

Confidential

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※取扱説明書作成要領(YA-EN-xx-P-023-JA) Rev.1.0に対応済み。

Prepared in accordance with Handling Manual Preparation Guideline (YA-EN-xx-P-023-JA) Rev.1.0

9.5 Sealed Connector Handling Manual

Note)

This Handling Manual is subject to change without any prior notice.
Please ask us for the latest version as necessary.

YAZAKI CORPORATION
YAZAKI PARTS Co., Ltd.
November 30, 2022

Thank you for using a YAZAKI product.

- Please read this handling manual thoroughly and use the part properly and safely.
Please keep the manual for future reference.
- Before use, please confirm if the part does satisfy your requirements in terms of manufacturing, performance and quality.
- If you have any questions, please ask our sales representative, or you can send your inquiry via the following URL:
<https://connectors-catalog.sys.yzk.co.jp/q.html>

Safety precautions

In this handling manual, following symbols are used to let users know precautions and "dos and don'ts" for the purpose to protect safety and property of users.

Please follow the instructions to use the part properly and safely.

YAZAKI shall not be liable to any damages resulting from misuse or failure to follow this handling manual.



Note

Notes / precautions

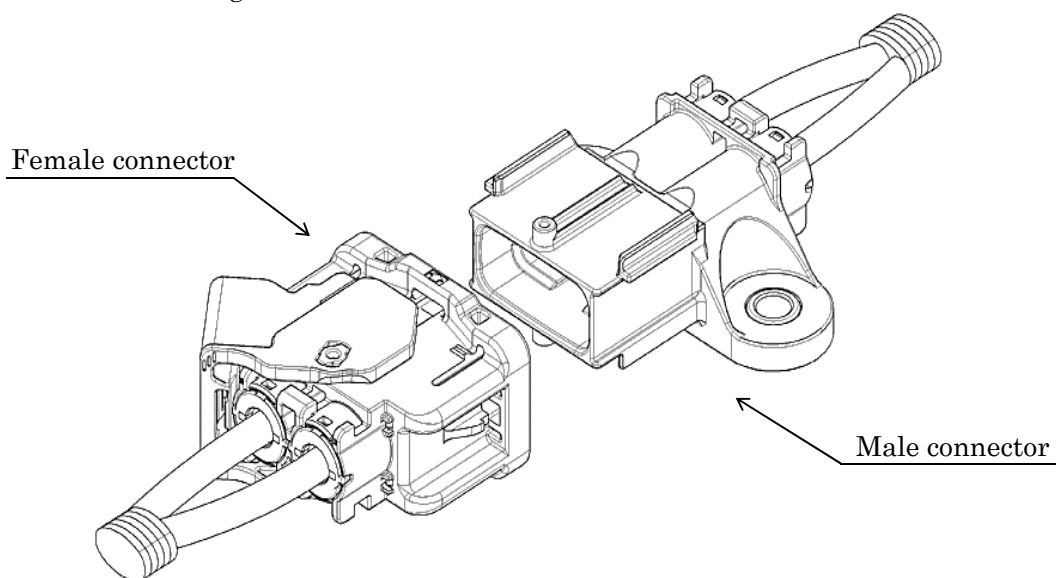
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1. Scope

This document is applicable to the 9.5 sealed (※1) double lock connector systems (※2) and the 9.5 sealed HLC connector systems (※3), which are used in automotive low voltage circuits.

For the handling method of the terminal, refer to Handling Manual #YPES-15-2130 (Target 9.5).



Supplemental information:

※1 9.5 connector

- The number denotes the width (mm) of the male tab used in the connector system.

※2 Double lock connector

- Connector that can perform halfway insertion detection of terminal at spacer.

※3 HLC connector

- HLC stands for Housing Lance Check.
Connector that can perform halfway insertion detection of terminal at lance.

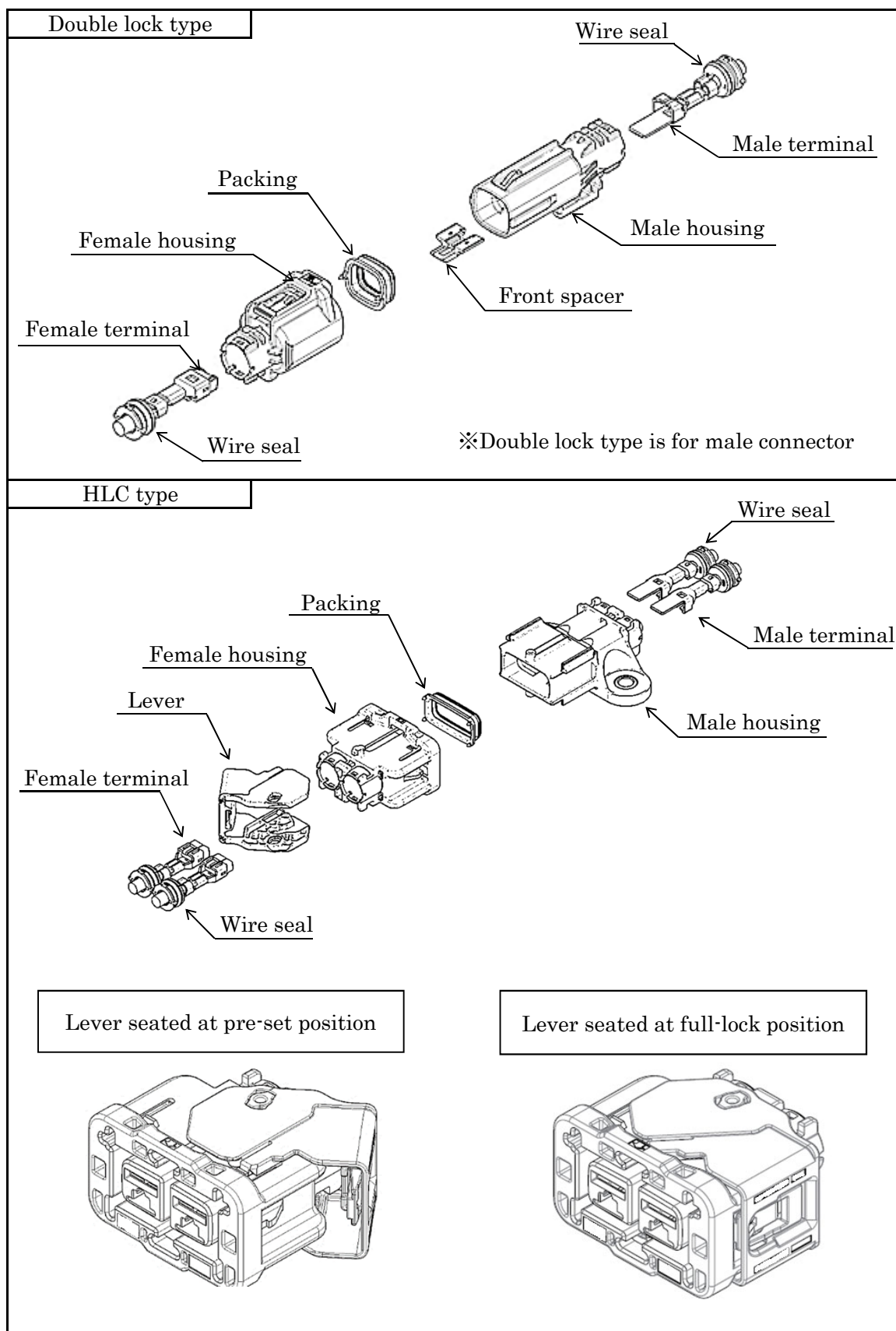
Precautions throughout the work.



- Do not splash water before mating the connector.
- Products must be used in the correct combination.
- If a part is deformed or damaged, replace it with a new one.
- If ultrasonic welding, resistance welding, laser welding, or other technique which applies heat and/or vibrations to the product is used, confirm in advance that the product is not damaged or deformed. Do not use any damaged or deformed product.

2. Part names and functions

2-1. Part names



2-2. Part names, functions and part types

2-2-1. Male housing (Double lock type 9.5 1P connector is shown as an example)

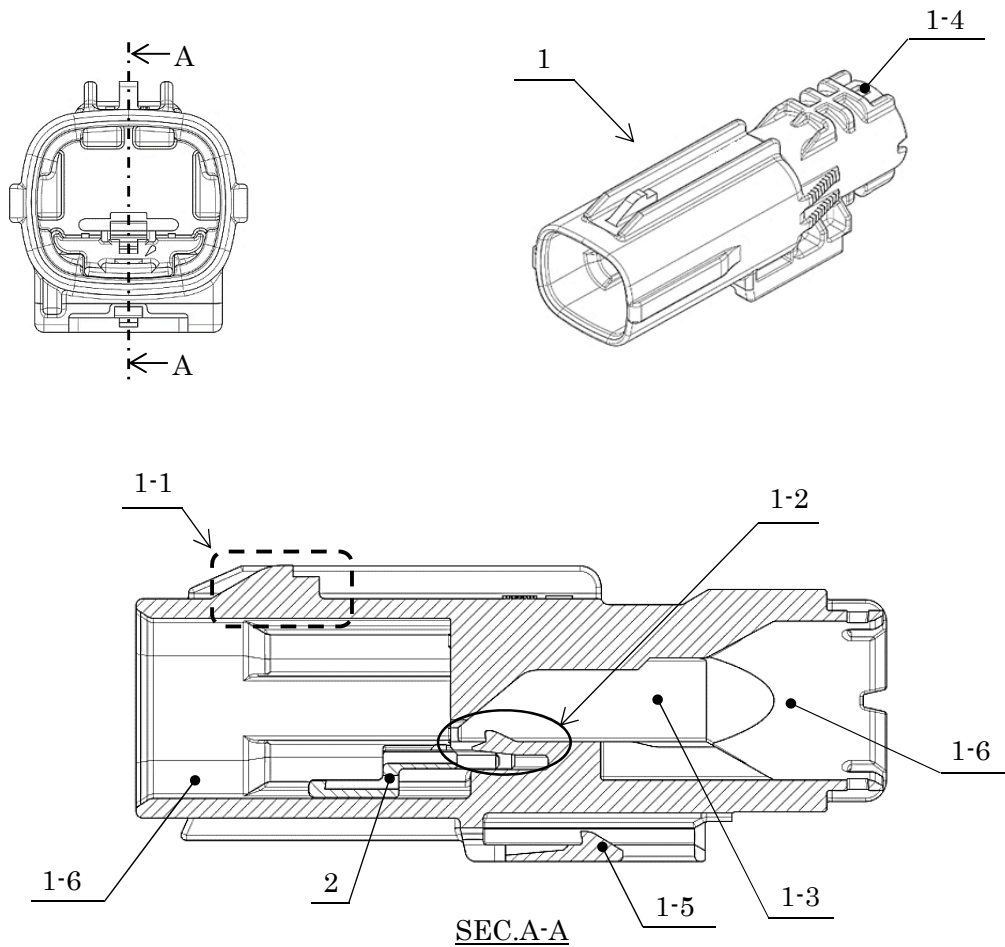


Table-1

No.	Part names		Functions
1	Male housing	1-1 Lock	Retaining of the female housing
		1-2 Lance	Retaining of the male terminal
		1-3 Cavity	A space to accommodate the male terminal and wire seal
		1-4 Locking arm	Locking of the wire seal
		1-5 Clip slot	A part used to fix the connector to e.g. a vehicle body
		1-6 Sealing surface	Sealing between male and female housings and between packing and housing
2	Front spacer		Retaining and halfway insertion detection of male terminal

2-2-2. Male housing (HLC 9.5 2P LIF connector)

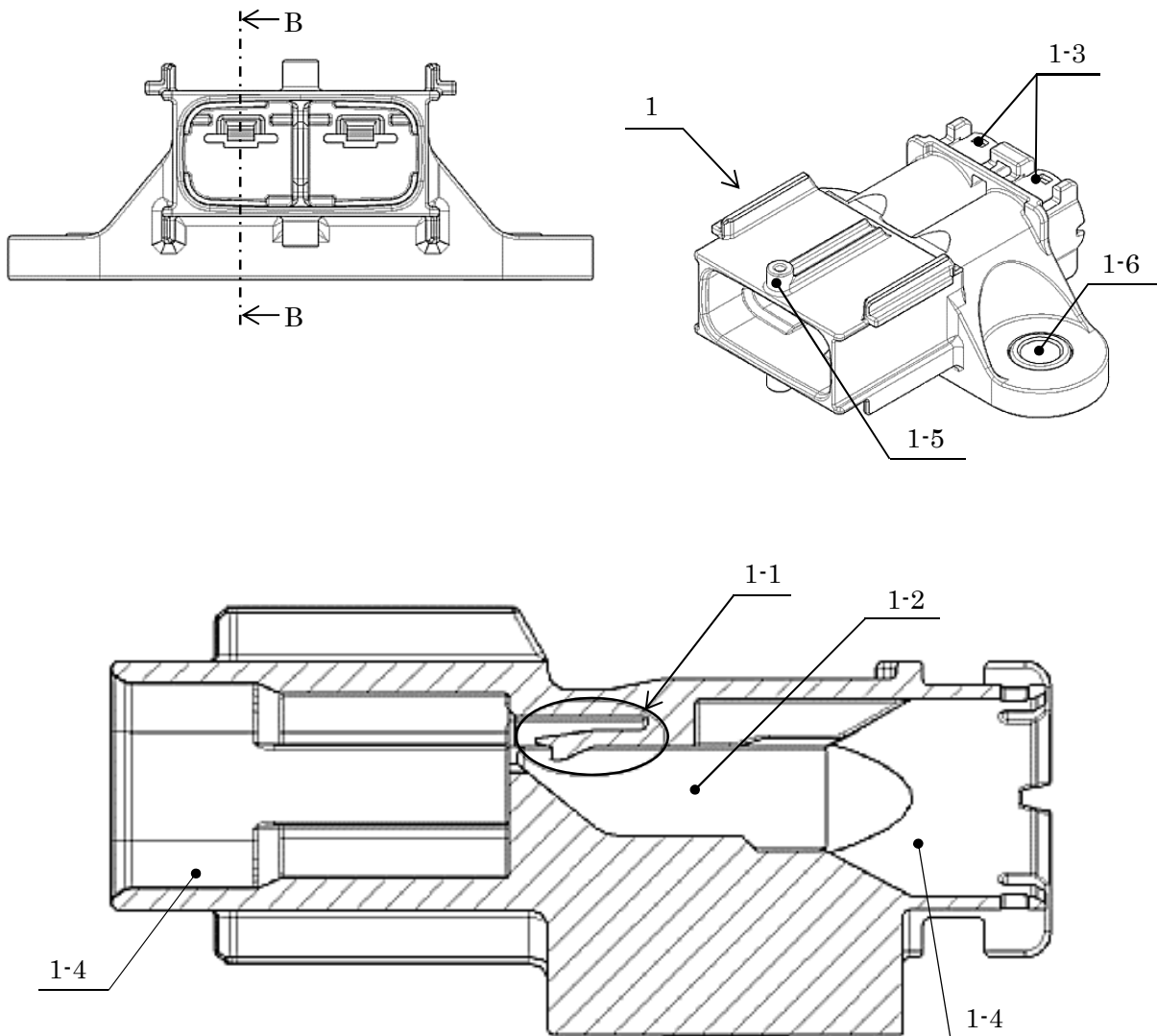
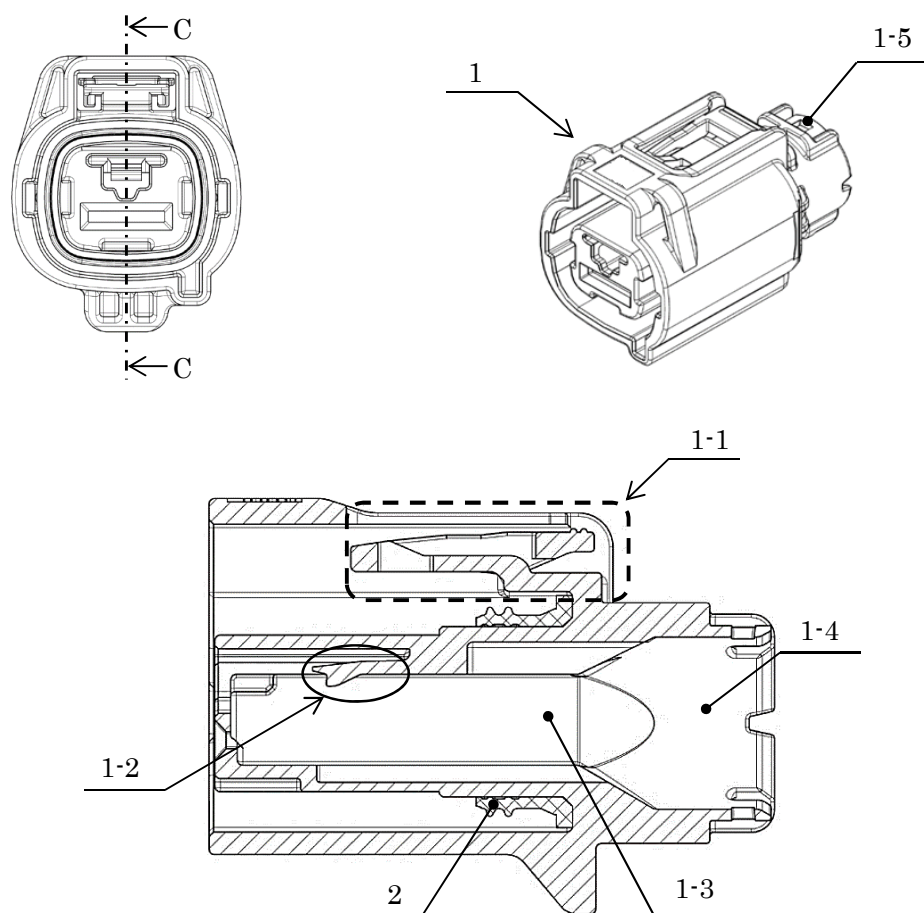
SEC.B-B

Table-2

No.	Part names			Functions
1	Male housing	1-1	Lance	Retaining of the male terminal
		1-2	Cavity	A space to accommodate the male terminal and wire seal
		1-3	Locking arm	Locking of the wire seal
		1-4	Sealing surface	Sealing between male and female housings and between packing and housing
		1-5	Boss	Fulcrum (i.e. point of support)
		1-6	Collar	A part used to fix the connector to e.g. a vehicle body

2-2-3. Female housing (HLC 9.5 1P connector is shown as an example)



SEC.C-C

Table-4

No.	Part names		Functions
1	Female housing	1-1 Lock	Retaining of the male housing
		1-2 Lance	Retaining of the female terminal
		1-3 Cavity	A space to accommodate the female terminal and wire seal
		1-4 Sealing surface	Sealing between wire seal and housing
		1-5 Locking arm	Locking of the wire seal
2	Packing		Sealing between male and female housings

2-2-4. Female housing (HLC 9.5 2P LIF connector is shown as an example)

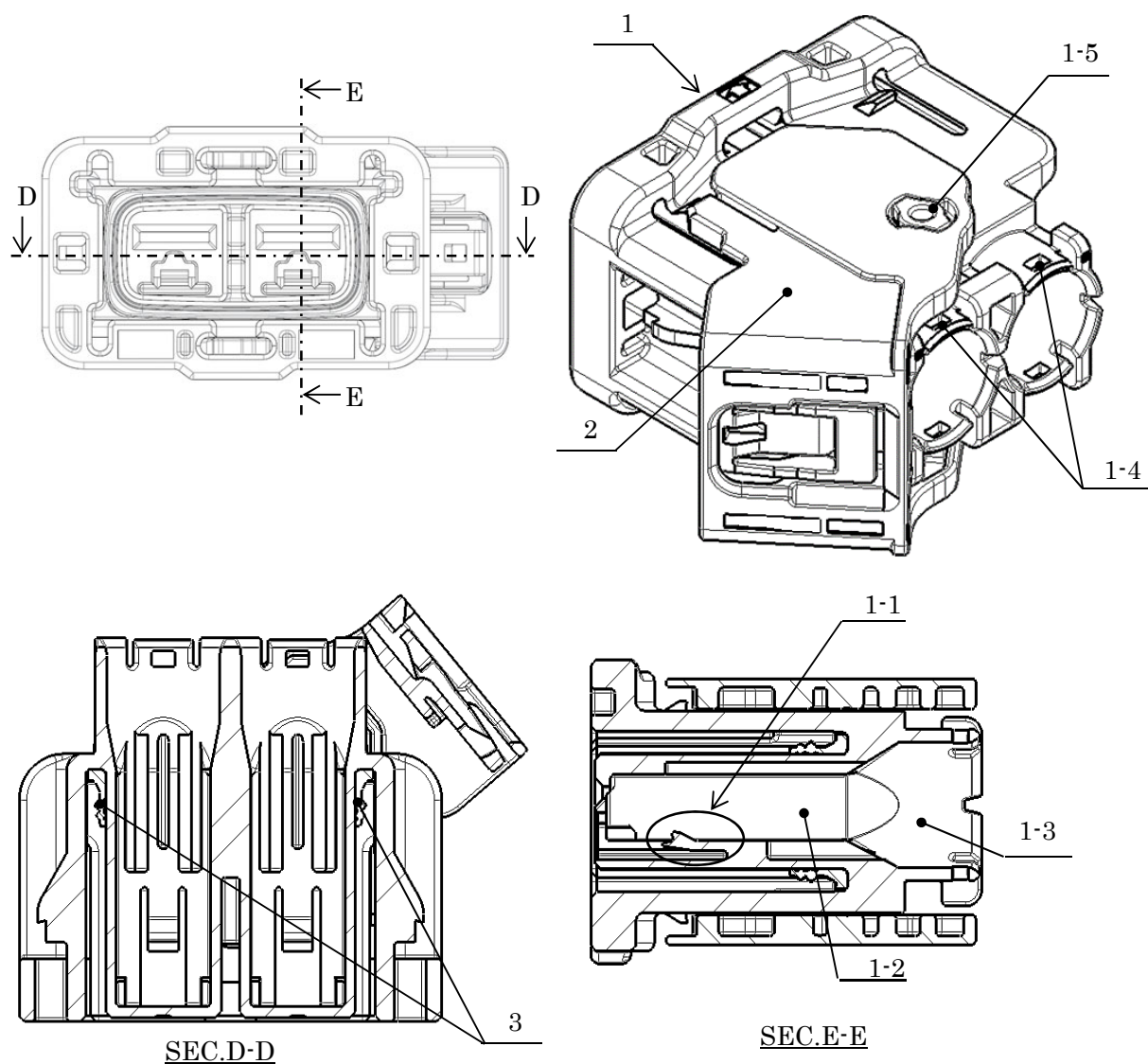


Table-5

No.	Part names			Functions
1	Female housing	1-1	Lance	Retaining of the female terminal
		1-2	Cavity	A space to accommodate the female terminal and wire seal
		1-3	Sealing surface	Sealing between wire seal and housing
		1-4	Locking arm	Locking of the wire seal
		1-5	Boss	Fulcrum (i.e. oint of support)
2	Lever			Mating aid with male connector
3	Packing			Sealing between male and female housings

3. Receipt of products, and transport and storage

3-1. Receipt of the parts method

Upon receipt of the parts, confirm the parts for the following points / defects.

Confirmation item

- Correct parts (i.e. correct part numbers)
- No wrong goods or foreign substances
- Parts are free of flash, burr, sink mark, crack, short shot, deformation, damage, discoloration, rust, dirt, chip, or other imperfection or defect



Note

- Do not use any defect part regardless of its severity.
- ※ If a wrong good or damaged part or deviation from your order is found, please contact our sales representative or URL of page 1.

3-2. Transport and storage of products



Notes

Transport:

- Use cushion materials to protect the parts against shock impact that can be applied during the transport.
- Use care not to apply strong shock to the parts during packing or transport such as dropping them to the ground.

Storage:

- Put the parts in the box that was used for deliver or in a clean plastic bag to protect them against water, dust, oil or salt.
- Store the parts indoors in a room maintained at ambient temperature and humidity (20+/-15°C and 65+/-20%RH), away from direct sunlight.
- Use-by date: 1 year from the manufacture date (under the ambient temperature and humidity (20+/-15°C and 65+/-20%RH))
- Use care not to apply external force to the products.

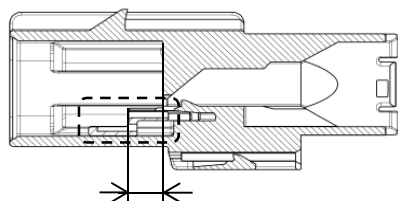
4. Terminal insertion, removal and inspection (Double lock type)

4-1. Insertion of terminal in housing

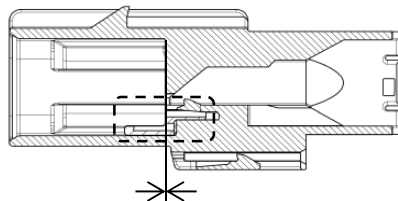
4-1-1. Terminal insertion method

- 1) Before inserting the terminal, confirm that the spacer is seated at the pre-set position.
If it is at the full-lock position, move it back to the pre-set position.
(See 4-2-2. Removal of full-lock position for work procedure)

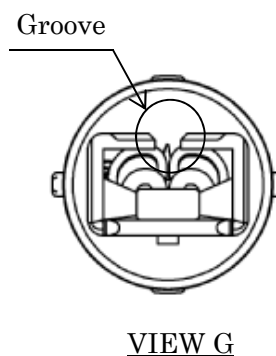
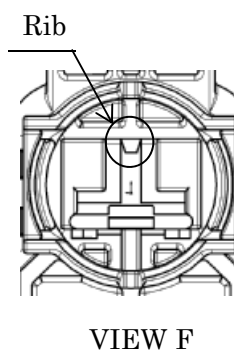
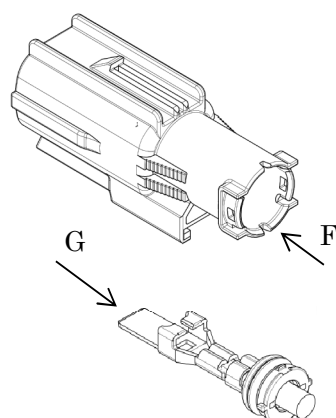
<Pre-set position>



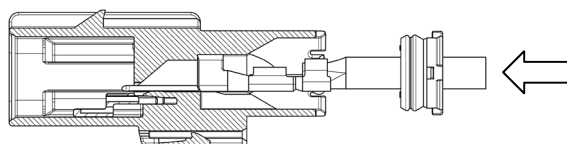
<Full-lock position>



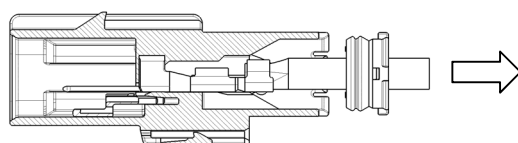
- 2) Orient the terminal to the housing to align the groove and the rib.



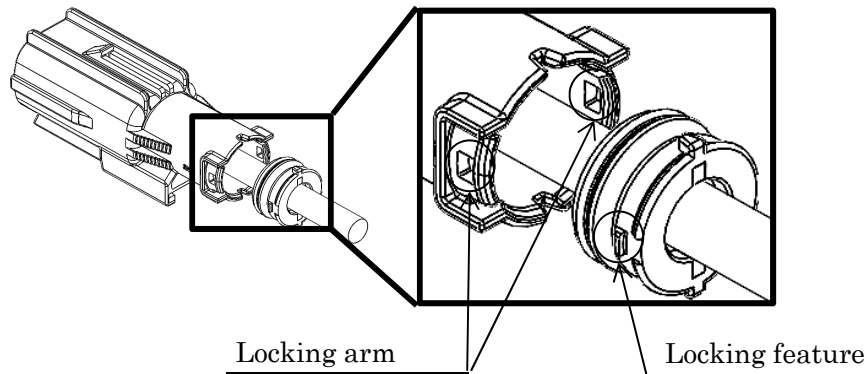
- 3) Insert the terminal straight, in the direction of the arrow, in the housing until there is an audible 'click' sound, which is generated when the terminal is locked in the cavity.



- 4) Pull the wire lightly to double check that the terminal is securely locked in the housing.



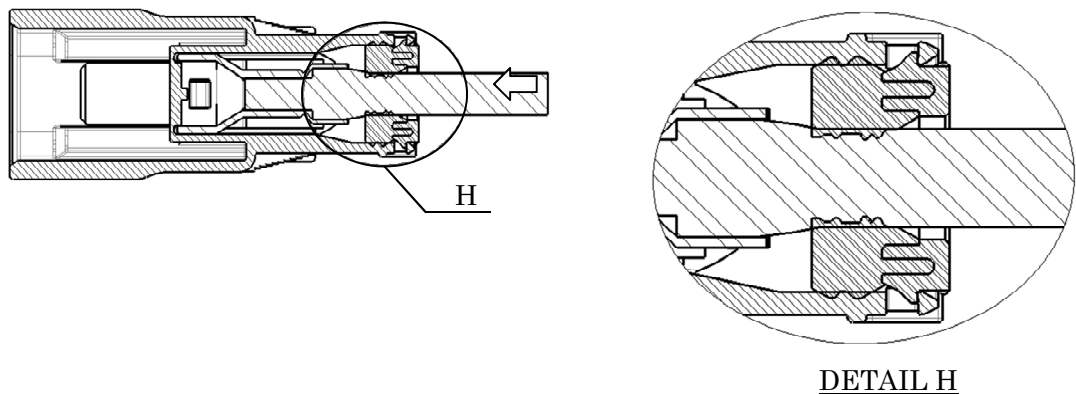
- 5) Align the locking arms of the housing and the locking features of the wire seal.



- 6) Insert the wire seal straight, in the direction of the arrow, in the housing until there is an audible 'click' sound, which is generated when the terminal is locked in the cavity.

Double check that the wire seal is securely locked in the housing.

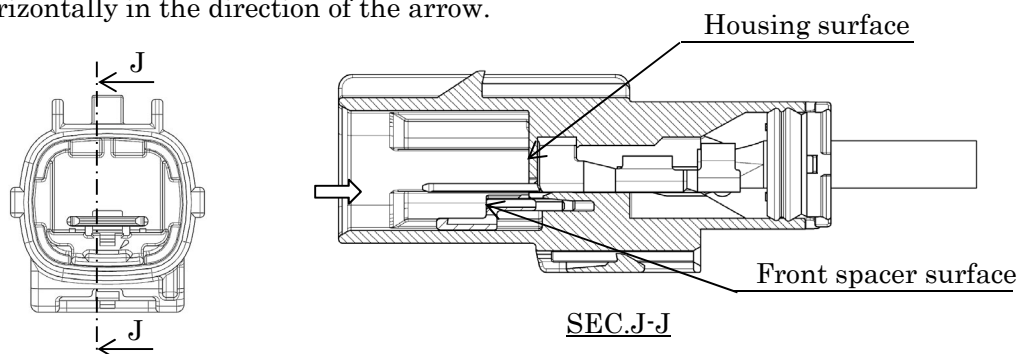
(Locking at 2 places)



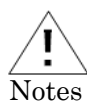
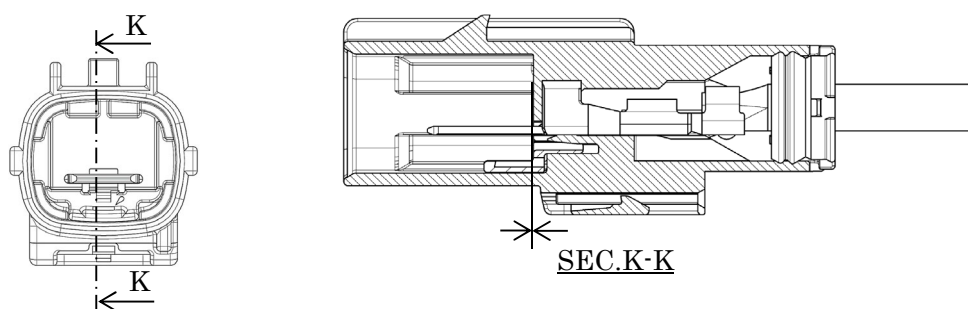
- Do not insert anything other than the applicable terminal and applicable wire seal.
- Do not insert deformed and damaged terminal and wire seal.
- Use caution to avoid the sealing surface from being damaged or scratched.

4-1-2. Spacer full lock operation method

- 1) After inserting the terminal, until it makes a 'click' sound press of front spacer horizontally in the direction of the arrow.

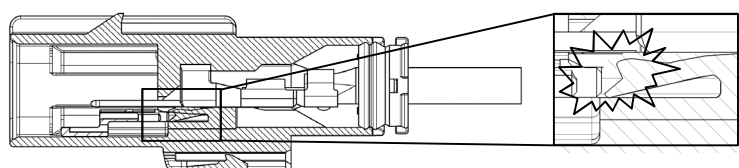


- 2) Check that the front spacer surface is below housing surface.



Notes

- If it is not possible to insert the spacer to the full-lock position, the terminal may be still at a halfway position (see below images). So, do not try to insert it by force, and repeat the terminal insertion and locking procedure from the beginning (4-1-1. 4).



- Use caution to avoid the sealing surface from being damaged or scratched.

4-2. Removal of terminal from housing

4-2-1. Spacer removal tool

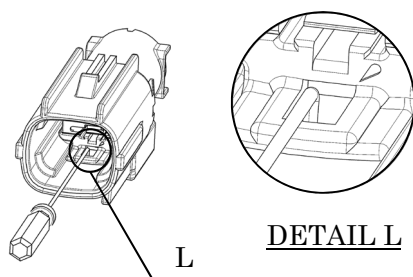
Use the dedicated removal tool listed in table-6 or a high precision flathead screwdriver.

Table-6

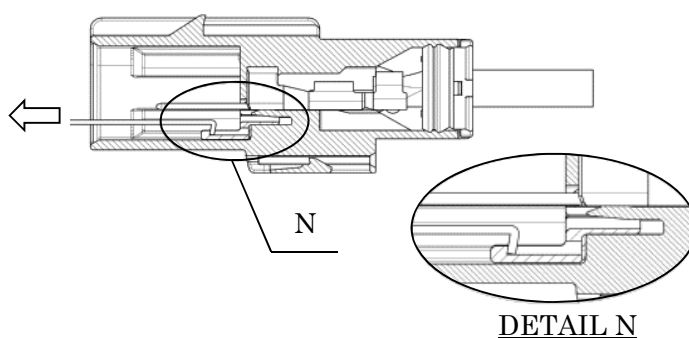
Connector type	Removal tool
9.5	49YF000002

4-2-2. Removal of full-lock method

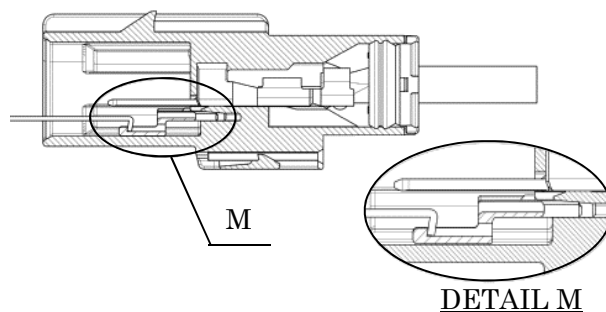
- 1) Insert the removal tool in the opening ().



- 2) Tilt the removal tool in the arrow direction to move the spacer to the pre-set position.



- 3) Visually confirm that the spacer is seated at the pre-set position.



Notes

- Use caution to avoid applying excessive force to the parts.
- Once the spacer is seated at the pre-set position, stop the operation.
- Use caution to avoid the sealing surface from being damaged or scratched.

4-2-3. Terminal removal tool

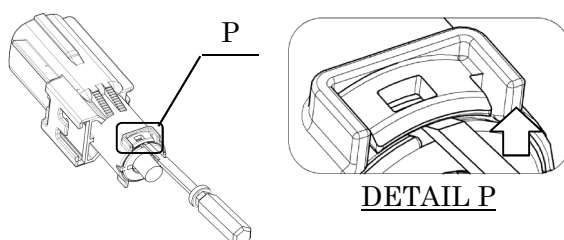
Use the dedicated removal tool listed in table-7 or a high precision flathead screwdriver.

Table-7

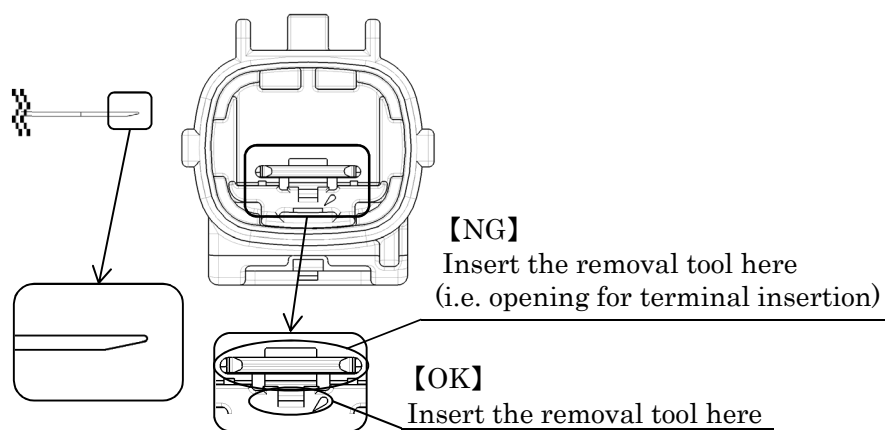
Connector type	Removal tool
9.5	49YA000042

4-2-4. Terminal removal method

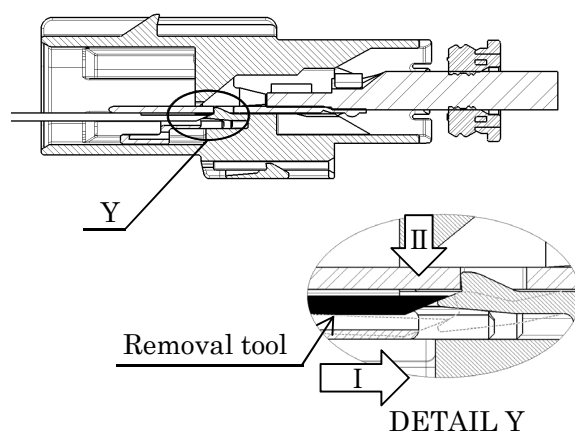
- 1) Move the removal tool in the arrow direction to release the locking of the wire seal.
Repeat it also on the opposite side.



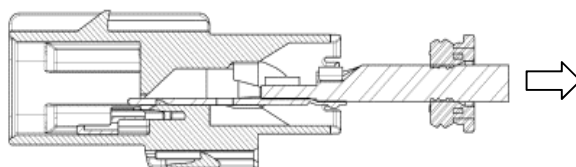
- 2) Orient the tool and the tool insertion position in the correct as shown below.



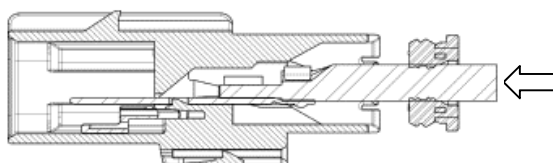
- 3) Insert the removal tool straight in the arrow (I) direction until its butt part hits the housing lance and stops. Then, move the removal tool in the arrow (II) direction to deflect the housing lance.



- 4) Pull the wire lightly in the direction of the arrow to remove the terminal from the housing.

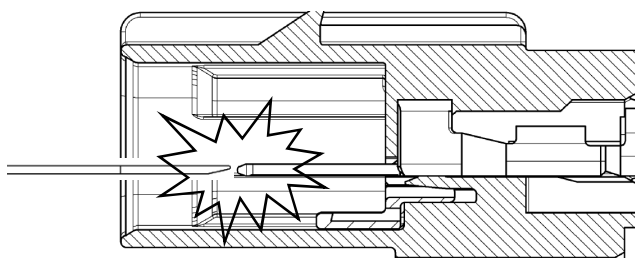


- ※ If it is not possible to remove the terminal smoothly, press the terminal in the arrow direction (see below) and then insert the removal tool to deflect the housing lance.



Notes

- Do not insert the removal tool in a wrong direction.
- Do not insert the removal tool by force or more than necessary.
- Use care not to damage the terminal with the removal tool.



- Make sure to insert the removal tool straight. Angled insertion is not acceptable.
- If it is not possible to remove the terminal smoothly, do not try to do it by force, and repeat the procedure from 4-2-4. 1).
- Use caution to avoid the sealing surface from being damaged or scratched.

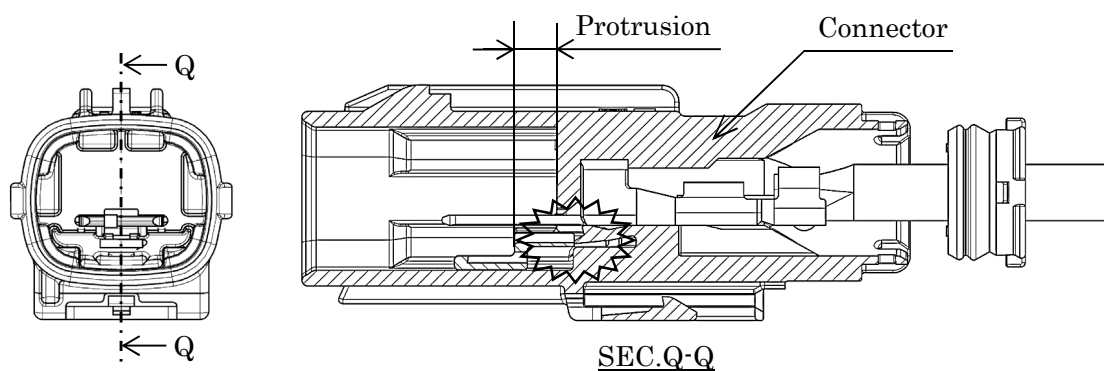
4-3. Electrical continuity inspection, Terminal halfway insertion detection

4-3-1. Inspection with use of electrical continuity inspection tool

Jigs and fixtures used for wiring check or continuity inspection must be built with the same level of dimensional accuracy as that of the mating part to avoid the terminal and/or the housing from being damaged or deformed.

4-3-2. Terminal halfway insertion detection method

Check for terminal halfway insertion must be done with a jig specially designed for this product by checking the protrusion of the spacer, rather than a visual check. If it is not possible, use e.g. the pull check method to confirm that the terminal is fully seated in the cavity.



Notes

- If a probe pin is placed on the male tab for continuity inspection, use caution to avoid the male tab from being damaged or deformed.
- Use caution to avoid the sealing surface from being damaged or scratched.

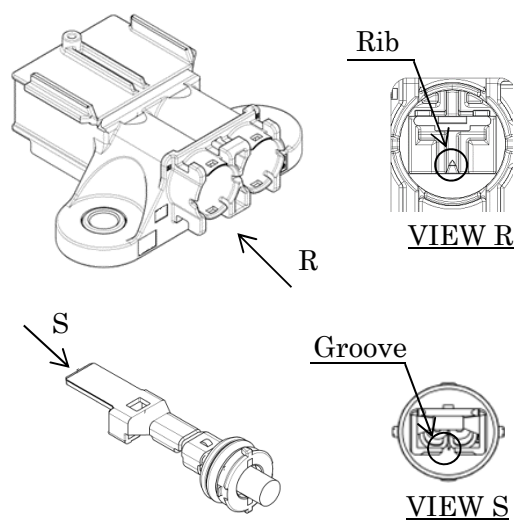
5. Terminal insertion, removal and inspection (HLC type)

5-1. Insertion of terminal in housing

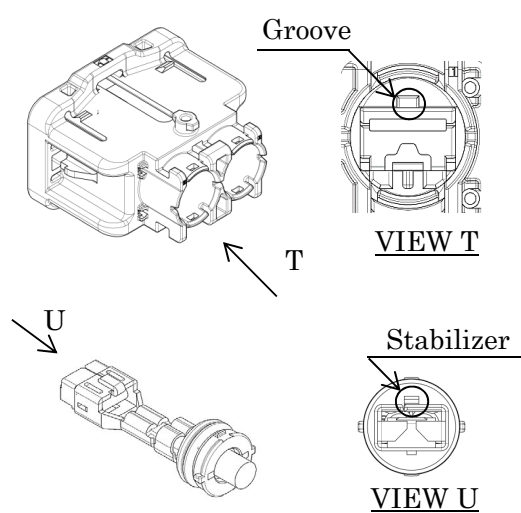
5-1-1. Terminal insertion method

- 1) Orient the housing and the terminal properly so that the rib is inserted in the groove of the terminal, and the stabilizer is inserted in the groove in the cavity.

<Male>

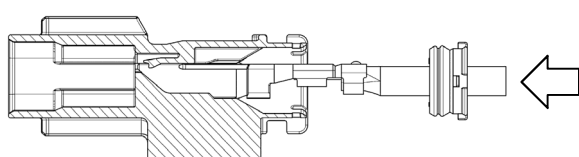


<Female>

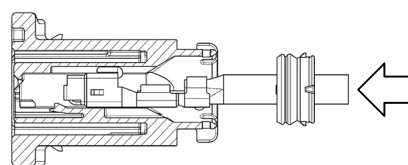


- 2) Insert the terminal straight, in the direction of the arrow, in the housing until there is an audible 'click' sound, which is generated when the terminal is locked in the cavity.

<Male>

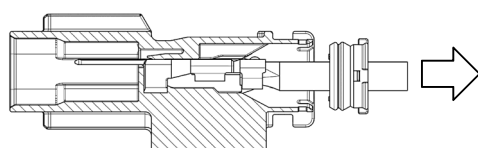


<Female>

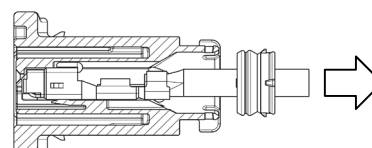


- 3) Pull the wire lightly to double check that the terminal is securely locked in the housing.

<Male>

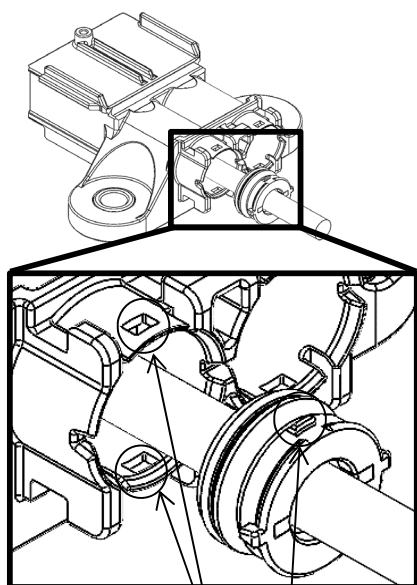


<Female>



4) Align the locking arms of the housing and the locking features of the wire seal.

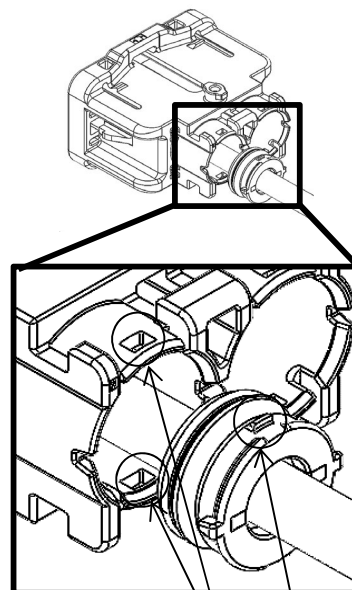
<Male>



Locking arm

Locking feature

<Female>



Locking arm

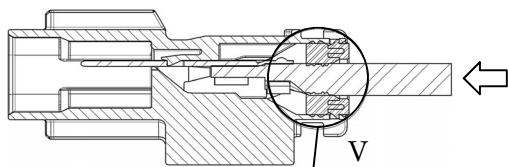
Locking feature

5) Insert the wire seal straight, in the direction of the arrow, in the housing until there is an audible 'click' sound, which is generated when the terminal is locked in the cavity.

Double check that the wire seal is securely locked in the housing.

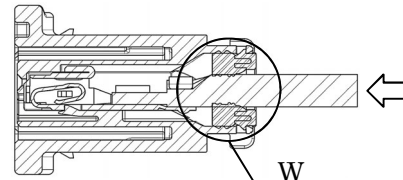
(Locking at 2 places)

<Male>



DETAIL V

<Female>



DETAIL W



Notes

- Do not insert anything other than the applicable terminal and applicable wire seal.
- Do not insert deformed and damaged terminal.
- Use caution to avoid the sealing surface from being damaged or scratched.

5-2. Removal of terminal from housing

5-2-1. Terminal removal tool

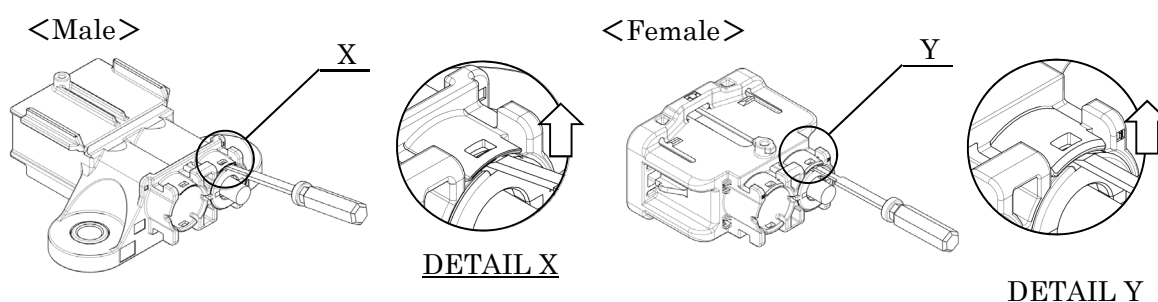
Use the dedicated removal tool listed in table-8 or a high precision flathead screwdriver.

Table-8

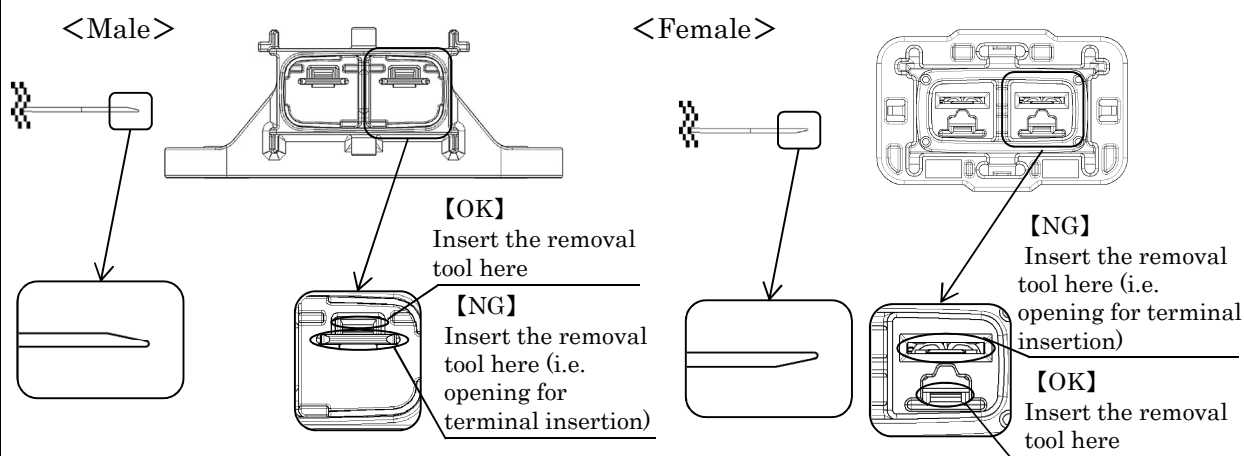
Connector type	Removal tool
9.5	49YA000042

5-2-2. Terminal removal method

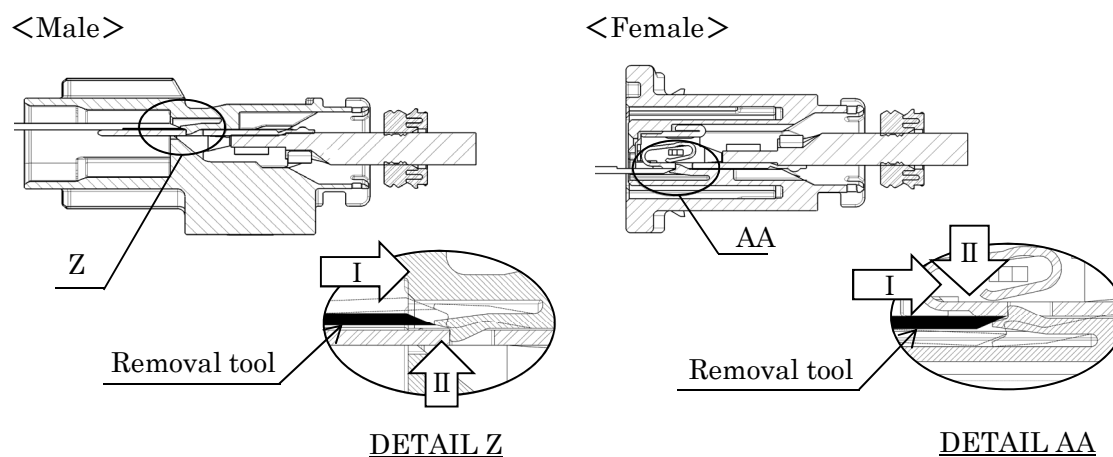
- 1) Move the removal tool in the arrow direction to release the locking of the wire seal.
Repeat it also on the opposite side.



- 2) Orient the tool and the tool insertion position in the correct as shown below.

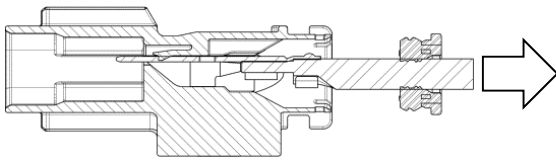


- 3) Insert the removal tool straight in the arrow (I) direction until its butt part hits the housing and stops. Then, move the removal tool in the arrow (II) direction to deflect the housing lance.

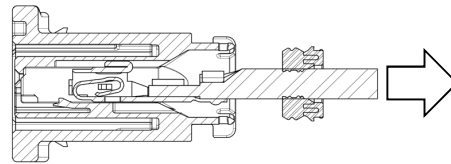


- 4) Pull the wire lightly in the direction of the arrow to remove the terminal from the housing.

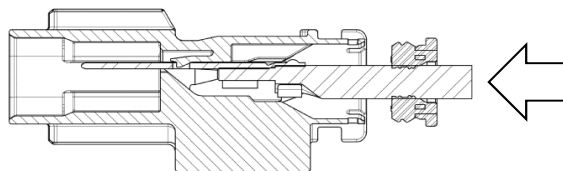
<Male>



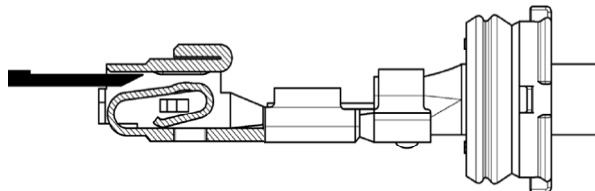
<Female>



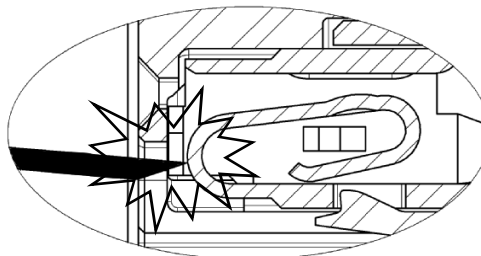
- ※ If it is not possible to remove the terminal smoothly, press the terminal in the arrow direction (see below) and then insert the removal tool to deflect the housing lance.



- Do not insert the removal tool in a wrong direction.
- Do not insert the removal tool by force or more than necessary.
- Do not insert the removal tool in the terminal box portion (i.e. do not insert the tool in an opening where the mating terminal is inserted).



- Use care not to damage the terminal with the removal tool.



Notes

- Make sure to insert the removal tool straight. Angled insertion is not acceptable.
- If it is not possible to remove the terminal smoothly, do not try to do it by force, and repeat the procedure from 5-2-2.1).
- Use caution to avoid the sealing surface from being damaged or scratched.

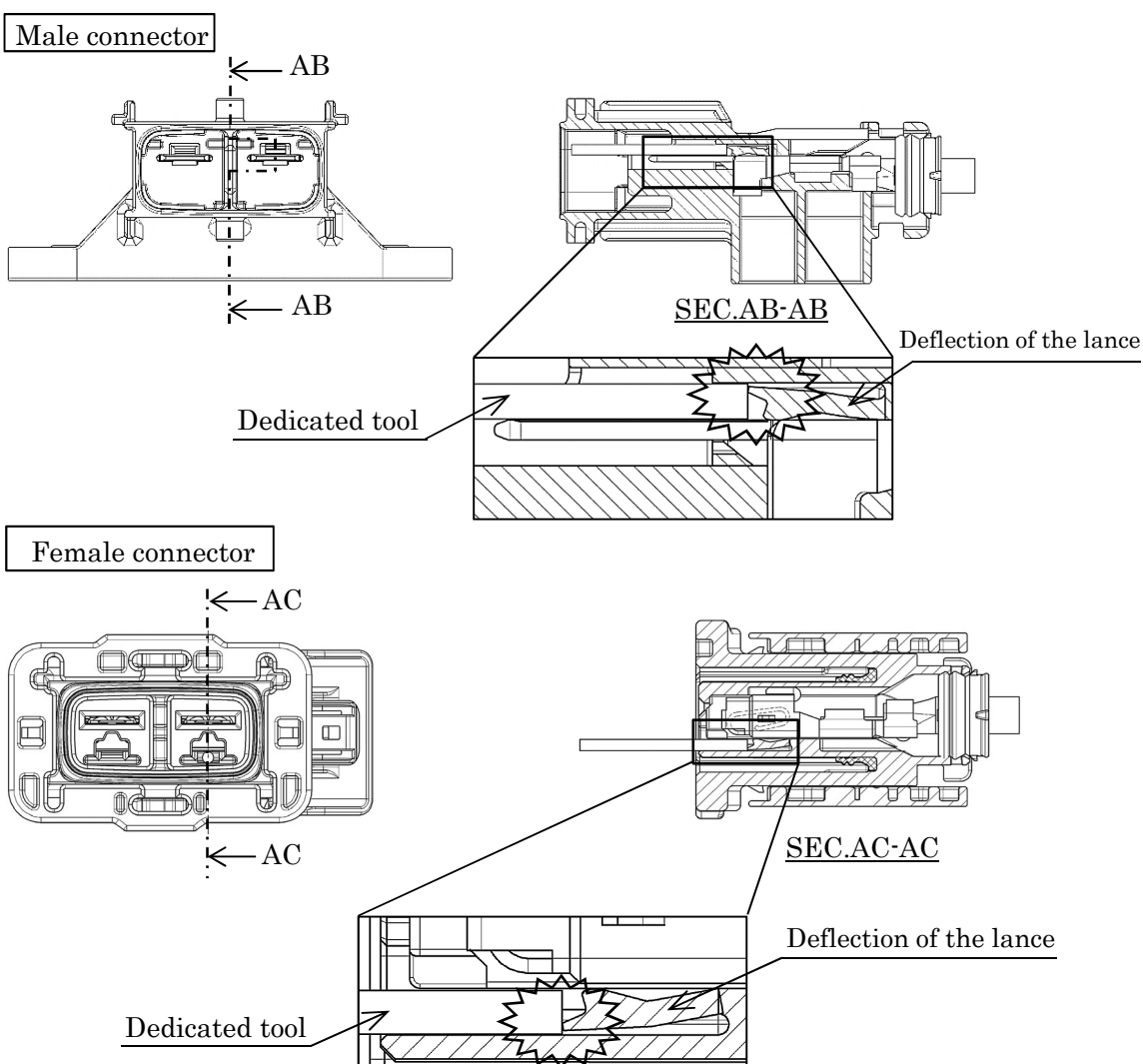
5-3. Electrical continuity inspection, halfway insertion detection

5-3-1. Inspection with use of electrical continuity inspection tool

Jigs and fixtures used for wiring check or continuity inspection must be built with the same level of dimensional accuracy as that of the mating part to avoid the terminal and/or the housing from being damaged or deformed.

5-3-2. Halfway insertion inspection detection method

Check for terminal halfway insertion must be done with a jig specially designed for this product by checking the deflection of the lance. If it is not possible, use e.g. the terminal pull check method to confirm that the terminal is fully seated in the cavity.



Notes

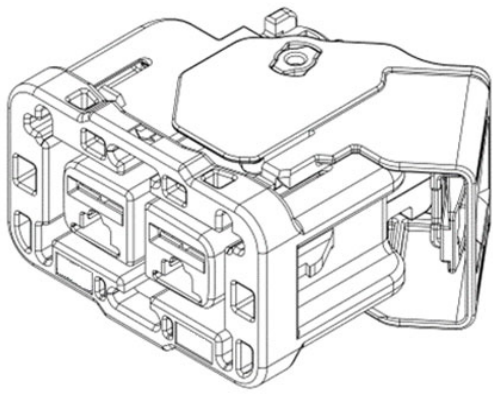
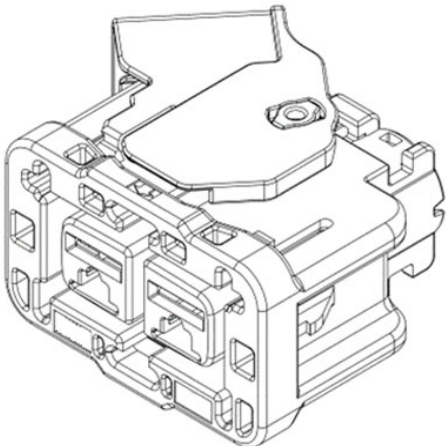
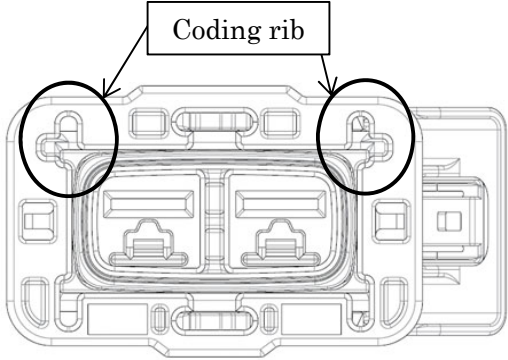
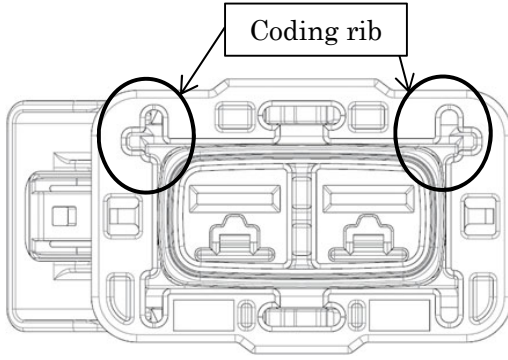
- If a probe pin is placed on the male tab for continuity inspection, use caution to avoid the male tab from being damaged or deformed.
- If a probe pin is placed on the spring of the female terminal for continuity inspection, use caution to avoid the spring from being damaged or deformed.
- Use caution to avoid the sealing surface from being damaged or scratched.

6. Attachment of lever

Note: This section is applicable only to the LIF connector.

6-1. Lever attachment direction

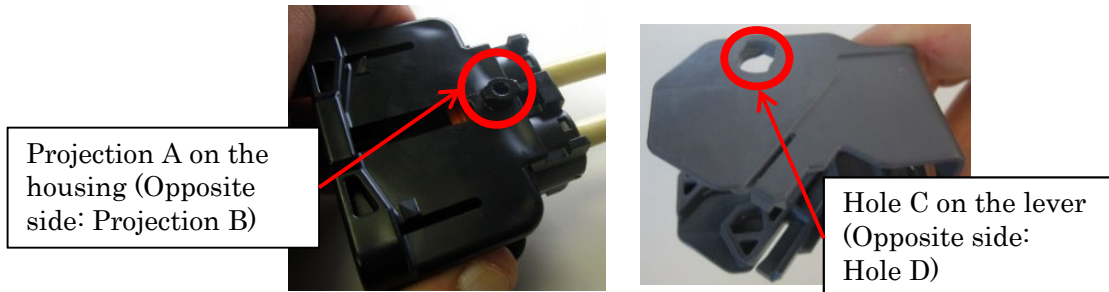
See below for the correct lever attachment direction:

7389-5980-30	7389-5981-30
	
With the coding rib side of the connector up, the lever is attached on the right side 	With the coding rib side of the connector up, the lever is attached on the left side 

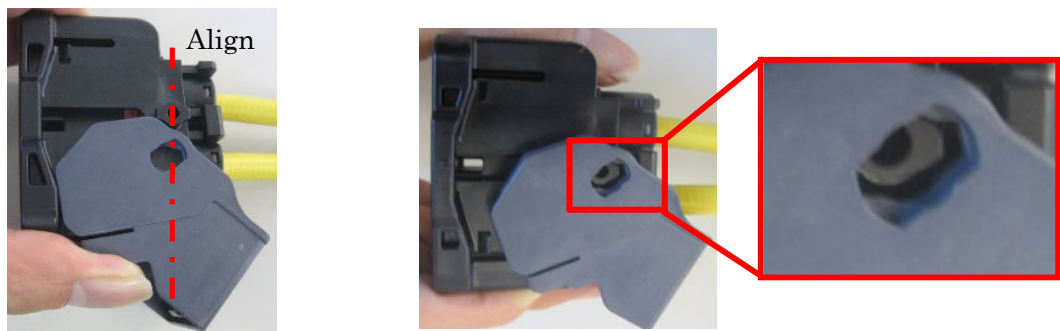
6-2. Attachment of lever

Follow the below steps to attach the lever.

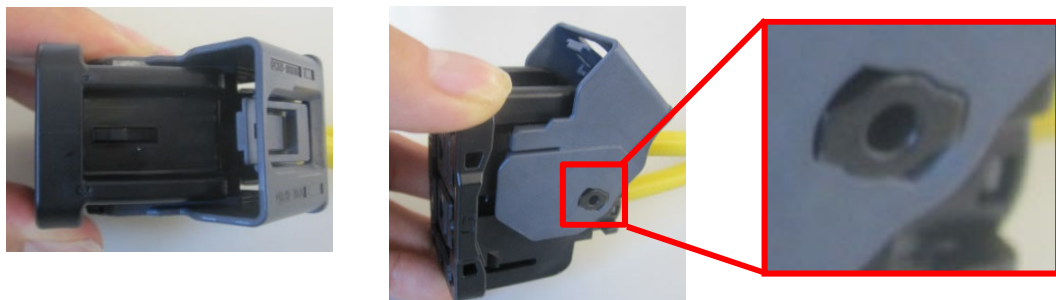
- (1) Visually check the projection A and B on the housing and the hole C and D on the lever.



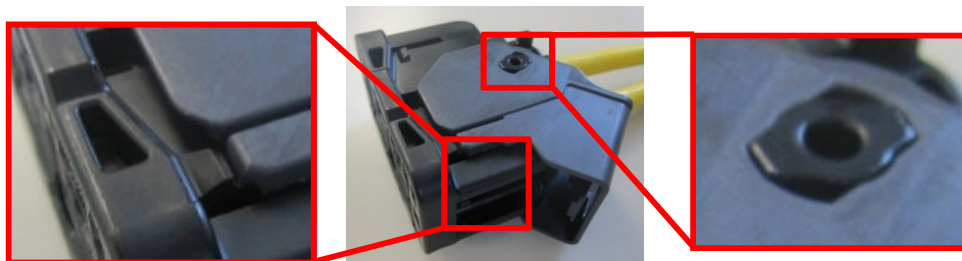
- (2) Align the projection and the hole, and press the lever to place the projection in the hole.



- (3) On the opposite side, spreading the lever a bit with fingers, press the lever to place the projection in the hole.



- (4) Visually confirm that the projections are properly placed in the holes and also the lever and the housing are locked on both sides.



Notes

- Make sure to attach the lever in the correct direction according to the steps mentioned above.
- Pay attention not to damage the wire by e.g. the lever during this operation.

7. Wire harness management, packing and opening

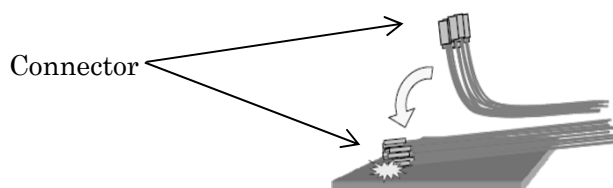
7-1. Wire harness management

7-1-1. Precautions for wire harness routing and installation



Note

- Use care not to subject the connector to strong shock or impact.



7-1-2. Precautions for taping on wire harness



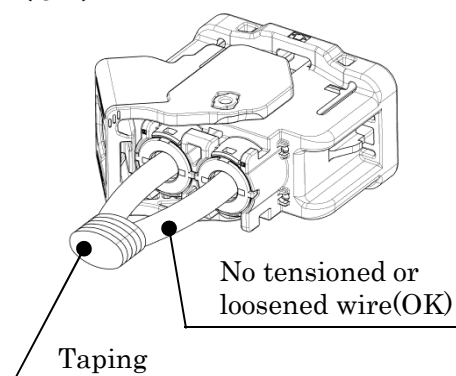
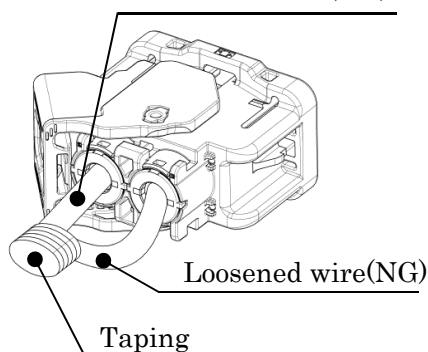
Notes

- Taping must be done in such a way that there is no tensioned or loose wire so that force applied can be evenly distributed among the wires included in the taping.

<NG>

Tensioned wire(NG)

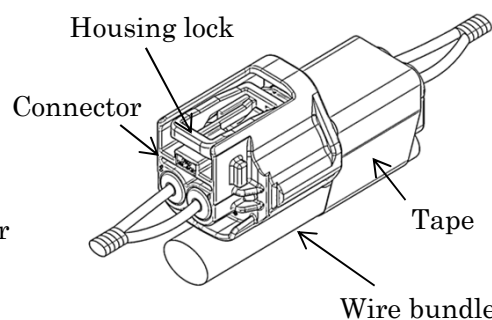
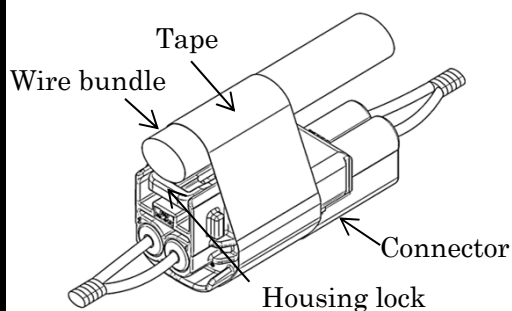
<OK>



- If the connector is taped on the wire harness, use care for the housing lock or other flexible members of the connector not to come in contact with the harness.

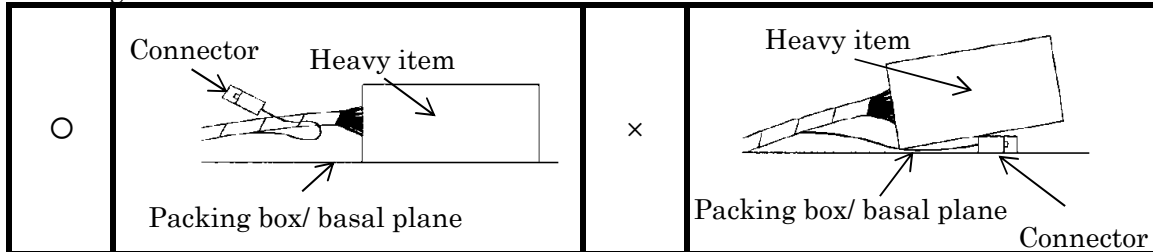
<NG>

<OK>

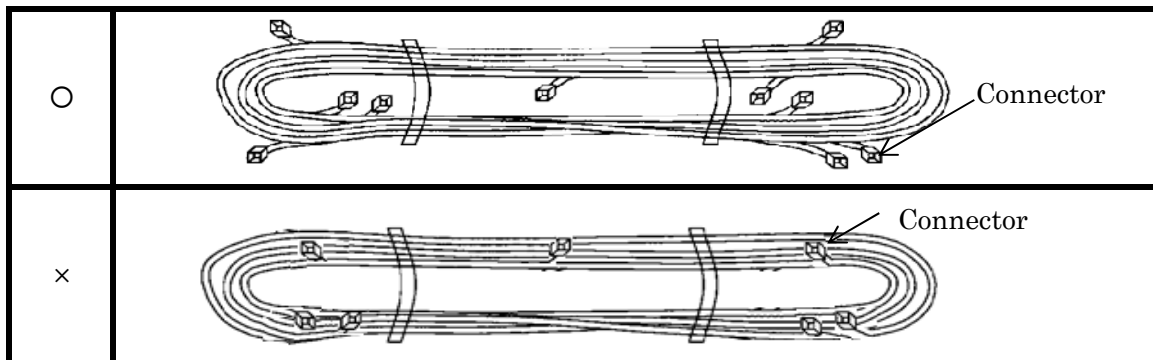


7-2. Wire harness packing

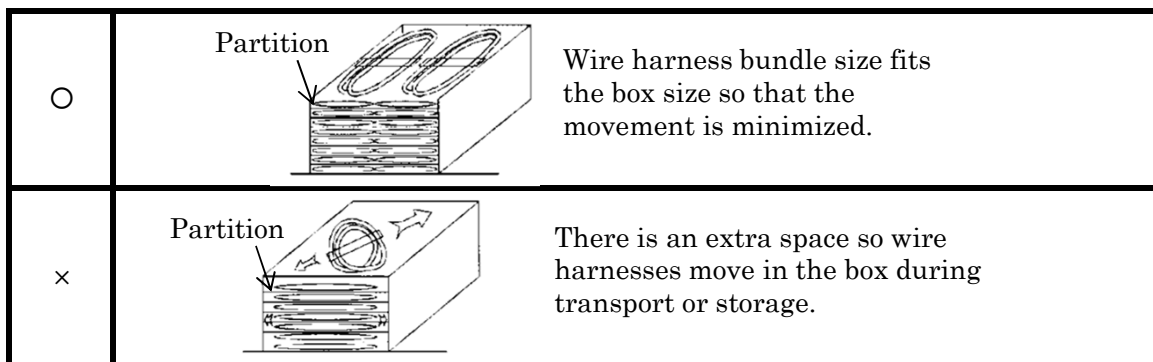
- 1) Place a junction block, relay box, protector, brackets and other heavy and/or bulky items at the bottom of the box or compartment so that the connector is free from the weight.



- 2) Place the connector outside the wire harness bundle.



- 3) Bundle the wire harness in a size which fits the size of the box using partitions so that the wire harness does not move inside the box during transport or storage.



Note

- Use a proper packing method to distribute load among the products in the box.

10-3. Wire harness opening



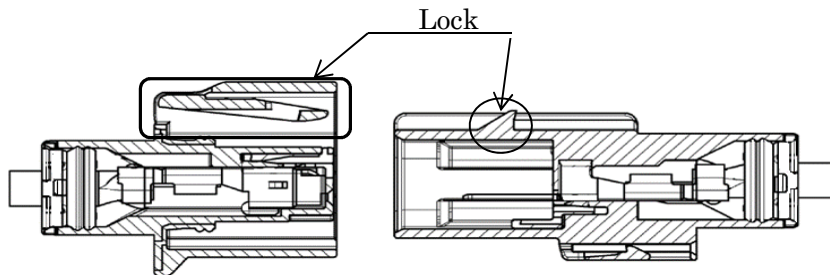
Notes

- When the wire harness is taken out from the box, use care not to damage the connector as the parts and wires may have been entangled with each other in the box.
- Do not apply external force by stepping on, dropping, etc.

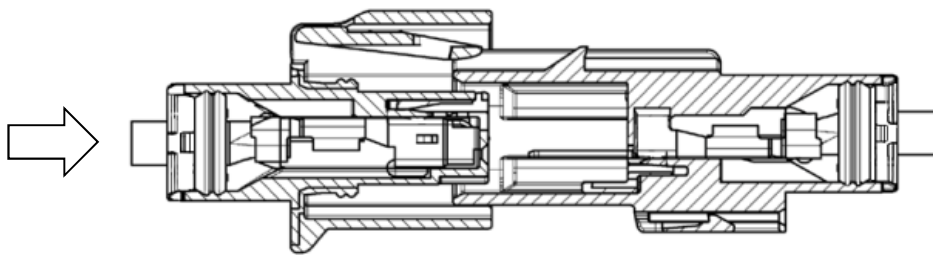
8. Mating and unmating of connector

8-1. Connector mating procedure

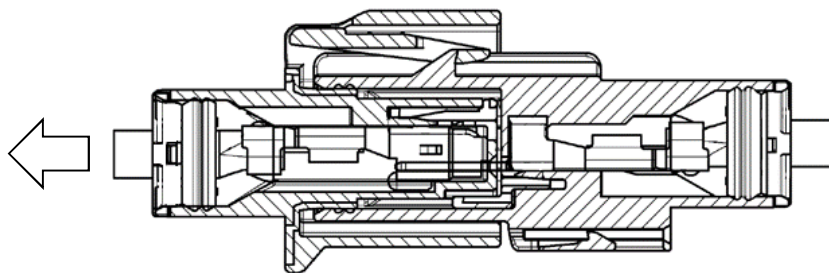
- 1) Orient the male and female connector properly (i.e. those locks are on the same side).



- 2) Insert the female connector straight into the male connector in the arrow direction until there is an audible 'click' sound, which is generated when the connector are engaged.



- 3) Pull the female connector lightly in arrow direction to confirm that the surely locks are properly engaged.

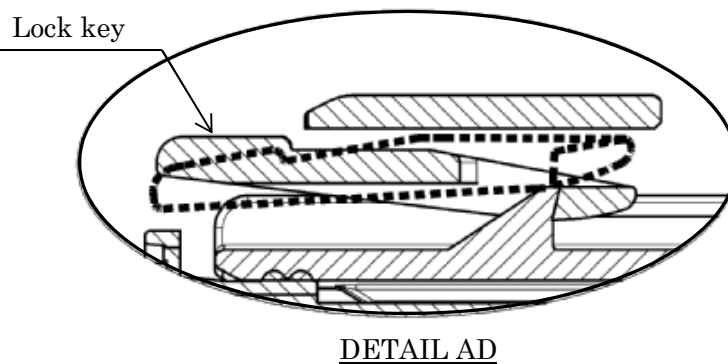
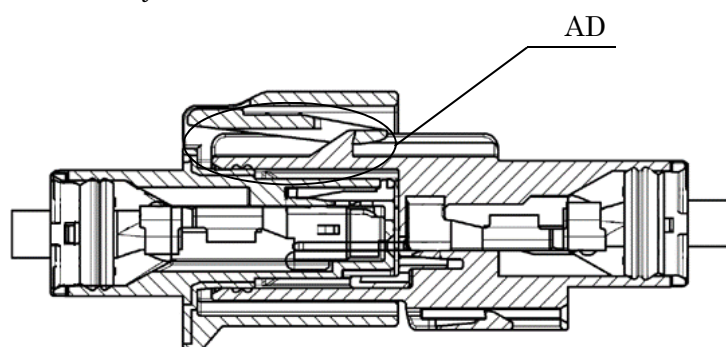


Notes

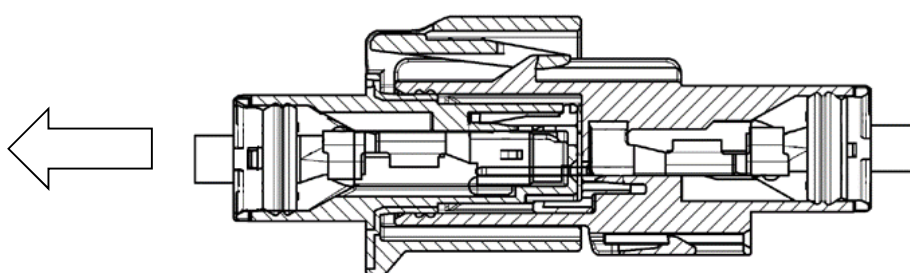
- Make sure to mate the connector straight. No angled mating is allowed.
- Do not press down the lock on the female connector during the mating operation.
- If it is not possible to mate the connector smoothly, do not try to do it by force, and repeat the mating procedure from the beginning.
- Wires after connector mating must be free of tensile force.
- Halfway-mated connector are found in a vehicle, since the housing lock may have been damaged or deformed, replace the connector with new ones.

8-2. Connector unmating procedure

- 1) Press down the lock key to release the lock.



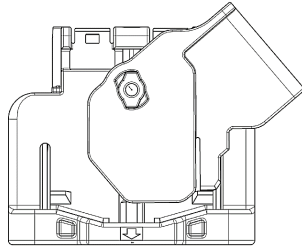
- 2) With the lock key pressed down, pull the female connector in the direction of the arrow to separate.



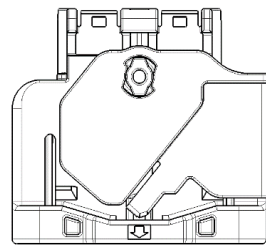
• Do not hold the wire to release the connector.

8-3. LIF connector mating procedure

- 1) On the connector before mating, visually check that the lever is properly attached and seated at the correct position.

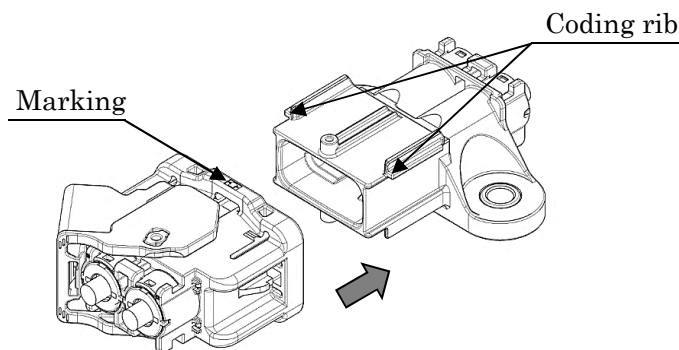


Correct position



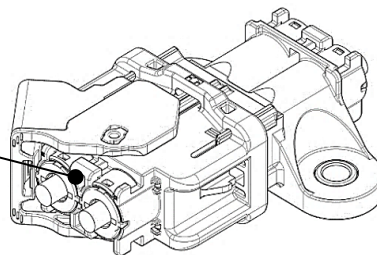
Wrong position

- 2) Orient the male connector and the female connector properly for mating (i.e. marking side of the female connector and the coding rib side of the male connector are on the same side).

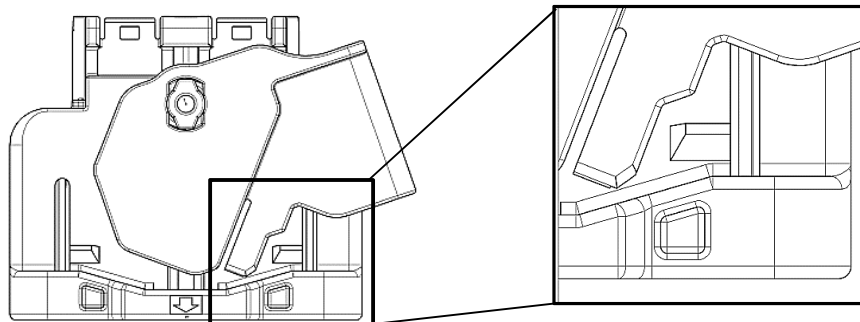


- 3) Insert the female connector in the male connector so that the lock of the lever at the pre-set position is released.

Press here to insert the female connector in the male connector

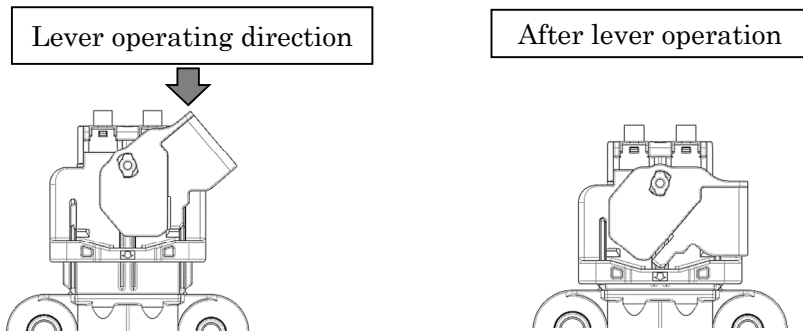


- Confirm that the lock of the lever at the pre-set position is released.



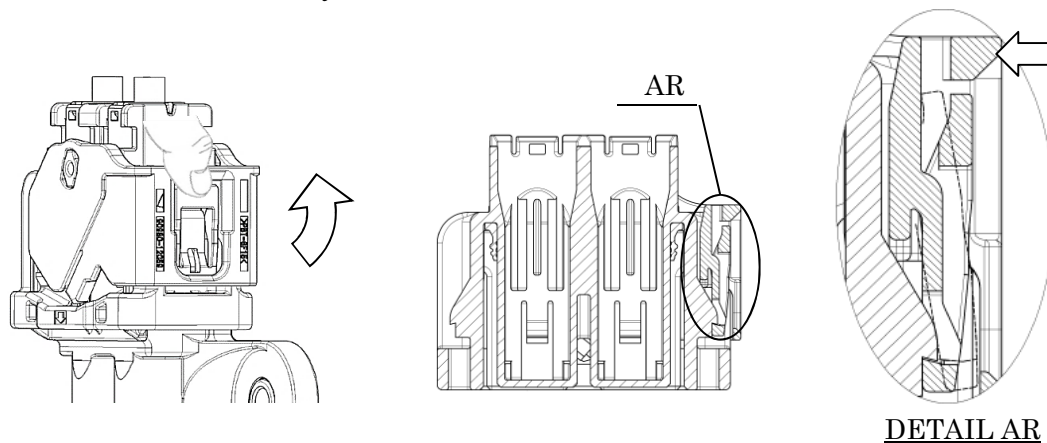
4) Operation of lever (Mating)

Place your finger on the operation pad and perpendicularly press the lever down in the connector mating direction until there is an audible 'click' sound.



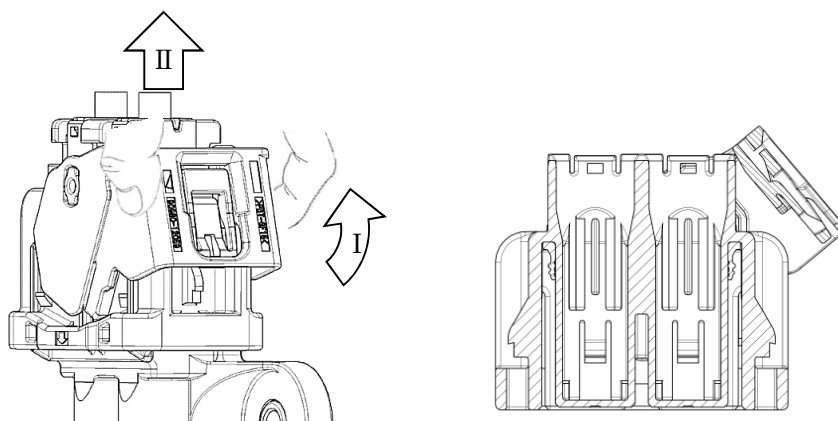
8-4. LIF connector unmating procedure

1) Press down the lock key to release the lock.



DETAIL AR

2) With the lock key pressed down, pull the female connector in the direction of the arrow to separate.



◎ List of part number (9.5 Series)

Series	Number of poles	Female		Male	
		Double lock	HLC	Double lock	HLC
9.5	1P	-	7287-7163-30 7387-7163-30 ※1	7282-3210-40	-
9.5	1P	-	7289-7258-30	7288-7257-30	-
9.5	2P	-	7389-5980-30	-	7297-9013-30
9.5	2P	-	7389-5981-30	-	7297-9013-30

※1 This cap is used to fasten an optional circuit.

※2 Part number definition

○○○○-○○○○-△△ (○ : Product number, △ : Color code)

This list includes part numbers of representative parts (colors). Same handling procedure is applicable to all parts (all colors).

技術標準対象部品品番一覧

TECHNICAL STANDARD target Parts Number List

No.	品番 Part Number	No.	品番 Part Number	No.	品番 Part Number	No.	品番 Part Number	No.	品番 Part Number	No.	品番 Part Number
1	7287-7163-30	51		101		151		201		251	
2	7387-7163-30	52		102		152		202		252	
3	7289-7258-30	53		103		153		203		253	
4	7389-5980-30	54		104		154		204		254	
5	7389-5981-30	55		105		155		205		255	
6	7282-3210-40	56		106		156		206		256	
7	7288-7257-30	57		107		157		207		257	
8	7297-9013-30	58		108		158		208		258	
9	7287-7163-40	59		109		159		209		259	
10	7282-3210-30	60		110		160		210		260	
11		61		111		161		211		261	
12		62		112		162		212		262	
13		63		113		163		213		263	
14		64		114		164		214		264	
15		65		115		165		215		265	
16		66		116		166		216		266	
17		67		117		167		217		267	
18		68		118		168		218		268	
19		69		119		169		219		269	
20		70		120		170		220		270	
21		71		121		171		221		271	
22		72		122		172		222		272	
23		73		123		173		223		273	
24		74		124		174		224		274	
25		75		125		175		225		275	
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45		95		145		195		245		295	
46		96		146		196		246		296	
47		97		147		197		247		297	
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49		99		149		199		249		299	
50		100		150		200		250		300	