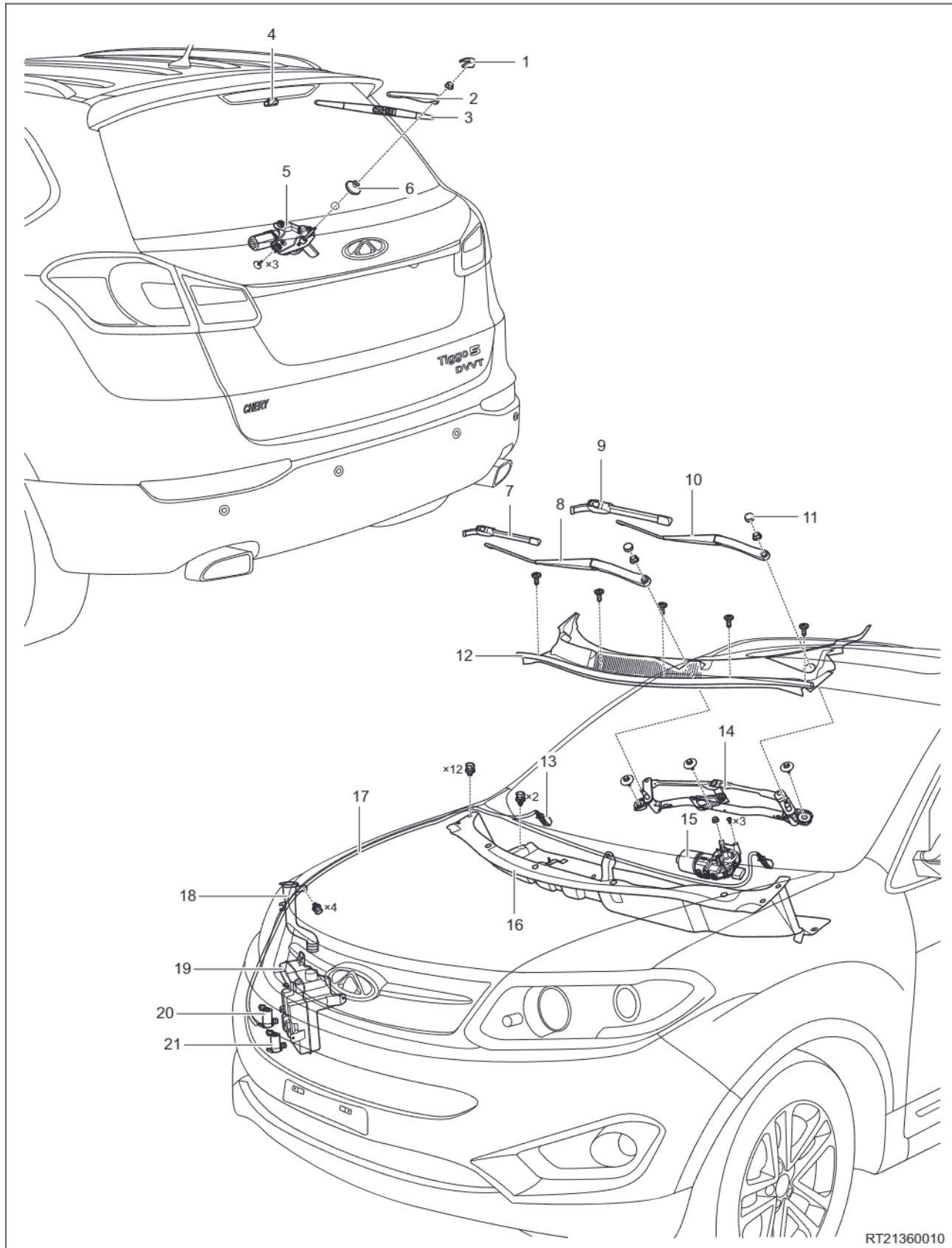


WIPER AND WASHER

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GENERAL INFORMATION

Description



36

1 - Rear Wiper Arm Trim Cap	2 - Rear Wiper Arm Assembly
3 - Rear Wiper Arm Blade	4 - Rear Washer Nozzle Assembly
5 - Rear Wiper Motor Assembly	6 - Grommet
7 - Sub Wiper Arm Blade	8 - Sub Wiper Arm Assembly
9 - Main Wiper Arm Blade	10 - Main Wiper Arm Assembly
11 - Front Wiper Arm Trim Cap	12 - Front Windshield Lower Garnish Assembly
13 - Front Washer Nozzle Assembly	14 - Wiper Link Rod
15 - Front Wiper Motor Assembly	16 - Rain Gutter Rail Reinforcement Assembly
17 - Washer Line Assembly	18 - Guide Pipe Assembly
19 - Washer Fluid Reservoir Assembly	20 - Front Washer Pump
21 - Rear Washer Pump	

Wiper and washer are important equipment for cleaning the windshield assembly. Wiper and washer systems are controlled by wiper switch assembly, which can be operated only when the ignition switch is turned to ON. Driver controls all operations of wiper and washer by moving switch control lever.

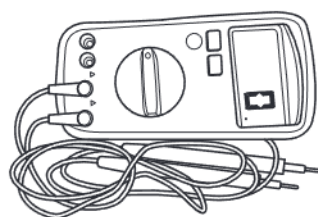
Specifications

Torque Specifications

Description	Torque (N·m)
Front Wiper Arm Assembly Fixing Nut	18 ± 2
Wiper Motor and Link Rod Assembly Fixing Bolt	10 ± 1
Front Wiper Motor Assembly Fixing Screw	10 ± 1
Front Wiper Motor Assembly Fixing Nut	10 ± 1
Rear Wiper Arm Assembly Upper Fixing Nut	10 ± 1
Rear Wiper Motor Assembly Fixing Bolt	10 ± 1
Guide Pipe Assembly Fixing Bolt	7 ± 1
Washer Fluid Reservoir Assembly Fixing Bolt	7 ± 1
Brake Fluid Reservoir Assembly Fixing Nut	9 ± 1
Rain Gutter Rail Reinforcement Assembly Fixing Bolt	10 ± 1

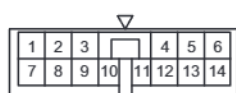
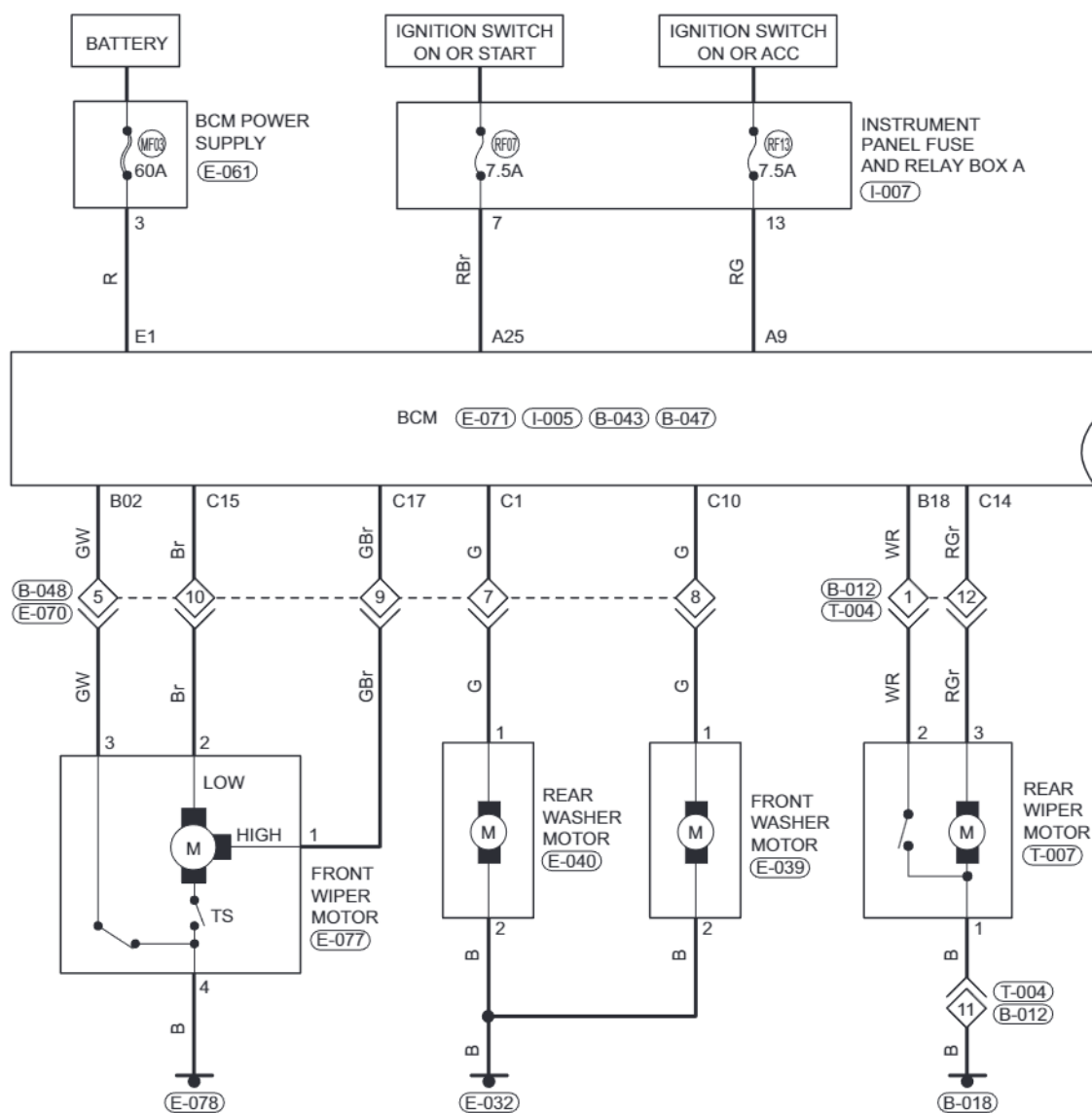
Tool

General Tool

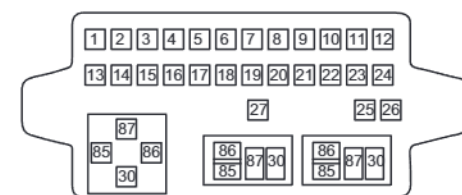
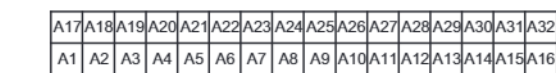
Digital Multimeter	 RCH0000002
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Circuit Diagram

Wiper and Washer Systems (Page 1 of 2)

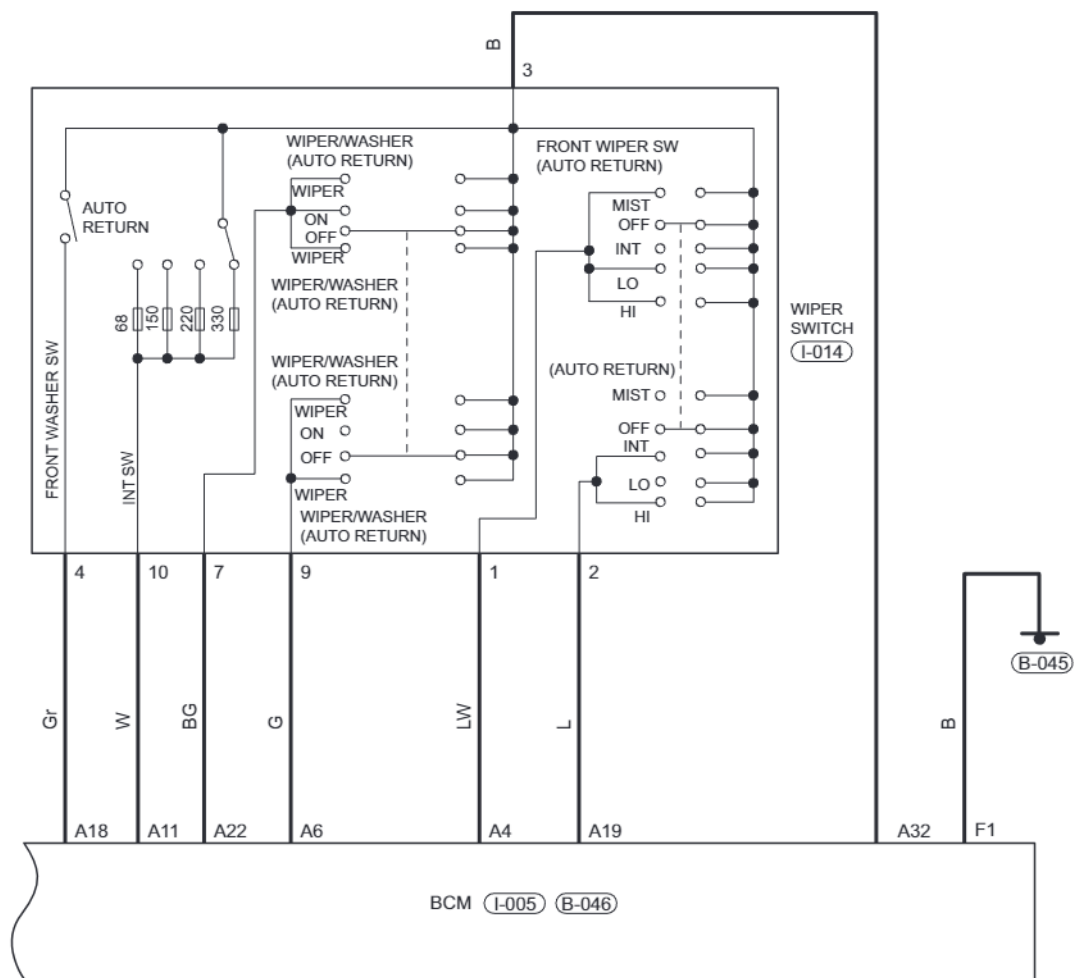
E-071
B

E-061

E-039
GrE-040
GrI-007
BI-005
LB-043
WB-047
LB-012
WT-007
WE-077
BB-048
W

ET21360010

Wiper and Washer Systems (Page 2 of 2)



A17	A18	A19	A20	A21	A22	A23	A24	A25	A26	A27	A28	A29	A30	A31	A32
A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12	A13	A14	A15	A16

(I-005)
L

5	4	3	2	1
10	9	8	7	6

(I-014)
B



(B-046)
B

ET21360020

DIAGNOSIS & TESTING

Problem Symptoms Table

HINT:

Use the table below to help determine the cause of problem symptoms. Check each suspected area in sequence. Repair or replace the faulty components, or adjust as necessary.

Symptom	Suspected Area	See page
Both front wiper and washer systems do not operate	Wiper switch assembly	36-22
	Front wiper motor assembly	36-26
	Front washer pump	36-37
	BCM	-
	Wire harness or connector	-
Front wiper system does not operate in LO or HI	Wiper switch assembly	36-22
	Front wiper motor assembly	36-26
	BCM	-
	Wire harness or connector	-
Front wiper system does not operate in INT	Wiper switch assembly	36-22
	Front wiper motor assembly	36-26
	BCM	-
	Wire harness or connector	-
Front wiper system does not operate	Wiper switch assembly	36-22
	Front wiper motor assembly	36-26
	BCM	-
	Wire harness or connector	-
Front wiper arm and blade do not return to original position when front wiper switch is off	Front wiper motor assembly	36-26
	BCM	-
	Wire harness or connector	-
Both rear wiper and washer systems do not operate	Wiper switch assembly	36-22
	Rear wiper motor assembly	36-33
	Rear washer pump assembly	36-37
	BCM	-
	Wire harness or connector	-
Rear wiper system does not operate	Wiper switch assembly	36-22
	Rear wiper motor assembly	36-33
	BCM	-
	Wire harness or connector	-

Symptom	Suspected Area	See page
Rear washer system does not operate	Rear washer nozzle assembly	36-35
	Wiper switch assembly	36-22
	Rear washer pump assembly	36-37
	BCM	-
	Wire harness or connector	-

Diagnosis Tools

X-431 3G Diagnostic Tester

When connecting the X-431 3G diagnostic tester:

- Connect the X-431 3G diagnostic tester (the latest software) to the Data Link Connector (DLC) for communication with vehicle.
- DLC is located on the driver side instrument panel crossmember.
- DLC uses a trapezoidal design which can hold 16 terminals.

Digital Multimeter

When using the digital multimeter:

- Troubleshoot the electrical malfunctions and wire harness system.
- Look for the basic fault.
- Measure the voltage, current and resistance.

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DTC Confirmation Procedure

Confirm that the battery voltage is normal before performing the following procedures.

- Turn ignition switch to LOCK.
- Connect the X-431 3G diagnostic tester (the latest software) to the Data Link Connector (DLC), and make it communicate with the vehicle electronic module by data network.
- Turn ignition switch ON.
- Using the X-431 3G diagnostic tester to record and clear the DTCs stored in Body Control Module (BCM).
- Turn ignition switch to LOCK and wait for a few seconds.
- Turn ignition switch ON, and then select "Read Code".
- If DTC is detected, the malfunction indicated by the DTC is current. Go to the diagnosis procedure - Step 1.
- If no DTC is detected, the malfunction indicated by the DTC is intermittent. Please refer to the Intermittent DTC Troubleshooting.

Intermittent DTC Troubleshooting

If the malfunction is intermittent, perform the followings:

- Check if connectors are loose.
- Check if wire harnesses are worn, pierced, pinched or partially broken.
- Wiggle the related wire harnesses and connectors and observe if the signal is interrupted in the related circuit.
- If possible, try to duplicate the conditions under which the DTC was set.
- Look for the data that has changed or the DTC to be reset during the wiggle test.
- Look for broken, bent, protruded or corroded terminals.
- Inspect the mounting areas of wiper motor assembly, wire harness or wire harness connector and so on for damage, foreign matter, etc. that will cause incorrect signals.
- Check and clean all the wire harness connectors and grounding parts related to the current DTC.
- Remove the Body Control Module (BCM) from the malfunctioning vehicle and install it to a new vehicle and perform a test. If the DTC cannot be cleared, the Body Control Module (BCM) is malfunctioning. If the DTC can be cleared, reinstall the Body Control Module (BCM) to the original vehicle.
- If multiple trouble codes were set, refer to the circuit diagrams to look for any common ground circuit or power supply circuit applied to the DTC.
- Refer to the Technical Bulletin that is applied to the malfunction.

36

Ground Inspection

Ground points are very important to the entire circuit system, and the grounding condition can seriously affect the entire circuit system. Ground points are often exposed to moisture, dirt and other corrosive environments. Corrosion (rust) and oxidation can increase load resistance. This situation will seriously affect the normal operation of circuit. Operations to check the ground points are as follows:

1. Remove the ground bolt or nut.
2. Check all the matching surfaces for tarnish, dirt, rust, etc.
3. Clean as necessary to ensure that the contacting is in a good condition.
4. Reinstall the ground bolt or nut securely.
5. Check if the add-on accessories interfere with the ground circuit.
6. If several wire harnesses are crimped into one ground terminal, check if they are installed correctly. Make sure all the wire harnesses are clean, securely fastened and providing a good ground path.

Diagnosis Procedure

HINT:

Use the following procedures to troubleshoot the wiper and washer systems.

1

Vehicle brought to workshop

NEXT

2

Check battery voltage

Standard voltage: 11 to 14 V

If the voltage is below 11 V, recharge or replace the battery before proceeding to next step.

NEXT

3 Customer problem analysis

NEXT

4 Check for DTCs (current DTC and history DTC)

**DTC
occurs**

For current DTC, go to step 6

**No
DTC**

For history DTC, go to step 7

5 Problem repair (no DTC), then go to step 8

NEXT

6 Troubleshoot according to Diagnostic Trouble Code (DTC) chart, then go to step 8

NEXT

7 Troubleshoot according to Problem Symptoms Table, then go to step 8

NEXT

8 Adjust, repair or replace

NEXT

9 Conduct test and confirm malfunction has repaired

NEXT

10 End

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Diagnostic Trouble Code (DTC) Chart

DTC Code	DTC Definition
B101471	Front Wiper Lo Control Circuit Actuator Stuck
B101571	Front Wiper HI Control Circuit Actuator Stuck
B101671	Rear Wiper Control Circuit Actuator Stuck
B101713	Front Washer Control Circuit Circuit Open
B101771	Front Washer Control Circuit Actuator Stuck
B101813	Rear Washer Control Circuit Circuit Open
B101871	Rear Washer Control Circuit Actuator Stuck

DTC	B101471	Front Wiper Lo Control Circuit Actuator Stuck
DTC	B101571	Front Wiper HI Control Circuit Actuator Stuck
DTC	B101671	Rear Wiper Control Circuit Actuator Stuck
DTC	B101713	Front Washer Control Circuit Circuit Open
DTC	B101771	Front Washer Control Circuit Actuator Stuck
DTC	B101813	Rear Washer Control Circuit Circuit Open
DTC	B101871	Rear Washer Control Circuit Actuator Stuck

Self-diagnosis Detection Logic

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DTC Code	DTC Definition	DTC Detection Condition	Warning Light Condition	Possible Cause
B101471	Front Wiper Lo Control Circuit Actuator Stuck	Ignition switch ON	ON	• Wiper switch assembly • Front wiper motor assembly • Front washer pump • Rear wiper motor assembly • Rear washer pump • Wire harness or connector • Body Control Module (BCM)
B101571	Front Wiper HI Control Circuit Actuator Stuck			
B101671	Rear Wiper Control Circuit Actuator Stuck			
B101713	Front Washer Control Circuit Circuit Open			
B101771	Front Washer Control Circuit Actuator Stuck			
B101813	Rear Washer Control Circuit Circuit Open			
B101871	Rear Washer Control Circuit Actuator Stuck			

 CAUTION

- When performing circuit diagnosis and test, always refer to circuit diagram for specific circuit and component information.

Diagnosis Procedure

1 Check wiper switch assembly

- a. Remove the wiper switch assembly from malfunctioning vehicle, and install it to a new vehicle to perform a test.

NG

Replace wiper switch assembly

OK

2 Check front wiper motor assembly

- a. Remove the front wiper motor assembly from malfunctioning vehicle, and install it to a new vehicle to perform a test.

NG

Replace front wiper motor assembly

OK

36

3 Check rear wiper motor assembly

- a. Remove the rear wiper motor assembly from malfunctioning vehicle, and install it to a new vehicle to perform a test.

NG

Replace rear wiper motor assembly

OK

4 Check front washer pump

- a. Remove the front washer pump from malfunctioning vehicle, and install it to a new vehicle to perform a test.

NG

Replace front washer pump

OK

5 Check rear washer pump

- a. Remove the rear washer pump from malfunctioning vehicle, and install it to a new vehicle to perform a test.

NG

Replace rear washer pump

OK

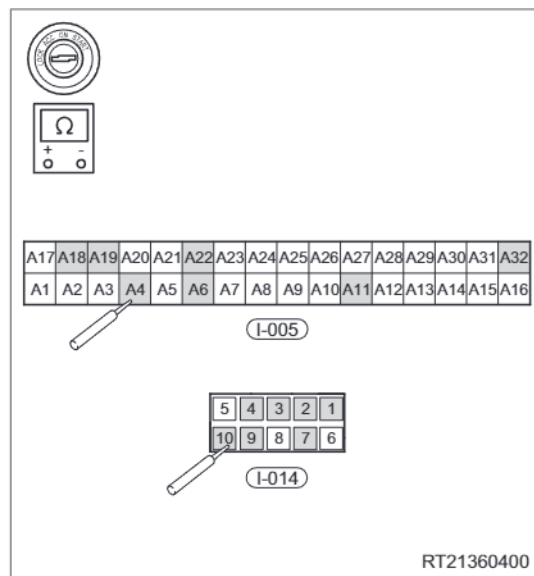
6 Check instrument panel wire harness and connector

- Turn ignition switch to LOCK.
- Disconnect the negative battery cable.
- Disconnect the instrument panel wire harness connectors I-005 and I-014.
- Using a digital multimeter, check for continuity between instrument panel wire harness connectors I-005 and I-014 according to the value(s) in the table below.

Multimeter Connection	Condition	Specified Condition
I-005 (A18) - I-014 (4)	Always	Continuity
I-005 (A11) - I-014 (10)	Always	Continuity
I-005 (A22) - I-014 (7)	Always	Continuity
I-005 (A6) - I-014 (9)	Always	Continuity
I-005 (A4) - I-014 (1)	Always	Continuity
I-005 (A19) - I-014 (2)	Always	Continuity
I-005 (A32) - I-014 (3)	Always	Continuity

NG

Repair or replace instrument panel wire harness and connector



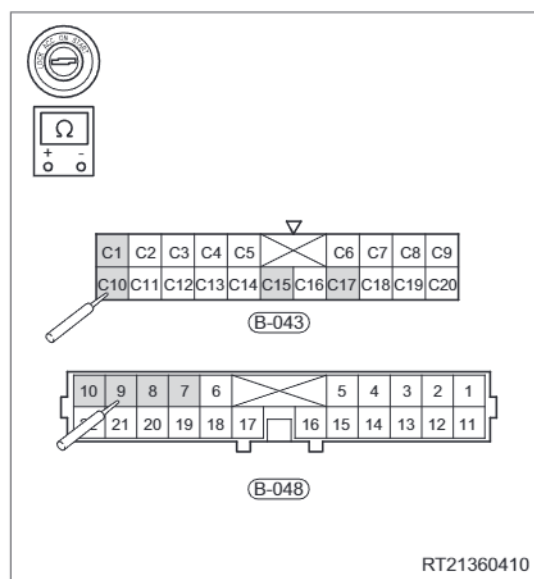
36

OK

7 Check body wire harness and connector

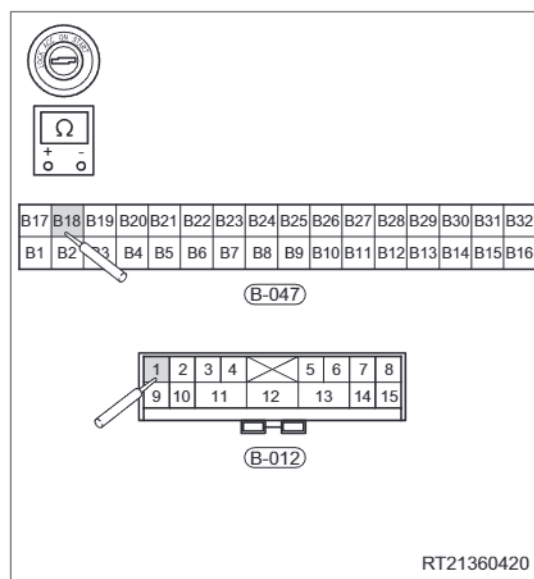
- Turn ignition switch to LOCK.
- Disconnect the negative battery cable.
- Disconnect the body wire harness connectors B-043 and B-048.
- Using a digital multimeter, check for continuity between body wire harness connectors B-043 and B-048 according to the value(s) in the table below.

Multimeter Connection	Condition	Specified Condition
B-043 (C15) - B-048 (10)	Always	Continuity
B-043 (C17) - B-048 (9)	Always	Continuity
B-043 (C1) - B-048 (7)	Always	Continuity
B-043 (C10) - B-048 (8)	Always	Continuity



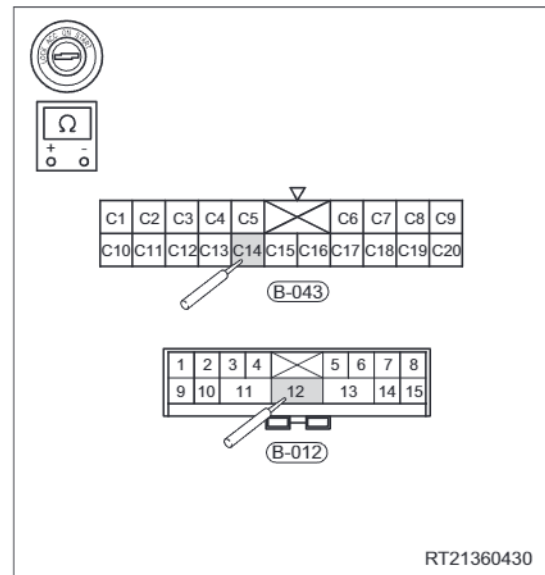
- Disconnect the body wire harness connectors B-047 and B-012.
- Using a digital multimeter, check for continuity between body wire harness connectors B-047 and B-012 according to the value(s) in the table below.

Multimeter Connection	Condition	Specified Condition
B-047 (B18) - B-012 (1)	Always	Continuity



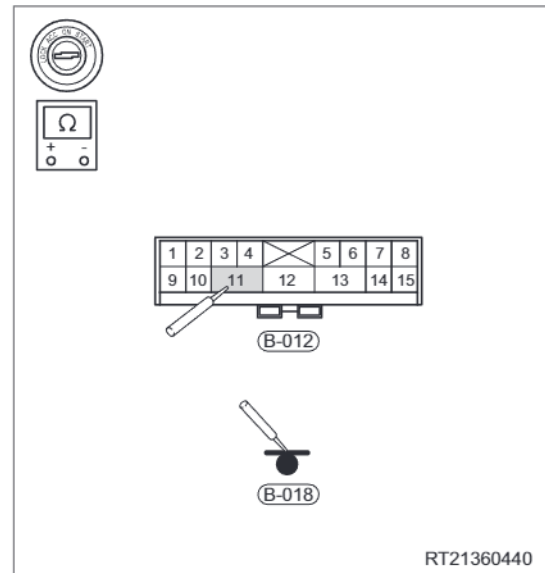
- g. Disconnect the body wire harness connectors B-043 and B-012.
- h. Using a digital multimeter, check for continuity between body wire harness connectors B-043 and B-012 according to the value(s) in the table below.

Multimeter Connection	Condition	Specified Condition
B-043 (C14) - B-012 (12)	Always	Continuity



- i. Disconnect the body wire harness connector B-012 and ground B-018.
- j. Using a digital multimeter, check for continuity between body wire harness connector B-012 and ground B-018 according to the value(s) in the table below.

Multimeter Connection	Condition	Specified Condition
B-012 (11) - B-018	Always	Continuity

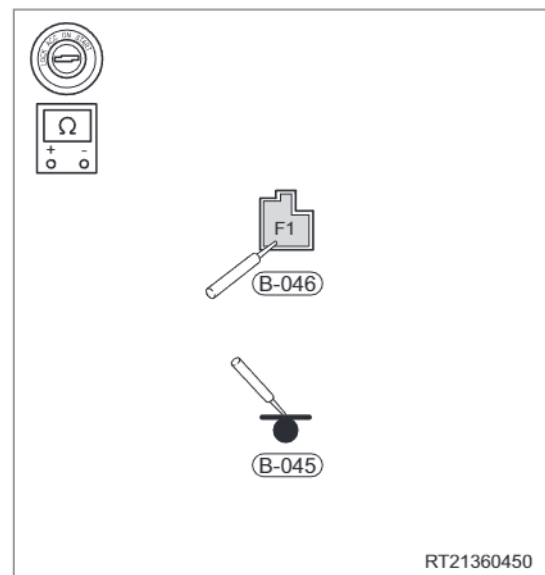


- k. Disconnect the body wire harness connector B-046 and ground B-045.
- l. Using a digital multimeter, check for continuity between body wire harness connector B-046 and ground B-045 according to the value(s) in the table below.

Multimeter Connection	Condition	Specified Condition
B-046 (F1) - B-045	Always	Continuity

NG

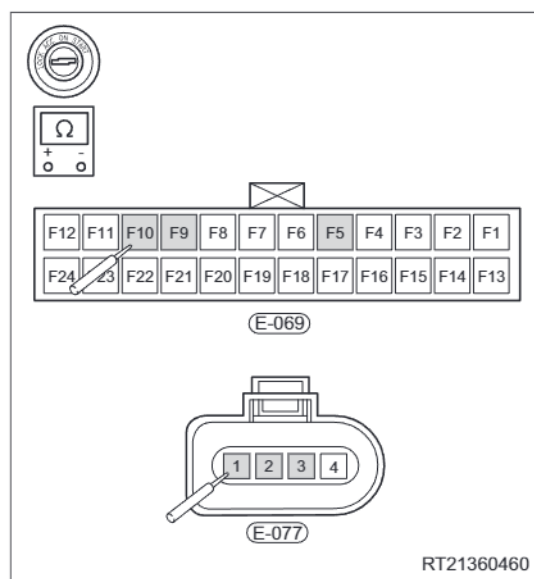
Repair or replace body wire harness and connector



8 Check engine compartment wire harness and connector

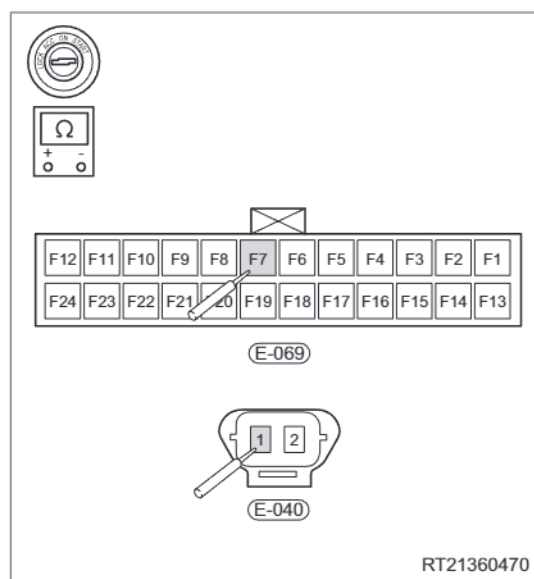
- Turn ignition switch to LOCK.
- Disconnect the negative battery cable.
- Disconnect the engine compartment wire harness connectors E-069 and E-077.
- Using a digital multimeter, check for continuity between engine compartment wire harness connectors E-069 and E-077 according to the value(s) in the table below.

Multimeter Connection	Condition	Specified Condition
E-069 (F5) - E-077 (3)	Always	Continuity
E-069 (F10) - E-077 (2)	Always	Continuity
E-069 (F9) - E-077 (1)	Always	Continuity



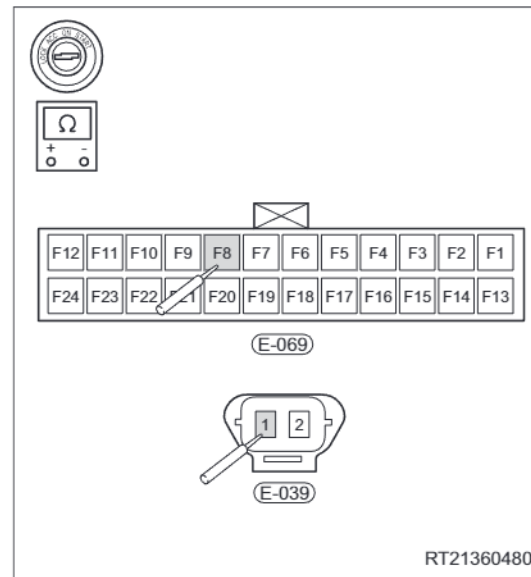
- Disconnect the engine compartment wire harness connectors E-069 and E-040.
- Using a digital multimeter, check for continuity between engine compartment wire harness connectors E-069 and E-040 according to the value(s) in the table below.

Multimeter Connection	Condition	Specified Condition
E-069 (F7) - E-040 (1)	Always	Continuity



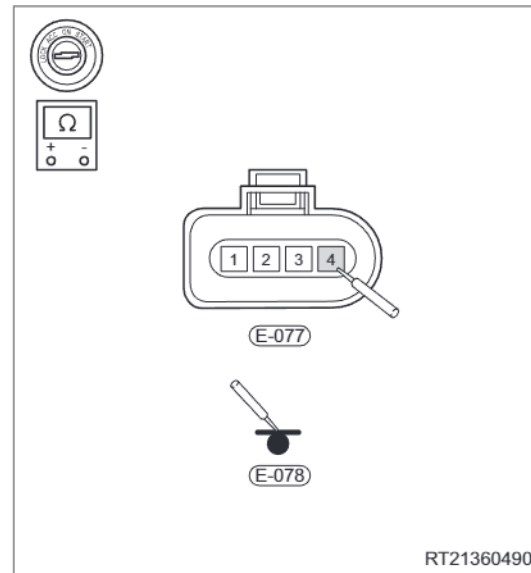
- g. Disconnect the engine compartment wire harness connectors E-069 and E-039.
- h. Using a digital multimeter, check for continuity between engine compartment wire harness connectors E-069 and E-039 according to the value(s) in the table below.

Multimeter Connection	Condition	Specified Condition
E-069 (F8) - E-039 (1)	Always	Continuity



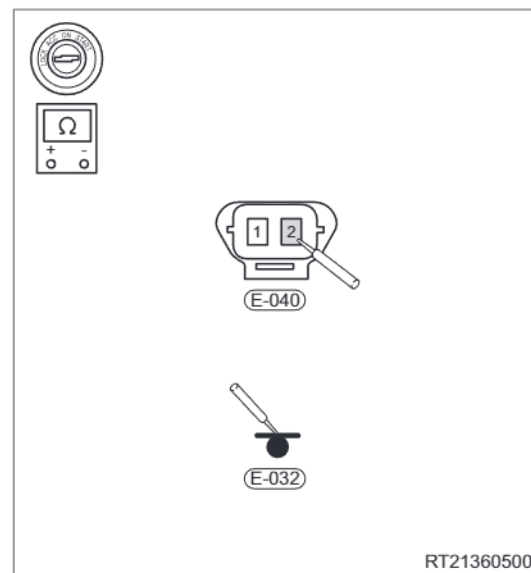
- i. Disconnect the engine compartment wire harness connector E-077 and ground E-078.
- j. Using a digital multimeter, check for continuity between engine compartment wire harness connector E-077 and ground E-078 according to the value(s) in the table below.

Multimeter Connection	Condition	Specified Condition
E-077 (4) - E-078	Always	Continuity



- k. Disconnect the engine compartment wire harness connector E-040 and ground E-032.
- l. Using a digital multimeter, check for continuity between engine compartment wire harness connector E-040 and ground E-032 according to the value(s) in the table below.

Multimeter Connection	Condition	Specified Condition
E-040 (2) - E-032	Always	Continuity

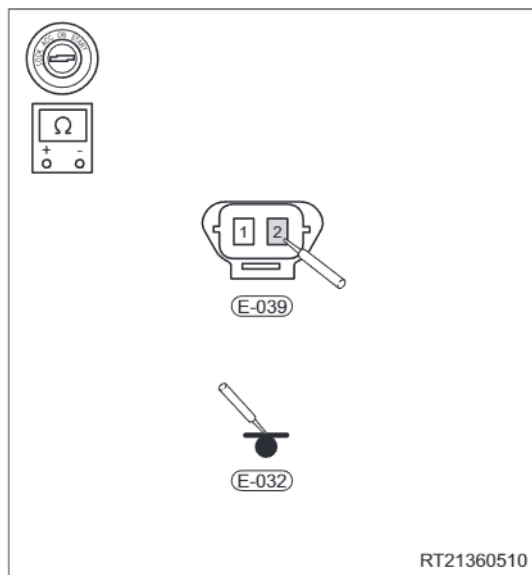


- m. Disconnect the engine compartment wire harness connector E-039 and ground E-032.
- n. Using a digital multimeter, check for continuity between engine compartment wire harness connector E-039 and ground E-032 according to the value(s) in the table below.

Multimeter Connection	Condition	Specified Condition
E-039 (2) - E-032	Always	Continuity

NG

Repair or replace engine compartment wire harness and connector



OK

36

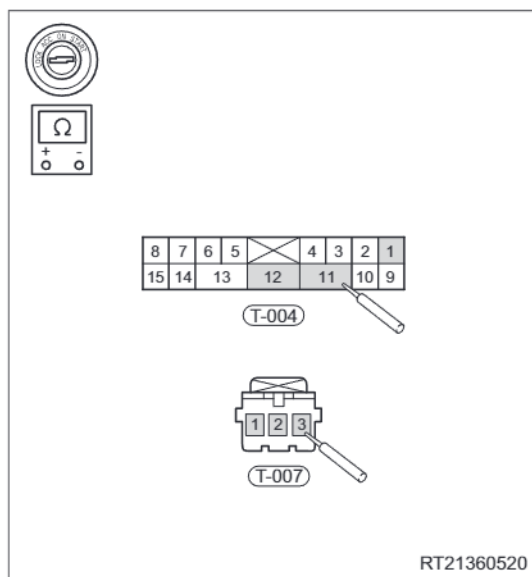
9 Check back door wire harness and connector

- a. Turn ignition switch to LOCK.
- b. Disconnect the negative battery cable.
- c. Disconnect the back door wire harness connectors T-004 and T-007.
- d. Using a digital multimeter, check for continuity between back door wire harness connectors T-004 and T-007 according to the value(s) in the table below.

Multimeter Connection	Condition	Specified Condition
T-004 (1) - T-007 (2)	Always	Continuity
T-004 (12) - T-007 (3)	Always	Continuity
T-004 (11) - T-007 (1)	Always	Continuity

NG

Repair or replace back door wire harness and connector



OK

10 Reconfirm DTCs

- a. Connect all connectors.
- b. Connect the negative battery cable.
- c. Turn ignition switch ON.
- d. Use the X-431 3G diagnostic tester (the latest software) to record and clear the DTCs stored in Body Control Module (BCM).
- e. Turn ignition switch to LOCK and wait for a few seconds.
- f. Turn ignition switch ON.
- g. Use the X-431 3G diagnostic tester (the latest software) to read DTCs stored in Body Control Module (BCM) again.
- h. Read DTCs.

Result	Precede to
DTCs B101471, B101571, B101671, B101713, B101771, B101813, B101871 are output	NG
No DTCs are output	OK

NG**Replace Body Control Module (BCM)****OK****36****System operates normally**

ON-VEHICLE SERVICE

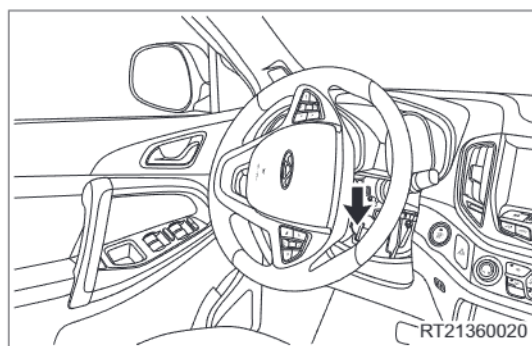
Wiper Switch Assembly

Removal

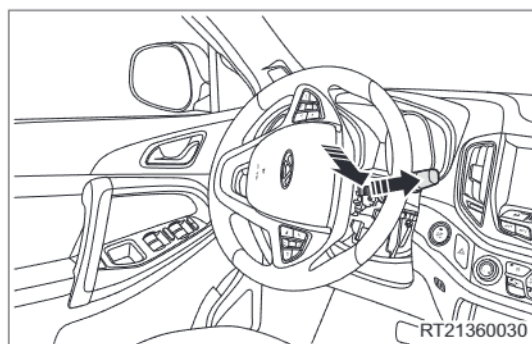
CAUTION

- Be sure to wear safety equipment to prevent accidents when removing wiper switch assembly.
- Appropriate force should be applied when removing wiper switch assembly. Be careful not to operate roughly.
- Try to prevent interior and body paint surface from being scratched when removing wiper switch assembly.

1. Turn off all the electrical equipment and ignition switch.
2. Disconnect the negative battery cable.
3. Remove the instrument cluster ([See page 38-42](#)).
4. Remove the wiper switch assembly.
 - a. Disconnect the wiper switch assembly connector (arrow).



- b. Using a screwdriver wrapped with protective tape, press the claws of wiper switch assembly and remove the wiper switch assembly by gently sliding outward.

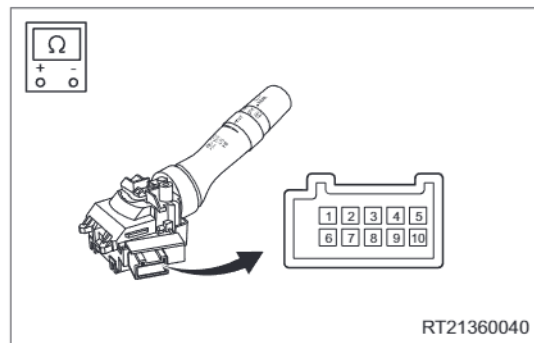


Inspection

1. Check wiper switch assembly.
 - a. Using a digital multimeter, check for continuity between terminals of wiper switch assembly according to the table below.

Multimeter Connection	Switch Condition	Specified Condition
Terminal 1 - Terminal 3	MIST	Continuity
Terminal 2 - Terminal 3	INT	Continuity
Terminal 1 - Terminal 3	LO	Continuity
Terminal 1, 2 - Terminal 3	HI	Continuity
Terminal 3 - Terminal 4	FRONT WASHER	Continuity
Terminal 3, 7 - Terminal 9	REAR WASHER	Continuity

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



36

Installation

Installation is in the reverse order of removal.

CAUTION

- Always operate carefully to prevent components from being damaged when installing wiper switch assembly.
- Install connector in place when installing wiper switch assembly.
- Check wiper switch for proper operation after installing wiper switch assembly.

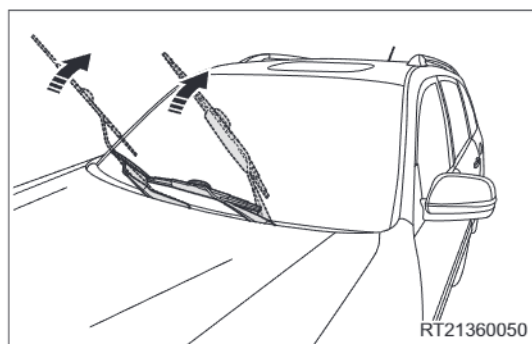
Front Wiper Arm Assembly

Removal

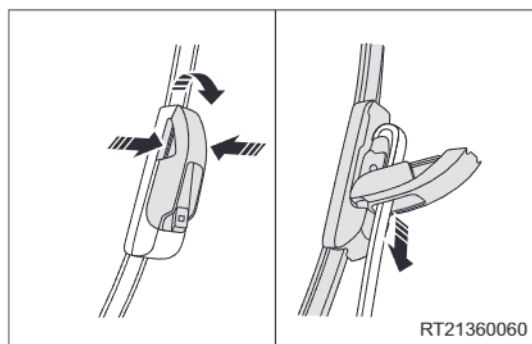
CAUTION

- Be sure to wear safety equipment to prevent accidents when removing front wiper arm assembly.
- Appropriate force should be applied when removing front wiper arm assembly. Be careful not to operate roughly.
- Try to prevent front windshield assembly from being scratched when removing front wiper arm assembly.

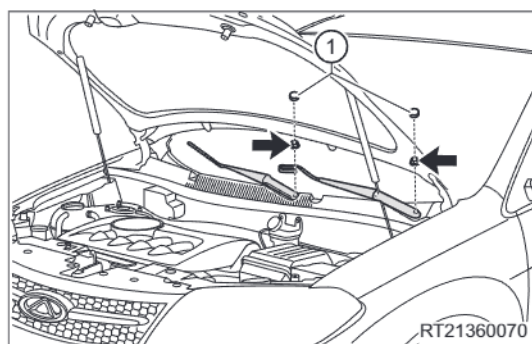
1. Turn off all the electrical equipment and ignition switch.
2. Disconnect the negative battery cable.
3. Remove the front wiper arm blade.
 - a. Lift up the front wiper arm assembly in the direction of arrow as shown in the illustration.



- b. Pull the front wiper arm blade out of front wiper arm assembly in the direction of arrow as shown in the illustration.



4. Remove the front wiper arm assembly.
 - a. Using a screwdriver wrapped with protective tape, remove the front wiper arm trim caps (1).
 - b. Remove 2 fixing nuts (arrow) from front wiper arm assembly and remove the front wiper arm assembly. (Tightening torque: 18 ± 2 N·m)



Installation

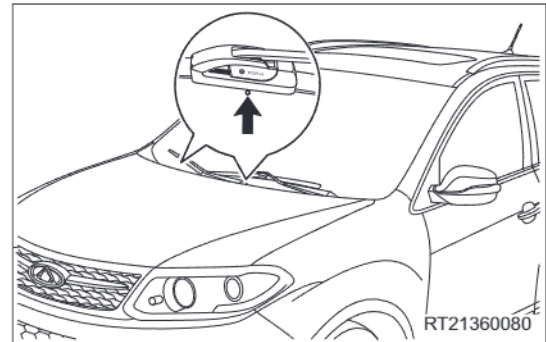
Installation is in the reverse order of removal.

CAUTION

- Always operate carefully to prevent other components from being damaged when installing front wiper arm assembly.
- Make sure to tighten fixing nuts to the specified torque when installing front wiper arm assembly.
- Check front wiper arm assembly for proper operation after installation.

HINT:

- Always adjust the front wiper arm assembly to the proper position during installation.
- Pay attention to the locating point on front windshield assembly during assembly. Wiper arm blade should be pressed against the locating point as shown in the illustration.



Front Wiper Motor Assembly

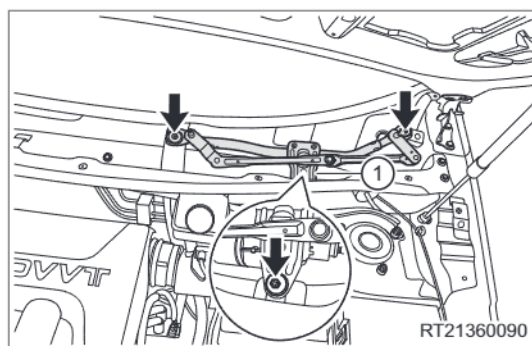
Removal

CAUTION

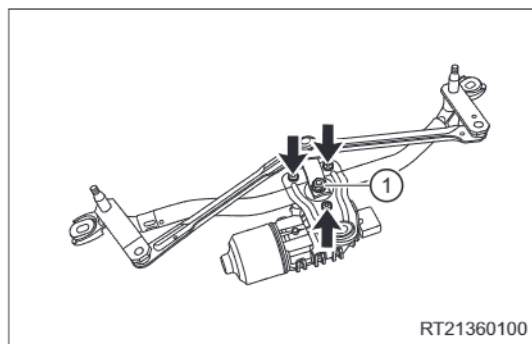
- Be sure to wear safety equipment to prevent accidents when removing front wiper motor assembly.
- Appropriate force should be applied when removing front wiper motor assembly. Be careful not to operate roughly.
- Try to prevent body paint surface from being scratched when removing front wiper motor assembly.

1. Turn off all the electrical equipment and ignition switch.
2. Disconnect the negative battery cable.
3. Remove the front wiper arm assembly (See page 36-24).
4. Remove the front windshield lower garnish assembly (See page 48-39).
5. Remove the wiper motor and link rod assembly.

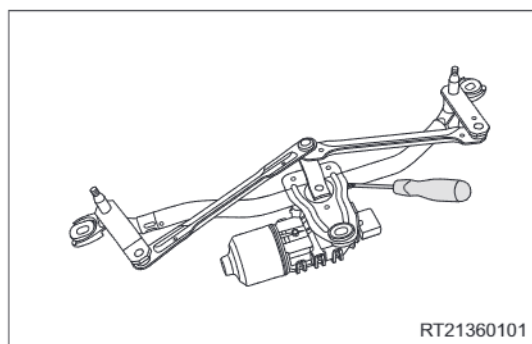
- a. Disconnect the connector (1) from wiper motor and link rod assembly.
- b. Remove 3 fixing bolts (arrow) from wiper motor and link rod assembly.
(Tightening torque: 10 ± 1 N·m)
- c. Remove the wiper motor and link rod assembly.



6. Remove the front wiper motor assembly.
 - a. Remove 3 fixing bolts (arrow) from front wiper motor assembly.
(Tightening torque: 10 ± 1 N·m)
 - b. Remove the fixing nut (1) from front wiper motor assembly.
(Tightening torque: 10 ± 1 N·m)



- c. Using a screwdriver wrapped with protective tape, separate the front wiper motor assembly and wiper link rod.



Inspection

1. Check front wiper motor assembly.
 - a. Check LO operation.

Measurement Condition	Specified Condition
Battery positive (+) → Terminal 2 Battery negative (-) → Terminal 4	Motor running at low speed (LO)

If result is not as specified, replace front wiper motor assembly.

- b. Check HI operation.

Measurement Condition	Specified Condition
Battery positive (+) → Terminal 1 Battery negative (-) → Terminal 4	Motor running at high speed (HI)

If result is not as specified, replace front wiper motor assembly.

- c. Check auto reset function.

- Connect positive (+) battery lead to terminal 1 or 2 and negative (-) battery lead to terminal 4. When motor is running at low speed (LO) or high speed (HI), disconnect battery positive (+) to stop the front wiper motor at any position other than the original position.
- Connect terminals 2 and 3 with a lead, using another lead extracted from lead between terminals 2 and 3 to connect battery positive (+), and connect negative (-) battery lead to terminal 4 to run the motor to the original position at low speed (LO).

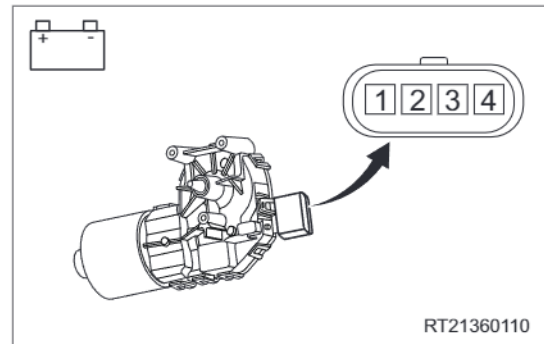
- Check if front wiper motor assembly can stop automatically after running to the original position.

OK: Motor stops automatically after running to the original position, which indicates that the motor can reset automatically.

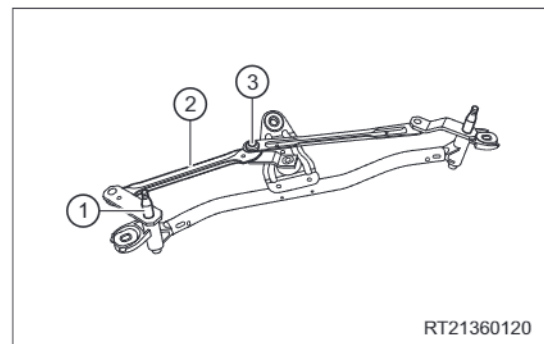
If result is not as specified, replace front wiper motor assembly.

2. Check wiper link rod.

- a. Check the rotation shaft (1) for looseness or falling off, link rod (2) for deformation or break, and shaft sleeve (3) for sticking. Replace wiper link rod if necessary.



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Installation

Installation is in the reverse order of removal.

CAUTION

- Always operate carefully to prevent other components from being damaged when installing front wiper motor assembly.
- Adjust and make sure wiper motor and wiper link rod are at the original position before installing front wiper motor assembly. Otherwise, wiper system will not operate normally.
- Install connector in place and tighten fixing bolts and nuts to the specified torque when installing front wiper motor assembly.
- Check wiper system for proper operation after installing front wiper motor assembly.

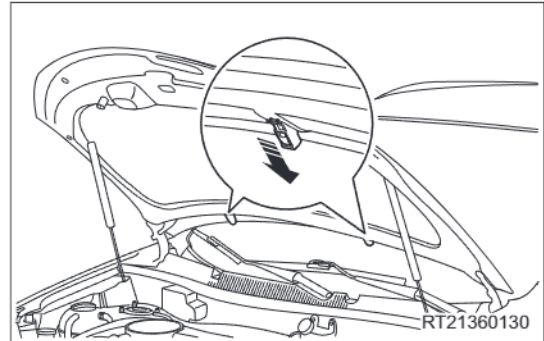
Front Washer Nozzle Assembly

Removal

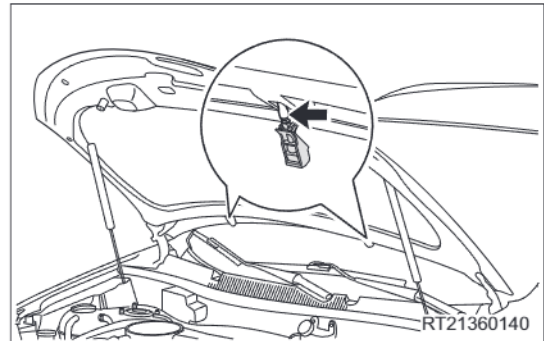
CAUTION

- Be sure to wear safety equipment to prevent accidents when removing front washer nozzle assembly.
- Appropriate force should be applied when removing front washer nozzle assembly. Be careful not to operate roughly.

1. Turn off all the electrical equipment and ignition switch.
2. Disconnect the negative battery cable.
3. Remove the front washer nozzle assembly.
 - a. Loosen the front washer nozzle assembly in the direction of arrow as shown in the illustration.

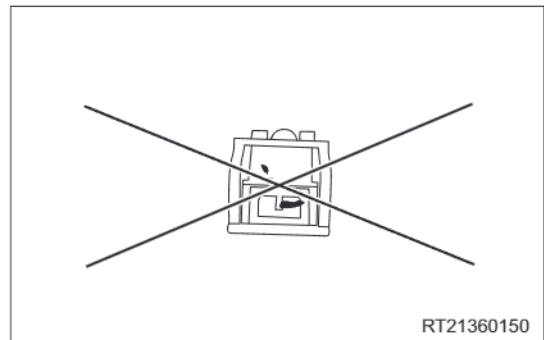


- b. Disconnect the joint (arrow) between washer line and front washer nozzle assembly, and remove the front washer nozzle assembly.



Inspection

1. Check front washer nozzle assembly.
 - a. Check front washer nozzle for blockage, deformation or damage. Replace front washer nozzle if necessary.



Installation

Installation is in the reverse order of removal.

CAUTION

- Always operate carefully to prevent components from being damaged when installing front washer nozzle assembly.
- Install washer line joint in place when installing front washer nozzle assembly.
- Check front washer nozzle for proper operation after installing front washer nozzle assembly.

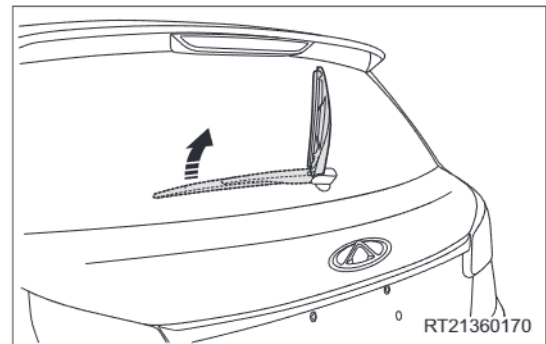
Rear Wiper Arm Assembly

Removal

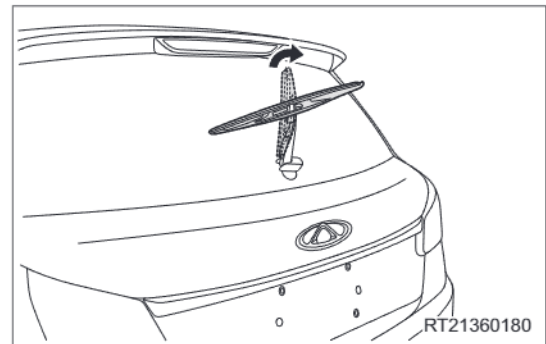
CAUTION

- Be sure to wear safety equipment to prevent accidents when removing rear wiper arm assembly.
- Appropriate force should be applied when removing rear wiper arm assembly. Be careful not to operate roughly.
- Try to prevent rear windshield assembly from being scratched when removing rear wiper arm assembly.

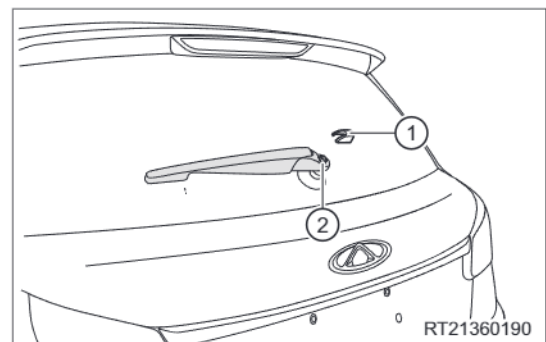
1. Turn off all the electrical equipment and ignition switch.
2. Disconnect the negative battery cable.
3. Remove the rear wiper arm blade.
 - a. Lift up the rear wiper arm assembly in the direction of arrow as shown in the illustration.



- b. Pull the rear wiper arm blade out of rear wiper arm assembly in the direction of arrow as shown in the illustration.



4. Remove the rear wiper arm assembly.
 - a. Using a screwdriver wrapped with protective tape, remove the rear wiper arm trim cap (1).
 - b. Remove 2 fixing nuts (2) from rear wiper arm assembly.
(Tightening torque: 10 ± 1 N·m)



- c. Remove the rear wiper arm assembly.

Installation

Installation is in the reverse order of removal.

CAUTION

- Always operate carefully to prevent other components from being damaged when installing rear wiper arm assembly.
- Make sure to tighten fixing nuts to the specified torque when installing rear wiper arm assembly.
- Check rear wiper arm assembly for proper operation after installation.

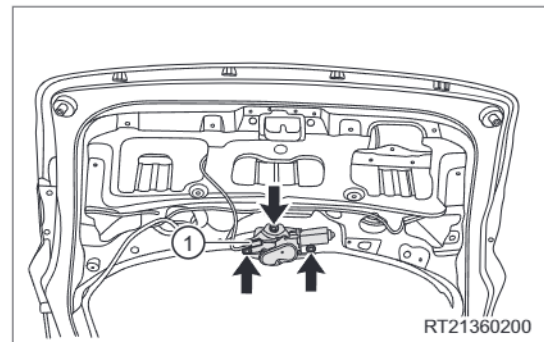
Rear Wiper Motor Assembly

Removal

CAUTION

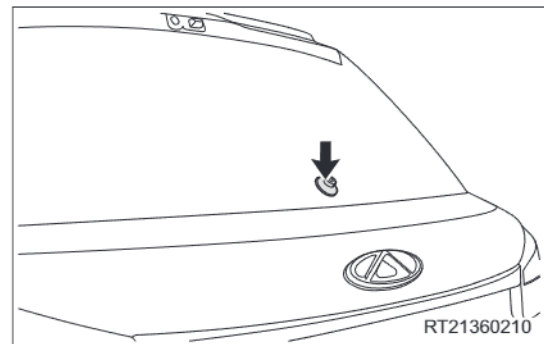
- Be sure to wear safety equipment to prevent accidents when removing rear wiper motor assembly.
- Appropriate force should be applied when removing rear wiper motor assembly. Be careful not to operate roughly.
- Try to prevent body paint surface from being scratched when removing rear wiper motor assembly.

1. Turn off all the electrical equipment and ignition switch.
2. Disconnect the negative battery cable.
3. Remove the rear wiper arm assembly ([See page 36-31](#)).
4. Remove the back door protector assembly ([See page 47-47](#)).
5. Remove the rear wiper motor assembly.
 - a. Disconnect the rear wiper motor assembly connector (1).
 - b. Remove 3 fixing bolts (arrow) from rear wiper motor assembly.
(Tightening torque: $10 \pm 1 \text{ N}\cdot\text{m}$)



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- c. Remove the rear wiper motor assembly.
- d. Using a screwdriver wrapped with protective tape, pry up the grommet (arrow).



Inspection

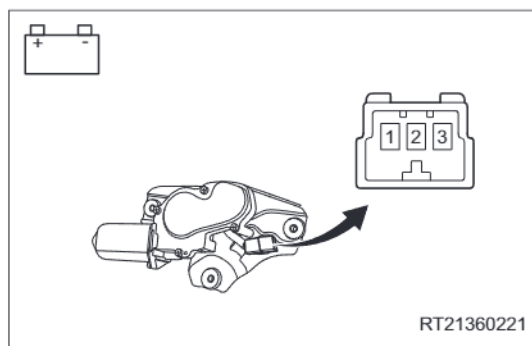
1. Check rear wiper motor assembly.
 - a. Check operation of rear wiper motor assembly.

Measurement Condition	Specified Condition
Battery positive (+) → Terminal 3 Battery negative (-) → Terminal 1	Motor runs normally

If result is not as specified, replace rear wiper motor assembly.

- b. Check auto reset function.

- Connect positive (+) battery lead to terminal 3 and negative (-) battery lead to terminal 1. When motor is running, disconnect battery negative (-) to stop rear wiper motor at any position other than the automatic stop position.
- Connect positive (+) battery lead to terminal 3 and negative (-) battery lead to terminal 2 to make the motor run again.



- Check that motor can reset automatically.

OK: Motor can reset automatically.

If result is not as specified, replace rear wiper motor assembly.

2. Check grommet for deterioration, deformation or damage. Replace grommet if necessary.

Installation

Installation is in the reverse order of removal.

CAUTION

- Always operate carefully to prevent other components from being damaged when installing rear wiper motor assembly.
- Tighten fixing bolts to the specified torque when installing rear wiper motor assembly.
- Check wiper system for proper operation after installing rear wiper motor assembly.

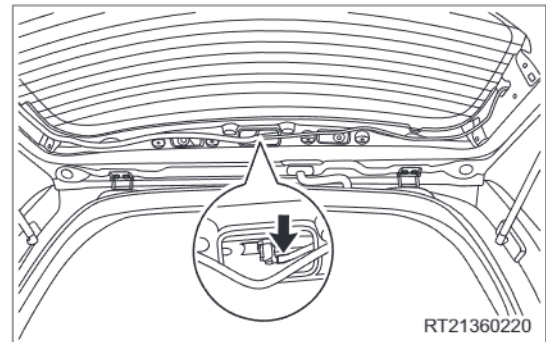
Rear Washer Nozzle Assembly

Removal

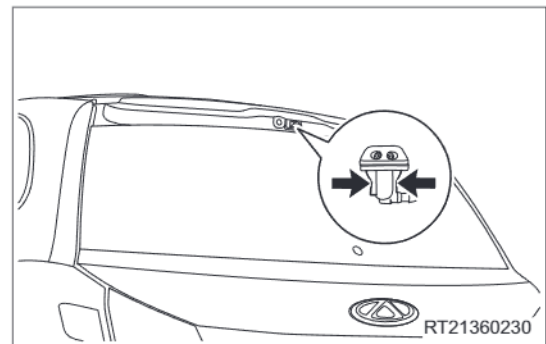
CAUTION

- Be sure to wear safety equipment to prevent accidents when removing rear washer nozzle assembly.
- Appropriate force should be applied when removing rear washer nozzle assembly. Be careful not to operate roughly.

1. Turn off all the electrical equipment and ignition switch.
2. Disconnect the negative battery cable.
3. Remove the back door protector assembly ([See page 47-47](#)).
4. Remove the rear spoiler assembly ([See page 48-43](#)).
5. Remove the rear washer nozzle assembly.
 - a. Disconnect the joint (arrow) between washer line and rear washer nozzle assembly.

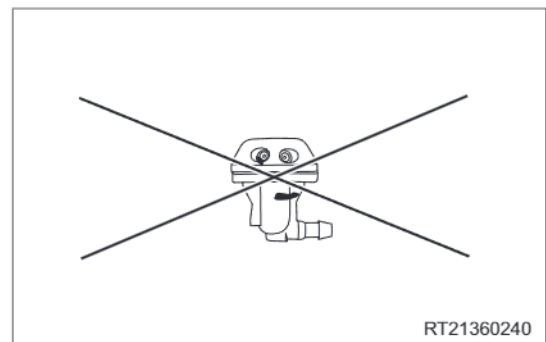


- b. As shown in the illustration, press the rear washer nozzle assembly claws (arrow) and remove the rear washer nozzle assembly.



Inspection

1. Check rear washer nozzle assembly.
 - a. Check rear washer nozzle assembly for blockage, deformation or damage. Replace rear washer nozzle if necessary.



Installation

Installation is in the reverse order of removal.

CAUTION

- Always operate carefully to prevent components from being damaged when installing rear washer nozzle assembly.
- Install washer line joint in place when installing rear washer nozzle assembly.
- Check rear washer nozzle for proper operation after installing rear washer nozzle assembly.

Washer Pump Assembly

Removal

CAUTION

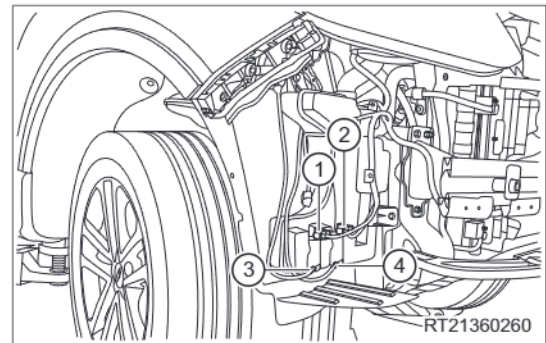
- Be sure to wear safety equipment to prevent accidents when removing washer pump assembly.
- Appropriate force should be applied when removing washer pump assembly. Be careful not to operate roughly.
- Try to prevent body paint surface from being scratched when removing washer pump assembly.

1. Turn off all the electrical equipment and ignition switch.
2. Disconnect the negative battery cable.
3. Remove the front bumper assembly (See page 48-11).
4. Remove the front/rear washer pump assembly.

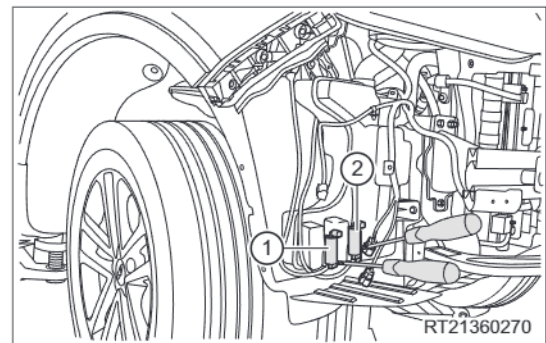
CAUTION

- Put a container under washer pump to collect washer fluid before removing washer pump assembly.

- a. Disconnect the front washer pump connector (1) and rear washer pump connector (2).
- b. Disconnect the joint (3) between washer line and front washer pump, and the joint (4) between washer line and rear washer pump.



- c. Using a screwdriver wrapped with protective tape, remove the front washer pump assembly (1) and rear washer pump assembly (2).



Installation

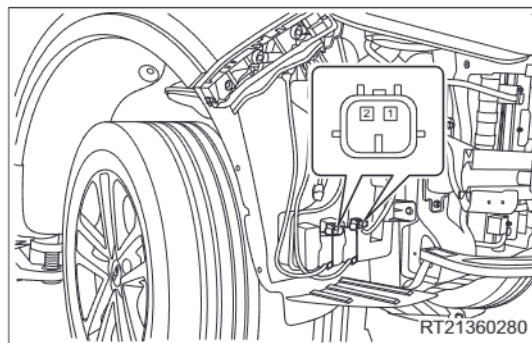
Installation is in the reverse order of removal.

CAUTION

- Always operate carefully to prevent components from being damaged when installing washer pump assembly.
- Install washer line joint in place when installing washer pump assembly.
- Check washer system for proper operation after installing washer pump assembly.

Inspection

1. Check front/rear washer pump assembly.
 - a. Fill washer fluid reservoir assembly with washer fluid.
 - b. Connect positive (+) battery lead to terminal 1 of washer pump and negative (-) battery lead to terminal 2.



- c. Check that washer fluid flows out of washer pump.

OK: Washer fluid flows out of washer pump.

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

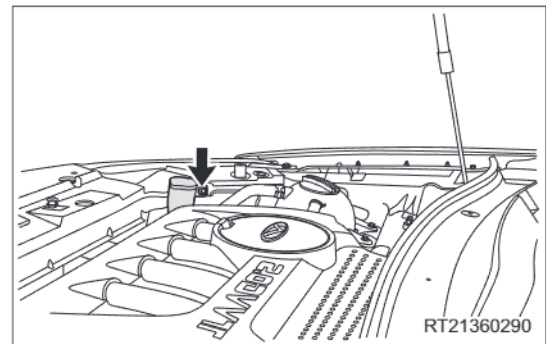
Washer Fluid Reservoir Assembly

Removal

CAUTION

- Be sure to wear safety equipment to prevent accidents when removing washer fluid reservoir assembly.
- Appropriate force should be applied when removing washer fluid reservoir assembly. Be careful not to operate roughly.
- Try to prevent body paint surface from being scratched when removing washer fluid reservoir assembly.

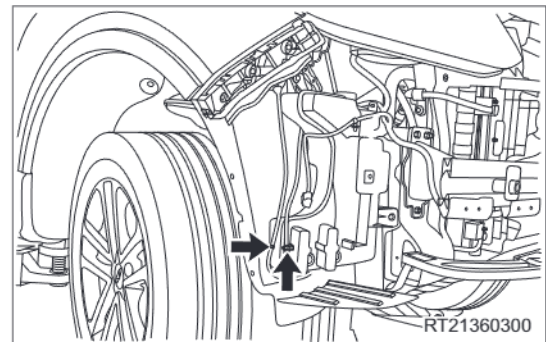
1. Turn off all the electrical equipment and ignition switch.
2. Disconnect the negative battery cable.
3. Remove the guide pipe assembly.
 - a. Remove the fixing bolt (arrow) from guide pipe assembly.
(Tightening torque: $7 \pm 1 \text{ N}\cdot\text{m}$)



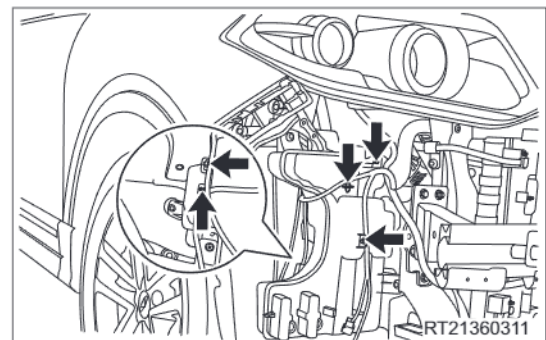
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- b. Remove the guide pipe assembly from washer fluid reservoir assembly.
4. Remove the front bumper assembly (See page 48-11).
 5. Remove the washer pump assembly (See page 36-37).
 6. Remove the washer fluid reservoir assembly.

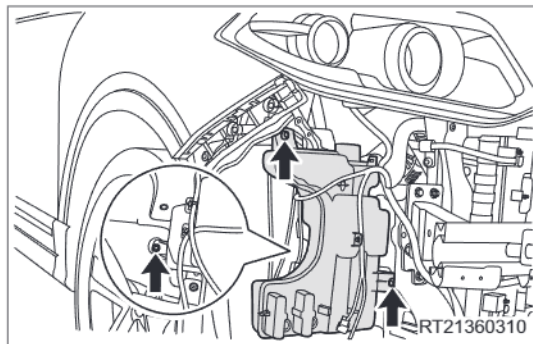
- a. Detach the washer lines (arrow) from groove on the washer fluid reservoir assembly.



- b. Remove the clips (arrow) from washer fluid reservoir assembly.

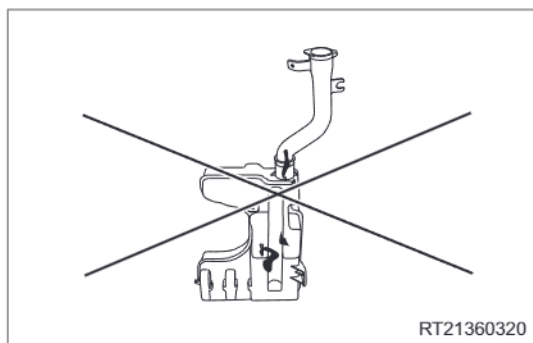


- c. Remove 3 fixing bolts (arrow) from washer fluid reservoir assembly, and remove the washer fluid reservoir assembly.
(Tightening torque: 7 ± 1 N·m)



Inspection

1. Check washer fluid reservoir assembly.
 - a. Check washer fluid reservoir assembly for leakage, deformation or damage. Replace washer fluid reservoir assembly if necessary.
 - b. Check internal and external sides of washer fluid reservoir for dirt. Remove dirt or replace washer fluid reservoir assembly if necessary.
 - c. Check the grommet for damage. Replace the grommet if necessary.



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Installation

Installation is in the reverse order of removal.

CAUTION

- Always operate carefully to prevent components from being damaged when installing washer fluid reservoir assembly.
- Tighten fixing bolts to the specified torque when installing washer fluid reservoir assembly.
- Install washer line joint in place when installing washer fluid reservoir assembly.

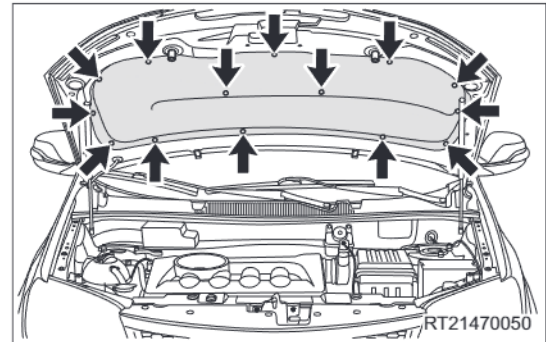
Washer Line Assembly

Removal

CAUTION

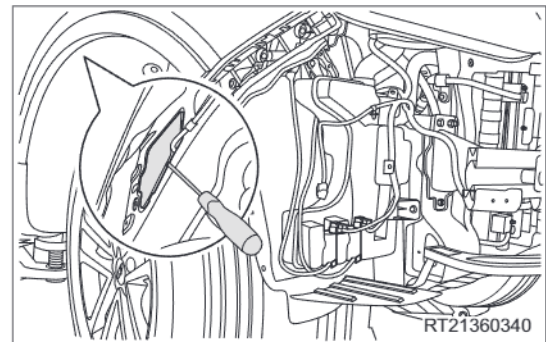
- Be sure to wear safety equipment to prevent accidents when removing washer line assembly.
- Appropriate force should be applied when removing washer line assembly. Be careful not to operate roughly.
- Try to prevent body paint surface from being scratched when removing washer line assembly.

1. Turn off all the electrical equipment and ignition switch.
2. Disconnect the negative battery cable.
3. Remove the front bumper assembly (See page 48-11).
4. Remove the front wheel house protector assembly (See page 48-24).
5. Remove the front washer nozzle assembly (See page 36-29).
6. Remove the hood sound-absorbing pad.
 - a. Remove the clips (arrow) from hood sound-absorbing pad, and remove the hood sound-absorbing pad.



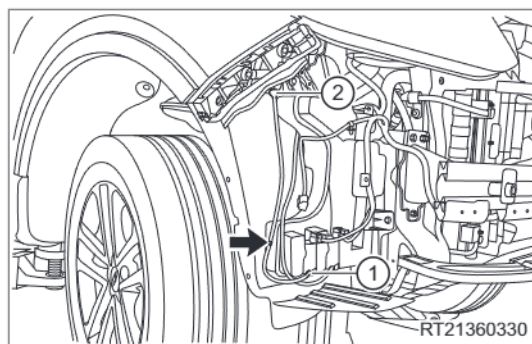
36

7. Remove the service cover.
 - a. Using a screwdriver wrapped with protective tape, pry up the claws on service cover, and remove the service cover.

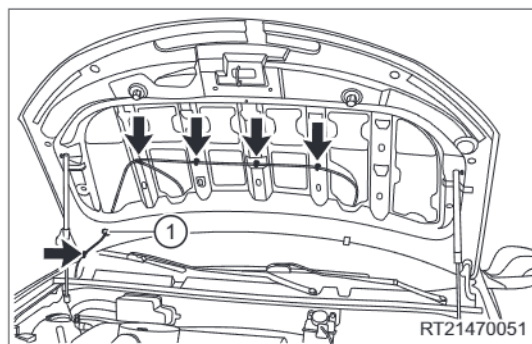


8. Remove the washer line assembly.

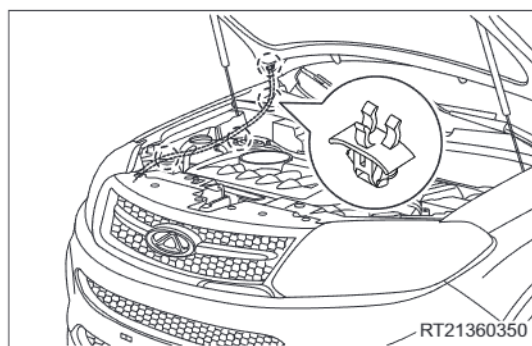
- a. Disconnect the joint (1) between washer line and front washer bump.
- b. Detach the washer line (arrow) from the groove on washer fluid reservoir assembly.
- c. Using a screwdriver wrapped with protective tape, pry up the rubber cover (2).



- d. Using a screwdriver wrapped with protective tape, pry up the rubber cover (1).
- e. Detach the washer hose from clips (arrow).



- f. Remove the washer line assembly from clips.



Installation

Installation is in the reverse order of removal.

CAUTION

- Always operate carefully to prevent components from being damaged when installing washer line assembly.
- Install washer line joint in place when installing washer line assembly.
- Check washer system for proper operation after installing washer line assembly.

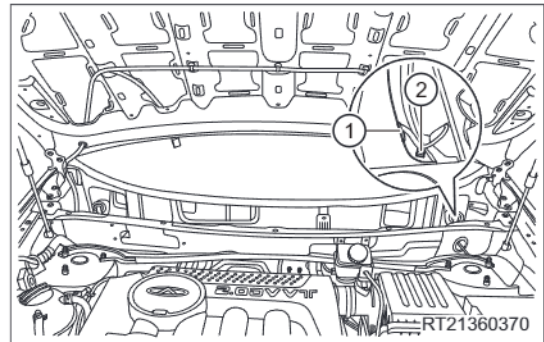
Rain Gutter Rail Reinforcement Assembly

Removal

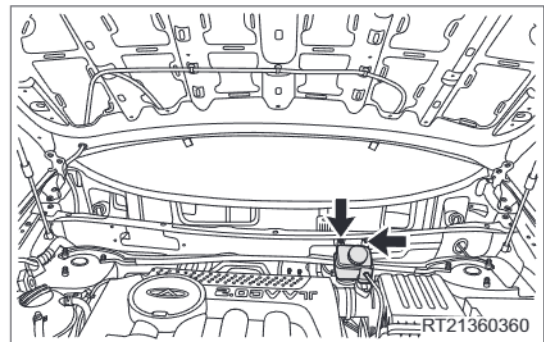
CAUTION

- Be sure to wear safety equipment to prevent accidents when removing rain gutter rail reinforcement assembly.
- Try to prevent body paint surface from being scratched when removing rain gutter rail reinforcement assembly.

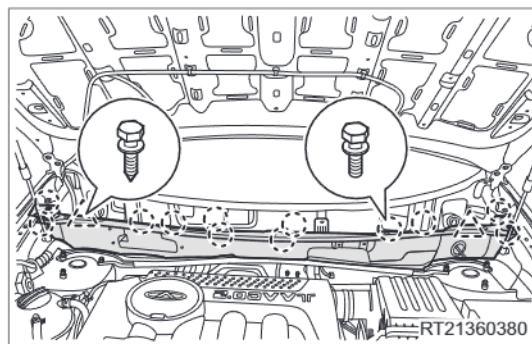
1. Turn off all the electrical equipment and ignition switch.
2. Disconnect the negative battery cable.
3. Remove the front wiper arm assembly (See page 36-24).
4. Remove the front windshield lower garnish assembly (See page 48-39).
5. Remove the wiper motor assembly (See page 36-26).
6. Remove the Engine Control Module (ECM) (See page 06-256).
7. Remove the TCU (See page 18-129).
8. Remove the rain gutter rail reinforcement assembly.
 - a. Using a screwdriver wrapped with protective tape, loosen the rubber bush (1) and clip (2).



- b. Remove 2 fixing nuts (arrow) from brake fluid reservoir assembly, and remove the brake fluid reservoir assembly.
(Tightening torque: $9 \pm 1 \text{ N}\cdot\text{m}$)



- c. Remove 14 fixing bolts from rain gutter rail reinforcement assembly, and remove the rain gutter rail reinforcement assembly.
(Tightening torque: 10 ± 1 N·m)



Installation

Installation is in the reverse order of removal.

CAUTION

- Always operate carefully to prevent components from being damaged when installing rain gutter rail reinforcement assembly.
- Try to prevent body paint surface from being scratched when installing rain gutter rail reinforcement assembly.

