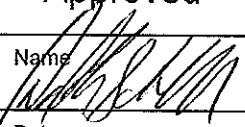
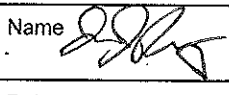
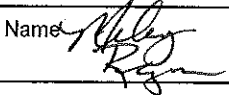


YPES-15-1204E

2P 9.5 mm Sealed Female Connector Sub-Assembly User's Manual Approval Sheet

0	10.11.10	Initial Release
Revision Level	Date	Change Location / Description

Approved	Checked	Checked	Prepared
Name 	Name 	Name 	Name Bernardo Olivas Ramon Chavez
Date 20 Oct. 28 10	Date 10.12.10	Date 10.11.10	Date 10.11.10

2P 9.5 mm Sealed Female Connector Sub-Assembly User's Manual

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Yazaki Handling Manual

Applicable Connector Series: 2p 9.5mm Sealed Female Sub-Assembly

Specification Number: YPES-15-1204E

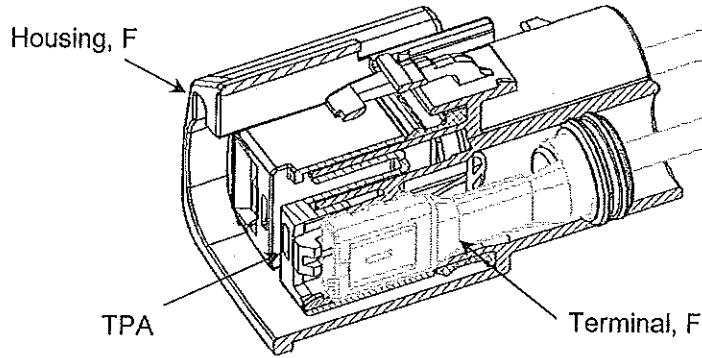
Release Date: Oct 11, 2010

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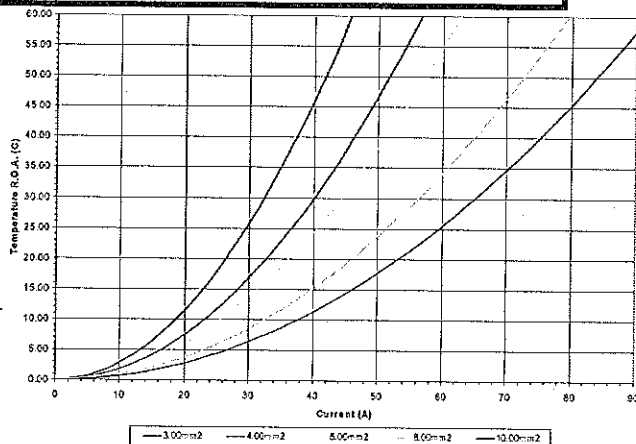
1. Product Specification (Reference)



Material	Connector	PBT, 15%GF
	Female Terminal	Copper Alloy (Sn Plate / Au Plate / Ag Plate)
Operating Temperature Range (Sealed)		-40C ~ 125C, 145C max temp (USCAR Class 3)
Current Capacity		See Current Rating Curve
Voltage Drop		1.5milli-ohms max (crimp-to-crimp)
Isolation Resistance		500VDC, 100M-ohms
Dielectric Resistance		1000VAC/1 minute
Applicable Wire Size (Conductor)		10awg-6awg / 4.0-16.0 sqmm
Applicable Wire O.D.		3.4mm ~ 8.3mm
Terminal Pitch		Horizontal: 17.6mm
Sealing Performance (Air-Leak)		48KPa (Pre-Heat Soak), 28KPa (Post Heat Soak)
Terminal-to-Connector Retention		90N Minimum
Connector-to-Connector Insertion (REF)		N/A - Direct Connect Application
Connector-to-Connector Retention		N/A - Direct Connect Application

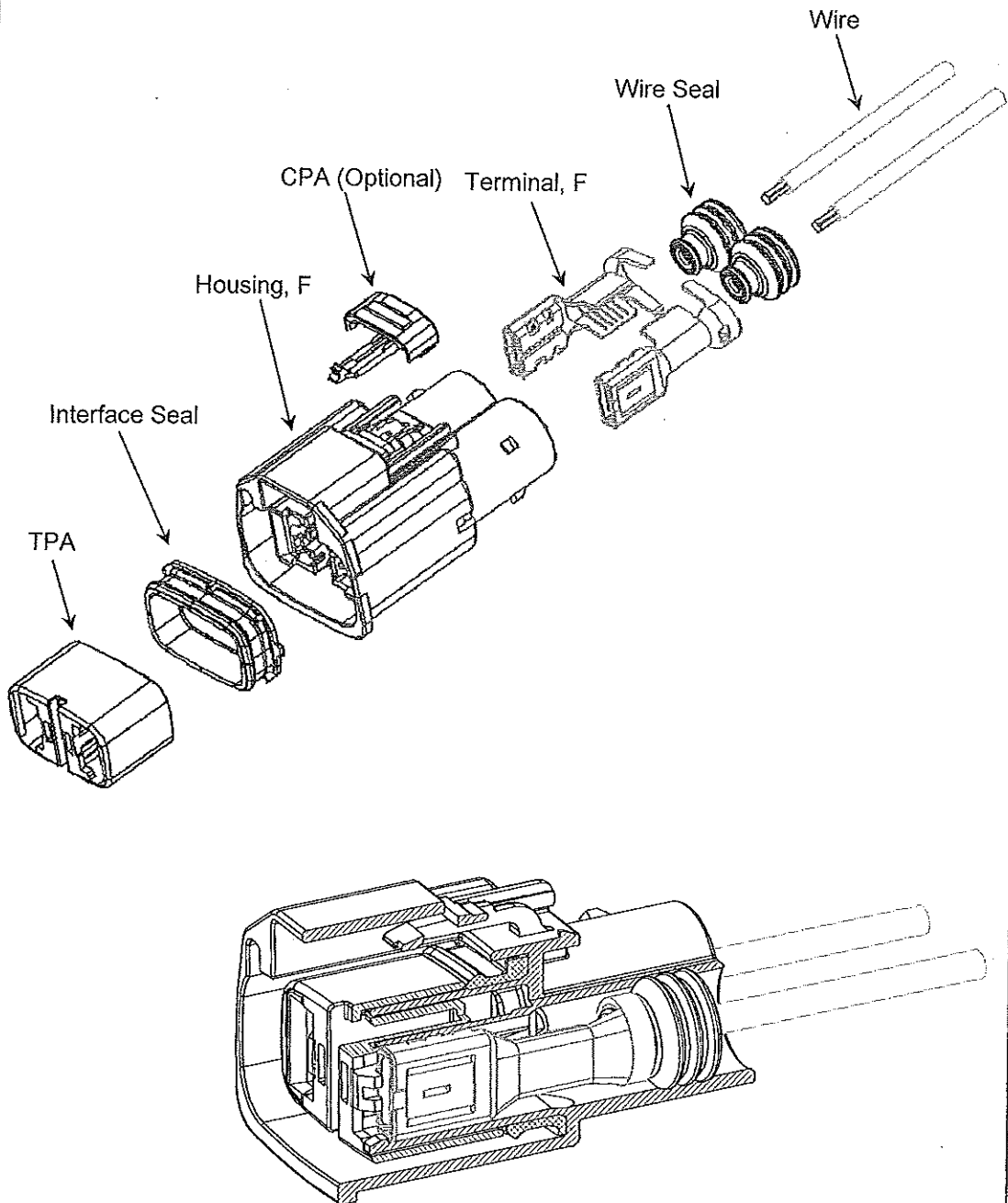
Current Rating Curve (Reference Only)

Data based on single circuit/open air evaluation, and should be used for reference purposes only. Appropriate de-rating should be considered based on specific application requirements.



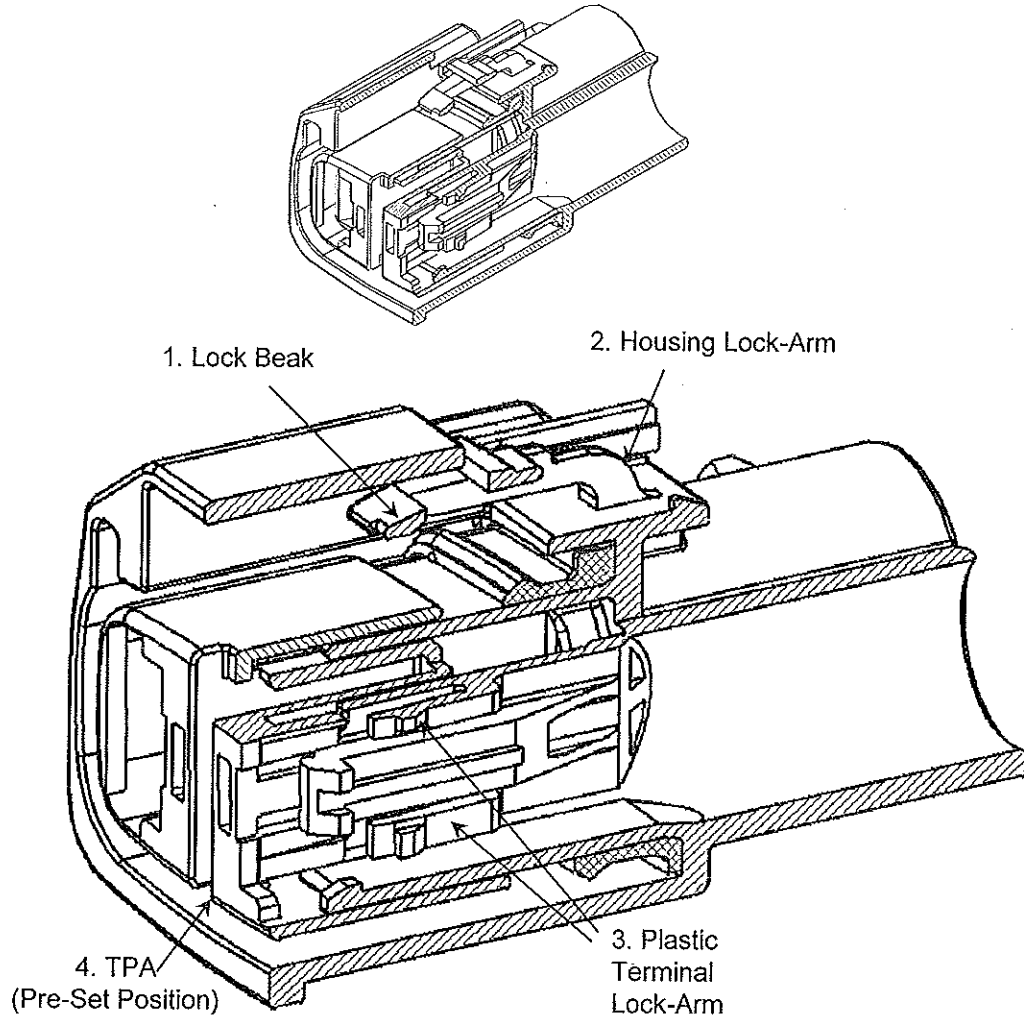
2. Associated Components

2.1. Female Connector



3. Components Shape and Function

3.1. Female Connector Assembly



#	Feature Name	Function
1	Lock Beak	Provides mechanical retention of mated part
2	Housing Lock-Arm	Flexing member which provides means for assembly/servicing of the connection
3	Plastic Terminal Lock-Arm	Flexing member which provides means for assembly/servicing of the terminal
4	TPA (Terminal Position Assurance)	Provides detection method for partially installed terminal during W/H assembly

4. Handling of Components

4.1. Receiving Inspection Items

The following items should be inspected upon receipt of the parts:

1.) Terminal

- a. Appropriate Part Number
- b. Parts are free of foreign objects, cracks, deformation, burr, rust, unclean parts, peeling or any other apparent abnormalities.
- c. Parts display no apparent discoloration and/or oxidation.
- d. Entangled or loosening terminals from reel.

2.) Other Associated Parts

- a. Appropriate Part Number
- b. Parts are free of foreign objects, cracks, deformation, or other apparent abnormalities (sink marks, short shots, etc.)

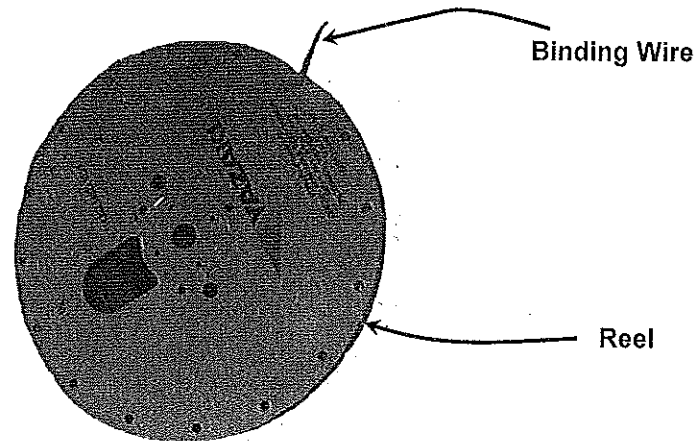
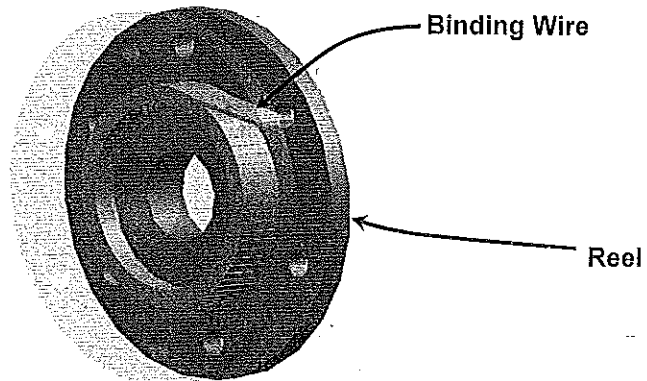
4. Handling of Components (Continued)

4.2. Transportation/Storage/Handling Precautions

The following recommendations should be followed to avoid potential deformation or damage of the product at the W/H assembly plant:

1.) Terminal Specific

- a. Partially used terminal reels should have the carrier strip secured to prevent loosening, unwinding, or entanglement of the terminal product. Utilization of a 'binding wire' or some other form of stopper which would perform a similar function is recommended.

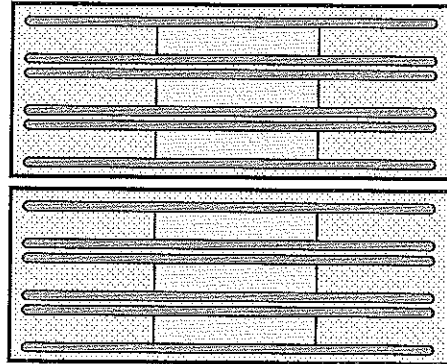
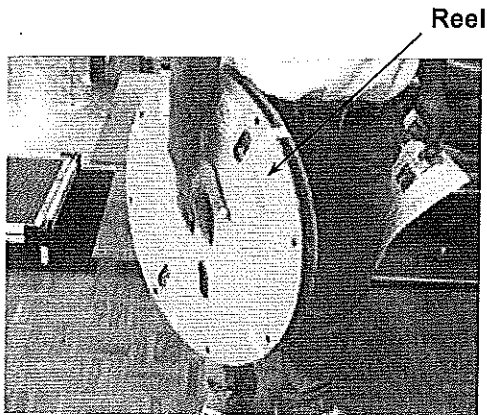


4. Handling of Components (Continued)

4.2. Transportation/Storage/Handling Precautions (Continued)

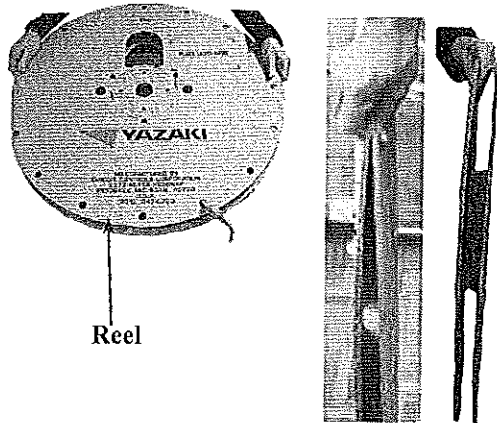
- b. Terminal reels should be handled / stored in such a manner that damage to the terminal product is avoided. See below illustration. Parts wound on paper/cardboard reels may require additional care.

Recommended Practice

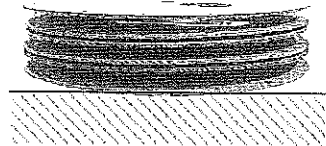


Maximum recommended stack height:
2 boxes of reels

Poor Practice



Unprotected reels stacked:
not recommended



Unprotected reels
stored vertically:
not recommended



(Storage Without Original Box Packaging)

4. Handling of Components (continued)

4.2. Transportation/Storage/Handling Precautions (Continued)

2.) General

- a. Parts should be stored in the container in which they were shipped.
- b. Parts should be transported and/or stored in a manner to protect the product from damage. Examples of items which should be avoided include the following:
 - i. Prolonged exposure to sunlight / ultra-violet light may cause deformation or crack.
 - ii. Exposure of product to excessive dust, moisture, oil, temperature, corrosive elements, etc.
 - iii. Exposure to harsh impacts (Dropping, Rough Handling) during storage or transportation.

5. Handling of Terminated Wire Leads

5.1. Damage Prevention

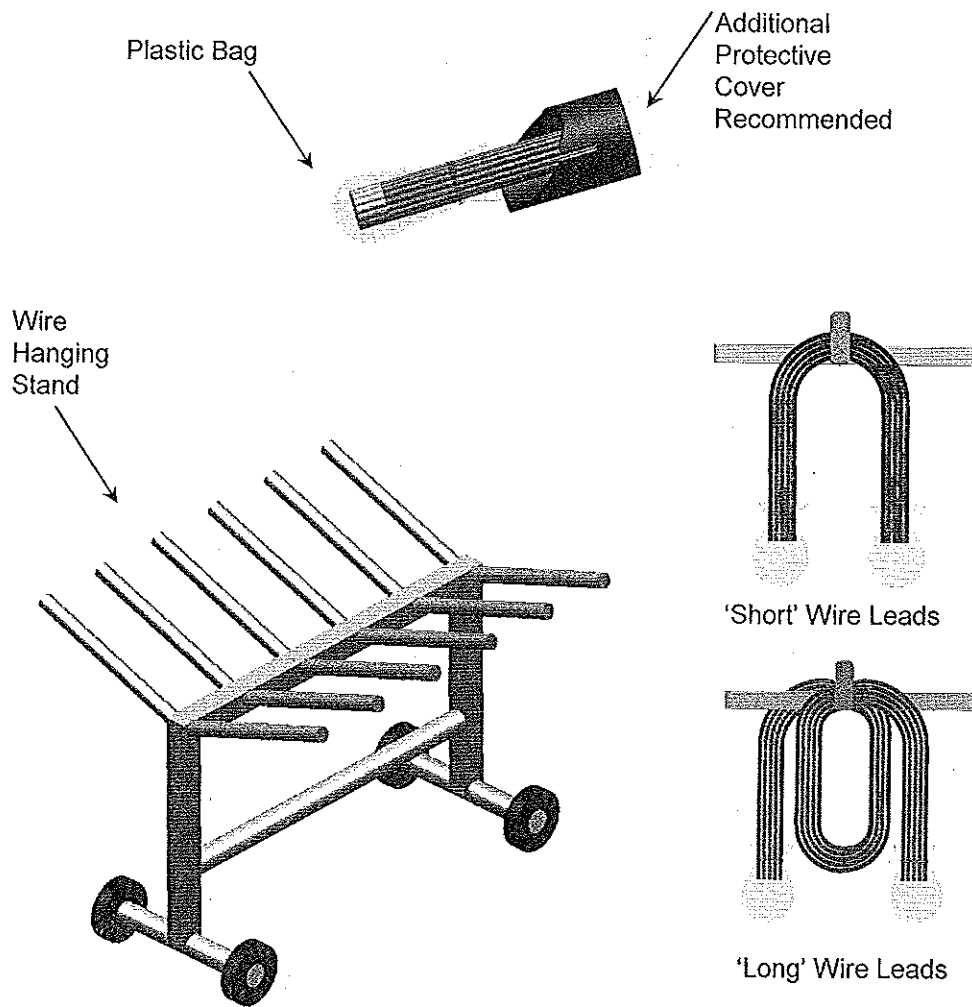
To prevent damage to the terminals on the crimped wire leads, the following precautions are recommended:

- a. Prepare only the quantity of terminated leads which will be used for the subsequent wire harness build. (e.g. avoid storage of terminated wire leads.)
- b. To prevent tangling of the wire leads and the potential resultant damage to the terminals, avoid bundling an excessive quantity of wires in one group. Suggested bundling quantity should be limited to no more than 100 leads.
- c. To prevent damage to the crimped terminals, do not use the terminal if / when vertically aligning the cut leads (e.g. aligning terminal tips of the wire bundle to a common position).
- d. Wire bundles should be bound with elastic bands to prevent separation and potential entanglement of terminals.
- e. At a minimum, the terminated end of the bundled wire leads should be protected with a plastic bag, to prevent the inadvertent ingress of dust or other contaminant(s). Additional protection is strongly recommended to assure no damage occurs to the terminals prior to installation to the appropriate connector.
- f. Transportation of terminated leads within the W/H manufacturing facility should be done using a 'Wire Hanging Stand' (See Figure A), or a clean covered carton / container.
- g. In the event terminated leads are required to be transported to another facility prior to assembly to the connector, parts should be placed in a clean covered carton / container.
- h. Do not repair terminals that have been deformed.
- i. Do not throw the terminated wires during transportation.
- j. When hanging up terminated wires on the wire hanging stand, care shall be taken that terminal tips shall not touch the ground.

5. Handling of Terminated Wire Leads (Continued)

5.1. Damage Prevention (Continued)

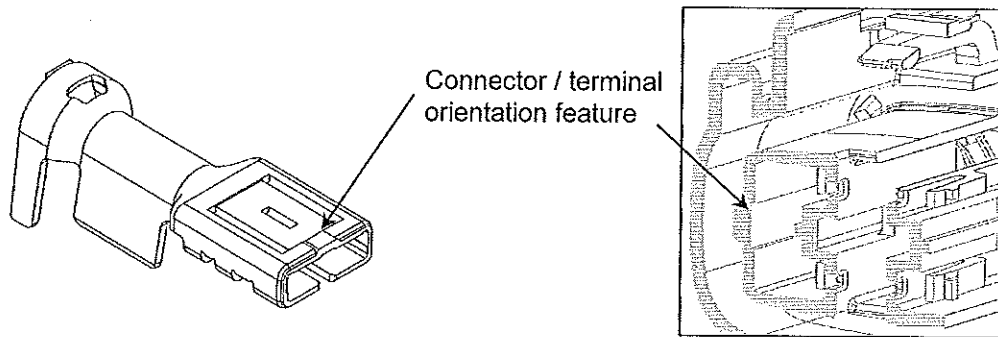
Figure A - Recommended Crimped Wire Lead Handling Illustration



6. Connector Assembly

6.1. Female Terminal Installation to Connector

- 1.) Confirm the TPA is in the pre-set position. If the TPA is not in the pre-set condition, reposition the TPA. (See Section 3.1)
- 2.) Insert the terminal to the appropriate cavity of the connector housing. If resistance / binding is felt during the insertion process, confirm correct terminal-to-cavity orientation. (See below)



- 3.) Care should be taken to assure the terminal is installed axially to the connector cavity. Angled/skewed insertion could potentially result in terminal damage.
- 4.) Upon complete insertion of the terminal to the cavity (audible / tactile confirmation should occur), lightly pull on the wire lead to assure full lock-up has occurred.
 - a. If automated terminal-to-cavity installation equipment is used, pull-out verification should not exceed 15N.
 - b. To assure the operator is able to sense the tactile feedback, wearing of gloves during the terminal insertion process should be discouraged.

Product which may have been miss-inserted or potentially damaged during the assembly process should be discarded.

6. Connector Assembly

6.1. Female Terminal Installation to Connector

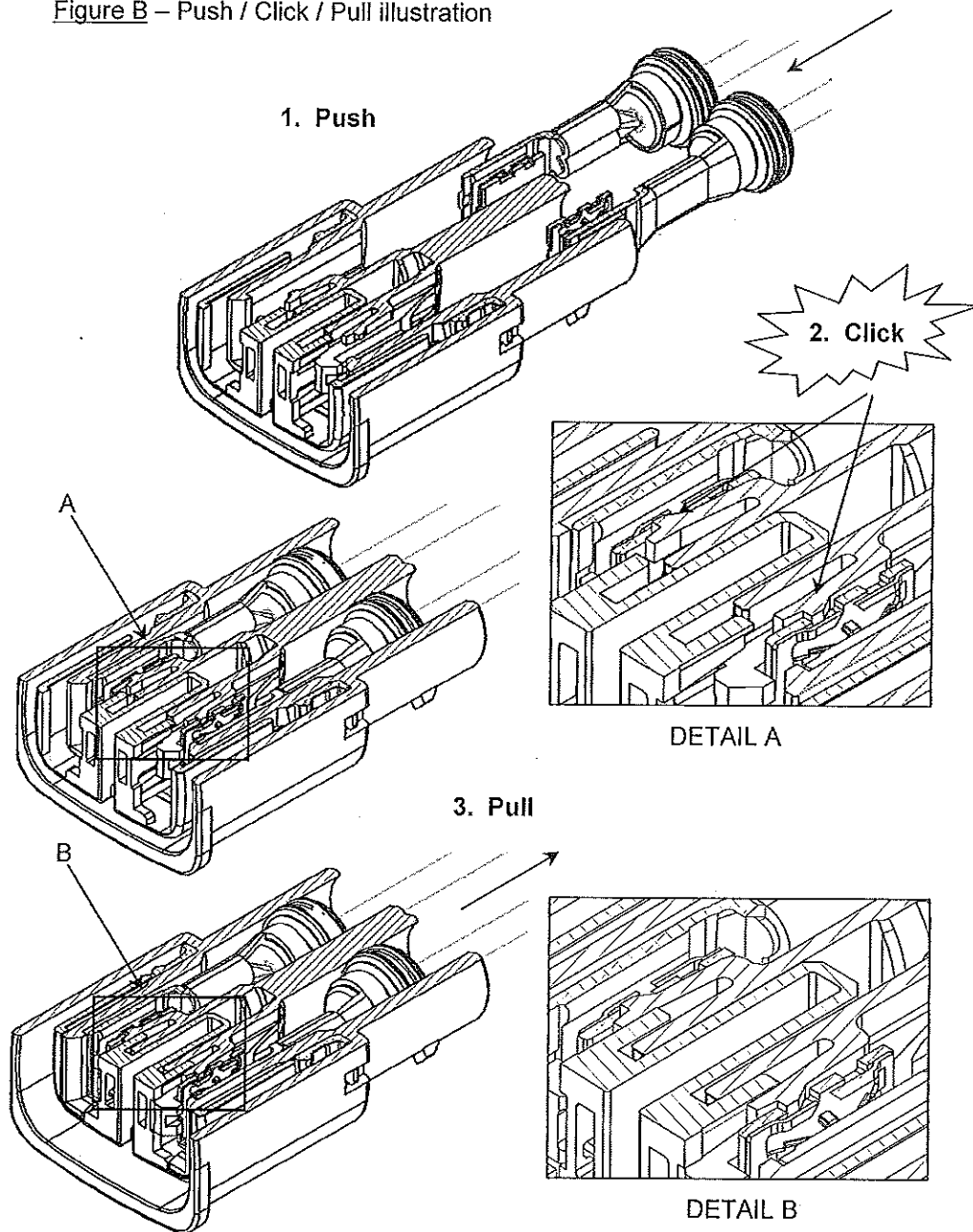
5.) Additional caution for sealed connector applications:

- a. Assure no sharp edges have been caused during the termination process.
 - i. Assure no excessive cut-off tab on terminal (0.4mm max)
 - ii. Assure no 'wire brush'
 - iii. Assure no front bell-mouth
- b. Avoid repetitive insertion / removal of the terminated wire from the connector cavity.
- c. As with unsealed terminals, extreme care should be exercised to avoid angled / skewed terminal-to-cavity insertion.

6. Connector Assembly (Continued)

6.1. Female Terminal Installation to Connector (Continued)

Figure B – Push / Click / Pull illustration



6. Connector Assembly (Continued)

6.2. Terminal Position Assurance (TPA) Operation / Function

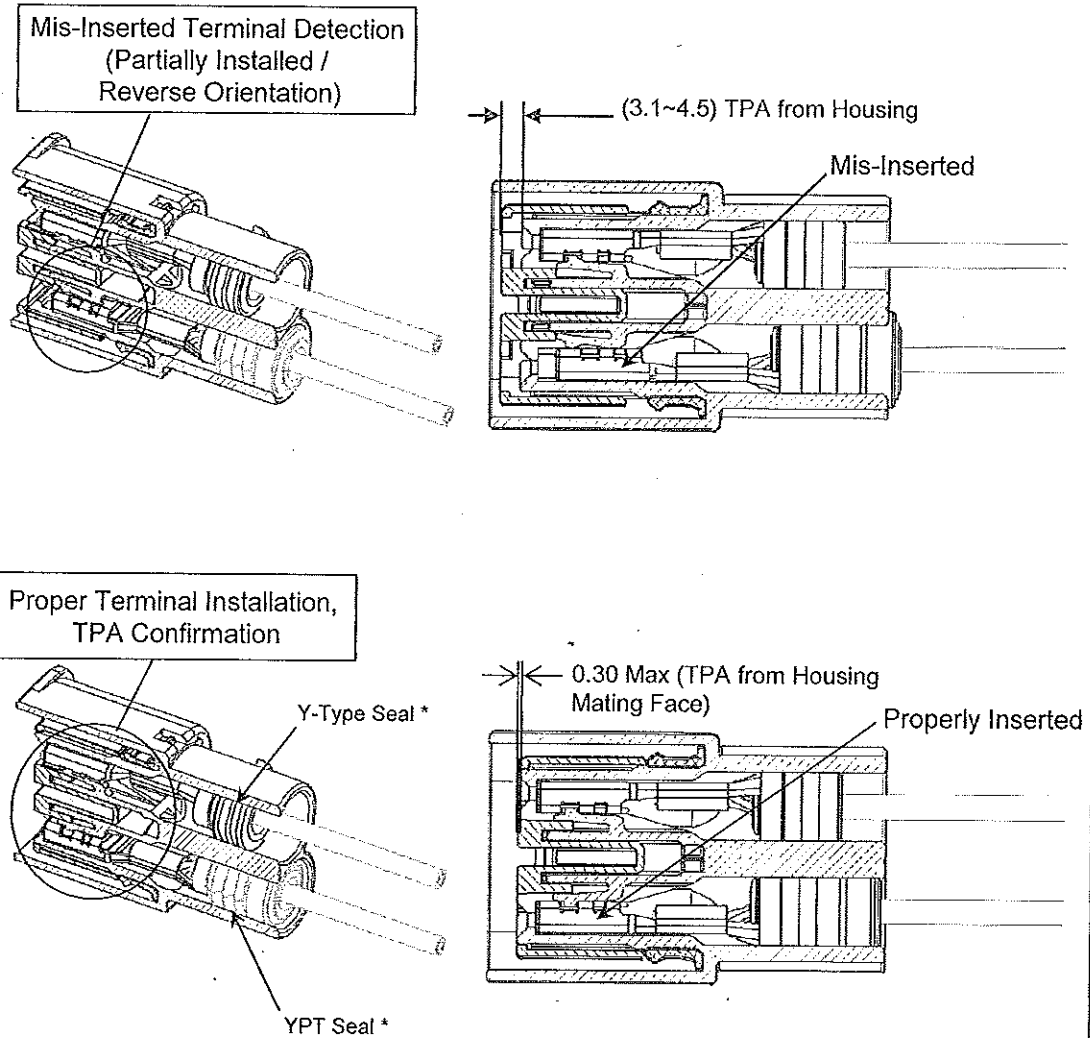
- 1.) Upon installation of all necessary terminals / circuits to the connector housing, engage to the TPA to the full-set position.
- 2.) Failure of the TPA to easily shift to the full-install condition may indicate that a terminal is not properly seated in the terminal cavity. Check terminated wires to assure full terminal-to-cavity insertion has been completed. (See Section 7.1)
- 3.) Correct the terminal position, and repeat Step 1.

Note: Utilization of excessive force when installing the TPA to the full-locked position could result in damage to the plastic terminal lock-arm. Care should be used to assure damage does not occur. If the assembler is uncertain if damage has or has not occurred, the applicable connector housing should be replaced.

6. Connector Assembly (Continued)

6.2. Terminal Position Assurance (TPA) Operation / Function

TPA Operation Illustration

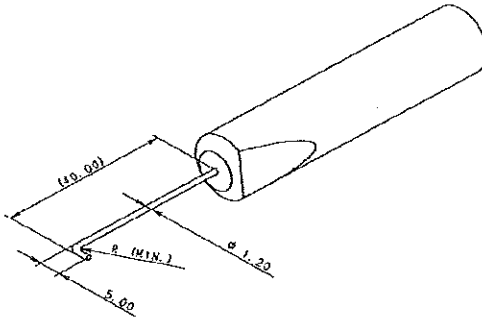


* The Y-Type seal is a shorter seal than the YPT seal and therefore sits farther in the connector housing.

7. Connector Servicing.

7.1 Servicing Tools.

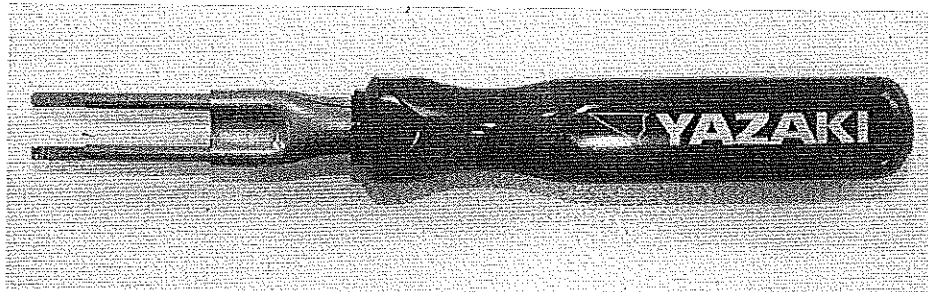
- 1.) Tool necessary to service the connector are:
 - a. The shape of the Yazaki TPA removal Tool that is recommended for 9.5 sealed connector system (see below):



Yazaki tool Number: 1-35

Figure 8.1a

- b. The recommended 9.5 terminal removal tool for sealed connector system utilizing terminal cavity with double lock arms is:



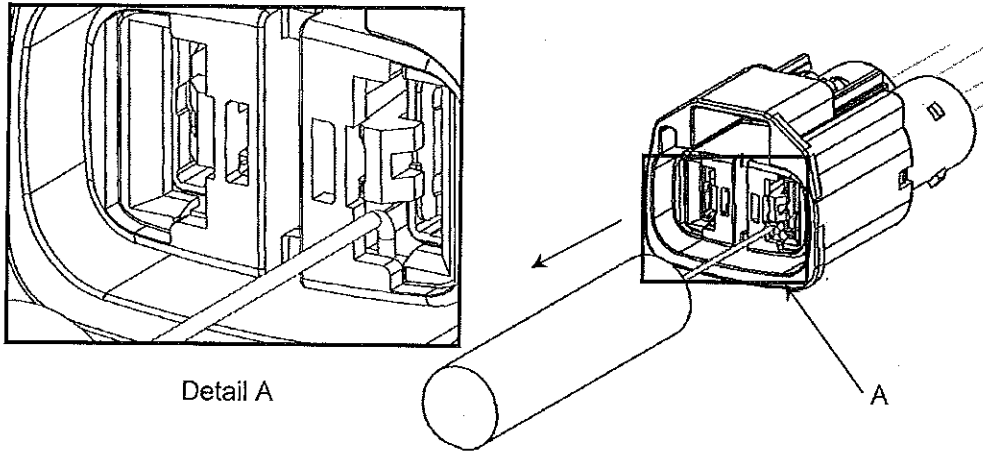
Yazaki tool Number: ZDD-06-0037

Figure 8.1b

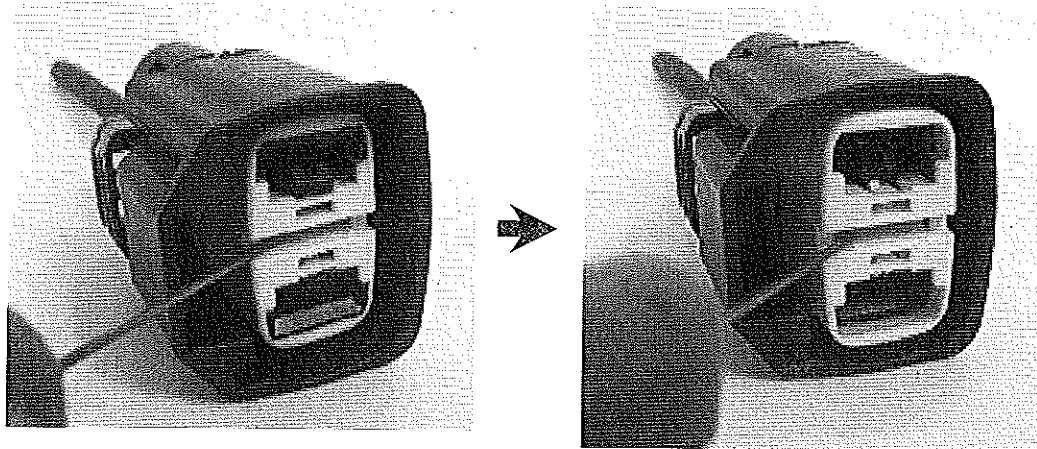
7. Connector Servicing (Continued).

7.2 Servicing Procedure.

- 1.) Female Connector / TPA release. Pull the TPA with the TPA removal Tool 1-35 (figure 8.1a) until it reaches the pre-set position (as shown below).



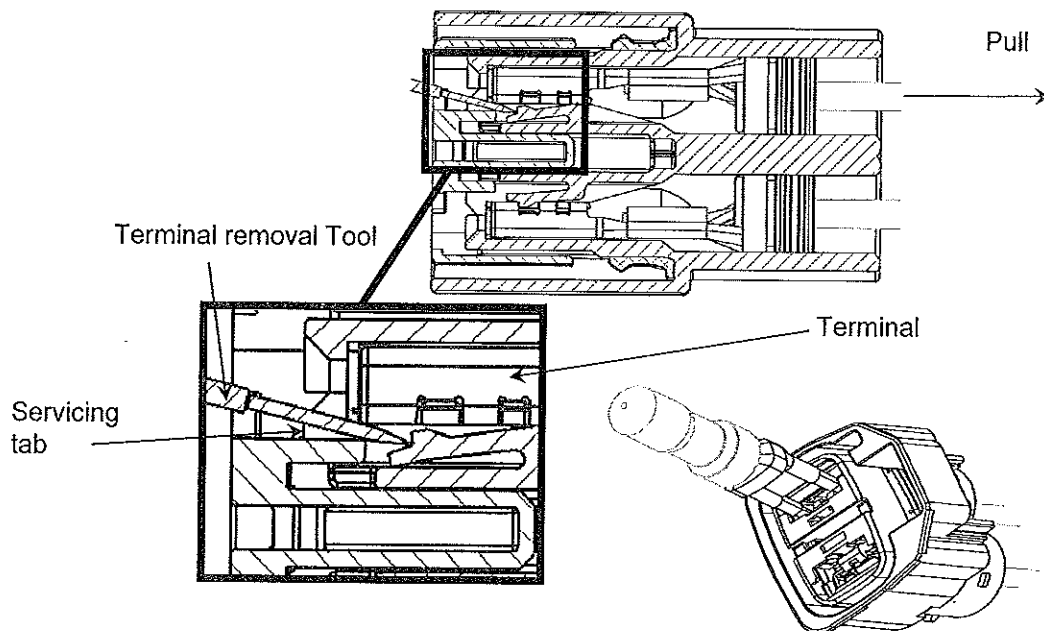
Or:



7. Connector Servicing (Continued).

7.2. Servicing Procedure (Continued).

- 1.) Female Connector/Terminal removal.
 - a. Push the applicable wire lightly to assure the terminal is fully forward in the terminal cavity.
 - b. Using the ZDD-06-0037 terminal removal tool (figure 8.1b) , insert the tool through the access feature of the TPA (see illustration below). The tip of the tool must be positioned between the servicing tab of the flexible lock-arm, and the terminal.
 - c. Deflect the plastic terminal lock-arm, while pulling on the wire of the applicable circuit.
 - d. Remove the terminal/circuit from the connector housing. If the terminal does not disengage easily from the housing, repeat the steps as previously outlined.
 - e. Complete any necessary check / service of the terminal, and immediately return the terminated wire to applicable cavity of the connector housing. See Section 7, for procedures related to assembly of the terminal to the connector.



7. Connector Servicing (Continued).

7.2. Servicing Procedure (Continued).

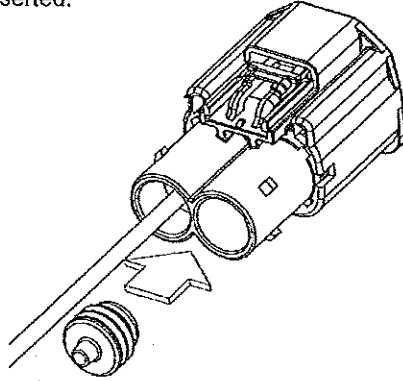
Caution:

- 1.) Use extreme care to assure that probing of the female terminal does not occur. The terminal removal tool should never be placed in the mating end of the female terminal. The removal tool should only be inserted in the feature provided for servicing of the terminal.
- 2.) If any damage is visible on the terminal and/or connector, the affected components should be replaced; repairs should not be attempted.

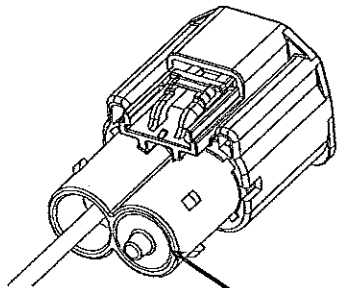
8. Unused Cavity Precautions (Sealed Systems Only) Dummy plug

8.1. Dummy Plug Insertion

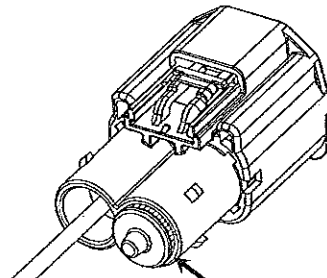
- 1.) Insert the dummy plug to every cavity in which the terminal will not be inserted.



- 2.) Confirm that the rear end of dummy plug is not protruding from the cavity.



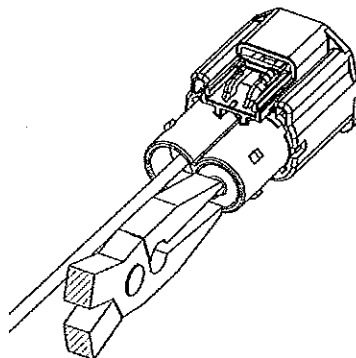
Acceptable



Unacceptable

8.2. Dummy Plug Removal

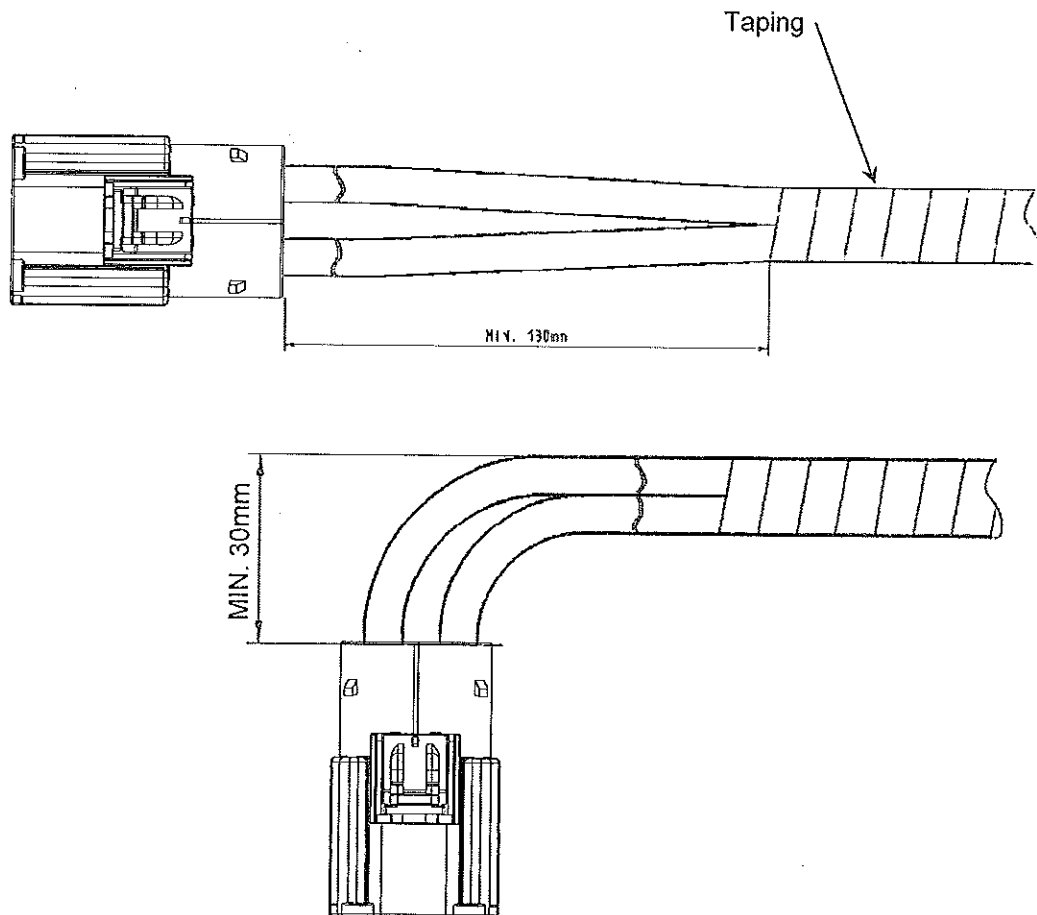
- 1.) Pull the dummy plug out from the cavity using fingers or a pair of pliers.



9. Wire Harness Assembly

9.1 Precautions during W/H Assembly

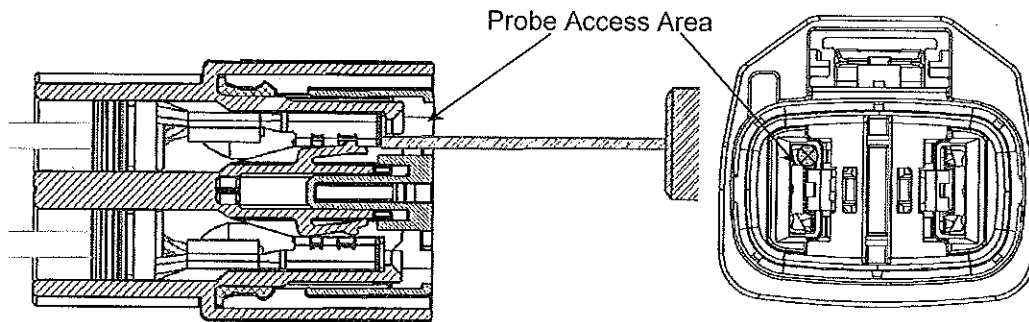
- 1.) To avoid the snagging of the terminals, take extra care of them.
- 2.) Apply tape in such a manner that every individual wire is at an equal amount of tensile force. Concentration of tensile force on a particular wire may cause harmful effect such as inadvertent disengagement of terminal.
- 3.) If bent wire is necessary due to short distance to the connector, first bend the wires in wanted direction and then apply the tape. The wrong application sequence may introduce stress, which could release the contact unintentionally.



9. Wire Harness Assembly (Continued)

9.2. Precautions during Continuity Detection

- 1.) Jigs used for wire routing and/or continuity inspection should be of equal precision to that of the mating component. Use of fixtures with greater tolerance variability than the mating component could result in damage to the connector and/or terminal.
- 2.) Spring loaded pogo-pins should be used for continuity detection. Recommended spring strength = 0.2N at 1mm deflection. The recommended location for the female insertion of the pogo pin is shown in the below illustration.

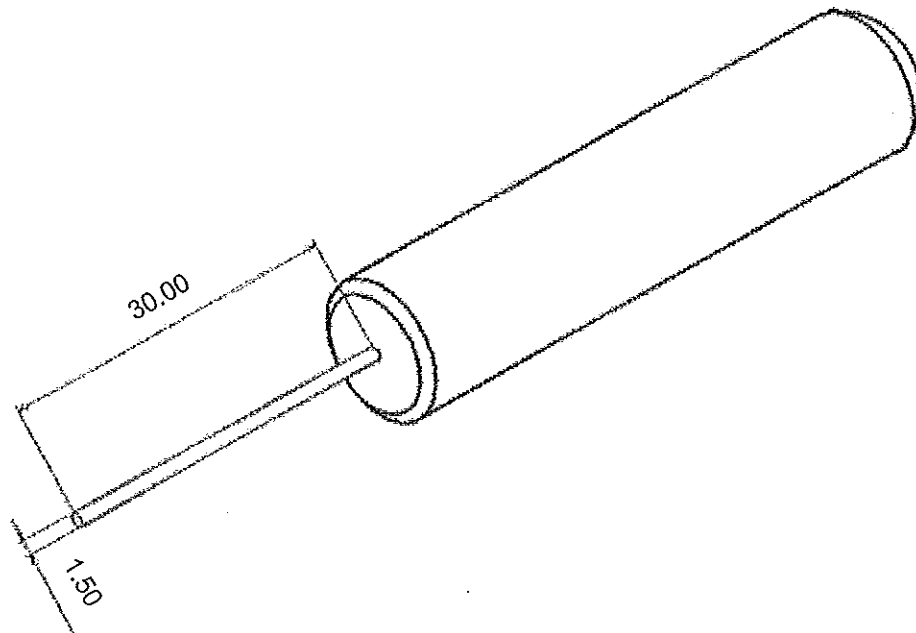


- 3.) Parts with visible damage or deformation should be replaced without regard for the severity of the non-conformance.
- 4.) Actual mating connectors should be avoided for fixture testing due to the limited life.
- 5.) Checker fixtures should be constructed in such a manner to be robust for long life and accurate assembly.
- 6.) A preventative maintenance schedule should be incorporated for checker fixtures.
- 7.) Pogo pins are delicate in nature, sufficient amount of spare components should be available.

9. Wire Harness Assembly (Continued)

9.2. Precautions during Continuity Detection (Continued)

4.) Recommended dimensions for the female pogo pins are shown below.

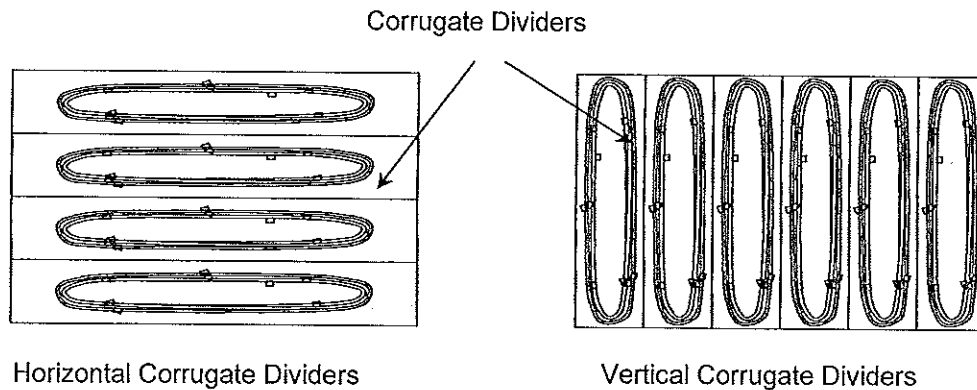


10. Wire Harness Packaging / Shipping

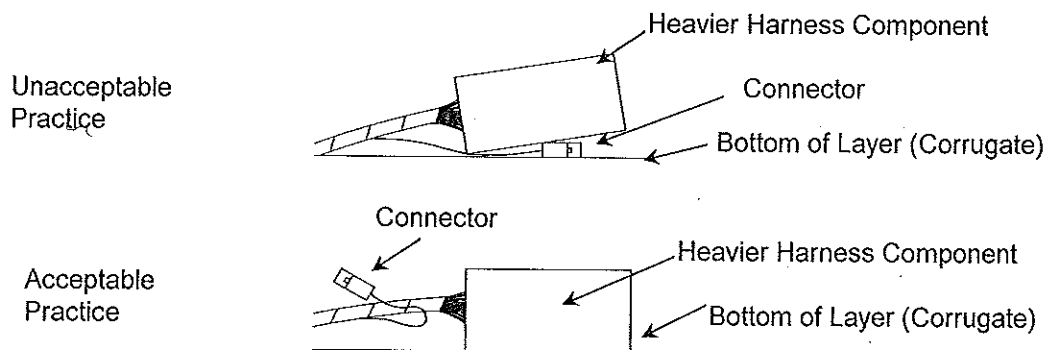
10.1. Damage Prevention

As with many plastic parts, the connector may be damaged/deformed if excessive external forces are applied to the connector during transportation and/or storage. To assure damage does not occur, it is recommended that the following items be considered when determining the Wire Harness packaging specification:

- 1.) When layering the individual Wire Harnesses in the shipping carton, it is recommended that corrugate layer dividers, vertical dividers, internal supports, and/or partitions be used to assure the weight of the Wire Harnesses is equally distributed.



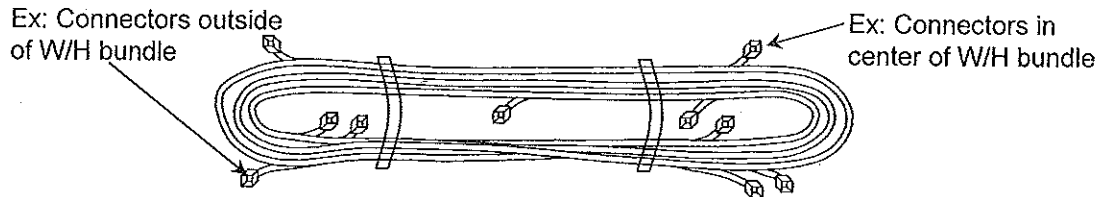
- 2.) Heavier harness components (such as Junction Blocks, Power Distribution Centers, protectors, brackets, etc.) should be positioned to prevent the weight of these parts from damaging the smaller sized components / connectors.



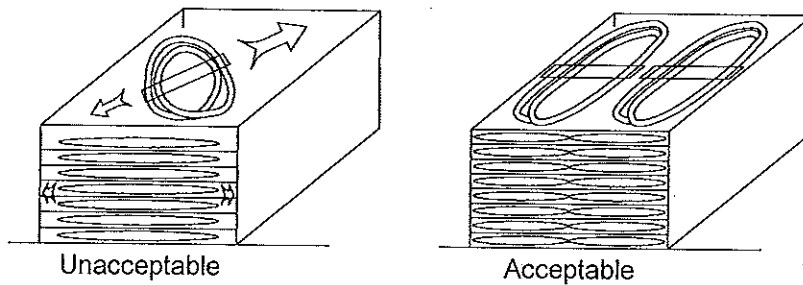
10. Wire Harness Packaging / Shipping (Continued)

10.1. Damage Prevention (Continued)

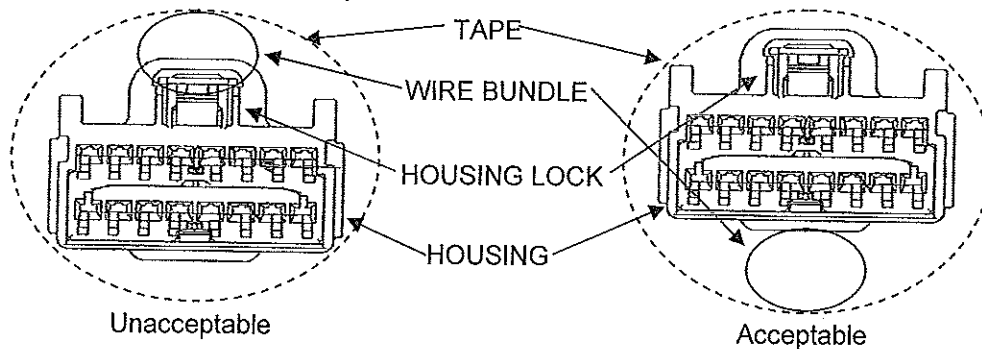
- 3.) The connectors should be positioned to the outside or in the center of the W/H bundle to prevent the weight of the harness from being transferred to the connector.



- 4.) The W/H bundle size should be compatible with the shipping carton to prevent shifting of the W/H during transportation and/or storage.



- 5.) If the connector housing is 'taped back' on the wire harness bundle, assure that the housing lock or other flexible member of the connector is positioned away from the wire harness bundle.



- 6.) Extra care must be taken to prevent wire harnesses tangling which may cause damage to the connector when the wire harness is removed from the carton at the vehicle assembly.

- 7.) After transportation or storage, the connector must be checked for damages.

11. Connector Mating / Removal

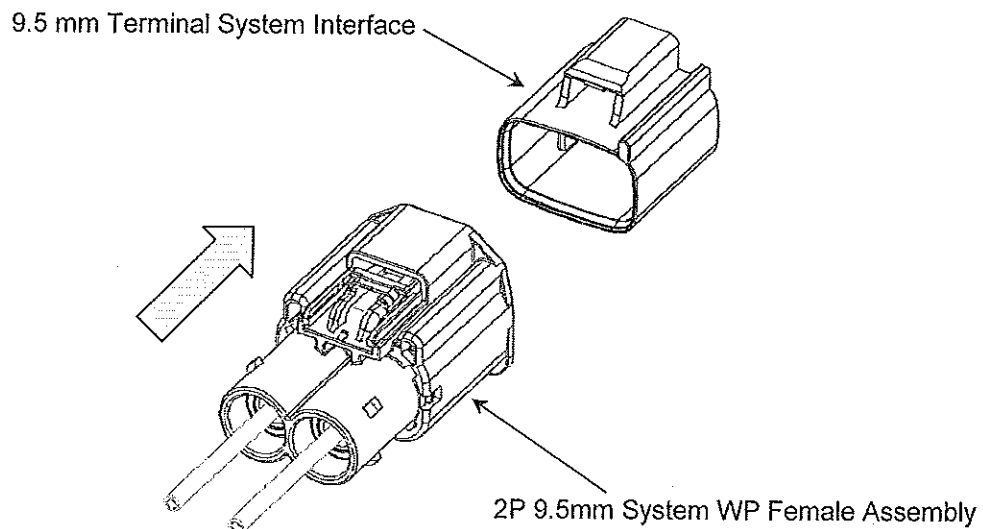
11.1. Connector Mating

1.) Standard Connection

- a. Upon confirmation that the proper connectors are being mated (e.g. proper keyway is confirmed), the connectors should be smoothly mated. Unnecessary scooping or wrenching of the connectors should be avoided.
- b. Audible / tactile confirmation of full connector-to-connector mating will occur.

2.) Connectors with Connector Position Assurance Device (CPA)

- a. If the connection is equipped with a CPA device, activation should also be completed. See Section 12.



11. Connector Mating / Removal (Continued)

11.2. Connector Removal

1.) Standard Connection

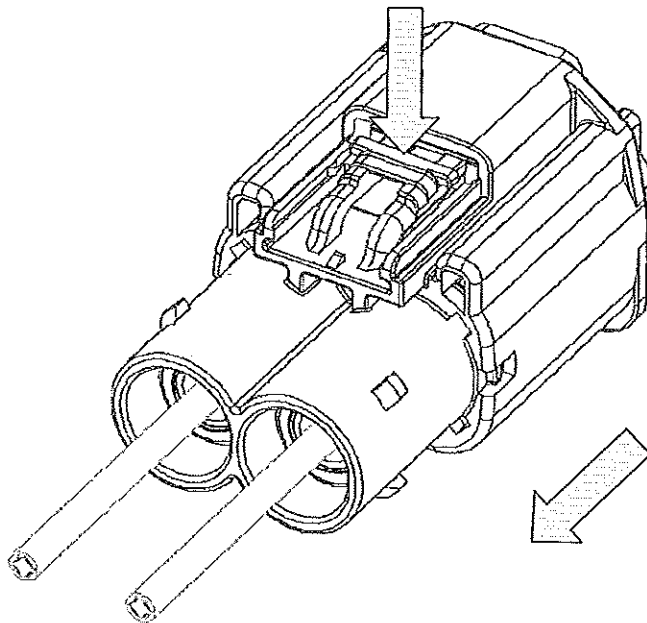
- a. Connector disengagement can be facilitated by depressing the housing lock, and pulling apart the male and female connectors.

2.) Connector with Connection Position Assurance Device (CPA)

- a. If the connection is equipped with a CPA device, de-activation must occur prior to connector un-mating.
(See Section 12 for illustration)

3.) General

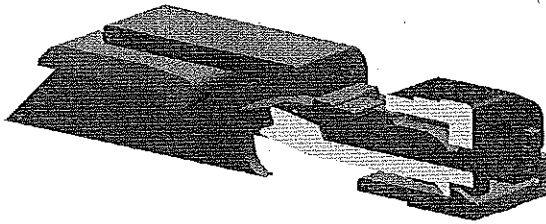
- a. During the removal process, the wires of the connection system should not be held or pulled. Application of force to the wires of the connection could result in damage to the individual components of the connection system.



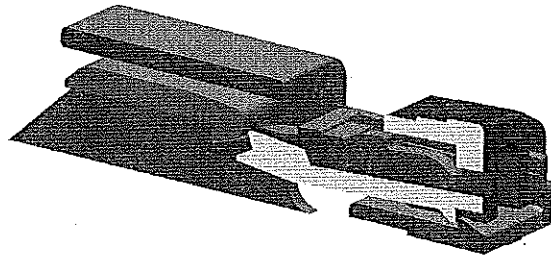
12. Connector Position Assurance (CPA) Function

12.1. CPA Operation/Function

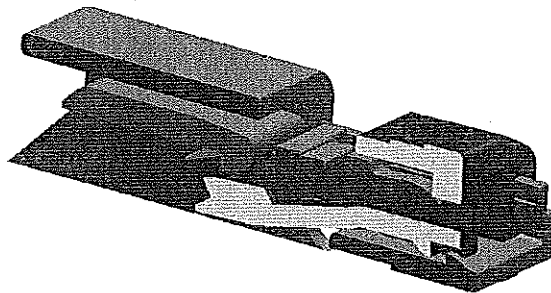
12.1.1. The connection system has been designed for use with an optional Connector Position Assurance (CPA) device. The purpose of the device is to provide a means by which to confirm if the connectors have been fully mated at the vehicle assembly plant. Function of the part is illustrated below:



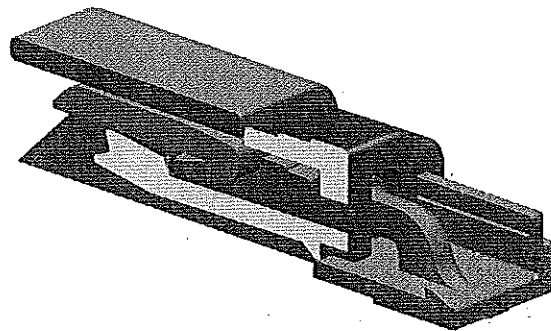
1. Unmated Housings
• CPA in Pre-Set Position



2. Mating In-Process
• Housing Lock Deflected



3. Housing Lock Engaged
• CPA Lance Deflected



4. Fully Mated Condition