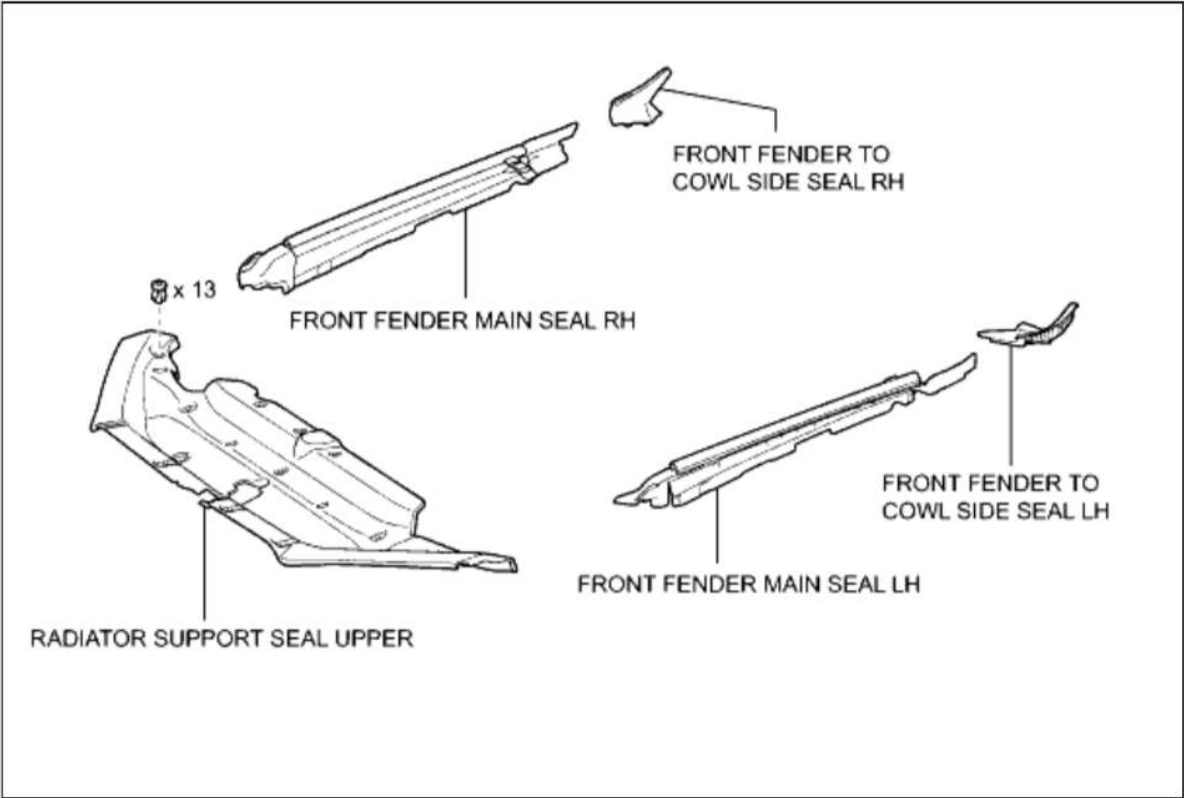


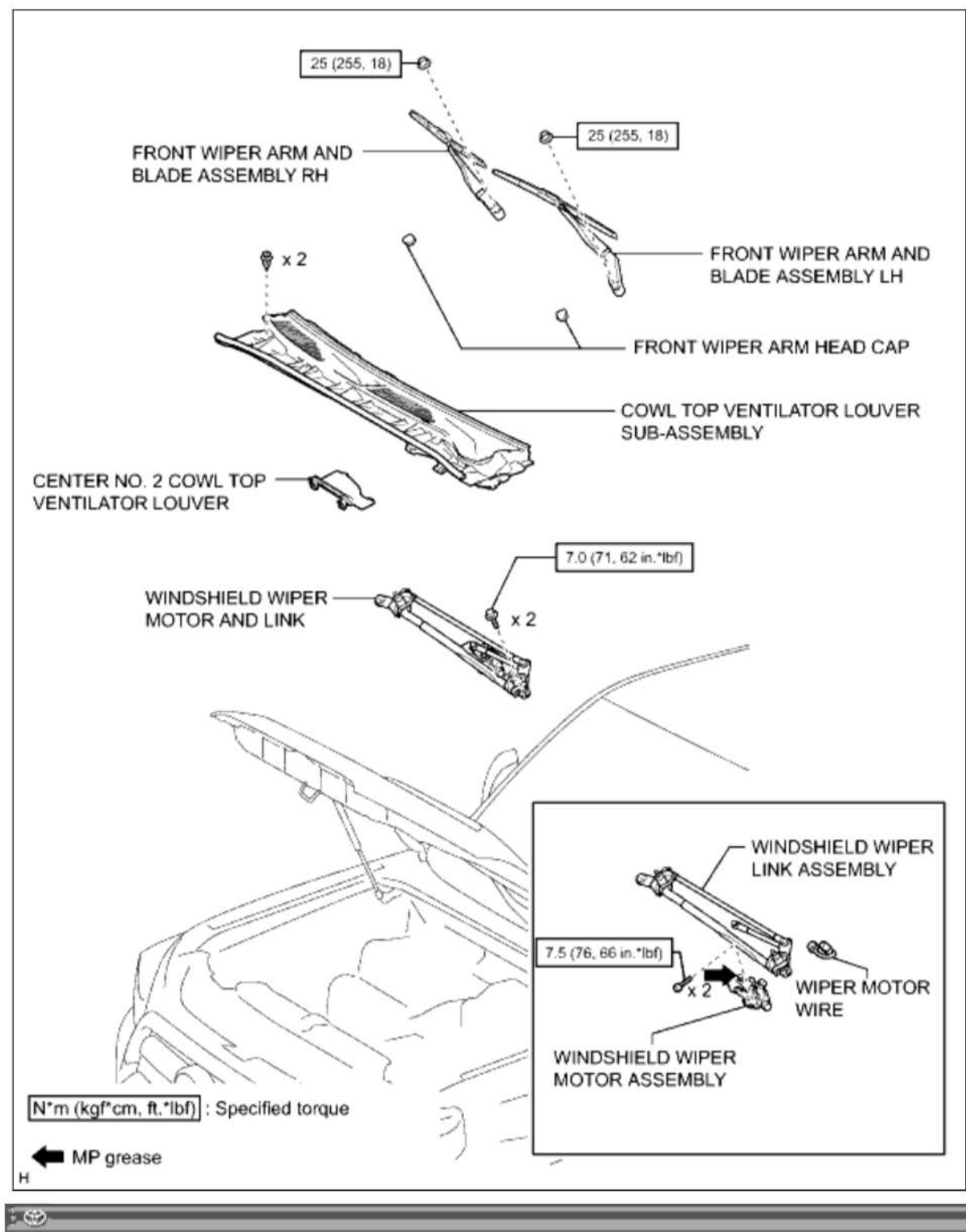
Last Modified: 5-10-2010	6.4 K	From: 200908
Model Year: 2010	Model: 4Runner	Doc ID: RM000001OV200LX
Title: WIPER / WASHER: FRONT WIPER MOTOR: COMPONENTS (2010 4Runner)		

COMPONENTS

ILLUSTRATION



ILLUSTRATION



Last Modified: 5-10-2010	6.4 A	From: 200908
Model Year: 2010	Model: 4Runner	Doc ID: RM000001OV300RX
Title: WIPER / WASHER: FRONT WIPER MOTOR: REMOVAL (2010 4Runner)		

REMOVAL

1. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

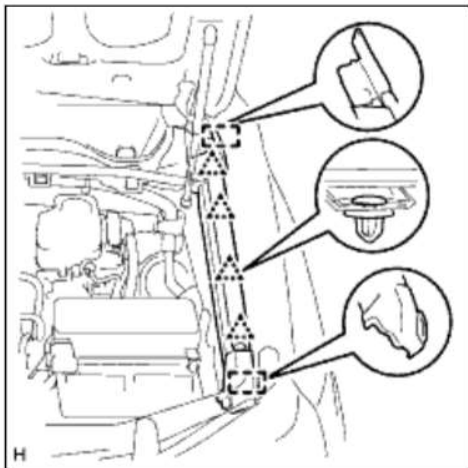
NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected



2. REMOVE UPPER RADIATOR SUPPORT SEAL

3. REMOVE FRONT FENDER MAIN SEAL LH



(a) Detach the 4 clips and 2 guides and remove the front fender main seal LH.

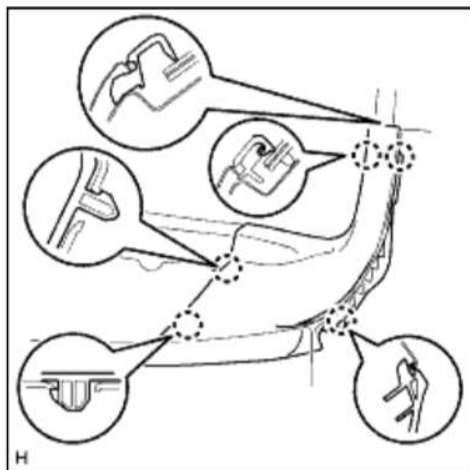
4. REMOVE FRONT FENDER MAIN SEAL RH

HINT:

Use the same procedure described for the LH side.

5. REMOVE FRONT FENDER TO COWL SIDE SEAL LH

(a) Detach the 5 claws and remove the front fender to cowl side seal LH.



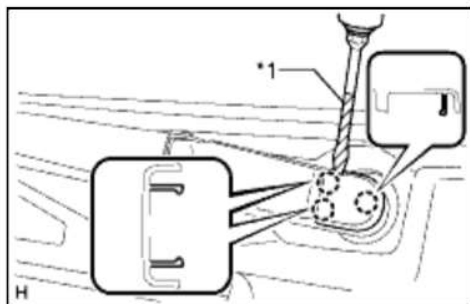
6. REMOVE FRONT FENDER TO COWL SIDE SEAL RH

HINT:

Use the same procedure described for the LH side.

7. REMOVE FRONT WIPER ARM HEAD CAP

(a) Using a screwdriver, detach the 3 claws and remove the front wiper arm head cap.



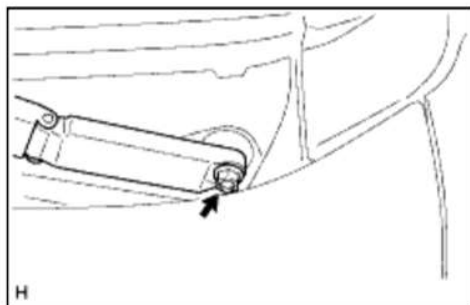
HINT:

- Tape the screwdriver tip before use.
- Use the same procedure described for the LH side.

Text in Illustration

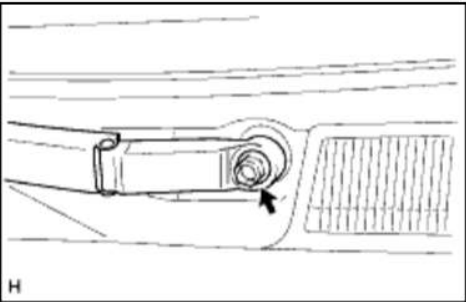
*1	Protective Tape
----	-----------------

8. REMOVE FRONT WIPER ARM AND BLADE ASSEMBLY LH



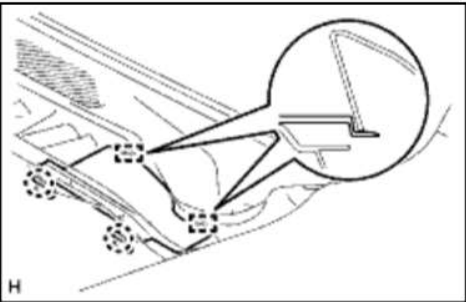
(a) Remove the nut and the front wiper arm and blade assembly LH.

9. REMOVE FRONT WIPER ARM AND BLADE ASSEMBLY RH



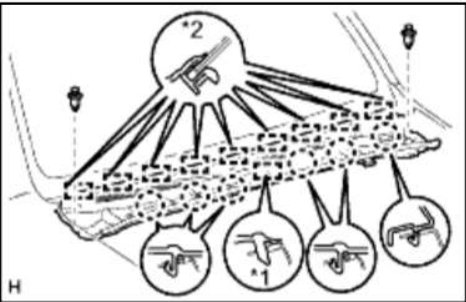
(a) Remove the nut and the front wiper arm and blade assembly RH.

10. REMOVE CENTER NO. 2 COWL TOP VENTILATOR LOUVER



(a) Detach the 2 claws and 2 guides and remove the center No. 2 cowl top ventilator louver.

11. REMOVE COWL TOP VENTILATOR LOUVER SUB-ASSEMBLY



(a) Remove the 2 clips.

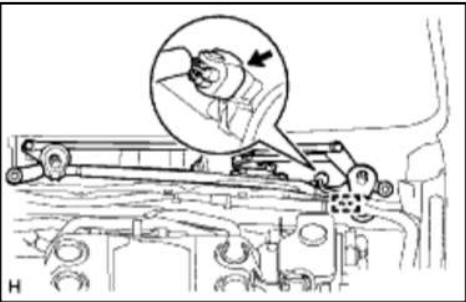
(b) Detach the 6 claws and guide (A).

Text in Illustration

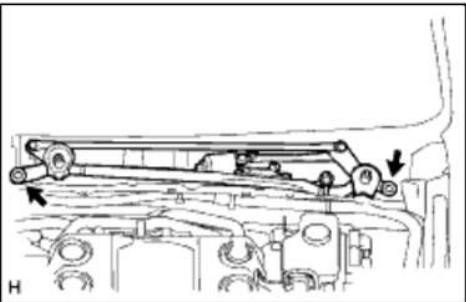
* 1	Guide A
* 2	Guide B

(c) Detach the 9 guides (B) and pull out the cowl top ventilator louver sub-assembly.

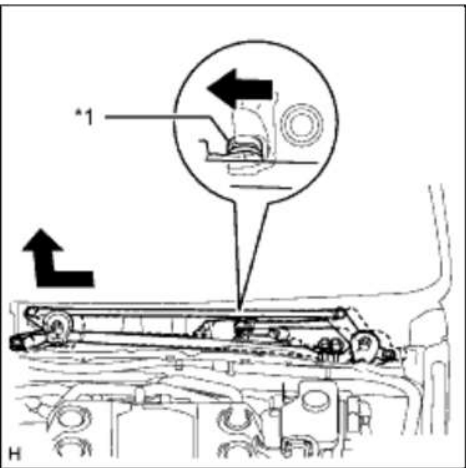
12. REMOVE WINDSHIELD WIPER MOTOR AND LINK



(a) Detach the clamp and disconnect the connector.



(b) Remove the 2 bolts.



(c) Detach the grommet and remove the windshield wiper motor and link as shown in the illustration.

Text in Illustration

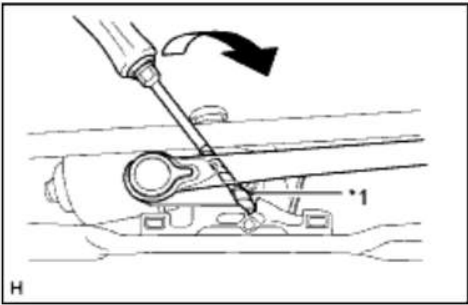
*1	Grommet
----	---------

NOTICE:
Be careful not to damage the windshield when removing the windshield wiper motor and link assembly.

13. REMOVE WINDSHIELD WIPER MOTOR ASSEMBLY

(a) Using a screwdriver, separate the windshield wiper link rod from the crank arm pivot of the front wiper crank sub-assembly as shown in the illustration.

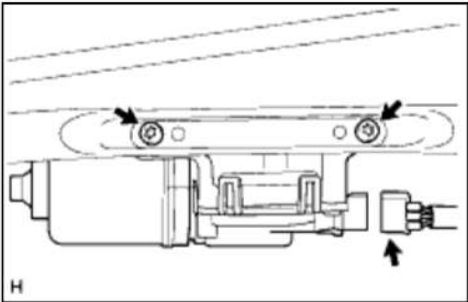
HINT:



Tape the screwdriver tip before use.

Text in Illustration

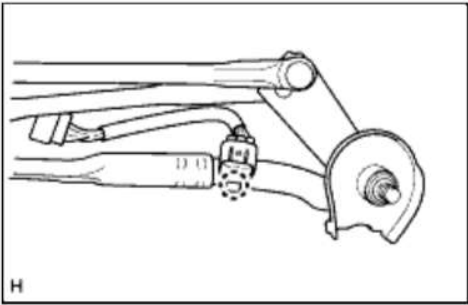
* 1	Protective Tape
-----	-----------------



(b) Disconnect the connector.

(c) Using a T30 "TORX" socket, remove the 2 bolts and windshield wiper motor.

14. REMOVE WIPER MOTOR WIRE



(a) Detach the claw and remove the wiper motor wire.

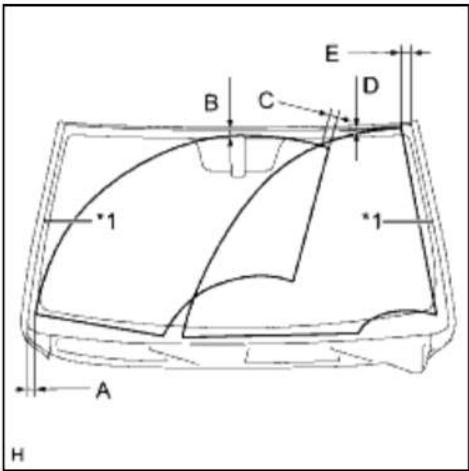
Last Modified: 5-10-2010	6.4 G	From: 200908
Model Year: 2010	Model: 4Runner	Doc ID: RM000000UQH00TX
Title: WIPER / WASHER: FRONT WIPER MOTOR: ON-VEHICLE INSPECTION (2010 4Runner)		

ON-VEHICLE INSPECTION

1. INSPECT WINDSHIELD WIPER MOTOR ASSEMBLY

(a) Operate the front wipers while spraying washer fluid on the windshield glass. Make sure that the front wipers function properly and the wipers do not come into contact with the vehicle body.

Standard:



AREA	STANDARD CONDITION
A	12.5 mm (0.492 in.)
B	23.5 mm (0.925 in.)
C	25.0 mm (0.984 in.)
D	6.5 mm (0.256 in.)
E	46.9 mm (1.85 in.)

Text in Illustration

* 1	Moulding Edge
-----	---------------

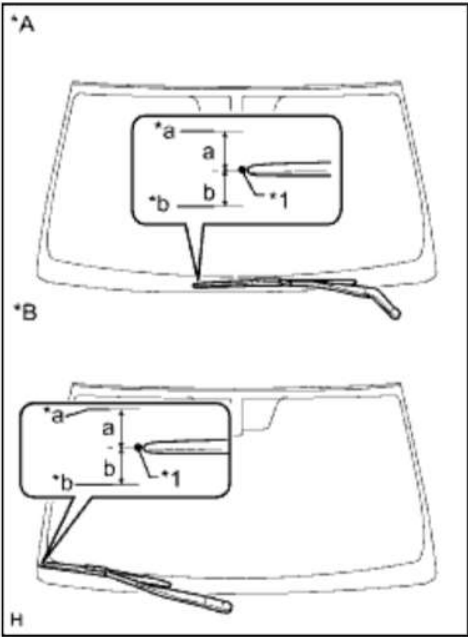
(b) Stop the front wiper motor and link assembly operation.

(c) Check the automatic stop position.

OK:
The front wipers stop at the positions shown in the illustration.
Standard:

AREA	STANDARD CONDITION
a	10.0 mm (0.398 in.)
b	10.0 mm (0.398 in.)

If the result is not as specified, remove and reinstall the wiper arm and blade assembly and perform the on-vehicle inspection described above to inspect the wiper motor and



link assembly again. If the result is not as specified again, inspect the wiper motor and link assembly with it removed from the vehicle body INFO .

Text in Illustration

*A	for LH Side
*B	for RH Side
*1	Ceramic Dot
*a	Upper Limit
*b	Lower Limit

Last Modified: 5-10-2010	6.4 A	From: 200908
Model Year: 2010	Model: 4Runner	Doc ID: RM000001OV100RX
Title: WIPER / WASHER: FRONT WIPER MOTOR: INSTALLATION (2010 4Runner)		

INSTALLATION

1. INSTALL WIPER MOTOR WIRE

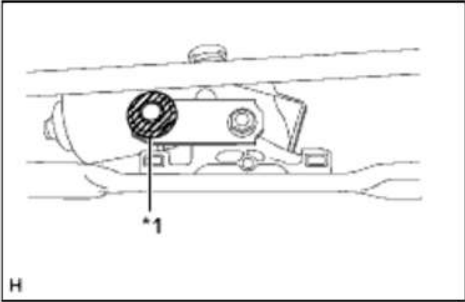
- (a) Attach the claw to install the wiper motor wire.

2. INSTALL WINDSHIELD WIPER MOTOR ASSEMBLY

- (a) Using a T30 "TORX" socket, install the wiper motor with the 2 bolts.

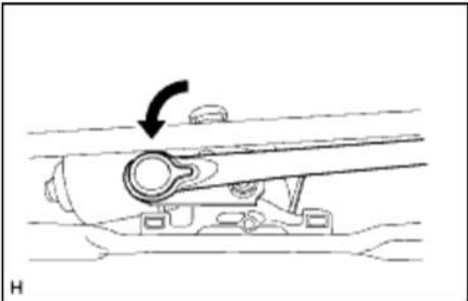
Torque: 7.5 N·m (76 kgf·cm, 66in·lbf)

- (b) Connect the connector.
(c) Apply MP grease to the crank arm pivot of the wiper crank.



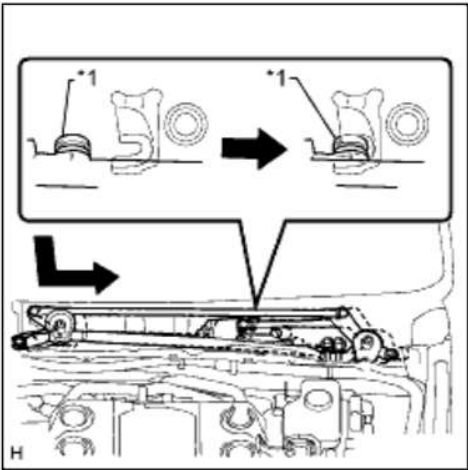
Text in Illustration

*1	Crank Arm Pivot
	MP grease



- (d) Connect the rod to the crank arm pivot of the front wiper crank.

3. INSTALL WINDSHIELD WIPER MOTOR AND LINK



(a) Attach the grommet as shown in the illustration.

Torque: 7.0 N·m (71 kgf·cm, 62in·lbf)

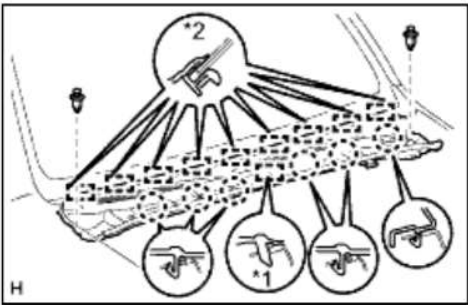
Text in Illustration

*1	Grommet
----	---------

NOTICE:
Be careful not to damage the windshield when installing the windshield wiper motor and link assembly.

- (b) Install the windshield wiper motor and link with the 2 bolts.
- (c) Connect the connector.
- (d) Attach the clamp.

4. INSTALL COWL TOP VENTILATOR LOUVER SUB-ASSEMBLY



(a) Attach the 9 guides (B).

Text in Illustration

*1	Guide A
*2	Guide B

- (b) Attach the 6 claws and guide (A) as shown in the illustration.
- (c) Install the 2 clips to the cowl top ventilator louver sub-assembly.

5. INSTALL CENTER NO. 2 COWL TOP VENTILATOR LOUVER

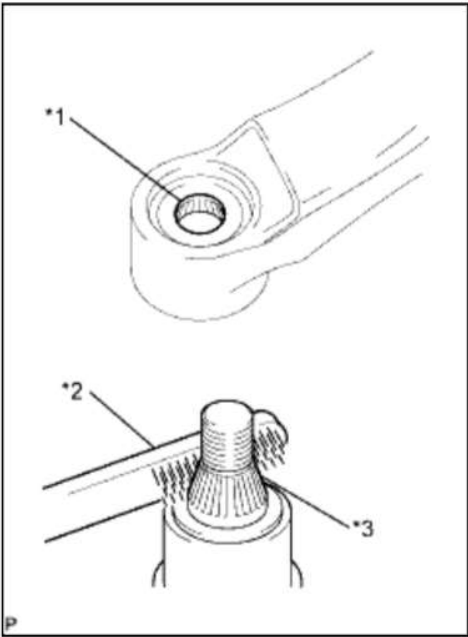
- (a) Attach the 2 claws and 2 guides to install the center No. 2 cowl top ventilator louver.

6. INSTALL FRONT WIPER ARM AND BLADE ASSEMBLY RH

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

- (b) When reusing the front wiper arm and blade assembly RH:
 - (1) Clean the wiper arm serrations.

Text in Illustration



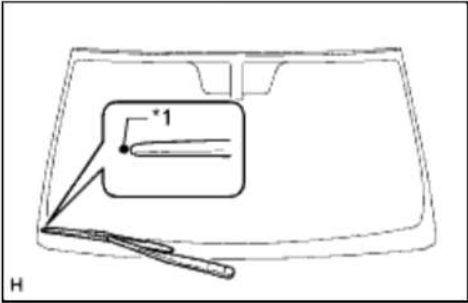
* 1	Wiper Arm Serration
* 2	Wire Brush
* 3	Wiper Pivot Serration

(c) When reusing the windshield wiper link assembly:

(1) Clean the wiper pivot serrations with a wire brush.

(d) Install the front wiper arm and blade assembly RH to the position shown in the illustration with the nut.

Torque: 25 N·m (255 kgf·cm, 18ft·lbf)



Text in Illustration

* 1	Ceramic Dot
-----	-------------

HINT:

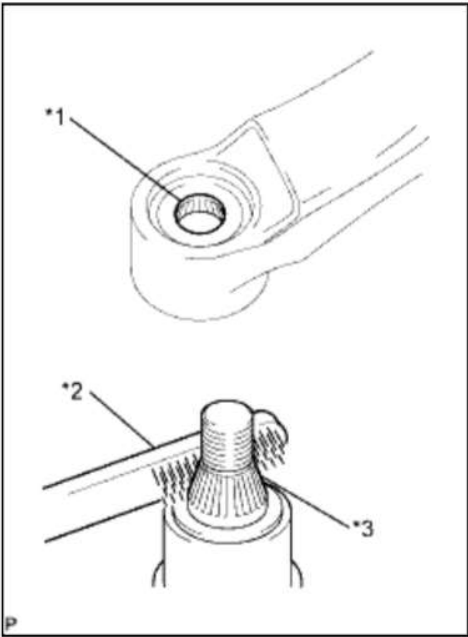
- Hold the wiper arm by hand while tightening the nut.
- Raise and lower the wiper arm a few times to confirm that it has settled into the specified position.

7. INSTALL FRONT WIPER ARM AND BLADE ASSEMBLY LH

(a) When reusing the front wiper arm and blade assembly LH:

(1) Clean the wiper arm serrations.

Text in Illustration



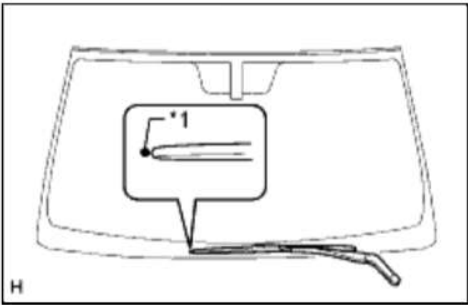
* 1	Wiper Arm Serration
* 2	Wire Brush
* 3	Wiper Pivot Serration

(b) When reusing the windshield wiper link assembly:

(1) Clean the wiper pivot serrations with a wire brush.

(c) Install the front wiper arm and blade assembly LH to the position shown in the illustration with the nut.

Torque: 25 N·m (255 kgf·cm, 18ft·lbf)



Text in Illustration

* 1	Ceramic Dot
-----	-------------

HINT:

- Hold the wiper arm by hand while tightening the nut.
- Raise and lower the wiper arm a few times to confirm that it has settled into the specified position.

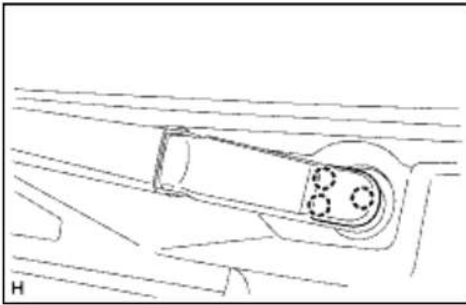
(d) Operate the front wipers while spraying washer fluid on the windshield glass. Make sure that the front wipers function properly and there is no interference with the vehicle body.

8. INSTALL FRONT WIPER ARM HEAD CAP

(a) Attach the 3 claws to install the front wiper arm head cap.

HINT:

Use the same procedure described for the LH side.



9. INSTALL FRONT FENDER TO COWL SIDE SEAL LH

(a) Attach the 5 claws to install the front fender to cowl side seal LH.

10. INSTALL FRONT FENDER TO COWL SIDE SEAL RH

HINT:

Use the same procedure described for the LH side.

11. INSTALL FRONT FENDER MAIN SEAL LH

(a) Attach the 4 clips and 2 guides.

12. INSTALL FRONT FENDER MAIN SEAL RH

HINT:

Use the same procedure described for the LH side.

13. INSTALL UPPER RADIATOR SUPPORT SEAL

14. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected

INFO



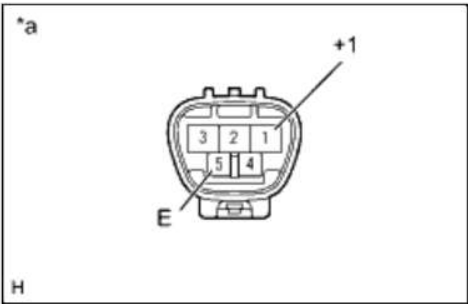
Last Modified: 5-10-2010	6.4 G	From: 200908
Model Year: 2010	Model: 4Runner	Doc ID: RM000000VLO02NX
Title: WIPER / WASHER: FRONT WIPER MOTOR: INSPECTION (2010 4Runner)		

INSPECTION

NOTICE:
Make sure that fingers or articles of clothing do not get caught in moving parts when performing this test.

1. INSPECT WINDSHIELD WIPER MOTOR ASSEMBLY

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

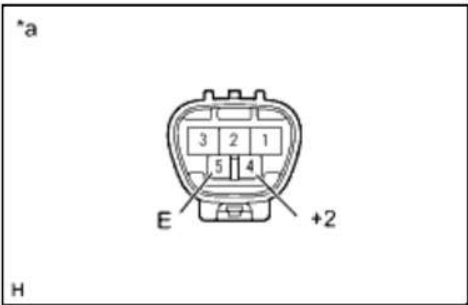


OK:
Motor operates at low speed (LO).
If the result is not as specified, replace the windshield wiper motor assembly.

Text in Illustration

*a	Component without harness connected (Windshield Wiper Motor Assembly)
----	--

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



OK:
Motor operates at high speed (HI).
If the result is not as specified, replace the windshield wiper motor assembly.

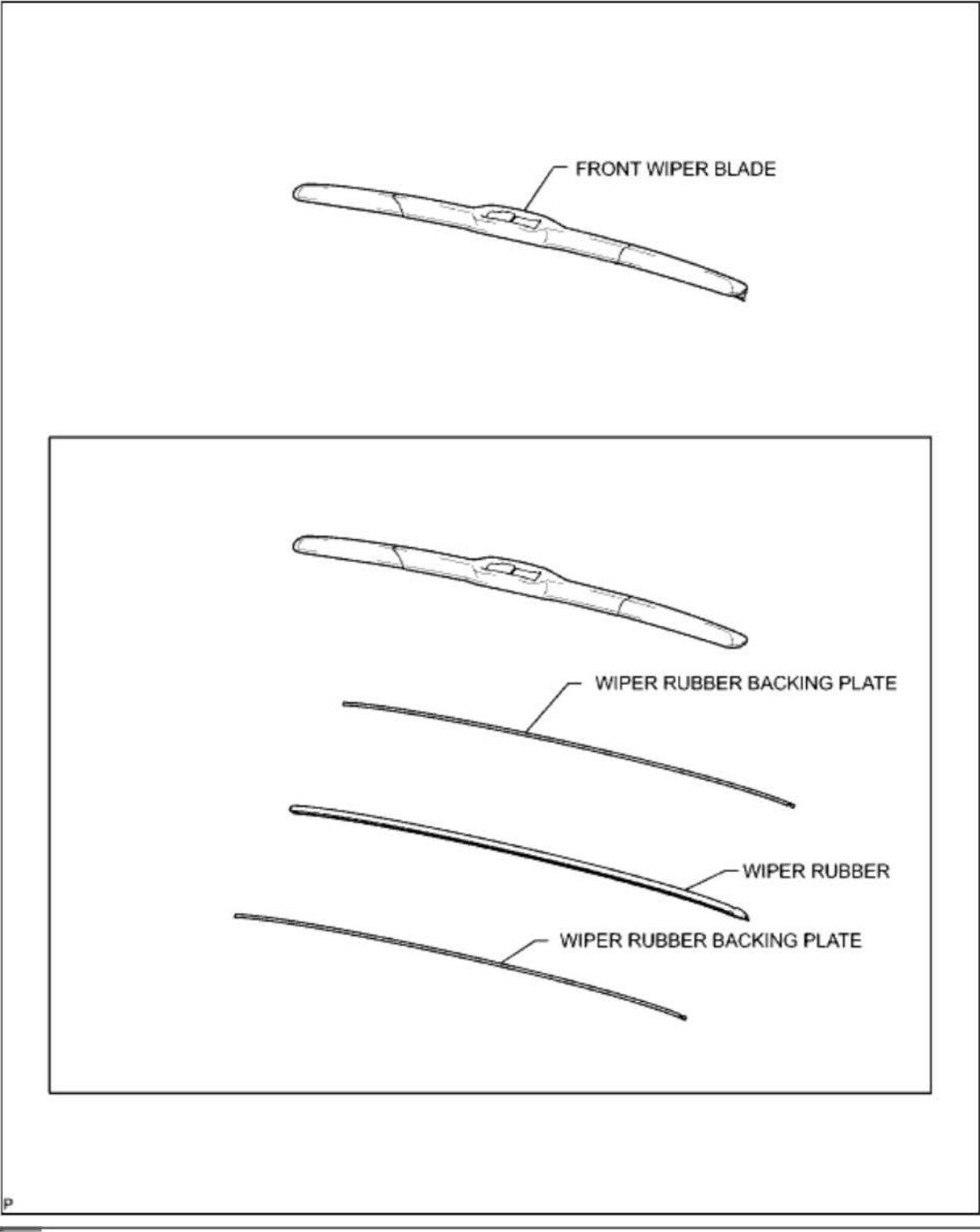
Text in Illustration

*a	Component without harness connected (Windshield Wiper Motor Assembly)
----	--

Last Modified: 5-10-2010	6.4 K	From: 200908
Model Year: 2010	Model: 4Runner	Doc ID: RM000002XJT00TX
Title: WIPER / WASHER: FRONT WIPER RUBBER: COMPONENTS (2010 4Runner)		

COMPONENTS

ILLUSTRATION





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Last Modified: 5-10-2010	6.4 A	From: 200908
Model Year: 2010	Model: 4Runner	Doc ID: RM000002XJU00RX
Title: WIPER / WASHER: FRONT WIPER RUBBER: REPLACEMENT (2010 4Runner)		

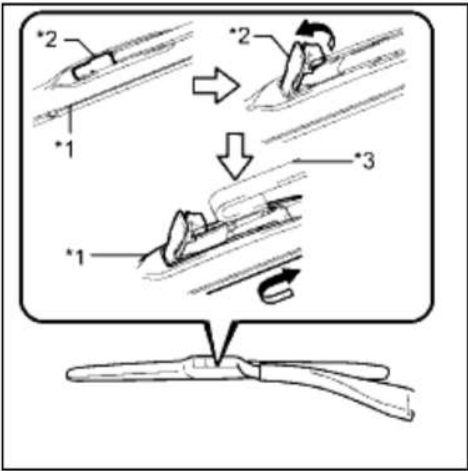
REPLACEMENT

HINT:

- Use the same procedure for the RH and LH sides.
- The procedure listed below is for the LH side.

1. REMOVE FRONT WIPER BLADE

(a) Open the front wiper blade holder.



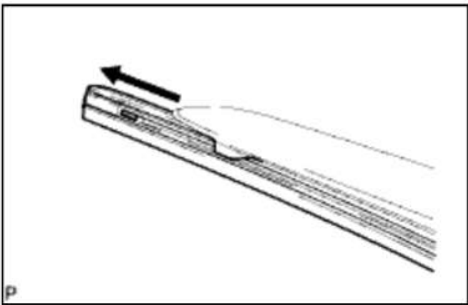
(b) Remove the front wiper blade from the front wiper arm as shown in the illustration.

Text in Illustration

* 1	Front Wiper Blade
* 2	Front Wiper Blade Holder
* 3	Front Wiper Arm

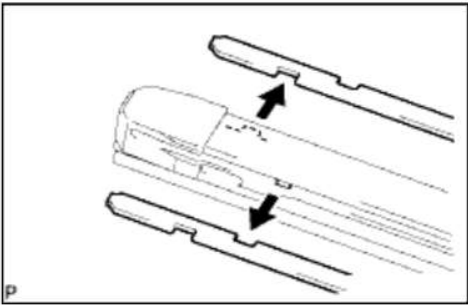
NOTICE:
Do not bend the front wiper arm with the front wiper blade removed because the arm tip could damage the windshield surface.

2. REMOVE WIPER RUBBER

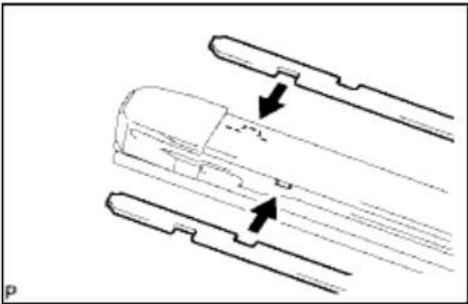


(a) Remove the wiper rubber and wiper rubber backing plates from the front wiper blade.

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



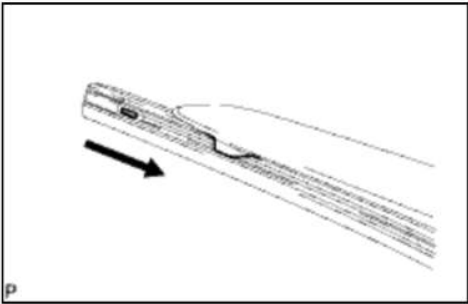
3. INSTALL WIPER RUBBER



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

NOTICE:

- Align the protrusions on the wiper rubber and the notches of the backing plates.
- Align the curves of the backing plates and the glass.

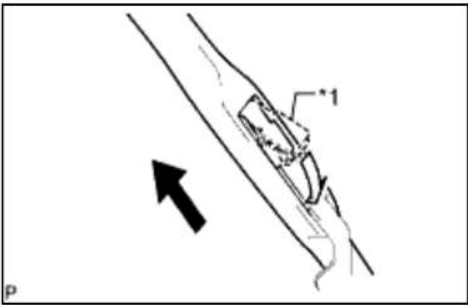


(b) Install the wiper rubber to the front wiper blade as shown in the illustration.

NOTICE:

Push the wiper rubber into the wiper blade firmly so that it engages securely.

4. INSTALL FRONT WIPER BLADE



(a) Install the front wiper blade as shown in the illustration.

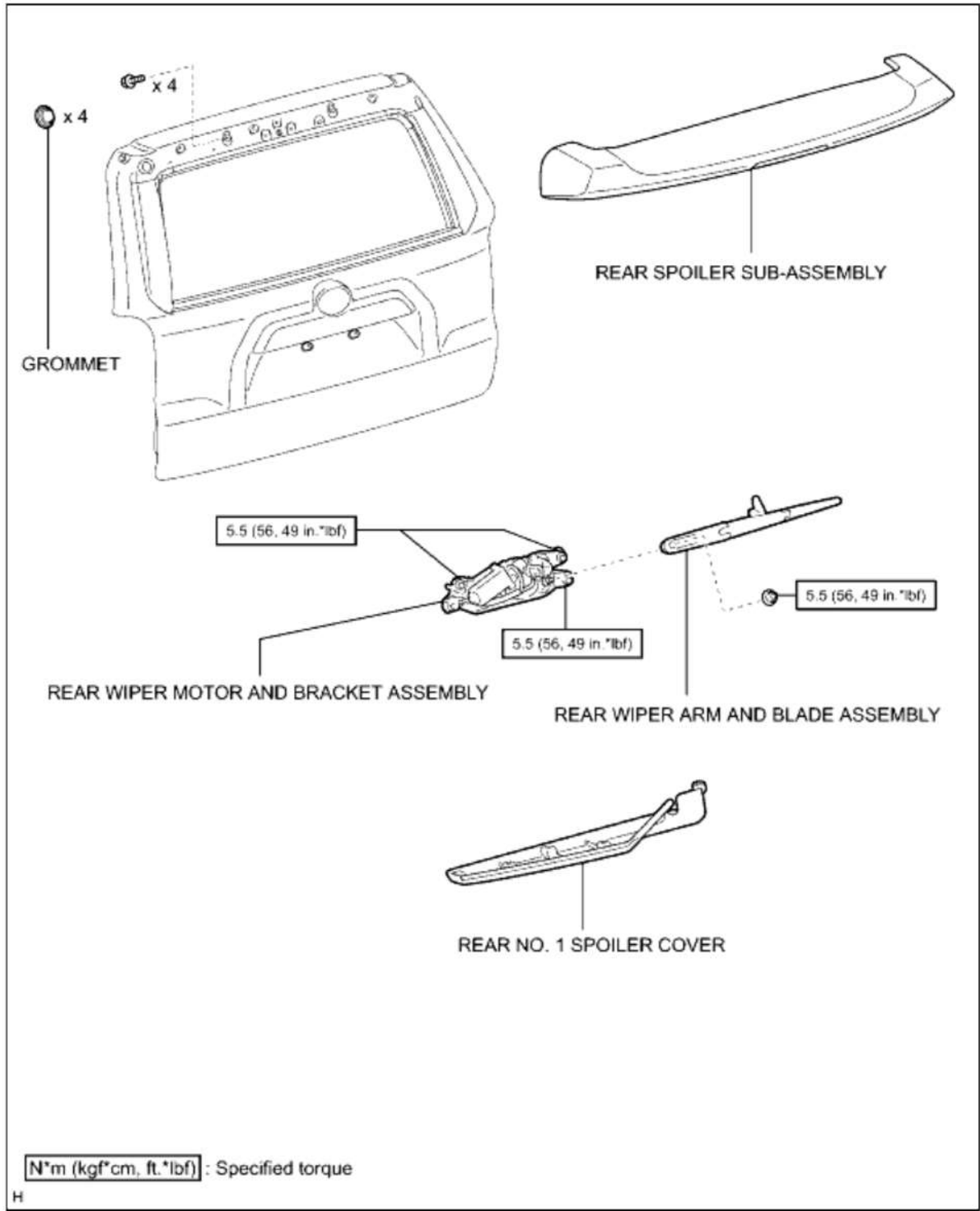
Text in Illustration

*1	Front Wiper Blade Holder
----	--------------------------

Last Modified: 5-10-2010	6.4 K	From: 200908
Model Year: 2010	Model: 4Runner	Doc ID: RM000002XJX00RX
Title: WIPER / WASHER: REAR WIPER MOTOR: COMPONENTS (2010 4Runner)		

COMPONENTS

ILLUSTRATION





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Last Modified: 5-10-2010	6.4 G	From: 200908
Model Year: 2010	Model: 4Runner	Doc ID: RM000000UQH00UX
Title: WIPER / WASHER: REAR WIPER MOTOR: ON-VEHICLE INSPECTION (2010 4Runner)		

ON-VEHICLE INSPECTION

1. INSPECT REAR WIPER MOTOR AND BRACKET ASSEMBLY

- (a) Operate the rear wiper motor and bracket assembly.
- (b) Stop the rear wiper motor and bracket assembly operation.
- (c) Check the automatic stop position.



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Last Modified: 5-10-2010	6.4 A	From: 200908
Model Year: 2010	Model: 4Runner	Doc ID: RM000002AJO007X
Title: WIPER / WASHER: REAR WIPER MOTOR: REMOVAL (2010 4Runner)		

REMOVAL

1. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected

INFO

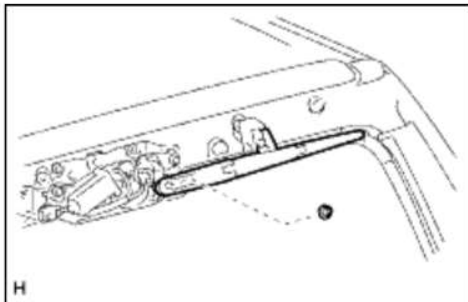
2. REMOVE REAR NO. 1 SPOILER COVER

INFO

3. REMOVE REAR SPOILER SUB-ASSEMBLY

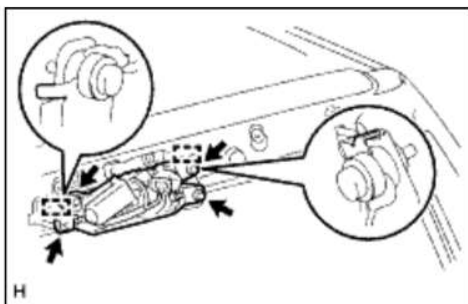
INFO

4. REMOVE REAR WIPER ARM AND BLADE ASSEMBLY



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

5. REMOVE REAR WIPER MOTOR AND BRACKET ASSEMBLY



(a) Disconnect the connector.

(b) Loosen the 3 bolts.

NOTICE:

Do not try to remove the bolts since they are integrated with the motor.

(c) Detach the 2 guides and remove the rear wiper motor

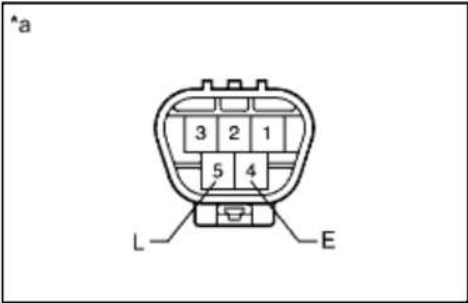


Last Modified: 5-10-2010	6.4 G	From: 200908
Model Year: 2010	Model: 4Runner	Doc ID: RM000002XJW00YX
Title: WIPER / WASHER: REAR WIPER MOTOR: INSPECTION (2010 4Runner)		

INSPECTION

1. INSPECT REAR WIPER MOTOR AND BRACKET ASSEMBLY

- (a) Check the wiper intermittent operation.
- (1) Connect the positive (+) lead of the battery to terminal 5 (L) and the negative (-) lead to terminal 4 (E), and check that the motor operates.



OK:
Motor operates.

Text in Illustration

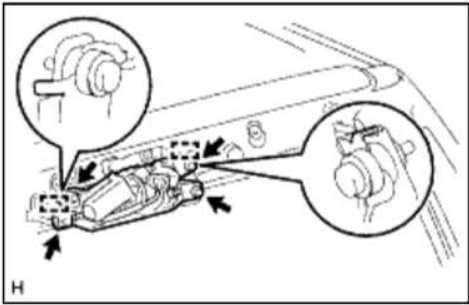
*1	Component without harness connected (Rear Wiper Motor and Bracket Assembly)
----	--

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

Last Modified: 5-10-2010	6.4 A	From: 200908
Model Year: 2010	Model: 4Runner	Doc ID: RM000002AJP007X
Title: WIPER / WASHER: REAR WIPER MOTOR: INSTALLATION (2010 4Runner)		

INSTALLATION

1. INSTALL REAR WIPER MOTOR AND BRACKET ASSEMBLY



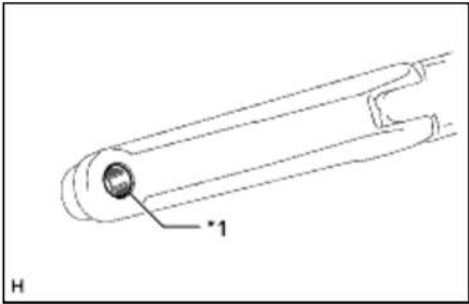
(a) Attach the 2 guides and temporarily install the rear wiper motor and bracket assembly with the 3 bolts.

(b) Tighten the 3 bolts.

Torque: 5.5 N·m (56 kgf·cm, 49in·lbf)

(c) Connect the connector.

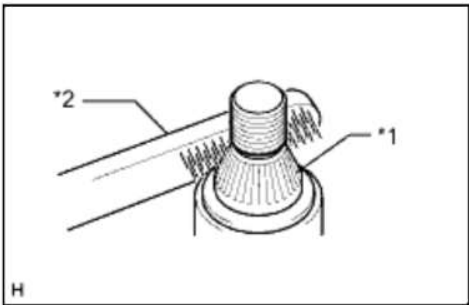
2. INSTALL REAR WIPER ARM AND BLADE ASSEMBLY



(a) Clean the wiper arm serrations.

Text in Illustration

*1	Wiper Arm Pivot Serrations
----	----------------------------



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

Text in Illustration

*1	Wiper Pivot Serrations
*2	Wire Brush

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

HINT:

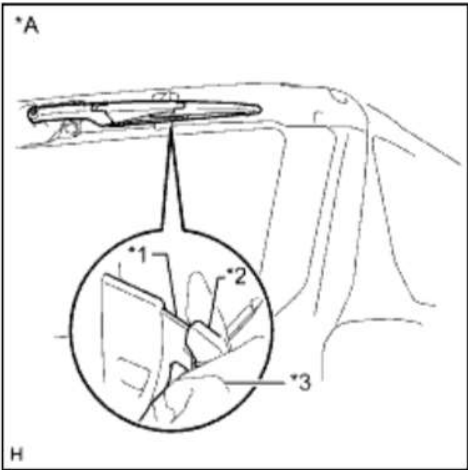
The wiper motor does not operate if the back door and back door glass are not closed.

(d) With the rear wiper blade and linear wiper step in the positions shown in the illustration, install the rear wiper blade assembly with the nut.

Torque: 5.5 N·m (56 kgf·cm, 49in·lbf)

Text in Illustration

*A	Tightening Position
*1	Linear Wiper Step
*2	Wiper Blade Rubber Block
*3	Wiper Blade



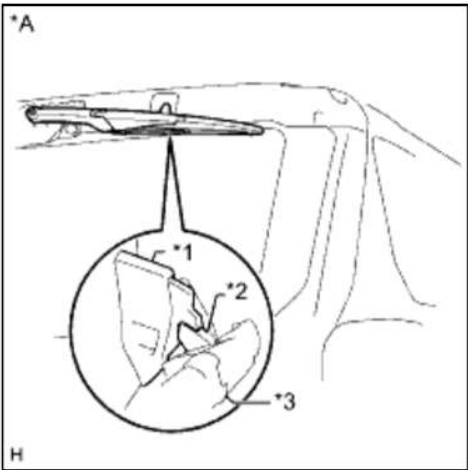
HINT:

Hold the arm hinge down by hand while tightening the nut.

(e) Place the rear wiper blade assembly in the automatic stop position.

Text in Illustration

*A	Rise-up Position
*1	Linear Wiper Step
*2	Wiper Blade Rubber Block
*3	Wiper Blade



3. INSTALL REAR SPOILER SUB-ASSEMBLY INFO

4. INSTALL REAR NO. 1 SPOILER COVER INFO

5. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

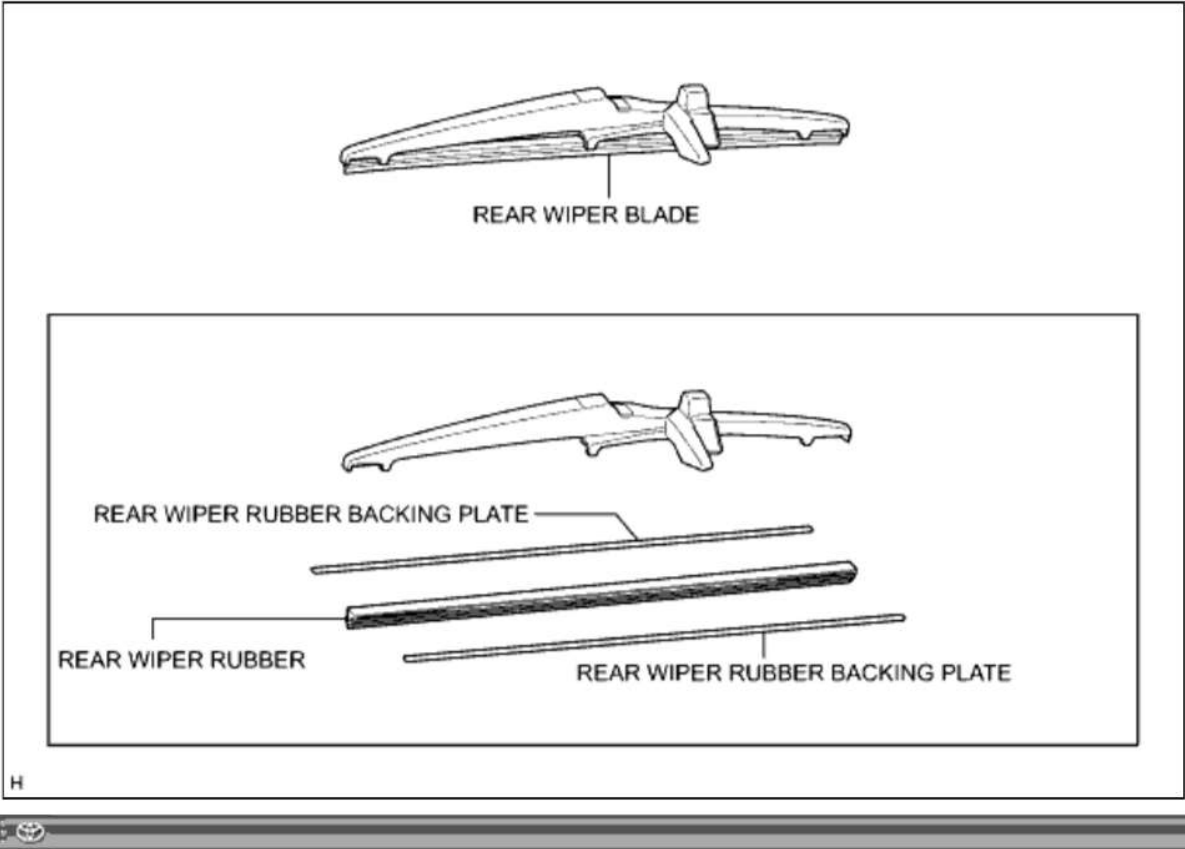
NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected INFO.

Last Modified: 5-10-2010	6.4 K	From: 200908
Model Year: 2010	Model: 4Runner	Doc ID: RM0000034YA00MX
Title: WIPER / WASHER: REAR WIPER RUBBER: COMPONENTS (2010 4Runner)		

COMPONENTS

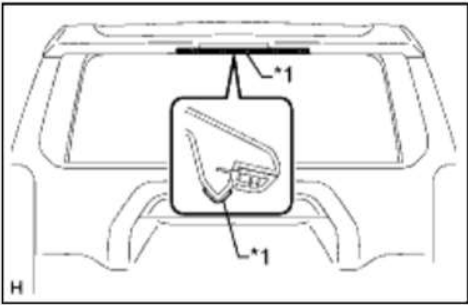
ILLUSTRATION



Last Modified: 5-10-2010	6.4 A	From: 200908
Model Year: 2010	Model: 4Runner	Doc ID: RM000003FYB00GX
Title: WIPER / WASHER: REAR WIPER RUBBER: REPLACEMENT (2010 4Runner)		

REPLACEMENT

1. REMOVE REAR WIPER BLADE



(a) Apply protective tape to the areas shown in the illustration.

Text in Illustration

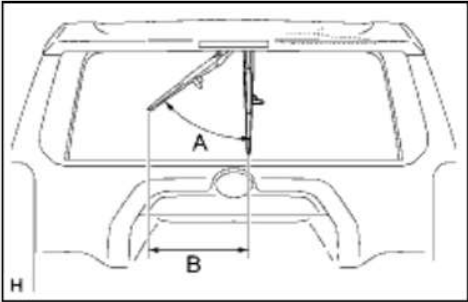
*1	Protective Tape
----	-----------------

- (b) Turn the ignition switch to ON.
- (c) Turn the rear wiper switch on.

HINT:

The wiper motor does not operate if the back door and back door glass are not closed.

- (d) Turn the ignition switch off when the wiper arm stops at the position shown in the illustration.
- Standard Clearance:



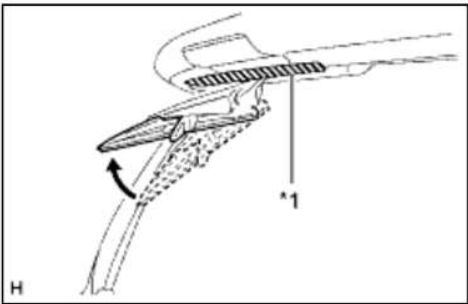
AREA	MEASUREMENT
A	Approximately 57°
B	Approximately 353 mm (13.90 in.)

HINT:

It is easier to stop the wiper blade at the position indicated in the illustration while the wiper blade is returning to the original position.

- (e) Raise the rear wiper arm.

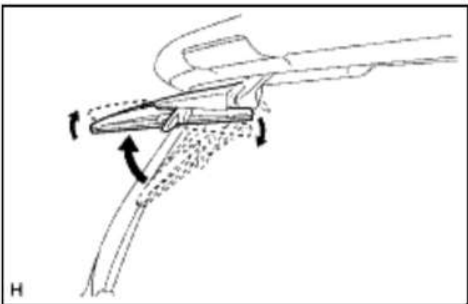
Text in Illustration



* 1	Protective Tape
-----	-----------------

NOTICE:

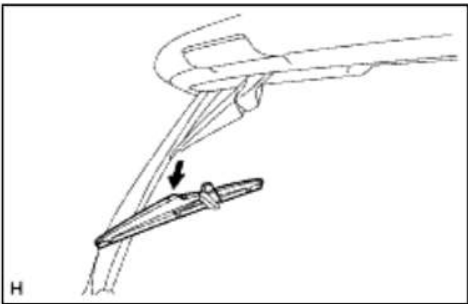
- Make sure that the wiper arm does not interfere with the rear spoiler.
- If the wiper arm does interfere with the rear spoiler, operate the ignition switch again to stop the wiper arm in a near-vertical position.



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

NOTICE:

Be careful not to damage the claw.



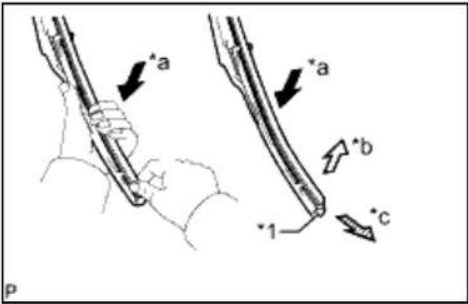
(g) Pull the wiper blade straight toward the left side of the vehicle to remove it from the wiper arm.

NOTICE:

Do not lower the wiper arm with the wiper blade removed. The arm tip may damage the back door glass surface.

2. REMOVE REAR WIPER RUBBER

(a) Lift and pull the end of the wiper rubber protrusion from the blade stopper as shown in the illustration.



Text in Illustration

* 1	Stopper (Rear End of Blade)
* a	Lightly Push (Grip)

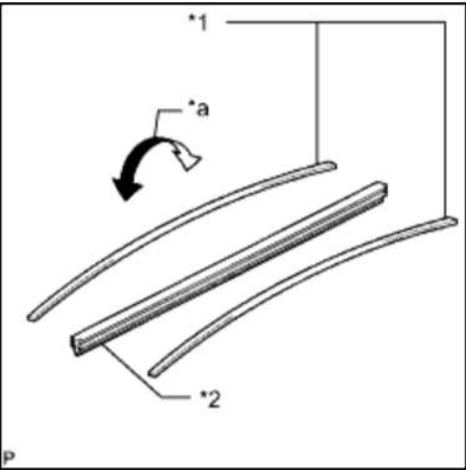
*b	Lift
*c	Pull

NOTICE:
Do not forcibly pull out the wiper rubber. The backing plates will be deformed or the blade claws will be damaged.

HINT:
Lightly pushing the rubber in the middle allows it to be removed more easily.

(b) Remove the rear wiper rubber backing plates.

3. INSTALL REAR WIPER RUBBER



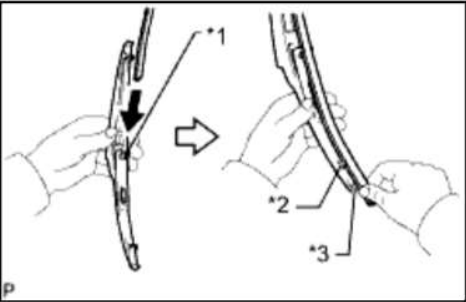
(a) Install the rear wiper rubber backing plates as shown in the illustration.

Text in Illustration

*1	Rear Wiper Rubber Backing Plate
*2	Rear Wiper Rubber
*3	Curve

NOTICE:
Install the backing plates so they are facing the correct direction.

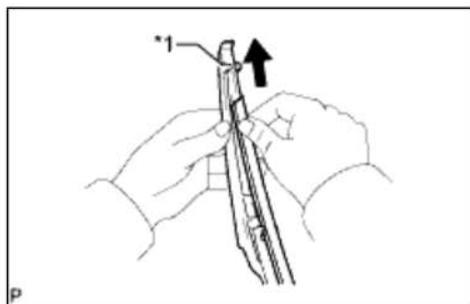
(b) Insert the wiper rubber into the front end of the wiper blade and slide it towards the rear end through the second claw.



(c) After pushing the wiper rubber through the rear end claw, allow it to protrude past the rear end stopper.

Text in Illustration

*1	Second Claw
*2	Rear End Claw
*3	Rear End Stopper

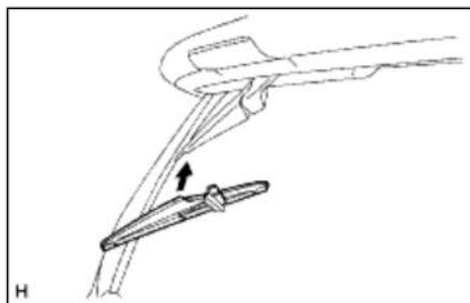


(d) Slide the wiper rubber through the front end claw.

Text in Illustration

*1	Front End Claw
----	----------------

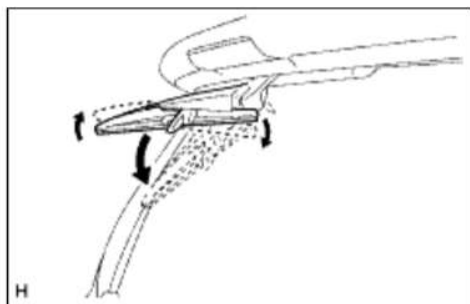
4. INSTALL REAR WIPER BLADE



(a) Push the wiper blade straight toward the right side of the vehicle to install it to the wiper arm.

NOTICE:

Make sure that the wiper arm does not interfere with the rear spoiler.



(b) Attach the claw to install the rear wiper blade as shown in the illustration.

NOTICE:

Be careful not to damage the claw.

Last Modified: 5-10-2010	6.4 G	From: 200908
Model Year: 2010	Model: 4Runner	Doc ID: RM00000480T000X
Title: WIPER / WASHER: RELAY: ON-VEHICLE INSPECTION (2010 4Runner)		

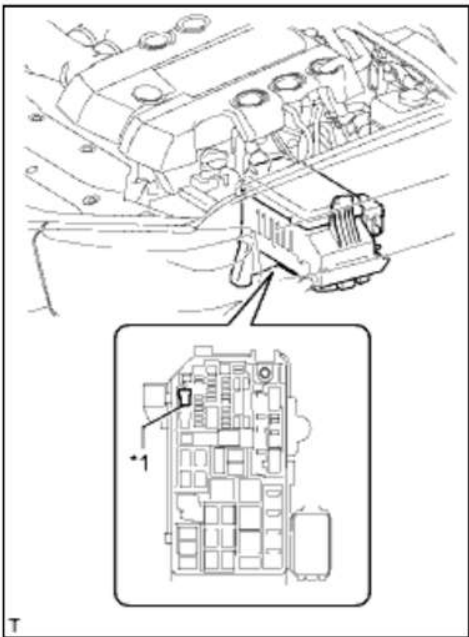
ON-VEHICLE INSPECTION

1. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected INFO.

2. REMOVE WINDSHIELD WASHER RELAY



(a) Remove the windshield washer relay from the engine room relay box.

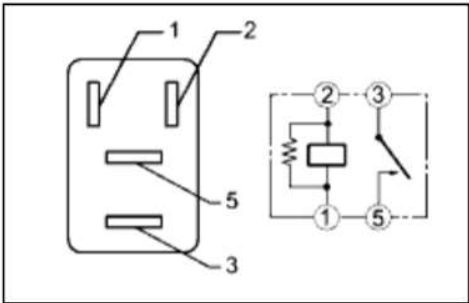
Text in Illustration

* 1	Windshield Wiper Relay
-----	------------------------

3. INSPECT WINDSHIELD WASHER RELAY

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

Standard Resistance:



TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
3 - 5	Battery voltage not applied to terminals 1 and 2	10 kΩ or higher

	Battery voltage applied to terminals 1 and 2	Below 1 Ω
--	--	------------------

If the result is not as specified, replace the windshield washer relay.

4. INSTALL WINDSHIELD WASHER RELAY

(a) Install the windshield washer relay to the engine room relay box.

5. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

NOTICE:

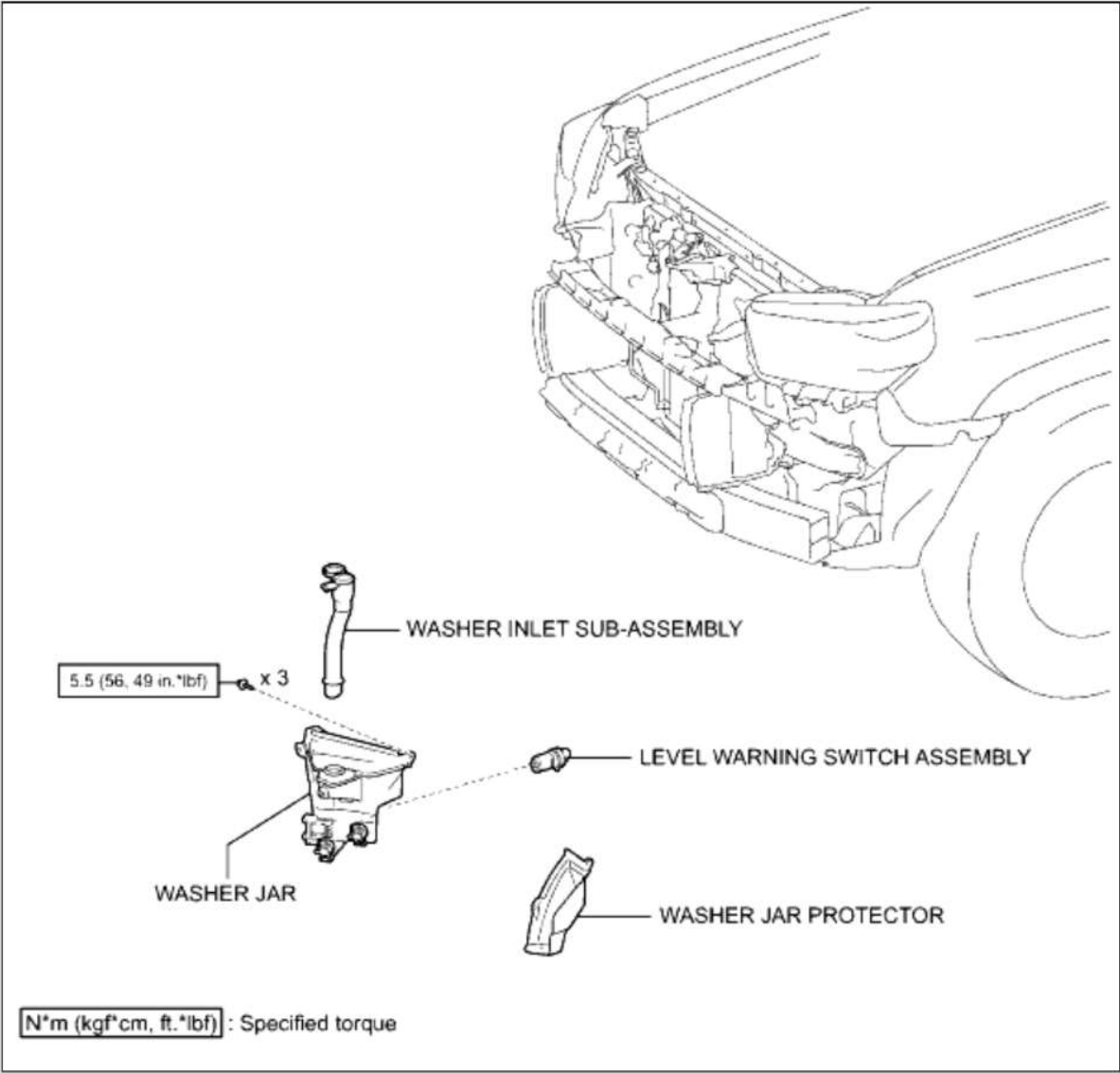
When disconnecting the cable, some systems need to be initialized after the cable is reconnected



Last Modified: 5-10-2010	6.4 K	From: 200908
Model Year: 2010	Model: 4Runner	Doc ID: RM00000481D000X
Title: WIPER / WASHER: WASHER LEVEL WARNING SWITCH: COMPONENTS (2010 4Runner)		

COMPONENTS

ILLUSTRATION



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Last Modified: 5-10-2010	6.4 A	From: 200908
Model Year: 2010	Model: 4Runner	Doc ID: RM000002XK5013X
Title: WIPER / WASHER: WASHER LEVEL WARNING SWITCH: REMOVAL (2010 4Runner)		

REMOVAL

1. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected

INFO

2. REMOVE FRONT BUMPER COVER

(a) except X-Runner:

Remove the front bumper cover

INFO

(b) for X-Runner:

Remove the front bumper cover

INFO

3. REMOVE FRONT FENDER LINER RH

(a) Remove the front fender liner

INFO

4. DRAIN WASHER FLUID

INFO

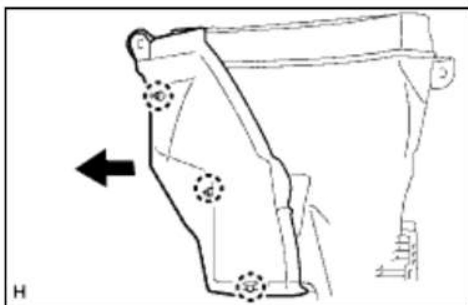
5. REMOVE WASHER INLET SUB-ASSEMBLY

INFO

6. REMOVE WASHER JAR

INFO

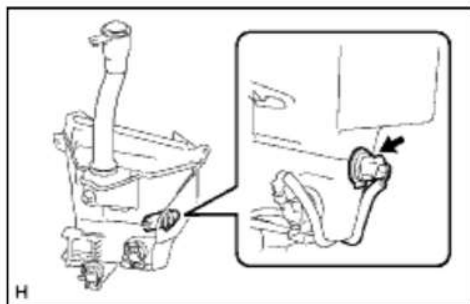
7. REMOVE WASHER JAR PROTECTOR



(a) Detach the 3 claws and remove the washer jar protector.

8. REMOVE LEVEL WARNING SWITCH ASSEMBLY

(a) Disconnect the connector.



(b) Remove the level warning switch assembly from the packing of the washer jar.



Last Modified: 5-10-2010	6.4 G	From: 200908
Model Year: 2010	Model: 4Runner	Doc ID: RM000001P2X018X
Title: WIPER / WASHER: WASHER LEVEL WARNING SWITCH: INSPECTION (2010 4Runner)		

INSPECTION

1. INSPECT LEVEL WARNING SWITCH ASSEMBLY

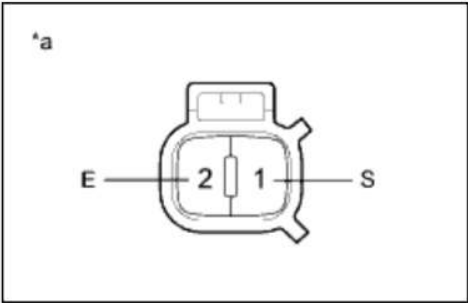
HINT:

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

- (a) Fill the washer jar with washer fluid.
- (b) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
1 (S) - 2 (E)	Fluid volume is more than 830 cc (50.6 cu.in.)	10 kΩ or higher
1 (S) - 2 (E)	Fluid volume is less than 630 cc (38.4 cu.in.)	Below 1 Ω



HINT:

When the fluid volume is between 630 and 830 cc (38.4 cu.in. and 50.6 cu.in.), the level warning switch may be on or off.

Text in Illustration

*a	Component without harness connected (Level Warning Switch Assembly)
----	--

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

Last Modified: 5-10-2010	6.4 A	From: 200908
Model Year: 2010	Model: 4Runner	Doc ID: RM000002XK2013X
Title: WIPER / WASHER: WASHER LEVEL WARNING SWITCH: INSTALLATION (2010 4Runner)		

INSTALLATION

1. INSTALL LEVEL WARNING SWITCH ASSEMBLY

(a) Install the level warning switch assembly to the packing of the washer jar.

2. INSTALL WASHER JAR



3. INSTALL WASHER INLET SUB-ASSEMBLY



4. FILL WASHER JAR WITH WASHER FLUID



5. INSTALL FRONT FENDER LINER RH

(a) Install the fender liner



6. INSTALL FRONT BUMPER COVER

(a) except X-Runner:

Install the front bumper cover



(b) for X-Runner:

Install the front bumper cover



7. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected



8. ADJUST FOG LIGHT AIMING

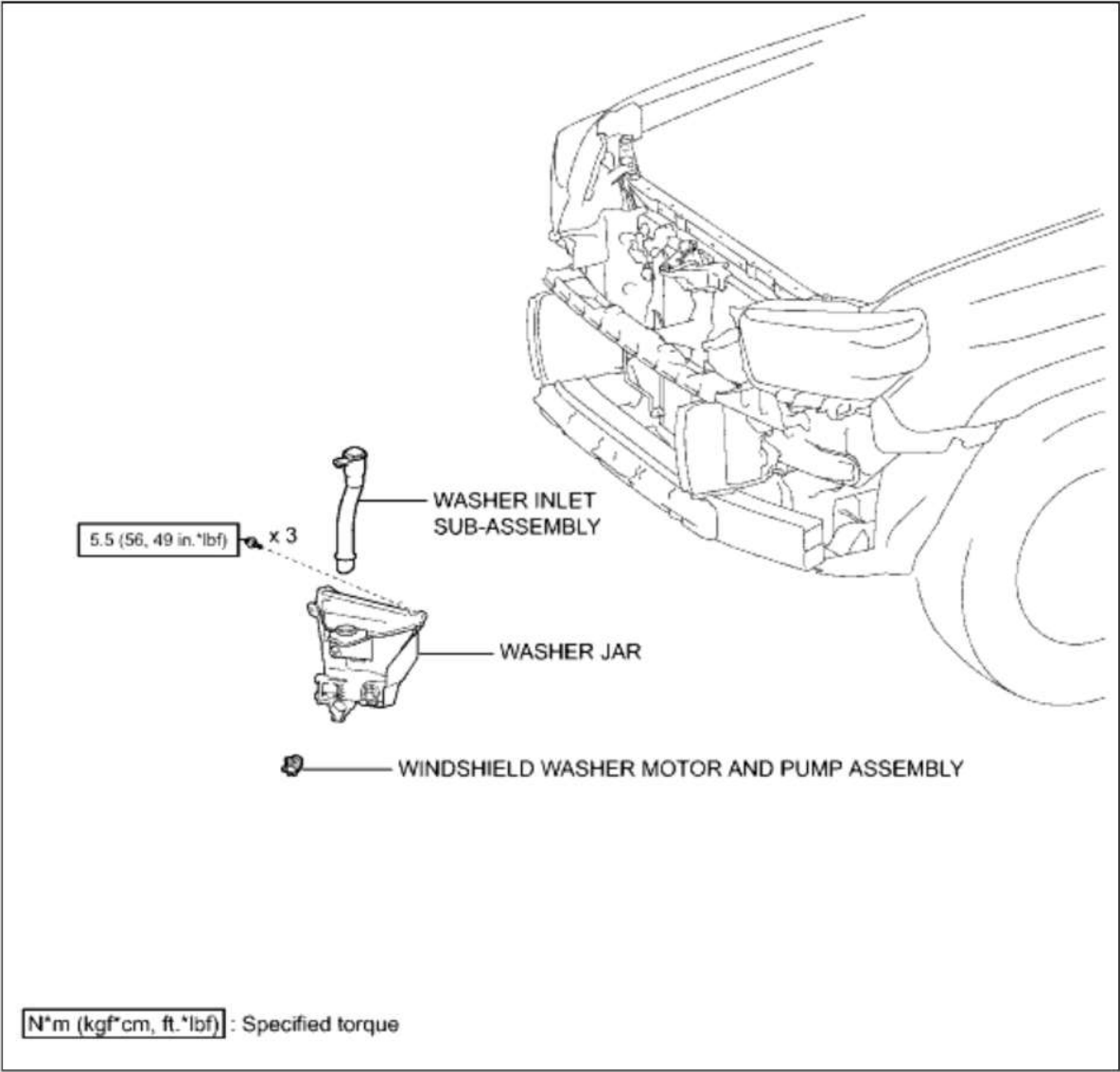
(a) Adjust the fog light aiming



Last Modified: 5-10-2010	6.4 K	From: 200908
Model Year: 2010	Model: 4Runner	Doc ID: RM00000480S000X
Title: WIPER / WASHER: WASHER MOTOR (for Front Side): COMPONENTS (2010 4Runner)		

COMPONENTS

ILLUSTRATION



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Last Modified: 5-10-2010	6.4 A	From: 200908
Model Year: 2010	Model: 4Runner	Doc ID: RM000002XK5011X
Title: WIPER / WASHER: WASHER MOTOR (for Front Side): REMOVAL (2010 4Runner)		

REMOVAL

1. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected

INFO

2. REMOVE FRONT BUMPER COVER

(a) except X-Runner:

Remove the front bumper cover

INFO

(b) for X-Runner:

Remove the front bumper cover

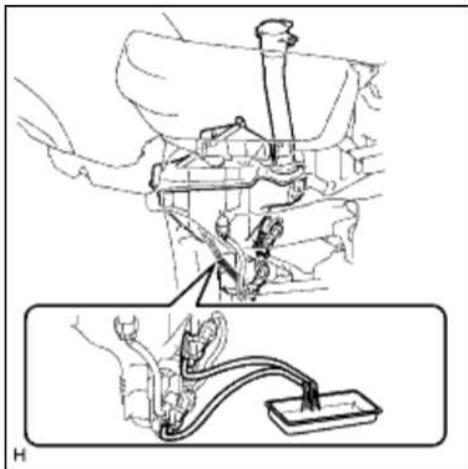
INFO

3. REMOVE FRONT FENDER LINER RH

(a) Remove the front fender liner

INFO

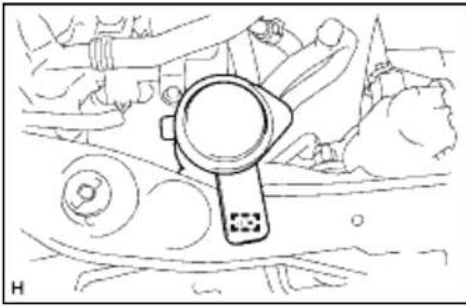
4. DRAIN WASHER FLUID



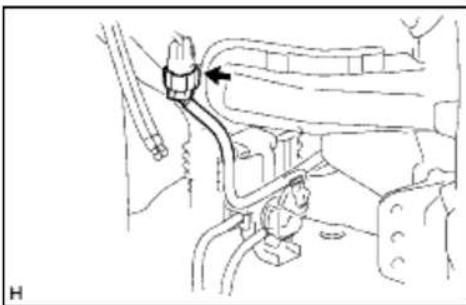
(a) Disconnect the washer hose from the hose of the windshield washer motor and pump assembly and drain the washer fluid.

5. REMOVE WASHER INLET SUB-ASSEMBLY

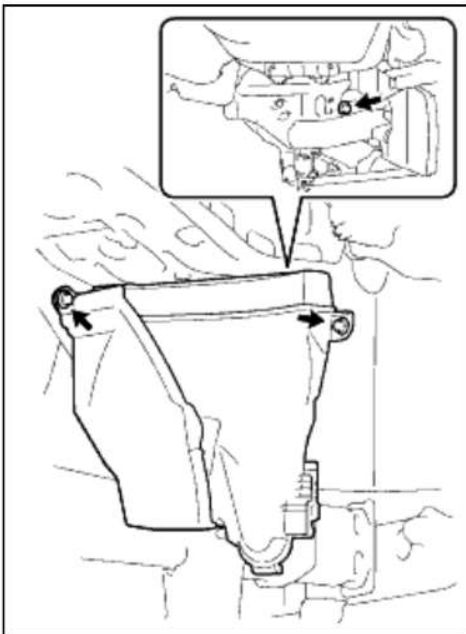
(a) Detach the clip and remove the washer inlet sub-assembly.



6. REMOVE WASHER JAR

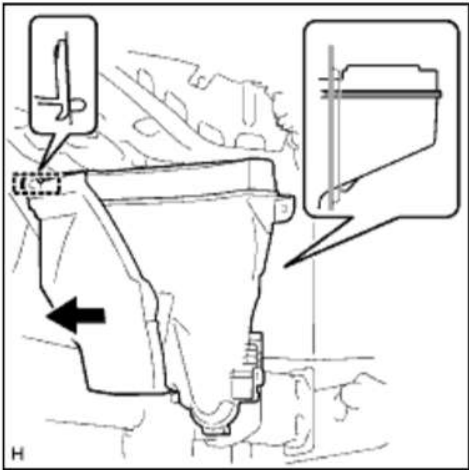


(a) Disconnect the connector.

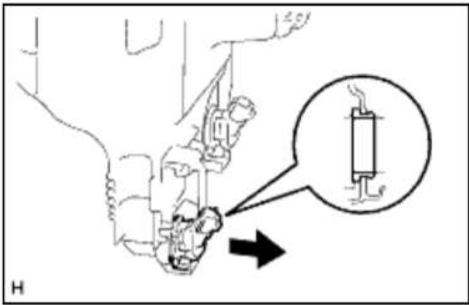


(b) Remove the 3 screws.

(c) Detach the guide and remove the washer jar.



7. REMOVE WINDSHIELD WASHER MOTOR AND PUMP ASSEMBLY



(a) Remove the washer motor and pump from the packing of the washer jar.

Last Modified: 5-10-2010	6.4 G	From: 200908
Model Year: 2010	Model: 4Runner	Doc ID: RM000002XK301LX
Title: WIPER / WASHER: WASHER MOTOR (for Front Side): INSPECTION (2010 4Runner)		

INSPECTION

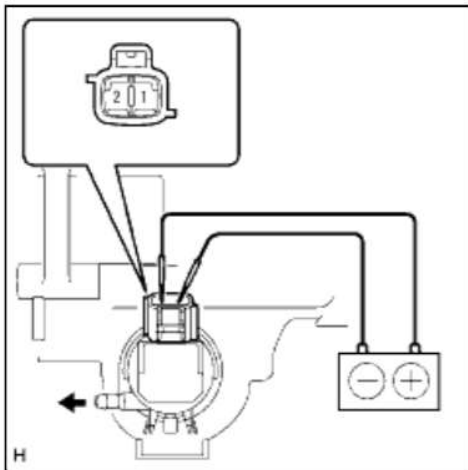
1. INSPECT WINDSHIELD WASHER MOTOR AND PUMP ASSEMBLY

- (a) Remove the washer jar.
- (b) Disconnect the windshield washer motor and pump connector.

HINT:

Make sure that the windshield washer motor and pump is installed to the washer jar.

- (c) Fill the washer jar with washer fluid.



- (d) Connect the positive (+) lead of the battery to terminal 1 of the windshield washer motor and pump and the negative (-) lead to terminal 2.

- (e) Check that washer fluid flows from the washer jar.

OK:

Washer fluid flows from the washer jar.

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



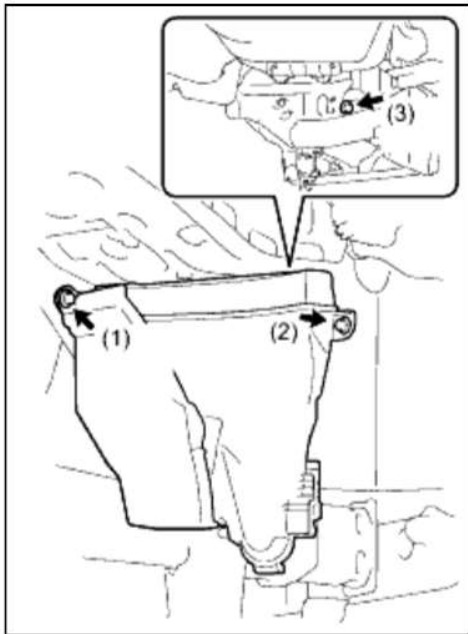
Last Modified: 5-10-2010	6.4 A	From: 200908
Model Year: 2010	Model: 4Runner	Doc ID: RM000002XK2011X
Title: WIPER / WASHER: WASHER MOTOR (for Front Side): INSTALLATION (2010 4Runner)		

INSTALLATION

1. INSTALL WINDSHIELD WASHER MOTOR AND PUMP ASSEMBLY

- (a) Install the windshield washer motor and pump to the packing of the washer jar.

2. INSTALL WASHER JAR



- (a) Attach the guide to install the washer jar, and then install the 3 screws.

HINT:

Tighten the screws in the order shown in the illustration.

Torque: 5.5 N·m (56 kgf·cm, 49in·lbf)

3. INSTALL WASHER INLET SUB-ASSEMBLY

- (a) Install the clip to the washer inlet sub-assembly.

4. FILL WASHER FLUID

- (a) Connect the washer hose to the hose of the windshield washer motor and pump assembly and fill the washer jar with washer fluid.

5. INSTALL FRONT FENDER LINER RH

- (a) Install the fender liner .

6. INSTALL FRONT BUMPER COVER

- (a) except X-Runner:

Install the front bumper cover .

- (b) for X-Runner:

Install the front bumper cover .

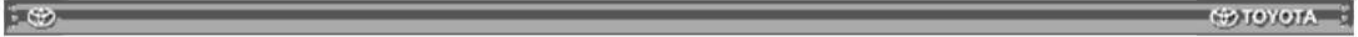
7. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected .

8. ADJUST FOG LIGHT AIMING

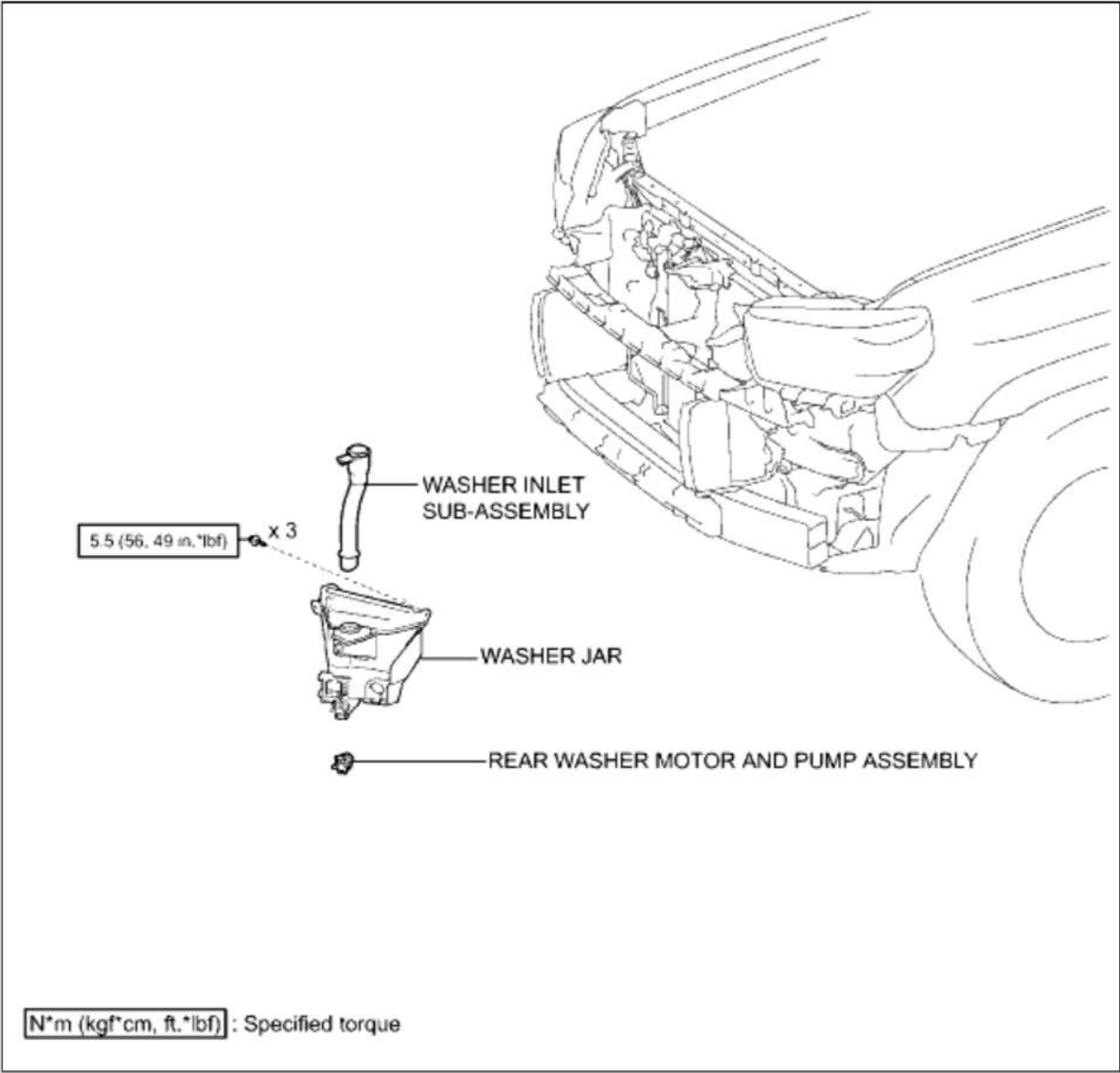
(a) Adjust the fog light aiming .



Last Modified: 5-10-2010	6.4 K	From: 200908
Model Year: 2010	Model: 4Runner	Doc ID: RM000004816000X
Title: WIPER / WASHER: WASHER MOTOR (for Rear Side): COMPONENTS (2010 4Runner)		

COMPONENTS

ILLUSTRATION



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Last Modified: 5-10-2010	6.4 A	From: 200908
Model Year: 2010	Model: 4Runner	Doc ID: RM000002XK5012X
Title: WIPER / WASHER: WASHER MOTOR (for Rear Side): REMOVAL (2010 4Runner)		

REMOVAL

1. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected

INFO

2. REMOVE FRONT BUMPER COVER

(a) except X-Runner:

Remove the front bumper cover

INFO

(b) for X-Runner:

Remove the front bumper cover

INFO

3. REMOVE FRONT FENDER LINER RH

(a) Remove the front fender liner

INFO

4. DRAIN WASHER FLUID

INFO

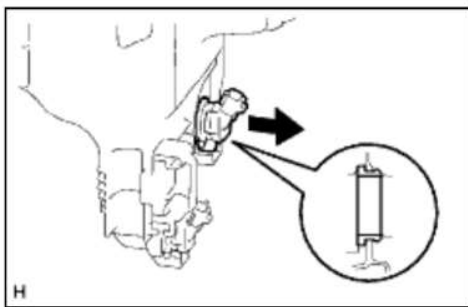
5. REMOVE WASHER INLET SUB-ASSEMBLY

INFO

6. REMOVE WASHER JAR

INFO

7. REMOVE REAR WASHER MOTOR AND PUMP ASSEMBLY



(a) Remove the rear washer motor and pump from the packing of the washer jar.

Last Modified: 5-10-2010	6.4 G	From: 200908
Model Year: 2010	Model: 4Runner	Doc ID: RM000002XK301MX
Title: WIPER / WASHER: WASHER MOTOR (for Rear Side): INSPECTION (2010 4Runner)		

INSPECTION

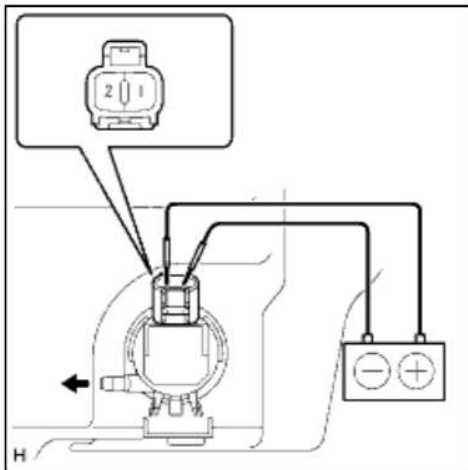
1. INSPECT REAR WASHER MOTOR AND PUMP ASSEMBLY

- (a) Remove the washer jar.
- (b) Disconnect the rear washer motor and pump connector.

HINT:

Make sure that the rear washer motor and pump is installed to the washer jar.

- (c) Fill the washer jar with washer fluid.



- (d) Connect the positive (+) lead of the battery to terminal 1 of the rear washer motor and pump and the negative (-) lead to terminal 2.

- (e) Check that washer fluid flows from the washer jar.

OK:

Washer fluid flows from the washer jar.

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



Last Modified: 5-10-2010	6.4 A	From: 200908
Model Year: 2010	Model: 4Runner	Doc ID: RM000002XK2012X
Title: WIPER / WASHER: WASHER MOTOR (for Rear Side): INSTALLATION (2010 4Runner)		

INSTALLATION

1. INSTALL REAR WASHER MOTOR AND PUMP ASSEMBLY

- (a) Install the rear washer motor and pump to the packing of the washer jar.

2. INSTALL WASHER JAR

3. INSTALL WASHER INLET SUB-ASSEMBLY

4. FILL WASHER FLUID

5. INSTALL FRONT FENDER LINER RH

- (a) Install the fender liner .

6. INSTALL FRONT BUMPER COVER

- (a) except X-Runner:

Install the front bumper cover .

- (b) for X-Runner:

Install the front bumper cover .

7. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected .

8. ADJUST FOG LIGHT AIMING

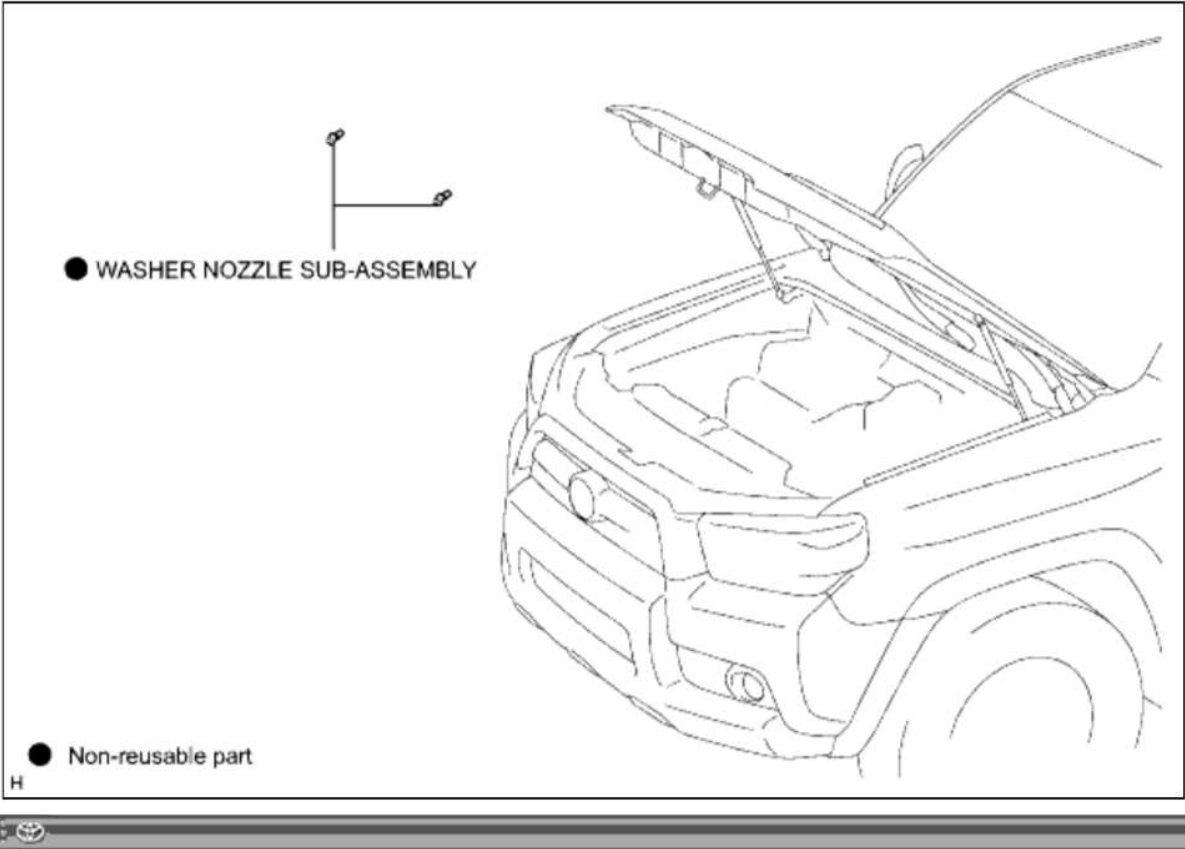
- (a) Adjust the fog light aiming .



Last Modified: 5-10-2010	6.4 K	From: 200908
Model Year: 2010	Model: 4Runner	Doc ID: RM000003EWI00GX
Title: WIPER / WASHER: WASHER NOZZLE (for Front Side): COMPONENTS (2010 4Runner)		

COMPONENTS

ILLUSTRATION



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Last Modified: 5-10-2010	6.4 G	From: 200908
Model Year: 2010	Model: 4Runner	Doc ID: RM000001OUR00PX
Title: WIPER / WASHER: WASHER NOZZLE (for Front Side): ON-VEHICLE INSPECTION (2010 4Runner)		

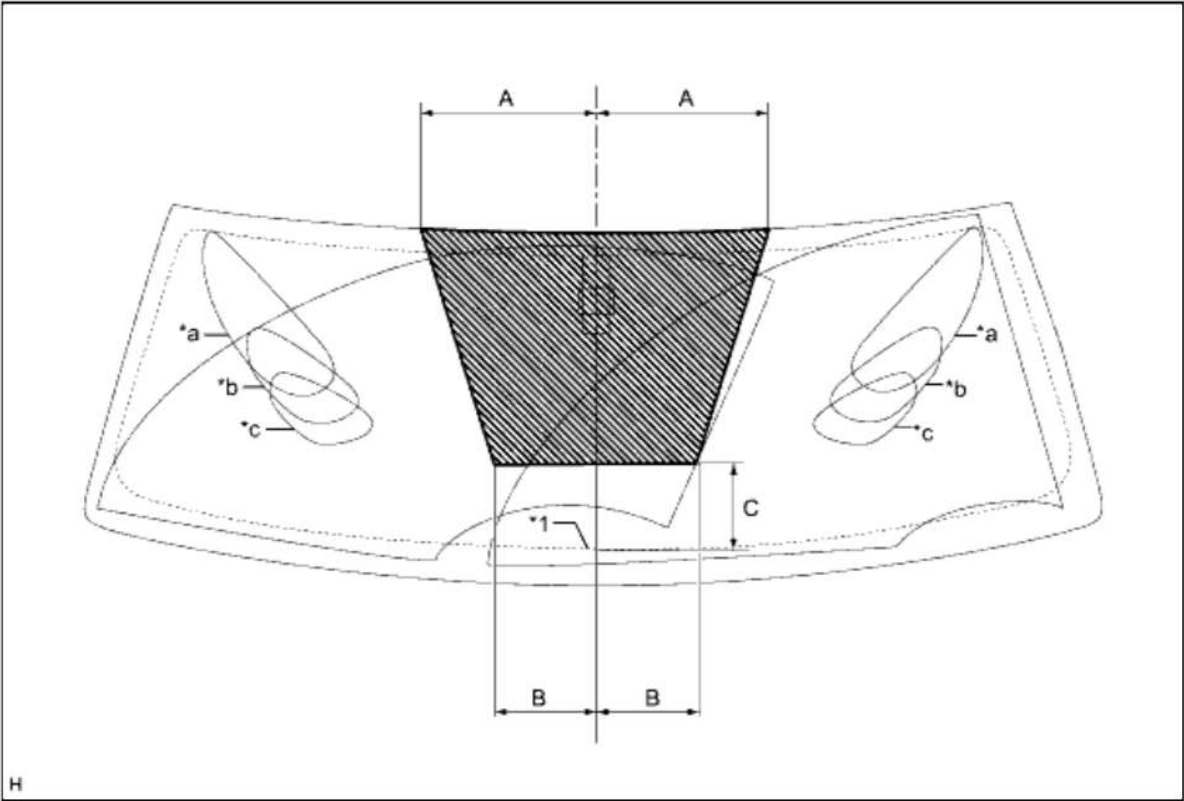
ON-VEHICLE INSPECTION

1. INSPECT WASHER NOZZLE SUB-ASSEMBLY

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

Standard:

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



Text in Illustration

* 1	Ceramic Line	-	-
* a	Upper Limit	* b	Standard
* c	Lower Limit	-	-
	Washer Fluid Spray Area	-	-

Standard:

AREA	MEASUREMENT	AREA	MEASUREMENT
A	254.5 mm (10.0 in.)	B	150 mm (5.91 in.)
C	127.6 mm (5.02 in.)	-	-

If the result is not as specified, replace the malfunctioning washer nozzle sub-assembly.

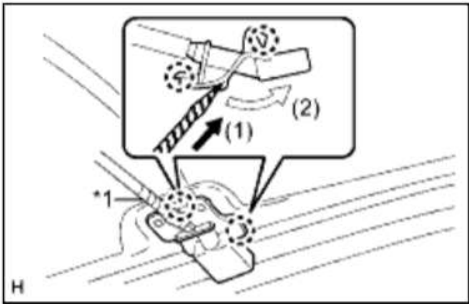


Last Modified: 5-10-2010	6.4 A	From: 200908
Model Year: 2010	Model: 4Runner	Doc ID: RM000003EWJ00GX
Title: WIPER / WASHER: WASHER NOZZLE (for Front Side): REMOVAL (2010 4Runner)		

REMOVAL

1. REMOVE WASHER NOZZLE SUB-ASSEMBLY

(a) Using a screwdriver, detach the 2 claws and disconnect the washer nozzle sub-assembly as shown in the illustration.

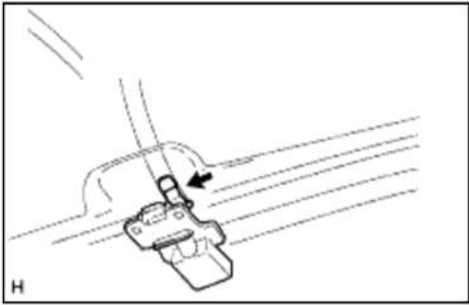


HINT:
Tape the screwdriver tip before use.

Text in Illustration

* 1	Protective Tape
-----	-----------------

NOTICE:
Be careful not to damage the windshield.



(b) Remove the washer nozzle sub-assembly from the washer hose.

NOTICE:
Washer nozzles cannot be reused.

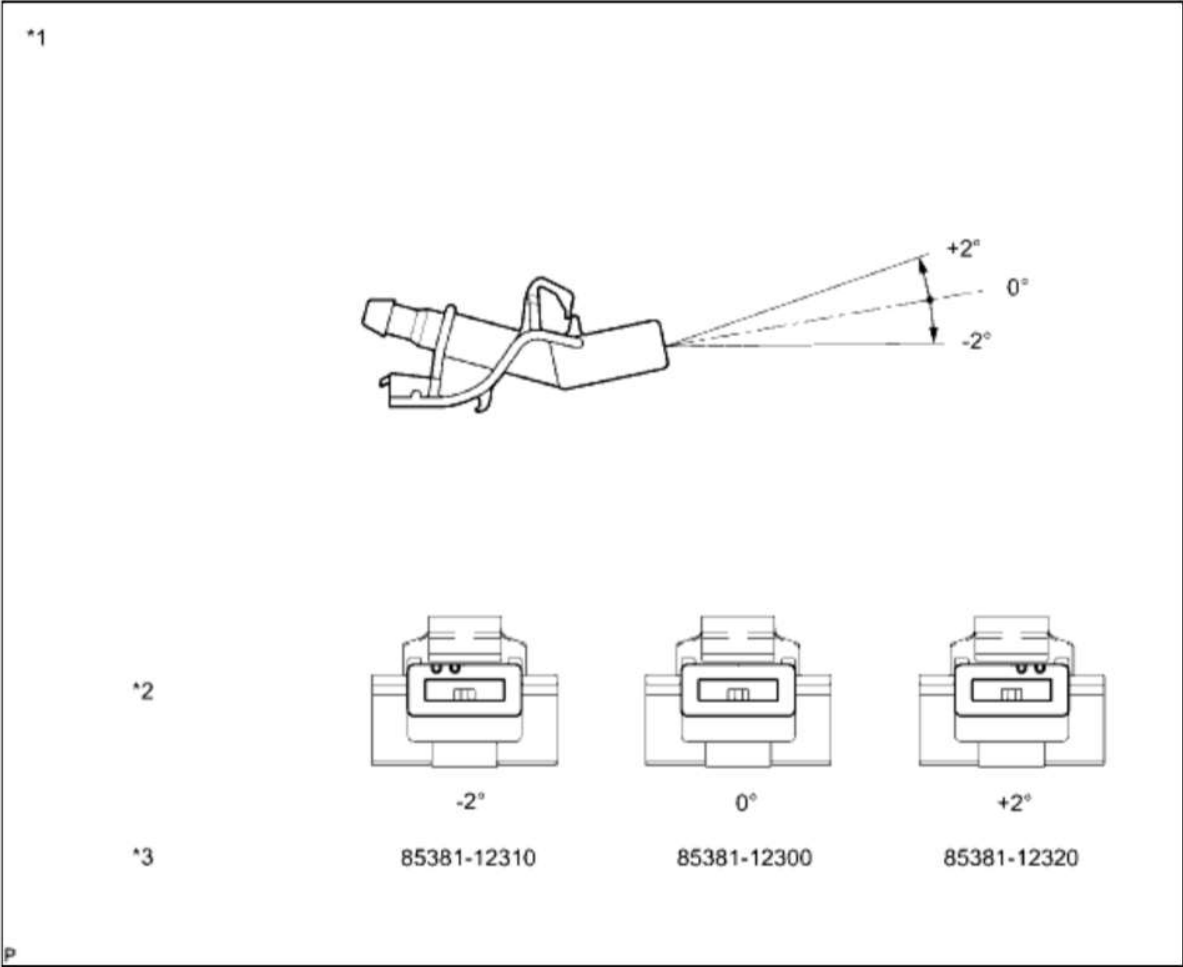
Last Modified: 5-10-2010	6.4 N	From: 200908
Model Year: 2010	Model: 4Runner	Doc ID: RM000001OUQ00PX
Title: WIPER / WASHER: WASHER NOZZLE (for Front Side): ADJUSTMENT (2010 4Runner)		

ADJUSTMENT

1. REMOVE WASHER NOZZLE SUB-ASSEMBLY INFO

2. ADJUST WASHER NOZZLE SUB-ASSEMBLY

- (a) Select a washer nozzle so that the washer fluid spray area is as specified in On-vehicle Inspection. Replace the washer nozzle with the selected one.



Text in Illustration

* 1	Available Washer Nozzles	* 2	Washer Fluid Spray Angle
* 3	Part Number	-	-

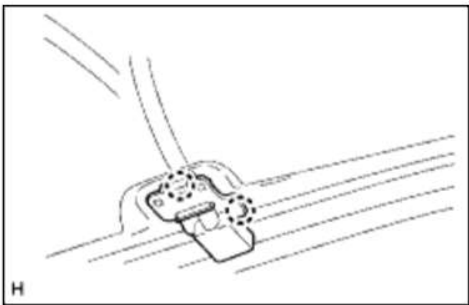
3. INSTALL WASHER NOZZLE SUB-ASSEMBLY INFO

Last Modified: 5-10-2010	6.4 A	From: 200908
Model Year: 2010	Model: 4Runner	Doc ID: RM000003EWH00GX
Title: WIPER / WASHER: WASHER NOZZLE (for Front Side): INSTALLATION (2010 4Runner)		

INSTALLATION

1. INSTALL WASHER NOZZLE SUB-ASSEMBLY

- (a) Connect a new washer nozzle sub-assembly to the washer hose.



- (b) Attach the 2 claws to install the washer nozzle sub-assembly.

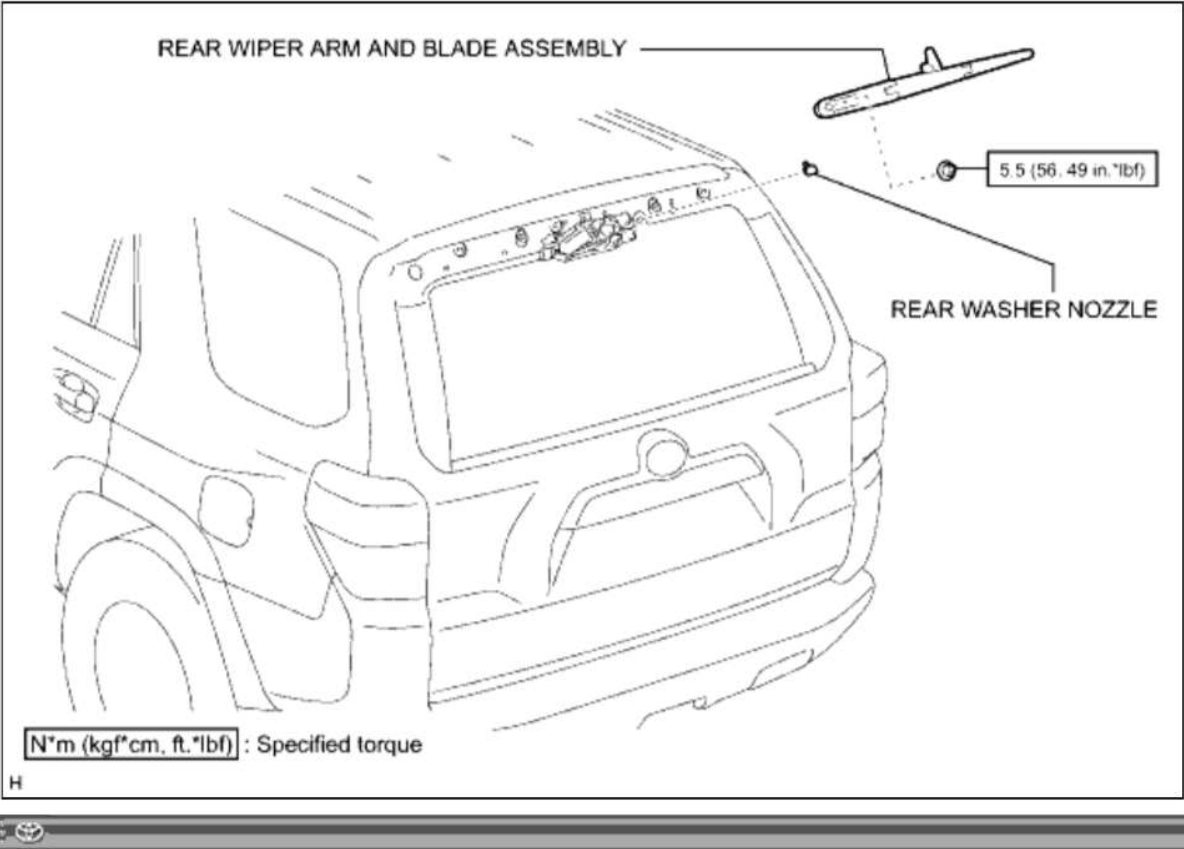
2. INSPECT WASHER NOZZLE SUB-ASSEMBLY

3. ADJUST WASHER NOZZLE SUB-ASSEMBLY

Last Modified: 5-10-2010	6.4 K	From: 200908
Model Year: 2010	Model: 4Runner	Doc ID: RM0000021WL00QX
Title: WIPER / WASHER: WASHER NOZZLE (for Rear Side): COMPONENTS (2010 4Runner)		

COMPONENTS

ILLUSTRATION



Last Modified: 5-10-2010	6.4 G	From: 200908
Model Year: 2010	Model: 4Runner	Doc ID: RM000002M6I01FX
Title: WIPER / WASHER: WASHER NOZZLE (for Rear Side): ON-VEHICLE INSPECTION (2010 4Runner)		

ON-VEHICLE INSPECTION

HINT:

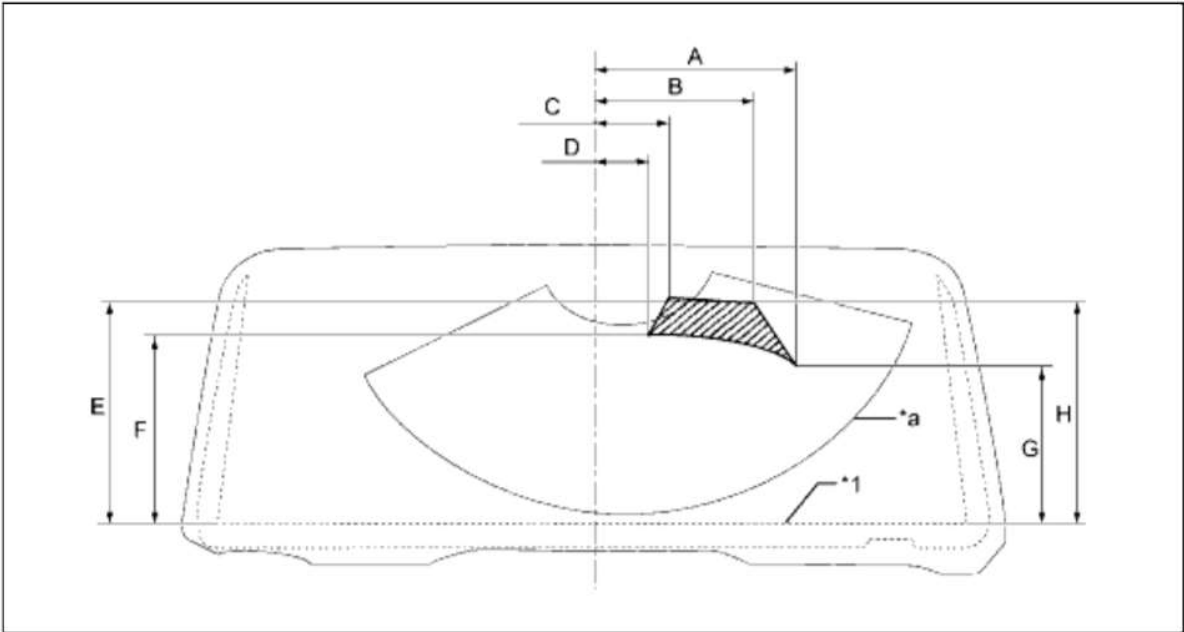
The washer fluid does not spray if the back door and back door glass are not closed.

1. INSPECT REAR WASHER NOZZLE

- (a) With the engine running, check that the center stream of washer fluid sprays on the windshield within the hatched area shown in the illustration.

Standard:

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



Text in Illustration

* 1	Ceramic Line	-	-
* a	Wiping Pattern	-	-
	Washer Fluid Spray Area	-	-

Standard:

AREA	MEASUREMENT	AREA	MEASUREMENT
------	-------------	------	-------------

AREA	MEASUREMENT	AREA	MEASUREMENT
A	300.8 mm (11.8 in.)	B	235.1 mm (9.26 in.)
C	110.8 mm (4.36 in.)	D	81 mm (3.19 in.)
E	328.8 mm (12.9 in.)	F	278.2 mm (10.9 in.)
G	230.7 mm (9.08 in.)	H	322.7 mm (12.7 in.)

If the result is not as specified, replace the malfunctioning rear washer nozzle.



Last Modified: 5-10-2010	6.4 A	From: 200908
Model Year: 2010	Model: 4Runner	Doc ID: RM0000021WM00NX
Title: WIPER / WASHER: WASHER NOZZLE (for Rear Side): REMOVAL (2010 4Runner)		

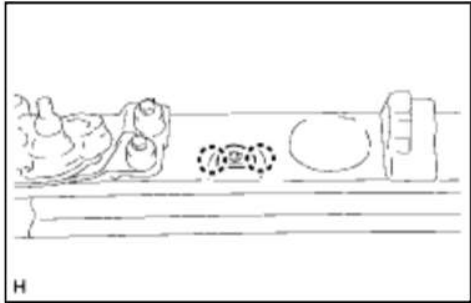
REMOVAL

1. REMOVE REAR SPOILER SUB-ASSEMBLY

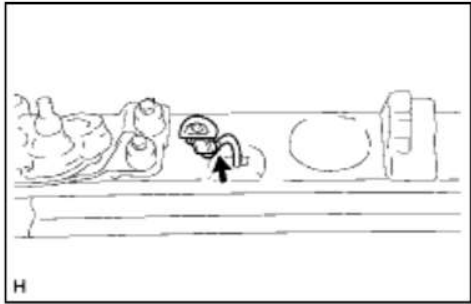
(a) Remove the rear spoiler sub-assembly .

2. REMOVE REAR WIPER ARM AND BLADE ASSEMBLY

3. REMOVE REAR WASHER NOZZLE



(a) Detach the 2 claws.

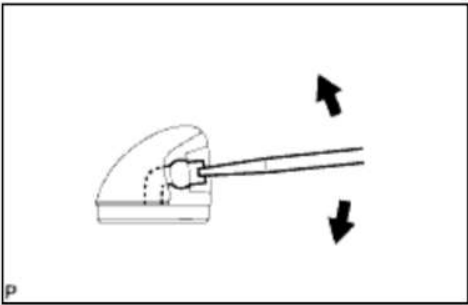


(b) Disconnect the washer hose and remove the rear washer nozzle.

Last Modified: 5-10-2010	6.4 N	From: 200908
Model Year: 2010	Model: 4Runner	Doc ID: RM000003WRK008X
Title: WIPER / WASHER: WASHER NOZZLE (for Rear Side): ADJUSTMENT (2010 4Runner)		

ADJUSTMENT

1. ADJUST REAR WASHER NOZZLE



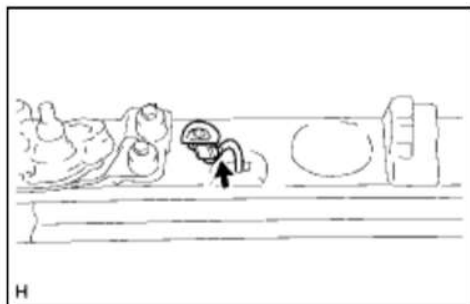
(a) Using a screwdriver, adjust the direction of the rear washer nozzle.

- HINT:**
Use a thin-bladed screwdriver with a tip approximately 1 mm (0.0394 in.) thick.
- NOTICE:**
Do not use a safety pin or other pointed tools. Doing so may damage the inside of the washer nozzle.

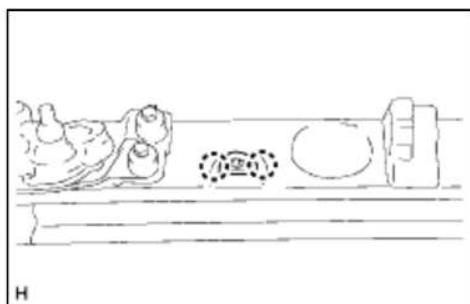
Last Modified: 5-10-2010	6.4 A	From: 200908
Model Year: 2010	Model: 4Runner	Doc ID: RM0000021WK00NX
Title: WIPER / WASHER: WASHER NOZZLE (for Rear Side): INSTALLATION (2010 4Runner)		

INSTALLATION

1. INSTALL REAR WASHER NOZZLE



(a) Connect the washer hose.



(b) Attach the 2 claws to install the rear washer nozzle.

2. INSPECT REAR WASHER NOZZLE

[INFO](#)

3. ADJUST REAR WASHER NOZZLE

[INFO](#)

4. INSTALL REAR WIPER ARM AND BLADE ASSEMBLY

[INFO](#)

5. INSTALL REAR SPOILER SUB-ASSEMBLY

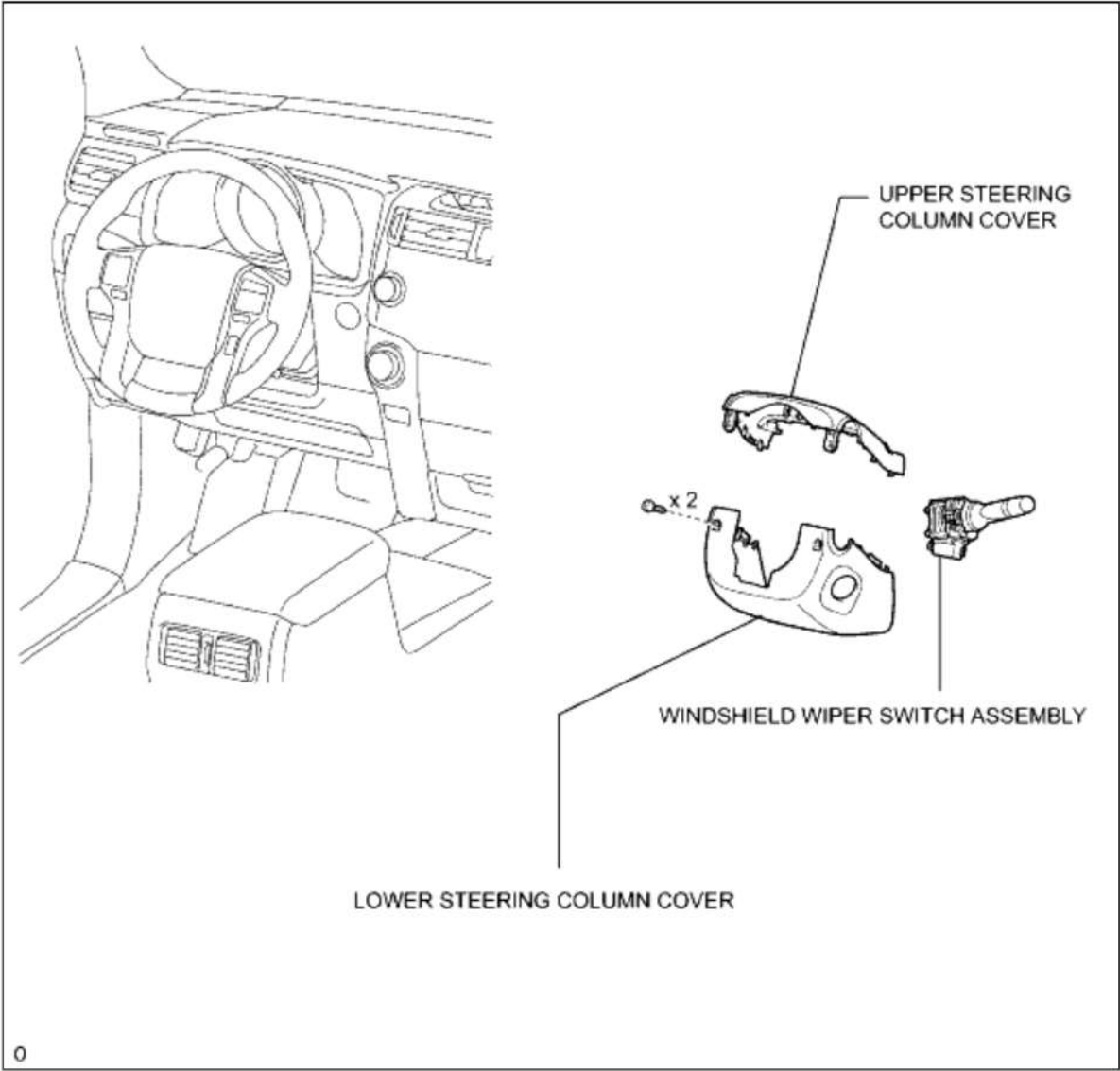
(a) Install the rear spoiler sub-assembly [INFO](#) .



Last Modified: 5-10-2010	6.4 K	From: 200908
Model Year: 2010	Model: 4Runner	Doc ID: RM0000044IY003X
Title: WIPER / WASHER: WIPER SWITCH: COMPONENTS (2010 4Runner)		

COMPONENTS

ILLUSTRATION



Last Modified: 5-10-2010	6.4 G	From: 200908
Model Year: 2010	Model: 4Runner	Doc ID: RM000003X8B008X
Title: WIPER / WASHER: WIPER SWITCH: INSPECTION (2010 4Runner)		

INSPECTION

1. INSPECT WINDSHIELD WIPER SWITCH ASSEMBLY

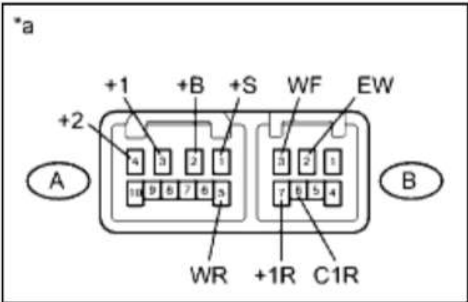
(a) Measure the resistance according to the value(s) in the table below.

- Standard Resistance:
- Front Washer Switch

Rear Wiper Switch

Rear Washer Switch

Front Wiper Switch



TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
A-1 (+S) - A-3 (+1)	Off	Below 1 Ω
	INT	
A-2 (+B) - A-3 (+1)	MIST	
	LO	
A-2 (+B) - A-4 (+2)	HI	

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
B-2 (EW) - B-3 (WF)	On	Below 1 Ω
	Off	10 kΩ or higher

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
B-6 (C1R) - B-2 (EW)	Off	10 kΩ or higher
B-7 (+1R) - B-2 (EW)		
B-6 (C1R) - B-2 (EW)	INT	Below 1 Ω

B-7 (+1R) - B-2 (EW)	HI	Below 1 Ω
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TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
A-5 (WR) - B-2 (EW)	Off	10 kΩ or higher
B-7 (+1R) - B-2 (EW)		
A-5 (WR) - B-2 (EW)	WASH	Below 1 Ω
A-5 (WR) - B-2 (EW)	On + WASH	Below 1 Ω
B-7 (+1R) - B-2 (EW)		

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

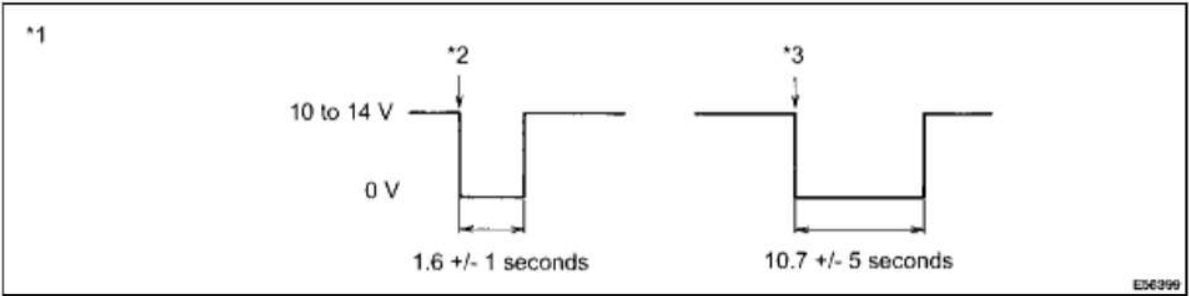
Text in Illustration

*a	Component without harness connected (Windshield Wiper Switch Assembly)
----	---

(b) Check the intermittent operation.

- 1. Connect the positive (+) lead of a voltmeter to terminal A-3 (+1) and the negative (-) lead to terminal B-2 (EW).
- 2. Connect the positive (+) lead of the battery to terminal A-2 (+B) and the negative (-) lead to terminal B-2 (EW) and A-1 (+S).
- 3. Turn the wiper switch to the INT position.
- 4. Connect the positive (+) lead of the battery to terminal A-1 (+S) for 5 seconds.
- 5. Connect the negative (-) lead of the battery to terminal A-1 (+S). Operate the intermittent wiper relay and check the voltage between terminals A-3 (+1) and B-2 (EW).

OK:
Voltage changes as shown in the illustration.



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

Text in Illustration

*1	Voltage between terminals A-3 (+1) and B-2 (EW)	*2	FAST: Negative lead of battery connected to terminal A-1 (+S)
*3	SLOW: Negative lead of battery connected to terminal A-1 (+S)	-	-



Last Modified: 5-10-2010	6.4 A	From: 200908
Model Year: 2010	Model: 4Runner	Doc ID: RM000002ZQ600FX
Title: WIPER / WASHER: WIPER SWITCH: REMOVAL (2010 4Runner)		

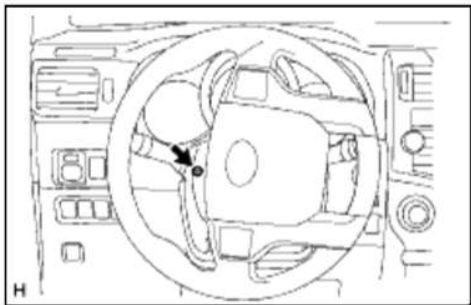
REMOVAL

1. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

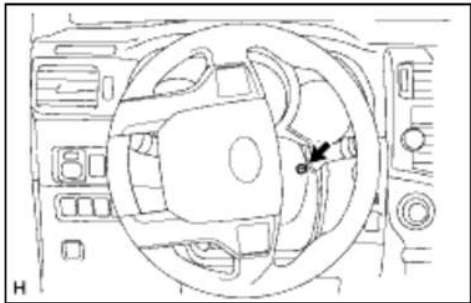
NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected  .

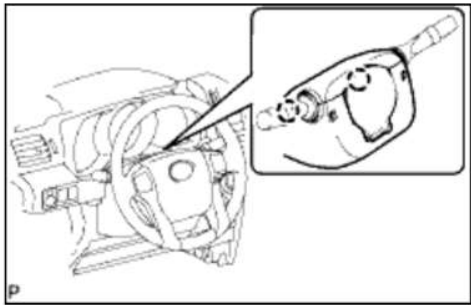
2. REMOVE LOWER STEERING COLUMN COVER



(a) Turn the steering wheel to the left and remove the screw.

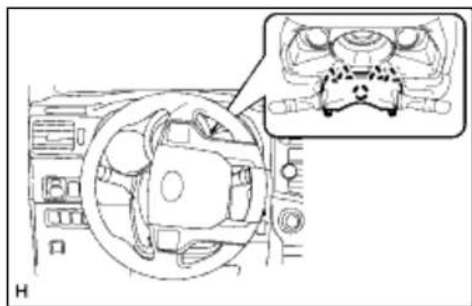


(b) Turn the steering wheel to the right and remove the screw.



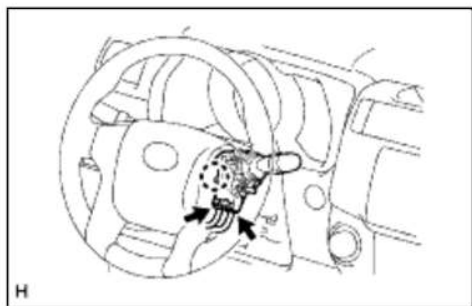
(c) Detach the 2 claws and remove the lower steering column cover.

3. REMOVE UPPER STEERING COLUMN COVER



(a) Detach the 4 clips and claw and remove the steering column cover.

4. REMOVE WINDSHIELD WIPER SWITCH ASSEMBLY



(a) Disconnect the 2 connectors.

(b) Detach the claw and remove the windshield wiper switch assembly.



Last Modified: 5-10-2010	6.4 A	From: 200908
Model Year: 2010	Model: 4Runner	Doc ID: RM000002ZQ300FX
Title: WIPER / WASHER: WIPER SWITCH: INSTALLATION (2010 4Runner)		

INSTALLATION

1. INSTALL WINDSHIELD WIPER SWITCH ASSEMBLY

- (a) Attach the claw to install the windshield wiper switch assembly.
- (b) Connect the 2 connectors.

2. INSTALL UPPER STEERING COLUMN COVER

- (a) Attach the claw to install the upper steering column cover.
- (b) Attach the 4 clips to install the upper steering column cover to the instrument cluster finish panel.

3. INSTALL LOWER STEERING COLUMN COVER

- (a) Attach the 2 claws to install the lower steering column cover.
- (b) Turn the steering wheel to the right and left and install the 2 screws.

4. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected

INFO

