

NUMBER GS-20-0704	TYPE <b>Application Specification</b>	<b>Amphenol ICC</b>	
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## 1.0 OBJECTIVE

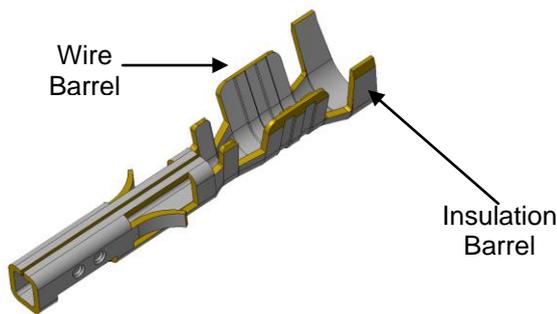
This specification provides information and requirements regarding customer application of Minitek PWR CEM5 12VHPWR wire to board connectors. This specification is intended to provide general guidance for application process development. It is recognized that no single application process will work under all customer scenarios and that customers will develop their own application processes to meet their needs. However, if these application processes differ greatly from the one recommended, AICC cannot guarantee results.

## 2.0 SCOPE

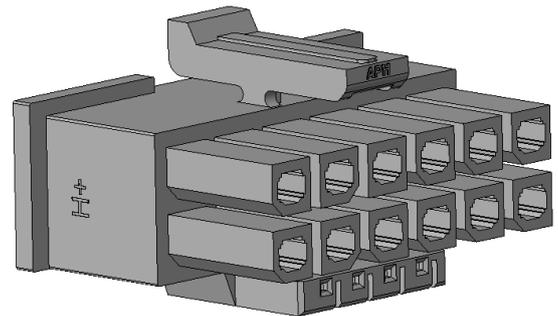
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## 3.0 GENERAL

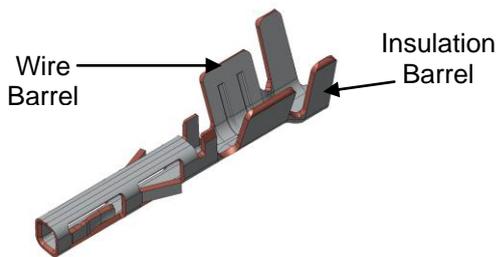
This document is meant to be an application guide. If there is a conflict between the product drawings and specifications, the drawings take precedence.



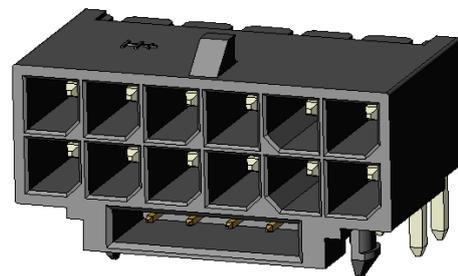
**Receptacle Terminal 10132447**



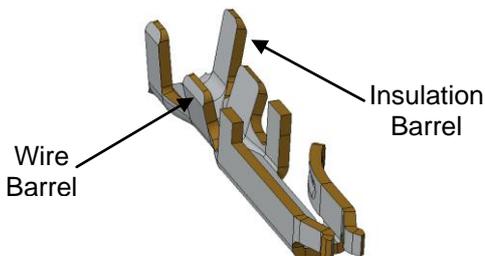
**CEM5 12VHPWR 12 Pos Receptacle Housing with Power & Signal - 10161719**



**Receptacle Terminal 10134160 Series**



**CEM5 12VHPWR 12 Pos Header with Power & Signal- 10160920**



**CEM5 12VHPWR Receptacle Signal Terminal 10161952**

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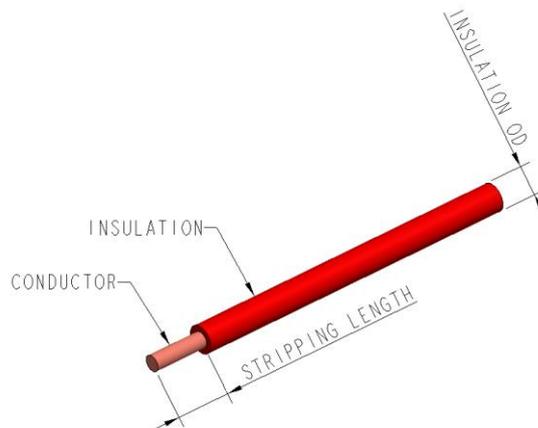
#### 4.0 DRAWINGS AND APPLICABLE DOCUMENTS.

- APCI PRODUCT SPECIFICATION GS-12-1706
- APCI PRODUCT DRAWINGS  
10160920 - CEM 5 12VHPWR Header with Power & Signal)  
10161719 - CEM 5 12VHPWR Receptacle Housing with Power & Signal  
10134160 - Receptacle crimp terminal  
10132447 - Receptacle HCC crimp terminal  
10161952 - CEM 5 12VHPWR Receptacle Signal Terminal

Product drawings and **AICC's GS-XX-XXX** Product Specification are available at [www.amphenol-icc.com](http://www.amphenol-icc.com) In the event of a conflict between this application specification and the drawing, the drawing will take precedence. Customers are advised to refer to the latest revision level of Amphenol FCI product drawings for appropriate details.

#### 5.0 APPLICATION REQUIREMENTS

The wires in (Table 1) are the wiring information for use with crimp terminals 10132447, 10161952 and 10134160.



**Figure-2**

**Table 1**

Crimp Terminal Part Number	Applicable Wire Gauge (AWG)	Insulation Outside Diameter (mm)	Strip Length (mm)
10132447-00XLF	16-20AWG	2.20 Max.	2.50 – 3.00
10134160-YX10LF	16-20AWG	2.20 Max.	2.50 – 3.00
10161952-Y210LF	28 AWG	1.27 Max	1.00 – 1.05

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## 6.0 APPLICATION TOOLING

There are some commercial crimping tools available for crimping terminals. Select the models listed in Table 2:

**Table 2: Crimping Tooling List**

### Crimping Applicator

Semi-Auto crimping machine	Fully-Auto Pneumatic Crimping Applicator	Fully-Auto Mechanical Crimping Applicator	Applicable Terminal P/N
<b>Press P/N</b>			
10157923-001			
<b>Applicator P/N</b>	<b>Applicator P/N</b>	<b>Applicator P/N</b>	
10159974-002	10159975-002	10159976-002	10132447-00XXLF
10159974-003	10159975-003	10159976-003	10134160-YX10LF
Under Development	Under Development	Under Development	10161952-Y210LF

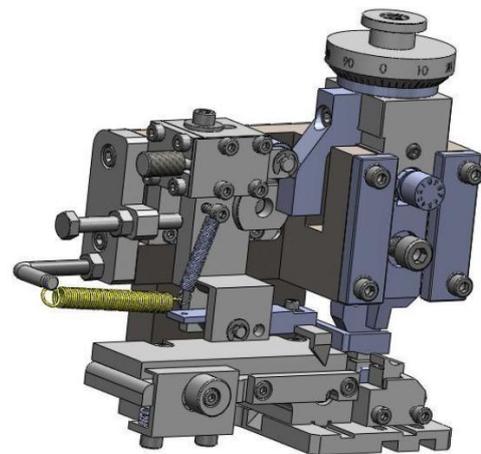
(\* ) Fully-Auto Pneumatic and mechanical applicators are suitable in Semi-auto Crimping machines.

### Hand crimping tool

Hand Crimping Tool P/N	Applicable Terminal P/N
10159387-002	10132447-00XXLF
10159387-003	10134160-YX10LF
Under Development	10161952-Y210LF

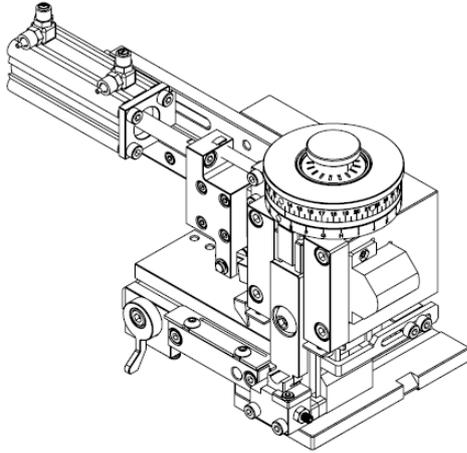


**10157923-001**

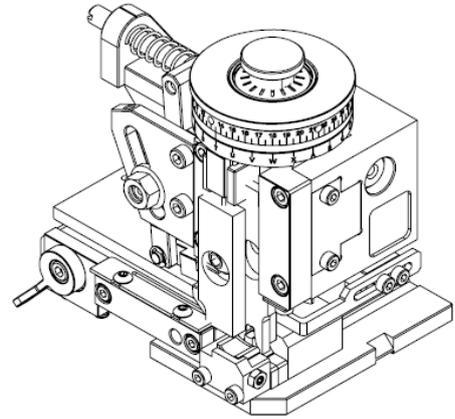


**10159974**

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**10159975**



**10159976**

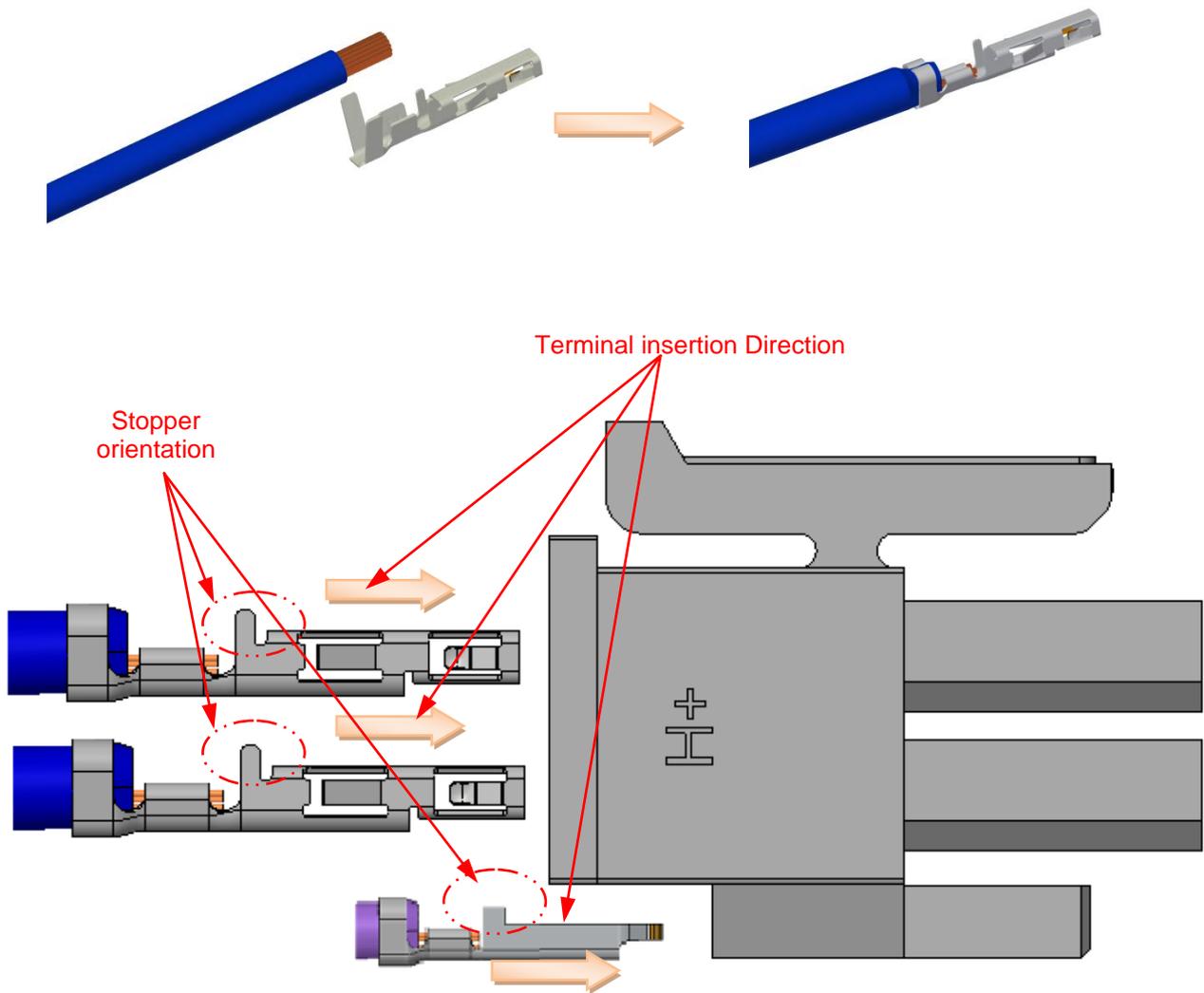


**10159387**

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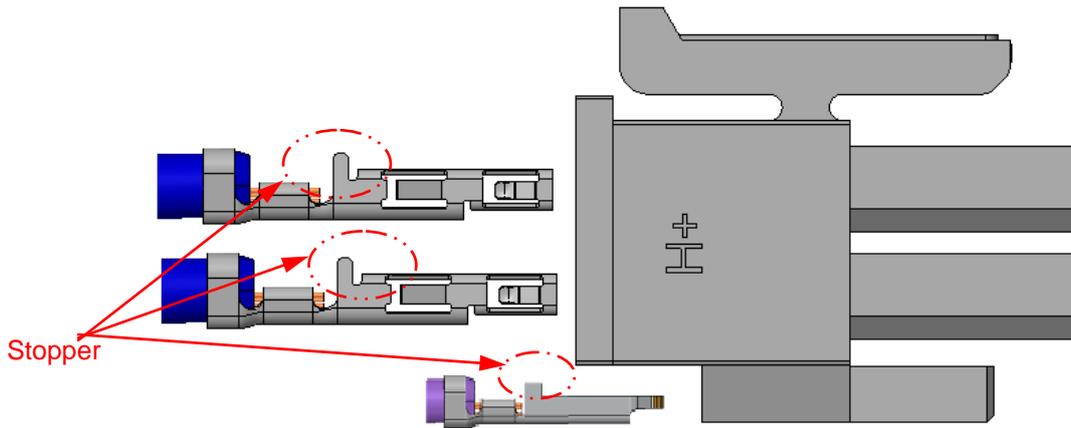
## 7.0 APPLICATION PROCEDURE

- 7.1 Strip the wire (Table 1) Crimp wire and inserting to housing. No insertion tool is required.  
(Same for 10132447-00XXLF, 10134160-YXXXLF, 10161952-Y210LF)

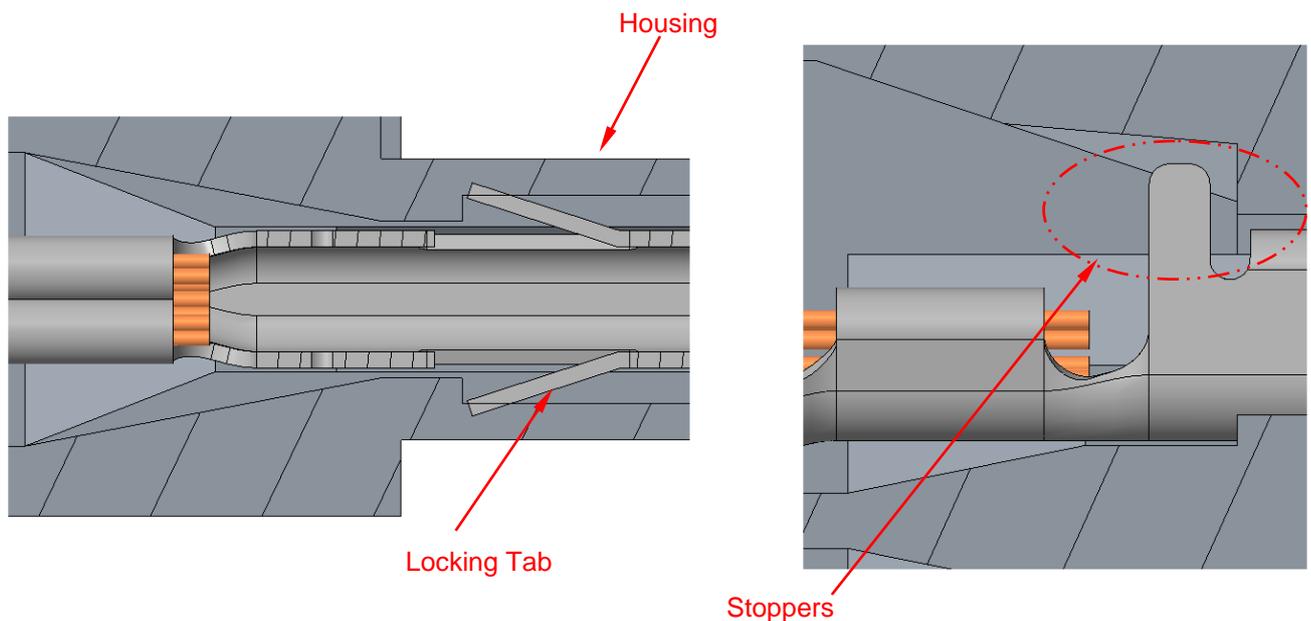


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7.2 Make sure the stoppers on the terminals are always upwards for both rows: towards the lock (latch) of Housing. (Same for 10132447-00XXLF, 10134160-YXXXLF & 10161952-Y210LF)

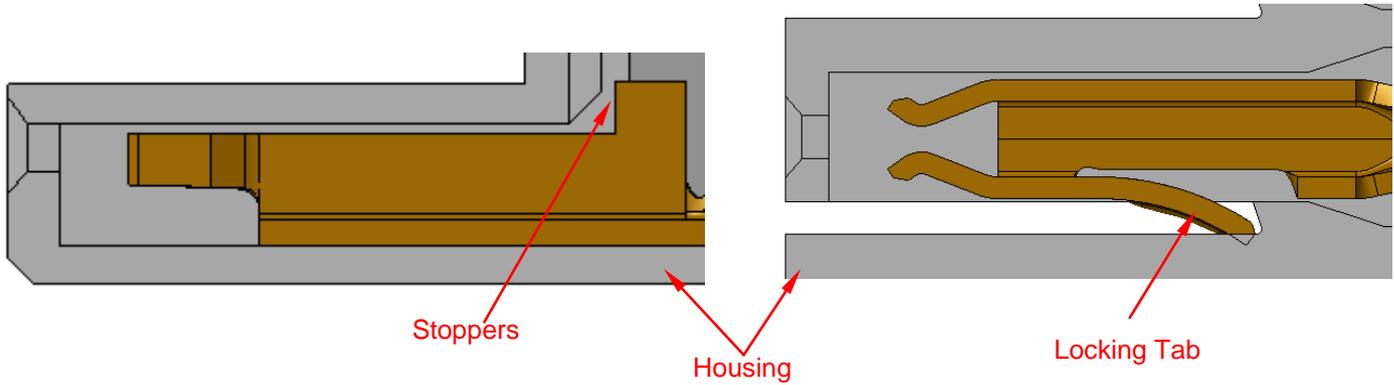


7.3 Insert the terminal into Housing until stopped by Housing. Then locking tabs will be engaged the retention shoulder and prevent back out during mating. Pull back the wire slightly and ensure the terminal is fully seated on the Housing.



**For Power Terminals**

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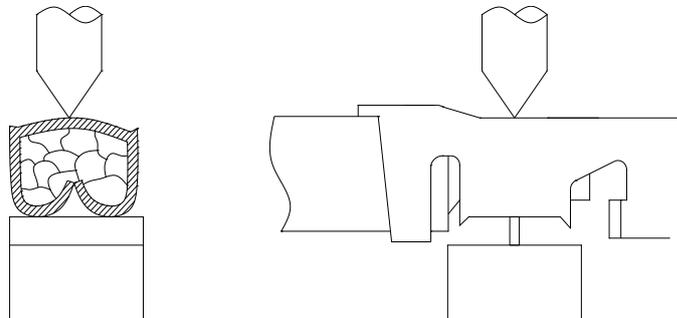


For Signal Terminals

## 8.0 POST- APPLICATION INSPECTION PROCEDURES

8.1 Crimp height and width measurement:

8.1.1 Use Crimp Height Type Micrometers to measure crimping height.



8.2 Required crimping dimensions, crimp height and width for different wire AWG are defined in Table 3, Table 4 and Table 5.

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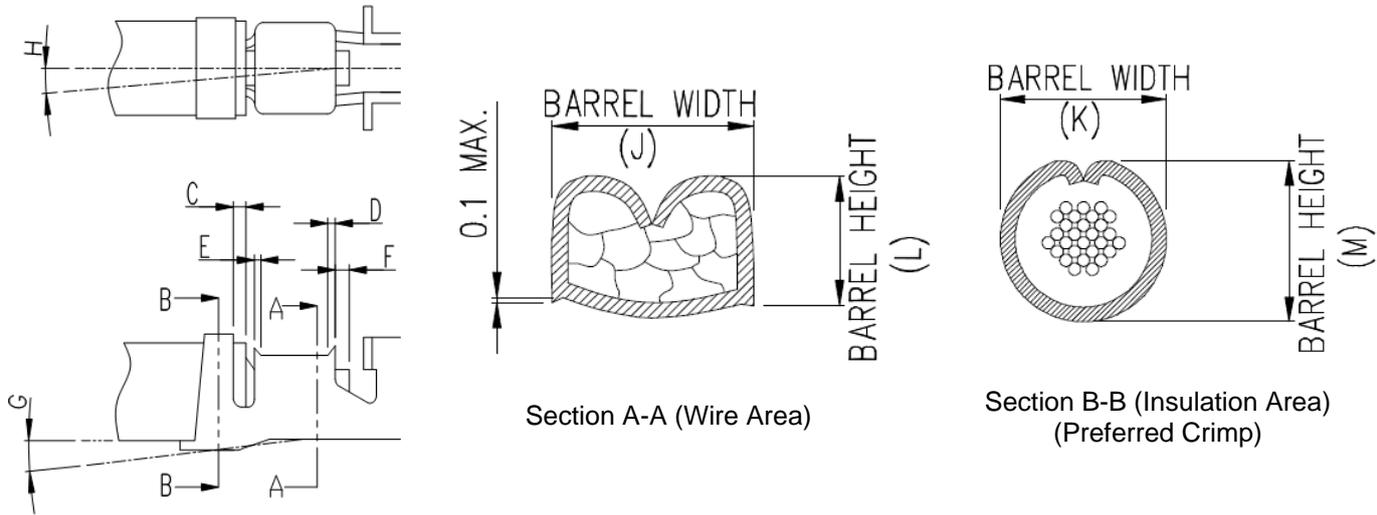


Table 3 (unit: mm)

Item		Requirement	Note
Insulation position	C	20% to 75% of Inspection window	Insulation and wire should be visual in this area
Front bell mouth	D	0.40 mm max.	
Rear bell mouth	E	0.40 mm max.	
Extruded wire length	F	0.90 Max.	
Bend up / down	G	±3° max.	
Bend right / left	H	±3° max.	

Table 4 (Unit: mm) For Hand crimping tool

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Series	Part Number	Tool Part Number	AWG Range	Conductor		Insulation	
				Crimp Height (mm)	Crimp Width (mm)	Crimp Height (mm)	Crimp Width (mm)
10132447	10132447-00XXLF	10159387-002	16	1.20 – 1.30	1.80 – 1.90	2.35 Ref	2.40 Ref
			18	1.05 – 1.15	1.80 – 1.90	2.35 Ref	2.10 Ref
			20	1.00 – 1.10	1.60 – 1.70	2.15 Ref	1.75 Ref
10134160	10134160-YX10LF	10159387-003	16	1.19 – 1.25	1.76 – 1.86	2.33 Ref	2.31 Ref
			18	1.03 – 1.09	1.74 – 1.84	2.44 Ref	2.15 Ref
			20	0.91 – 0.97	1.76 – 1.86	2.01 Ref	1.77 Ref
10161952	10161952-Y210LF	Under Development	28	Under Development	Under Development	Under Development	Under Development

\* When using hand crimping tool, insulation crimping height and width in this table are references only, because the range of wires, strands and insulation OD will affect the actual crimping height.

\*\* Pullout force should be performed to check the hand crimping tool.

**Table 5 (Unit: mm) For Semi-automatic Crimping machine**

Series	Part Number	Tool Part Number	AWG Range	Conductor		Insulation	
				Crimp Height (mm)	Crimp Width (mm)	Crimp Height (mm)	Crimp Width (mm)
10132447	10132447-00XXLF	10159974-002	16	1.13 – 1.19	1.95 – 2.05	2.60 Ref	2.40 Ref
		10159975-002	18	1.04 – 1.10	1.95 – 2.05	2.50 Ref	2.40 Ref
		10159976-002	20	0.93 – 0.99	1.95 – 2.05	2.45 Ref	2.40 Ref
10134160	10134160-YX10LF	10159974-003	16	1.19 – 1.25	1.76 – 1.86	2.33 Ref	2.30 Ref
		10159975-003	18	1.03 – 1.09	1.76 – 1.86	2.44 Ref	2.30 Ref
		10159976-003	20	0.91 – 0.97	1.76 – 1.86	2.01 Ref	2.30 Ref
10161952	10161952-Y210LF	Under Development	28	Under Development	Under Development	Under Development	Under Development

\* Will be update.

### 8.3 Pullout force measurement:

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- 8.3.1 After crimping, pullout force measurement should be applied to ensure the performance. Follow test procedure of GS-12-1706.
- 8.3.2 Apply an axial pullout force on the wire at a rate of  $25 \pm 6$  mm.
- 8.3.3 Pullout force should not be less than those listed in Table 5.

**Table 6 (unit: N)**

Wire AWG	AWG 16	AWG 28	AWG 30
Wire Pullout Force	68.8	8.9	6.6

8.4 Visual

8.5 Inspection:

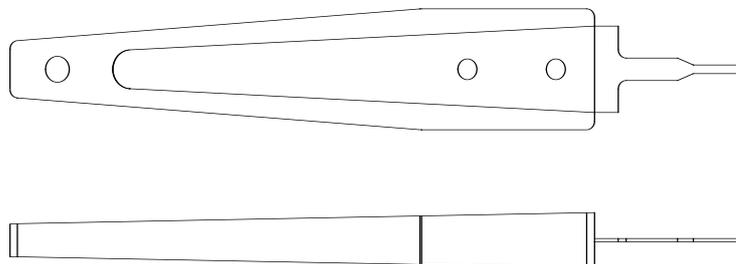
- 8.5.1 No damage, deformation on locking tabs, contact area or other portion of the terminals.
- 8.5.2 Insulation should not be crimped into wire barrel.
- 8.5.3 Wire should not be cut-off and insulation should not be broken after crimping process.

## 9.0 REPAIR TOOLING

The tool needed for extracting terminals from Housing is defined in Table 7:

**Table 7**

Tool P/N	Tool Description	Applicable Terminal P/N
FCI 10129274-030LF	Terminal extract tool	10127718 & 10127719 series 10132447 & 10132448 series 10134160 & 10161703 Series
Under Development		10161952

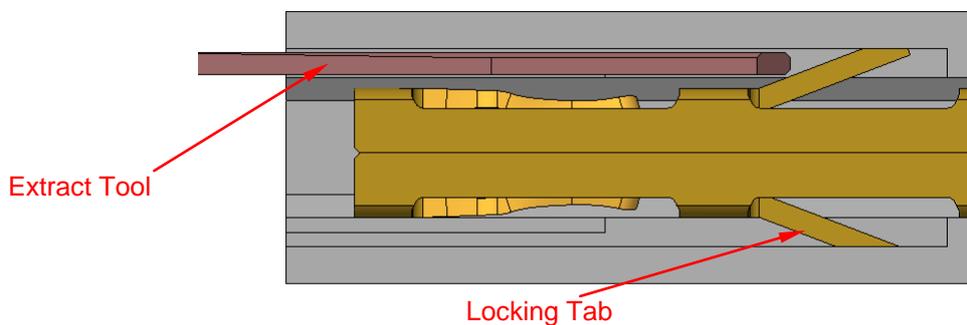
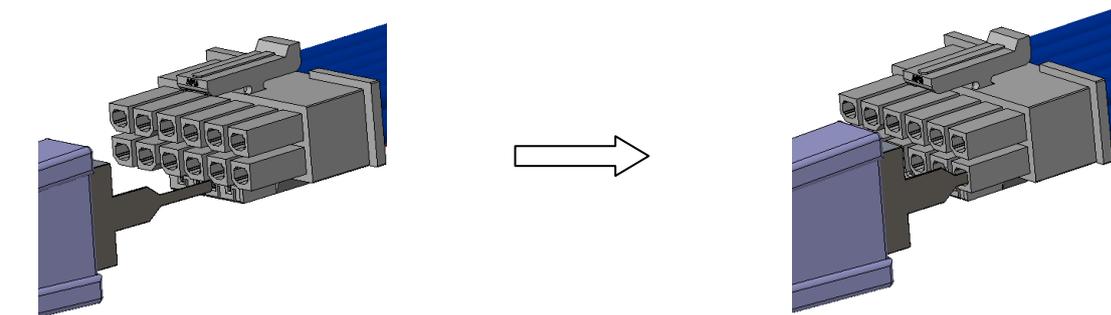


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## 10.0 REPAIR / REMOVAL PROCEDURE

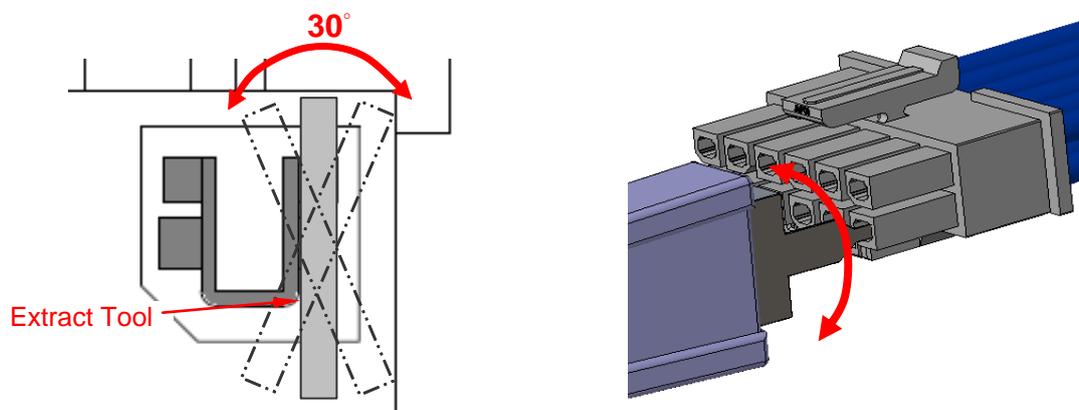
10.1 Use the extract tool 10129274-030LF to replace or repair individual terminal which is in the Housing.

10.1.1 Insert the extract tool on one side of the terminal until it stops.



10.1.2 Rotate the tool clockwise and then counter clockwise about 30 degrees in each direction.

10.1.3 Repeat above steps on the opposite side of terminal. Depress locking tab on the terminal and pull out terminal from housing.



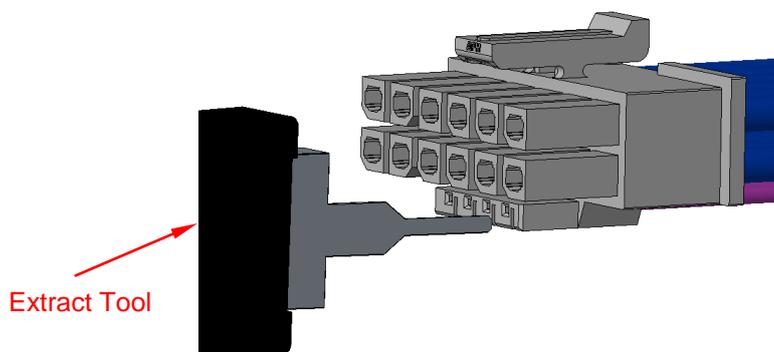
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10.2 The locking tabs, after extracted from housing, will be damaged and the terminal is not reusable.

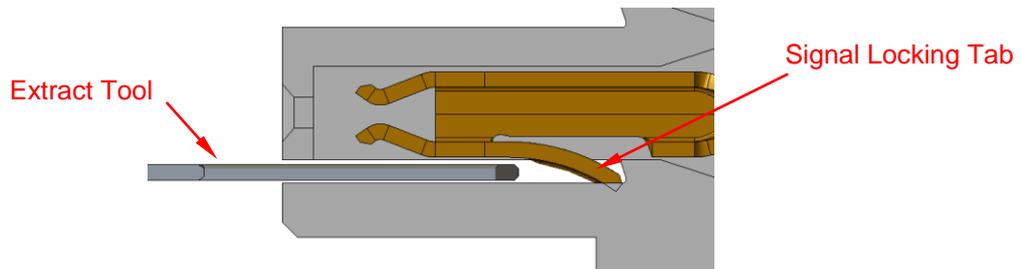
*(Extraction tool shown in below section are under development)*

10.3 Use the extract tool to replace or repair individual of signal terminal (10161952) which is in the Housing (10161719).

10.3.1 Insert the extract tool on slot in the signal side of the receptacle terminal until it stops.

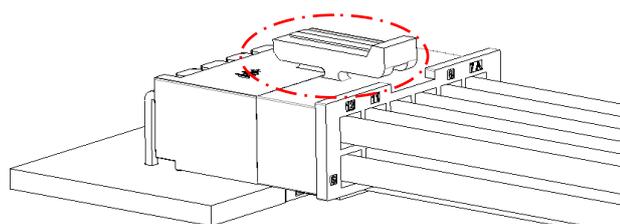


10.3.2 Depress locking tab on the terminal and pull out terminal from housing.



## 11.0 OTHERS

11.1 During connectors mating, make sure latch on the receptacle wire connectors is fully secured to the lock on plug wire connectors or board connectors.



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**RECORD RETENTION**

REV	PAGE	DESCRIPTION	EC#	DATE
A	All	New Release		2021/06/23