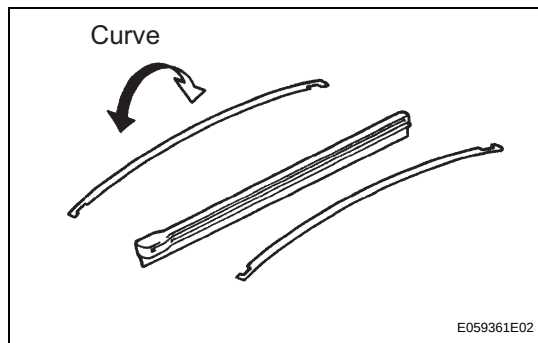
Pushing the rubber from the ends towards the middle will allow it to be removed more easily.

**INSTALLATION****1. INSTALL REAR WIPER RUBBER**

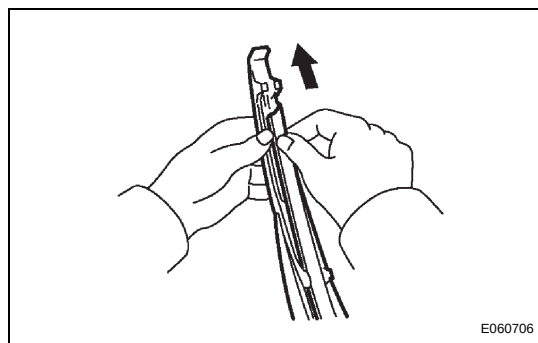
- (a) Install the rear wiper rubber to the 2 rear wiper rubber backing plates.

NOTICE:

Install the backing plates in the correct direction.

**2. INSTALL REAR WIPER BLADE ASSEMBLY**

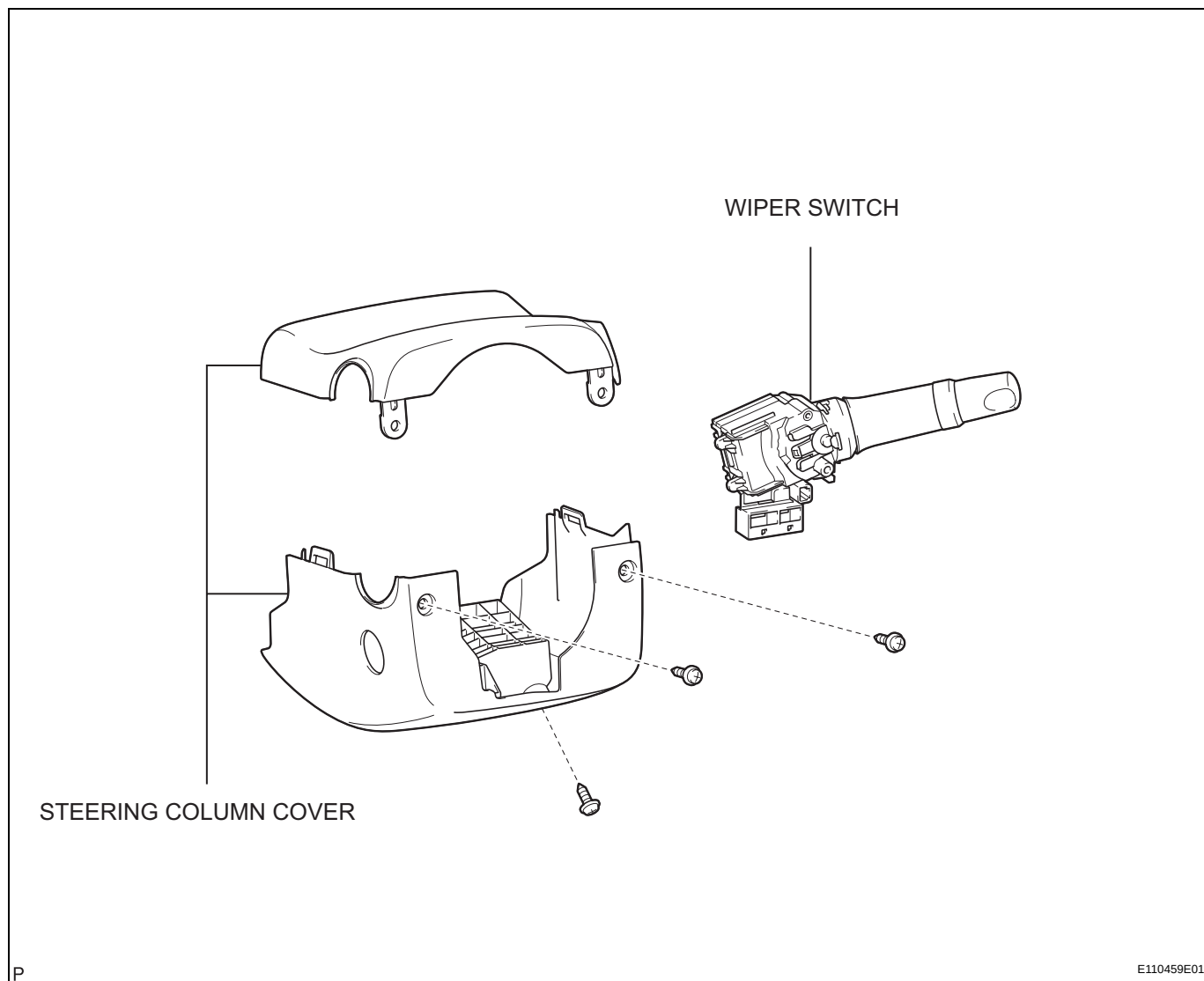
- (a) Insert the rear wiper rubber from the claw position of the middle of the rear wiper blade to the end.



- (b) After passing the rear 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.

WIPER SWITCH

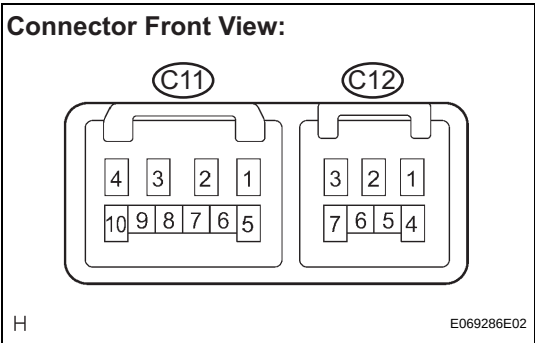
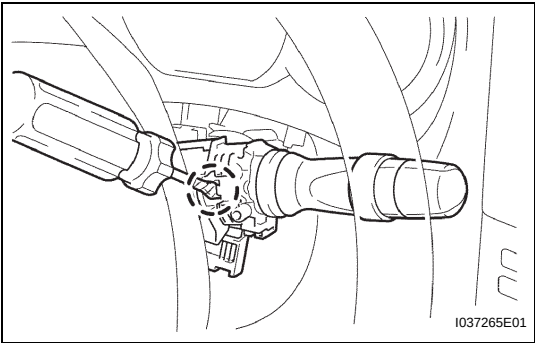
COMPONENTS



REMOVAL

- 1. REMOVE STEERING COLUMN COVER (for Manual Tilt) (See page [SR-40](#))
- 2. REMOVE STEERING COLUMN COVER (for Power Tilt and Power Telescopic) (See page [SR-51](#))
- 3. REMOVE WIPER SWITCH
 - (a) Disconnect the connector.
 - (b) Using a screwdriver wrapped with protective tape, disengage the claw and remove the wiper switch.

NOTICE:
If the claw is pushed with excessive force, it may be broken.



INSPECTION

- 1. INSPECT WIPER SWITCH
 - (a) Check the continuity of wiper switch.
 - (1) Measure the resistance according to the value(s) in the table below.

Standard resistance:
Front Wiper Switch (w/o Rain Sensor)

Switch position	Tester connection	Specified resistance
MIST	C11-2 (+B) - C11-3 (+1)	Below 1 Ω
OFF	C11-1 (+S) - C11-3 (+1)	Below 1 Ω
INTO	C11-1 (+S) - C11-3 (+1)	Below 1 Ω
LO	C11-2 (+B) - C11-3 (+1)	Below 1 Ω
HI	C11-2 (+B) - C11-4 (+2)	Below 1 Ω

Front Wiper Switch (w/ Rain Sensor)

Switch position	Tester connection	Specified resistance
MIST	C11-2 (+B) - C11-3 (+1)	Below 1 Ω
OFF	C11-1 (+S) - C11-3 (+1)	Below 1 Ω
AUTO	C11-1 (+S) - C11-3 (+1), C11-9 (AUTO) - C12-10 (E)	Below 1 Ω
LO	C11-2 (+B) - C11-3 (+1)	Below 1 Ω
HI	C11-2 (+B) - C11-4 (+2)	Below 1 Ω

Rear Wiper Switch

Switch position	Tester connection	Specified resistance
OFF	-	10 kΩ or higher
INTO	C12-2 (EW) - C12-6 (C1R)	Below 1 Ω
ON	C12-2 (EW) - C12-7 (+1R)	Below 1 Ω

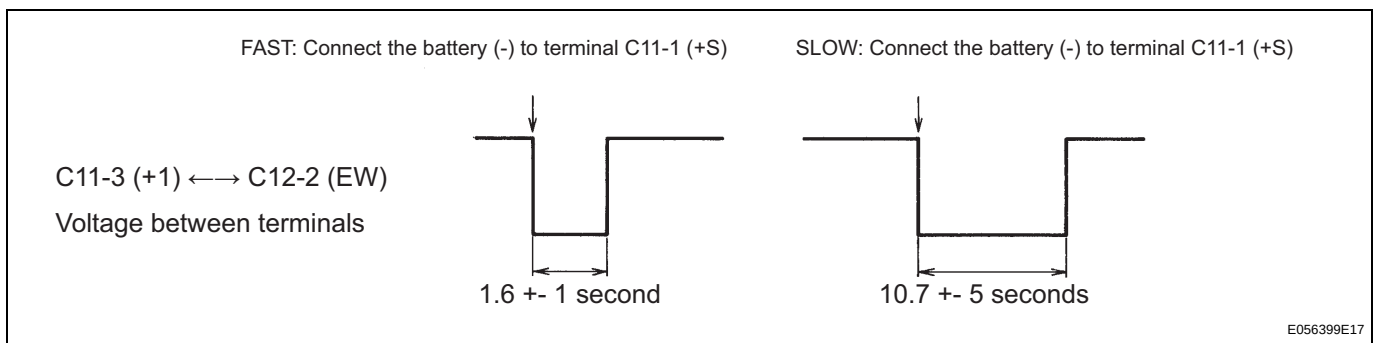
Front Washer Switch

Switch position	Tester connection	Specified resistance
OFF	-	10 k Ω or higher
ON	C12-2 (EW) - C12-3 (WF)	Below 1 Ω

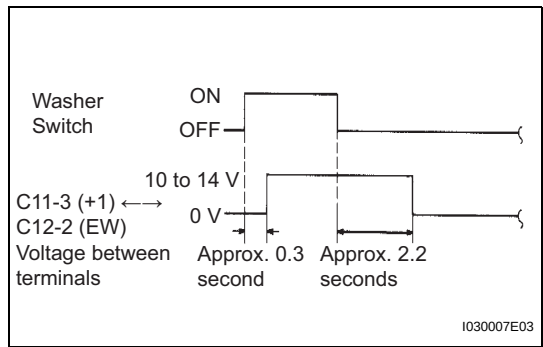
Rear Washer Switch

Switch position	Tester connection	Specified resistance
OFF	-	10 k Ω or higher
ON (Rear wiper switch OFF position side)	C11-5 (WR) - C12-2 (EW)	Below 1 Ω
ON (Rear wiper switch ON position side)	C11-5 (WR) - C12-2 (EW), C12-2 (EW) - C12-7 (+1R)	Below 1 Ω

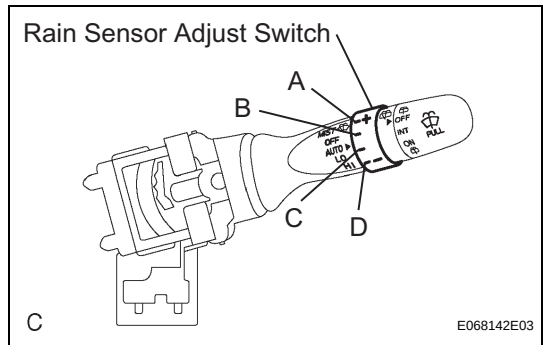
- (b) Intermittent Operation Check (w/o Rain Sensor)
- (1) Connect the voltmeter (+) terminal to terminal C11-3 (+1) of the connector and the voltmeter (-) terminal to terminal C12-2 (EW).
 - (2) Connect the positive battery (+) lead to terminal C11-2 (+B) of the connector and the negative battery (-) lead to terminals C12-2 (EW) and C11-1 (+S).
 - (3) Turn the wiper switch to the INT position.
 - (4) Connect the positive battery (+) lead to terminal C11-1 (+S) of the connector for 5 seconds.
 - (5) Connect the negative battery (-) lead to terminal C11-4 (+S) of the connector. Operate the intermittent wiper relay and measure the voltage between terminals C11-3 (+1) and C12-2 (EW).



- (c) Front Wiper Operation Check (w/o Rain Sensor)
- (1) Turn the wiper switch to the OFF position.
 - (2) Connect the positive battery (+) lead to terminal C11-2 (+B) of the connector, and the negative battery (-) to the terminals C11-1 (+S) and C12-2 (EW).



- (3) Connect the voltmeter (+) terminal to terminal C11-3 (+1) of the connector and the voltmeter (-) terminal to terminal C12-2 (EW). Turn the washer switch to the ON and OFF position, and measure the voltage between terminals C11-3 (+1) and C12-2 (EW).



- (d) Rain Sensor Adjust Switch Operation Check (w/ Rain Sensor)
- (1) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester connection	Condition	Specified condition
C11-7 (VR1) - C11-8 (VR2)	A position	Below 1 Ω
C11-7 (VR1) - C11-8 (VR2)	B position	405 to 493 Ω
C11-7 (VR1) - C11-8 (VR2)	C position	1,400 to 1,700 Ω
C11-7 (VR1) - C11-8 (VR2)	D position	2,200 to 3,200 Ω

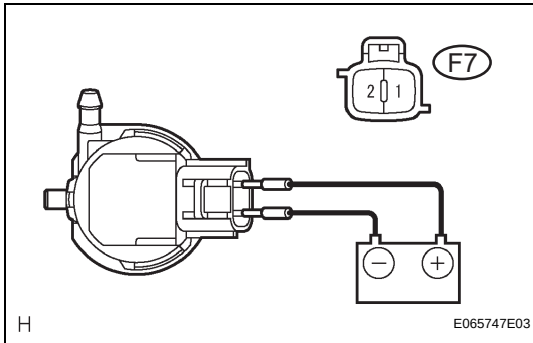
FRONT WASHER MOTOR

ON-VEHICLE INSPECTION

1. INSPECT FRONT WASHER MOTOR

(a) Operation Check

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



INSTALLATION

1. INSTALL WIPER SWITCH
2. INSTALL STEERING COLUMN COVER (for Power Tilt and Power Telescopic) (See page [SR-57](#))
3. INSTALL STEERING COLUMN COVER (for Manual Tilt) (See page [SR-45](#))

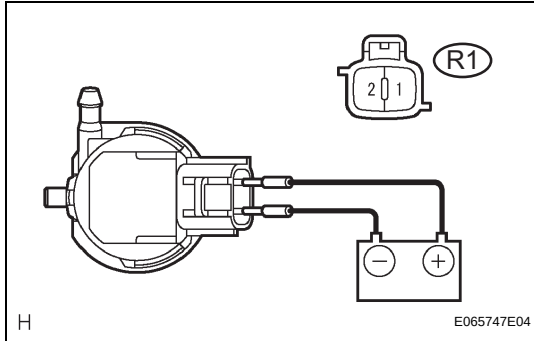
REAR WASHER MOTOR

ON-VEHICLE INSPECTION

1. INSPECT REAR WASHER MOTOR

(a) Operation Check

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



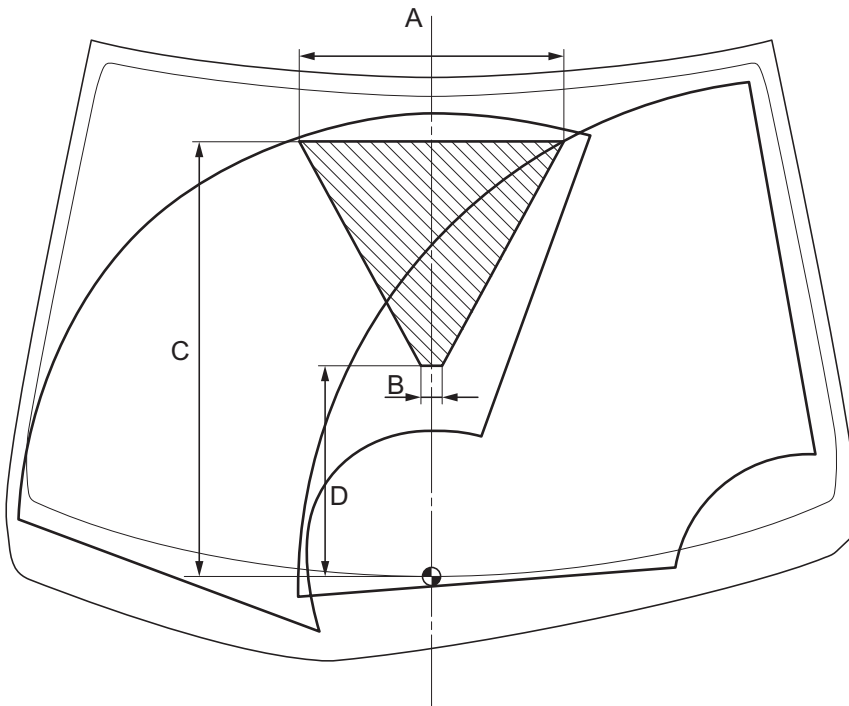
WASHER NOZZLE

ON-VEHICLE INSPECTION

1. INSPECT WASHER NOZZLE SUB-ASSEMBLY

- (a) With the engine running, check the position that the washer fluid hits the windshield.

Front:



A:453 mm (17.83 in.)

B:36 mm (1.42 in.)

C:747 mm (29.41 in.)

D:360 mm (14.17 in.)

WW

P

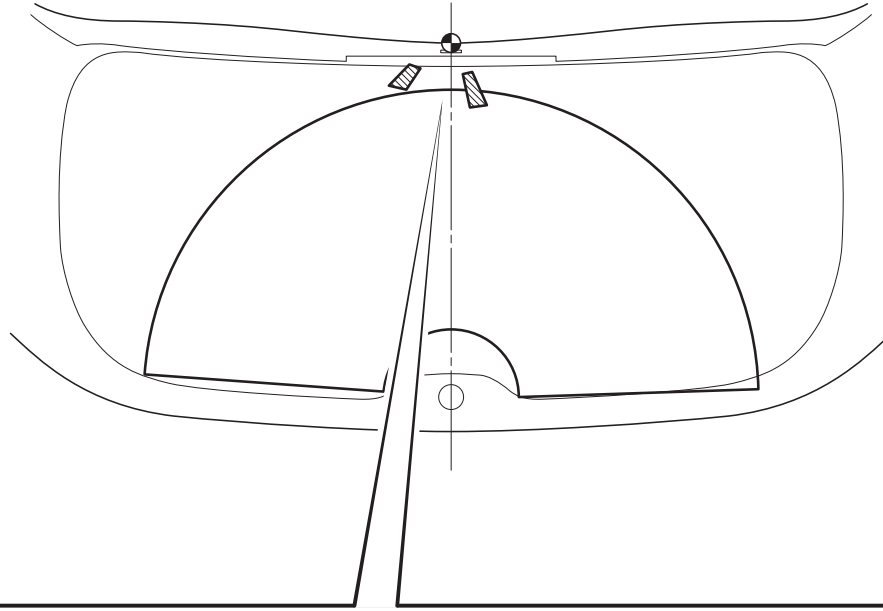
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Standard:

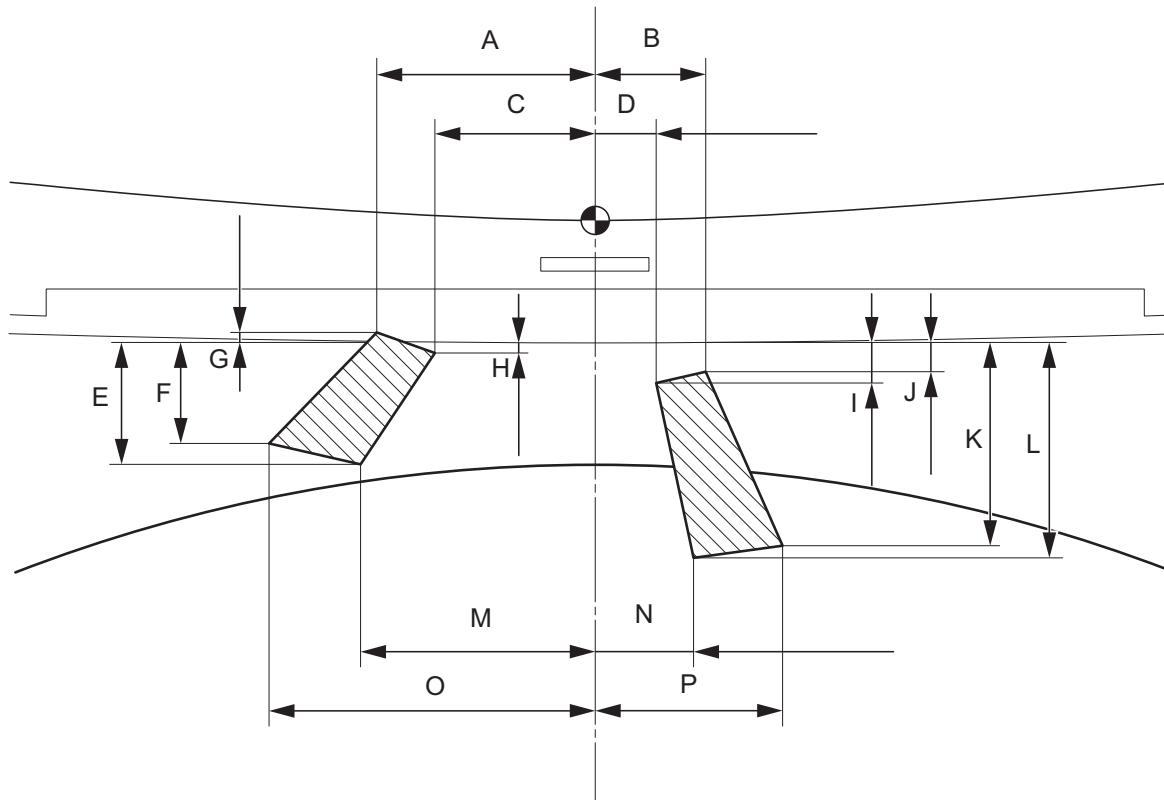
Washer fluid hits the windshield in the areas shown in the illustration.

- (b) With the engine running, check the position that the washer fluid hits the back door glass.

Rear:



A:58 mm (2.28 in.)	E:35 mm (1.38 in.)	I:11 mm (0.43 in.)	M:65 mm (2.56 in.)
B:31 mm (1.22 in.)	F:30 mm (1.18 in.)	J:9.7 mm (0.38 in.)	N:28 mm (1.10 in.)
C:42 mm (1.65 in.)	G:1.2 mm (0.05 in.)	K:59 mm (2.32 in.)	O:89 mm (3.50 in.)
D:17 mm (0.67 in.)	H:2.3 mm (0.09 in.)	L:61 mm (2.40 in.)	P:52 mm (2.05 in.)



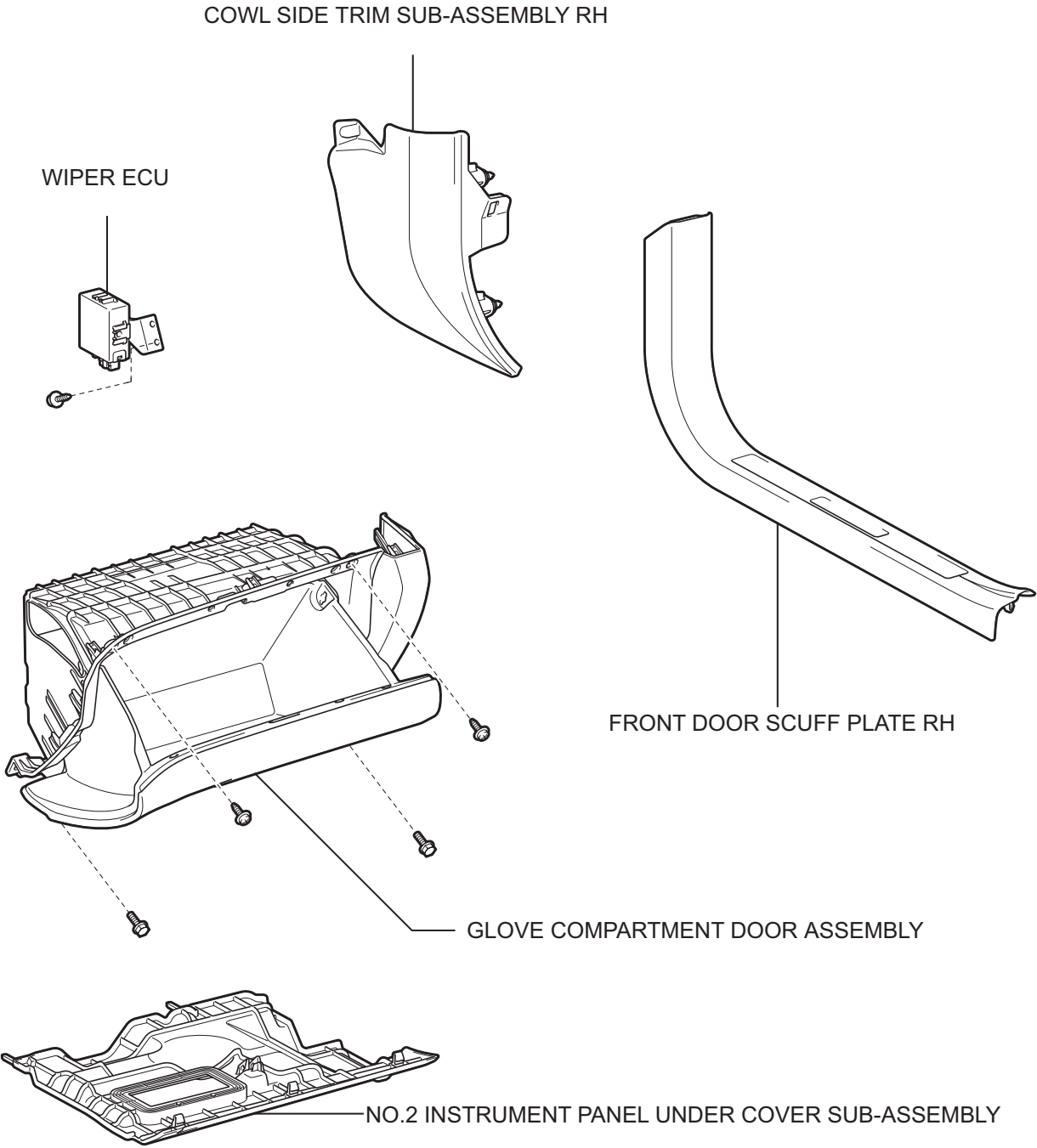
WW

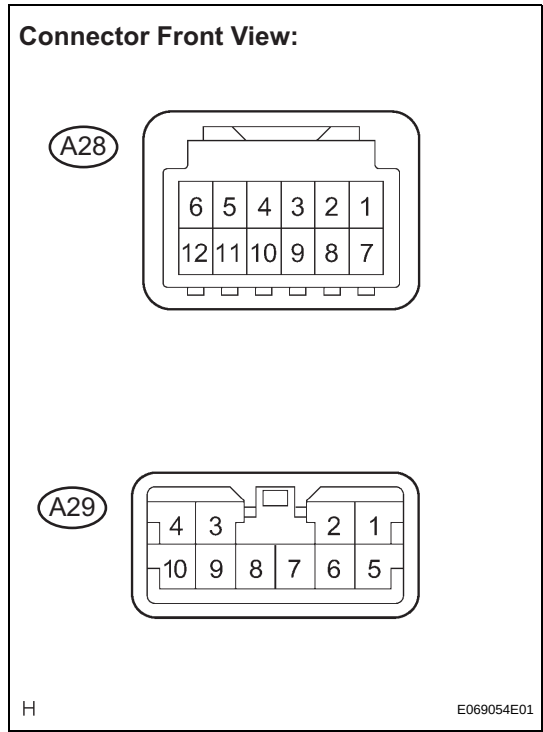
Standard:

Washer fluid hits the back door glass in the areas shown in the illustration.

WIPER ECU

COMPONENTS





ON-VEHICLE INSPECTION

1. INSPECT WIPER ECU

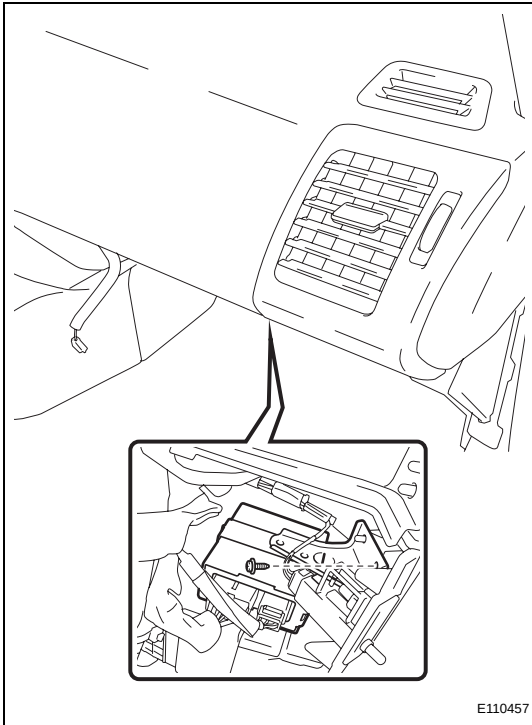
- (a) Measure the voltage according to the value(s) in the table below.

Standard voltage

Tester connection	Condition	Specified voltage
A28-1 (MPX1) - Body ground	Ignition switch OFF → ON	Signal Waveform
A28-3 (VR1) - Body ground	Ignition switch OFF → ON	Below 1 V → 5 V
A28-6 (FWAS) - Body ground	Front washer switch OFF → ON	10 to 14 V → Below 1 V
A28-7 (AUTO) - Body ground	Front washer switch OFF → AUTO	10 to 14 V → Below 1 V
A28-8 (+B)- Body ground	Always	10 to 14 V
A28-9 (VR2) - Body ground	Always	Below 1 V
A28-12 (E) - Body ground	Always	Below 1 V
A29-1 (+1) - Body ground	Front wiper is in LO speed operation (when front wiper switch is in AUTO position)	10 to 14 V
A29-2 (+2) - Body ground	Front wiper is in HI speed operation (when front wiper switch is in AUTO position)	10 to 14 V
A29-5 (+SM) - Body ground	Front wiper motor is OFF → ON	Below 1 V → 10 to 14 V
A29-6 (2S) - Body ground	Front wiper switch OFF → HI	10 to 14 V → Below 1 V
A29-7 (1S) - Body ground	Front wiper switch OFF → LO	10 to 14 V → Below 1 V
A29-8 (ES) - Body ground	Always	Below 1 V
A29-10 (WIG) - Body ground	Ignition switch OFF → ON	Below 1 V → 10 to 14 V

REMOVAL

1. **DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL**
(See page [RS-1](#))
2. **REMOVE FRONT DOOR SCUFF PLATE RH** (See page [IR-6](#))
3. **REMOVE COWL SIDE TRIM SUB-ASSEMBLY RH**
(See page [IP-13](#))
4. **REMOVE NO.2 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY** (See page [IP-13](#))
5. **REMOVE GLOVE COMPARTMENT DOOR ASSEMBLY** (See page [IP-13](#))
6. **REMOVE WIPER ECU**
 - (a) Disconnect the connector.
 - (b) Remove the screw and the wiper ECU.



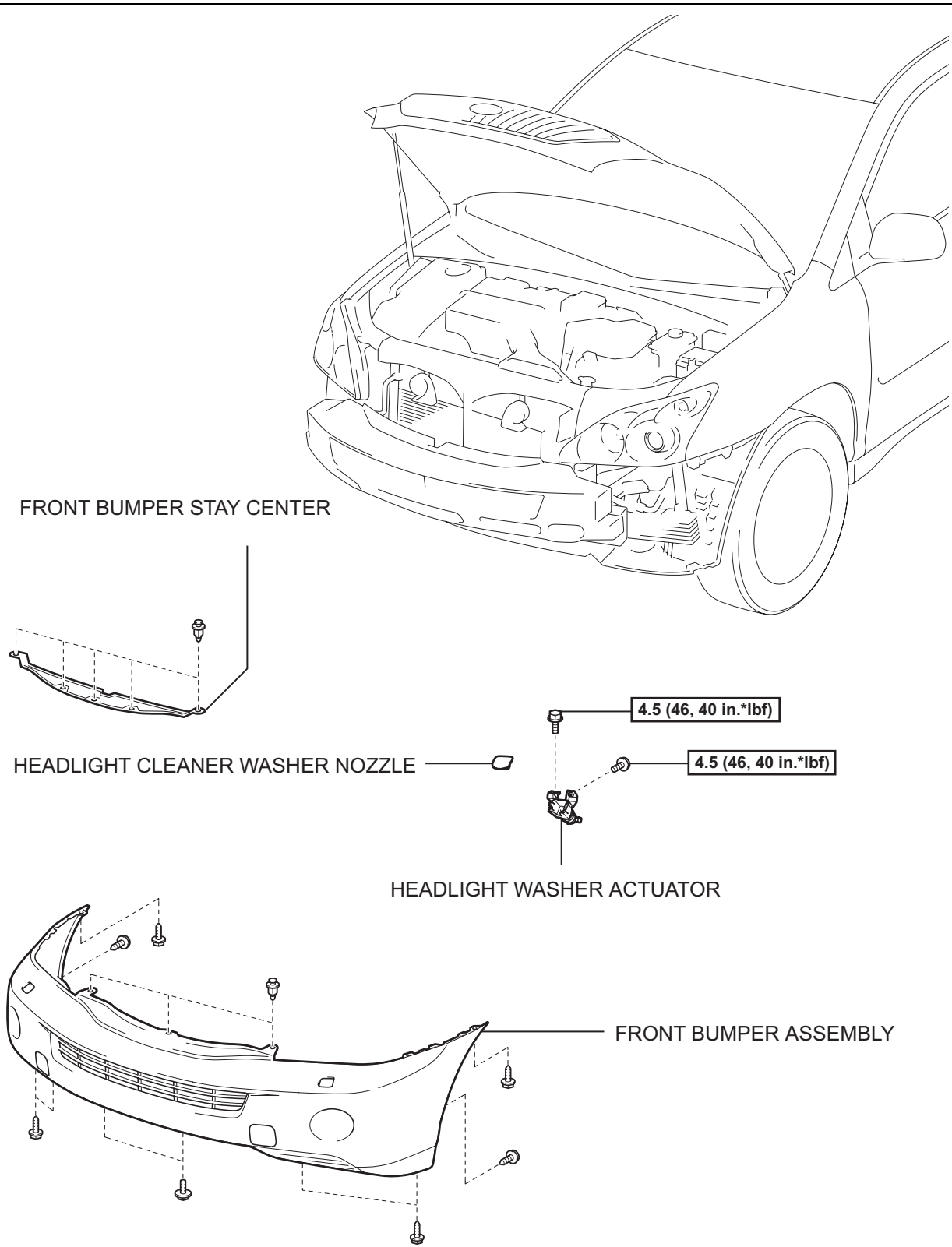
INSTALLATION

1. INSTALL WIPER ECU
2. INSTALL GLOVE COMPARTMENT DOOR ASSEMBLY
(See page [IP-27](#))
3. INSTALL NO.2 INSTRUMENT PANEL UNDER COVER
SUB-ASSEMBLY (See page [IP-28](#))
4. INSTALL COWL SIDE TRIM SUB-ASSEMBLY RH (See
page [IP-28](#))
5. INSTALL FRONT DOOR SCUFF PLATE RH
6. CONNECT CABLE TO BATTERY NEGATIVE
TERMINAL
7. PERFORM INITIALIZATION

HEADLIGHT CLEANER ACTUATOR

COMPONENTS

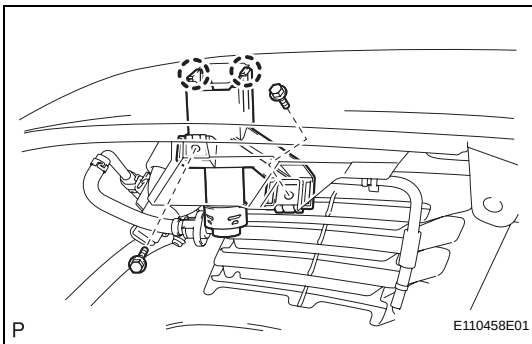
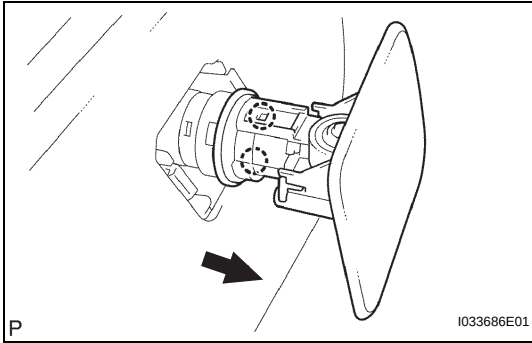
WW



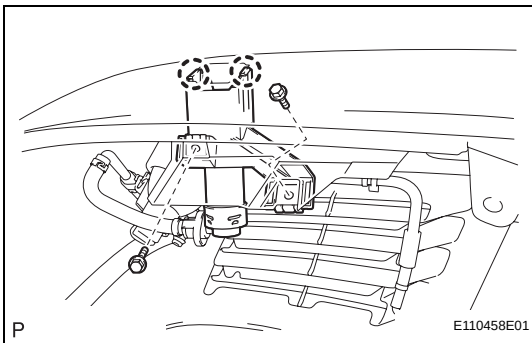
N*m (kgf*cm, ft.*lbf) : Specified torque

REMOVAL

1. REMOVE FRONT BUMPER STAY CENTER
2. REMOVE FRONT BUMPER ASSEMBLY
3. REMOVE HEADLIGHT CLEANER WASHER NOZZLE
 - (a) Extend the headlight cleaner washer nozzle.
 - (b) Disengage the 2 claws and remove the headlight cleaner washer nozzle.
4. REMOVE HEADLIGHT WASHER ACTUATOR
 - (a) Disconnect the headlight washer hose.

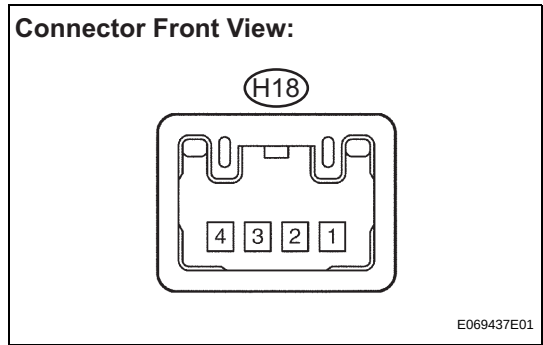


- (b) Remove the 2 bolts.
- (c) Disengage the 2 claws and remove the headlight cleaner washer actuator sub-assembly.



INSTALLATION

1. INSTALL HEADLIGHT WASHER ACTUATOR
 - (a) Install the headlight washer actuator sub-assembly with the 2 bolts and the 2 claws.
Torque: 4.5 N*m (46 kgf*cm, 40 in.*lbf)
 - (b) Connect the headlight washer hose.
2. INSTALL HEADLIGHT CLEANER WASHER NOZZLE
3. INSTALL FRONT BUMPER ASSEMBLY
4. INSTALL FRONT BUMPER STAY CENTER



HEADLIGHT CLEANER SWITCH

ON-VEHICLE INSPECTION

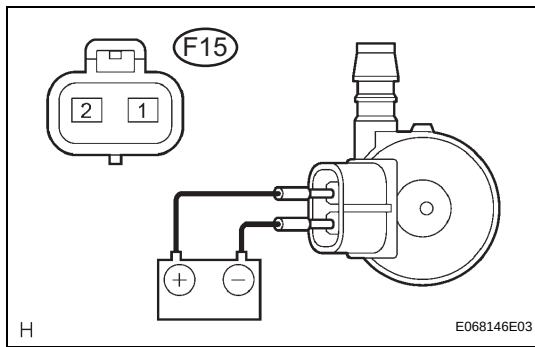
1. INSPECT HEADLIGHT CLEANER SWITCH ASSEMBLY

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

Resistance

Tester connection	Condition	Specified condition
3 (B) - 4 (L)	OFF	10 kΩ or higher
3 (B) - 4 (L)	ON	Below 1 Ω
1 (ILL-) - 2 (ILL+)	Illumination circuit	Below 1 Ω

- (b) Inspect illumination operation.
- (1) Connect the positive (+) lead from the battery to the terminal 2 and negative (-) lead to the terminal 2, then check that the illumination comes on.



HEADLIGHT CLEANER MOTOR

INSPECTION

1. INSPECT HEADLIGHT CLEANER MOTOR AND PUMP ASSEMBLY

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

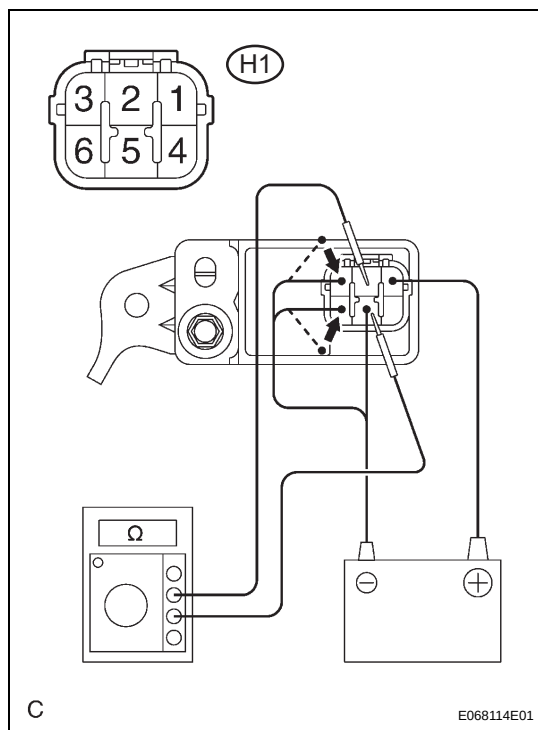
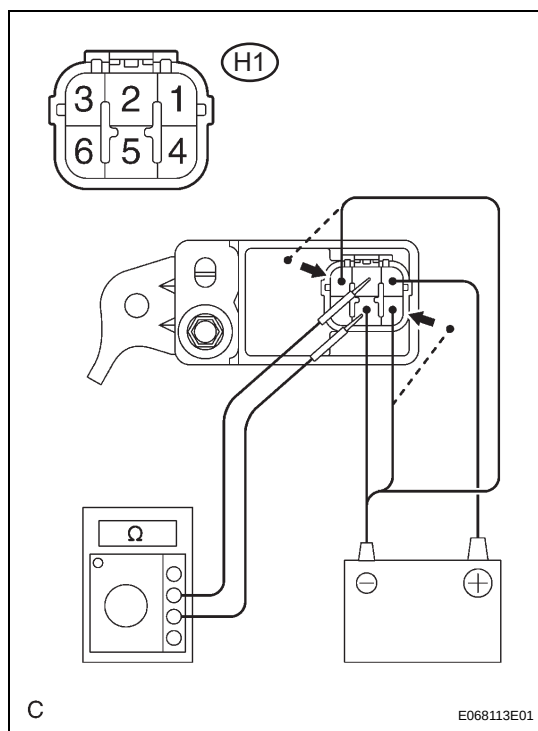
HEADLIGHT CLEANER CONTROL RELAY

ON-VEHICLE INSPECTION

1. INSPECT HEADLIGHT CLEANER CONTROL RELAY

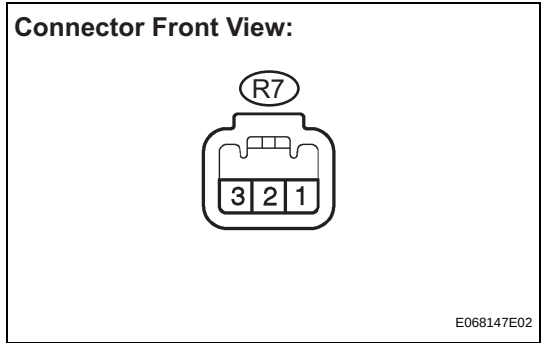
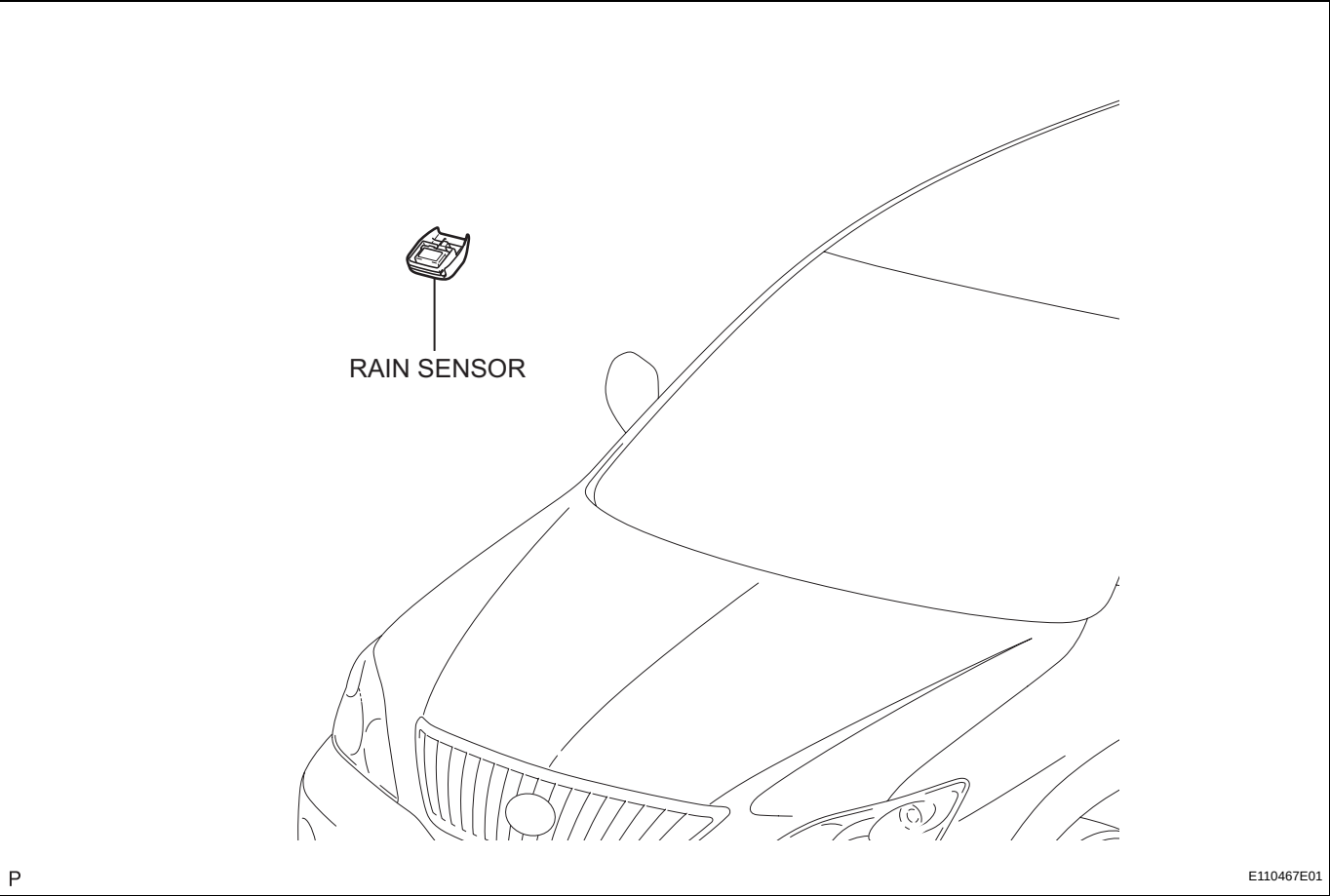
(a) Inspect headlight cleaner control relay operation.

- (1) Check that no continuity exists between the terminal 2 and the terminal 5.
- (2) Connect the positive (+) lead of the battery to the terminal 1, and the negative (-) lead of the battery to the terminal 5.
- (3) Connect the negative (-) lead of the battery to the terminal 3 and the terminal 4, and check that continuity exists between the terminal 2 and the terminal 5 for 0.8 to 0.9 seconds, then no continuity exists.
- (4) Disconnect the positive (+) lead of the battery from the terminal 1, and connect the positive (+) lead of the battery to the terminal 1 again.
- (5) Connect the negative (-) lead of the battery to the terminal 3 and the terminal 6, and check that continuity exists between the terminal 2 and the terminal 5 for 0.8 to 0.9 seconds, then no continuity exists.



RAIN SENSOR

COMPONENTS

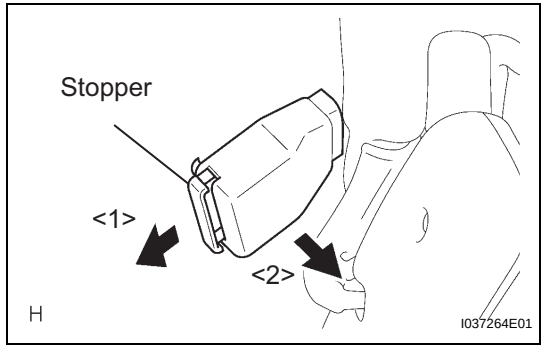


ON-VEHICLE INSPECTION

1. **INSPECT RAIN SENSOR**
 - (a) Measure the voltage according to the value(s) in the table below.

Standard voltage

Tester connection	Condition	Specified voltage
1 - 3	Ignition switch is ON	10 to 14 V
2 - 3	Ignition switch is ON	Signal waveform



REMOVAL

1. **REMOVE RAIN SENSOR**
 - (a) Release the stopper by pulling it down, and remove the rain sensor.
 - (b) Disconnect the connector.

INSTALLATION

1. INSTALL RAIN SENSOR

- (a) Connect the connector.
- (b) Install the rain sensor.

NOTICE:

- If there is any residue left from the silicon sheet on the windshield, remove it.
- Clean the dirt on the glass with a cloth etc.
- When installing a new rain sensor, peel the release paper off from the silicon sheet first.
- Be careful not to leave any air bubbles in the rain sensor when installing it.