

J2 WIPER & WASHER

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1 WIPER AND WASHER

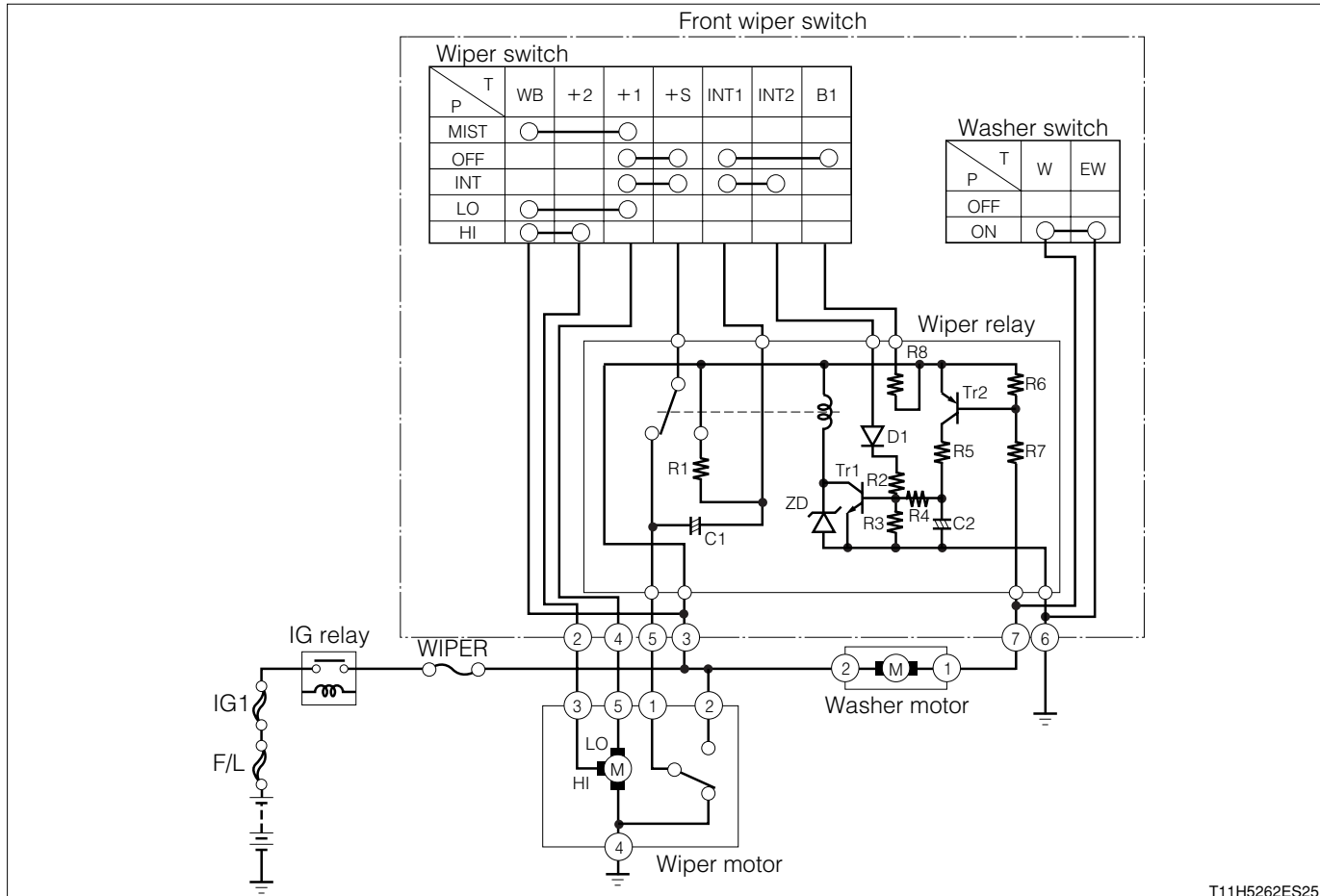
1-1 ARTICLES TO BE PREPARED

Instrument

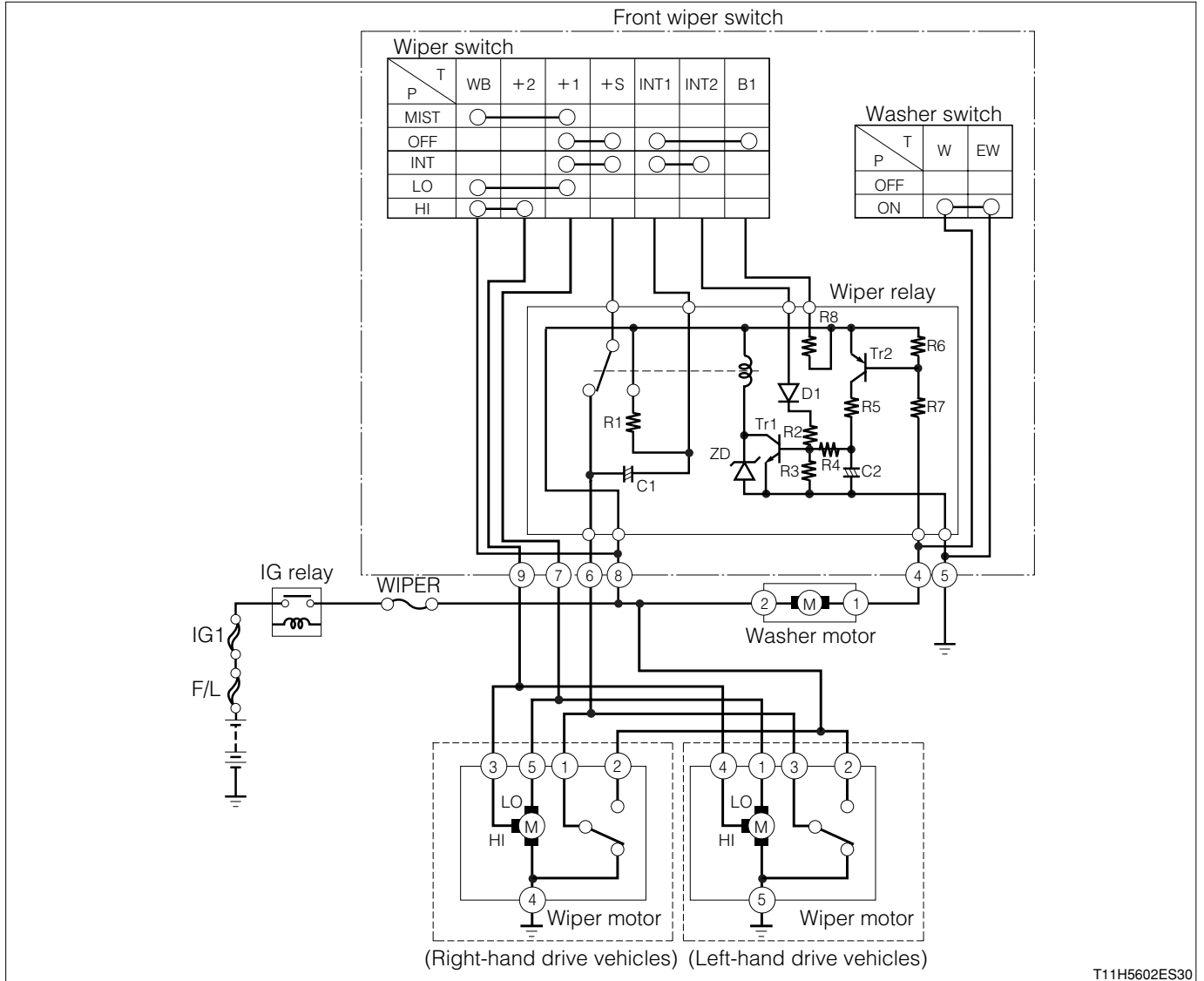
Electrical Tester

1-2 SYSTEM DRAWING

1-2-1 FRONT WIPER & WASHER (VEHICLE EQUIPPED WITH THE WIPER SWITCH ON THE LEFT SIDE OF THE COIUMN)

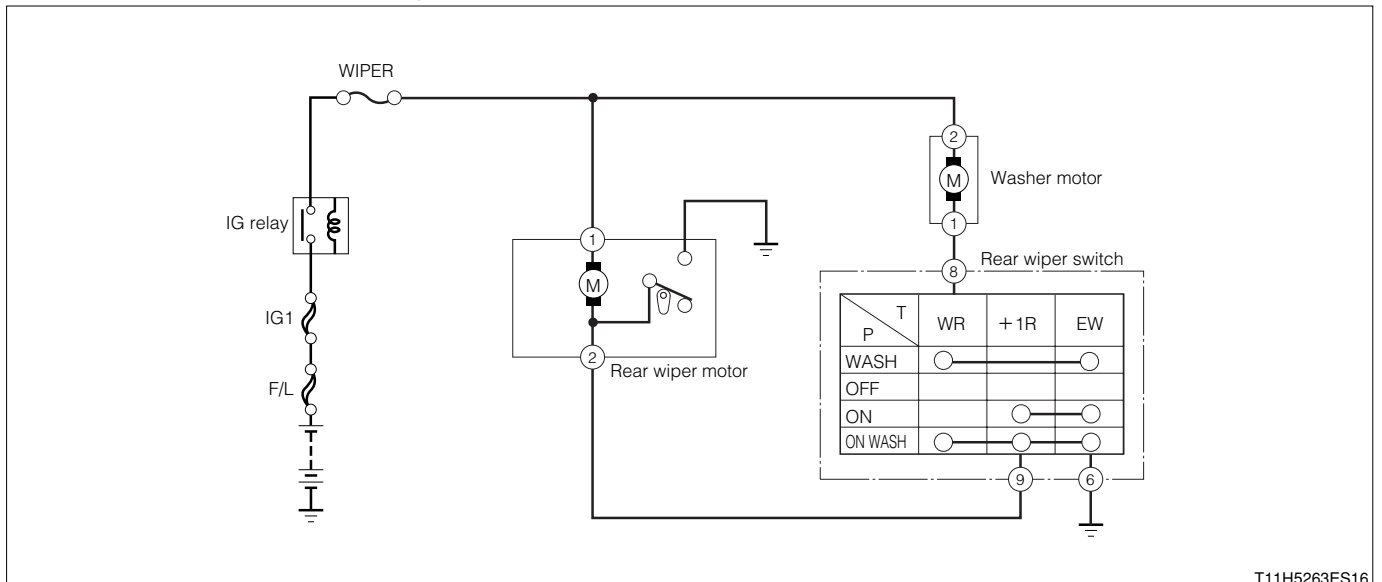


1-2-2 FRONT WIPER & WASHER (VEHICLE EQUIPPED WITH THE WIPER SWITCH ON THE RIGHT SIDE OF THE COLUMN)



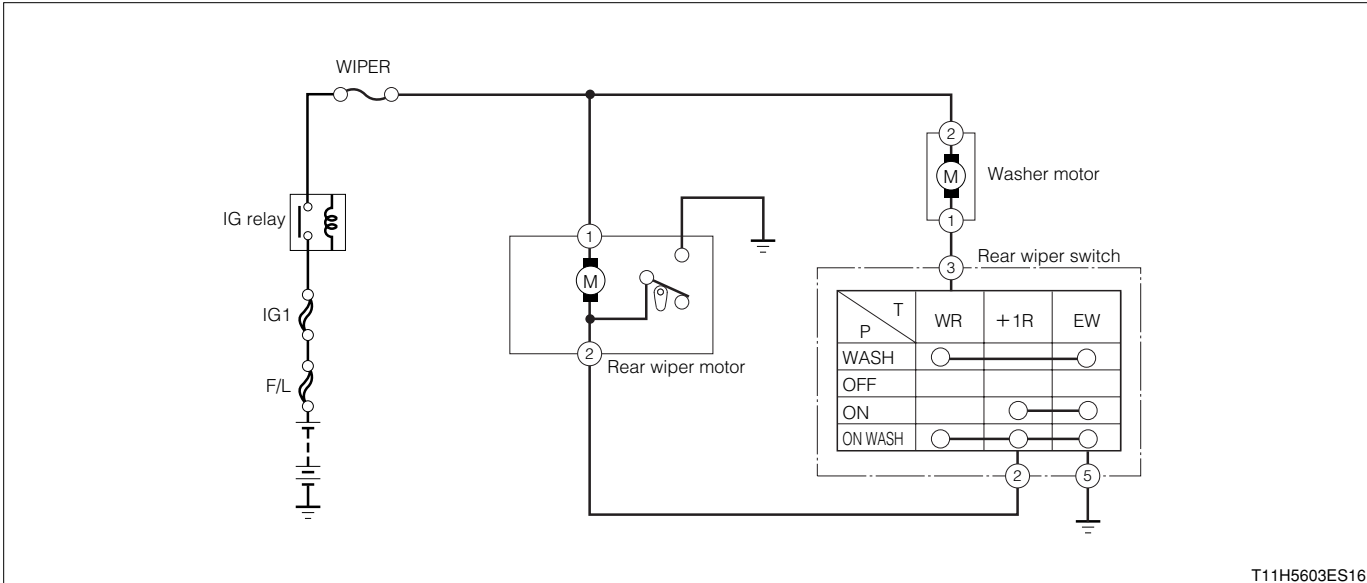
T11H5602ES30

1-2-3 REAR WIPER & WASHER (VEHICLE EQUIPPED WITH THE WIPER SWITCH ON THE LEFT SIDE OF THE COLUMN)



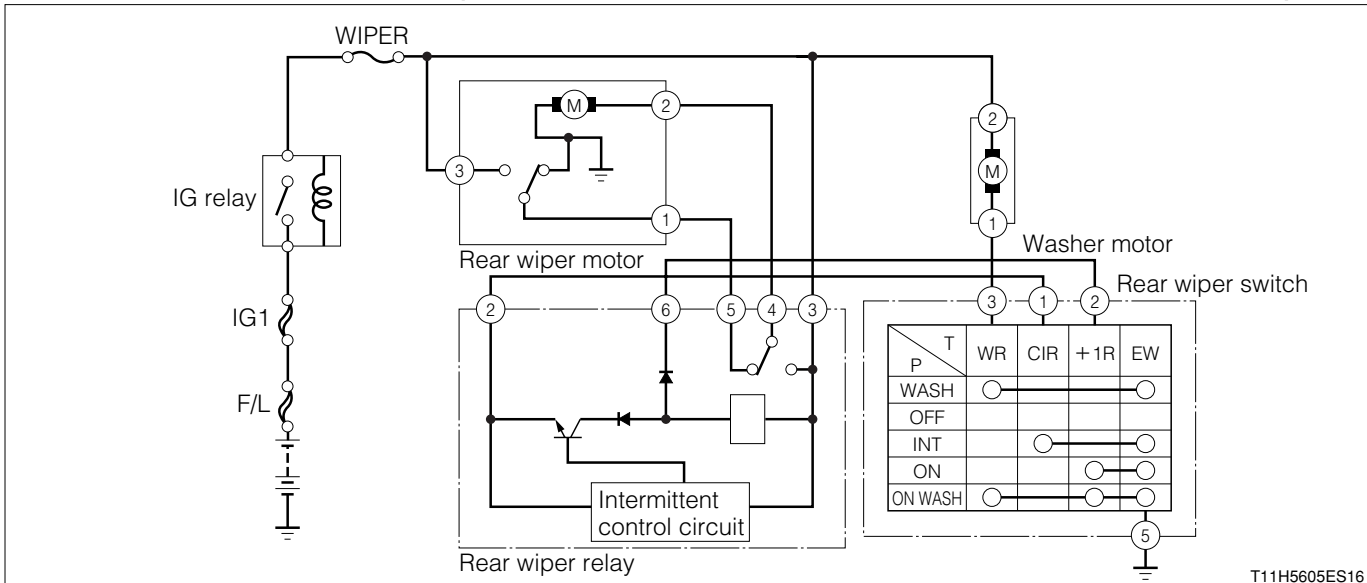
T11H5263ES16

1-2-4 REAR WIPER & WASHER (VEHICLE EQUIPPED WITH THE WIPER SWITCH ON THE RIGHT SIDE OF THE COLUMN)



T11H5603ES16

1-2-5 REAR WIPER & WASHER (VEHICLES FOR EUROPE WITH INTERMITTENT FUNCTION)



T11H5605ES16

1-3 BASIC CHECK AND ADJUSTMENT

1-3-1 CHECK OF WIPER, WASHER

1. Check the wiper for proper operation with the ignition switch turned "ON" and the wiper switch activated.

SPECIFIED VALUE: "Lo" position: Low-speed operation.

"Hi" position: High-speed operation.

"INT" position: Intermittent operation.

"MIST" position: activates wiper for a single wipe and stops.

2. Check the wiper for wiping performance.

SPECIFIED VALUE: Good.

3. Check the direction and height of the washer fluid flows when the washer fluid is squirted.

SPECIFIED VALUE: Good.

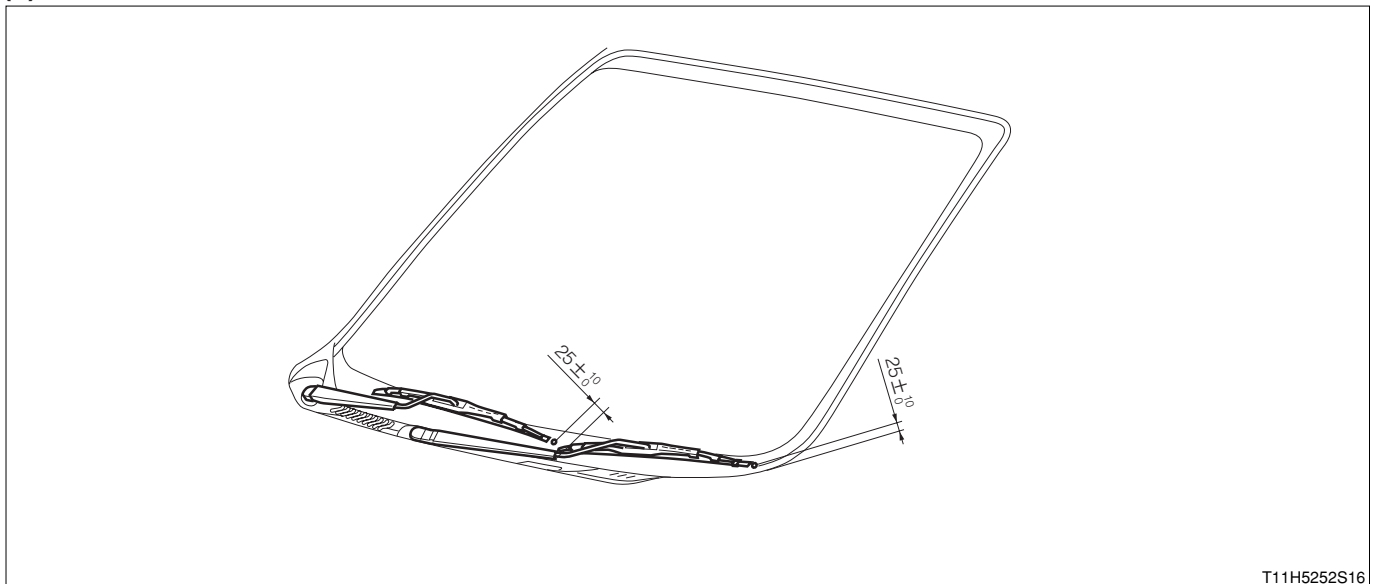
4. Visually check the washer level in the washer tank.

SPECIFIED VALUE: Good.

1-3-2 CHECK AND ADJUSTMENT OF STOP POSITION OF WIPER BLADE

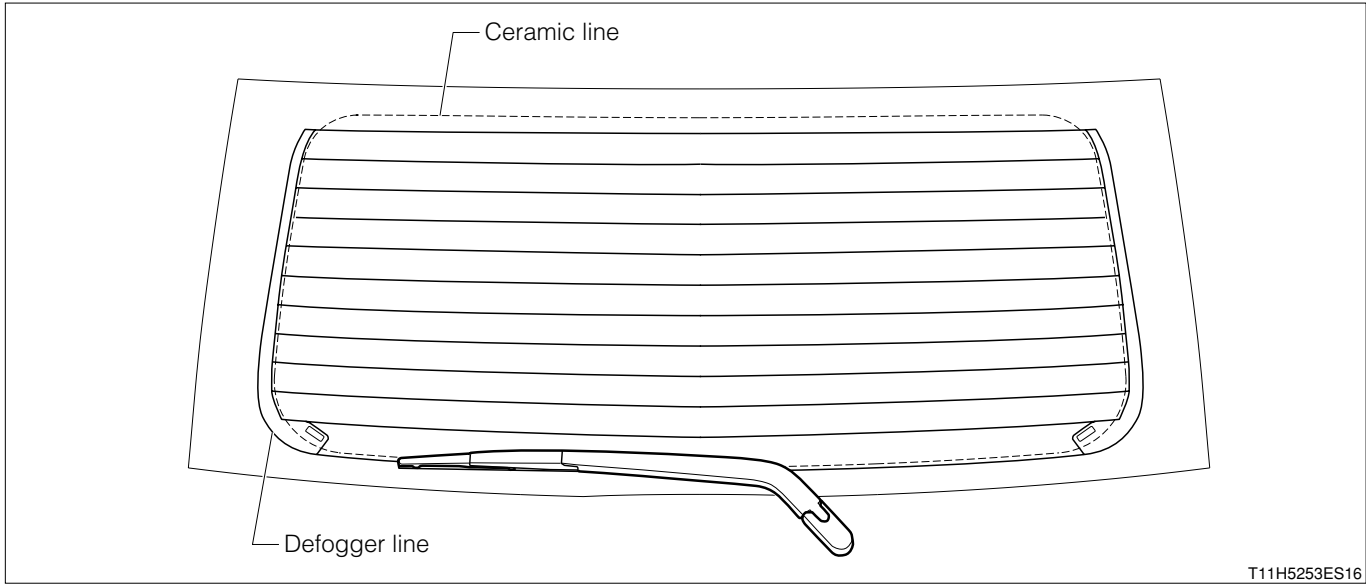
Check the wiper blade stop position and adjust as shown in the illustration.

(1) Front



Unit : mm

(2) Rear

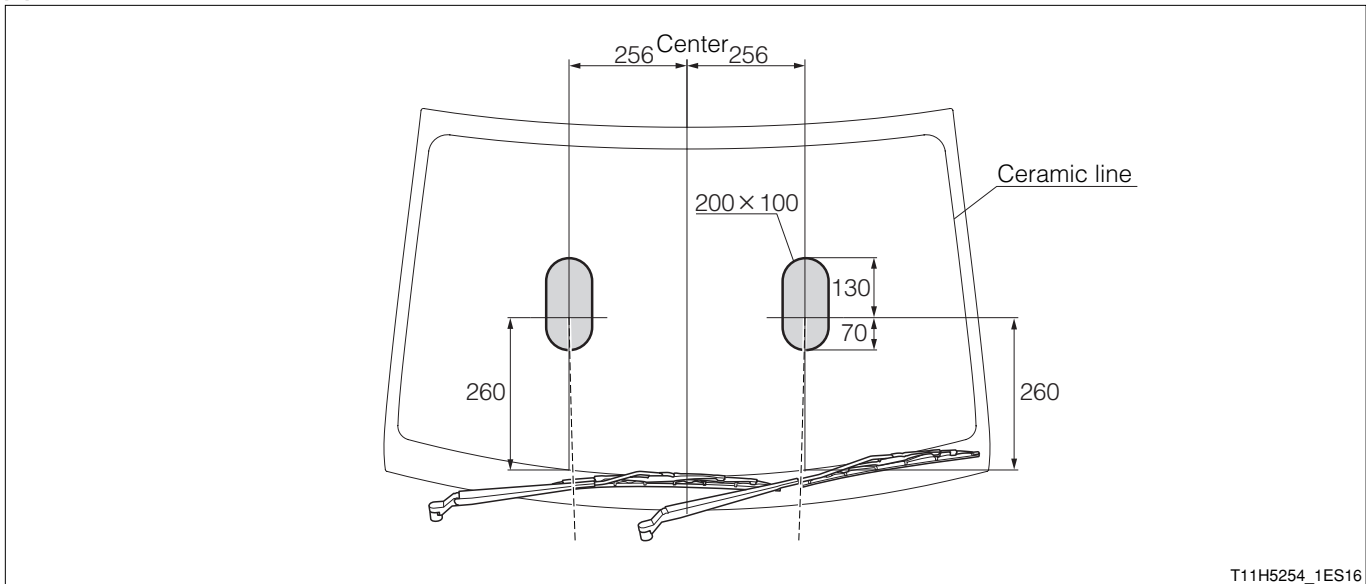


SPECIFIED VALUE: Ensure that the wiper blade is $\pm 5\text{mm}$ above and below the defogger line.

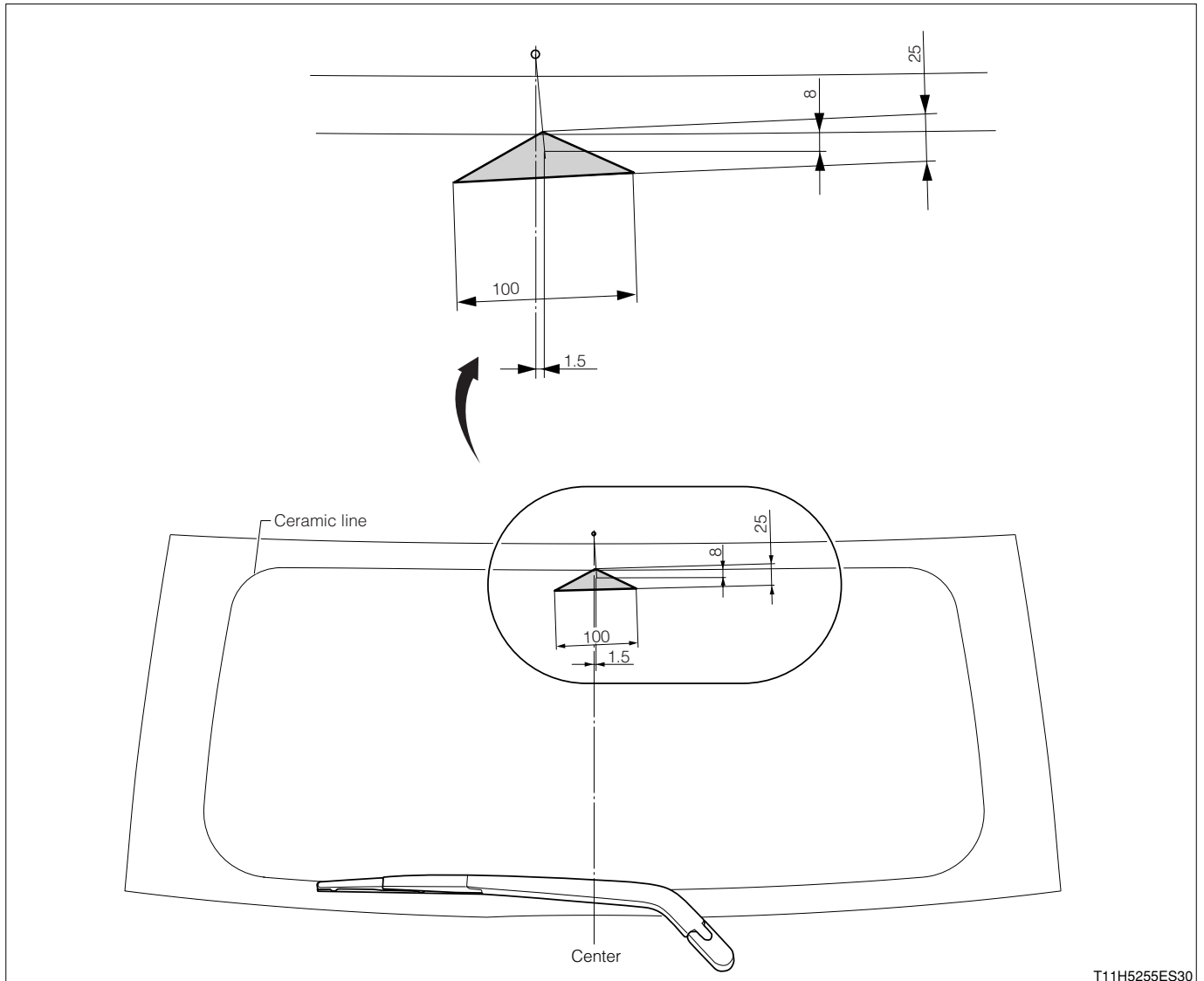
1-3-3 CHECK AND ADJUSTMENT OF WASHER FLUID FLOW PATTERNS

Check the washer fluid flow patterns and adjust as shown in the illustration.

(1) Front



(2) Rear



T11H5255ES30

Unit : mm

1-4 UNIT CHECK

1-4-1 FRONT WIPER MOTOR (RIGHT-HAND DRIVE VEHICLE)

(1) Low operation check

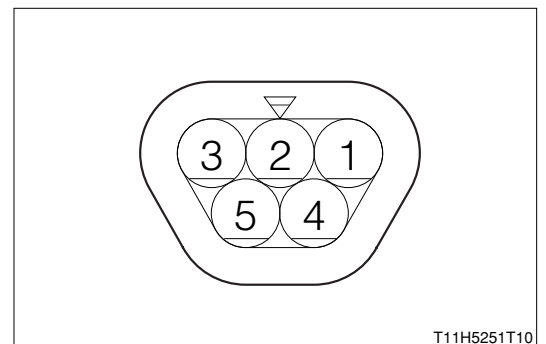
1. Connect the front wiper motor terminal 4(E) to the battery negative (-) terminal.
2. Connect the terminal 5(+1) to the battery positive (+) terminal and check the motor for proper operation.

SPECIFIED VALUE: Operate at low-speed.

(2) High operation check

1. Connect the front wiper motor terminal 4(E) to the battery negative (-) terminal.
2. Connect the terminal 3(+2) to the battery positive (+) terminal and check the motor for proper operation.

SPECIFIED VALUE: Operate at high-speed.



T11H5251T10

(3) Operation check for automatic stop position

1. In the Lo operation check, while operating the wiper motor at a low speed, remove the terminal 5(+1) from the positive (+) terminal of the battery, thereby stopping the motor crank at a position other than the automatic stop position.
2. After short-circuiting the terminal 5(+1) to the terminal 1(S), connect the terminal 2(WB) to the battery positive (+) terminal. Then check the motor's operation and the crank's stop position.

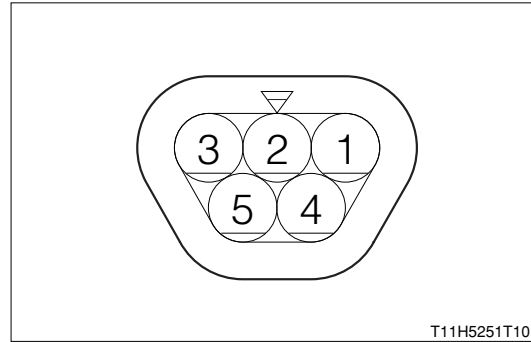
SPECIFIED VALUE: The motor restarts at a low speed, and the crank stops at the automatic stop position

1-4-2 FRONT WIPER MOTOR (LEFT-HAND DRIVE VEHICLE)

(1) Low operation check

1. Connect the front wiper motor terminal 5(E) to the battery negative (-) terminal.
2. Connect the terminal 1(+1) to the battery positive (+) terminal and check the motor for proper operation.

SPECIFIED VALUE: Operate at low-speed.



(2) High operation check

1. Connect the front wiper motor terminal 5(E) to the battery negative (-) terminal.
2. Connect the terminal 4(+2) to the battery positive (+) terminal and check the motor for proper operation.

SPECIFIED VALUE: Operate at high-speed.

(3) Operation check for automatic stop position

1. In the Lo operation check, while operating the wiper motor at a low speed, remove the terminal 1(+1) from the positive (+) terminal of the battery, thereby stopping the motor crank at a position other than the automatic stop position.
2. After short-circuiting the terminal 1(+1) to the terminal 3(S), connect the terminal 2(WB) to the battery positive (+) terminal. Then check the motor's operation and the crank's stop position.

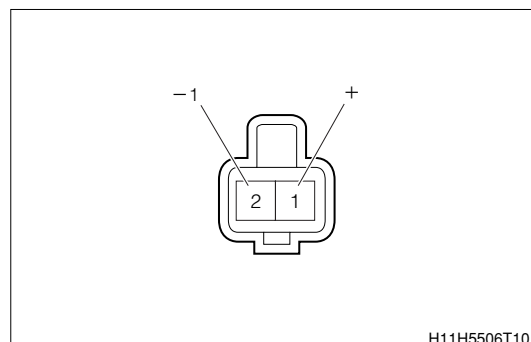
SPECIFIED VALUE: The motor restarts at a low speed, and the crank stops at the automatic stop position

1-4-3 REAR WIPER MOTOR (EXCEPT VEHICLES WITH INTERMITTENT FUNCTION)

(1) Operation check

1. Check the motor for proper operation, with the rear wiper motor terminal 1(+) connected to the battery positive (+) terminal, and the terminal 2(-1) to the battery negative (-) terminal.

SPECIFIED VALUE: The motor operates.



(2) Check of automatic stop function

1. In the state of Step 1, disconnect the terminal 2(-1) from the battery negative (-) terminal to let the motor shaft stop off from the automatic stop position.
2. In the state of 1, connect the wiper motor earth bolt to the battery negative (-) terminal. Then check the motor's operation and the shaft's stop position.

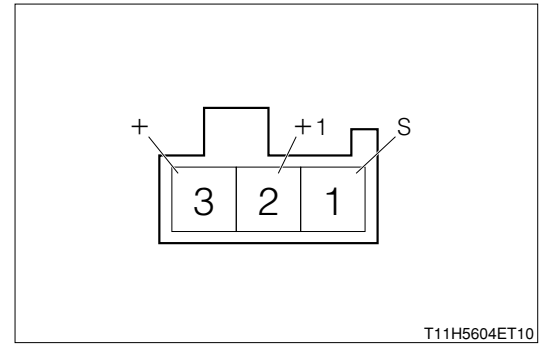
SPECIFIED VALUE: The motor shall restart and the shaft stops at the automatic stop position.

1-4-4 REAR WIPER MOTOR(VEHICLES FOR EUROPE WITH INTERMITTENT FUNCTION)

(1) Operation check

- 1.Check the motor for proper operation, with the rear wiper motor terminal 2(+1) connected to the battery positive (+) terminal, and the battery negative terminal to the bracket (earth).

SPECIFIED VALUE: The motor operates.



(2) Check of automatic stop function

- 1.Stop the motor shaft at a position other than the automatic stop position.
- 2.Connect the rear wiper motor terminal 3(+) to the battery positive (+) terminal, and the battery negative terminal to the bracket (earth).
- 3.When the rear wiper motor terminal 2(+) is connected to the terminal 1(S), check the motor operation and shaft stopping position.

SPECIFIED VALUE: The motor shall restart and the shaft stops at the automatic stop position.

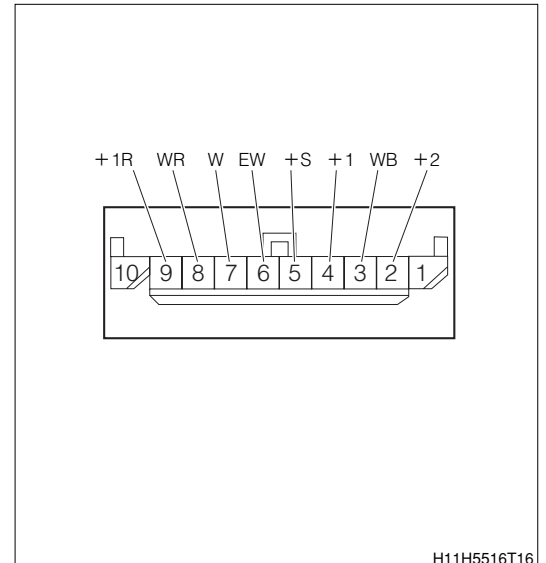
1-4-5 WINDSHIELD WIPER SWITCH(VEHICLE WHERE IT IS INSTALLED AT THE LEFT SIDE OF THE COLUMN)

(1) Front wiper switch

① Continuity check

- 1.Check the continuity between each connector terminal, in each switch position.

Switch condition	Terminal No. (Terminal code)	Standard
MIST	3(WB) – 4(+1)	Continuity exists
OFF	4(+1) – 5(+S)	
INT	4(+1) – 5(+S)	
LO	3(WB) – 4(+1)	
HI	3(WB) – 2(+2)	



② Intermittent operation check (Wiper with an intermittent function)

- 1.Connect the battery positive (+) terminal to the terminal 3(WB) and the battery negative (-) terminal to the terminal 6(EW) and the terminal 5(+S).
- 2.Set the wiper switch to "INT" position.
- 3.Disconnect the terminal 5(+S) from the battery negative (-) terminal. Then, connect the terminal 5(+S) to the battery positive (+) terminal for five seconds.
- 4.After the step 3, connect the terminal 5(+S) to the battery negative (-) terminal, thus actuating the relay. At this time, measure the voltage between the terminal 4(+1) and the terminal 6(EW).

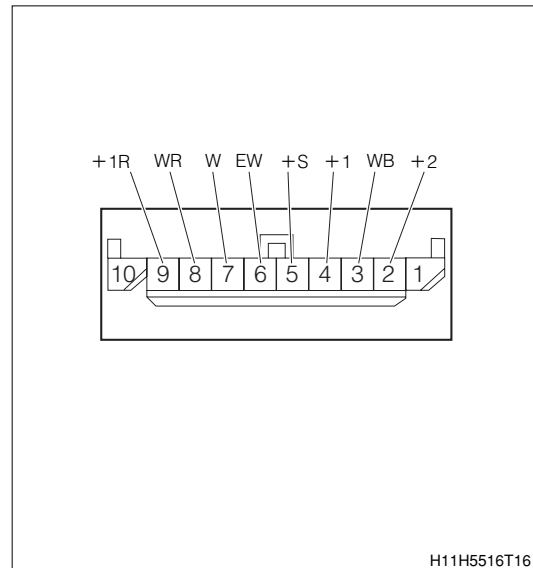
SPECIFIED VALUE: Approx. 3 seconds after connecting the battery negative (-) terminal: 1V or below

Approx. 3 seconds after connecting the negative battery (-) terminal: 10 – 14V

(2) Front washer switch

① Continuity check

1. Turn "ON" the washer switch and check the continuity between the terminal 6(EW) and the terminal 7(W).
SPECIFIED VALUE: Continuity exists.



② Operation check (Wiper with an intermittent function)

1. Set the wiper switch to "OFF" position.
2. Connect the battery positive (+) terminal to the terminal 3(WB), and the battery negative (-) terminal to the terminal 6(EW) and the terminal 5(+S).
3. Under the condition in Step 2, turn "ON" and "OFF" the wiper switch. Then measure the voltage between the terminal 4(+1) and the terminal 6(EW).

SPECIFIED VALUE: Period from approx. 0.3 second after turning "ON" to approx. 2.2 seconds after turning "OFF": 10 – 14V
Other than period above: 1V or less

(3) Rear wiper & washer switch

1. Check the continuity between each connector terminal, in each switch position.

Continuity table of rear wiper switch

Switch condition	Terminal No. (Terminal code)	Standard
WASH	6(EW) – 8(WR)	Continuity exists
ON	6(EW) – 9(+1R)	
ON WASH	6(EW) – 8(WR) – 9(+1R)	

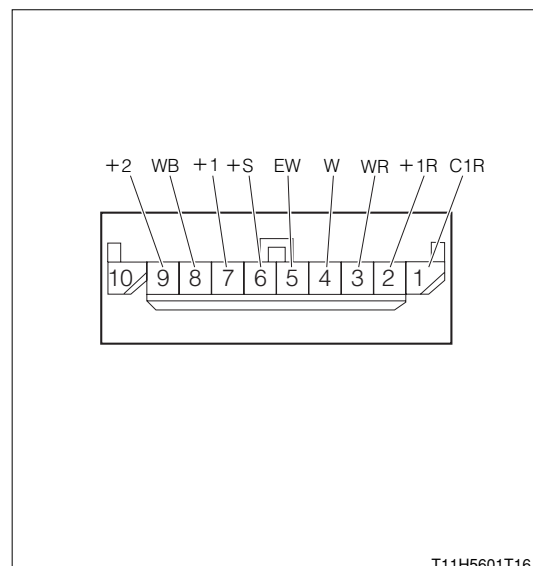
1-4-6 WINDSHIELD WIPER SWITCH (VEHICLE WHERE IT IS INSTALLED AT THE RIGHT SIDE OF THE COLUMN)

(1) Front wiper switch

① Continuity check

1. Check the continuity between each connector terminal, in each switch position.

Switch condition	Terminal No. (Terminal code)	Standard
MIST	7(+1) – 8(WB)	Continuity exists
OFF	6(+S) – 7(+1)	
INT	6(+S) – 7(+1)	
LO	7(+1) – 8(WB)	
HI	8(WB) – 9(+2)	



② Intermittent operation check (Wiper with an intermittent function)

1. Connect the battery positive (+) terminal to the terminal 8(WB) and the battery negative (−) terminal to the terminal 5(EW) and the terminal 6(+S).
2. Set the wiper switch to "INT" position.
3. Disconnect the terminal 6(+S) from the battery negative (−) terminal. Then, connect the terminal 6(+S) to the battery positive (+) terminal for five seconds.
4. After the step 3, connect the terminal 6(+S) to the battery negative (−) terminal, thus actuating the relay. At this time, measure the voltage between the terminal 7(+1) and the terminal 5(EW).

SPECIFIED VALUE: Approx. 3 seconds after connecting the battery negative (−) terminal: 1V or below

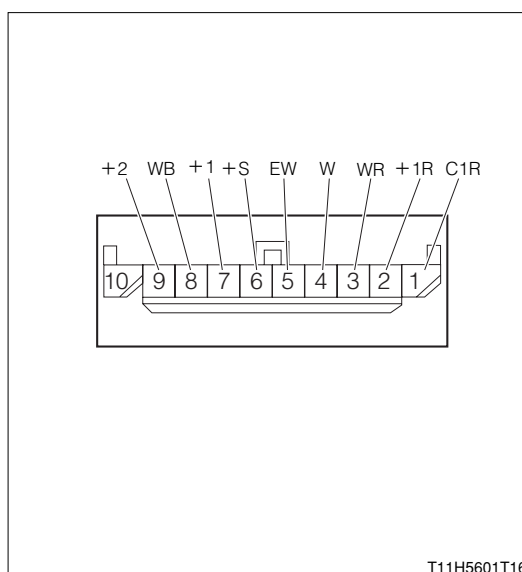
Approx. 3 seconds after connecting the negative battery (−) terminal: 10 – 14V

(2) Front washer switch

① Continuity check

1. Turn "ON" the washer switch and check the continuity between the terminal 5(EW) and the terminal 4(W).

SPECIFIED VALUE: Continuity exists.



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② Operation check (Wiper with an intermittent function)

1. Set the wiper switch to "OFF" position.
2. Connect the battery positive (+) terminal to the terminal 8(WB), and the battery negative (−) terminal to the terminal 5(EW) and the terminal 6(+S).
3. Under the condition in Step 2, turn "ON" and "OFF" the wiper switch. Then measure the voltage between the terminal 7(+1) and the terminal 5(EW).

SPECIFIED VALUE: Period from approx. 0.3 second after turning "ON" to approx. 2.2 seconds after turning "OFF": 10 – 14V

Other than period above: 1V or less

J2-11

(3) Rear wiper & washer switch

1. Check the continuity between each connector terminal, in each switch position.

Continuity table of rear wiper switch(Except vehicles with intermittent function)

Switch condition	Terminal No. (Terminal code)	Standard
WASH	5(EW) – 3(WR)	Continuity exists
ON	5(EW) – 2(+1R)	
ON WASH	5(EW)–3(WR) – 2(+1R)	

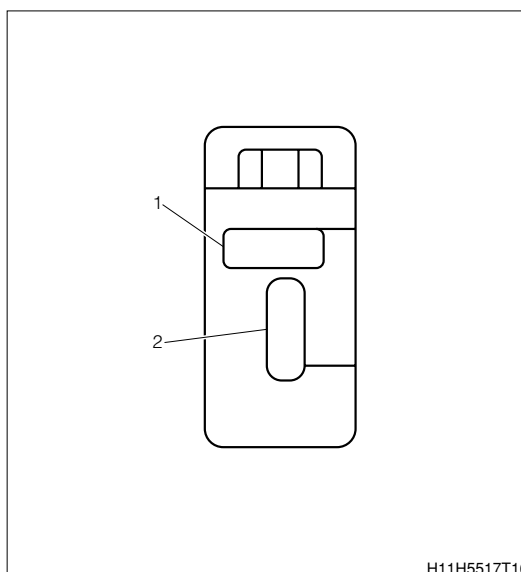
Continuity table of rear wiper switch(Vehicles with intermittent function)

Switch condition	Terminal No. (Terminal code)	Standard
WASH	5(EW) – 3(WR)	Continuity exists
INT	5(EW) – 1(C1R)	
ON	5(EW) – 2(+1R)	
ON WASH	5(EW)–3(WR) – 2(+1R)	

1-4-7 WINDSHIELD WASHER MOTOR & PUMP

1. Put water into the washer tank.
2. Connect the motor & pump connector terminal 1 to the battery negative (–) terminal, and the terminal 2 to the battery positive (+) terminal. Then check whether water is pressure fed from the motor & pump.

SPECIFIED VALUE: Water is pressure fed.



2 FRONT WIPER

2-1 REMOVAL AND INSTALLATION

2-1-1 ARTICLES TO BE PREPARED

Tool

TORX® wrench T30

Instrument

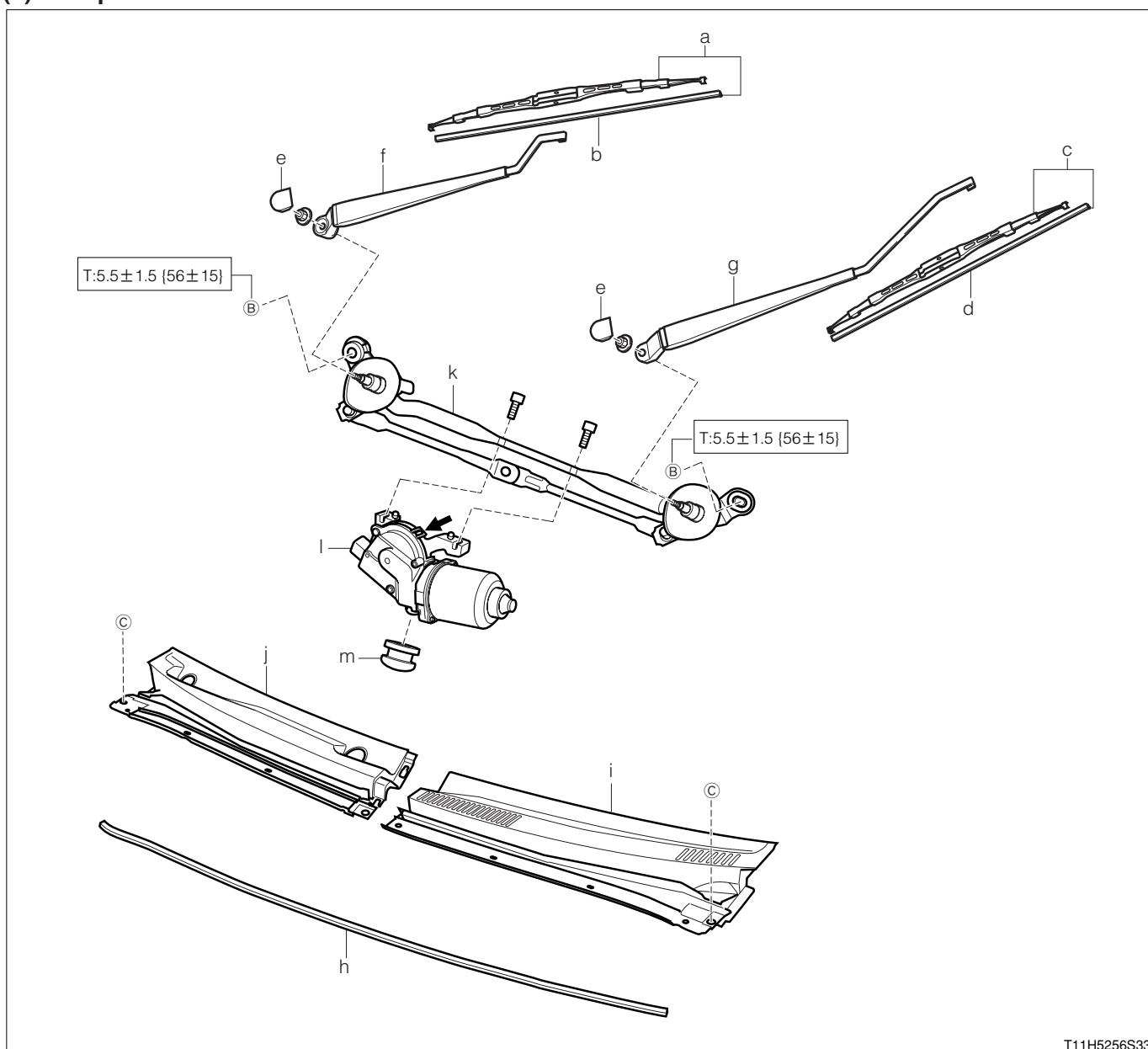
Torque wrench

Lubricant, adhesive, others

DENSO No.50 grease or equivalent

2-1-2 REMOVAL AND INSTALLATION PROCEDURES

(1) Components



T11H5256S33

Unit: N·m {kgf·cm}

➔: DENSO No.50 grease or equivalent

(2) Removal and installation procedures

- ▲ 1 a Blade, front wiper, RH
- 2 b Rubber, wiper blade (RH)
- ▲ 3 c Blade, front wiper, LH
- 4 d Rubber, wiper blade (LH)
- 5 e Cap, wiper arm head
- ▲ 6 f Arm, front wiper, RH
- ▲ 7 g Arm, front wiper, LH
- 8 h Seal, hood to cowl top
- ▼ 9 i Louver, cowl top ventilator, LH
- ▼ 10 j Louver, cowl top ventilator, RH
- 11 k Link Ay, front wiper
- ▼ ▲ 12 l Motor Ay, front wiper
- 13 m Rubber, mount

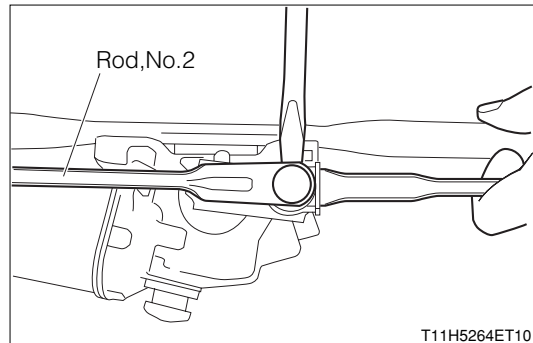
2-1-3 POINTS OF REMOVAL

(1) Louver, cowl top ventilator, RH/LH

Refer to Page I2-8.

(2) Motor Ay, front wiper

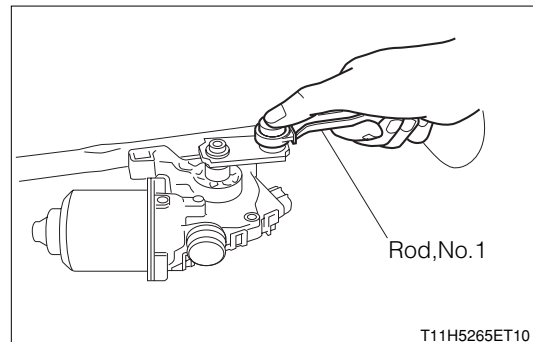
1. Remove the No.2 rod of the front wiper link Ay, using a flat screwdriver.



2. Remove the No.1 rod of the front wiper link Ay from the crank arm of the motor Ay.

3. Remove the motor Ay by removing the TORX bolts (two pcs.).

TOOL: TORX® wrench T30



2-1-4 POINTS OF INSTALLATION

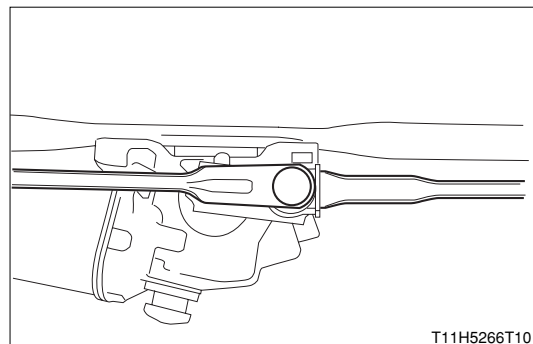
(1) Front wiper motor Ay

1. Install the motor Ay to the front wiper link Ay.

2. Apply grease to the pivot area on the crank arm motor Ay and assemble the rod.

LUBRICANT: DENSO No.50 grease or equivalent

3. After assembling the rod, connect the motor Ay to the vehicle harness. Then activate and stop the wiper at the automatic stop position.

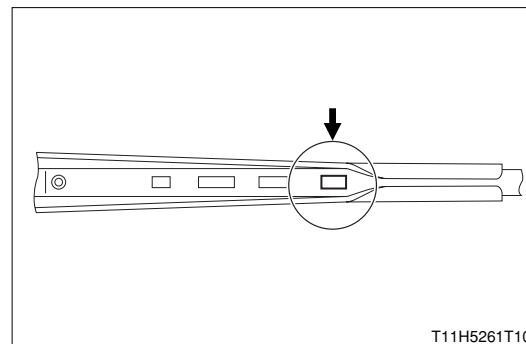


(2) Arm, front wiper, RH/LH

1. The shapes of the arms differ between the right and left. Therefore, check the identification code stamped on the arm before installation.

Arm, identification code

	Driver's seat side	Front passenger seat side
RHD vehicles other than EU specification	RD	RP
RHD EU specifications	ED	EP
LHD	LD	LP



T11H5261T10

2. Match the blade stop position with the regular position and install the arm.

Refer to Page J2-4.

(3) Blade, front wiper, RH/LH

1. Since the length differs between the right and left, refer to the blade length below for proper installation.

Wiper blade dimensions

	Driver's seat side	Front passenger seat side
Blade length (mm)	500	400

J2-15

3 REAR WIPER

3-1 REMOVAL AND INSTALLATION

3-1-1 ARTICLES TO BE PREPARED

Instrument

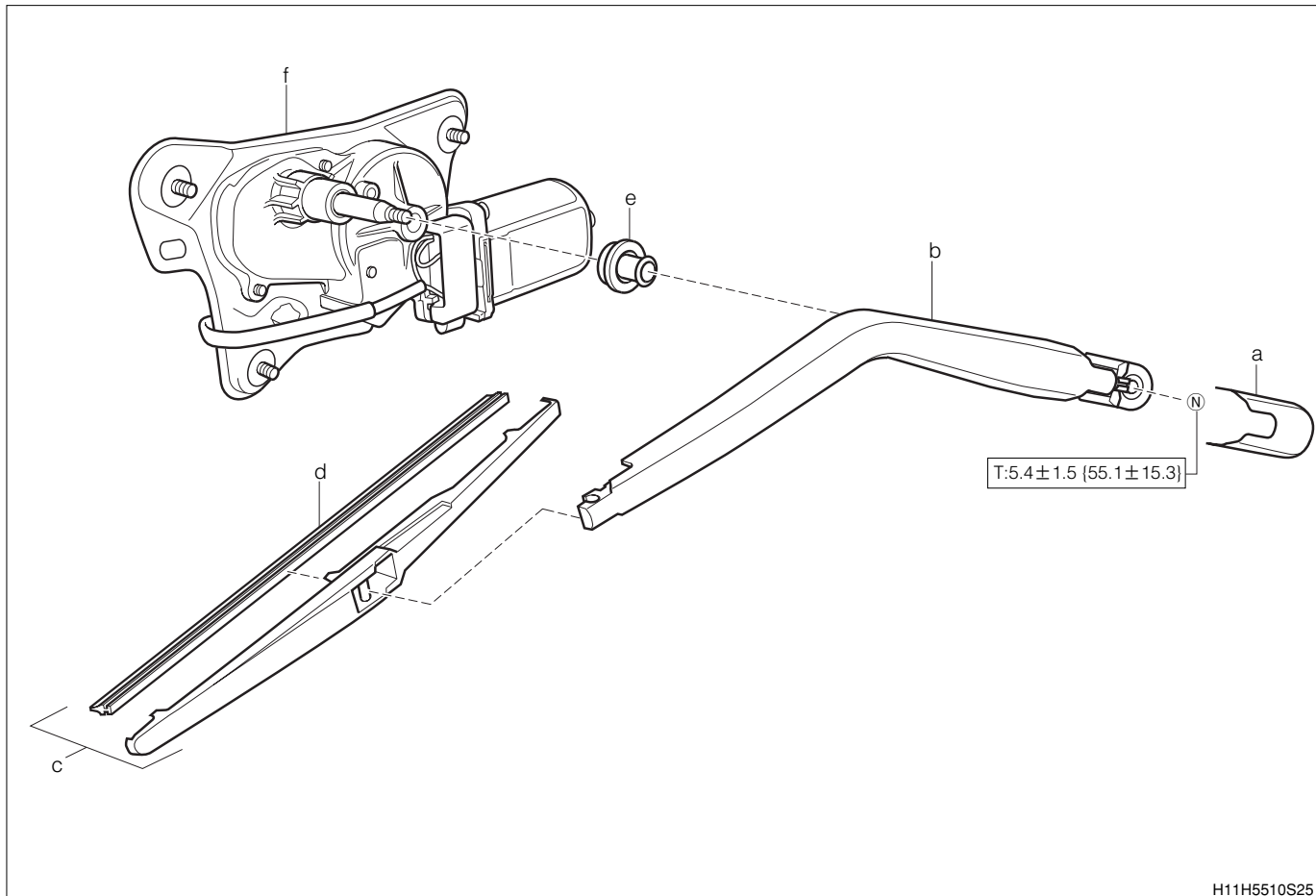
Torque wrench

3-1-2 OPERATION BEFORE REMOVAL

1. Remove the back door trim Ay.
Refer to Page I1-22.

3-1-3 REMOVAL AND INSTALLATION PROCEDURES

(1) Components



Unit: N·m {kgf·cm}

(2) Removal and installation procedures

- 1 a Cap, wiper arm head
- ▲ 2 b Arm, rear wiper
- 3 c Blade, rear wiper
- 4 d Rubber, wiper blade
- 5 e Cap, rear wiper link
- ▲ 6 f Motor Ay, rear wiper

3-1-4 POINTS OF INSTALLATION

(1) Motor Ay, rear wiper

1. When the unit check for the motor Ay has been performed, before the installation, ensure that the motor Ay is at the automatic stop position.
Refer to Page J2-6.

(2) Arm, rear wiper

1. Match the blade stop position with the regular position and install the arm.
Refer to Page J2-4.

3-1-5 OPERATION AFTER INSTALLATION

1. Install the back door trim Ay.
Refer to Page I1-22.

4 REAR WIPER RELAY

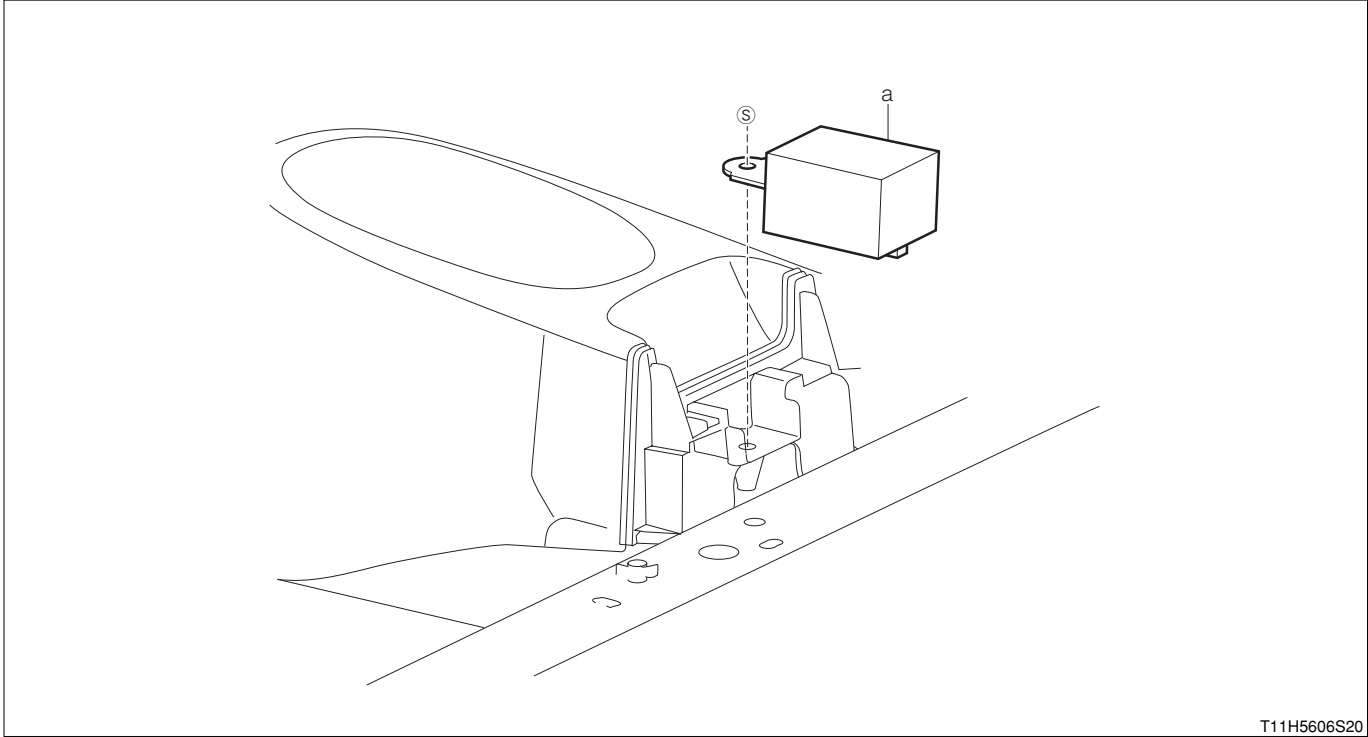
4-1 REMOVAL AND INSTALLATION

4-1-1 OPERATION BEFORE REMOVAL

1. Remove the box S/A, console, rear.
Refer to Page I2-31.

4-1-2 REMOVAL AND INSTALLATION PROCEDURES

(1) Components



T11H5606S20

(2) Removal and installation procedures

- 1 a Relay Ay, Windshield wiper

4-1-3 OPERATION AFTER INSTALLATION

1. Install the box S/A, console, rear.
Refer to Page I2-31.

5 WASHER TANK

5-1 REMOVAL AND INSTALLATION

5-1-1 OPERATION BEFORE REMOVAL

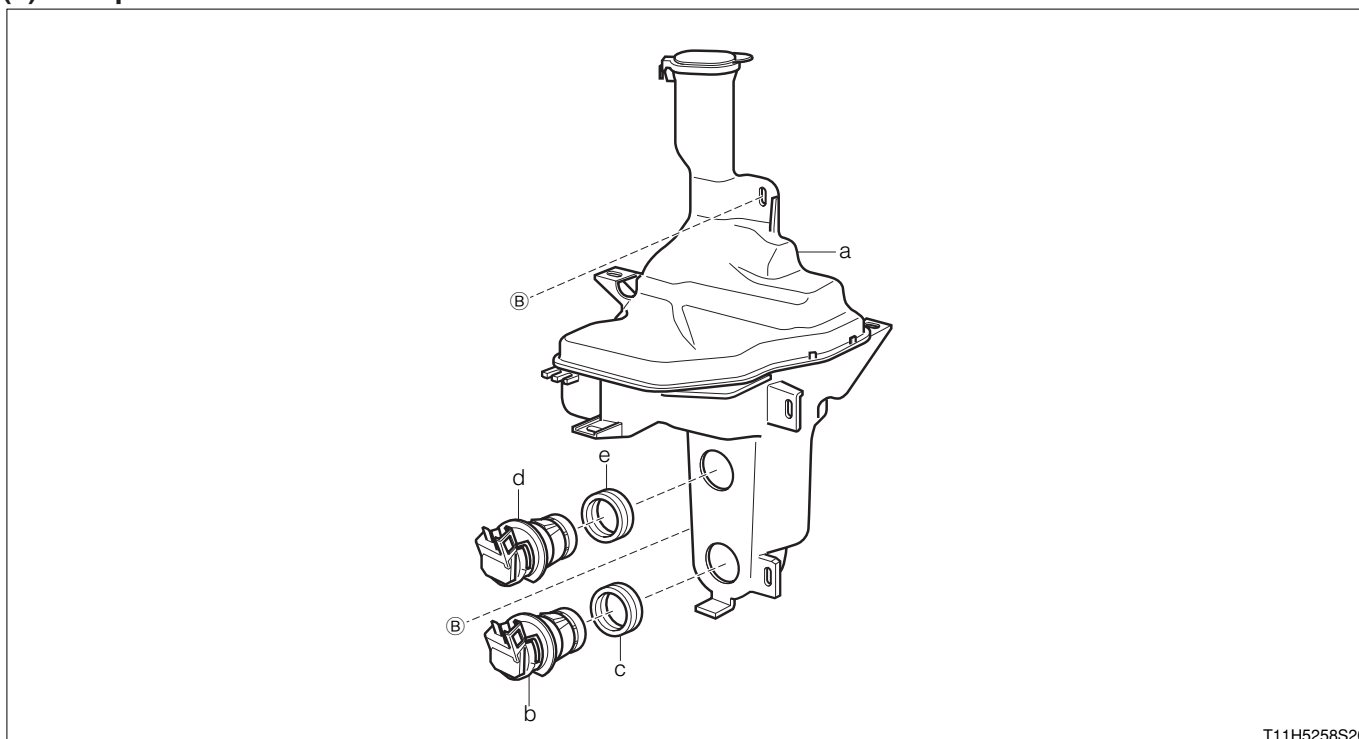
1.Remove the front bumper cover.
Refer to Page I2-2.

2.Remove the RH head lamp Ay.
Refer to Page J1-8.

3.Drain the washer fluid.

5-1-2 REMOVAL AND INSTALLATION PROCEDURES

(1) Components



T11H5258S20

(2) Removal and installation procedures

- 1 a Jar&pomp Ay, front washer
- 2 b Motor&pomp Ay, washer (Front)
- 3 c Grommet
- 4 d Motor&pomp Ay, washer (Rear)
- 5 e Grommet

5-1-3 OPERATION AFTER INSTALLATION

1.Refill the washer fluid.

2.Install the RH head lamp Ay.
Refer to Page J1-8.

3.Install the front bumper cover.
Refer to Page I2-2.

6 WASHER HOSE

6-1 REMOVAL AND INSTALLATION

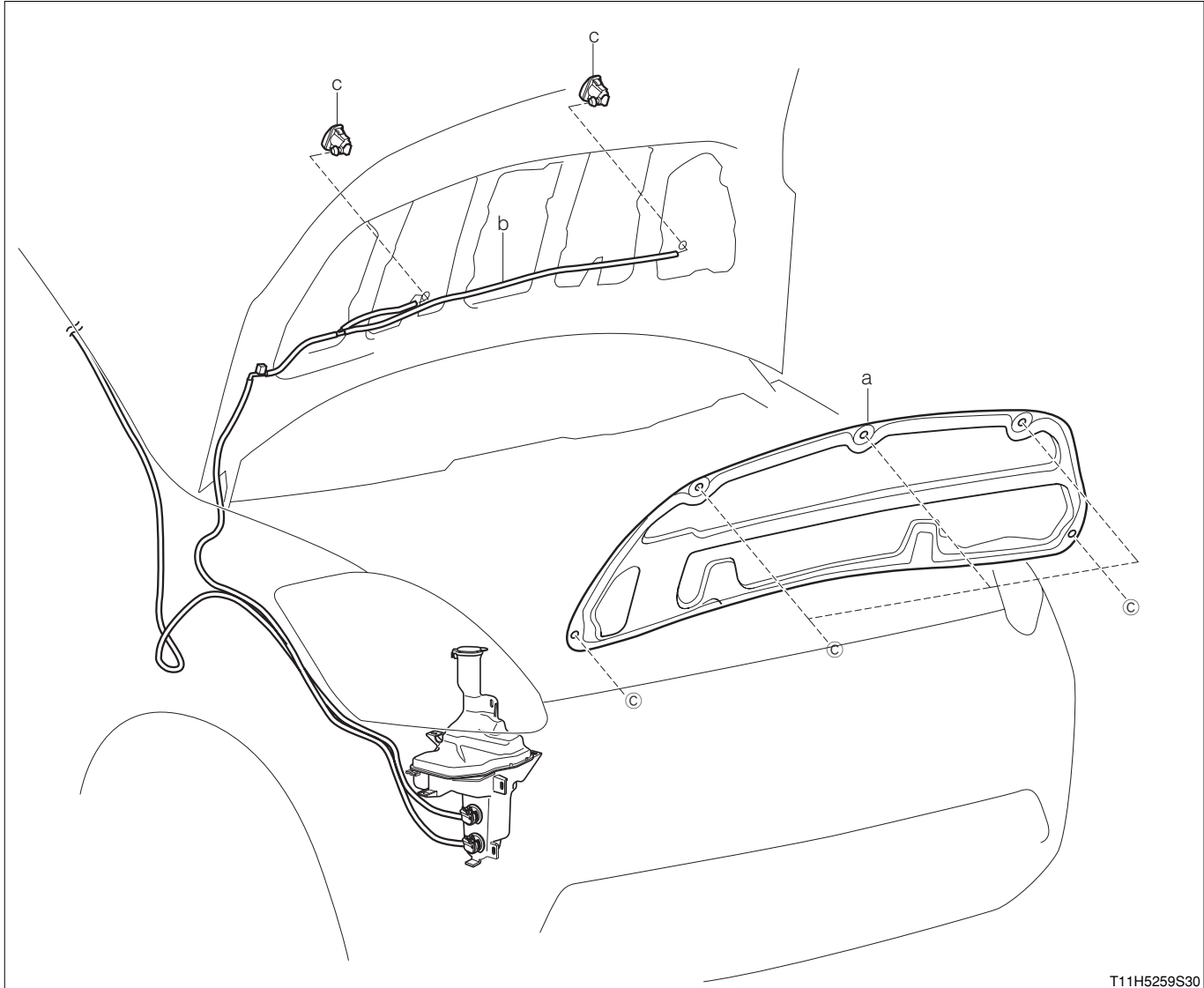
6-1-1 OPERATION BEFORE REMOVAL

1.Remove the RH front fender liner (front RH fender splash shield S/A in the case of the aero specification vehicles).

Refer to Page I1-24.

6-1-2 REMOVAL AND INSTALLATION PROCEDURES

(1) Components



T11H5259S30

(2) Removal and installation procedures

- 1 a Insulator, hood
- 2 b Hose Ay, washer
- ▲ 3 c Nozzle, front washer

6-1-3 POINTS OF INSTALLATION

(1) Nozzle, front washer

1.After the nozzle is installed, check the washer fluid flow patterns and adjust.

Refer to Page J2-5.

6-1-4 OPERATION AFTER INSTALLATION

1. Install the RH front fender liner (front RH fender splash shield S/A in the case of the aero specification vehicles)

Refer to Page I1-24.

J2-21

7 WASHER HOSE

7-1 REMOVAL AND INSTALLATION

Refer to Page I2-53.

8 WASHER HOSE

8-1 REMOVAL AND INSTALLATION

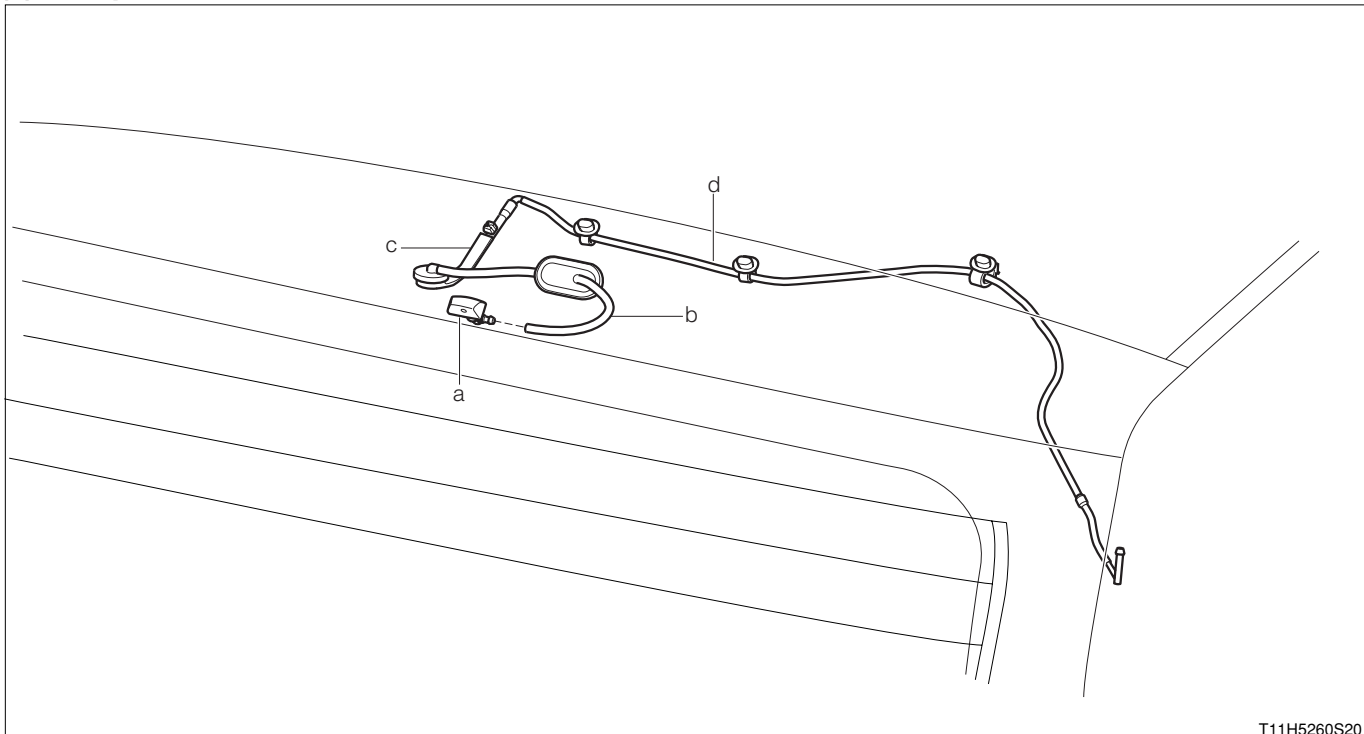
8-1-1 OPERATION BEFORE REMOVAL

1. Remove the stop center lamp Ay.

Refer to Page J1-13.

8-1-2 REMOVAL AND INSTALLATION PROCEDURES

(1) Components



T11H5260S20

(2) Removal and installation procedures

- ▲ 1 a Nozzle Ay, washer
- 2 b Hose Ay, washer
- 3 c Grommet S/A, washer
- 4 d Hose Ay, washer

8-1-3 POINTS OF INSTALLATION

(1) Nozzle Ay, washer

1. After the nozzle Ay is installed, check the washer fluid flow patterns and adjust.

Refer to Page J2-5.

8-1-4 OPERATION AFTER INSTALLATION

1. Install the stop center lamp Ay.

Refer to Page J1-13.

9 WIPER SWITCH AY

9-1 REMOVAL AND INSTALLATION

9-1-1 ARTICLES TO BE PREPARED

Lubricant, adhesive, others

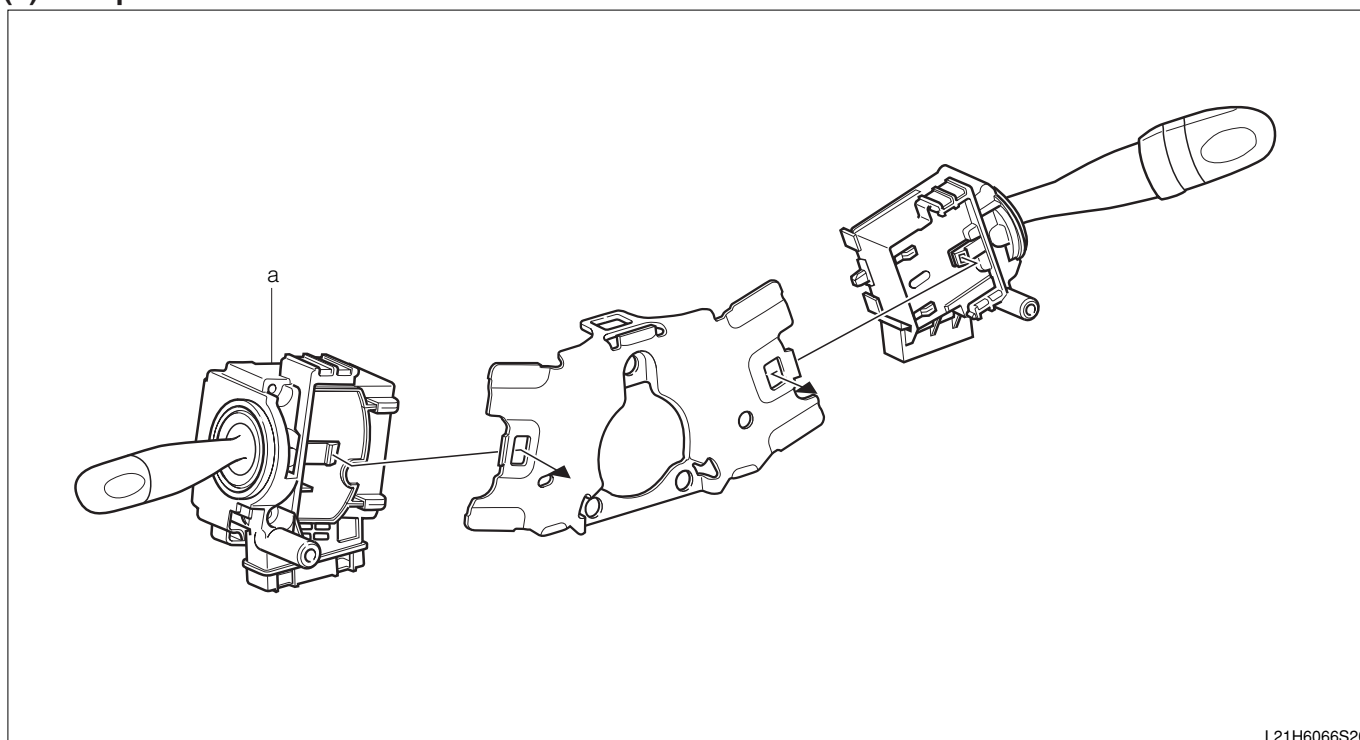
Protective tape

9-1-2 OPERATION BEFORE REMOVAL

1. Remove the upper steering column cover.
Refer to Page G1-5.
2. Remove the lower steering column cover.
Refer to Page G1-5.

9-1-3 REMOVAL AND INSTALLATION PROCEDURES

(1) Components



L21H6066S20

(2) Removal and installation procedures

- ▼ 1 a Switch, windshield wiper

9-1-4 POINTS OF REMOVAL

(1) Switch, windshield wiper

1. Disengage the pawl, using a flat screwdriver wrapped with a protective tape.

9-1-5 OPERATION AFTER INSTALLATION

1. Install the lower steering column cover.
Refer to Page G1-5.
2. Install the upper steering column cover.
Refer to Page G1-5.