YESC KAIZEN 1.5, 2.8, 6.3, Hybrid System Unsealed User's Manual

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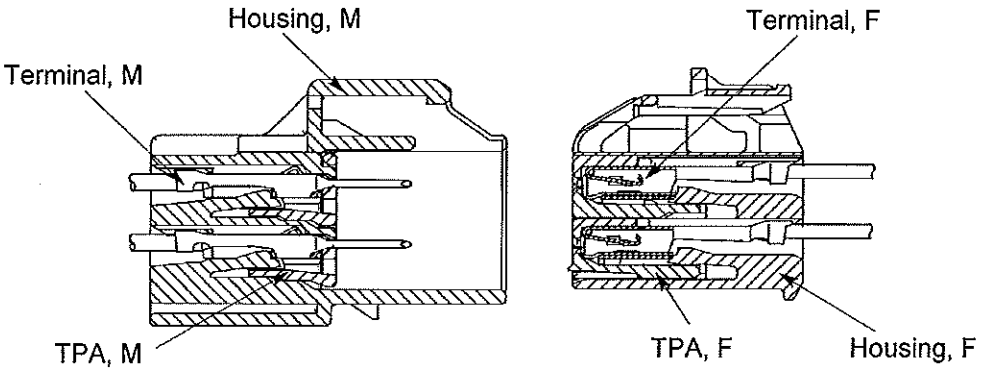
1. Product Specification

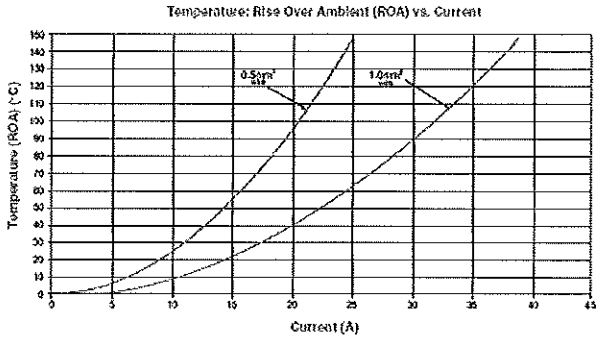
1.1. Reference 1.5 Series Unsealed



Material	Connector	PBT + GF
	Female Terminal	Copper Alloy (Sn Plate / Au Plate)
	Male Terminal	Copper Alloy (Sn Plate / Au Plate)
Operating Temperature Range		-40°C ~125°C, 145°C max temp (USCAR Class 3)
Current Capacity		See Current Rating Curve
Voltage Drop		10mΩ max (term./term.) (crimp-to-crimp)
Isolation Resistance		500VDC, 20mΩ-min
Dielectric Resistance		1000VAC (1 minute)
Applicable Wire Size (Conductor)		22AWG-16AWG / 0.35-1.00mm²
Terminal Pitch		Horizontal: 3.50mm, Vertical: 6.50mm
Terminal-to-Connector Retention		90N Minimum
Connector-to-Connector Retention		110N Minimum

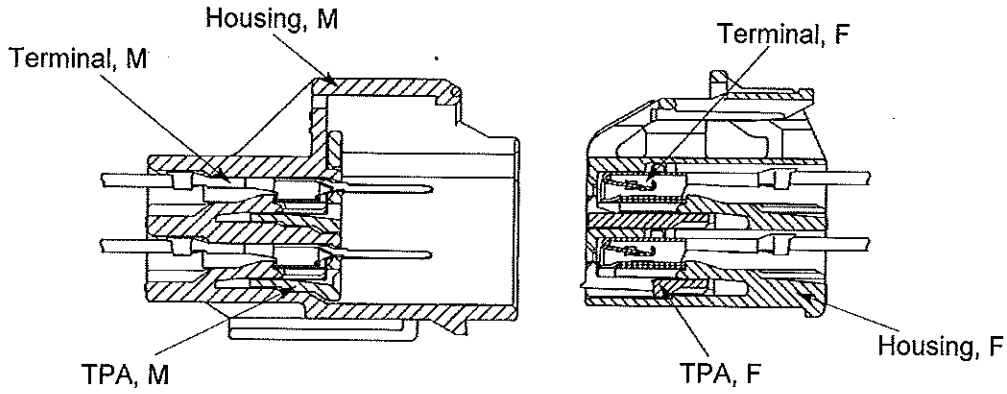
Current Rating Curve (Reference Only)

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.



1. Product Specification (Continued)

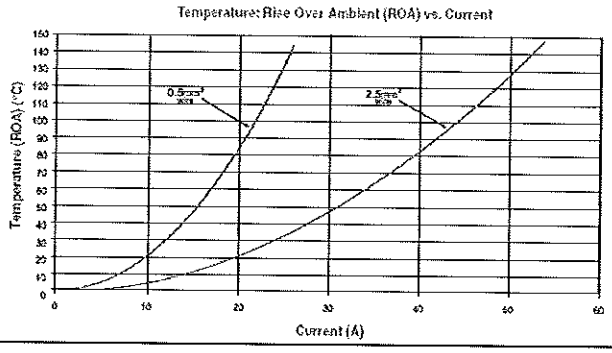
1.2. Reference 2.8 Series Unsealed



Material	Connector	PBT + GF
	Female Terminal	Copper Alloy (Sn Plate / Au Plate)
	Male Terminal	Copper Alloy (Sn Plate / Au Plate)
Operating Temperature Range		-40°C ~125°C, 145°C max temp (USCAR Class 3)
Current Capacity		See Current Rating Curve
Voltage Drop		10mΩ max (term./term.) (crimp-to-crimp)
Isolation Resistance		500VDC, 20mΩ-min
Dielectric Resistance		1000VAC (1 minute)
Applicable Wire Size (Conductor)		22AWG-14AWG / 0.35-2.50mm²
Terminal Pitch		Horizontal: 5.00mm, Vertical: 6.80mm
Terminal-to-Connector Retention		90N Minimum
Connector-to-Connector Retention		110N Minimum

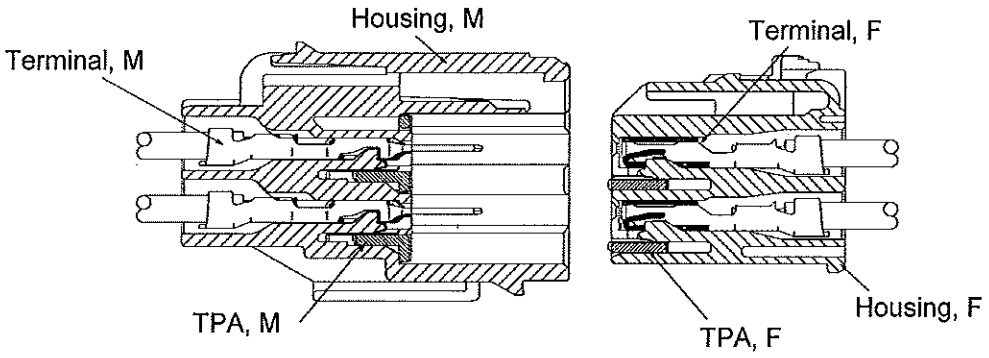
Current Rating Curve (Reference Only)

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.



1. Product Specification (Continued)

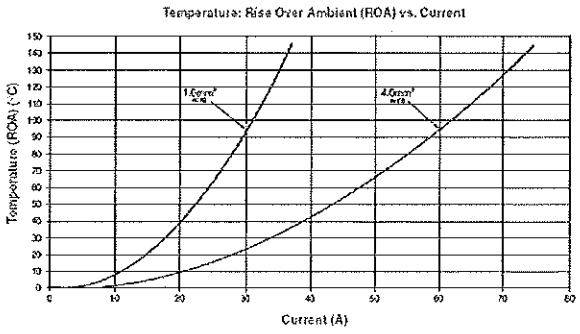
1.3. Reference 6.3 Series Unsealed



Material	Connector	PBT + GF
	Female Terminal	Copper Alloy (Sn Plate / Au Plate)
	Male Terminal	Copper Alloy (Sn Plate / Au Plate)
Operating Temperature Range		-40°C ~125°C, 145°C max temp (USCAR Class 3)
Current Capacity		See Current Rating Curve
Voltage Drop		10mΩ max (term./term.) (crimp-to-crimp)
Isolation Resistance		500VDC, 20mΩ-min
Dielectric Resistance		1000VAC (1 minute)
Applicable Wire Size (Conductor)		22AWG-12AWG / 0.50-4.00mm²
Terminal Pitch		Horizontal: 8.50mm, Vertical: 7.30mm
Terminal-to-Connector Retention		90N Minimum
Connector-to-Connector Retention		110N Minimum

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.



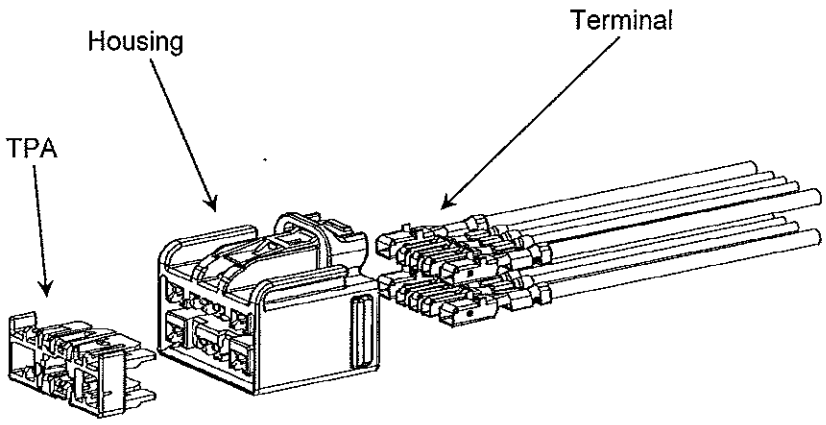
1. Product Specification (Continued)

1.4. Reference Hybrid Series Unsealed

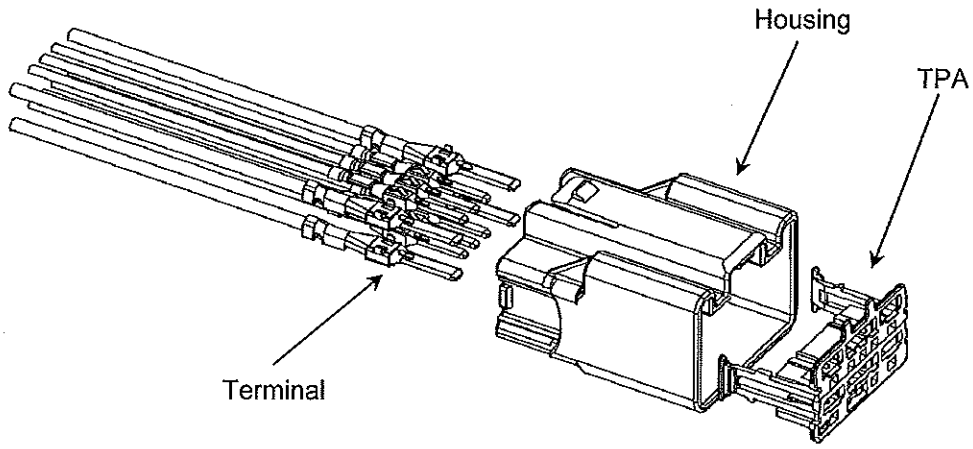
Material	Connector	PBT + GF
	Female Terminal	Copper Alloy (Sn Plate / Au Plate)
	Male Terminal	Copper Alloy (Sn Plate / Au Plate)
Operating Temperature Range		-40°C ~125°C, 145°C max temp (USCAR Class 3)
Current Capacity		See Current Rating Curve
Voltage Drop		10mΩ max (term./term.) (crimp-to-crimp)
Isolation Resistance		500VDC, 20mΩ-min
Dielectric Resistance		1000VAC (1 minute)
Applicable Wire Size (Conductor)		See Specific Connector Section
Terminal-to-Connector Retention		See Specific Connector Section
Connector-to-Connector Retention		See Specific Connector Section

2. Associated Components

2.1. Female Connector (Unsealed Inline)

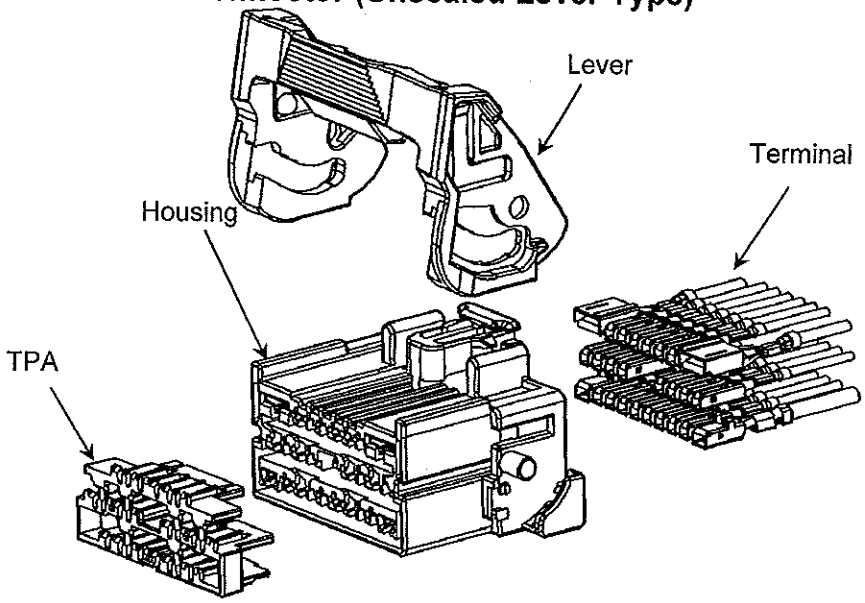


2.2. Male Connector (Unsealed Inline)

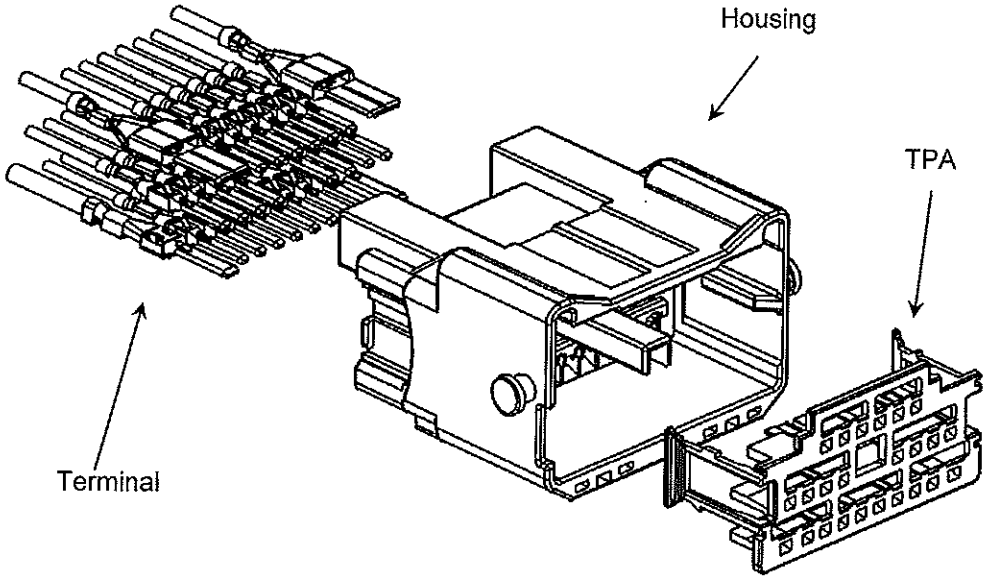


2. Associated Components

2.3. Female Connector (Unsealed Lever Type)

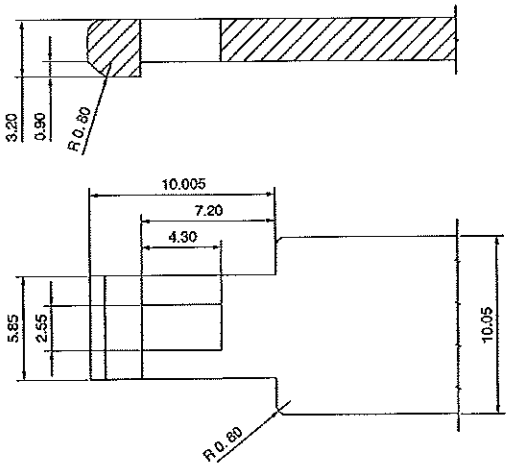


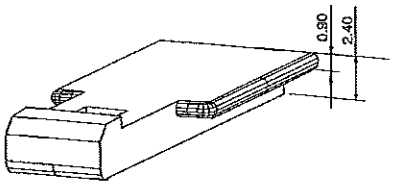
2.4. Male Connector (Unsealed Lever Type)



2. Associated Components (Continued)

2.5. Clipping Feature Detail

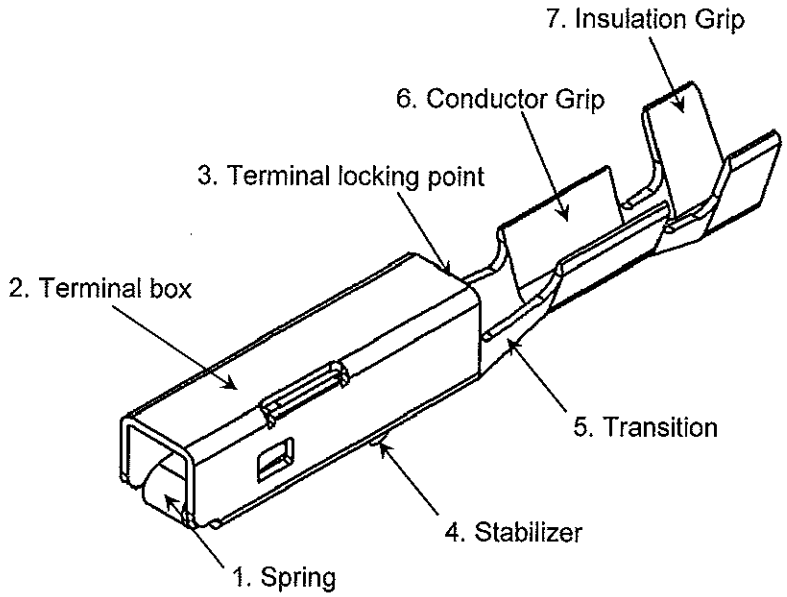




3. Components Shape and Function

3.1. Female Terminal

3.1.1. 1.5 System



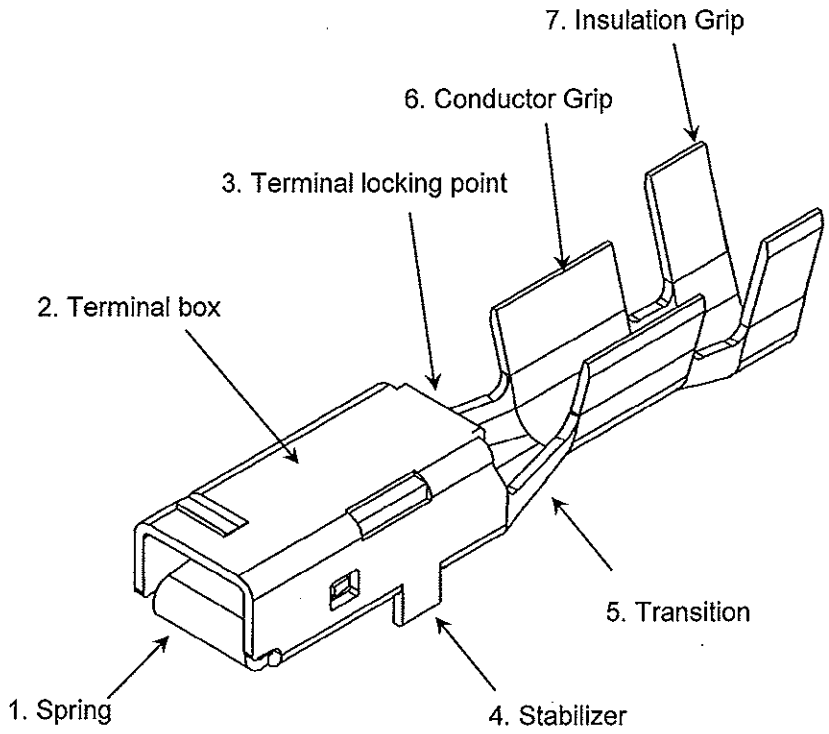
#	Feature Name	Function
1	Spring	Contact w ith a male terminal
2	Terminal box	Contains/Protects terminal spring
3	Terminal locking point	Lock w ith a female housing
4	Stabilizer	Prevent improper terminal insertion to housing (w rong orientation)
5	Transition	Transition area betw een terminal box and grip
6	Conductor Grip	Conductor crimping
7	Insulation Grip	Insulation crimping

Part Number	YESC KAIZEN Part Number	Plating	Applicable Wire Size		
			ISO (mm^2)	AWG	JIS (mm^2)
7116-4100-02	7116-4780-02	Sn	0.35 ~ 0.50	22 ~20	0.30 ~ 0.50
7116-4101-02	7116-4781-02	Sn	0.75 ~ 1.00	18 ~16	0.85 ~ 1.25
7116-4100-08	———	Au	0.35 ~ 0.50	22 ~20	0.30 ~ 0.50
7116-4101-08	———	Au	0.75 ~ 1.00	18 ~16	0.85 ~ 1.25

3. Components Shape and Function (Continued)

3.1. Female Terminal (Continued)

3.1.2. 2.8 System



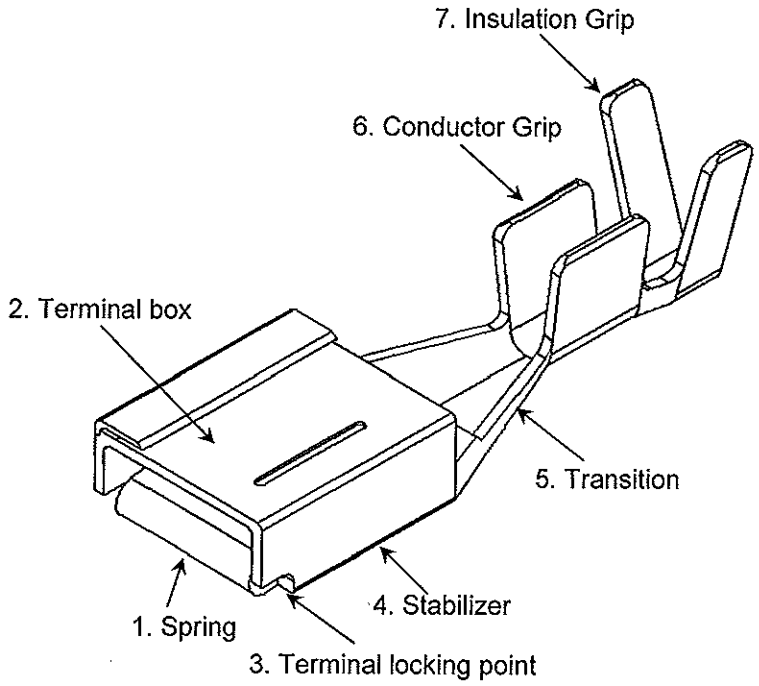
#	Feature Name	Function
1	Spring	Contact with a male terminal
2	Terminal box	Contains/Protects terminal spring
3	Terminal locking point	Lock with a female housing
4	Stabilizer	Prevent improper terminal insertion to housing (wrong orientation)
5	Transition	Transition area between terminal box and grip
6	Conductor Grip	Conductor crimping
7	Insulation Grip	Insulation crimping

Part Number	YESC KAIZEN Part Number	Plating	Applicable Wire Size		
			ISO (mm^2)	AWG	JIS (mm^2)
7116-4110-02	7116-4270-02	Sn	0.35 ~ 0.50	22 ~20	0.30 ~ 0.50
7116-4111-02	7116-4271-02	Sn	0.75 ~ 1.00	18 ~16	0.85 ~ 1.25
7116-4112-02	7116-4272-02	Sn	1.50 ~ 2.50	14	2.00

3. Components Shape and Function (Continued)

3.1. Female Terminal (Continued)

3.1.3. 6.3 System



#	Feature Name	Function
1	Spring	Contact with a male terminal
2	Terminal box	Contains/Protects terminal spring
3	Terminal locking point	Lock with a female housing
4	Stabilizer	Prevent improper terminal insertion to housing (wrong orientation)
5	Transition	Transition area between terminal box and grip
6	Conductor Grip	Conductor crimping
7	Insulation Grip	Insulation crimping

Part Number	YESC KAIZEN Part Number	Plating	Applicable Wire Size		
			ISO (mm^2)	AWG	JIS (mm^2)
7116-4120-02	———	Sn	0.50 ~ 1.00	20 ~ 16	0.50 ~ 1.25
7116-4121-02	———	Sn	1.50 ~ 2.50	14	2.00
7116-4122-02	———	Sn	4.00	12	3.00

3. Components Shape and Function (Continued)

3.1. Female Terminal (Continued)

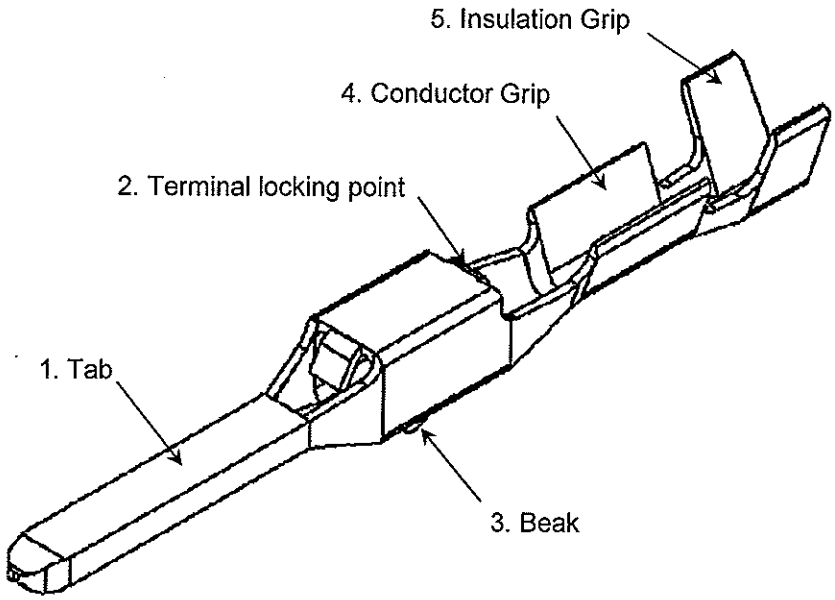
3.1.4. Hybrid System

Description		Part Number	YESC KAIZEN Part Number	Plating	Applicable Wire Size		
					ISO (mm^2)	AWG	JIS (mm^2)
Female Terminal	1.5mm	7116-4100-02	7116-4780-02	Sn	0.35 ~ 0.50	22 ~20	0.30 ~ 0.50
		7116-4101-02	7116-4781-02	Sn	0.75 ~ 1.00	18 ~16	0.85 ~ 1.25
		7116-4100-08	———	Au	0.35 ~ 0.50	22 ~20	0.30 ~ 0.50
		7116-4101-08	———	Au	0.75 ~ 1.00	18 ~16	0.85 ~ 1.25
	2.8mm	7116-4110-02	7116-4270-02	Sn	0.35 ~ 0.50	22 ~20	0.30 ~ 0.50
		7116-4111-02	7116-4271-02	Sn	0.75 ~ 1.00	18 ~16	0.85 ~ 1.25
		7116-4112-02	7116-4272-02	Sn	1.50 ~ 2.50	14	2.0
	6.3mm	7116-4120-02	———	Sn	0.50 ~ 1.00	20 ~ 16	0.50 ~ 1.25
		7116-4121-02	———	Sn	1.50 ~ 2.50	14	2.0
		7116-4122-02	———	Sn	4.0	12	3.0

3. Components Shape and Function (Continued)

3.2. Male Terminal

3.2.1. 1.5 System



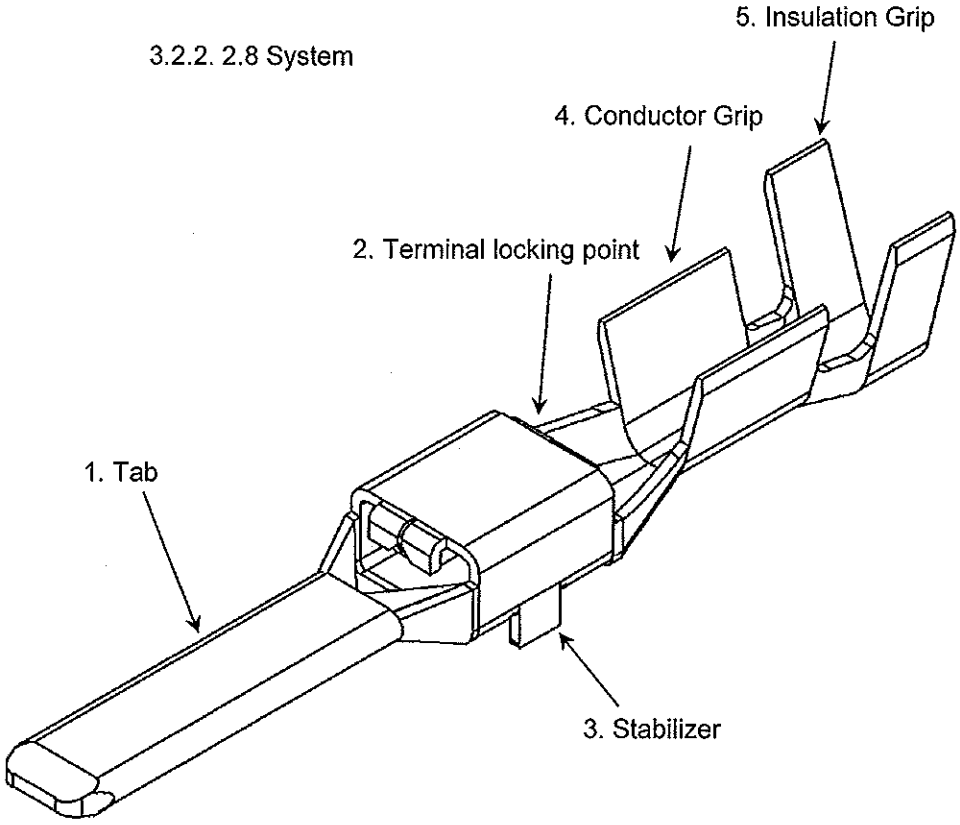
#	Feature Name	Function
1	Tab	Contact with a female terminal
2	Terminal locking point	Lock with a male housing
3	Beak	Prevent improper terminal insertion to housing (wrong insertion)
4	Conductor Grip	Conductor crimping
5	Insulation Grip	Insulation crimping

Part Number	YESC KAIZEN Part Number	Plating	Applicable Wire Size		
			ISO (mm^2)	AWG	JIS (mm^2)
7114-4100-02	———	Sn	0.35 ~ 0.50	22 ~20	0.30 ~ 0.50
7114-4101-02	———	Sn	0.75 ~ 1.00	18 ~16	0.85 ~ 1.25
7114-4100-08	———	Au	0.35 ~ 0.50	22 ~20	0.30 ~ 0.50
7114-4101-08	———	Au	0.75 ~ 1.00	18 ~16	0.85 ~ 1.25

3. Components Shape and Function (Continued)

3.2. Male Terminal (Continued)

3.2.2. 2.8 System



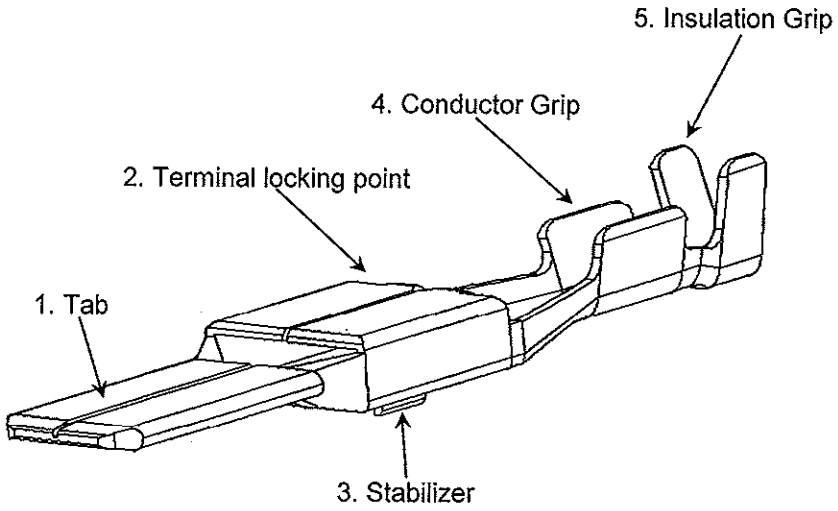
#	Feature Name	Function
1	Tab	Contact with a female terminal
2	Terminal locking point	Lock with a male housing
3	Stabilizer	Prevent improper terminal insertion to housing (wrong insertion)
4	Conductor Grip	Conductor crimping
5	Insulation Grip	Insulation crimping

Part Number	YESC KAIZEN Part Number	Plating	Applicable Wire Size		
			ISO (mm^2)	AWG	JIS (mm^2)
7114-4110-02	———	Sn	0.35 ~ 0.50	22 ~20	0.30 ~ 0.50
7114-4111-02	———	Sn	0.75 ~ 1.00	18 ~16	0.85 ~ 1.25
7114-4112-02	———	Sn	1.50 ~ 2.50	14	2.00

3. Components Shape and Function (Continued)

3.2. Male Terminal (Continued)

3.2.3. 6.3 System

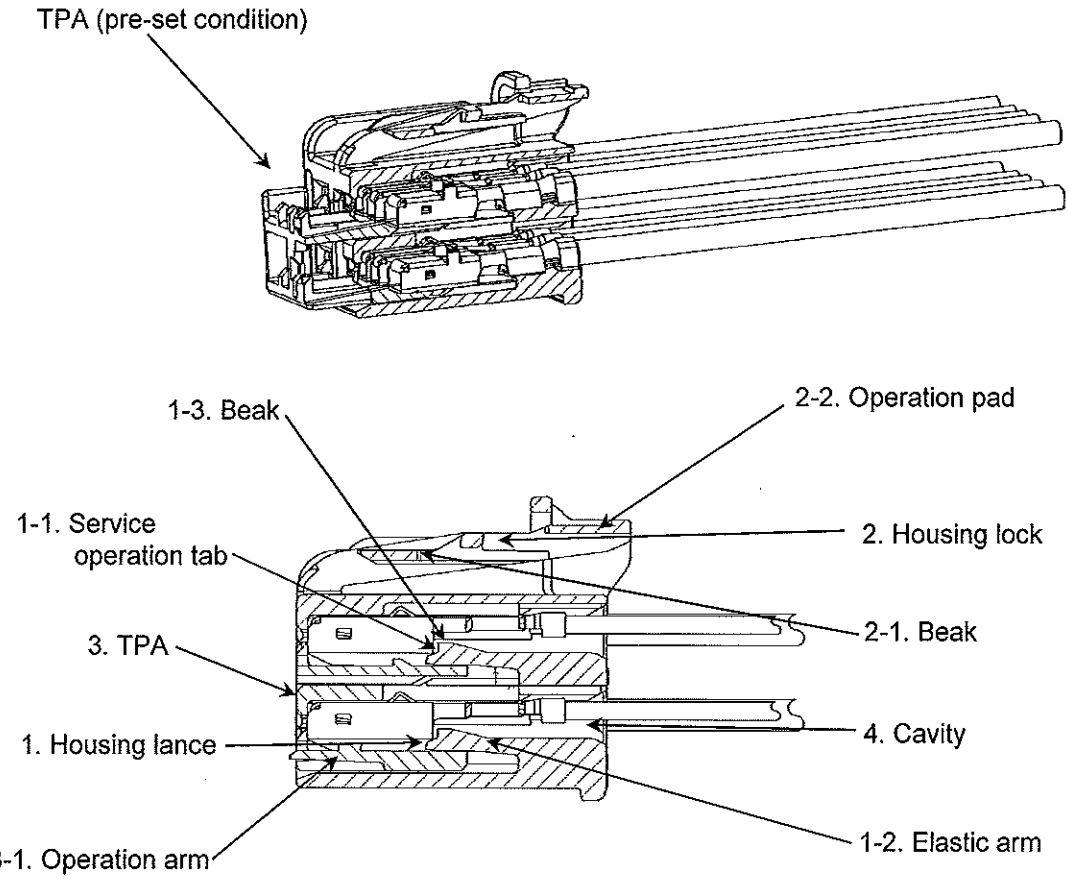


#	Feature Name	Function
1	Tab	Contact with a female terminal
2	Terminal locking point	Lock with a male housing
3	Stabilizer	Prevent improper terminal insertion to housing (wrong insertion)
4	Conductor Grip	Conductor crimping
5	Insulation Grip	Insulation crimping

Part Number	YESC KAIZEN Part Number	Plating	Applicable Wire Size		
			ISO (mm^2)	AWG	JIS (mm^2)
7114-4120-02	———	Sn	0.50 ~ 1.00	20 ~ 16	0.50 ~ 1.25
7114-4121-02	———	Sn	1.50 ~ 2.50	14	2.00
7114-4122-02	———	Sn	4.00	12	3.00

3. Components Shape and Function (Continued)

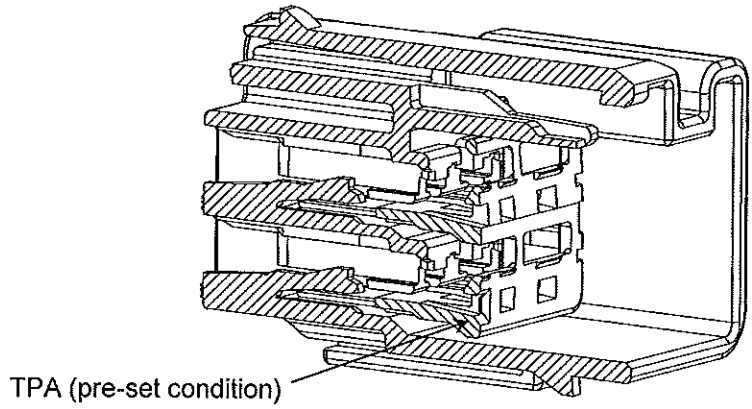
3.3. Female Connector Assembly (Unsealed)

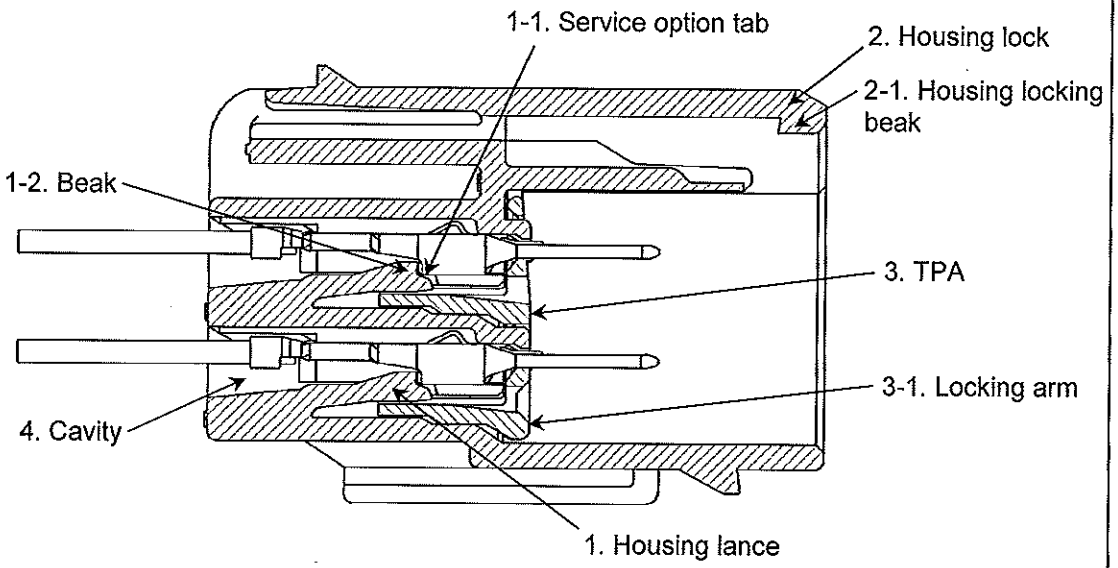


#	Feature Name			Function
1	Housing lance	1-1	Service operation tab	Beak release operation
		1-2	Elastic Arm	Allow movement of beak
		1-3	Beak	Lock with female terminal
2	Housing lock	2-1	Beak	Lock with male housing
		2-2	Operation pad	Release housing lock
3	TPA			Detection of incomplete terminal insertion
		3-1	Operation arm	Release lock from housing
4	Cavity			Accommodate terminal

3. Components Shape and Function (Continued)

3.4. Male Connector Assembly (Unsealed)





#	Feature Name			Function
1	Housing lance	1-1	Service operation tab	Beak release operation
		1-2	Elastic arm	Allow movement of beak
		1-3	Beak	Lock with male terminal
2	Housing lock	2-1	Housing lock beak	Lock with female housing
3	TPA			Detection of incomplete terminal insertion
		3-1	Locking arm	Release of lock from housing
4	Cavity			Accommodate terminal

4. Handling of Components

4.1. Receiving Inspection Items

4.1.1. The following items should be inspected upon receipt of terminal parts.

1. Appropriate Part Number
2. Parts are free of foreign objects, cracks, deformation, burrs, rust, unclean parts, peeling or any flaw and all other apparent abnormalities.
3. Parts display no apparent discoloration and/or oxidation.
4. Entangled or loosened terminals from reel.

4.1.2. The following items should be inspected upon receipt of male/female housing (including TPA).

1. Appropriate part number.
2. Parts are free of foreign objects or inappropriate products.
3. Parts are free of cracks, deformation, or other apparent abnormalities (sink marks, short shots, etc.).

4.1.3. The following items should be inspected upon receipt of other associated parts.

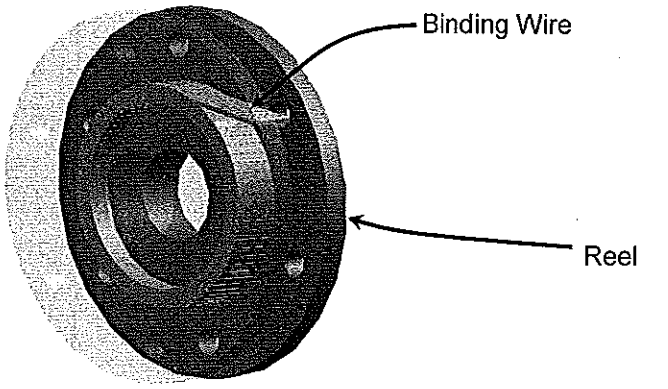
1. Appropriate Part Number
2. Parts are free of foreign objects or inappropriate products
3. Parts are free of foreign objects, cracks, deformation, or other apparent abnormalities (sink marks, short shots, etc.)

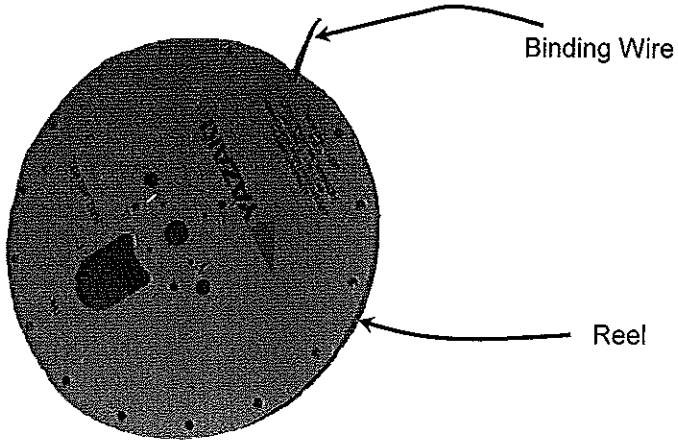
4. Handling of Components (Continued)

4.2. Transportation/Storage/Handling Precautions

4.2.1. Terminal transportation storage and handling precautions.

1. 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.





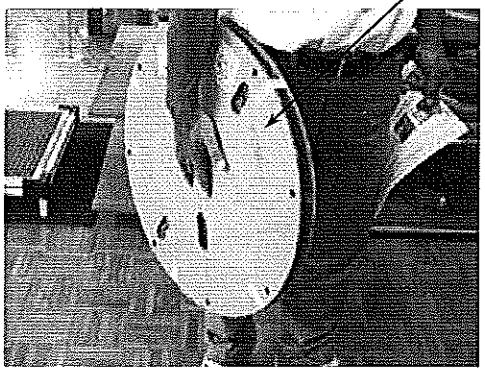
4. Handling of Components (Continued)

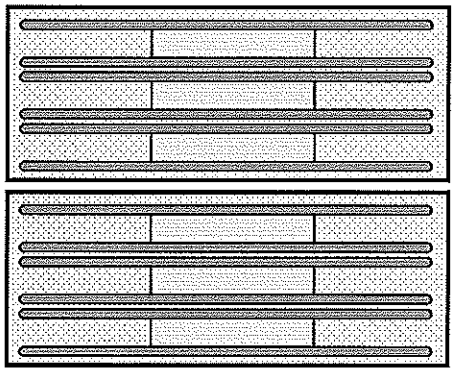
4.2. Transportation/Storage/Handling Precautions (Continued)

4.2.1. Terminal transportation storage and handling precautions. (Continued)

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

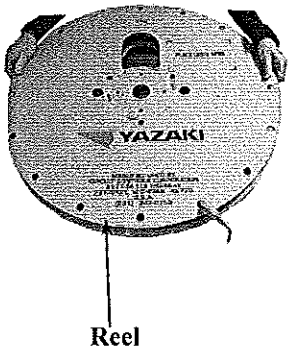
Recommended Practice

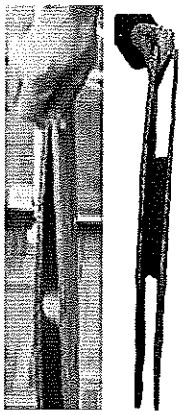




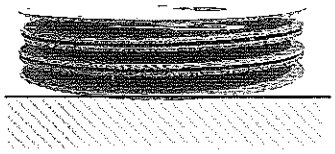
Maximum recommended stack height:
2 boxes of reels

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)

4.2.2. General transportation storage and handling precautions.

1. Parts should be stored in the container in which they were shipped. Packing should prevent the impact of components during transportation. Care should be taken not to deform or damage the components during packing. Care should also be taken to avoid any harsh impact by dropping.

2. Parts should be transported and/or stored in a manner to protect the product from damage, preferably in the box or packaging in which they were shipped. Examples of items which should be avoided include the following:

    a. Prolonged exposure to sunlight/ultra-violet light (may cause deformation or crack).

    b. Exposure of product to excessive dust, moisture, oil, high temperatures, corrosive elements, etc.

    c. Exposure to harsh impacts (dropping, rough handling) during storage or transportation.

5. Terminal Crimping Specification

5.1. Crimping Standards (Metric)

Type	Terminal Part Number	Reference		Conductor		Insulator	
		Wire Size mm²	Cond. Area	CH	CW	CH	CW
1.5 System Male	7114-4100-02	0.35	5.0	1.00 ~ 1.10	1.70 ~ 1.80	1.95 ~ 2.15	2.20 ~ 2.40
		0.5	5.0	1.05 ~ 1.15	1.70 ~ 1.80	2.10 ~ 2.30	2.20 ~ 2.40
	7114-4101-02	0.75	5.0	1.15 ~ 1.25	2.20 ~ 2.30	2.35 ~ 2.55	2.55 ~ 2.75
		1.0	5.0	1.20 ~ 1.30	2.20 ~ 2.30	2.55 ~ 2.75	2.55 ~ 2.75
	7114-4100-08	0.35	5.0	1.00 ~ 1.10	1.70 ~ 1.80	1.95 ~ 2.15	2.20 ~ 2.40
		0.5	5.0	1.05 ~ 1.15	1.70 ~ 1.80	2.10 ~ 2.30	2.20 ~ 2.40
	7114-4101-08	0.75	5.0	1.15 ~ 1.25	2.20 ~ 2.30	2.35 ~ 2.55	2.55 ~ 2.75
		1.0	5.0	1.20 ~ 1.30	2.20 ~ 2.30	2.55 ~ 2.75	2.55 ~ 2.75
1.5 System Female	7116-4100-02	0.35	5.0	0.90 ~ 1.00	1.70 ~ 1.80	1.80 ~ 2.00	2.20 ~ 240
		0.5	5.0	0.95 ~ 1.05	1.70 ~ 1.80	1.95 ~ 2.15	2.20 ~ 240
	7116-4101-02	0.75	5.0	1.05 ~ 1.15	2.05 ~ 2.15	2.20 ~ 2.40	2.55 ~ 2.75
		1.0	5.0	1.15 ~ 1.25	2.05 ~ 2.15	2.40 ~ 2.60	2.55 ~ 2.75
	7116-4100-08	0.35	5.0	0.90 ~ 1.00	1.70 ~ 1.80	1.80 ~ 2.00	2.20 ~ 240
		0.5	5.0	0.95 ~ 1.05	1.70 ~ 1.80	1.95 ~ 2.15	2.20 ~ 240
	7116-4101-08	0.75	5.0	1.05 ~ 1.15	2.05 ~ 2.15	2.20 ~ 2.40	2.55 ~ 2.75
		1.0	5.0	1.15 ~ 1.25	2.05 ~ 2.15	2.40 ~ 2.60	2.55 ~ 2.75
2.8 System Male	7114-4110-02	0.35	5.0	0.95 ~ 1.05	1.85 ~ 2.05	1.80 ~ 2.00	2.35 ~ 2.55
		0.5	5.0	1.05 ~ 1.15	1.85 ~ 2.05	2.05 ~ 2.25	2.35 ~ 2.55
	7114-4111-02	0.75	5.0	1.15 ~ 1.25	2.30 ~ 2.50	2.25 ~ 2.45	3.15 ~ 3.35
		1.0	5.0	1.25 ~ 1.35	2.30 ~ 2.50	2.40 ~ 2.60	3.15 ~ 3.35
	7114-4112-02	0.35	5.0	1.45 ~ 1.55	2.70 ~ 2.90	2.70 ~ 2.90	3.70 ~ 3.90
		0.5	5.0	1.65 ~ 1.75	2.70 ~ 2.90	3.10 ~ 3.30	3.70 ~ 3.90
2.8 System Female	7116-4110-02	0.75	5.0	0.95 ~ 1.05	1.85 ~ 2.05	1.80 ~ 2.00	2.35 ~ 2.55
		1.0	5.0	1.05 ~ 1.15	1.85 ~ 2.05	2.05 ~ 2.25	2.35 ~ 2.55
	7116-4111-02	0.35	5.0	1.15 ~ 1.25	2.30 ~ 2.50	2.25 ~ 2.45	3.15 ~ 3.35
		0.5	5.0	1.25 ~ 1.35	2.30 ~ 2.50	2.40 ~ 2.60	3.15 ~ 3.35
	7116-4112-02	0.75	5.0	1.45 ~ 1.55	2.70 ~ 2.90	2.70 ~ 2.90	3.70 ~ 3.90
		1.0	5.0	1.65 ~ 1.75	2.70 ~ 2.90	3.10 ~ 3.30	3.70 ~ 3.90
6.3 System Male	7114-4120-02	0.5	5.0	1.25 ~ 1.35	2.50 ~ 2.70	2.30 ~ 2.50	3.00 ~ 3.20
		0.75	5.0	1.30 ~ 1.40	2.50 ~ 2.70	2.45 ~ 2.65	3.00 ~ 3.20
		1.0	5.0	1.35 ~ 1.45	2.50 ~ 2.70	2.70 ~ 2.90	3.00 ~ 3.20
	7114-4121-02	1.5	5.0	1.60 ~ 1.70	2.95 ~ 3.15	3.00 ~ 3.20	3.75 ~ 3.95
		2.3	5.0	1.85 ~ 1.95	2.95 ~ 3.15	3.60 ~ 3.80	3.75 ~ 3.95
	7114-4122-02	4.0	5.0	2.10 ~ 2.20	2.55 ~ 3.75	4.05 ~ 4.15	4.45 ~ 4.65
6.3 System Female	7116-4120-02	0.5	5.0	1.20 ~ 1.30	2.50 ~ 2.70	2.30 ~ 2.50	3.00 ~ 3.20
		0.75	5.0	1.25 ~ 1.35	2.50 ~ 2.70	2.45 ~ 2.65	3.00 ~ 3.20
		1.0	5.0	1.35 ~ 1.45	2.50 ~ 2.70	2.70 ~ 2.90	3.00 ~ 3.20
	7116-4121-02	1.5	5.0	1.60 ~ 1.70	2.95 ~ 3.15	3.00 ~ 3.20	3.75 ~ 3.95
		2.3	5.0	1.85 ~ 1.95	2.95 ~ 3.15	3.60 ~ 3.80	3.75 ~ 3.95
	7116-4122-02	4.0	5.0	2.10 ~ 2.20	2.55 ~ 3.75	4.05 ~ 4.15	4.45 ~ 4.65

5. Terminal Crimping Specification (Continued)

5.2. Crimping Standards (SAE)

5.2.1. 1.5 System

Terminal Part No.	Reference			Conductor		Insulation	
	Wire Size	Cond. Area	Wire O.D.	CH (+/-0.05)	CW (+/-0.05)	CH (+/-0.10)	CW (+/-0.10)
7114-4100-02	22awg	0.5	0.30sqmm	1.00	1.75	2.00	2.30
	20awg	0.5	0.50sqmm	1.05	1.75	2.20	2.30
7114-4101-02	22awg	0.5	0.30sqmm	1.15	2.25	2.70	2.65
	20awg	0.5	0.50sqmm	1.20	2.25	2.70	2.65
	18awg	0.5	0.80sqmm	1.20	2.25	2.45	2.65
	16awg	0.5	1.25sqmm	1.30	2.25	2.60	2.65
7114-4100-08	22awg	0.5	0.30sqmm	1.00	1.75	2.00	2.30
	20awg	0.5	0.50sqmm	1.10	1.75	2.20	2.30
7114-4101-08	18awg	0.5	0.80sqmm	1.20	2.25	2.35	2.65
	16awg	0.5	1.25sqmm	1.35	2.25	2.50	2.65
7116-4100-02	22awg	0.5	0.30sqmm	0.90	1.75	1.90	2.30
	20awg	0.5	0.50sqmm	1.00	1.75	1.90	2.30
7116-4101-02	22awg	0.5	0.30sqmm	1.05	2.05	2.60	2.60
	20awg	0.5	0.50sqmm	1.15	2.05	2.75	2.60
	18awg	0.5	0.80sqmm	1.10	2.05	2.30	2.60
	16awg	0.5	1.25sqmm	1.25	2.05	2.50	2.60
7116-4100-08	22awg	0.5	0.30sqmm	0.90	1.75	1.85	2.30
	20awg	0.5	0.50sqmm	1.00	1.75	1.90	2.30
7116-4101-08	20awg	0.5	0.50sqmm	1.15	2.05	2.65	2.60
	18awg	0.5	0.80sqmm	1.10	2.05	2.20	2.60
	16awg	0.5	1.25sqmm	1.25	2.05	2.40	2.60

Wire Strip Length: 5.0 ~ 5.50
Bell-Mouth Front: No bell-mouth allowed
Bell-Mouth Rear: 0.30 ~ 0.80
Cut-off Tab: 0.50 max
Other:

Bend Up: 3 degrees max
Bend Down: 2 degrees max
Roll/Twist: Not acceptable

All Dimensions: mm

5. Terminal Crimping Specification (Continued)

5.2. Crimping Standards (SAE)

5.2.2. 2.8 System

Terminal Part No.	Reference			Conductor		Insulation	
	Wire Size	Cond. Area	Wire O.D.	CH (+/-0.05)	CW (+/-0.05)	CH (+/-0.10)	CW (+/-0.10)
7114-4110-02	22awg	0.5	0.30sqmm	1.00	1.95	1.90	2.45
	20awg	0.5	0.50sqmm	1.05	1.95	2.10	2.45
7114-4111-02	20awg	0.5	0.50sqmm	1.30	2.40	2.50	3.40
	18awg	0.5	0.85sqmm	1.20	2.40	2.20	3.25
	16awg	0.5	1.25sqmm	1.30	2.40	2.50	3.25
7114-4112-02	18awg	0.5	0.85sqmm	1.50	2.80	3.30	3.80
	16awg	0.5	1.25sqmm	1.50	2.80	2.80	3.80
	14awg	0.5	2.00sqmm	1.60	2.80	2.95	3.80
7116-4110-02	22awg	0.5	0.30sqmm	1.00	1.95	1.95	2.50
	20awg	0.5	0.50sqmm	1.10	1.95	2.00	2.50
7116-4111-02	22awg	0.5	0.30sqmm	1.30	2.40	2.60	3.40
	20awg	0.5	0.50sqmm	1.35	2.40	2.80	3.25
	18awg	0.5	0.85sqmm	1.25	2.40	2.30	3.25
	16awg	0.5	1.25sqmm	1.35	2.40	2.45	3.25
7116-4122-02	20awg	0.5	0.50sqmm	1.75	2.80	3.70	3.90
	18awg	0.5	0.85sqmm	1.75	2.80	3.80	3.90
	16awg	0.5	1.25sqmm	1.75	2.80	3.85	3.90
	14awg	0.5	2.00sqmm	1.60	2.80	3.00	3.80
	12awg	0.5	3.00sqmm	1.80	2.80	3.50	3.80

Wire Strip Length: 5.0 ~ 5.50
Bell-Mouth Front: No bell-mouth allowed
Bell-Mouth Rear: 0.50 ~ 1.00
Cut-off Tab: 0.30 max
Other:

Bend Up: 3 degrees max
Bend Down: 1 degrees max
Roll/Twist: Not acceptable

All Dimensions: mm

5. Terminal Crimping Specification (Continued)

5.2. Crimping Standards (SAE)

5.2.3. 6.3 System

Terminal Part No.	Reference			Conductor		Insulation	
	Wire Size	Cond. Area	Wire O.D.	CH (+/-0.05)	CW (+/-0.05)	CH (+/-0.10)	CW (+/-0.10)
7114-4120-02	20awg	0.5	0.50sqmm	1.30	2.60	2.50	3.10
	18awg	0.5	0.85sqmm	1.35	2.60	2.60	3.10
	16awg	0.5	1.25sqmm	1.45	2.60	2.65	3.10
7114-4121-02	20awg	0.5	0.50sqmm	1.65	3.05	3.20	3.85
	18awg	0.5	0.85sqmm	1.65	3.05	3.20	3.85
	16awg	0.5	1.25sqmm	1.55	3.05	2.85	3.85
	14awg	0.5	2.00sqmm	1.80	3.05	3.10	3.85
	12awg	0.5	3.00sqmm	1.80	3.05	3.70	3.85
7114-4122-02	12awg	0.5	3.00sqmm	1.95	3.65	4.10	4.55
	10awg	0.5	5.00sqmm	2.10	3.65	4.20	4.55
7116-4120-02	20awg	0.5	0.50sqmm	1.30	2.60	2.40	3.10
	18awg	0.5	0.85sqmm	1.30	2.60	2.55	3.10
	16awg	0.5	1.25sqmm	1.45	2.60	2.80	3.10
7116-4121-02	18awg	0.5	0.85sqmm	1.65	3.05	3.50	3.85
	16awg	0.5	1.25sqmm	1.65	3.05	2.90	3.85
	14awg	0.5	2.00sqmm	1.75	3.05	3.20	3.85
	12awg	0.5	3.00sqmm	1.85	3.05	3.70	3.85
7116-4122-02	12awg	0.5	3.00sqmm	2.05	3.65	4.00	4.55
	10awg	0.5	5.00sqmm	2.15	3.65	4.25	4.55

Wire Strip Length: 5.5 ~ 6.00
Bell-Mouth Front: 0.20 ~ 0.80
Bell-Mouth Rear: 0.20 ~ 0.80
Cut-off Tab: 0.30 max
Other:

Bend Up: 3 degrees max
Bend Down: 1 degrees max
Roll/Twist: Not acceptable

All Dimensions: mm

5. Terminal Crimping Specification (Continued)

5.3. Crimping Specification

5.3.1. The crimp specifications (see previous pages) have been determined based on Yazaki defined Punch/Anvil Tooling Geometries. These specifications should be considered reference, and that actual performance results may vary based on specific application set-up and/or processing parameters.

5.3.2. The user of this product is responsible for:

1. Validation of crimp performance.

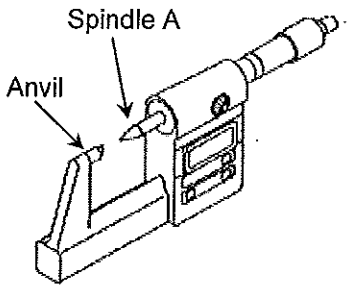
2. Establishment of crimping specifications for wire sizes not listed on the previous page.

5. Terminal Crimping Specification (Continued)

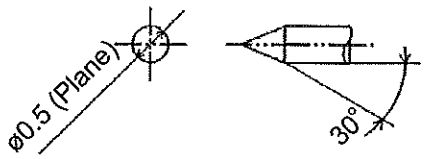
5.4. Crimping Evaluation (Continued)

5.4.1. Measuring Equipment

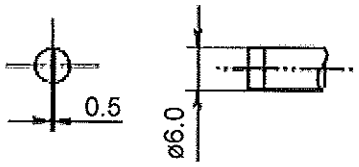
A micrometer shall be used for the measurement. It should be mounted on a stand during use. The recommended specifications for the anvil and spindle of a micrometer are shown below.

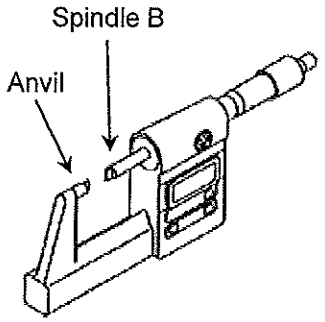


Detail of Spindle A

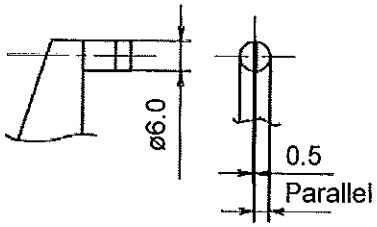


Detail of Spindle B





Detail of Anvil



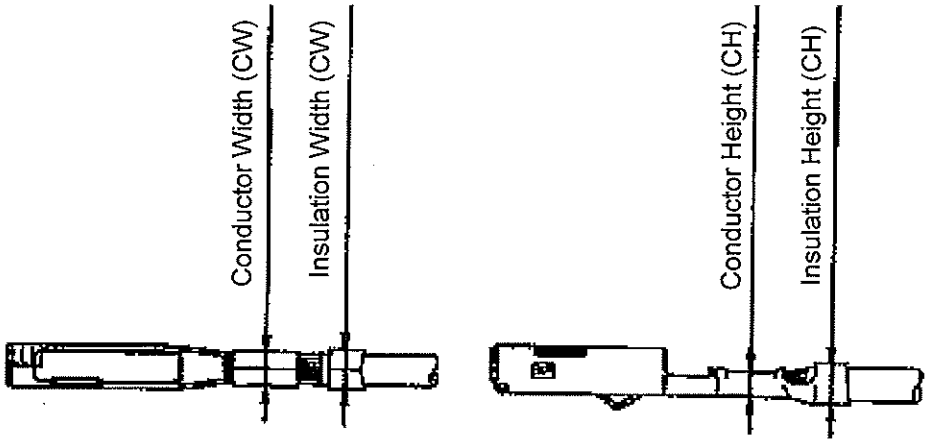
Measuring area		Spindle to be used
Conductor Grip	Crimp height	Spindle A
	Crimp width	Spindle B
Insulation Grip	Crimp height	
	Crimp width	

5. Terminal Crimping Specification (Continued)

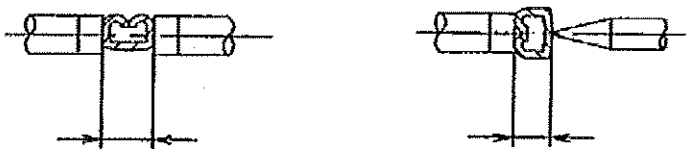
5.4. Crimping Evaluation (Continued)

5.4.2. Measurement Methodology

The crimp height (CH) and crimp width (CW) should be measured at the center portion of both the conductor and insulator crimps. See illustration below for recommended measurement methodology.

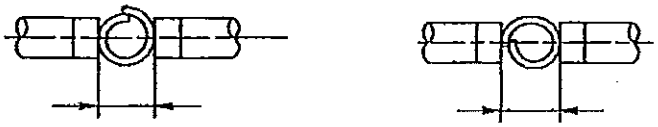


Conductor



Crimp Width (CW) Crimp Height (CH)

Insulator



Crimp Width (CW) Crimp Height (CH)

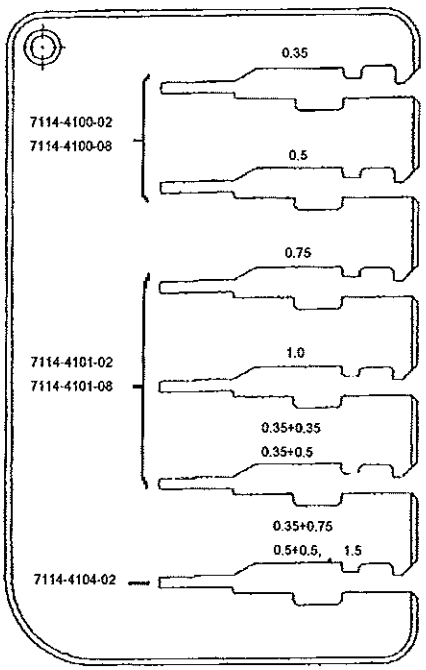
5. Terminal Crimping Specification (Continued)

5.4. Crimping Evaluation (Continued)

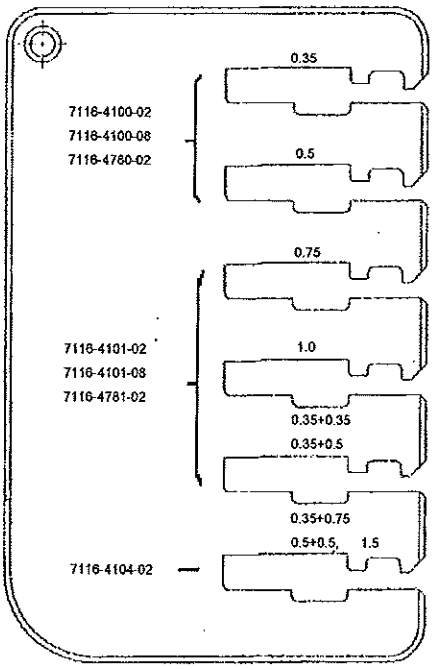
5.4.3. Crimping Inspection Gauge (Reference Specification)

The purpose of this gauge is to assure the crimped terminal is within the specified bend-up/down requirements/tolerances.

System	Part No.	
	Male Terminal	Female Terminal
1.5	48ZZ4003	48ZZ4002
2.8	48ZZ4001	48ZZ4010



(1.5 sys Male Terminal)



(1.5 sys Female Terminal)

5. Terminal Crimping Specification (Continued)

5.4. Crimping Evaluation (Continued)

5.4.3. Crimping Inspection Gauge (Reference Specification)

1) How to use:

Insert the terminal in the parallel against gauge surface.

Acceptable:

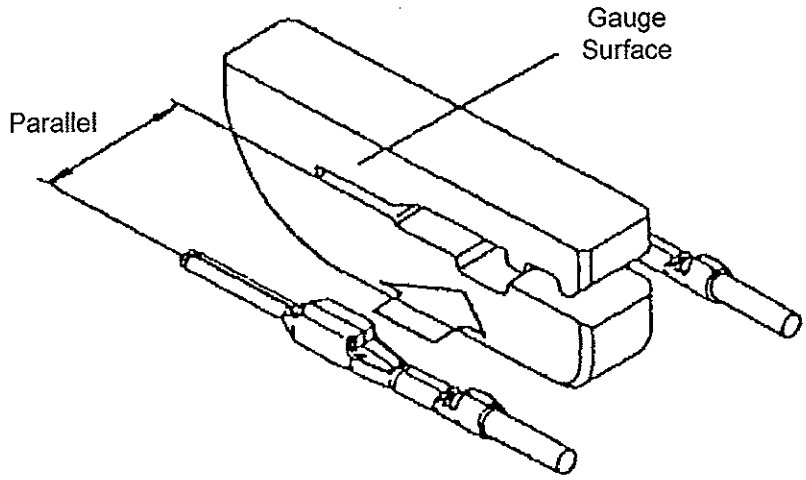
Terminal can be inserted smoothly.
(Terminal should not touch the gauge surface.)

Unacceptable:

Terminal cannot be inserted at all.
(Terminal can be inserted but not smoothly.)

2) Inspection timing

Inspect each terminal at the start and the end of each production lot. (Call maintenance for adjustment when trouble occurs.)

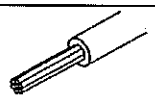
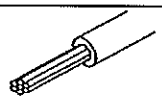
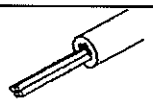
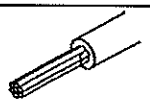
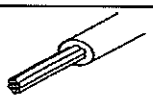
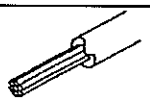


5. Terminal Crimping Specification (Continued)

5.4. Crimping Evaluation (Continued)

5.4.4. Crimp Product Appearance Evaluation

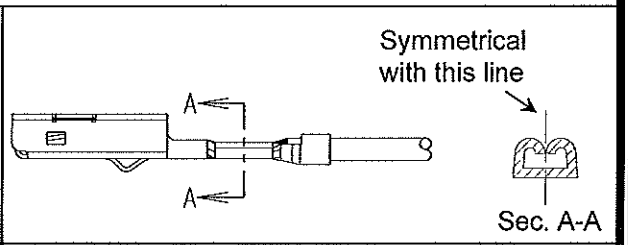
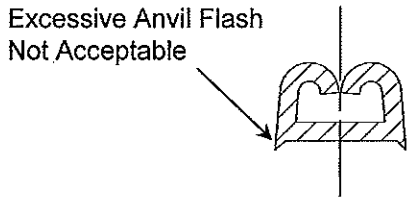
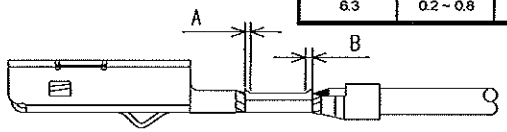
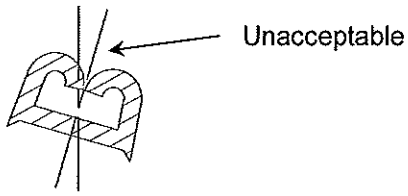
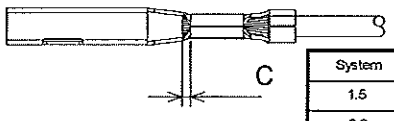
1. Stripped wires should be crimped at once to avoid deformation of strands. Storing and transportation of stripped wires shall not be allowed.
2. Do not use terminals that have been deformed or damaged.
3. Assemble the terminals to housing after crimping. If immediate assembly is not possible, protect the terminals with a clean plastic bag or other similar means.
4. During crimping process, check the following items listed in the table. Crimp within the indicated measurements.
5. When using a new crimping machine or making a change to the crimping machine: Care shall be taken not to deform areas that have an effect on the function of tab thickness and box height. Confirm that there is no dimensional change before/after crimping by dimensional measurement.

Attribute	Evaluation Item		
Wire	Improper/uneven cutting of conductor and/or insulation	Proper cut	
		Improper cut conductor -Diagonal cut conductor	
		Improper cut conductor -Cut strand(s)	
		Improper cut conductor -Damaged strand(s)	
		Improper cut conductor -Diagonal cut insulation	
		Improper cut conductor -Damaged insulation	

5. Terminal Crimping Specification (Continued)

5.4. Crimping Evaluation (Continued)

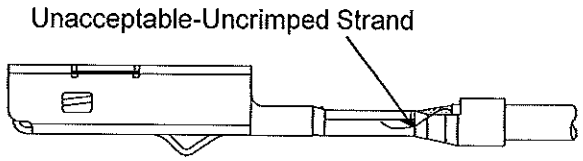
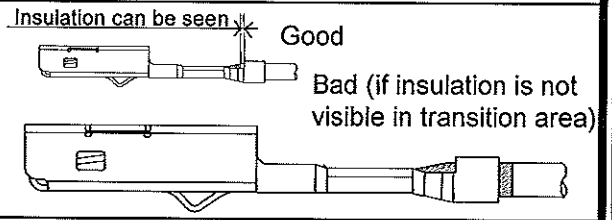
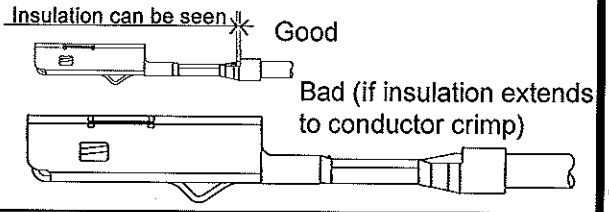
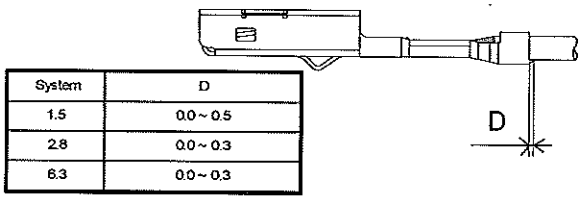
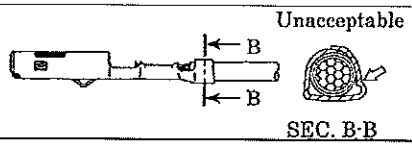
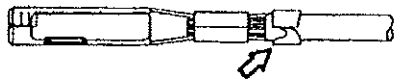
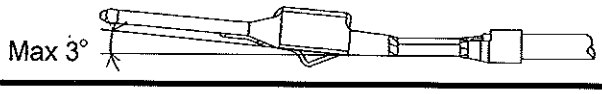
5.4.4. Crimp Product Appearance Evaluation (Continued)

Attribute	Evaluation Item	
Conductor Crimp	Crimp Symmetry	
	Anvil Flash	
	Bell-Mouth	 System / A / B 1.5 / non-standard / 0.3 ~ 0.8 2.8 / 0 / 0.5 ~ 1.0 6.3 / 0.2 ~ 0.8 / 0.5 ~ 1.0
	Twist / Roll	
	Conductor Length / Wire Brush	 System / C 1.5 / 0.5 ~ 1.0 2.8 / 0.0 ~ 0.5 6.3 / 0.1 ~ 1.0

5. Terminal Crimping Specification (Continued)

5.4. Crimping Evaluation (Continued)

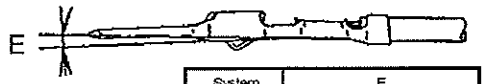
5.4.4. Crimp Product Appearance Evaluation (Continued)

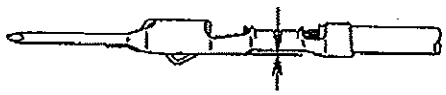
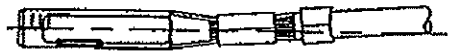
Attribute	Evaluation Item	
Conductor Crimp	Conductor Strand Capture	
	Low Insulation	
Insulation Crimp	High Insulation	
	Cut-Off Tab	 System / D 1.5 / 0.0 ~ 0.5 2.8 / 0.0 ~ 0.3 6.3 / 0.0 ~ 0.3
	Buckling	
	Insulation pinched by insulation barrel	
Terminal Body Deformation	Bend-Up (Male/Female)	

5. Terminal Crimping Specification (Continued)

5.4. Crimping Evaluation (Continued)

5.4.4. Crimp Product Appearance Evaluation (Continued)

<table>
<tr><th>Attribute</th><th colspan="2">Evaluation Item</th></tr>
<tr><td rowspan="4">Terminal Body Deformation</td><td>Bend Down
(Male/Female)</td><td> 

<table>
<tr><th>System</th><th>E</th></tr>
<tr><td>1.5</td><td>2° Max</td></tr>
<tr><td>2.8</td><td>1° Max</td></tr>
<tr><td>6.3</td><td>1° Max</td></tr>
</table></td></tr>
<tr><td rowspan="2">Crimp Body Alignment
(Male/Female)</td><td> 
Step on the conductor grip, not acceptable</td></tr>
<tr><td> 
Mis-aligned / Deformed terminal, not acceptable</td></tr>
<tr><td>Twist
(Male/Female)</td><td> 
Twisted terminal, not acceptable</td></tr>
<tr><td>Box Deformation
(Male/Female)</td><td> 
Deformed box, not acceptable. Confirm that there is no change of box before/after crimping by dimension measurement</td></tr>
</table>

6. Handling of Terminated Wire Leads

6.1. Damage Prevention

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

1. 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)

2. To prevent tangling of the wire leads and potential 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.

3. To prevent damage to the crimped terminals, do not use the terminals if/when vertically aligning the cut leads (e.g. aligning terminal tips of the wire bundle to a common position).

4. Wire bundles should be bound with elastic bands to prevent separation and potential entanglement of the terminals.

5. At a minimum, the terminated end of the bundled wire leads should be protected with a plastic bag, to prevent the inadvertent ingression of dust and other contaminants. Additional protection is strongly recommended to assure no damage occurs to the terminals prior to installation to the appropriate connector.

6. Transportation of terminated leads within the wiring harness manufacturing facility should be done using a "Wire Hanging Stand" (see figure A), or a clean covered carton/container.

7. 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.

8. Do not repair terminals that have been deformed.

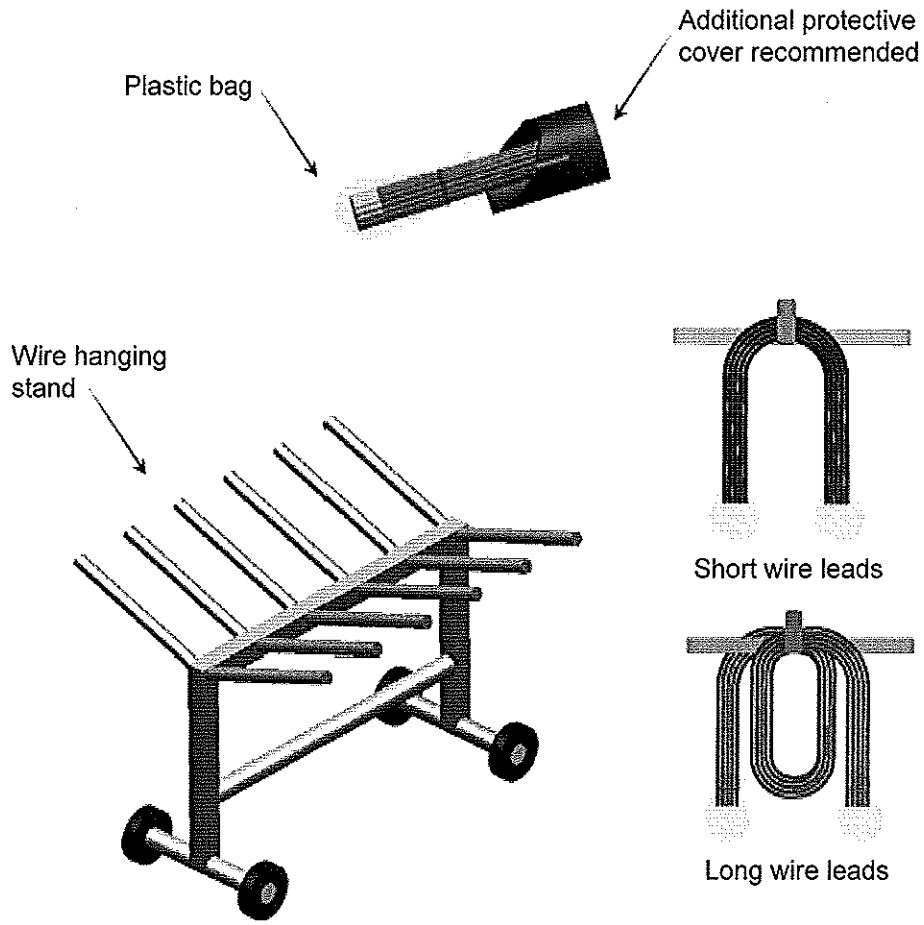
9. Do not throw the terminated wires during transportation.

10. When hanging up terminated wires on the wire hanging stand, care shall be taken that terminal tips shall not touch the ground.

6. Handling of Terminated Wire Leads (Continued)

6.1. Damage Prevention (Continued)

Figure 6.1.1. Recommended Crimped Wire Lead Handling Illustration



7. Connector Assembly

7.1. Female / Male Terminal Installation to Connector

7.1.1. Confirm the TPA is in the pre-set position. If the TPA is not in the pre-set condition, reposition the TPA. (see Section 3.4 male, see Section 3.5 female)

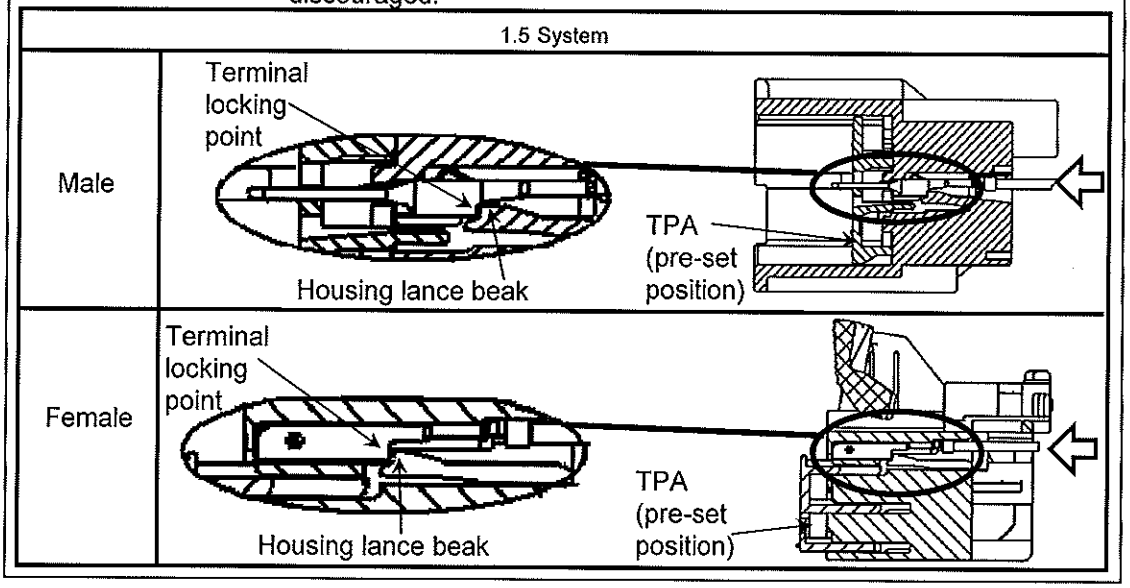
7.1.2. Insert the terminal to the appropriate cavity of the connector housing. If resistance/binding is felt during the insertion process, confirm correct terminal to cavity orientation. (see Section 7.1.5.)

7.1.3. Care should be taken to assure the terminal is installed axially to the connector cavity. Angled/skewed insertion could potentially result in terminal damage.

7.1.4. 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.

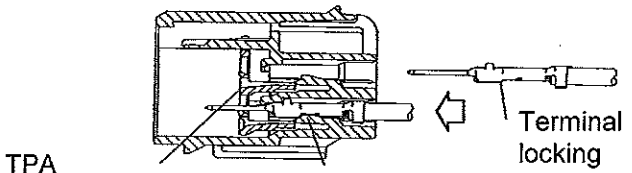
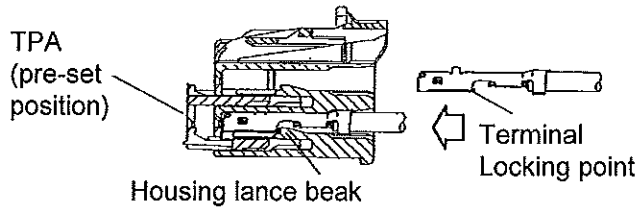
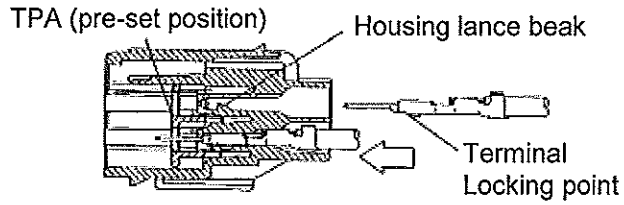
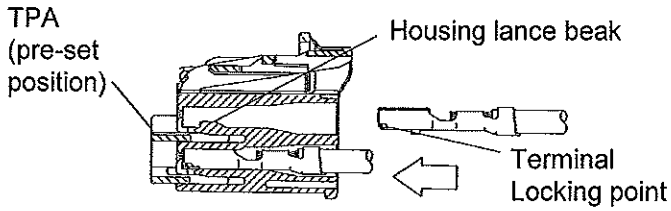
After terminal-to-cavity installation, pull-out verification should not exceed 15N. Product mis-inserted should be discarded.

To assure the operator is able to sense the tactile feedback, wearing of gloves during the terminal insertion process should be discouraged.



7. Connector Assembly (Continued)

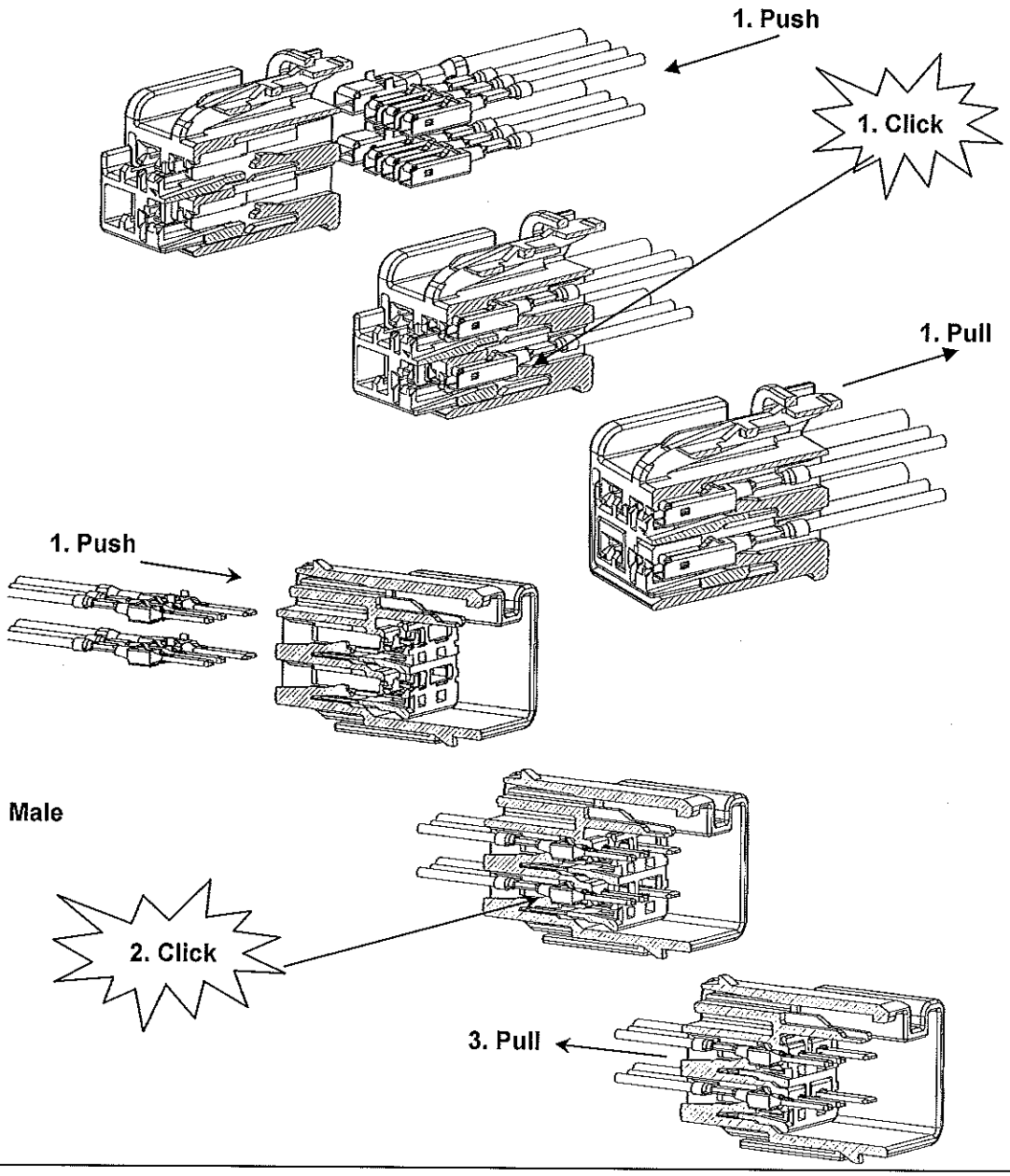
7.1. Female / Male Terminal Installation to Connector (Continued)

<table>
<tr><td colspan="2">2.8 System</td></tr>
<tr><td>Male</td><td> 
</td></tr>
<tr><td>Female</td><td> 
</td></tr>
<tr><td colspan="2">6.3 System</td></tr>
<tr><td>Male</td><td> 
</td></tr>
<tr><td>Female</td><td> 
</td></tr>
</table>

7. Connector Assembly (Continued)

7.1. Female / Male Terminal In-Line Installation to Connector (Continued)

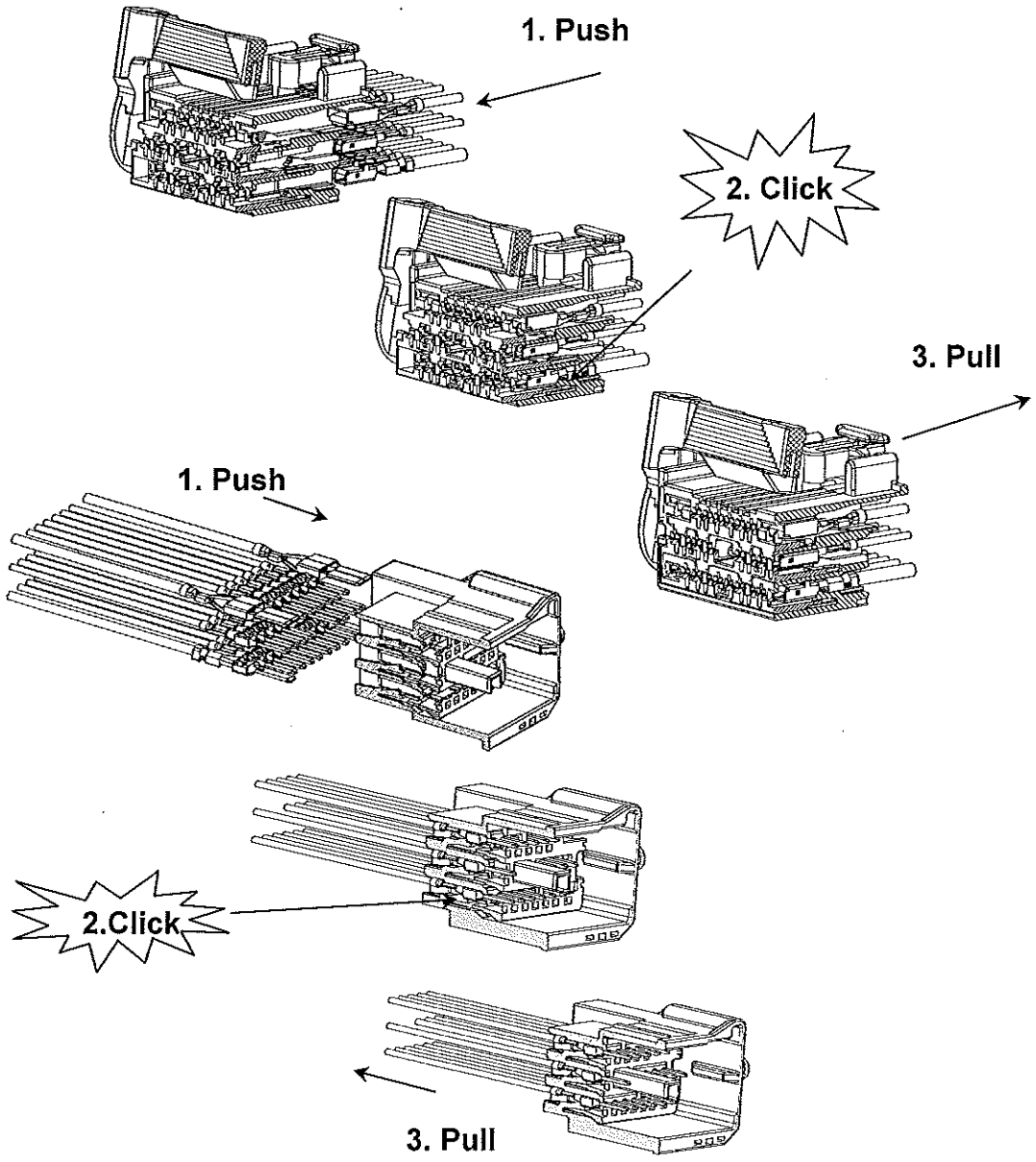
Figure 7.1. Push / Click / Pull Illustration



7. Connector Assembly (Continued)

7.1. Female / Male Terminal Lever Assist Installation to Connector (Continued)

Figure 7.1. Push / Click / Pull Illustration



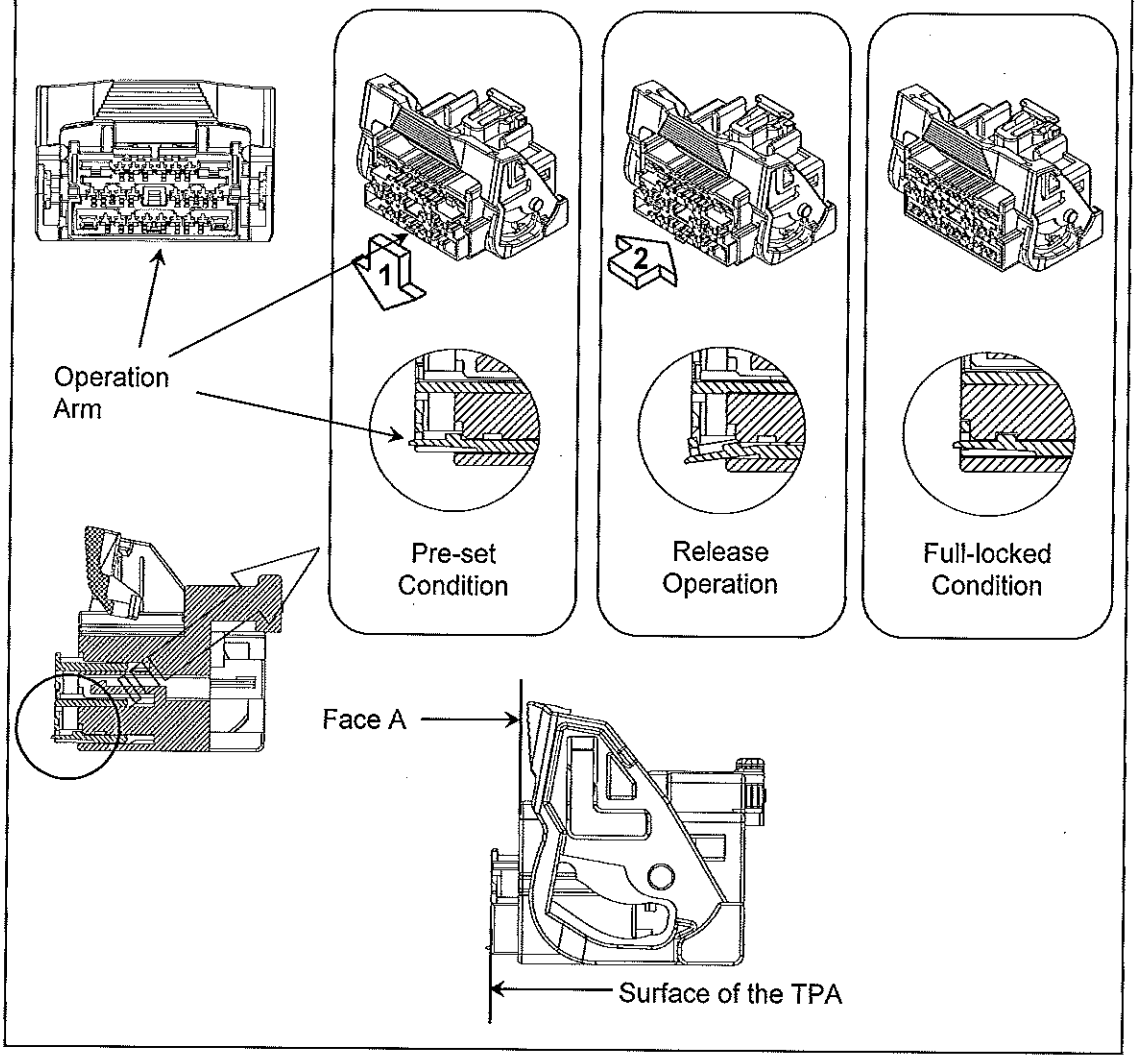
7. Connector Assembly (Continued)

7.2. Terminal Position Assurance Operation / Function

7.2.1. Female Terminal Position Assurance

1. After terminal insertion, deflect the operation arm in direction of arrow 1, and push the TPA in direction of arrow 2 to full-locked.

2. Confirm that the TPA is securely locked. (Mating face A and surface of the TPA should be the same)



7. Connector Assembly (Continued)

7.2. Terminal Position Assurance Operation / Function (Continued)

7.2.1. Female Terminal Position Assurance (Continued)

3. Precautions

A. Care shall be taken not to deform the parts.

B. Replace any damaged or deformed parts with new ones.

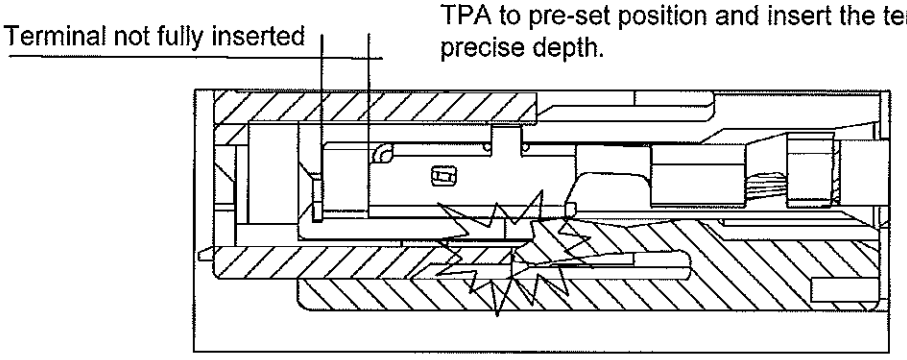
C. Do not try to perform the full-lock operation without deflecting the operation arm to avoid damage to the TPA or housing. Do not deflect the operation arm more than needed because it can be permanently deformed. If the TPA was improperly inserted by force, replace it with new housing.

D. If the TPA cannot be fully locked to the housing, one of the following conditions exist.

i. The terminal is not fully inserted to the cavity (incomplete terminal insertion)

ii. The terminal is inserted in the wrong orientation (improper terminal insertion)

E. In case the terminal is exposed and out of the housing even if the TPA is in full lock position, it is an incomplete terminal insertion condition. If so, move the TPA to pre-set position and insert the terminal to the precise depth.



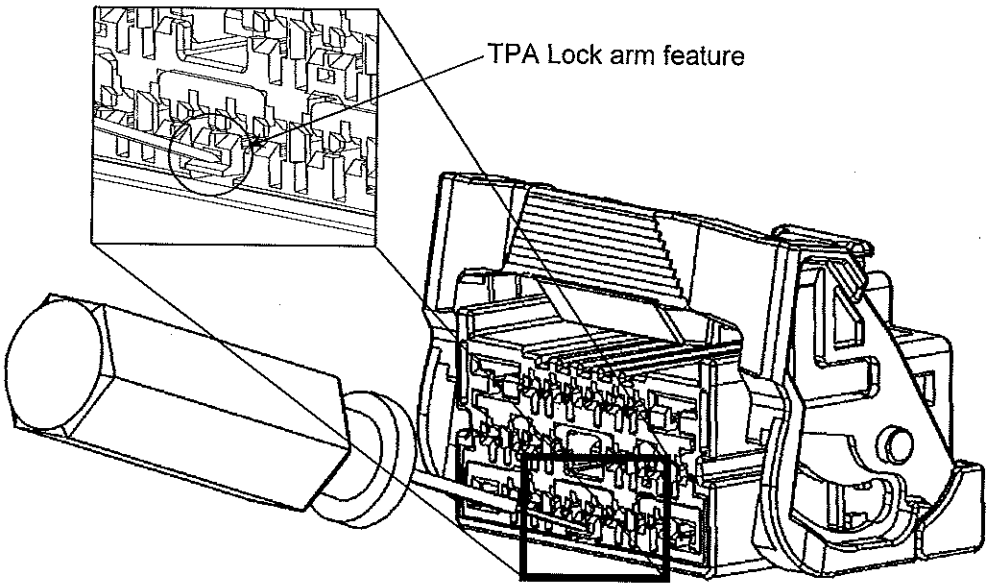
Incomplete Terminal Insertion

7. Connector Assembly (Continued)

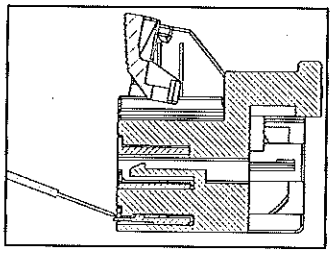
7.2. Terminal Position Assurance Operation / Function (Continued)

7.2.2. Female Terminal Position Assurance removal from full-set to pre-set.

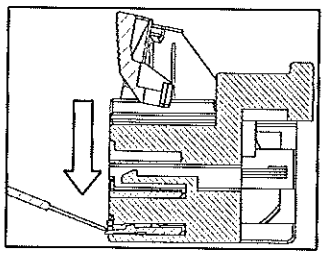
1. Locate the TPA's Lock arm feature.
2. Deflect the TPA's Lock arm feature.
3. Remove the TPA from full-set to pre-set position.



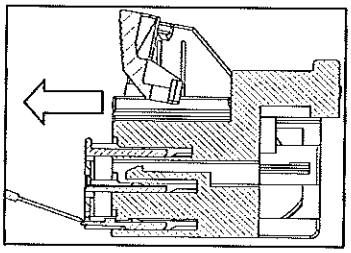
1.Locate



2. Deflect



3. Remove



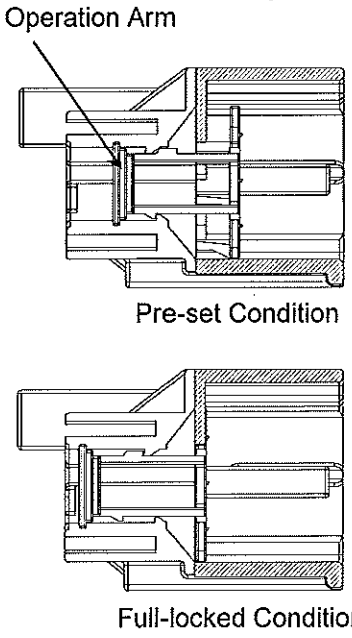
7. Connector Assembly (Continued)

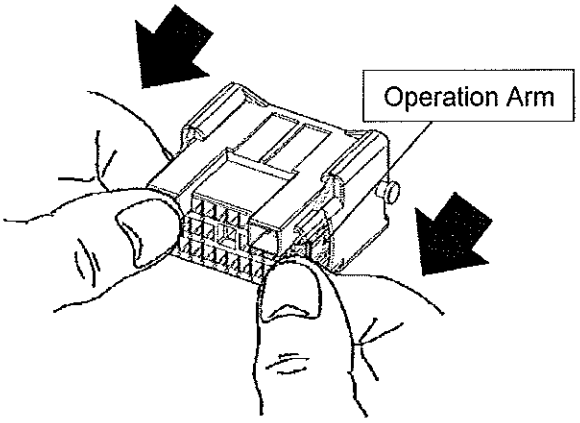
7.2. Terminal Position Assurance Operation / Function (Continued)

7.2.3. Male Terminal Position Assurance

1. After terminal insertion, pull operation arms in direction of the arrow and full-lock the TPA.

2. Confirm that the TPA is securely locked and the operation arm is not as shown in (Fig. 2).





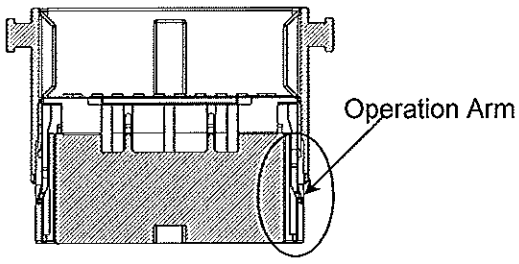


Fig. 1 No bend of Operational Arm (Acceptable)

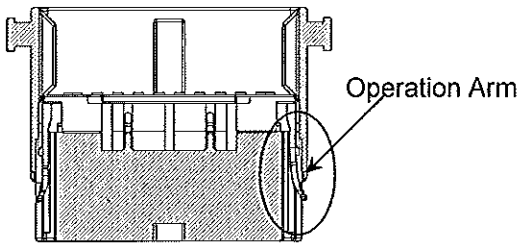


Fig. 1 Bend of Operational Arm (Unacceptable)

7. Connector Assembly (Continued)

7.2. Terminal Position Assurance Operation / Function (Continued)

7.2.3. Male Terminal Position Assurance (Continued)

3. Precautions

A. Care shall be taken not to deform the parts. Replace any damaged or deformed parts with new ones.

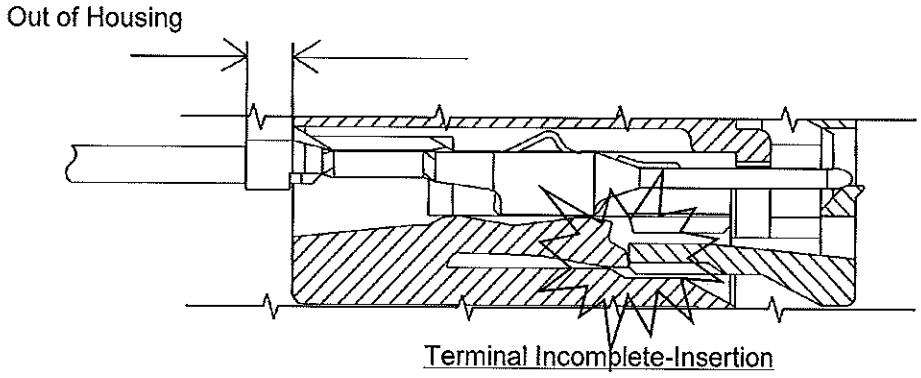
B. If the TPA cannot be full locked to the housing, one of the following conditions exist.

i. The terminal is not fully inserted to the cavity (incomplete terminal insertion)

ii. The terminal is inserted in the wrong orientation (improper terminal insertion)

C. If the TPA was improperly inserted by force, replace it with new housing.

D. In case the terminal is exposed and out of the housing even if the TPA is in full lock position, it is an incomplete terminal insertion condition. If so, move the TPA to pre-set position and insert the terminal in the precise depth.

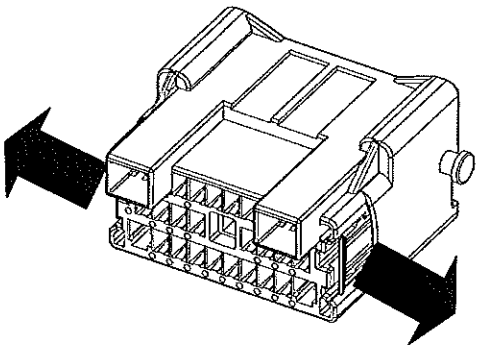


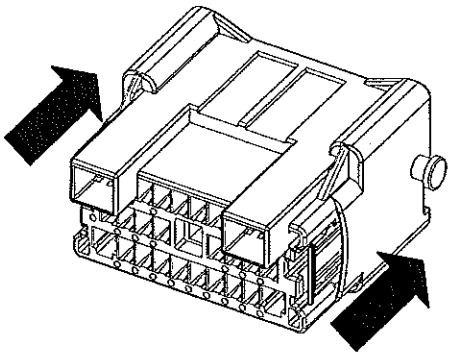
7. Connector Assembly (Continued)

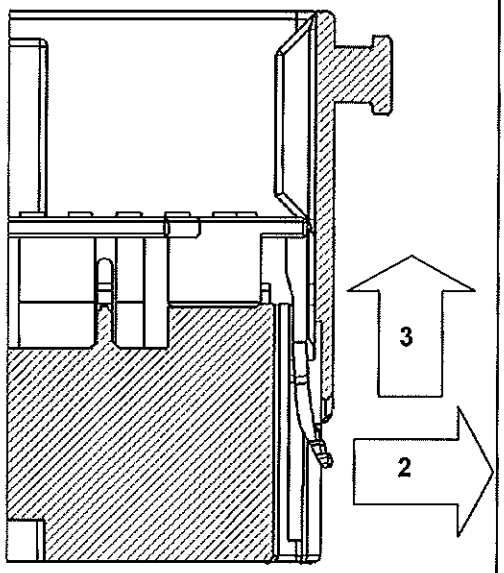
7.2. Terminal Position Assurance Operation / Function (Continued)

7.2.4. Male Terminal Position Assurance removal from full-set to pre-set.

1. Locate the TPA's operational arm feature.
2. Slightly pull both operational arms as shown.
3. Maintain the operational arms pulled and push the TPA to the front of the connector



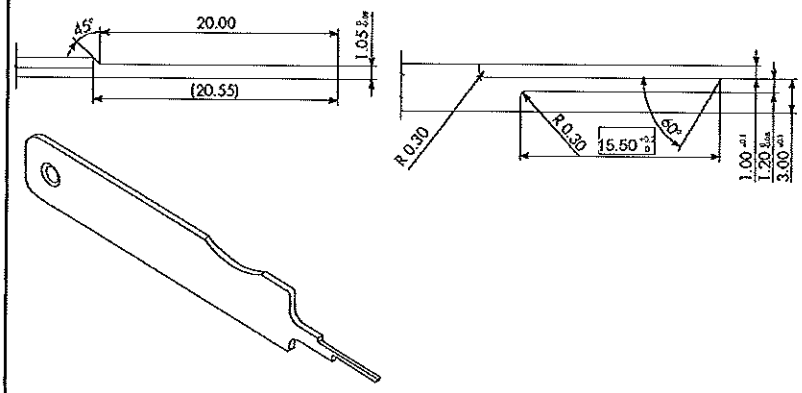


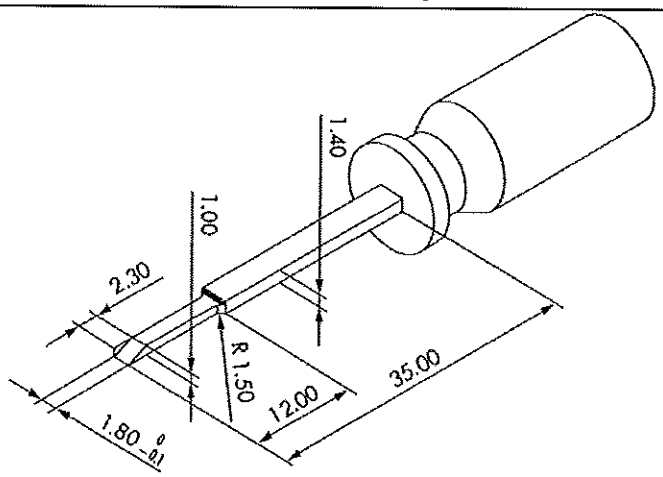


8. Connector Servicing

8.1. Servicing Tools

Use a designated tool.

Terminal removal tool drawing	
1.5 System & 2.8 System	 Tool No.: 48ZZ4009 (X39899-J374)

Terminal removal tool drawing	
6.3 System	 Tool No.: G0406(PA)

8. Connector Servicing (Continued)

8.2. Servicing Procedure

8.2.1. Female Connector / Terminal

1. Grasp the TPA at either side of the connector.

2. Push the TPA to the pre-set position. A small-sized screwdriver may be used to assist with the completion of this operation. (Removal of the TPA from the housing is not required for servicing of the terminals.)

3. Push the applicable wire lightly to assure the terminal is fully forward in the terminal cavity.

4. Using the appropriate terminal removal tool, insert the tool through the access feature of the TPA (see illustration on following page). The tip of the tool must be positioned between the servicing tab of the flexible lock-arm and the terminal.

5. Deflect the plastic terminal lock-arm while pulling on the wire of the applicable circuit.

6. Remove the terminal/circuit from the connector housing. If the terminal does not disengage easily from the housing, repeat Steps 1-5.

7. 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.

8. Connector Servicing (Continued)

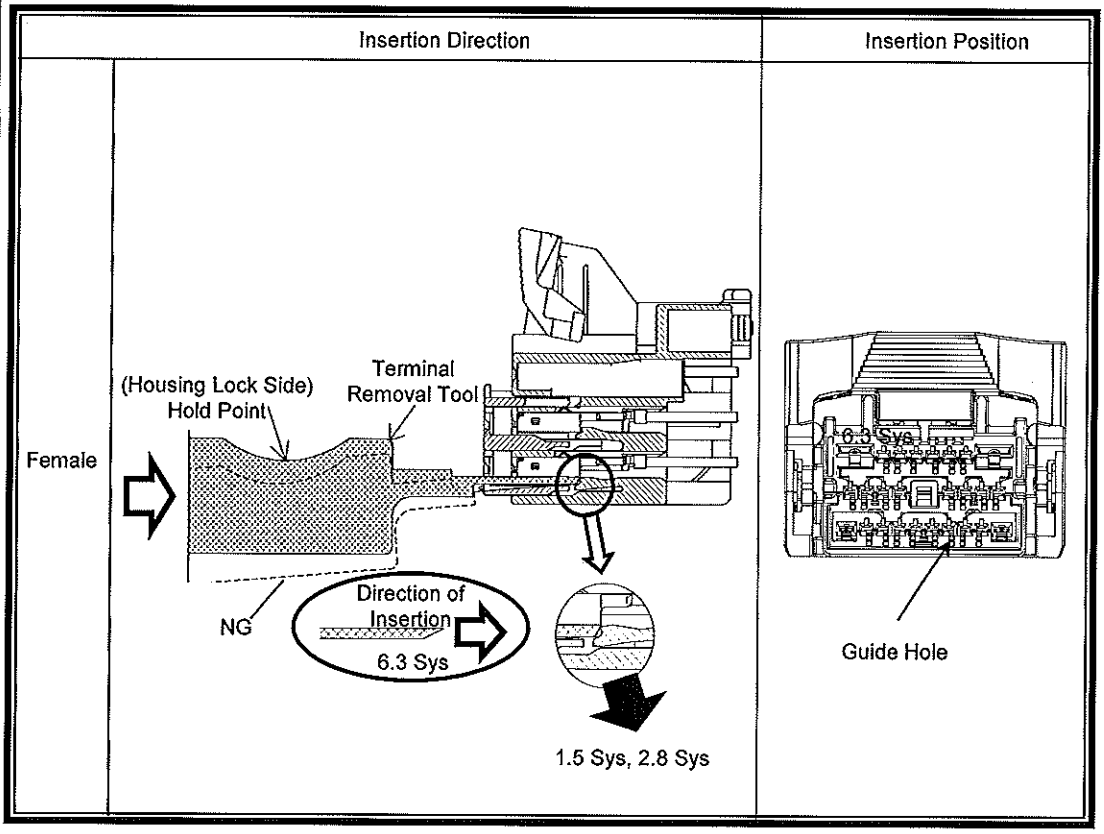
8.2. Servicing Procedure (Continued)

8.2.1. Female Connector / Terminal (Continued)

8. Precautions

A. 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.

B. If any damage is visible on the terminal and/or connector, the affected components should be replaced; repairs should not be attempted.



8. Connector Servicing (Continued)

8.2. Servicing Procedure (Continued)

8.2.2. Male Connector / Terminal

1. Grasp the TPA at either side of the connector.

2. Push the TPA to the pre-set position. A small-sized screwdriver may be used to assist with the completion of this operation. (Removal of the TPA from the housing is not required for servicing of the terminals.)

3. Push the applicable wire lightly to assure the terminal is fully forward in the terminal cavity.

4. Using the appropriate terminal removal tool, insert the tool through the access feature of the TPA (see illustration on following page). The tip of the tool must be positioned between the servicing tab of the flexible lock-arm and the terminal.

5. Deflect the plastic terminal lock-arm while pulling on the wire of the applicable circuit.

6. Remove the terminal/circuit from the connector housing. If the terminal does not disengage easily from the housing, repeat Steps 1-5.

7. 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.

8. Connector Servicing (Continued)

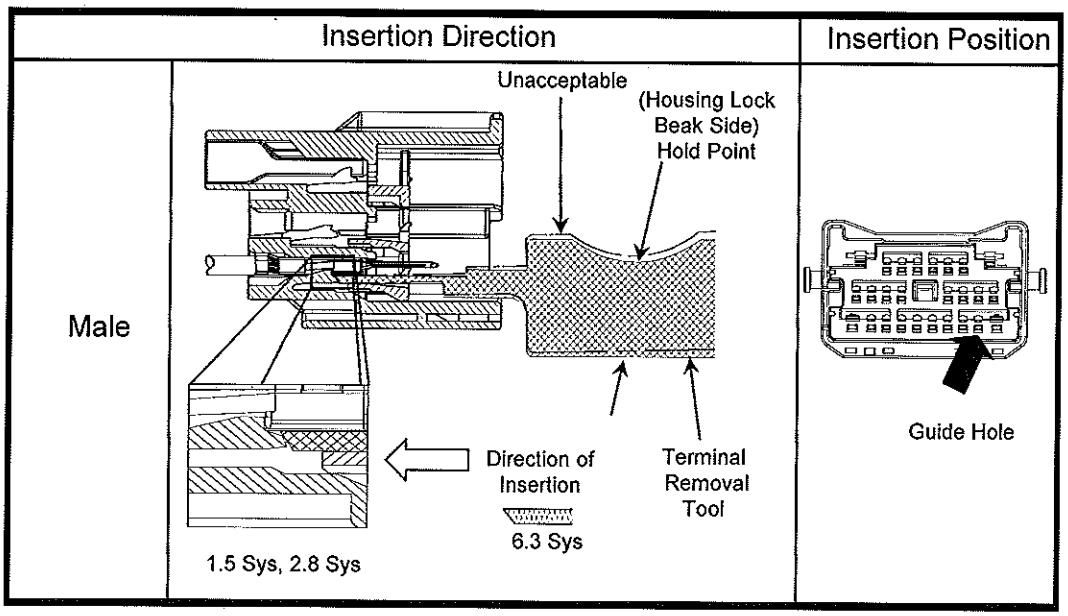
8.2. Servicing Procedure (Continued)

8.2.2. Male Connector / Terminal (Continued)

8. Precautions

A. Use extreme care to assure that bending of the male terminal does not occur. The terminal removal tool should not be 'levered' on the mating end of the male terminal. The removal tool should only be inserted in the feature provided for servicing of the terminal.

B. If any damage is visible on the terminal and/or connector, the affected components should be replaced; repairs should not be attempted.



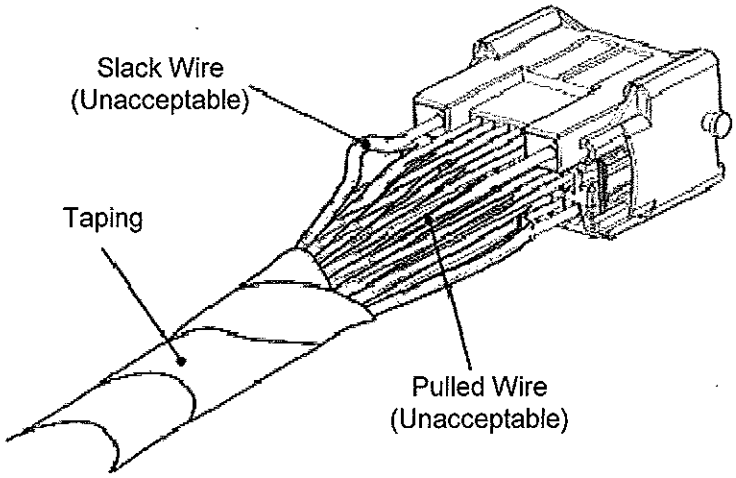
9. Wire Harness Assembly

9.1 Precautions during W/H Assembly

1. When ultrasonic is selected as a connection method for the parts (wire, terminal, etc.), it must be verified that no negative effect on the parts will occur prior to the administration.

2. Apply tape in such a manner that every individual wire is subjected to an equal amount of tensile force. Concentration of tensile force on a particular wire may cause a harmful effect such as inadvertent disengagement of terminal.

3. Care shall be taken not to deform the parts. Replace any damaged or deformed parts with new parts.



9. Wire harness assembly (Continued)

9.2 How to use an alignment gauge.

1. Confirm the right gauge is used for connector. (Refer to the gauge number in Table 1)

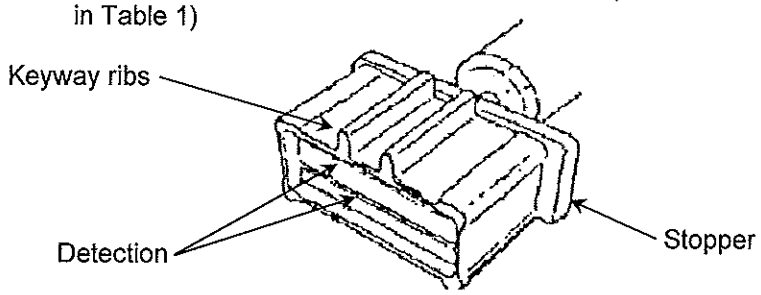


Fig. 1 Gauge feature names

2. Inspect visually that no abnormal terminal alignment exists before inserting the gauge.

3. Insert the gauge into connector hood.

4. Confirm the gauge is in the proper position. Bend the wire toward the lock side to wrench the terminal tips downward (See Fig. 2)

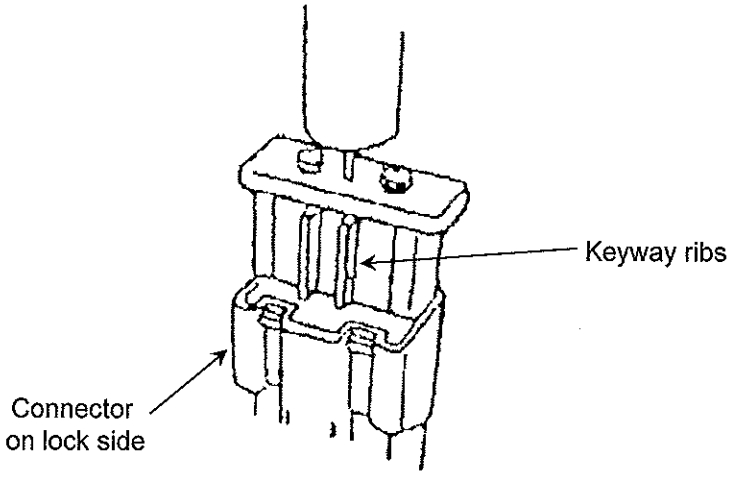


Fig. 2 Gauge insertion direction

9. Wire harness assembly (Continued)

9.2 How to use an alignment gauge (Continued)

5. Insert the gauge along the inside bottom surface of the hood. (See Fig. 3)

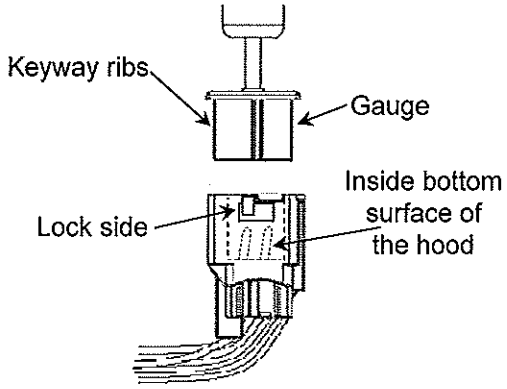


Fig. 3
Harness routing shield

6. Confirm the gauge can be fully inserted with a force equivalent to the weight of the gauge itself. (See Fig. 4)

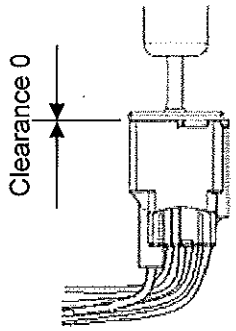


Fig. 4
Acceptable

7. Remove the gauge to re-inspect the terminal alignment.

9. Wire harness assembly (Continued)

9.2 How to use an alignment gauge (Continued)

8. Precautions:

A. Pull wires up and down to inspect terminal alignment.

B. For terminals which exhibit abnormal alignment, replace them with new terminals before inspection with the gauge.

C. To check the connectors for the block, do not touch the wires, and inspect it as is.

D. It is unnecessary to bend the wires for inspection.

E. If the terminal alignment is not acceptable, the gauge will interfere with the terminal and stop approx. 4mm from the end of the hood. In this case, do not push the gauge. (See Fig. 5)

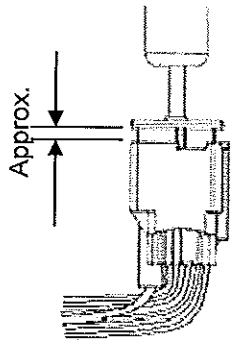


Fig. 5
Unacceptable

Table 1. Gauge No. and applicable part for gauge inspection.

No.	Part Name/Part Number		Gauge No.	Remarks
1	1.5 10PA	7282-5533-40	48ZZ4004	
2	1.5 16PA (Green)	7282-5534-60	48ZZ4006	Use the same gauge for
3	1.5 16PA (Blue)	7282-5535-90		

Note: If gauge for parts not listed above are needed, please contact our sales department.

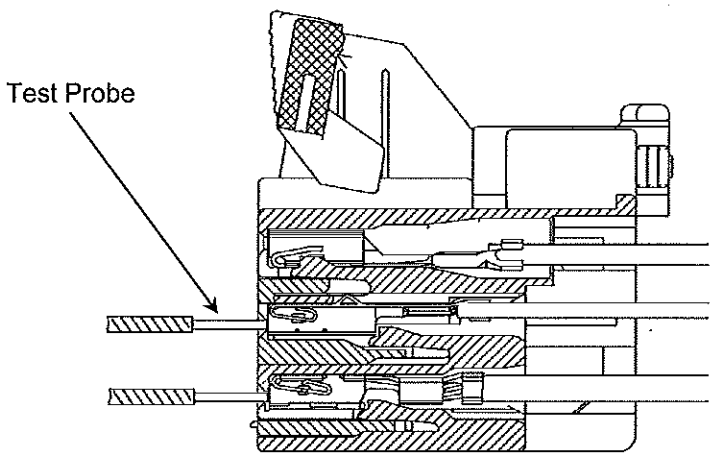
9. Wire Harness Assembly (Continued)

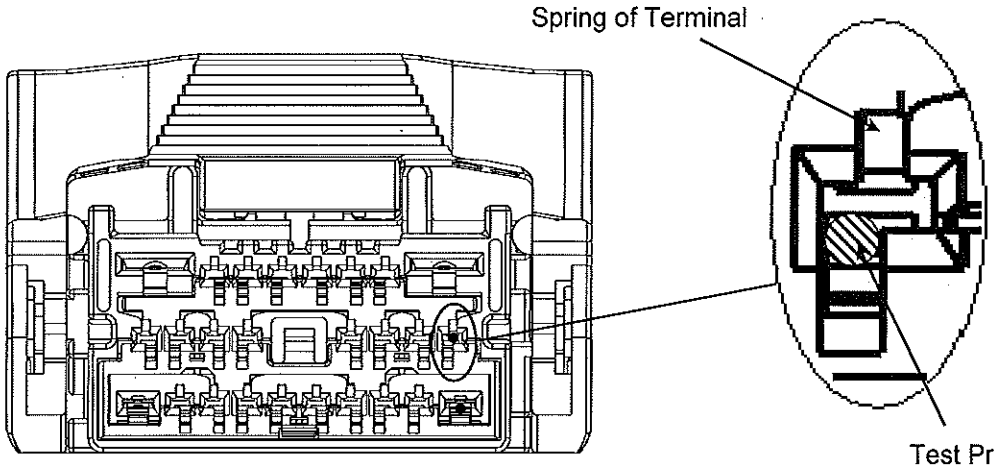
9.3 Precautions During Continuity Detection

1. Any tool used for wiring and continuity inspections shall have an accuracy equivalent to that of the mating connector not to deform the housing or terminals.

2. As shown in the illustration below, there is a space where a test probe can be inserted. The continuity inspection shall be conducted by inserting the probe in this space.

3. Care shall be taken not to deform the parts. Replace any damaged or deformed parts with new parts.



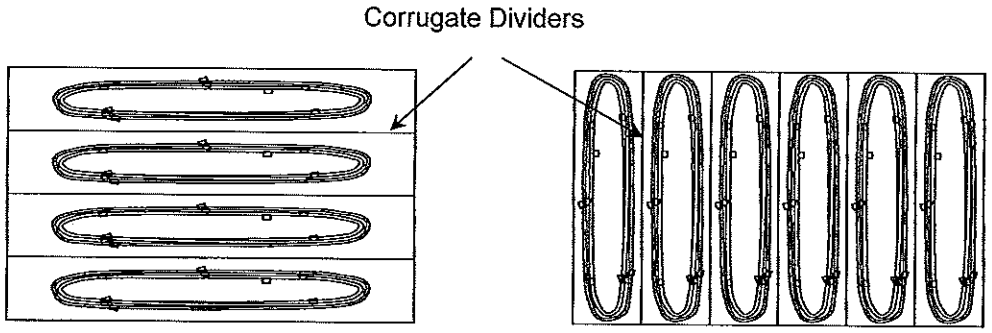


10. Wire Harness Packaging / Shipping

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.

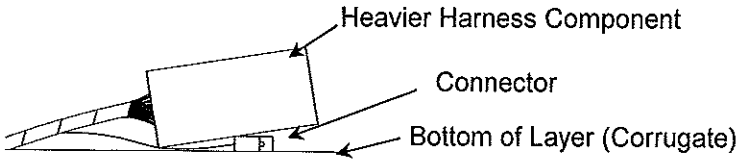


Horizontal Corrugate Dividers

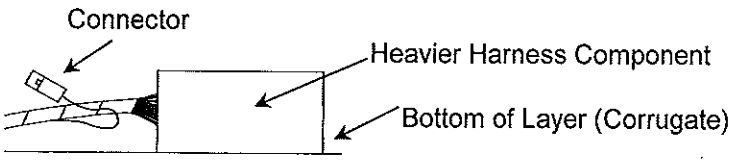
Vertical Corrugate Dividers

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.

Unacceptable Practice



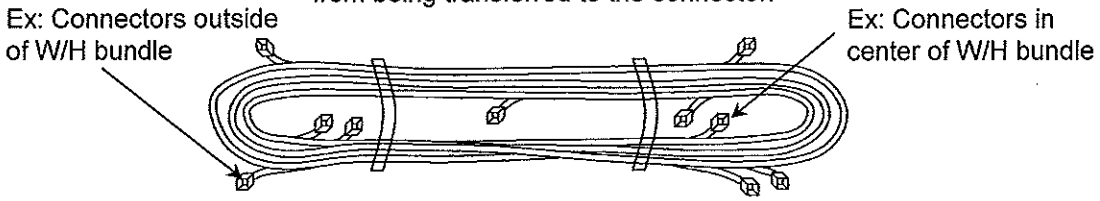
Acceptable Practice



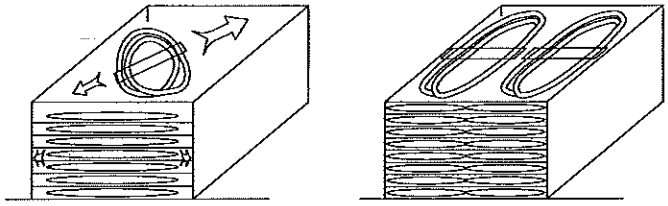
10. Wire Harness Packaging / Shipping (Continued)

10.1. Damage Prevention (Continued)

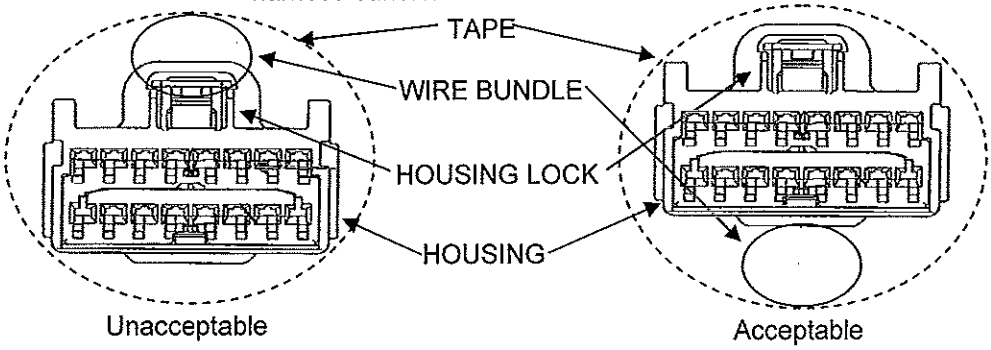
3. The connectors should be positioned to the outside or in the center of the W/H bundle to prevent the weight of the harness from being transferred to the connector.



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 members of the connector are positioned away from the wire harness bundle.



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

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

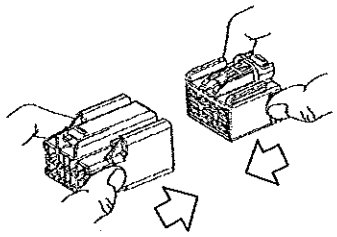
11. Connector Mating / Removal

11.1. Connector Mating

11.1.1. Standard Connection

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. Do not mate by pushing housing lock.

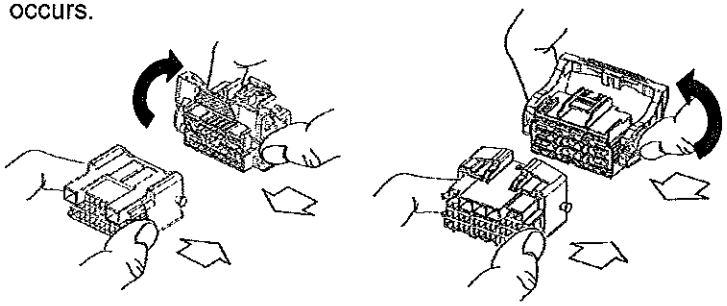
Audible/tactile confirmation of full connector-to-connector mating will occur.



11.1.2. Lever Assist Connection (High circuit count / high insertion force connections).

Upon confirmation that the proper connectors are being mated (e.g. proper keyway is confirmed), the connectors should be placed in the pre-set position. In this position, there is no continuity between the male and female terminal.

Activate/rotate the lever device in such a way that the connectors begin the mating process. The connectors should mate smoothly. Continue activating the lever until audible/tactile confirmation occurs.



11. Connector Mating / Removal (Continued)

11.1. Connector Mating (Continued)

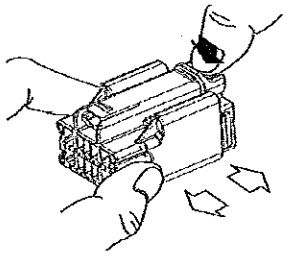
11.1.3. Connectors with Connector Position Assurance Device (CPA)

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

11.2. Connector Removal

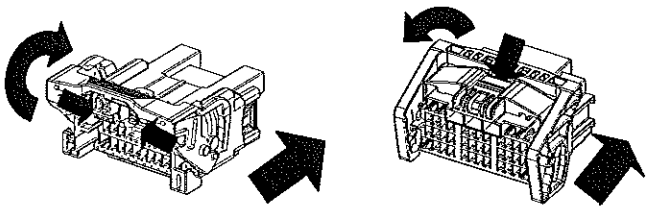
11.2.1. Standard Connection

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



11.2.2. Lever Assist Connection (High circuit count/high insertion force connections).

Connector disengagement can be facilitated by depressing the housing lock, and activating/rotating the lever device. Activation of the lever device will result in un-mating of connector halves.



11. Connector Mating / Removal (Continued)

11.2. Connector Removal (Continued)

11.2.3. General

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.