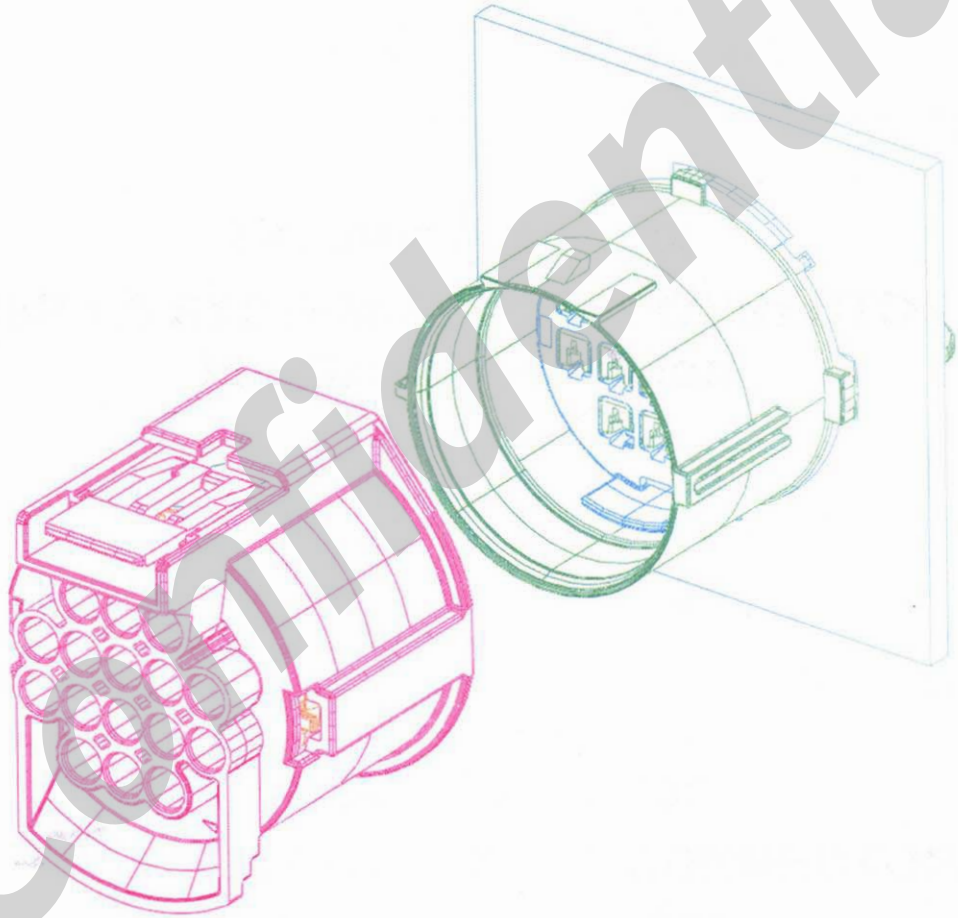
YAZAKI

Handling Manual for

16P 1.5 SYSTEM SEALED CONNECTOR
Headlamp application



This document has in its content performance parameters meeting global standards and customer specific performance requirements, which have to be qualified by the test procedures specified herein. The achieved values meeting the mentioned requirements are valid after release of this document as a product specification.

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1 Scope

This Handling Manual contains the guidelines for the application of the **16P 1,5mm System Sealed Connecto**r together with 1,5mm YES Systems Sealed Male and Female Terminals. The connectors are used for the Headlamp application.

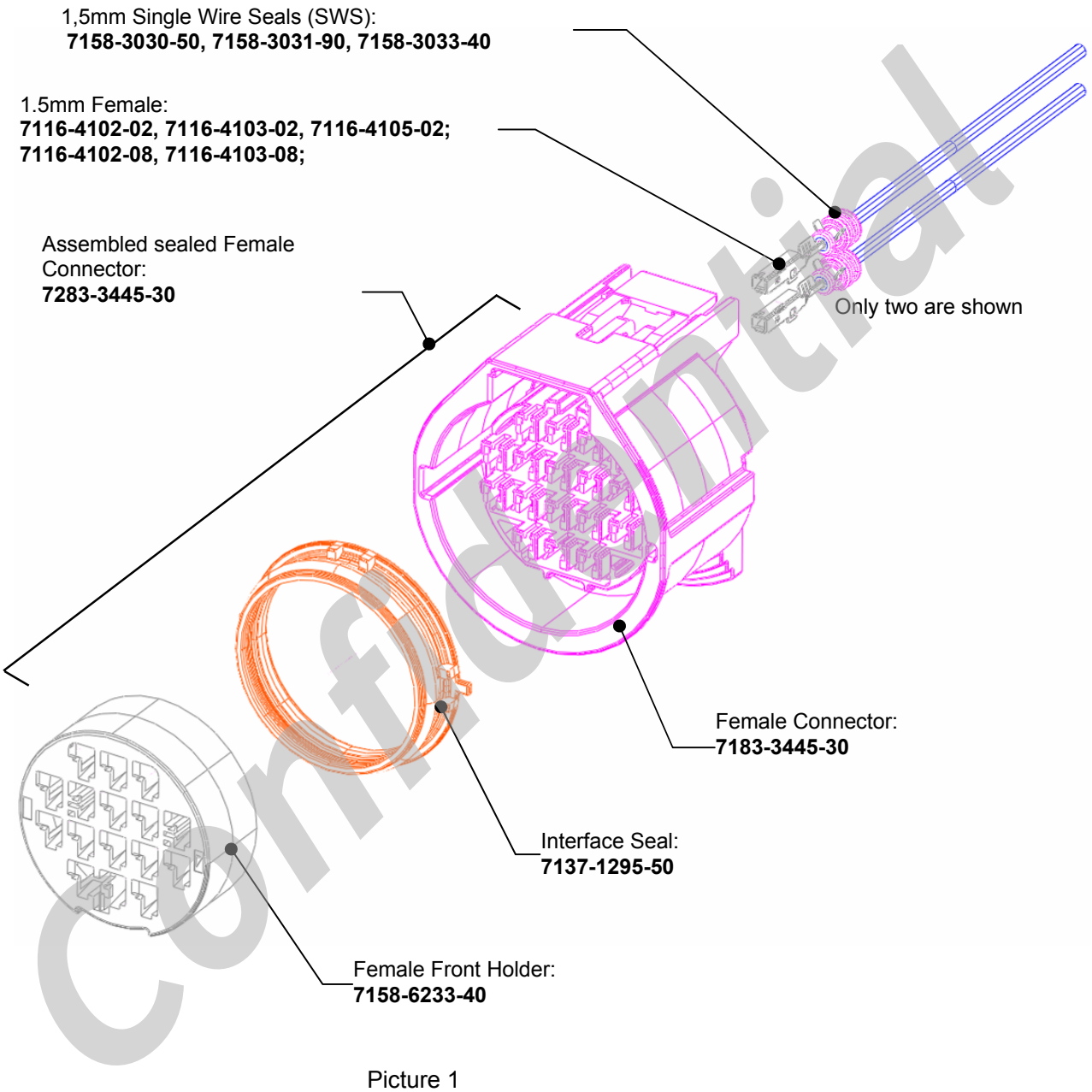
1.1 Delivery Condition

- Assembled Male Connector with Front Holder in Preset - Position (7282-3445-30)
- Assembled Female Connector with Interface Seal and Front Holder in Preset-Position (7283-3445-30)

For the details and colour marking, see YAZAKI-Drawing:
7282-3445-30:R or 7283-3445-30:R

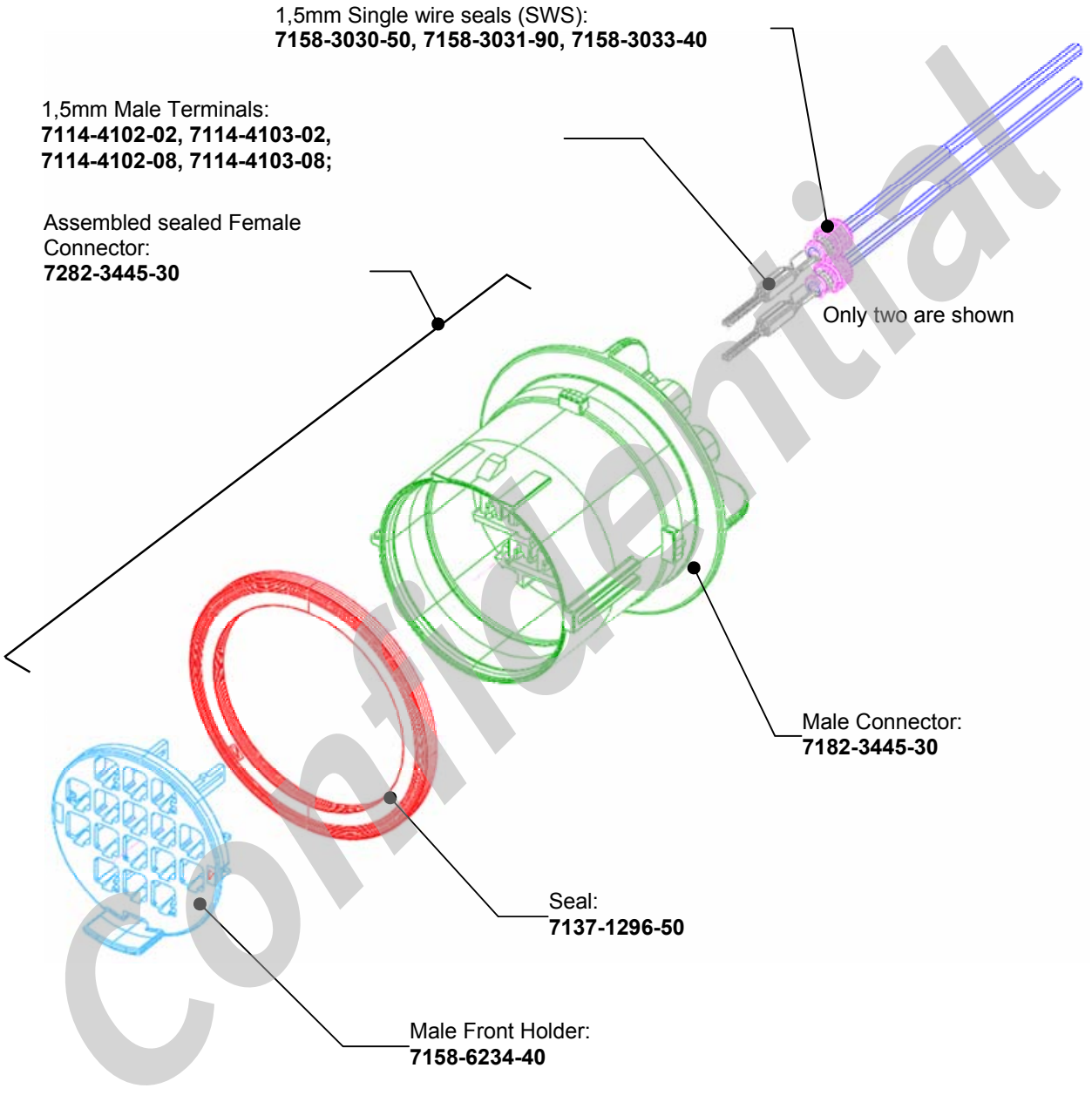
2 Part Description and Function

2.1 Female Connector Parts and Part Numbers



Picture 1

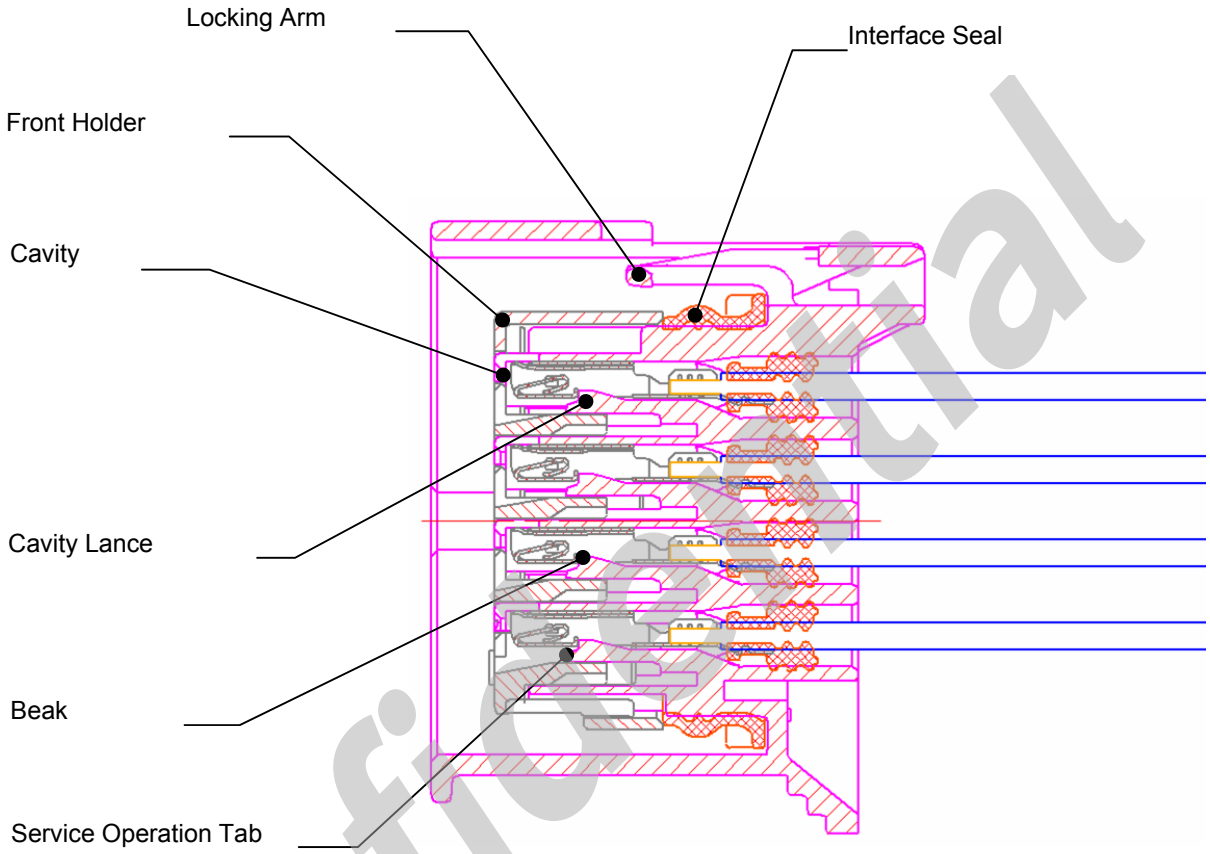
2.2 Male Connector Parts and Part Numbers



Picture 2

2.3 Significant Features: Description and Function

2.3.1 Female Connector with Locking Arm and Front Holder



Picture 3

- Front Holder

After insertion of all Terminals, push Front Holder from Pre-Set to the Set Position. This action checks if all Terminals are completely inserted. If Front Holder is not fully engaged in Set Position, then Female Connector could not be mated with Male Connector.

- Interface Seal

Provides sealing between Female Connector and opposite mating element. It protects connection from water ingress.

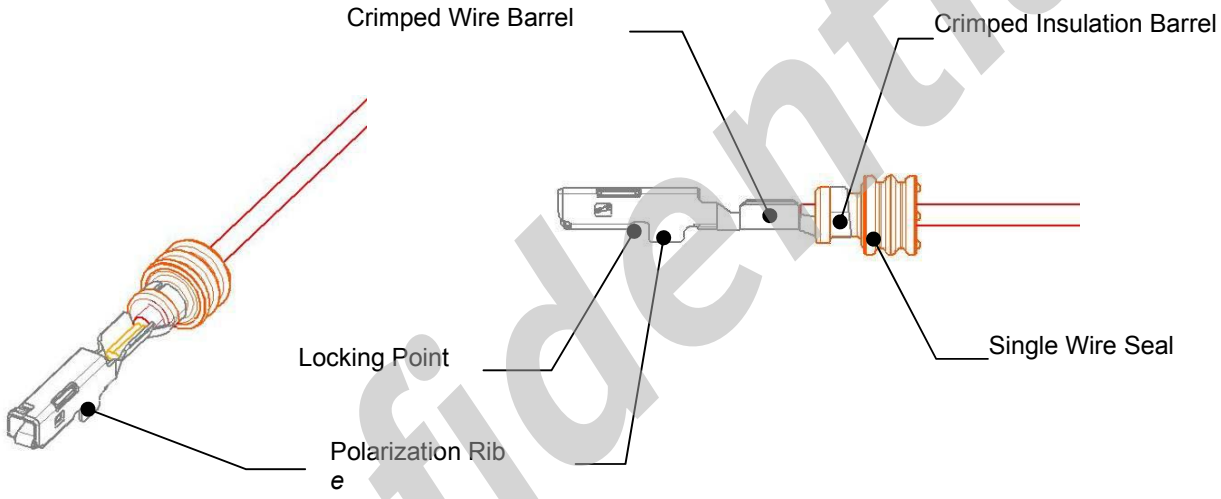
- Locking Arm

Locks Connector Halves (Female and Male) if Connector is fully mated.

- Cavity
  - Cavity Lance:
    Allows movement of Housing Lance.

  - Beak
    Locking / Retention of Female Terminal
  - Service Operation Tab:
    Allow Beak releasing operation.

2.3.2 Female Terminals



Picture 4: Female Terminal

- Crimped Wire Barrel

Is crimped with the strains of the wire.

- Crimped Insulation Barrel

Is crimped with the Single Wire Seal and the lead insulation.

- Polarization Rib

Prevents Terminal against improper insertion.

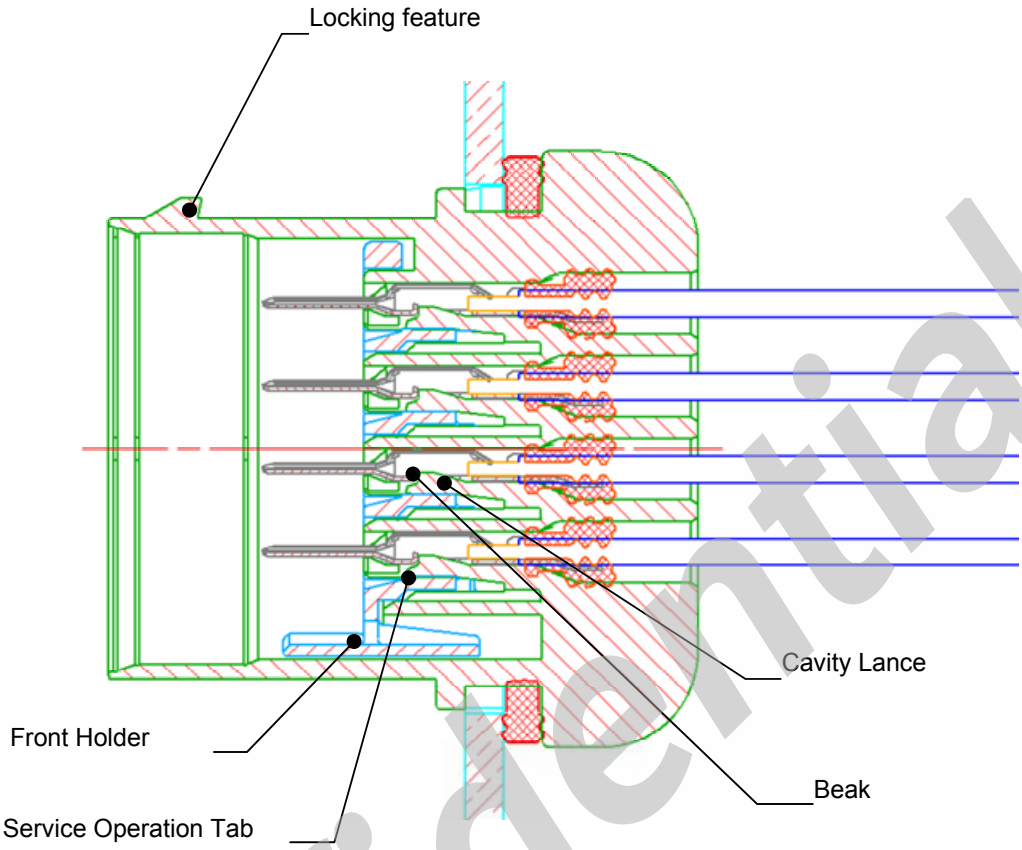
- Locking Points

Edges provide locking with Cavity Lance.

- Single Wire Seal

Provides sealing between lead and Housing.

2.3.3 Male Connector with Front Holder



Picture 5

- Front Holder

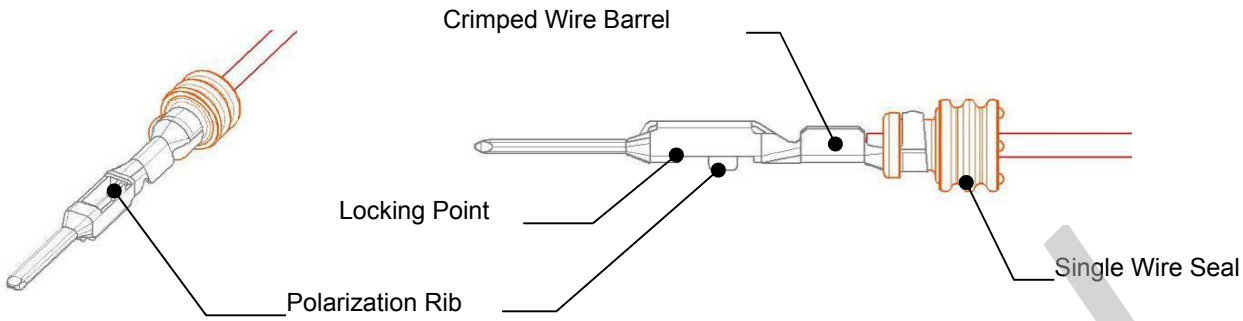
After insertion of all Terminals, push Front Holder from Pre-Set to the Set Position. This action checks if all Terminals are completely inserted. If Front Holder is not fully engaged in Set Position, then Female Connector could not be mated with Male Connector.

- Locking feature

Lock up with Female housing

- Cavity
  - Cavity Lance:
    Allows movement of Housing Lance.
  - Beak
    Locking / Retention of Female Terminal
  - Service Operation Tab:
    Allow Beak releasing operation.

2.3.4 Male Terminals



Picture 6

- Crimped Wire Barrel

Is crimped with the strains of the wire.

- Crimped Insulation Barrel

Is crimped with the Single Wire Seal and the lead insulation.

- Polarization Rib

Prevents Terminal against improper insertion.

- Locking Point

Edge provides locking with Cavity Lance.

- Single Wire Seal

Provides sealing between lead and Housing.

3 Referenced Documents

3.1 Customer Drawings

The dimensions and materials are shown in the YAZAKI - Customer Drawings.

3.2 Product Standard

Product Standard YPES-11-04-189E defines performance, tests and quality requirements of the Connector.

3.3 Terminal Documents

All data about applicable Terminals are given in the referenced documents:

- Yazaki Drawings:

YES Male Terminal:	7114-4102-02:R;
	7114-4102-08:R;
YES Female Terminal:	7116-4102-02:R;
	7116-4102-08:R;
YES SWS:	7158-3030-50:R.

3.4 Specifications

Connector meets specifications:

- SAE / USCAR-2 (Class 3) Connector Performance Specifications, Rev. 4.0;
- SAE / USCAR-12 (Class 3) Connector Performance Specifications, Rev. 3.0;
- Handling Manual for 1.5 WP YES terminal: YPES-15-298E.

4 Connector Storage and Transportation

Ensure that the products are not subjected to any external stress or harsh impact during storage and transportation.

The products should be stored inside, in a clear dry atmosphere, away from direct sunlight.

Do not store them without covering with a box or plastic bag; they should be protected especially from water, oil and dust.

5 Instructions for Installation

5.1 Terminal Insertion

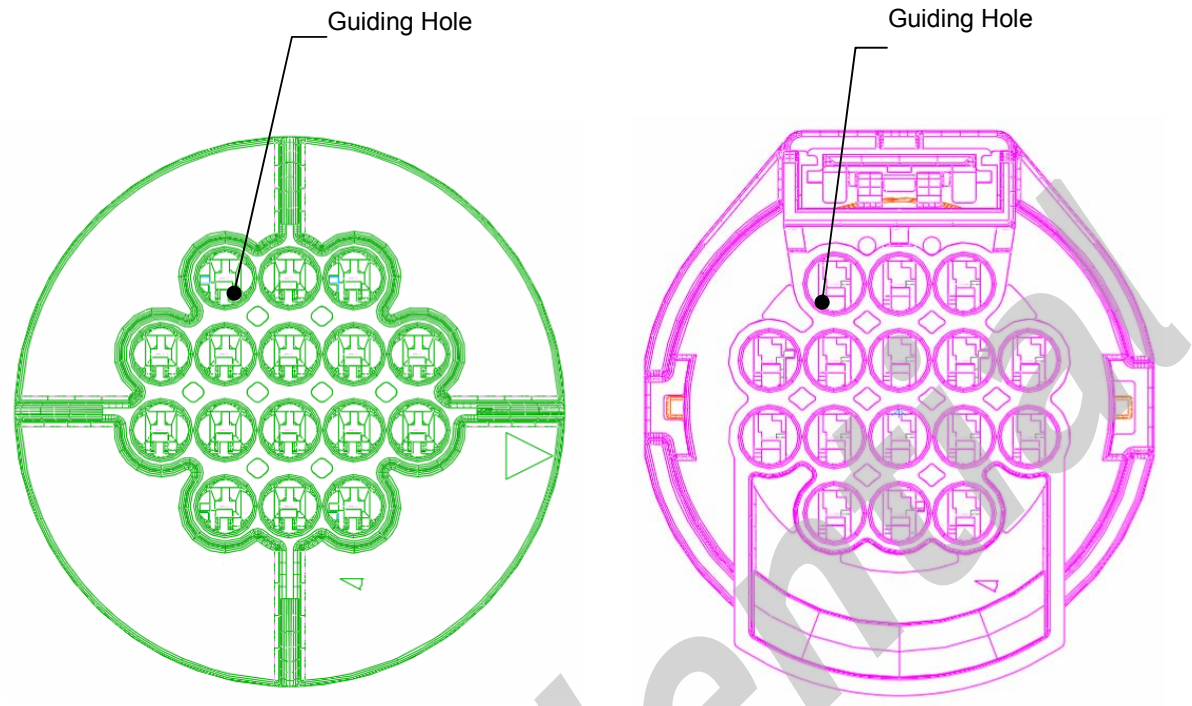
- Check, if the Front Holder is in Pre-Set Position.

- Align the Terminal and the Housing as shown in the Pictures 7 to 9; pay attention to the Terminal Guiding Rib.
- Then insert the terminal until an audible “click”-sound could be heard.
- Terminal is hooked by Cavity Lance as shown on Picture 10.

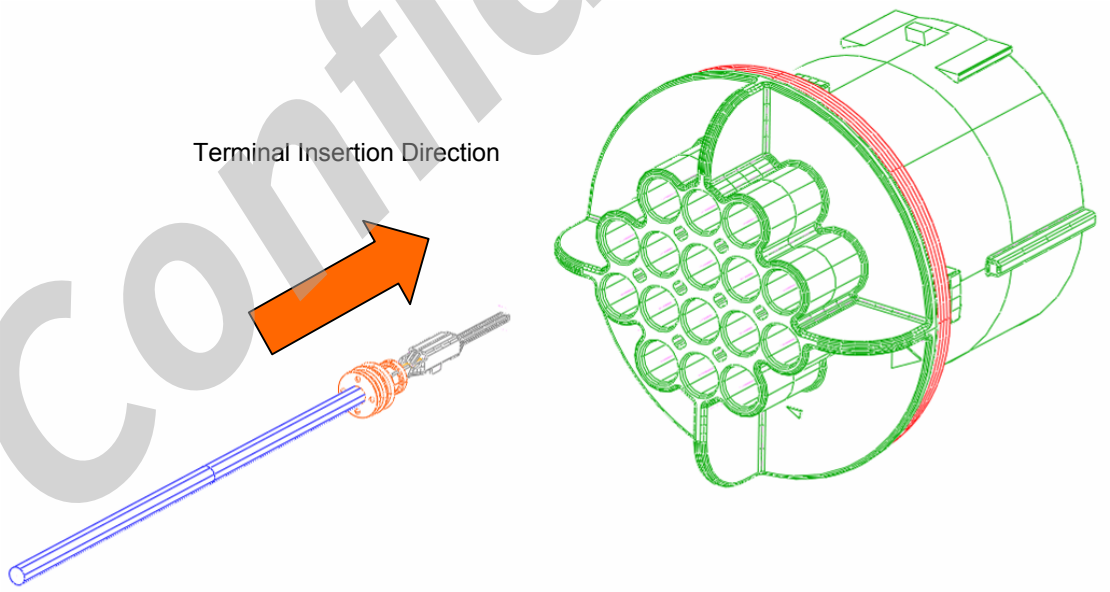
- After insertion, pull the wire slightly to check, if the terminal is locked.

Precautions:

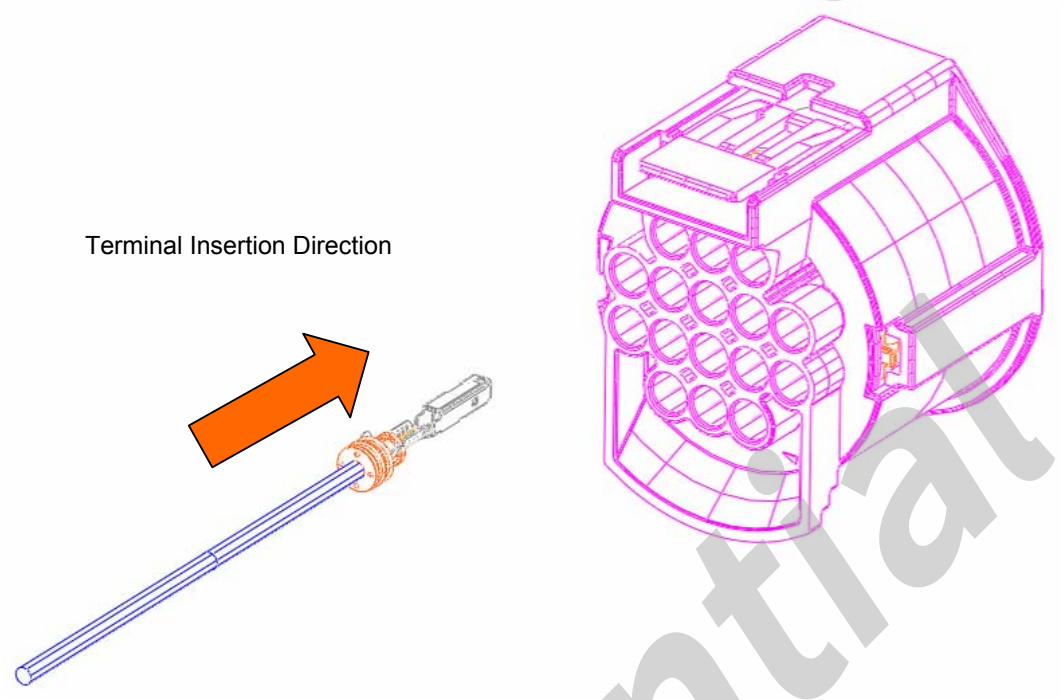
Check for any foreign objects on terminals!



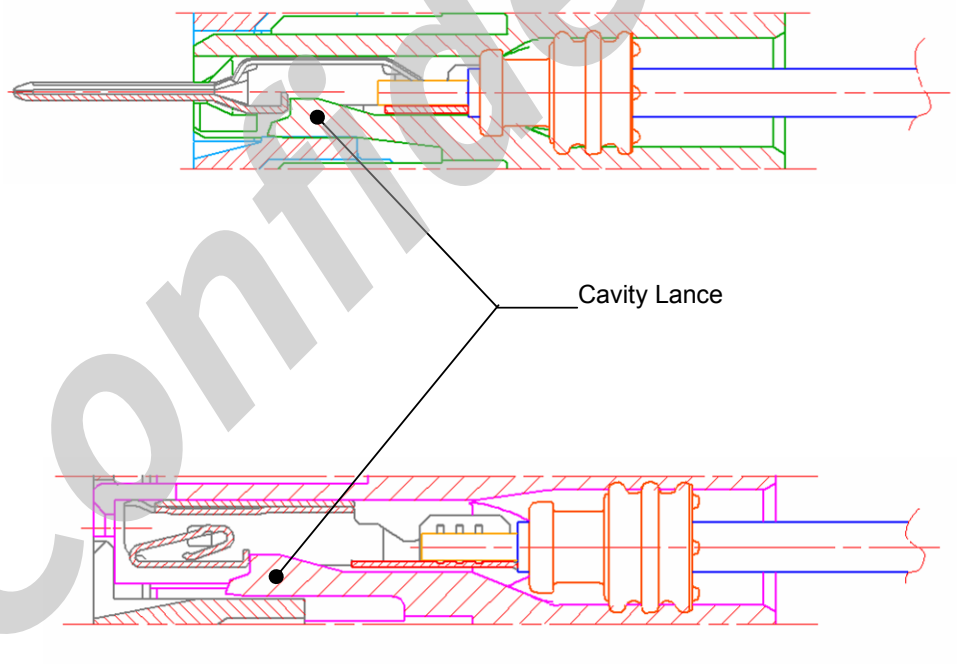
Picture 7



Picture 8: Female Terminals



Picture 9: Male Terminals



Picture 10

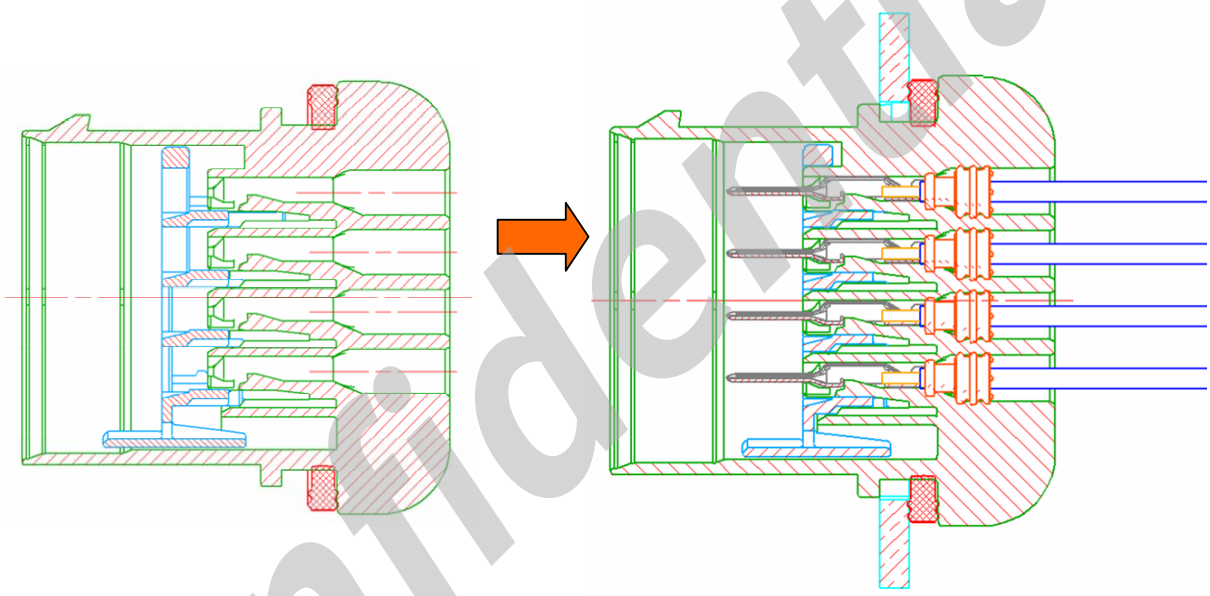
5.2 Front Holder Insertion

After all Terminals are inserted, push Front Holder into the direction of the arrow until it is aligned with surface at Connector (as shown on Pictures 11 and 12).

Precautions:

After pushing Font Holder into the Set Position, check that the back surface of Front Holder is aligned with the mating surface of the Female/ Male Housing.

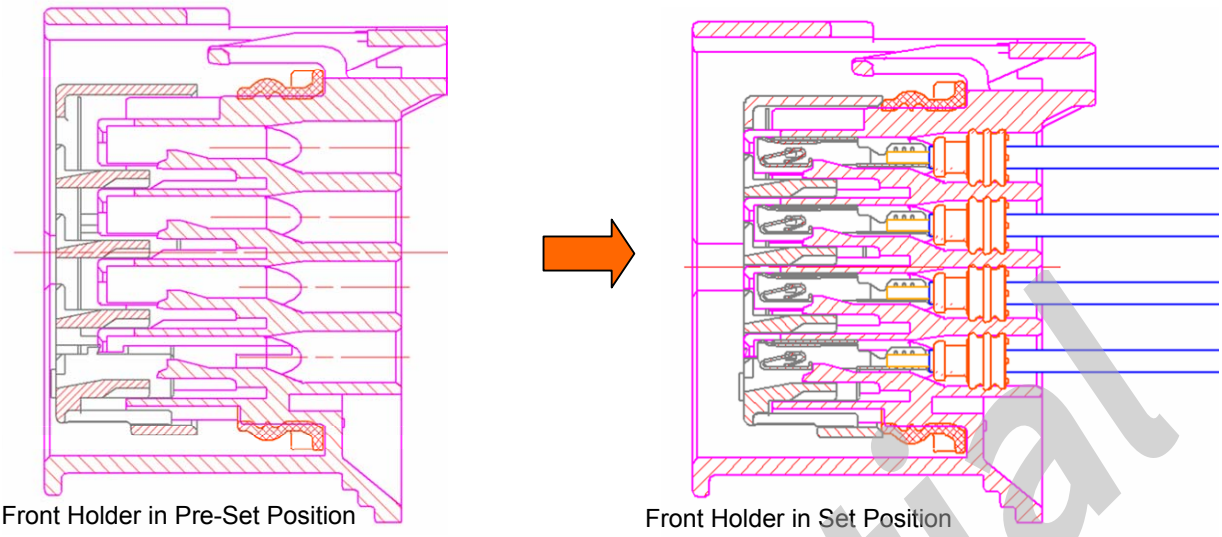
If Front Holder cannot be inserted smoothly or not at all, Terminals may be inserted incompletely. Therefore, check that Terminals have been inserted properly.



Front Holder in Pre-Set Position

Front Holder in Set Position

Male Connector
Picture 11



Front Holder in Pre-Set Position

Front Holder in Set Position

Female Connector
Picture 12

6 Instructions for Removal

6.1 Front Holder Removal

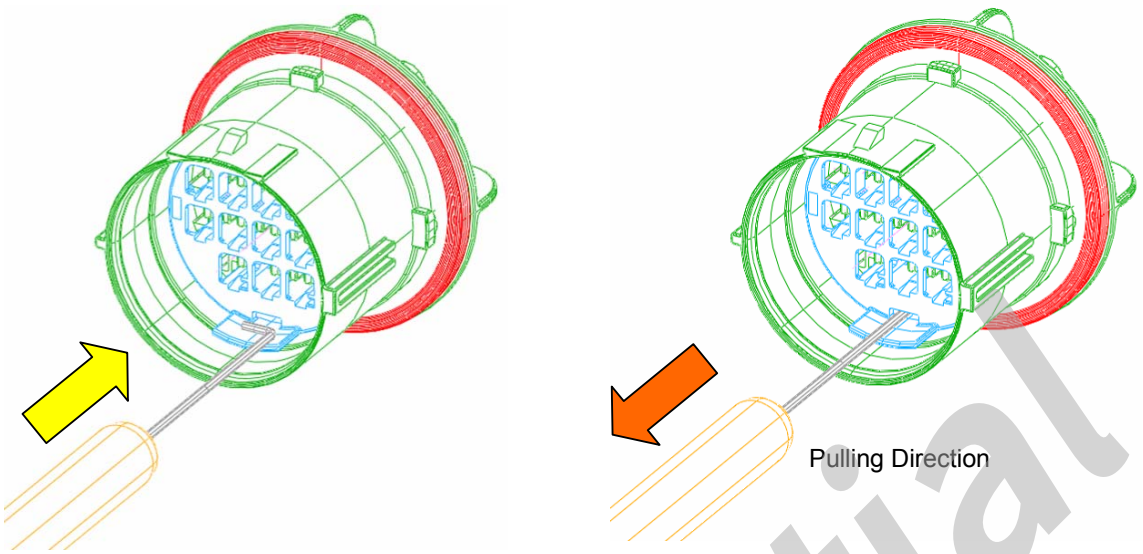
Precautions:

Recommended Front Holder removal tool should be used, see chapter 7.

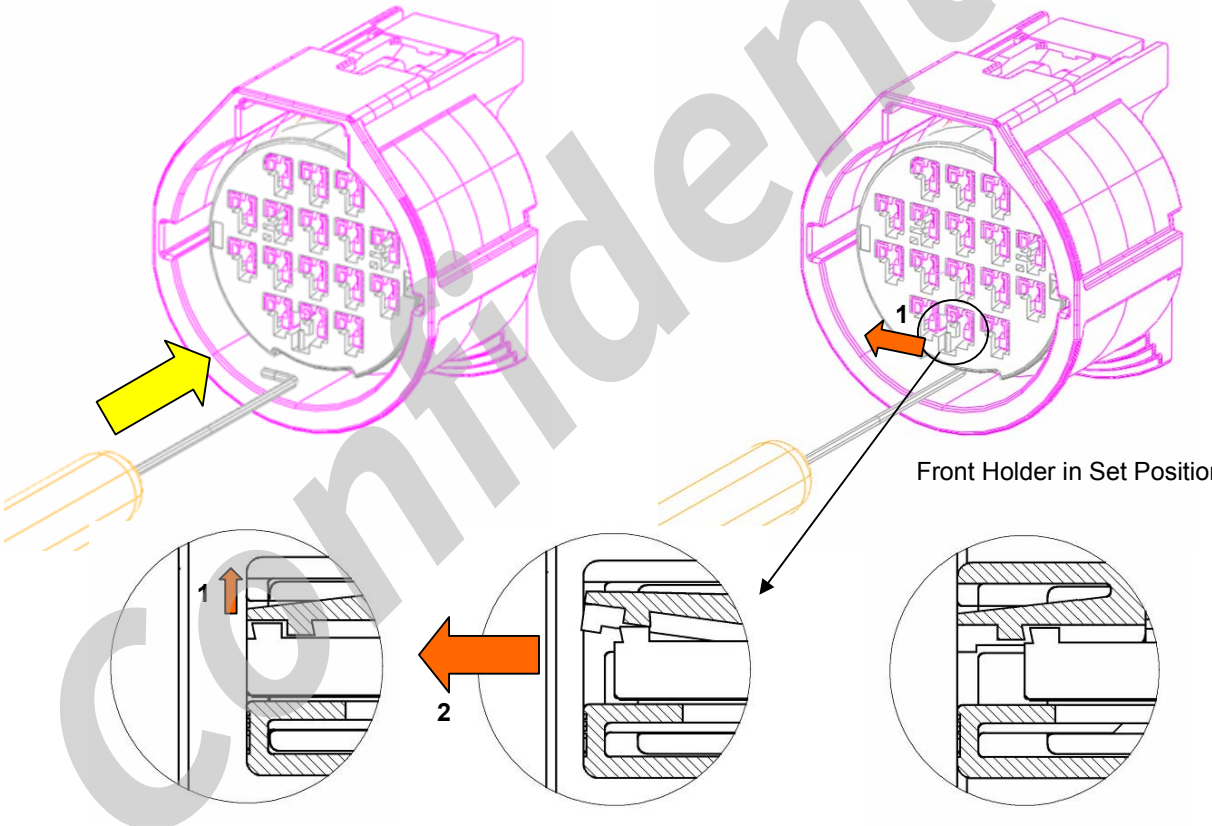
- To disengage Male Front Holder from Set to Pre-Set Position place the tool into the position as shown on the Pictures 13 and then pull it.

- Be sure that Front Holder is pulled up into the Pre-Set Position, and not between the Set and Pre-Set Position, because then it is not possible to extract Terminals from the cavities.

- To disengage Female Front Holder from Set to Pre-Set Position slightly push up Operation Arm of Front Holders into Direction 1 as shown on Picture 14.
- Pull out Female Front Holder to Pre-Set Position into Direction 2 while releasing the pressure on Front Holder Operation Arm as shown on Picture 14.
- Do not pull Front Holders more than in Pre-Set Position, because then it will be removed from the housing.



Male Connector
Picture 13



Operation Arm Position if Front Holder is in Set Position.

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Operation Arm pushed up into Arrow 1 Direction; Front Holder is in Position between Set and Pre-Set.

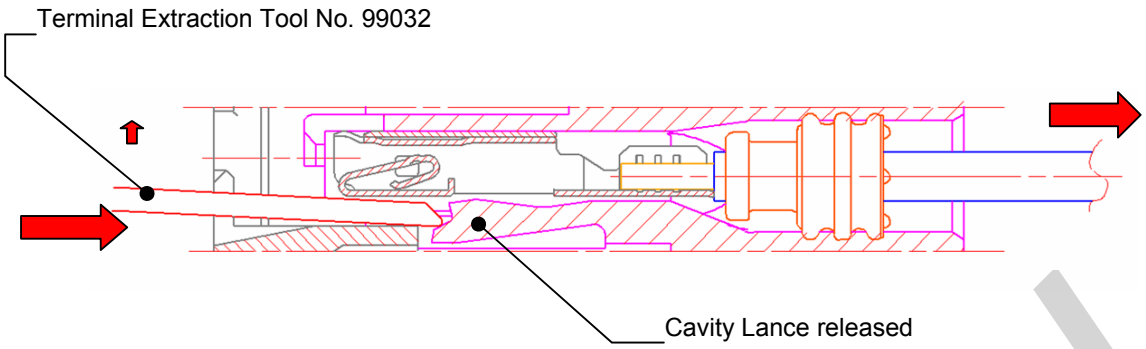
Operation Arm Position if Front Holder is in Pre-Set Position, after pulling along Arrow 2 Direction.

Female Connector
Picture 14

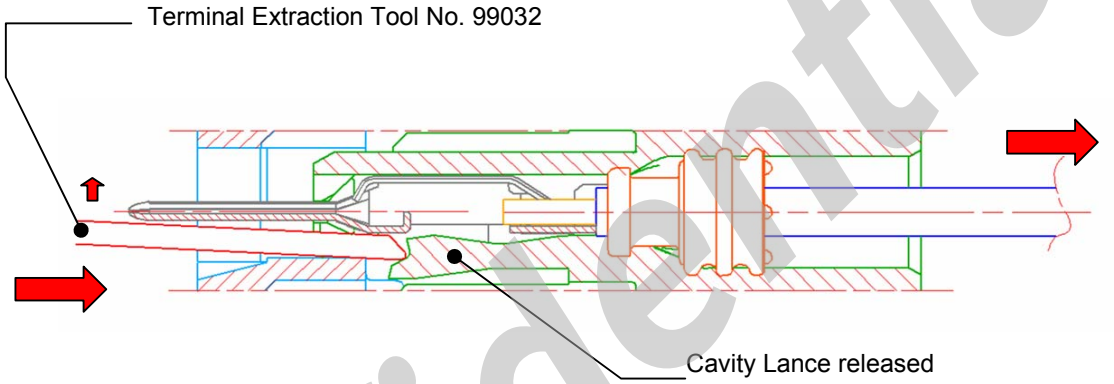
6.2 Terminal Extraction

Trained technicians should only perform the terminal extraction operation.
Probing of the Terminal / Cavity by personnel not familiar with the removal process could result in damage of the Terminal and / or Connector.

- Check if Front Holder is in Pre-Set Position.
- For extraction of 1,5mm Terminals only original Extraction Tool No. 99032 should be used.
- Place the tool as shown in the Pictures 15 and 16; push it until Cavity Lance is completely pressed down.
- Make sure that the tip of the Removal Tool is in the space between the Terminal and the Cavity Lance.
- Pull at the right wire until the Terminal is completely taken out of the cavity as shown in the Pictures 15 and 16.
- If the Terminal cannot be extracted by pulling at the wire, it is possible that Front Holder is not in Pre-Set Position.
- If the Terminal cannot be removed smoothly, do not try to pull it out by force. Start the procedure again.
- After extraction of the Terminal, make sure that the Terminal is not damaged. If so, replace it with a new one.
- Also make sure that the Housing is not damaged. If so, replace the Housing with a new one.



Extraction of 1,5mm Female Terminal
Picture 15

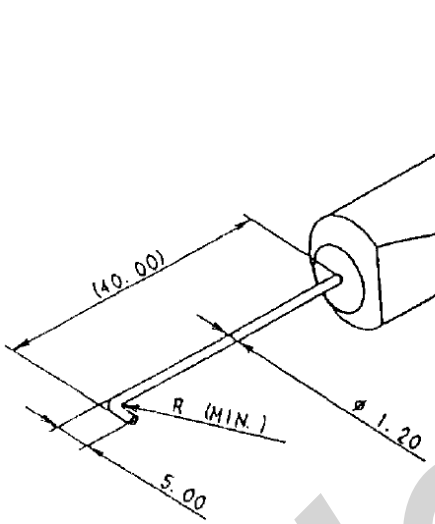


Extraction of 1,5mm Male Terminal
Picture 16

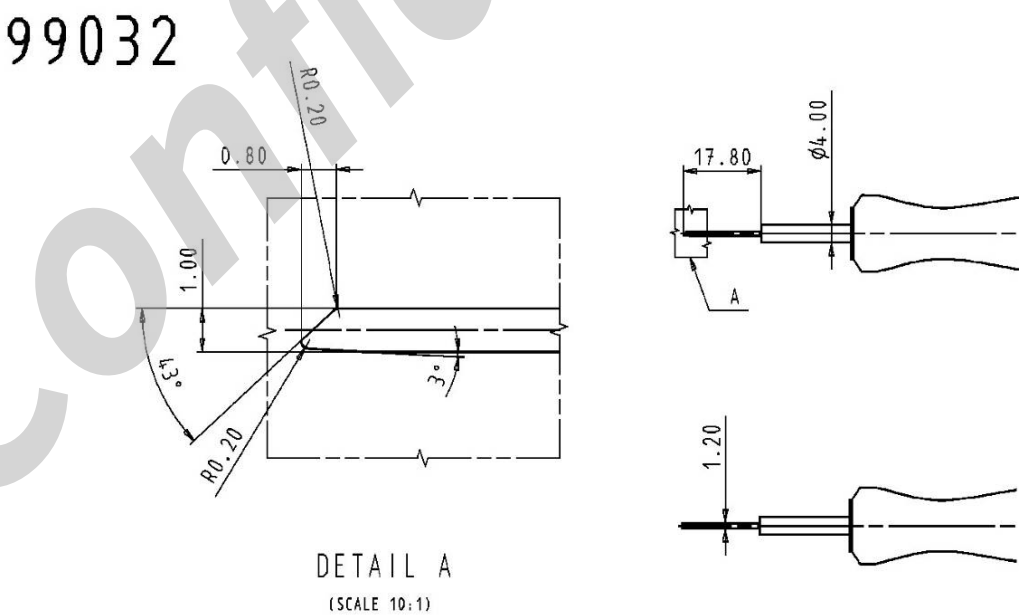
7 Removal, Insertion and Extraction Tools and Part Numbers

- Front Holder Removal Tool
- 1,5mm Terminal Extraction Tool

No. 99032



Sketch 1:
Front holder removal tool



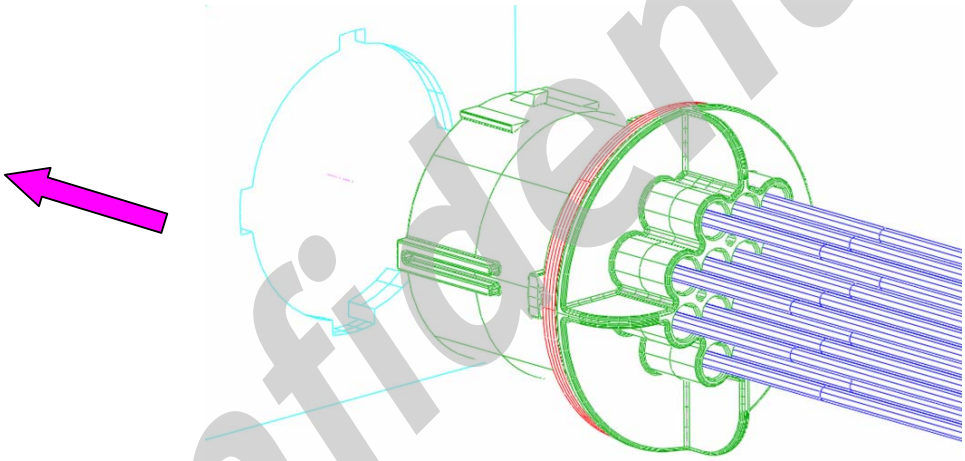
Sketch 2:
Extraction Tool for 1,5mm Terminal No. 90032

8 Instructions for Connector Mating and Unmating

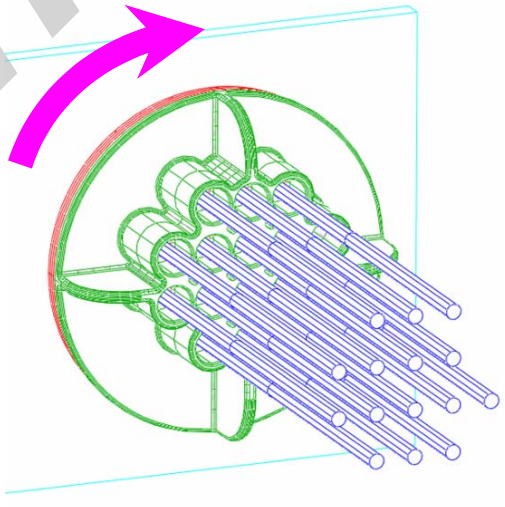
8.1 Connector Mating

Following are the steps, which are necessary to mate the 16P System Connector:

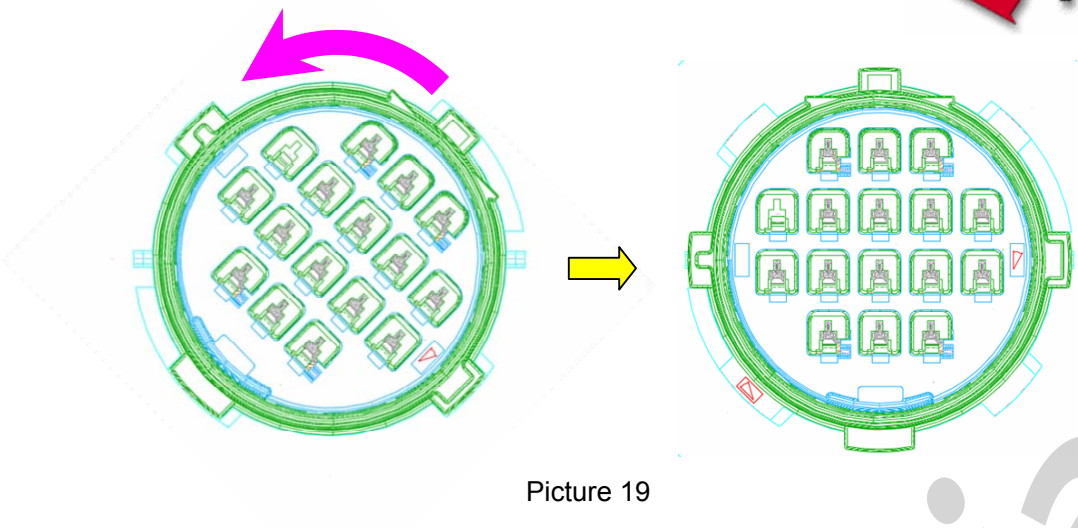
- Connector Systems have to be fully equipped with YES Terminals;
  Front Holders must be in Set Position.
- Male housing shall be mounted on Headlight body first which are shown on pictures 17 to 19. Male connector assembly shall be push through the whole on the Headlight body, pay attention on coding ribs. After full insertion rotate the Male assembly in arrow direction until housing locks.



Picture 17



Picture 18

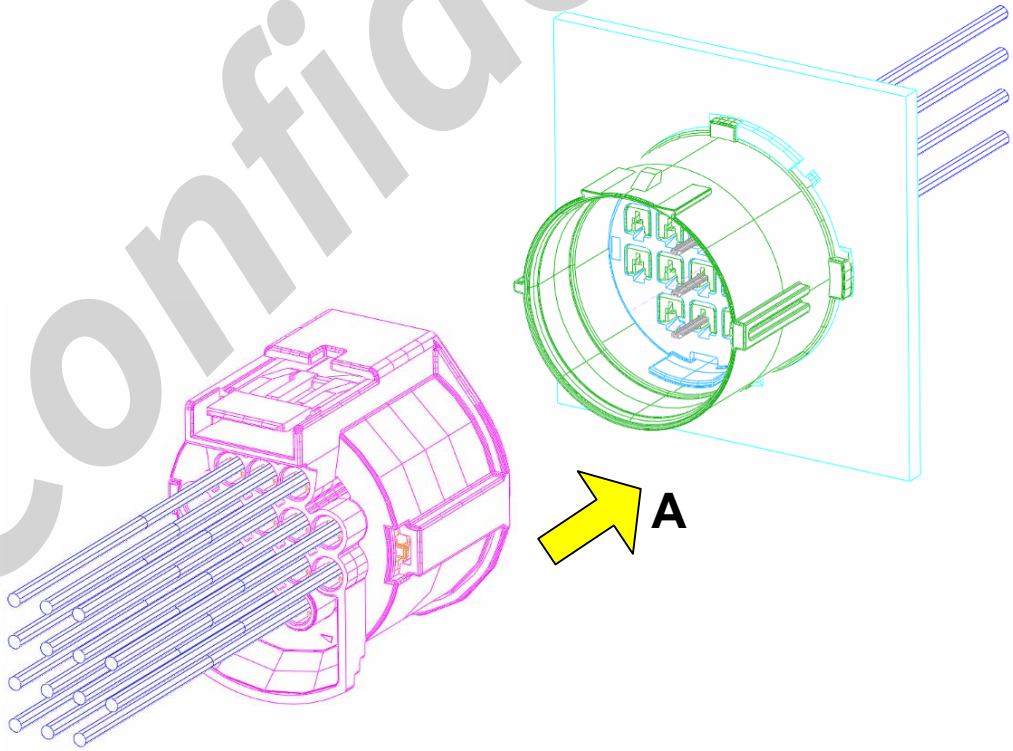


Picture 19

- Move the Female Connector straight as the arrow **A** shows in Picture 20 until an audible CLICK-sound is heard: then the Lock is engaged.
- Pull the Connectors lightly to confirm a secure Locking.

Precautions:

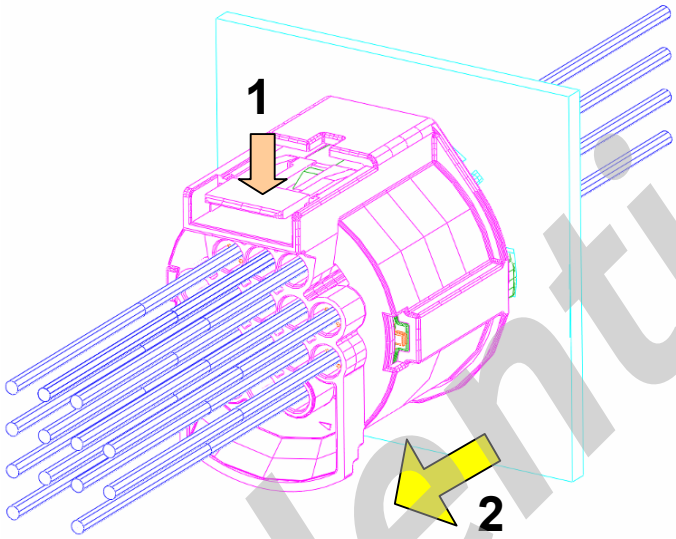
Do not wrench, when mating the Connector.
Do not mate by pushing the Locking of the Housing.



Picture 20

8.2 Connector Unmating

Push the Housing Locking on Female Connector (Picture 21) into direction of the arrow **1** to disengage the Housing Lock. When holding the Housing Locking, pull the Female Connector into the direction of arrow **2** and unmate the Connectors.



Picture 21

Precautions:

Do not pull only by the wire.

9 Wiring Harness Assembly

9.1 Precautions during Wire Harness Assembly

- To avoid the snagging of the Terminals take extra care about them.
- Apply the tape in such a manner that every individual wire is at an equal amount of tensile force. Concentration of tensile force on a particular Wire may cause harmful effect such as inadvertent disengagement of Terminal.
- If bent Wire is necessary due to short distance to the connector, first bend the Wires in wanted direction and than apply the tape. The wrong application sequence may introduce stress, which could release the Contact unintended.

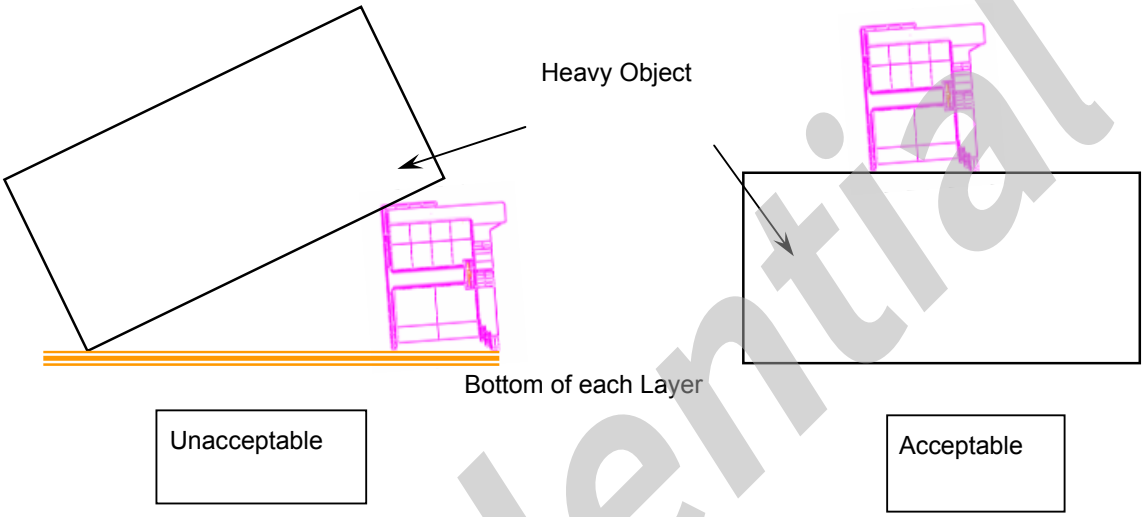
9.2 Notices for Packing of Wire Harnesses

Like many plastic part the Connector may be damaged if external force is applied to the Connector during transportation or storage. To prevent damages, take the following actions as well as the standard packaging and handling procedures:

- When packing wire harness in layers, use corrugate dividers for each layer, including layer dividers, vertical or horizontal dividers, internal supports and partitions to equally distribute weights of upper layer harness from the lower layer harnesses.
- Any heavy and / or bulky objects shall be placed on the bottom of the carton or divider to prevent weight of such item from being applied to the Connector (see Picture 22).
- The Connector shall be positioned outside or in the centre of the harness bundle, to prevent the weight of the harness from being applied to the Connector.

- Wire harness bundle size must fit the carton to prevent shifting of wire harness during transportation or storage.

- If the Connector Housing is “taped back” on the wire harness bundle, assure that the Housing Lock or other flexible member of the Connector are positioned away from the wire harness bundle.



Picture 22

- Extra care shall be taken to prevent wire harnesses tangling which may damage the Connector when wire harness is removed from the carton at the vehicle assembly.

- After transportation or storage, the Connector shall be checked for damages.