Harness repair manual

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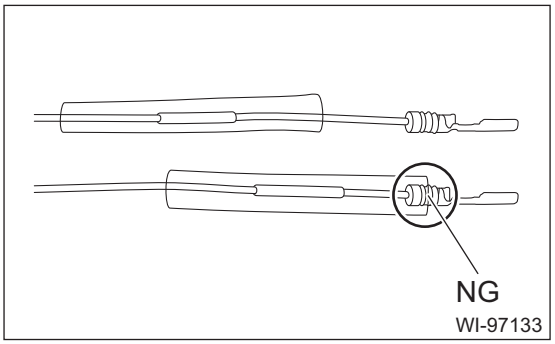
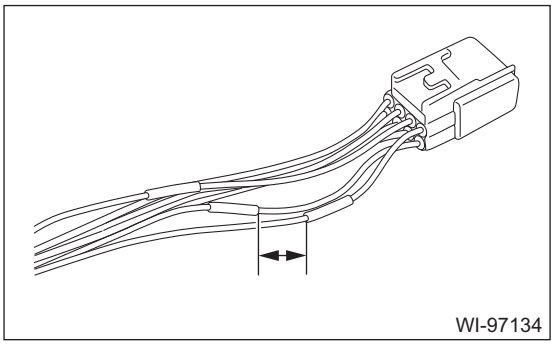
1. Precautions before starting work

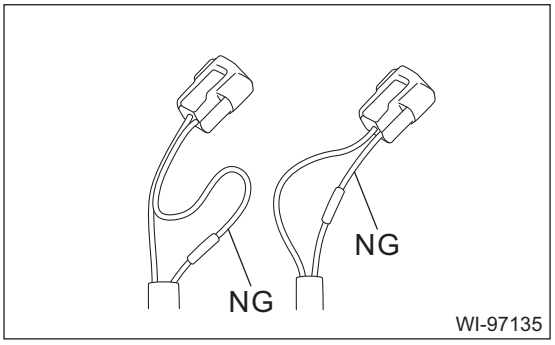
- When conducting harness repair work, do not make changes or improvements to the circuitry. Doing so may lead to a malfunction or a fire due to the harness overheating.
- Before starting work, please refer to the "General Description", "Repair Contents", "NOTE", and "TROUBLESHOOTING OF ELECTRICAL SYSTEM" sections in the service manual.
- After repairing the harness, check that there is no abnormality by gently shaking the harness and connectors up and down and from side to side.
- Do not repair wiring on parts when there are no replacement parts for the wiring harness with terminal.
- Crimping sleeves may only be used between the wiring harness with terminal and the vehicle harness, and do not use for any other wiring.
- Do not perform wiring repairs on communication lines including a controller area network (CAN).
- Do not repair wiring at bends.
- To ensure the waterproofness and insulation performance of the heat-shrink tube, the length of wire to be repaired must be at least 30 mm from the cut point.



- When repairing multiple wires with the same connector, do not overlap the repair points of adjacent wires.



- When repairing wiring, the existing wire harness and the wiring harness with terminal should be cut to the same length.



- The colors of the wires in the wiring harness with terminal are subject to change without notice.
- When repairing wiring with a wiring harness with terminal, the wiring color may be different from that shown in the wiring diagram.

2. Preparation items

A: General tools

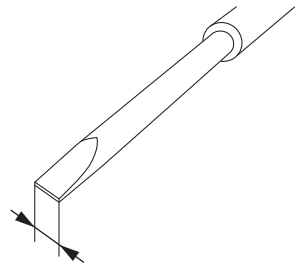
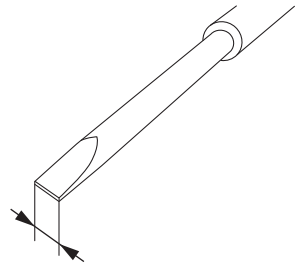
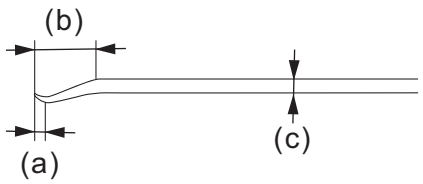
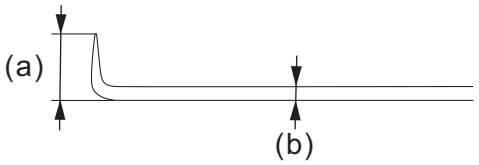
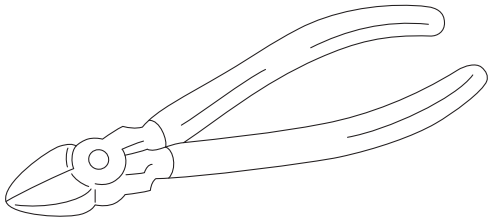
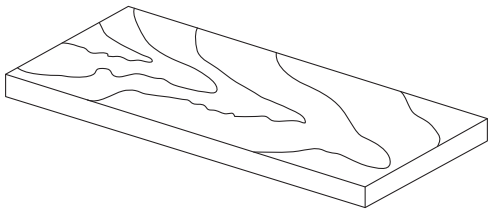
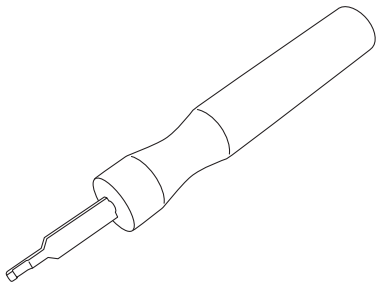
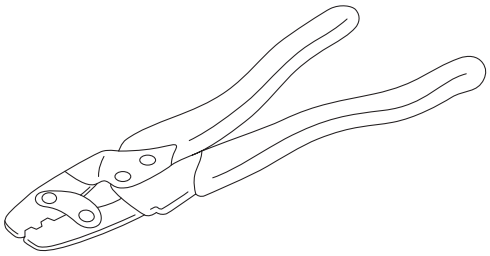
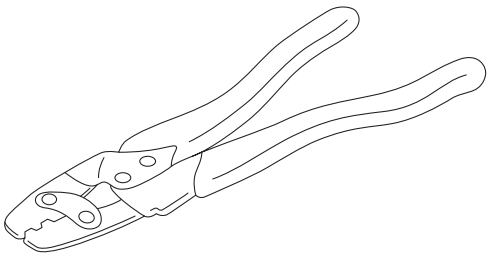
Illustration	Description	Remarks
 WI-78764	Precision screwdriver (general purpose) Tip width of 1.8 mm (0.071 in) or less.	Removing retainers.
 WI-78765	Precision screwdriver (general purpose) Tip width of 1.4 mm (0.055 in) or less.	Removing terminals.
 WI-96075	Pick tool (general purpose) (a): 3.5 mm (0.138 in) (b): 10 mm (0.394 in) (c): 3 mm (0.118 in)	Removing retainers.
 WI-96076	Pick tool (general purpose) (a): 14 mm (0.551 in) (b): 3 mm (0.118 in)	Removing retainers.
-	Hexagonal wrench: 2 mm (0.08 in) or less.	Removing waterproof plugs.
-	Harness tape (general purpose)	Protecting or securing the harness.

Illustration	Description	Remarks
 WI-97120	Nippers	For cutting wiring.
-	Heat gun	For heating heat-shrink tube.
 WI-97121	Wooden board	For heat shielding: Size: 300 mm × 100 mm × 10 mm

B: Special tools

Illustration	Tool number	Description	Remarks
STSSM4	-	SUBARU SELECT MONITOR 4	Used for setting of each function and troubleshooting for the electrical system. NOTE: •For detailed operation procedures, please refer to "Help" for the application. •Use this together with the SSM interface (DST-i, DST-010, or the like).
 WI-85571	99804AA000	RETAINER REMOVER	Used for removing retainers from the front oxygen (A/F) sensor (99801AA140) and rear oxygen sensor (99801AA150). NOTE: The tip of the special tool is very small and not very durable, since it was designed to fit the shape of the connector retainer. Thus, the tip may deform (bend or warp) if the tool is used repeatedly. If the tip is deformed, be sure to straighten it before using the tool again. However, Subaru will not be responsible for any damage caused by repeated deformations (bending or warping) during use and its repairs.
 WI-97119	99804AA010 (09929-0020)	Crimping tool (for sizes: SS, S, M)	Used for crimping sleeves: For sizes: SS, S, M
 WI-97119	99804AA020 (09042-2C100)	Crimping tool (for sizes: S, M, L)	Used for crimping sleeves: For sizes: S, M, L

3. Replacement parts

Connectors that can be replaced
If any of the following connectors fail, it is possible to obtain replacement parts.

Connector name	Replacement part No.	Replacement part name	Connector manufacturer	Connector manufacturer part number				Poles
				Housing	Retainer	Waterproof plug (cap)	Housing & retainer	
Headlight	99801AA020	Repair harness connector	Yazaki Corporation	-	-	-	7283-1407-40	10
	99801AA000	Repair harness connector	Yazaki Corporation	-	-	-	7283-1289-40	8
	99801AA010	Repair harness connector	Yazaki Corporation	-	-	-	7283-7062-30	6
	99801AA100	Repair harness connector	Sumitomo Wiring Systems	-	-	-	6189-0715	16
	99801AA110	Repair harness connector	Yazaki Corporation	-	-	-	7283-1289-30	8
	99801AA430	Repair harness connector	Yazaki Corporation	-	-	-	7283-7080-40	8
	99801AA440	Repair harness connector	Yazaki Corporation	7283-1927-30	7157-6826-80	-	-	2
	99801AA470	Repair harness connector	Sumitomo Wiring Systems	-	-	-	6195-0152	12
	99801FN100	Repair harness connector	Sumitomo Wiring Systems	-	-	-	6189-7410	12
	99801FN110			-	-	7165-0193	-	
	99801SL050	Repair harness connector	Sumitomo Wiring Systems	-	-	-	6195-0152	12
	99801SL060			-	-	7161-9787		
Front fog light	99801AA040	Repair harness connector	Sumitomo Wiring Systems	6189-0935	6918-1922	-	-	2
Daytime running light	99801AA050	Repair harness connector	Delphi	-	-	-	F487000	2
Main fan motor	99801AA060	Repair harness connector	Sumitomo Wiring Systems	6185-0867	6918-1774	-	-	2
	99801AA120	Repair harness connector	Yazaki Corporation	7123-6423-30	7157-6720	-	-	2
	99801AA450	Repair harness connector	Furukawa Electric Co., Ltd.	S120479	S120500	-	-	2
	99801AA460	Repair harness connector	Furukawa Electric Co., Ltd.	S120174	S120184	-	-	2
Main fan motor harness	99801AA490	Repair harness connector	Sumitomo Wiring Systems	-	-	-	6189-1048	4
Sub fan motor	99801AA060	Repair harness connector	Sumitomo Wiring Systems	6185-0867	6918-1774	-	-	2
	99801AA130	Repair harness connector	Sumitomo Wiring Systems	-	-	-	6189-0482	2
	99801AA450	Repair harness connector	Furukawa Electric Co., Ltd.	S120479	S120500	-	-	2
	99801AA460	Repair harness connector	Furukawa Electric Co., Ltd.	S120174	S120184	-	-	2
Sub fan motor harness	99801AA490	Repair harness connector	Sumitomo Wiring Systems	-	-	-	6189-1048	4
Front harness	99801VC010	Repair harness connector	Yazaki Corporation	-	-	-	7282-7040-30	4
	99801VC020	Repair harness connector	Yazaki Corporation	-	-	-	7283-7043-30	4
Front oxygen (A/F) sensor	99801AA070	Repair harness connector	Sumitomo Wiring Systems	-	-	-	6189-0509	4
	99801AA140	Repair harness connector	Sumitomo Wiring Systems	6181-0664	6918-1600	-	-	6

Connector name	Replacement part No.	Replacement part name	Connector manufacturer	Connector manufacturer part number				Poles
				Housing	Retainer	Waterproof plug (cap)	Housing & retainer	
Rear oxygen sensor	99801AA080	Repair harness connector	Sumitomo Wiring Systems	-	-	-	6189-0581	4
	99801AA150	Repair harness connector	Sumitomo Wiring Systems	6181-0513	6918-1598	-	-	4
Ignition coil	99801AA090	Repair harness connector	JST	-	-	-	03NFG-B-1A	3
Bulkhead harness	99801FN070	Repair harness connector	Fujikura Ltd.	-	-	-	HM297080B	8
	99801FN080			-	-	WS267010H	-	
	99801FN090	Repair harness connector	Fujikura Ltd.	-	-	-	HM296030B	3
	99801FN130	Repair harness connector	Sumitomo Wiring Systems	-	-	-	6189-1134	10
	99801FN140			-	-	7165-0797	-	
	99801FN150	Repair harness connector	Sumitomo Wiring Systems	-	-	-	6189-1240	8
	99801FN160			-	-	7165-0797	-	
	99801SL020	Repair harness connector	Yazaki Corporation	-	-	-	7282-2148-30	8
	99801SL030			-	-	7158-3169-40	-	
GPF exhaust temperature sensor	99801FN000	Repair harness connector	Yazaki Corporation	-	-	-	7283-2147-30	3
	99801FN010			-	-	7158-3169-40	-	
Hood switch	99801FN020	Repair harness connector	Yazaki Corporation	-	-	-	7283-8852-30	3
Ambient sensor	99801FN030	Repair harness connector	Yazaki Corporation	-	-	-	7283-7028-30	2
Rear harness	99801FN040	Repair harness connector	Yazaki Corporation	7182-4038-30	7158-6586	-	7282-4038-30	12
	99801FN010			-	-	7158-3169-40	-	
	99801FN050	Repair harness connector	Yazaki Corporation	7183-2148-30	7158-6349	-	7283-2148-30	8
	99801FN060	Repair harness connector	Yazaki Corporation	7182-2090-30	7158-6628	-	7282-2090-30	2
	99801SL040	Repair harness connector	Yazaki Corporation	-	-	-	7282-7771-80	3
	99801SL070	Repair harness connector	Sumitomo Wiring Systems	-	-	-	6188-4914	13
	99801SL080	Repair harness connector	Sumitomo Wiring Systems	-	-	-	6188-0696	10
Washer motor	99801FN170	Repair harness connector	Sumitomo Wiring Systems	-	-	-	6189-0249	2
OP connector (LED light)	99801FN170	Repair harness connector	Sumitomo Wiring Systems	-	-	-	6189-0249	2
	99801FN180			-	-	6188-0266	-	
	99801FN190			-	-	7160-9465	-	
Rear radar sensor	99801FN130	Repair harness connector	Sumitomo Wiring Systems	-	-	-	6189-1134	10
	99801FN140			-	-	7165-0797	-	
Washer fluid level sensor	99801FN120	Repair harness connector	Sumitomo Wiring Systems	-	-	-	6189-0200	2
Headlight washer motor	99801FN200	Repair harness connector	Sumitomo Wiring Systems	-	-	-	6189-0425	2
Rear combination light	99801FN210	Repair harness connector	Sumitomo Wiring Systems	-	-	-	6189-0372	4
Active grill shutter	99801SL000	Repair harness connector	Tyco Electronics	-	-	-	1-1670918-1	4
	99801SL010			-	-	967056-1	-	
Smart antenna	99801SL090	Repair harness connector	Sumitomo Wiring Systems	-	-	-	6189-7073	2

For more information regarding harness repair connectors for each vehicle model, please refer to the "Body & Electrical / WIRING DIAGRAM", "WIRING DIAGRAM", "Harness Repair Kit", "SPECIFICATION", and "APPLICATION CHART" sections in the service manual.

4. Connector replacement

Precautions for connector replacement work

- Be sure to turn the ignition switch to OFF and disconnect the negative terminal of the battery before starting work.
- If the connector is damaged, perform a visual inspection of the harness to confirm that it is not damaged.
- Make sure that the fuse is not blown.
- If there are any abnormalities such as deformation or damage to the terminal or waterproof plug, repair by replacing the entire harness assembly without replacing the connector.
- Do not cut the harness as the terminal parts are not included with the repair harness connector.
- When peeling off the harness tape and protective element to make it easier to work, ensure that the repair and waterproofing work of the portion where the harness tape and protective element were peeled is appropriately carried out.

A: Detaching the connector

NOTE:
Thoroughly wipe any dirt or oil off the harness to be repaired.

1) Remove all of the parts attached to the connector to be replaced.
2) Disconnect the connector.
3) Undo all fasteners such as clips and pull out the connector.

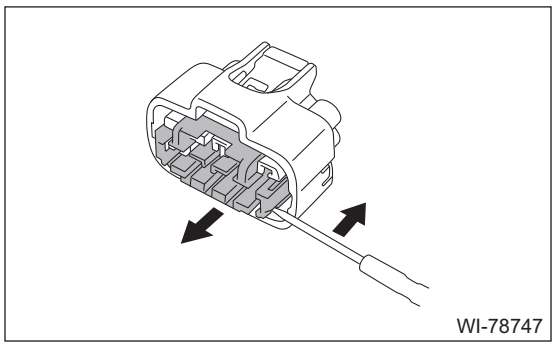
B: Releasing the terminal retainer

1) Release the retainer from the housing (connector).

CAUTION:

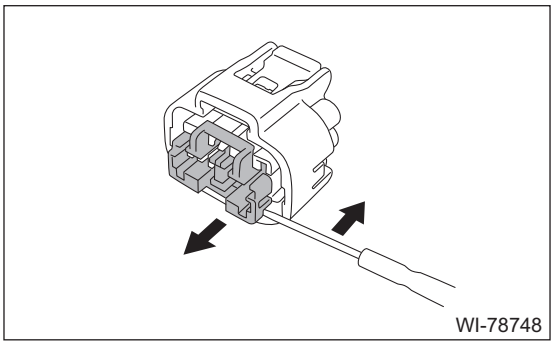
- Be careful not to deform or damage the terminal when removing the retainer.
- Before removing the retainer, make a note of the connector terminal arrangement and wire colors.
- Be careful not to assemble the wires erroneously because the same-color wires may be used in the connector.

2) Removal method for each connector.
   (1) Headlight (99801AA020)
   - Pry out the left and right sides of the retainer.



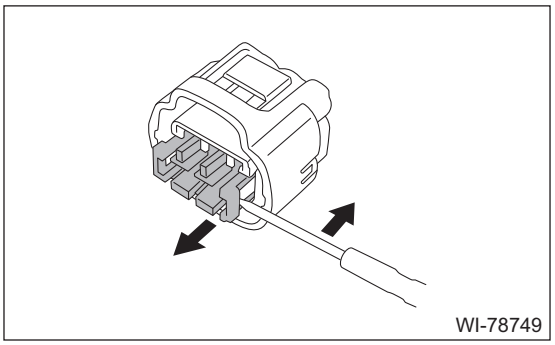
(2) Headlight (99801AA000)

- Pry out the left and right sides of the retainer.



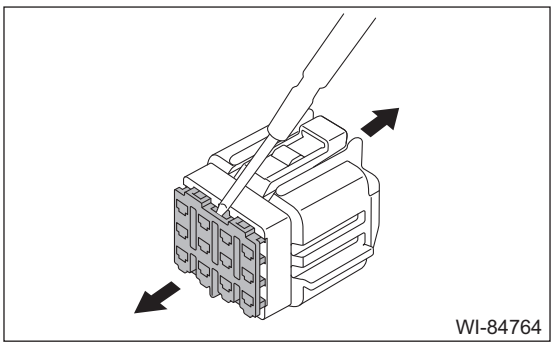
(3) Headlight (99801AA010)

- Pry out the left and right sides of the retainer.



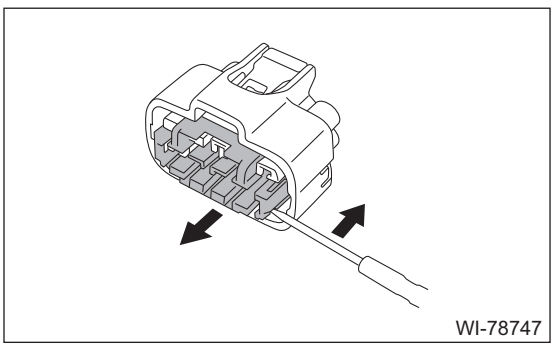
(4) Headlight (99801AA100)

- Pry out the top side of the retainer.



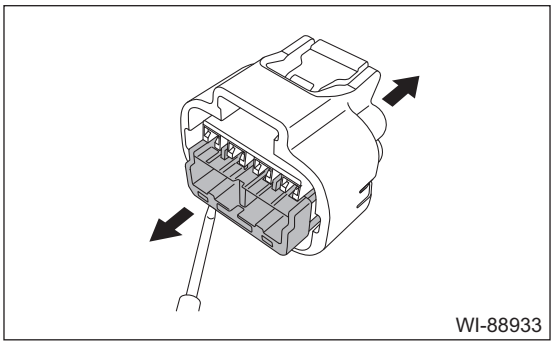
(5) Headlight (99801AA110)

- Pry out the left and right sides of the retainer.



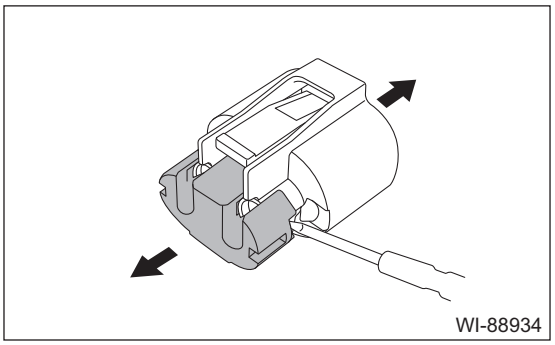
(6) Headlight (99801AA430)

- Pry out the bottom side of the retainer.



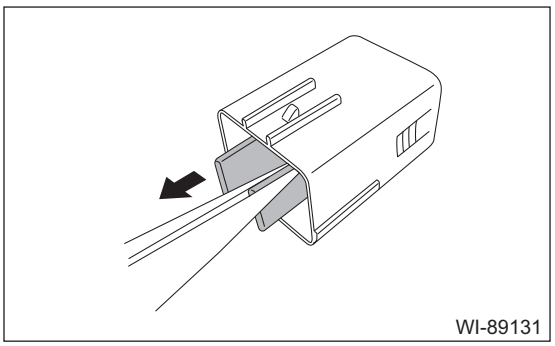
(7) Headlight (99801AA440)

- Pry out the left and right sides of the retainer.



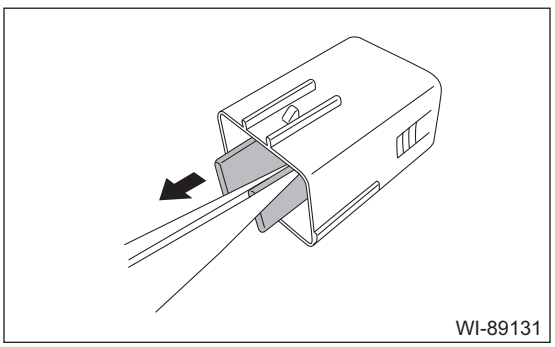
(8) Headlight (99801AA470)

- Pinch the retainer with needle nose pliers, and pull it out straight.



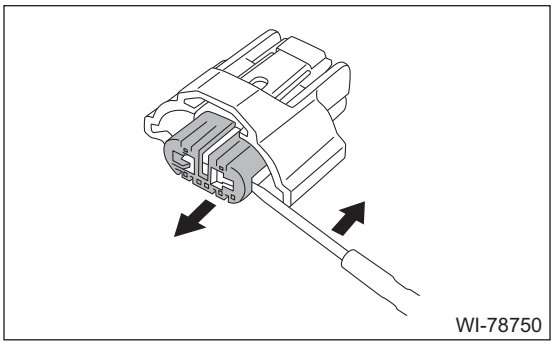
(9) Headlight (99801SL050)

- Pinch the retainer with needle nose pliers, and pull it out straight.



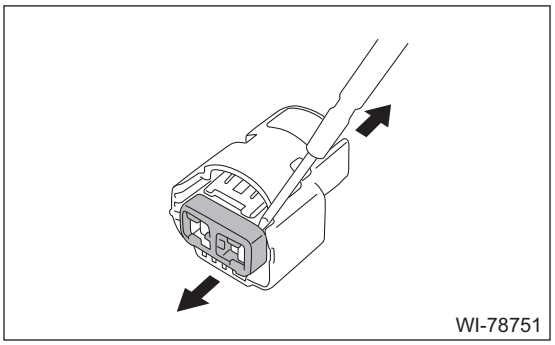
(10) Front fog light (99801AA040)

- Pry out the left and right sides of the retainer.



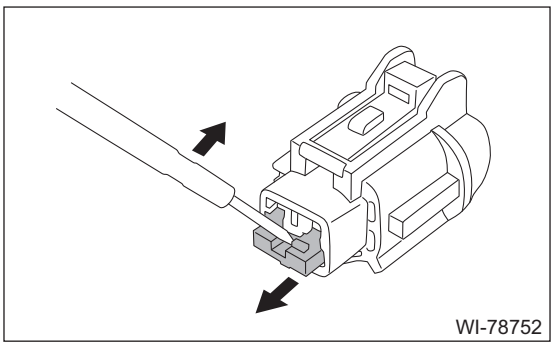
(11) Daytime running light (99801AA050)

- Pry out the left and right diagonal corners of the retainer.



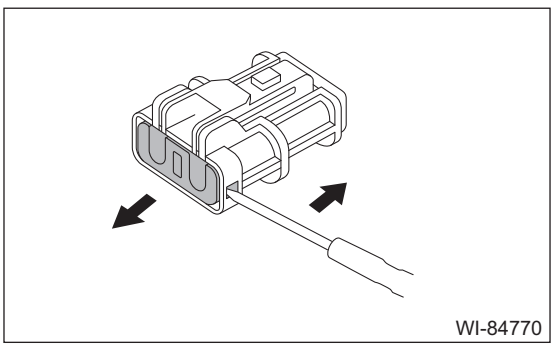
(12) Main fan motor (99801AA060)

- Pry out the top side of the retainer.



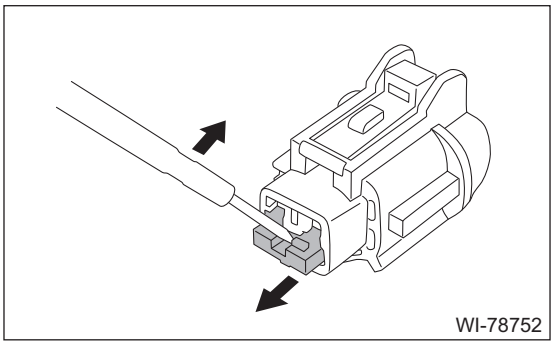
(13) Main fan motor (99801AA120)

- Pry out the left and right sides of the retainer.



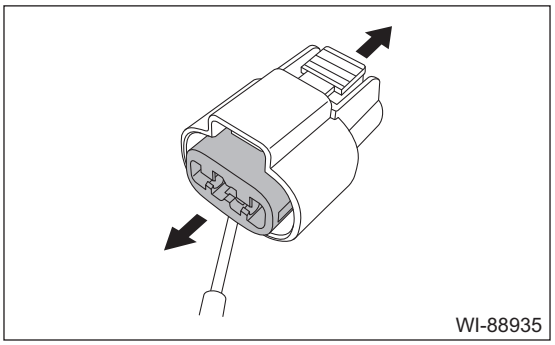
(14) Main fan motor (99801AA450)

- Pry out the top side of the retainer.



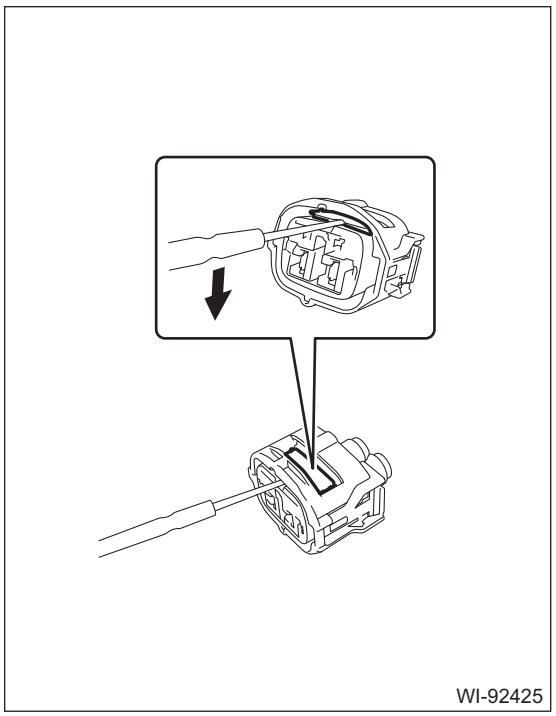
(15) Main fan motor (99801AA460)

- Pry out the bottom side of the retainer.

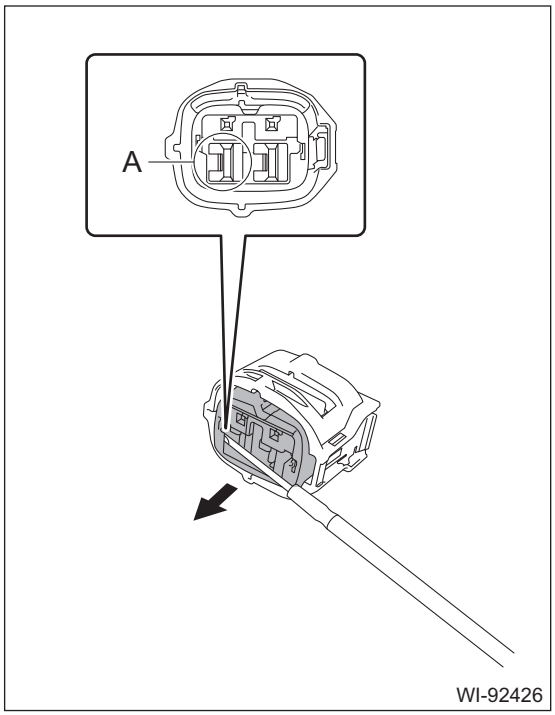


(16) Main fan motor harness (99801AA490)

1. Release the retainer lock.

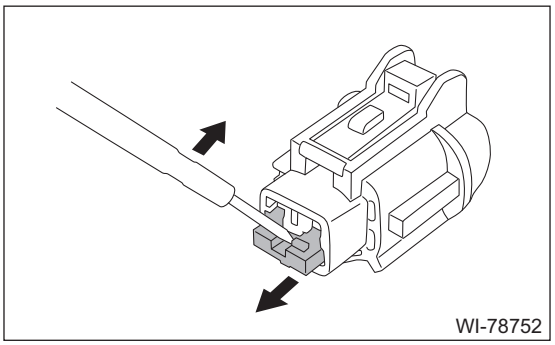


2. Insert the precision screwdriver into the terminal release hole A, check that the precision screwdriver is firmly applied against the retainer, and then slowly pull it out toward you.



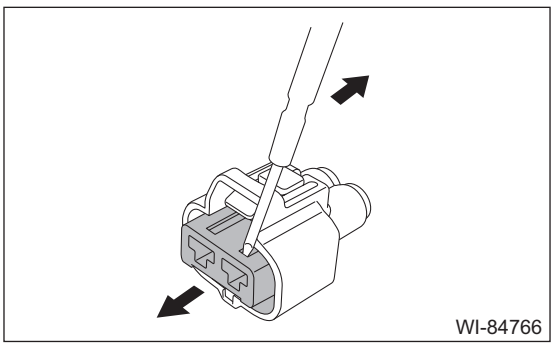
(17) Sub fan motor (99801AA060)

- Pry out the top side of the retainer.



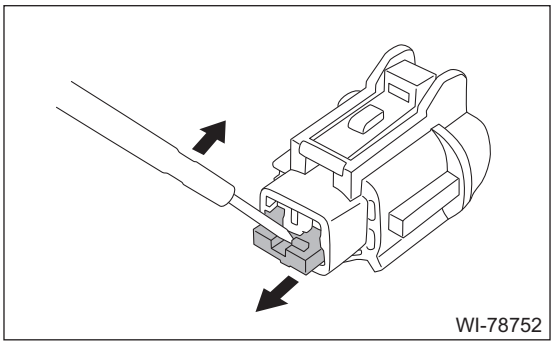
(18) Sub fan motor (99801AA130)

- Pry out the top side of the retainer.



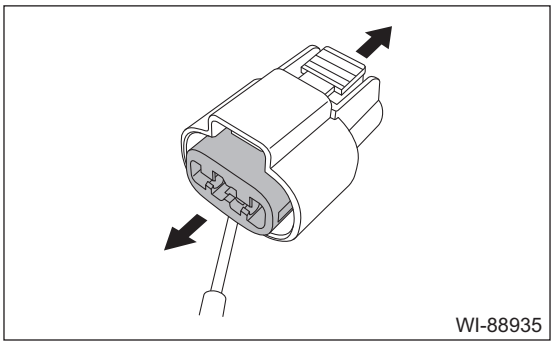
(19) Sub fan motor (99801AA450)

- Pry out the top side of the retainer.



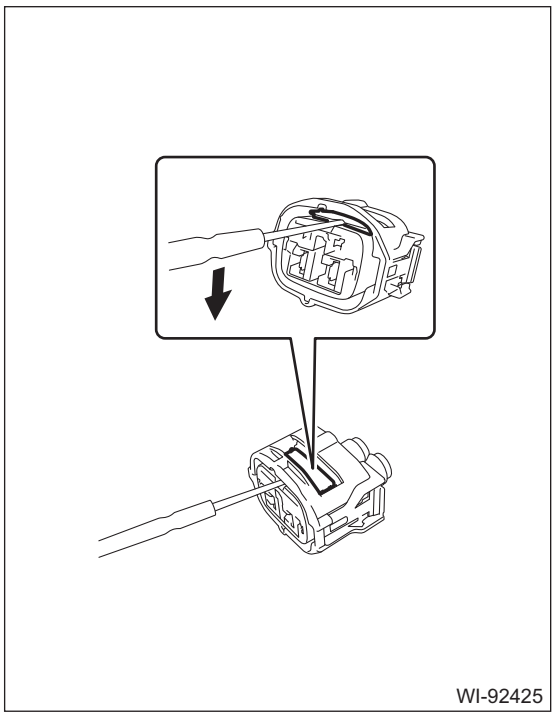
(20) Sub fan motor (99801AA460)

- Pry out the bottom side of the retainer.

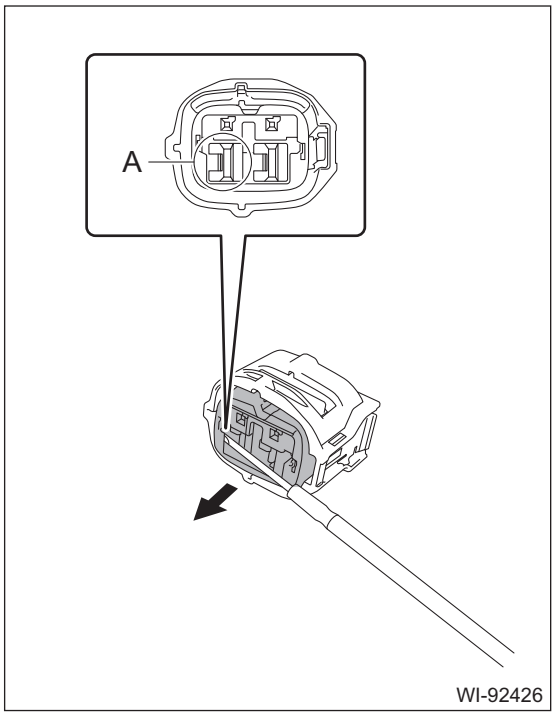


(21) Sub fan motor harness (99801AA490)

1. Release the retainer lock.

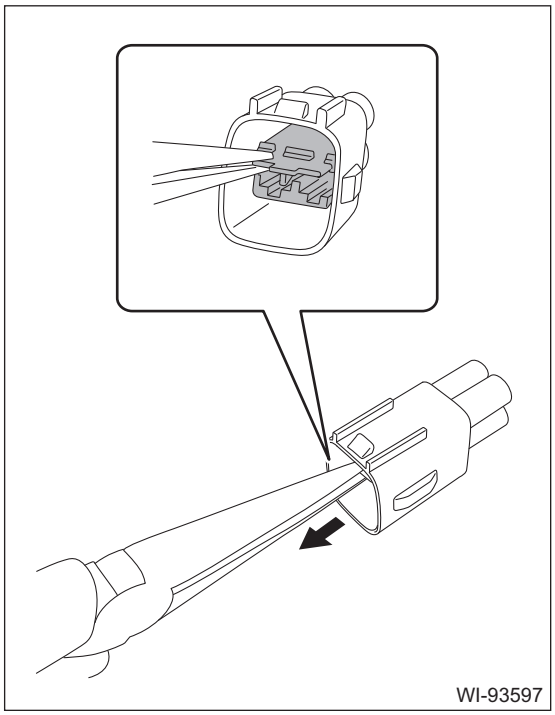


2. Insert the precision screwdriver into the terminal release hole A, check that the precision screwdriver is firmly applied against the retainer, and then slowly pull it out toward you.



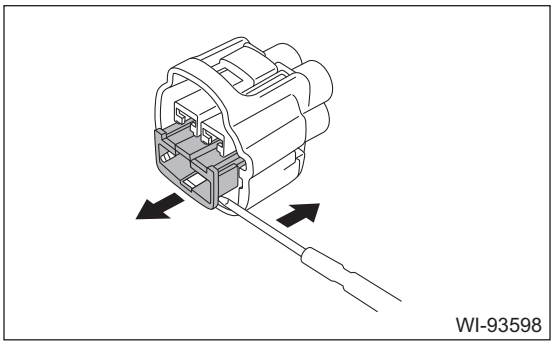
(22) Front harness (99801VC010)

- Release the retainer lock.



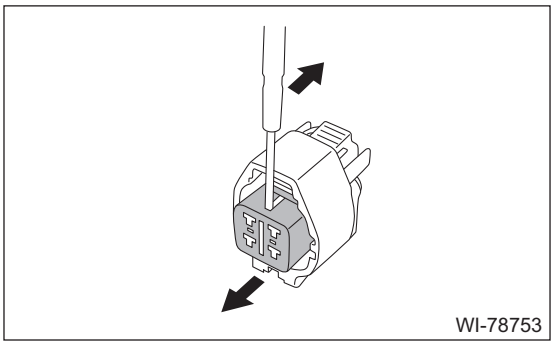
(23) Front harness (99801VC020)

- Release the retainer lock.



(24) Front oxygen (A/F) sensor (99801AA070)

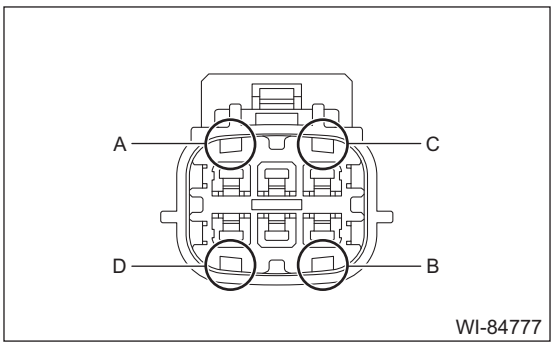
- Pry out the top and bottom sides of the retainer.

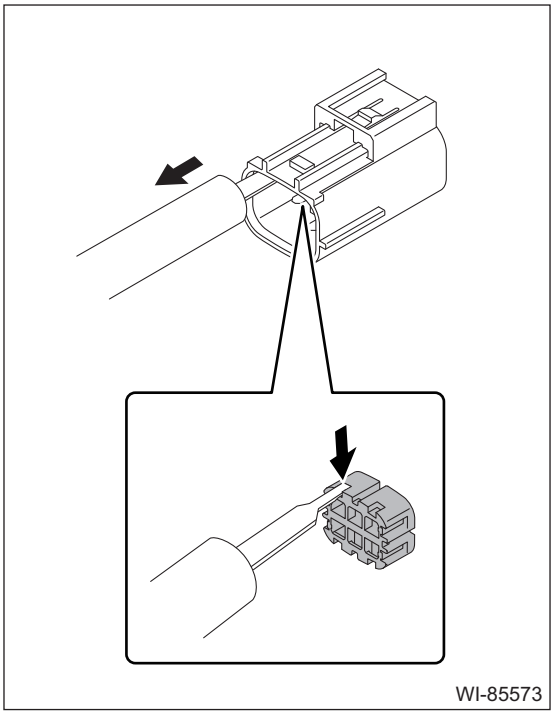


(25) Front oxygen (A/F) sensor (99801AA140)

- Insert the special tool into the retainer release hole A or B. Make sure the special tool is firmly attached to the retainer, and then slowly pull the retainer out.

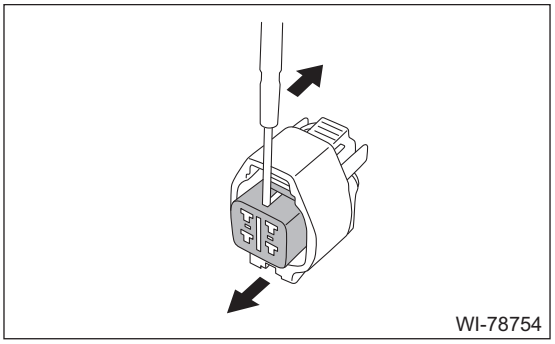
CAUTION:
If you pull the retainer with the special tool inserted into hole C or D, you can damage the retainer. Do not use holes C and D.





(26) Rear oxygen sensor (99801AA080)

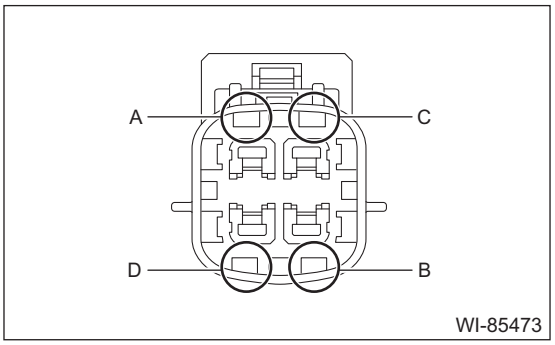
- Pry out the top and bottom sides of the retainer.

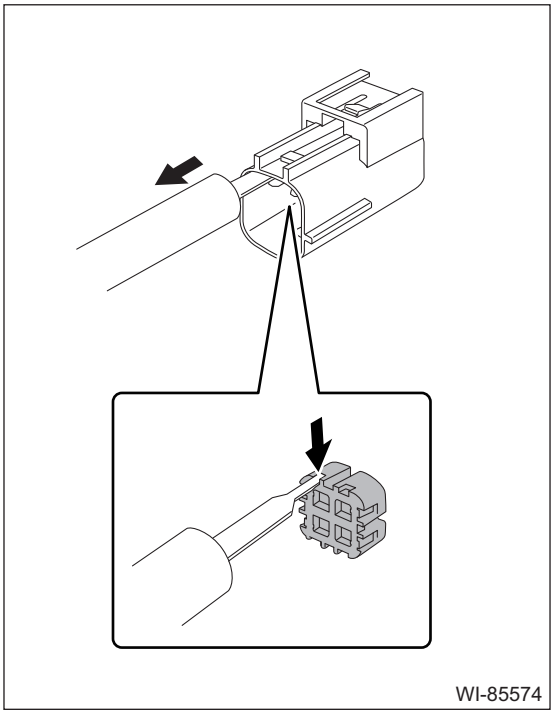


(27) Rear oxygen sensor (99801AA150)

- Insert the special tool into the retainer release hole A or B. Make sure the special tool is firmly attached to the retainer, and then slowly pull the retainer out.

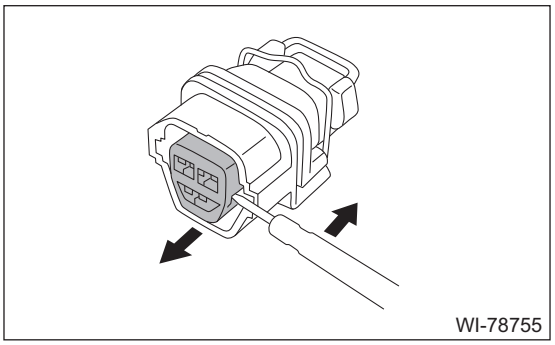
CAUTION:
If you pull the retainer with the special tool inserted into hole C or D, you can damage the retainer. Do not use holes C and D.





(28) Ignition coil (99801AA090)

- Pry out the left and right sides of the retainer.



(29) Bulkhead harness (99801FN070)

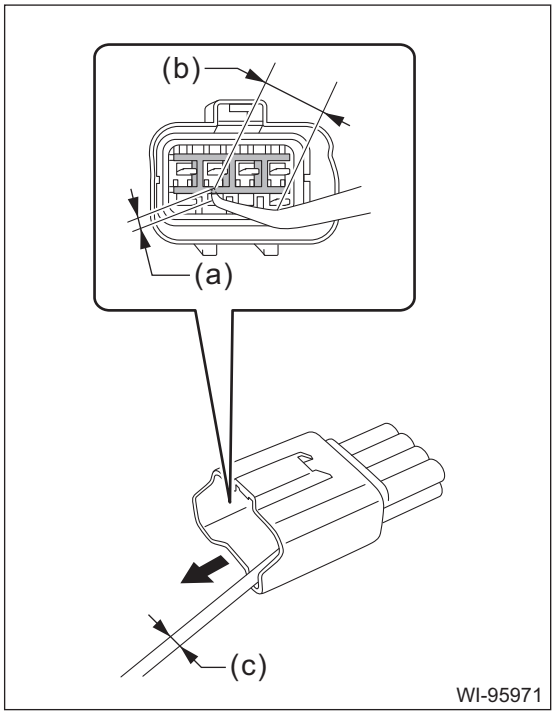
- Pry out the bottom side of the retainer.

NOTE:
Pick tool:

(a): 3.5 mm (0.138 in)

(b): 10 mm (0.394 in)

(c): 3 mm (0.118 in)



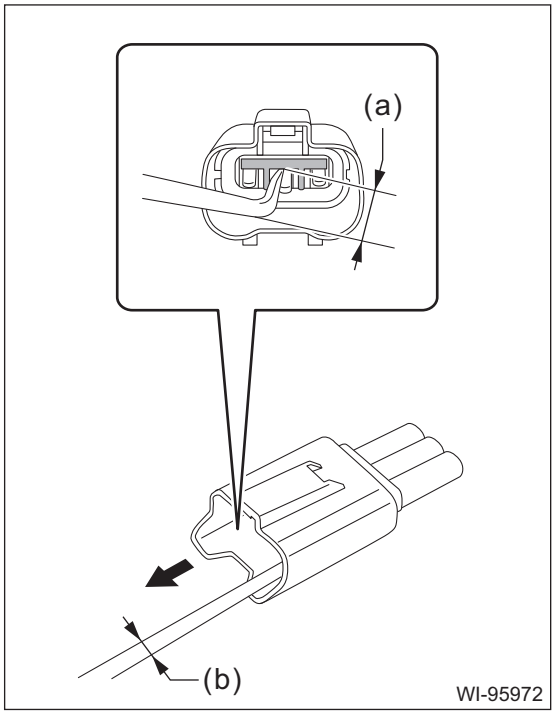
(30) Bulkhead harness (99801FN090)

- Pry out the bottom side of the retainer.

NOTE:
Pick tool:

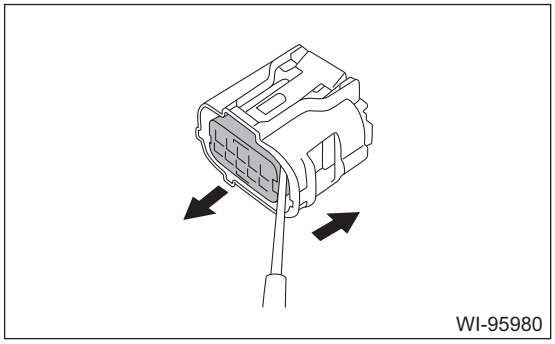
(a): 14 mm (0.551 in)

(b): 3 mm (0.118 in)

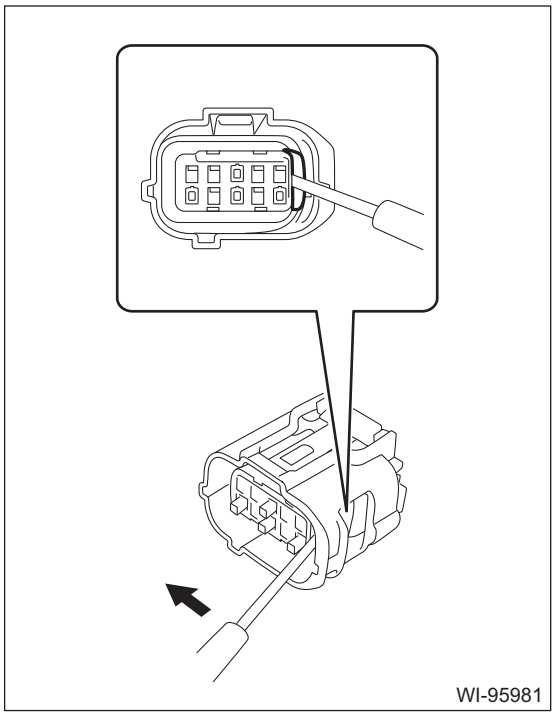


(31) Bulkhead harness (99801FN130)

1. Pry out the left and right sides of the retainer.

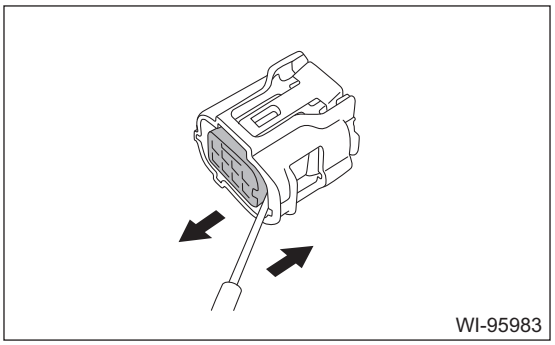


2. Release the retainer lock.

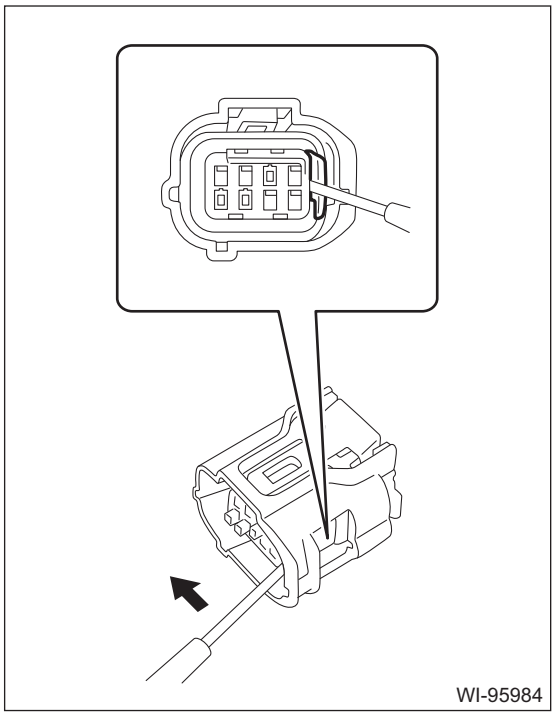


(32) Bulkhead harness (99801FN150)

1. Pry out the left and right sides of the retainer.



2. Release the retainer lock.



(33) Bulkhead harness (99801SL020)

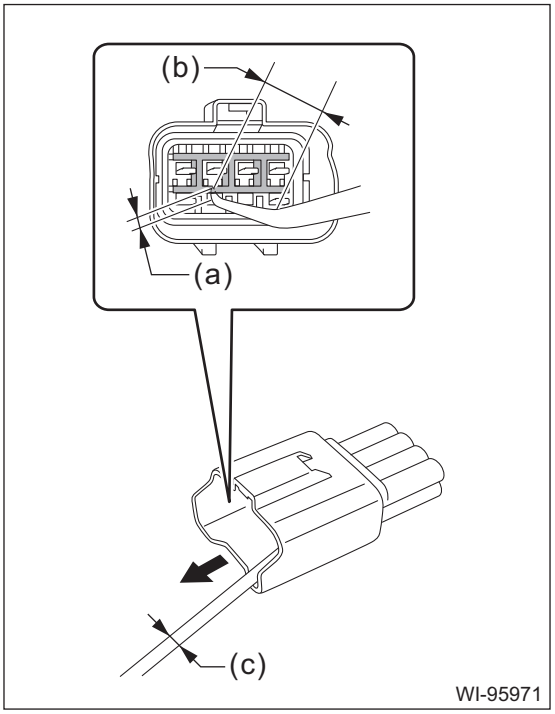
- Pry out the bottom side of the retainer.

NOTE:
Pick tool:

(a): 3.5 mm (0.138 in)

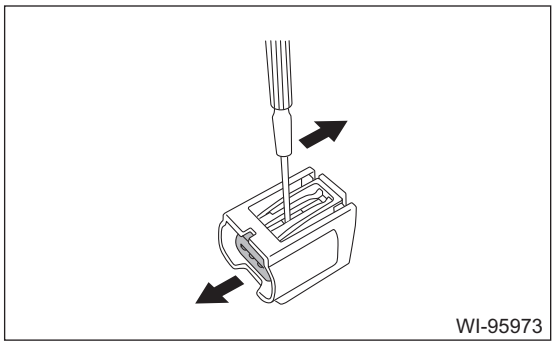
(b): 10 mm (0.394 in)

(c): 3 mm (0.118 in)



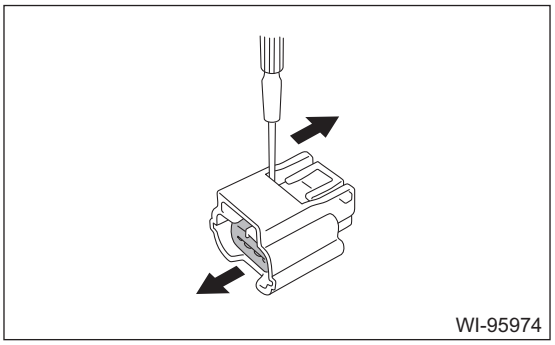
(34) GPF exhaust temperature sensor (99801FN000)

- Pry out the top side of the retainer.



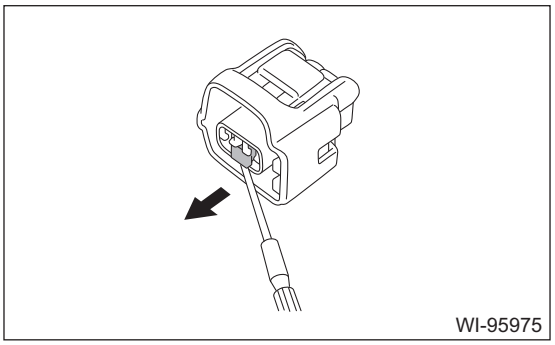
(35) Hood switch (99801FN020)

- Pry out the top side of the retainer.



(36) Ambient sensor (99801FN030)

- Pry out the bottom side of the retainer.



(37) Rear harness (99801FN040)

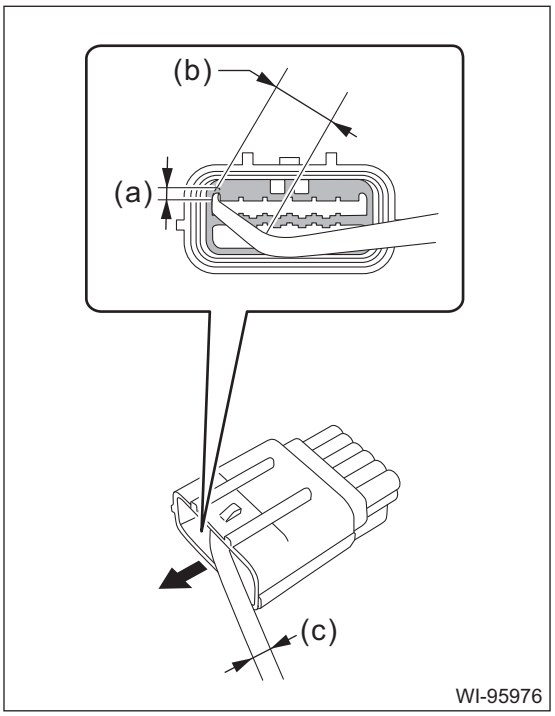
- Pry out the top side of the retainer.

NOTE:
Pick tool:

(a): 3.5 mm (0.138 in)

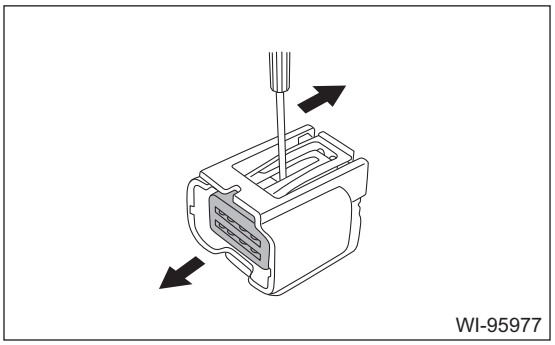
(b): 10 mm (0.394 in)

(c): 3 mm (0.118 in)



(38) Rear harness (99801FN050)

- Pry out the top side of the retainer.



(39) Rear harness (99801FN060)

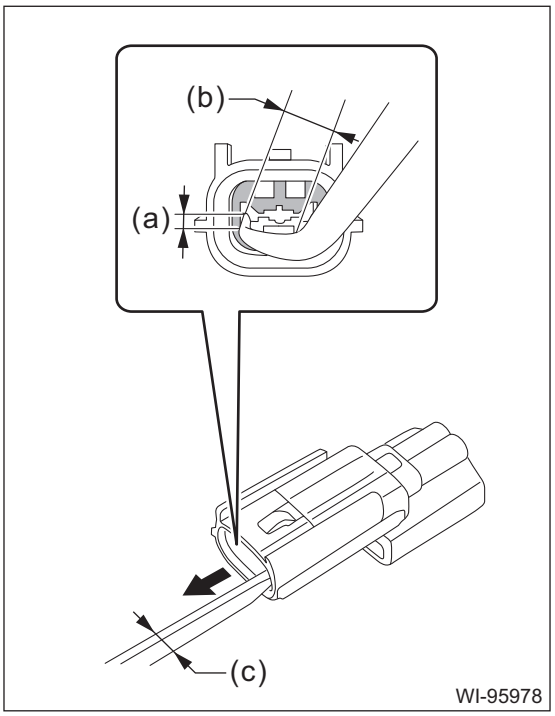
- Pry out the bottom side of the retainer.

NOTE:
Pick tool:

(a): 3.5 mm (0.138 in)

(b): 10 mm (0.394 in)

(c): 3 mm (0.118 in)



(40) Rear harness (99801SL040)

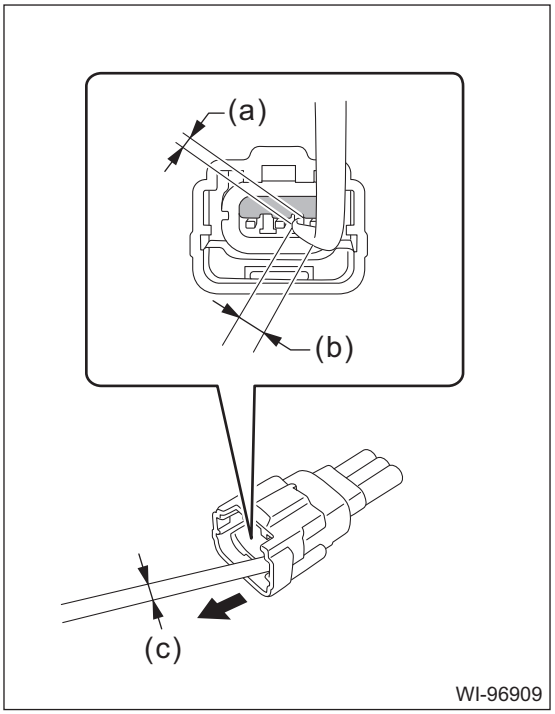
- Pry out the bottom side of the retainer.

NOTE:
Pick tool:

(a): 3.5 mm (0.138 in)

(b): 10 mm (0.394 in)

(c): 3 mm (0.118 in)



(41) Rear harness (99801SL070)

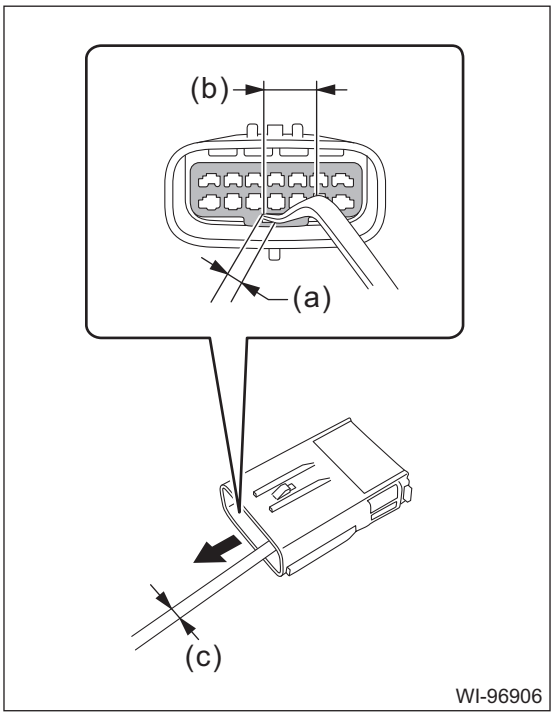
- Pry out the bottom side of the retainer.

NOTE:
Pick tool:

(a): 3.5 mm (0.138 in)

(b): 10 mm (0.394 in)

(c): 3 mm (0.118 in)



(42) Rear harness (99801SL080)

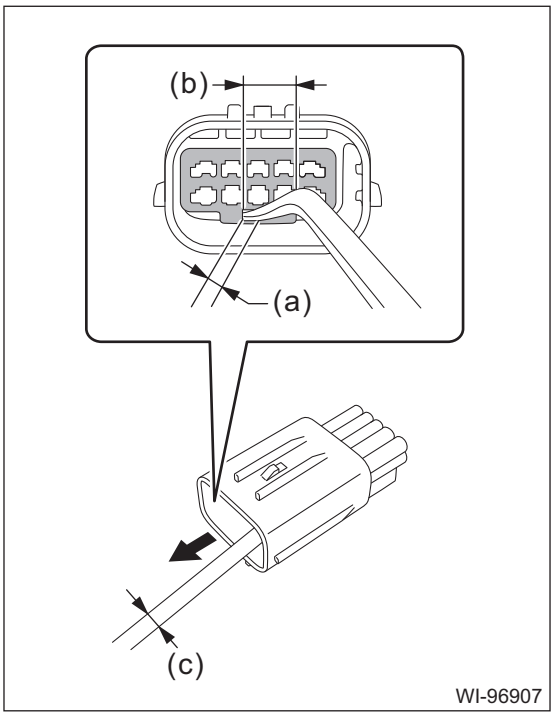
- Pry out the bottom side of the retainer.

NOTE:
Pick tool:

(a): 3.5 mm (0.138 in)

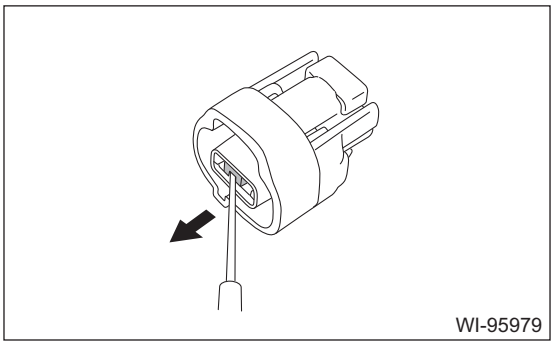
(b): 10 mm (0.394 in)

(c): 3 mm (0.118 in)



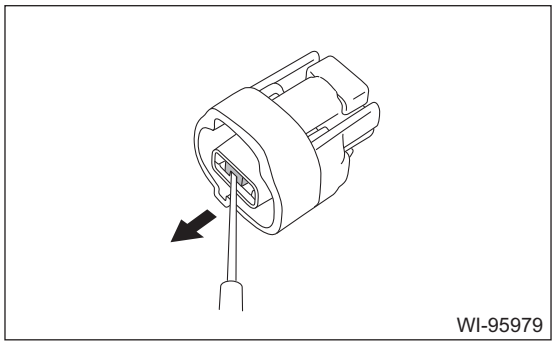
(43) Washer motor (99801FN170)

- Pry out the bottom side of the retainer.



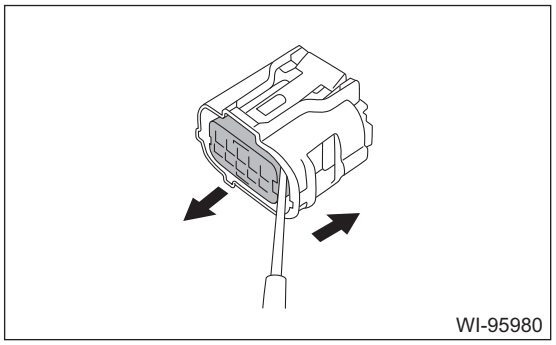
(44) OP connector (LED light) (99801FN170)

- Pry out the bottom side of the retainer.

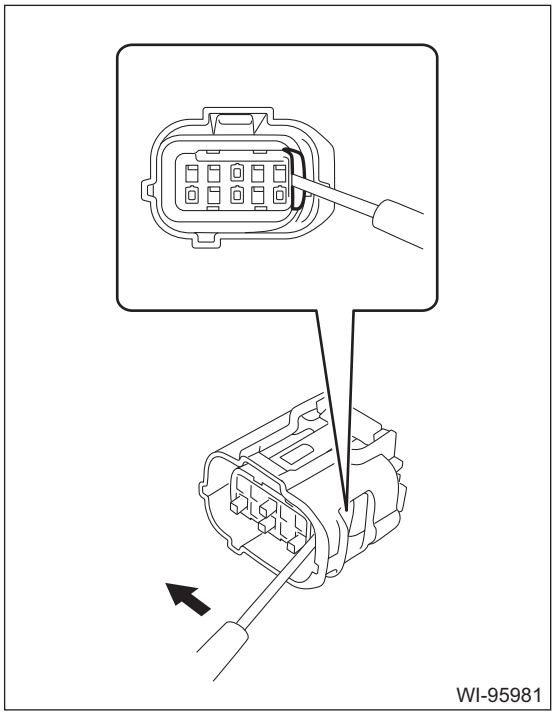


(45) Rear radar sensor (99801FN130)

1. Pry out the left and right sides of the retainer.

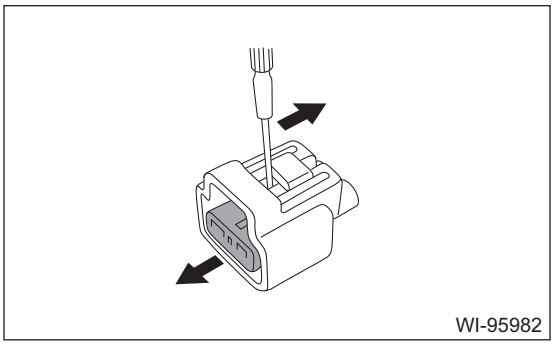


2. Release the retainer lock.



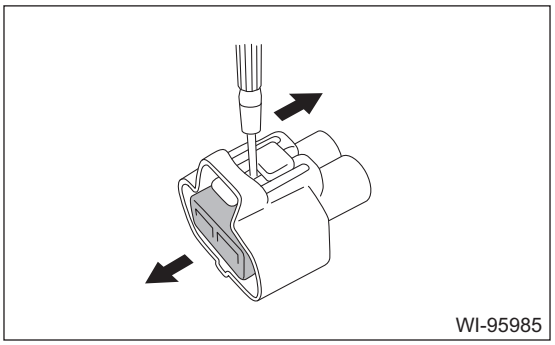
(46) Washer fluid level sensor (99801FN120)

- Pry out the top side of the retainer.



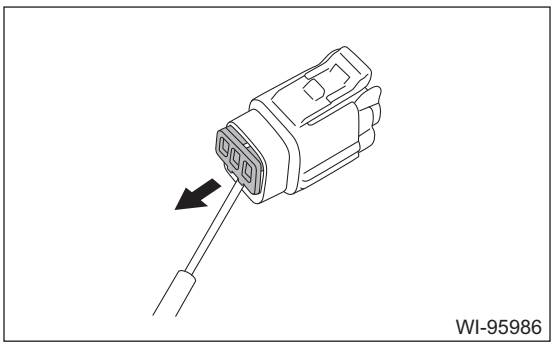
(47) Headlight washer motor (99801FN200)

- Pry out the top side of the retainer.



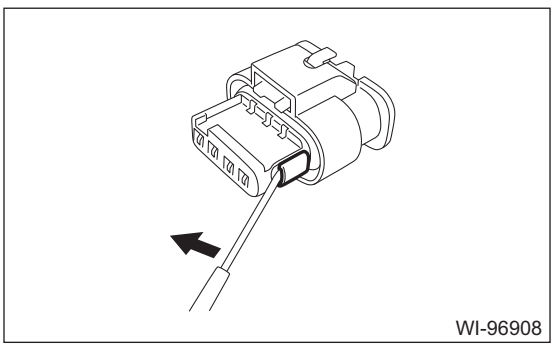
(48) Rear combination light (99801FN210)

- Pry out the bottom side of the retainer.



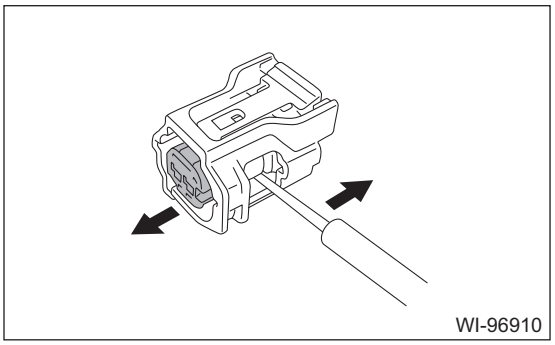
(49) Active grill shutter (99801SL000)

- Remove the retainer lock.

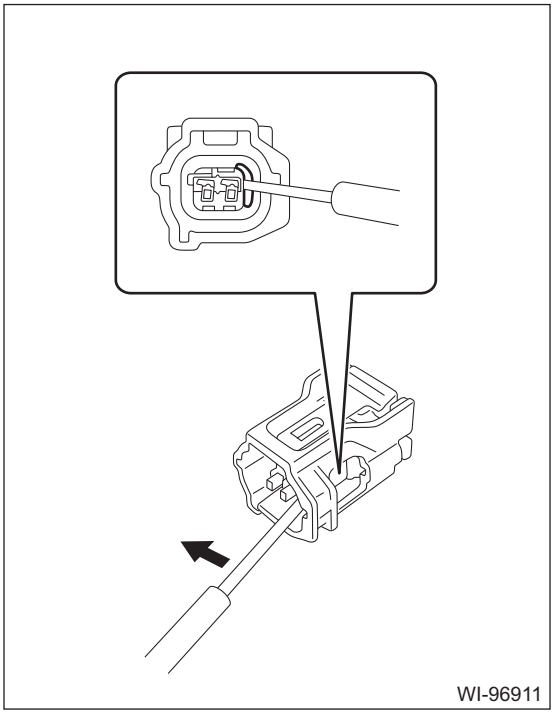


(50) Smart antenna (99801SL090)

1. Pry out the top and bottom sides of the retainer.



2. Release the retainer lock.



C: Removing terminals

CAUTION:
If the terminal is deformed, replace the entire harness assembly.

1) Ensure that the terminal remains pressed against the housing.
2) Check the cross section of each connector and release the terminal locking mechanism using a precision screwdriver.
3) Once the terminal locking mechanism is released, pull out the terminal from the housing.

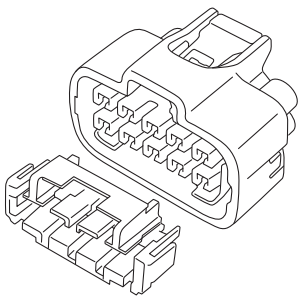
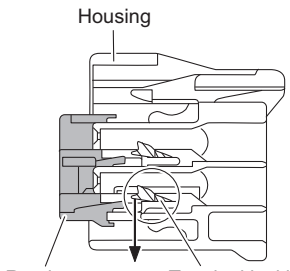
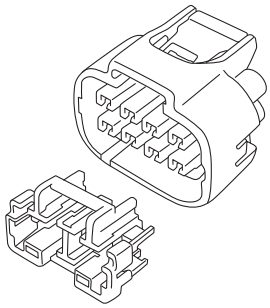
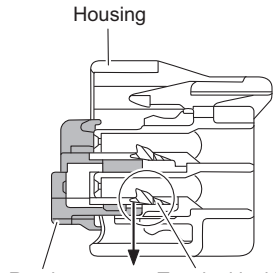
NOTE:
To prevent erroneous connection to the connector with many poles, make sure to pull out one terminal at a time to transfer to a new connector.

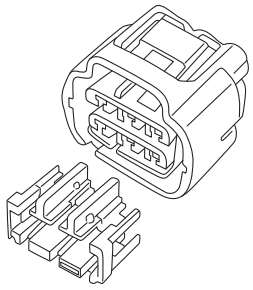
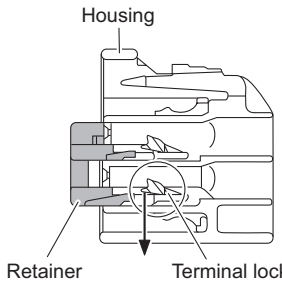
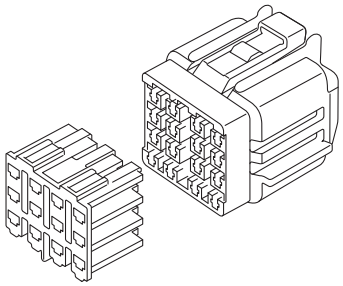
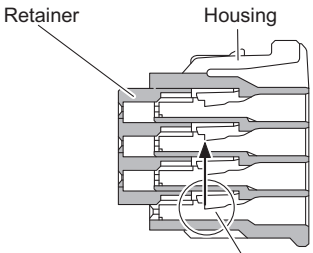
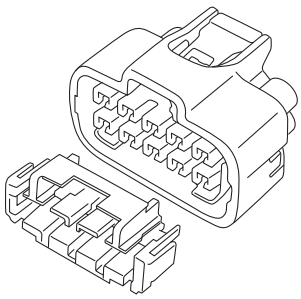
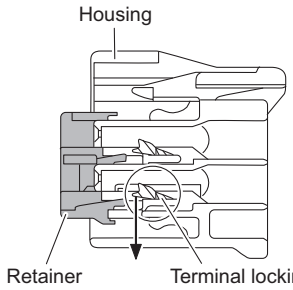
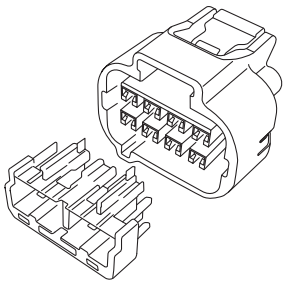
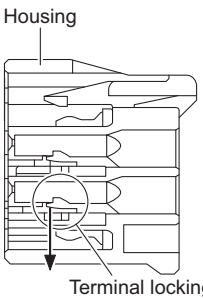
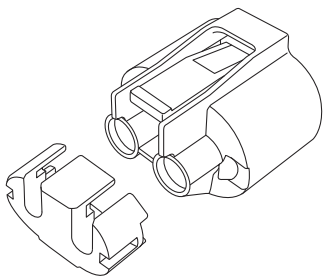
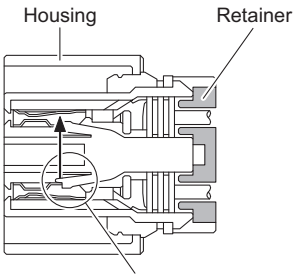
4) If it is not possible to pull out the terminal, repeat the procedure from the start.

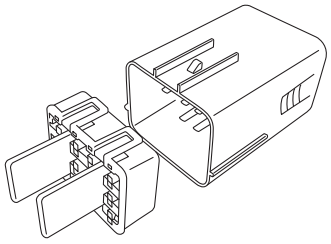
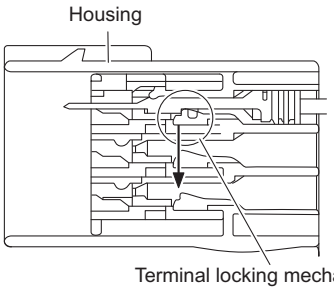
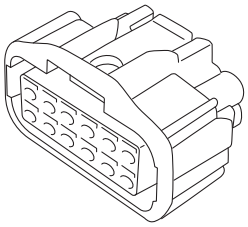
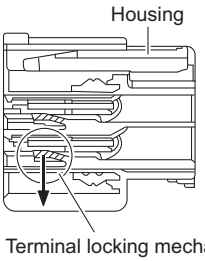
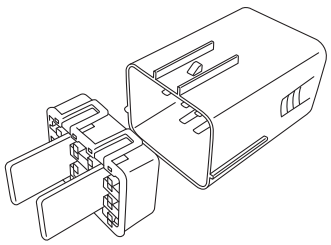
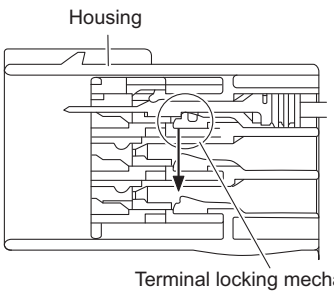
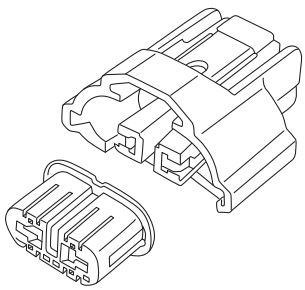
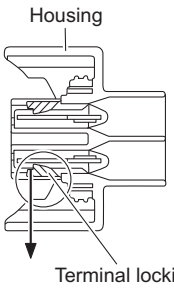
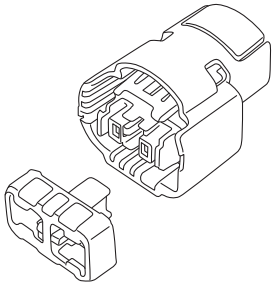
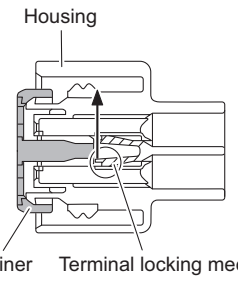
CAUTION:
- Do not forcefully pry out or strongly pull on the terminal.
- Ensure that tools such as the precision screwdriver used to pull out the terminal do not come into contact with the terminal contacts.

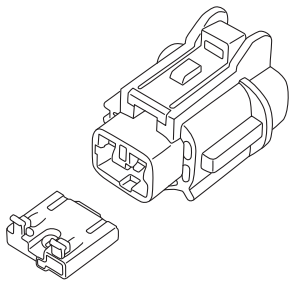
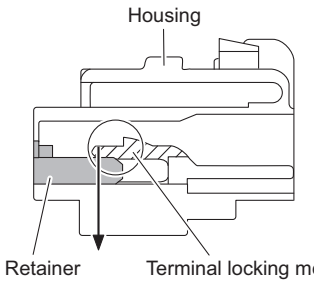
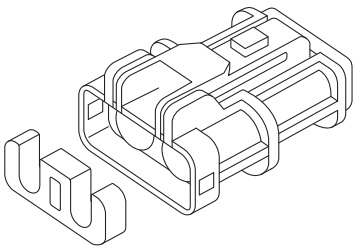
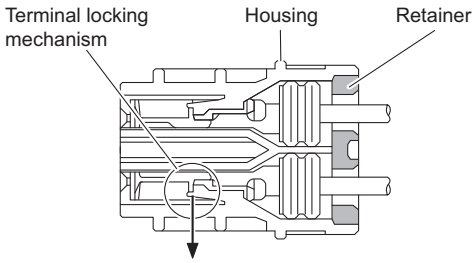
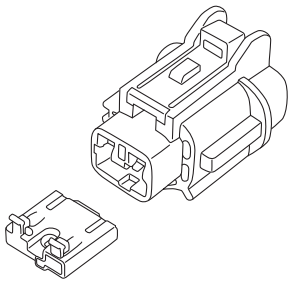
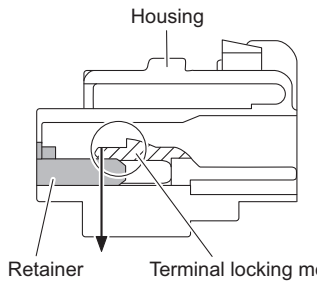
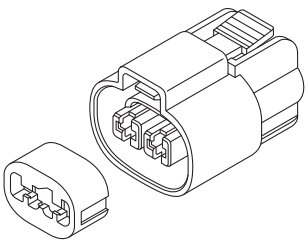
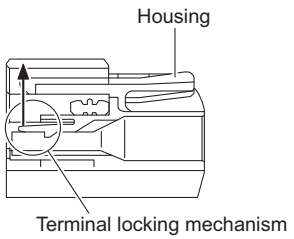
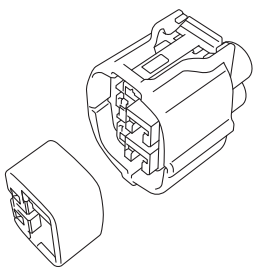
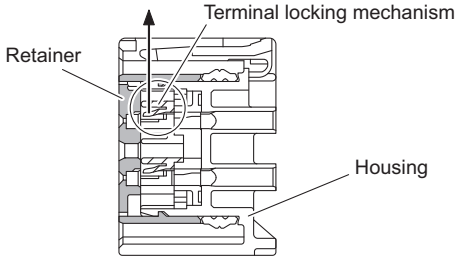
NOTE:
If the distance from the connector to the end of the harness tape and protective element is too short causing it to become difficult to remove the terminal, peel off some of the harness tape and protective element to make it easier to pull out the terminal.

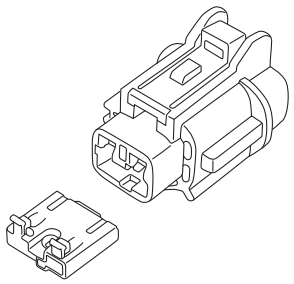
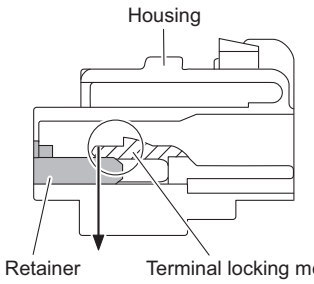
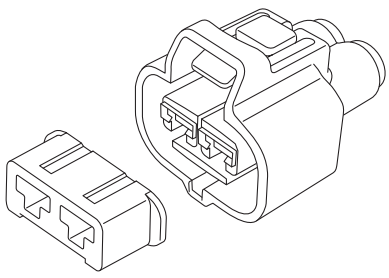
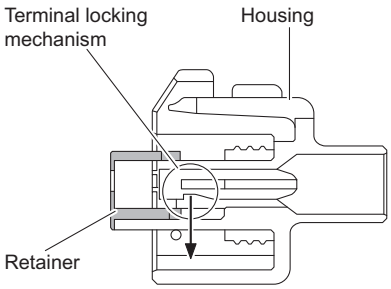
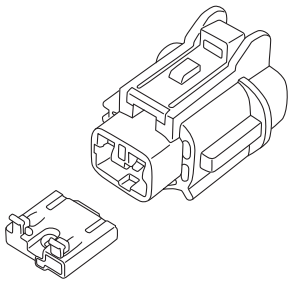
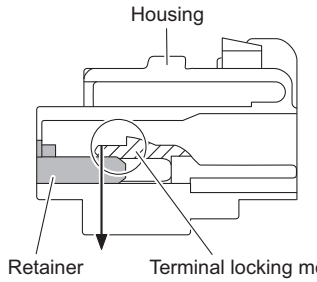
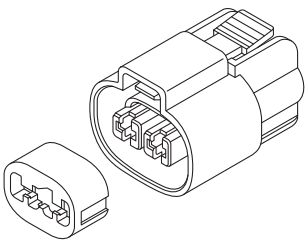
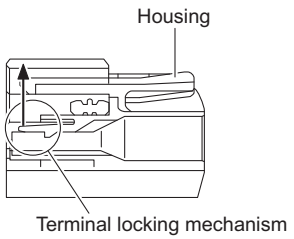
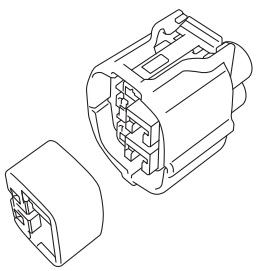
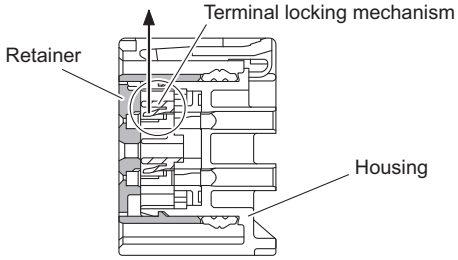
5) Shape and cross section of each connector

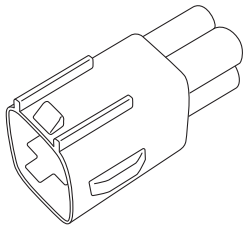
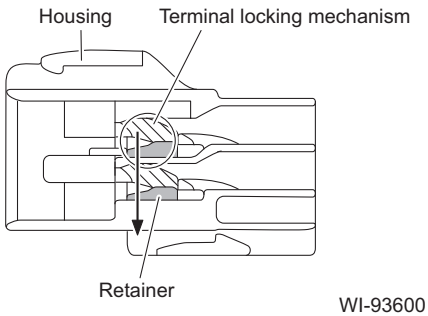
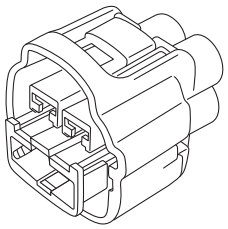
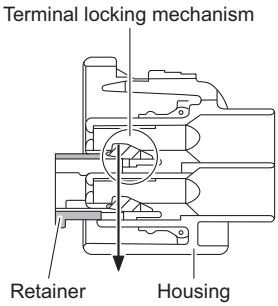
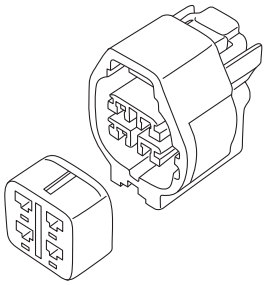
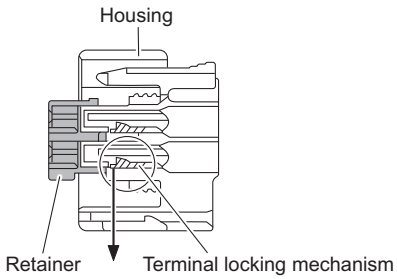
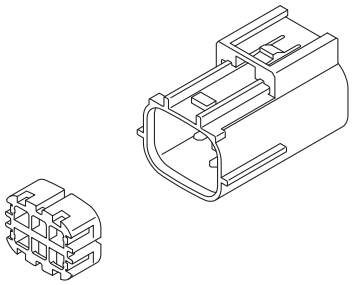
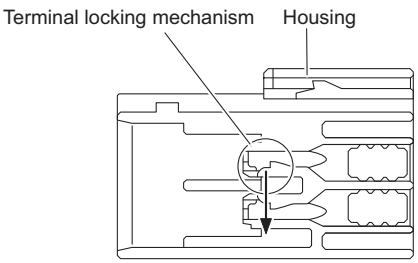
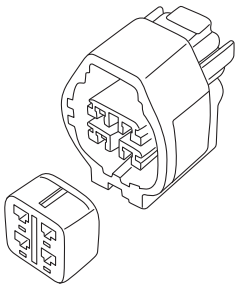
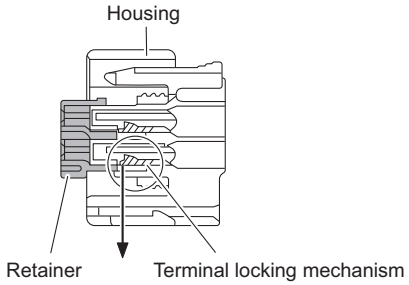
Connector type	Connector shape	Cross section
1) Headlight (99801AA020)	 WI-78766	 WI-78775
2) Headlight (99801AA000)	 WI-78767	 WI-78776

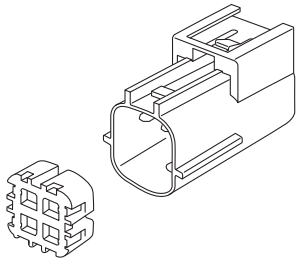
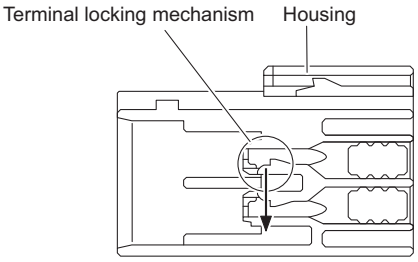
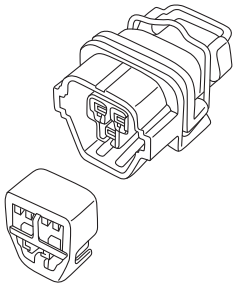
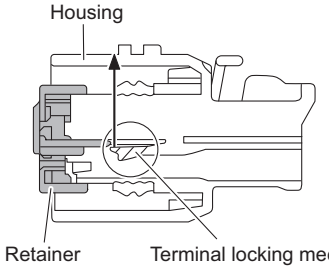
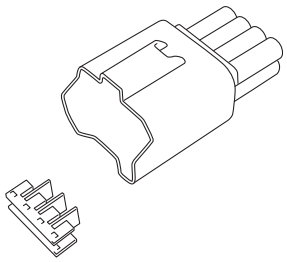
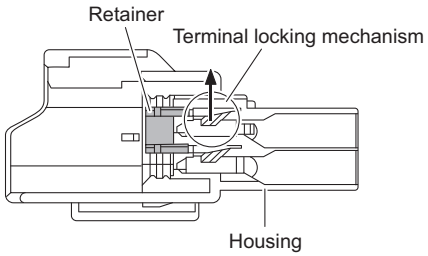
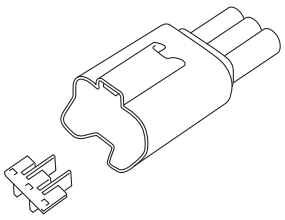
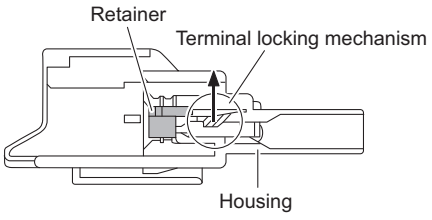
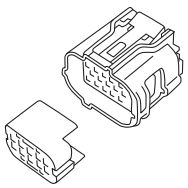
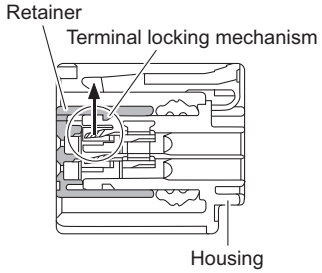
Connector type	Connector shape	Cross section
3) Headlight (99801AA010)	 WI-78768	 WI-78777
4) Headlight (99801AA100)	 WI-84765	 WI-84779
5) Headlight (99801AA110)	 WI-78766	 WI-78775
6) Headlight (99801AA430)	 WI-88936	 WI-88937
7) Headlight (99801AA440)	 WI-88938	 WI-88939

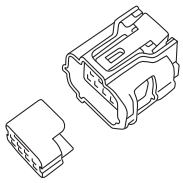
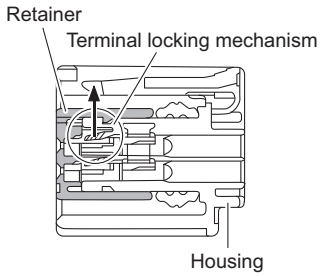
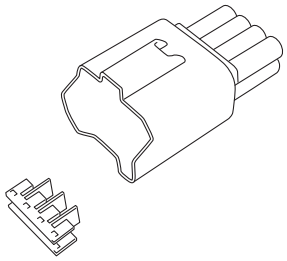
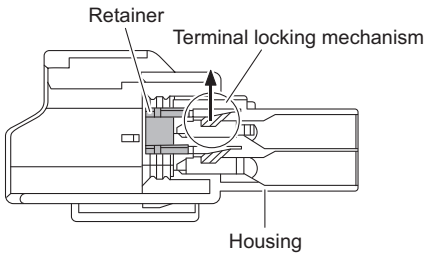
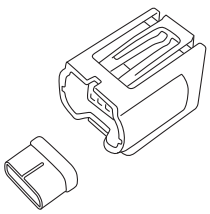
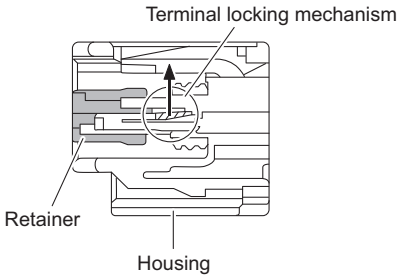
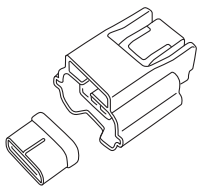
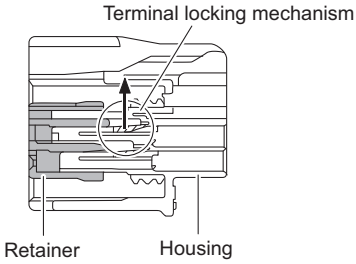
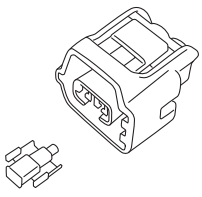
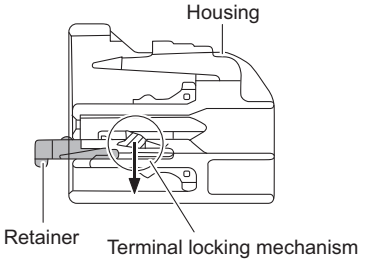
Connector type	Connector shape	Cross section
8) Headlight (99801AA470)	 WI-89132	 WI-89133
9) Headlight (99801FN100)	 WI-95987	 WI-95988
10) Headlight (99801SL050)	 WI-89132	 WI-89133
11) Front fog light (99801AA040)	 WI-78769	 WI-78778
12) Daytime running light (99801AA050)	 WI-78770	 WI-78779

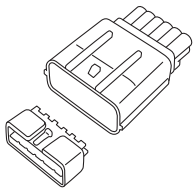
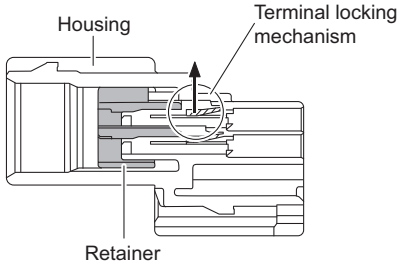
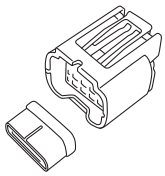
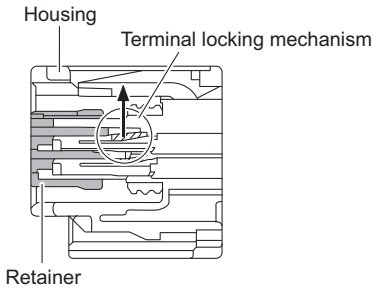
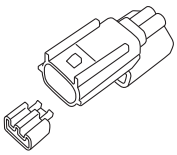
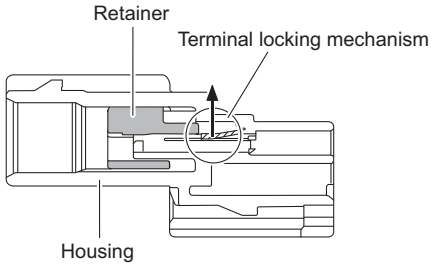
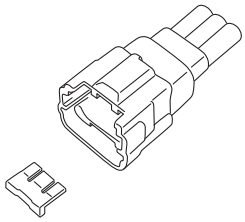
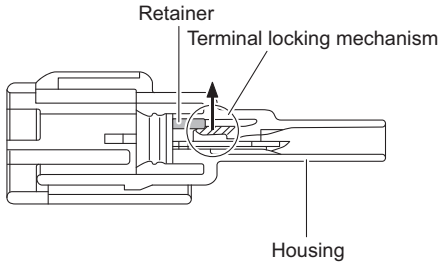
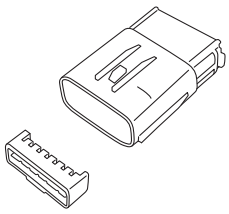
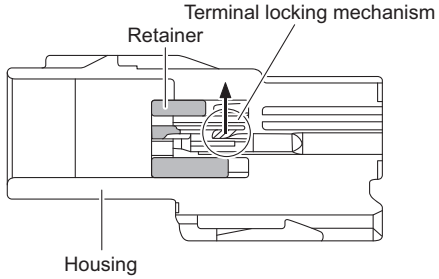
Connector type	Connector shape	Cross section
13) Main fan motor (99801AA060)	 WI-78771	 WI-78780
14) Main fan motor (99801AA120)	 WI-84771	 WI-84780
15) Main fan motor (99801AA450)	 WI-78771	 WI-78780
16) Main fan motor (99801AA460)	 WI-88940	 WI-88941
17) Main fan motor harness (99801AA490)	 WI-92427	 WI-92428

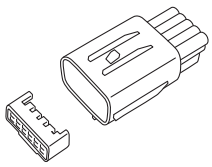
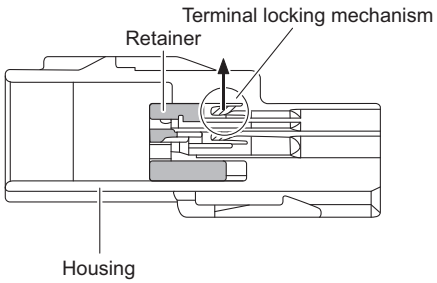
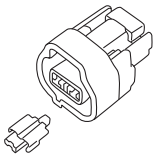
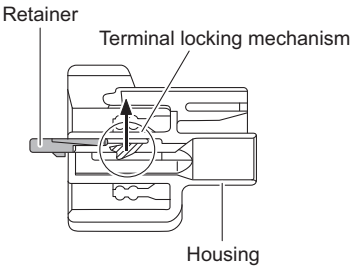
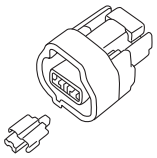
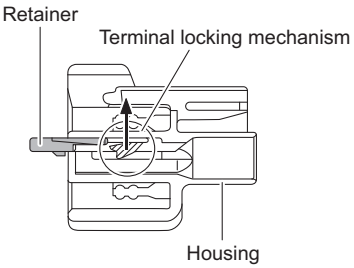
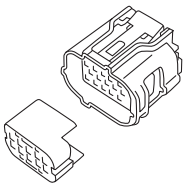
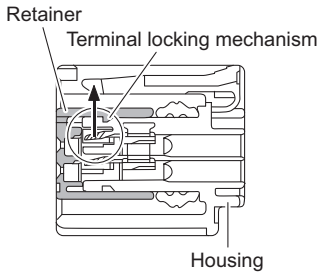
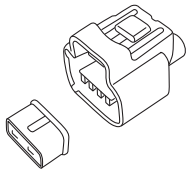
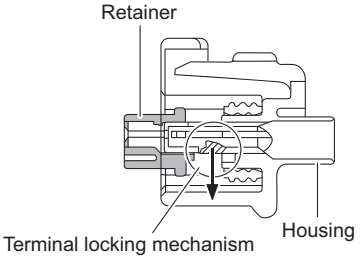
Connector type	Connector shape	Cross section
18) Sub fan motor (99801AA060)	 WI-78771	 WI-78780
19) Sub fan motor (99801AA130)	 WI-84767	 WI-84781
20) Sub fan motor (99801AA450)	 WI-78771	 WI-78780
21) Sub fan motor (99801AA460)	 WI-88940	 WI-88941
22) Sub fan motor harness (99801AA490)	 WI-92427	 WI-92428

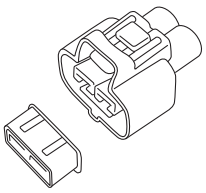
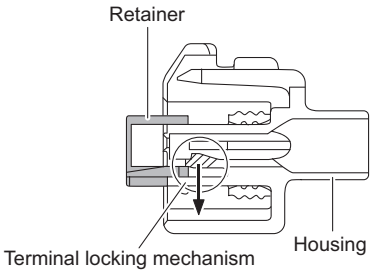
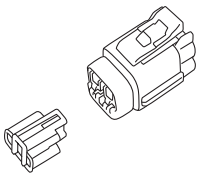
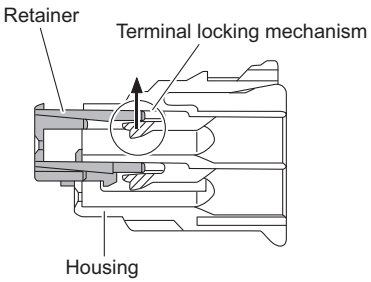
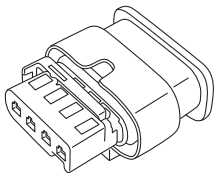
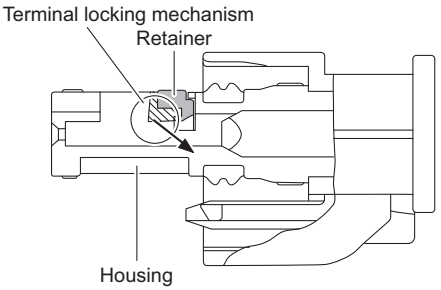
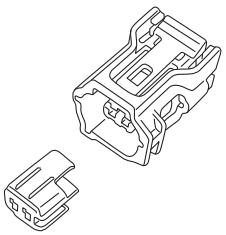
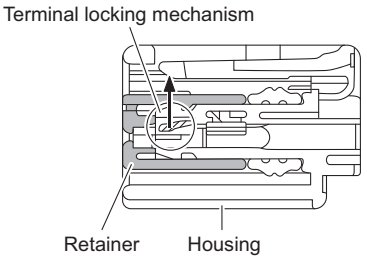
Connector type	Connector shape	Cross section
23) Front harness (99801VC010)	 WI-93599	 WI-93600
24) Front harness (99801VC020)	 WI-93601	 WI-93602
25) Front oxygen (A/F) sensor (99801AA070)	 WI-78772	 WI-78781
26) Front oxygen (A/F) sensor (99801AA140)	 WI-84773	 WI-84782
27) Rear oxygen sensor (99801AA080)	 WI-78773	 WI-78782

Connector type	Connector shape	Cross section
28) Rear oxygen sensor (99801AA150)	 WI-85474	 WI-84782
29) Ignition coil (99801AA090)	 WI-78774	 WI-78783
30) Bulkhead harness (99801FN070)	 WI-96017	 WI-96018
31) Bulkhead harness (99801FN090)	 WI-96019	 WI-96020
32) Bulkhead harness (99801FN130)	 WI-96035	 WI-96036

Connector type	Connector shape	Cross section
33) Bulkhead harness (99801FN150)	 WI-96039	 WI-96040
34) Bulkhead harness (99801SL020)	 WI-96017	 WI-96018
35) GPF exhaust temperature sensor (99801FN000)	 WI-96021	 WI-96022
36) Hood switch (99801FN020)	 WI-96023	 WI-96024
37) Ambient sensor (99801FN030)	 WI-96025	 WI-96026

Connector type	Connector shape	Cross section
38) Rear harness (99801FN040)	 WI-96027	 WI-96028
39) Rear harness (99801FN050)	 WI-96029	 WI-96030
40) Rear harness (99801FN060)	 WI-96031	 WI-96032
41) Rear harness (99801SL040)	 WI-96915	 WI-96976
42) Rear harness (99801SL070)	 WI-96912	 WI-96977

Connector type	Connector shape	Cross section
43) Rear harness (99801SL080)	 WI-96913	 WI-96978
44) Washer motor (99801FN170)	 WI-96033	 WI-96034
45) OP connector (LED light) (99801FN170)	 WI-96033	 WI-96034
46) Rear radar sensor (99801FN130)	 WI-96035	 WI-96036
47) Washer fluid level sensor (99801FN120)	 WI-96037	 WI-96038

Connector type	Connector shape	Cross section
48) Headlight washer motor (99801FN200)	 WI-96041	 WI-96042
49) Rear combination light (99801FN210)	 WI-96043	 WI-96044
50) Active grill shutter (99801SL000)	 WI-96914	 WI-96979
51) Smart antenna (99801SL090)	 WI-96916	 WI-96982

D: Installing and removing the waterproof plug

1) Use a tool such as a hexagonal wrench to push out the waterproof plug from the front of the connector to remove.

CAUTION:
- Remove any dust or dirt from the waterproof plug.
- Be careful not to damage or break the waterproof plug.

2) Push in the waterproof plug straight from the back of the connector to install.

NOTE:
There is no specified installation orientation for waterproof plug.

E: Checking the terminals

1) Connect the female terminal directly to the corresponding male terminal and check the terminal contact pressure, the degree of mating, and the weight of sliding movement. Replace the harness assembly if faulty.
2) Replace the connecting parts if the male terminal has any deformation or is faulty.

F: Installing the terminals

1) While referring to the connector terminal arrangement and wire colors recorded before removing the retainer, insert the terminal straight from the rear of the housing.

CAUTION:
- Pay attention to the vertical orientation when inserting the terminal.
- Be careful not to assemble the wires erroneously because the same-color wires may be used in one connector.

2) Push until you hear a click to indicate that it is locked in place.
3) Pull on the harness lightly to confirm that it is appropriately locked in place.
4) If the terminal is not properly locked, check for any terminal deformation or damage to the locking mechanism and do the following:

- Terminal deformation: Replace the harness assembly.
- Damage to the terminal locking mechanism: Replace the repair harness connector.

G: Installing the retainer

Install the retainer to the housing. For the male housings, install it using a flathead screwdriver.

NOTE:
If you cannot install it to its original position, ensure that you are pressing the terminal against the housing.

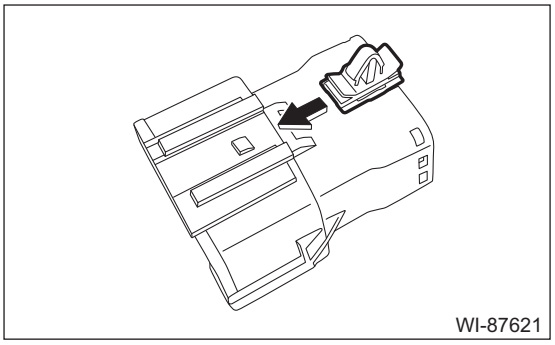
CAUTION:
Make sure to check that the retainer is installed securely.

H: Connecting the connector

1) Connect the replaced connector.

NOTE:
For the connectors provided with a clip, install the clip.

Insert the clip to the groove of the connector housing, and check for secure installation. (Example shown in the drawing below)



2) Secure the harness using a tool such as a clamp to ensure that there is no sagging and it is appropriately supported.

CAUTION:
- Secure it so that it does not interfere with the body end parts, edges, bolts or screws.
- When installing a harness or another component, make sure that nothing is caught on the harness.

3) Install the removed parts.

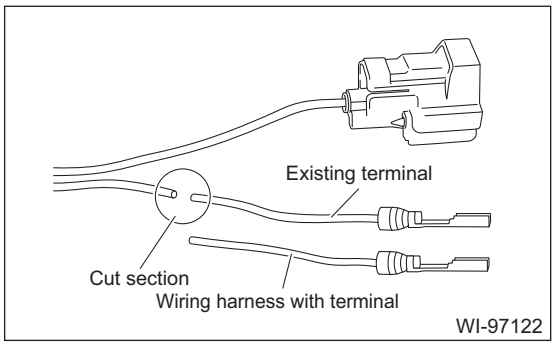
NOTE:
- If you peel off any harness tape, do not reuse it and replace it with new tape.
- Restore all removed clips and cable ties to their original positions and orientations.

5. Terminal replacement

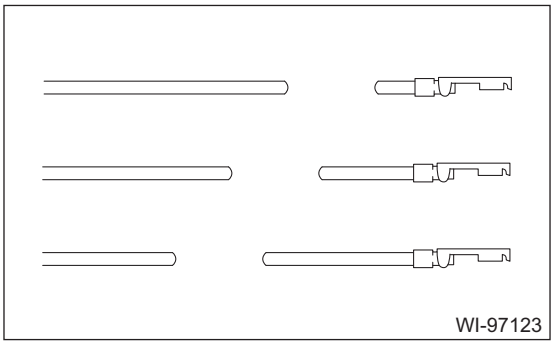
1) Prepare a wiring harness with terminal and crimping sleeve.

NOTE:
Confirm the part number by referring to WIRING DIAGRAM > Harness Repair Kit > SPECIFICATION.

2) Refer to “4. Connector replacement” in this document and remove the terminal from the connector.
3) Cut the vehicle harness to the appropriate length.
   (1) Using the length of the wiring harness with terminal as a guide, cut the original vehicle harness to the same length.

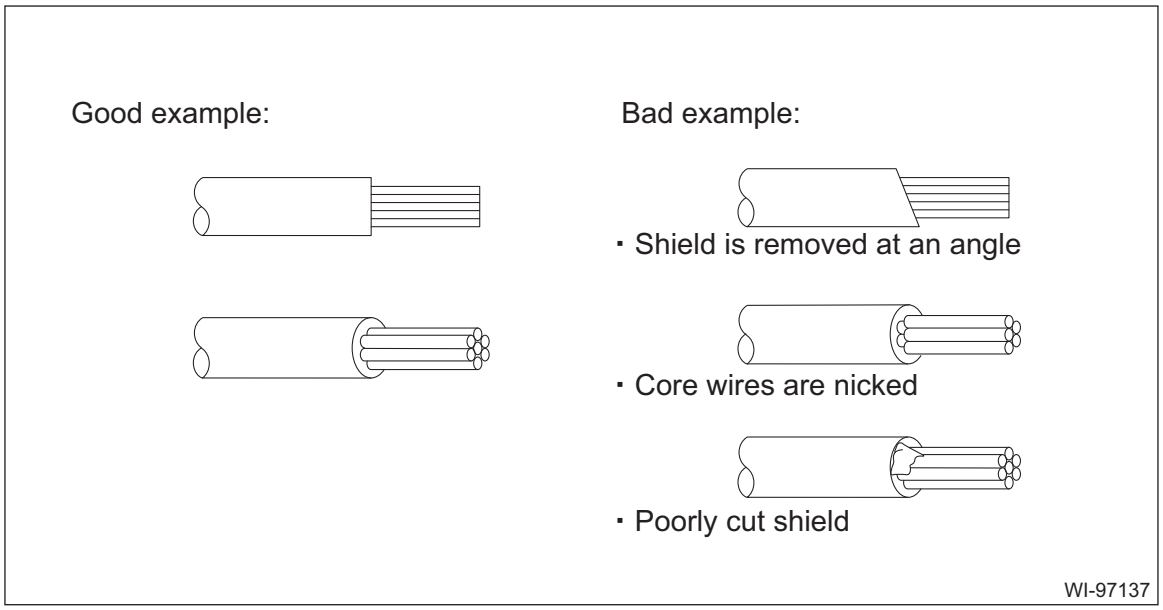


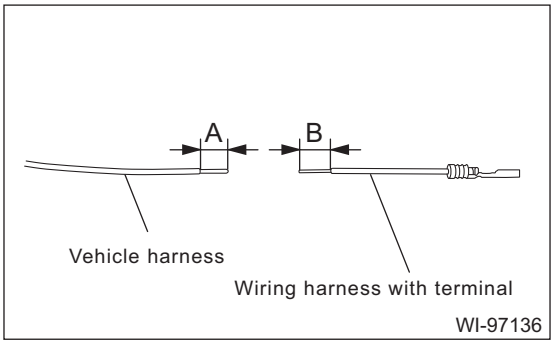
   (2) When connecting multiple wiring harness with terminals to the same connector, cut the harnesses at different lengths as shown in the diagram.



4) Crimp the vehicle harness and the wiring harness with terminal(s) using a crimping sleeve.
   (1) Remove the shield from the vehicle harness and the wiring harness with terminal(s) according to the table below by the selected crimping sleeve size.

CAUTION:
- Do not damage or cut the core wire of the wiring harness.
- After removing the shield, visually inspect the wiring harness and redo the work if there is any damage.

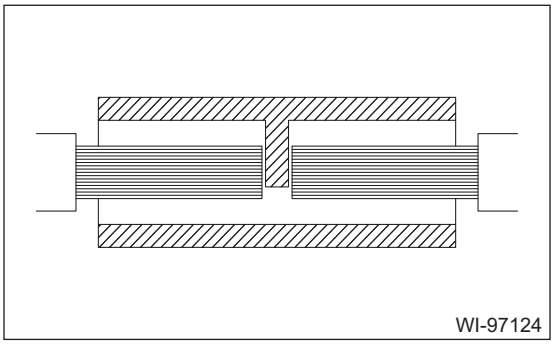




	SS	S·M·L
A (mm)	8 ~ 11	6
B (mm)	8 ~ 11	6

(2) Insert the heat-shrink tube (part No. 99803AA040) in advance at the connection point.

(3) Insert the vehicle harness and the wiring harness with terminal up to the stop of center of the crimping sleeve.

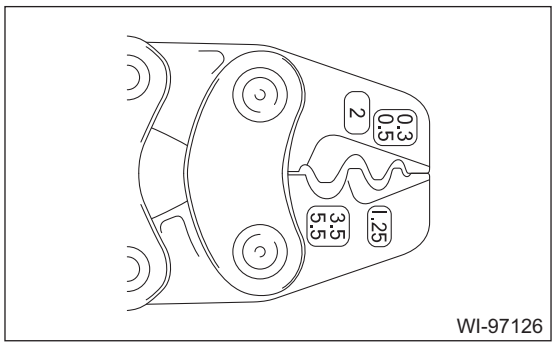


(4) Crimp the crimping sleeve using the SST (crimping tool).

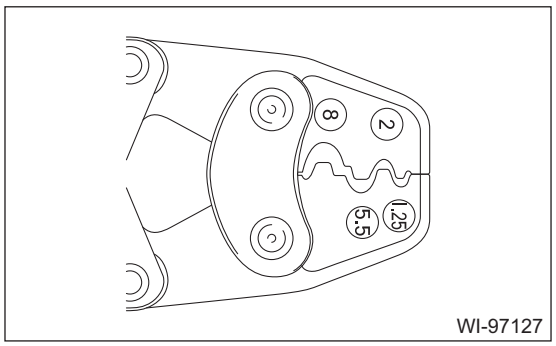
1. Check the SST (crimping tool) that fits the crimping sleeve and the crimping area size according to the table below.

Sleeve size	Crimping area size
SS	0.5
S	1.25
M	2
L	5.5

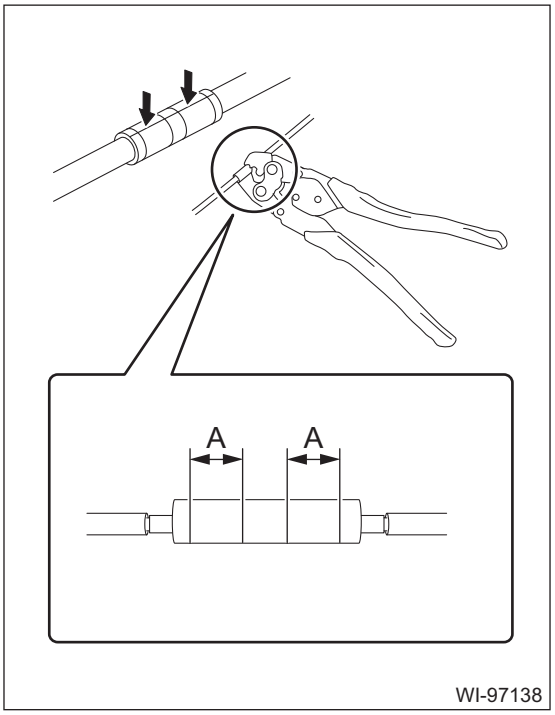
NOTE:
•Crimping tool (for sizes: SS, S, M) Part No.: 99804AA010



•Crimping tool (for size: S, M, L) Part No.: 99804AA020

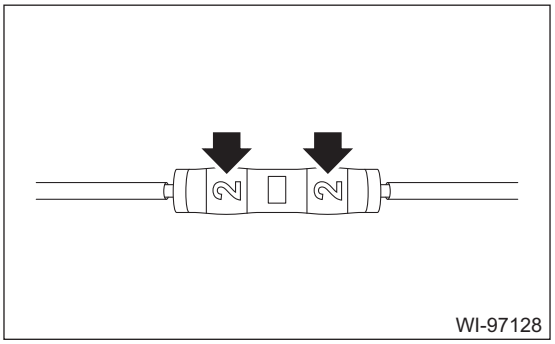


2. Using the SST (crimping tool), crimp the crimping sleeve at position A in the figure below until the ratchet mechanism is released.

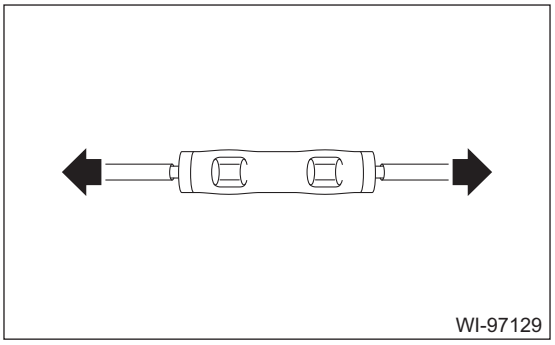


3. Check if the crimp marks on the crimping sleeve after crimping are correct according to the table below.

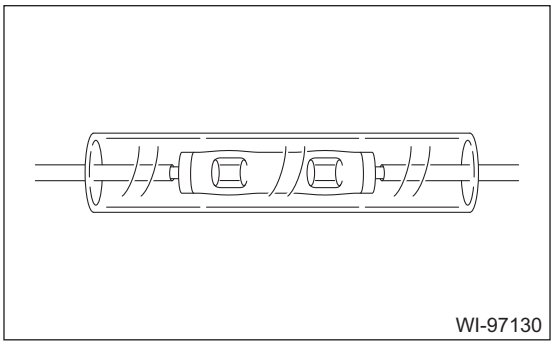
Sleeve size	Crimp marks
SS	0
S	1
M	2
L	5



4. Pull both ends of the harness after crimping to confirm that the harness does not come loose.

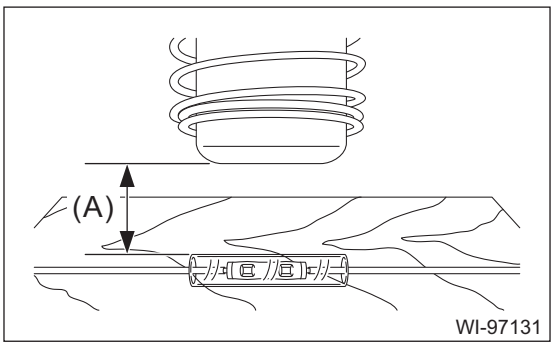


5) Waterproof and insulate the crimped part.
(1) Align the heat-shrink tube with the center of the crimping sleeve.

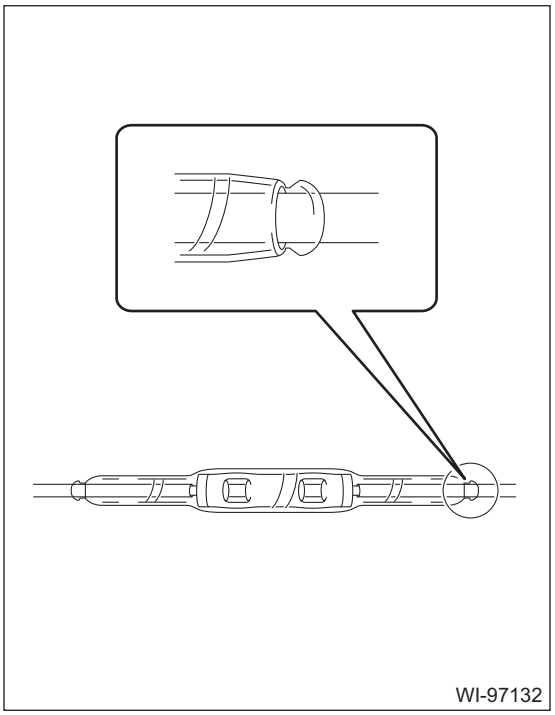


(2) Apply hot air to the heat-shrink tube with a heat gun to shrink it.

NOTE:
After protecting the other wires or vehicle parts with a wooden board so that the hot air does not hit, leave a gap of (A) 100 to 200 mm between the heat-shrink tube and heat gun and apply hot air for 10 seconds at a time.



(3) Repeat step (2) until resin comes out from between the heat-shrink tube and the harness.



6) Refer to “4. Connector replacement” in this document and attach the terminal to the connector.

7) Restore protective materials and clamps, and check if it works after repairs.

(1) Restore the protective materials and clamps at the repaired wiring points, and fix the crimping sleeve to the vehicle harness.

NOTE:

•If you peel off any harness tape, do not reuse it and replace it with new tape.

•Restore all removed clips and tie-wraps to their original positions and orientations.

(2) Perform an inspection of how the repaired wiring area functions.