

32 Way Connector User Manual

Manual P/N: 8P1162 REV:G



Prepared By: Ernest Han
6/15/2022



Change History

Date	Revision	Content
9/16'2019	A	Initial Release
3/10'2020	B	Correct the SPQ of AC-CP000382 from 50000PCS to 15000PCS
11/5'2020	C	1. Add the contact HCTF120XX, HCTM120XX, HCTF216XX HCTM216XX in the manual 2. Add the chapter IV for receptacle and panel mating instruction.
2/4'2021	D	Add the max disassembly cycle for the front cover in slide 17 and 21
2/26'2021	E	Specific the terminal P/N and add the terminal HCTF21401&HCTM21401 in slide 6,7 and 29
9/7'2021	F	Revised the insertion procedure from slide 12 to 15
3/24'2022	G	Add the protective cap mating & unmating instruction in slide 29 and 30
6/15'2022	H	Change the applicable terminal P/N based on the new terminals



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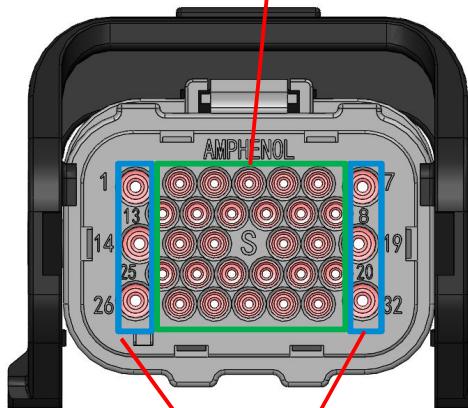


I-1 Connector Overview

Pin Assignment

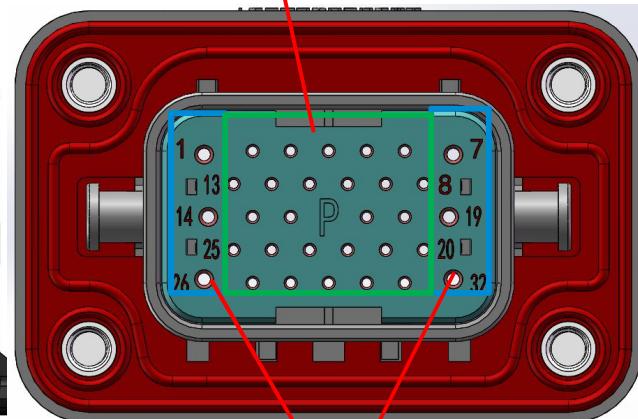
Pin 1	Power
Pin 2	Signal
Pin 3	Signal
Pin 4	Signal
Pin 5	Signal
Pin 6	Signal
Pin 7	Power
Pin 8	Signal
Pin 9	Signal
Pin 10	Signal
Pin 11	Signal
Pin 12	Signal
Pin 13	Signal
Pin 14	Power
Pin 15	Signal
Pin 16	Signal
Pin 17	Signal
Pin 18	Signal
Pin 19	Power
Pin 20	Signal
Pin 21	Signal
Pin 22	Signal
Pin 23	Signal
Pin 24	Signal
Pin 25	Signal
Pin 26	Power
Pin 27	Signal
Pin 28	Signal
Pin 29	Signal
Pin 30	Signal
Pin 31	Signal
Pin 32	Power

26 Signal Cavities



6 Power Cavities

26 Signal Pins



6 Power Pins

32 Way Plug Connector

32 Way Rec Connector



I-2 32 Way Rec & Plug Connector Family

View	Type	Key Option	Coding	Amphenol P/N
	Receptacle	A	Orange	HC08A-P32R
	Receptacle	B	Gray	HC08B-P32R
	Receptacle	C	Blue	HC08C-P32R
	Plug	A	Orange	HC18A-S32
	Plug	B	Gray	HC18B-S32
	Plug	C	Blue	HC18C-S32
	Plug	A	Orange	HC18A-S32-2
	Plug	B	Gray	HC18B-S32-S
	Plug	C	Blue	HC18C-S32-2



I-3 Associated Products

I-3-1 Terminal & Seal Plug

Plug	Terminal Type	Amphenol Terminal PN(Plating)	Wire gauge	Wire OD range	Seal Type	Amphenol Seal Plug PN
HC18A-S32 HC18B-S32 HC18C-S32 HC18A-S32-2 HC18B-S32-2 HC18C-S32-2	16#(power) 1.6mm	HCTF16161(G/F) HCTF16164(Tin)	16-18AWG	2.24-3.00mm	16#(power)	AC-CP000383
	20#(signal) 1.0mm	HCTF20101(G/F) HCTF20104(Tin)	20-22AWG	1.35-2.50mm	20#(signal)	AC-CP000382
Receptacle	Terminal Type	Amphenol Terminal PN(Plating)	Wire gauge	Wire OD range	Seal Type	Seal Plug N/A
HC08A-P32-R HC08B-P32-R HC08C-P32-R	16#(power) 1.6mm	HCTM16161(G/F) HCTM16164(Tin)	16-18AWG	2.24-3.00mm	16#(power)	AC-CP000383
	20#(signal) 1.0mm	HCTM20101(G/F) HCTM20104(Tin)	20-22AWG	1.35-2.50mm	20#(signal)	AC-CP000382

Note: The obsoleted terminal P/N is listed in slide 34

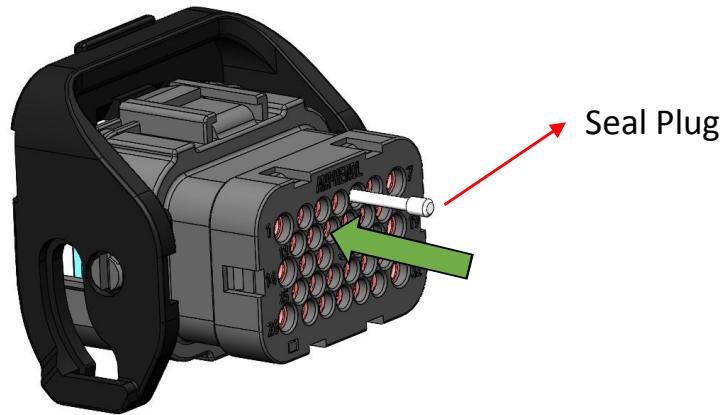


I-3-2 Rework Tools

View	Tool Name	Applicable Terminal type (Plating)	Tool P/N
	Disassembling tool of the 1.6 terminal	HCTF16161(G/F) HCTF16164(Tin) HCTM16161(G/F) HCTM16164(Tin)	TQXHC16
	Disassembling tool of the 1.0 terminal	HCTF20101(G/F) HCTF20104(Tin) HCTM20101(G/F) HCTM20104(Tin)	TQXHC20
	Seal protection tool of 1.6 terminal	HCTF16161(G/F) HCTF16164(Tin) HCTM16161(G/F) HCTM16164(Tin)	T00301
	Seal protection tool of 1.0 terminal	HCTF20101(G/F) HCTF20104(Tin) HCTM20101(G/F) HCTM20104(Tin)	T00302



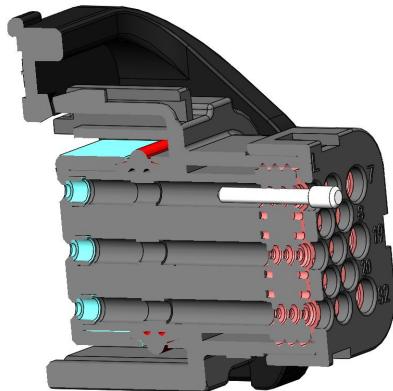
II-1 Insertion of Plug



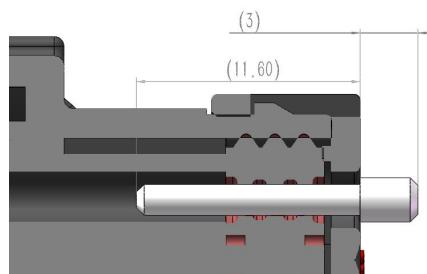
The seal plug is used to seal the pin hole which is reserved for future use.



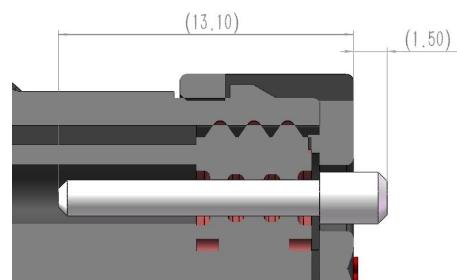
II-1-1 Insertion of 1.6mm Plug for Signal Cavities



Push the 1.6mm seal plug in the signal cavities to 11.6~13.1mm depth



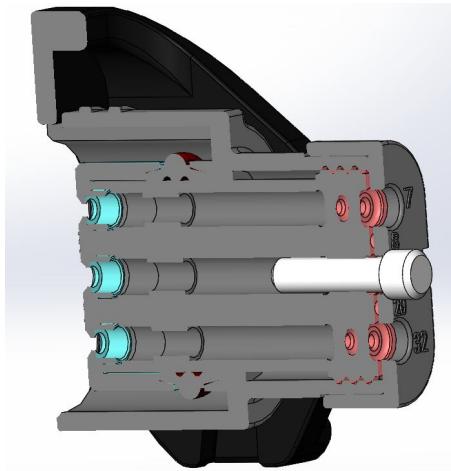
Min seal plug insertion depth



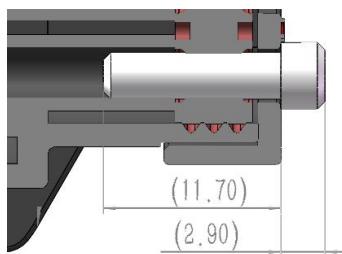
Max seal plug insertion depth



II-1-2 Insertion of 3.1mm Plug for Power Cavities



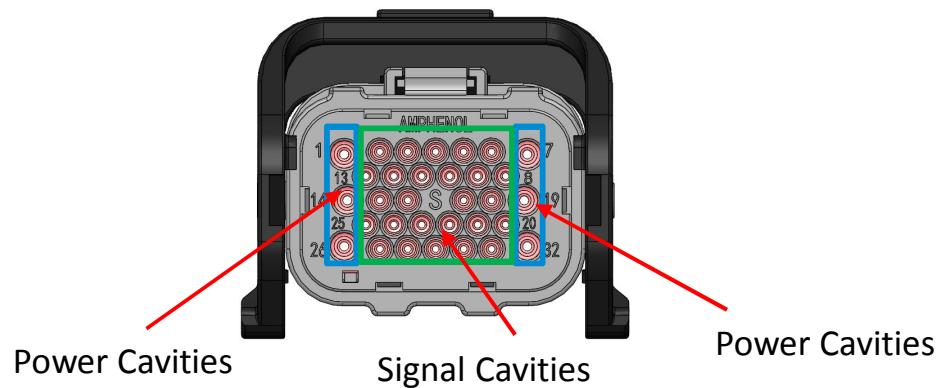
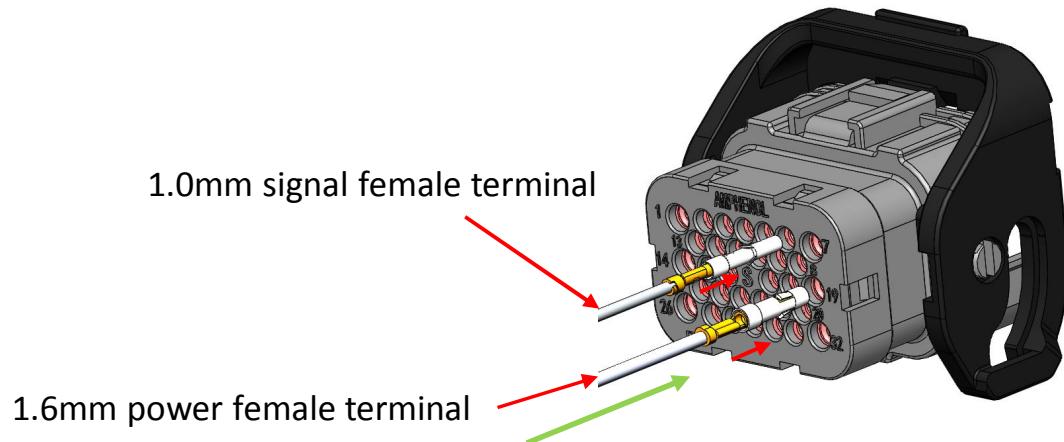
Push the 3.1mm seal plug in the power cavities until it hit the end cover of the connector. The insertion depth is about 11.7mm



Be careful, do not use the 1.6mm seal plug insert into the power cavities and do not use the 3.1 mm seal plug insert into the signal cavities.

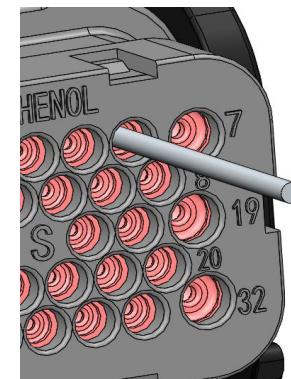
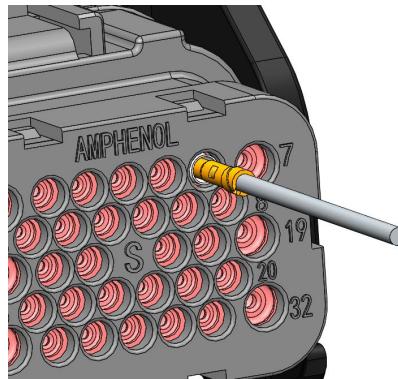


II-2 Insertion of Terminals





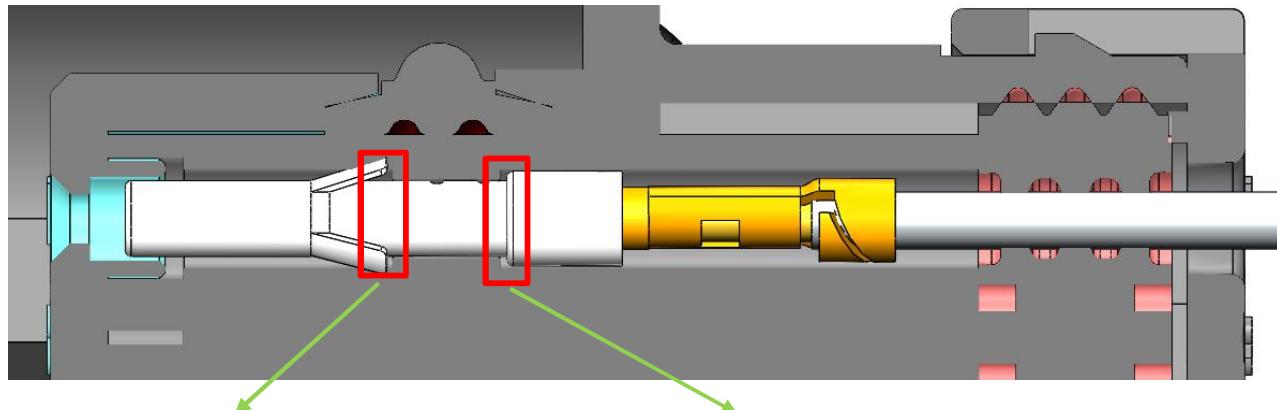
II-2-1 Insertion of 1.0mm Terminals for Signal Cavities



1. Hold the crimp area of the terminal. Operator must wear gloves or finger covers
2. Align the 1.0mm terminal with the signal cavities numbers 2-3-4-5-6-8-9-10-11-12-13-15-16-17-18-20-21-22-23-24-25-27-28-29-30-31
3. Pre-inert the terminal **slightly and vertically** through the seal plate hole in sequence defined in item 2. End the pre insertion when the wing end of terminal is flushed with the rear cap top surface.
4. Keep inserting the terminal to the final position. Terminal must slide easily and lock well with a "click"



II-2-1 Insertion of 1.0mm Terminals for Signal Cavities



The wing of the terminal to lock the contact with the housing

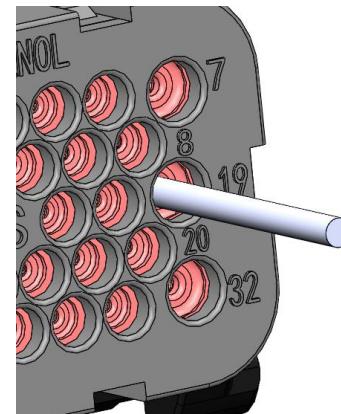
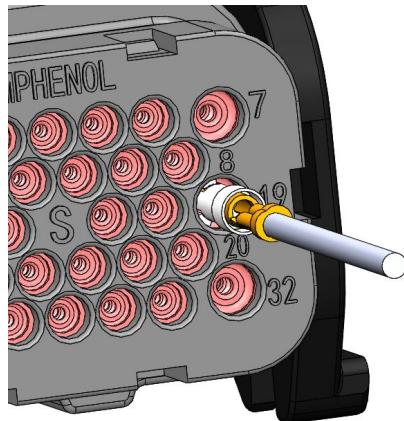
The step to prevent the terminal insert too deep

Note:

1. Do pull-back after terminal insertion to check the well inserted terminals
2. The signal terminal insertion must be done prior to the power terminal
3. If there is the empty cavity which is required the seal plug, the seal plug must be inserted after terminal insertion
4. If the terminal head is blocked by housing during insertion, swing the terminal slightly to adjust the insertion direction.



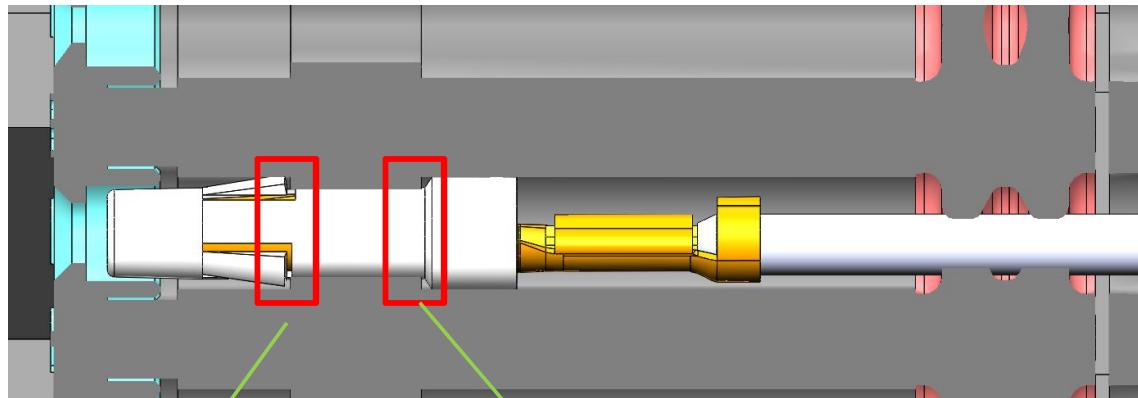
II-2-2 Insertion of 1.6mm Terminals for Power Cavities



1. Hold the crimp area of the terminal. Operator must wear gloves or finger covers
2. Align the 1.6mm terminal with the power cavities numbers 1- 14-26-7-19-32
3. Pre-inert the terminal **slightly and vertically** through the seal plate hole in sequence defined in item 2. End the pre insertion when the wing end of terminal is flushed with the rear cap top surface.
4. Keep inserting the terminal to the final position. Terminal must slide easily and lock well with a " click"



II-2-2 Insertion of 1.6mm Terminals for Power Cavities



The wing of the terminal to lock the contact with the housing

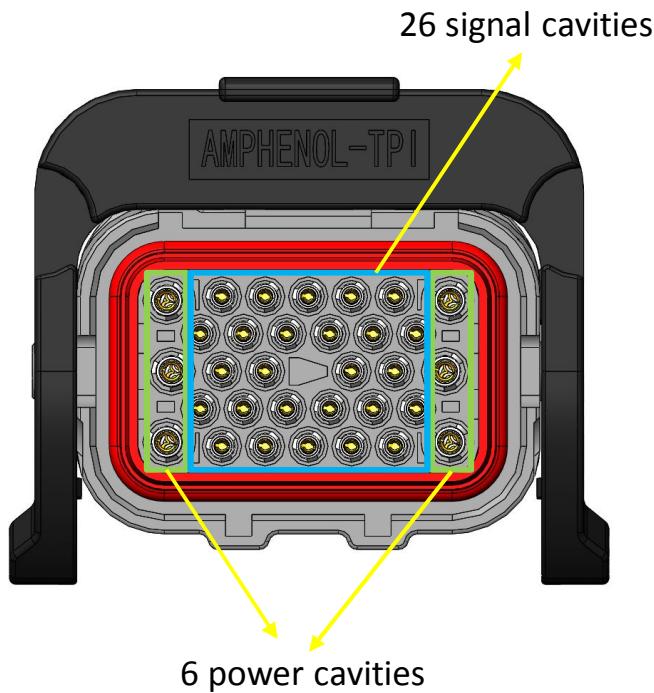
The step to prevent the terminal insert too deep

Note:

1. Do pull-back after terminal insertion to check the well inserted terminals
2. The signal terminal insertion must be done prior to the power terminal
3. If there is the empty cavity which is required the seal plug, the seal plug must be inserted after terminal insertion
4. If the terminal head is blocked by housing during insertion, swing the terminal slightly to adjust the insertion direction.



II-3 Rework



1.0 signal reworking tools



1.0 seal protection tools



1.6 power reworking tools



1.6 seal protection tools

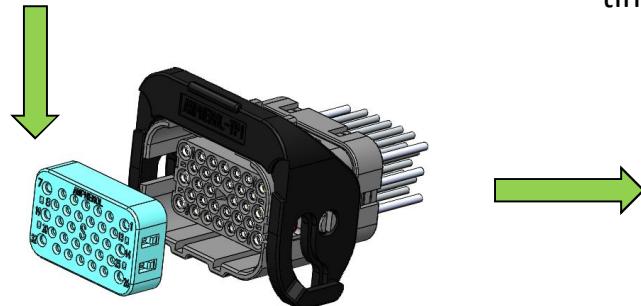
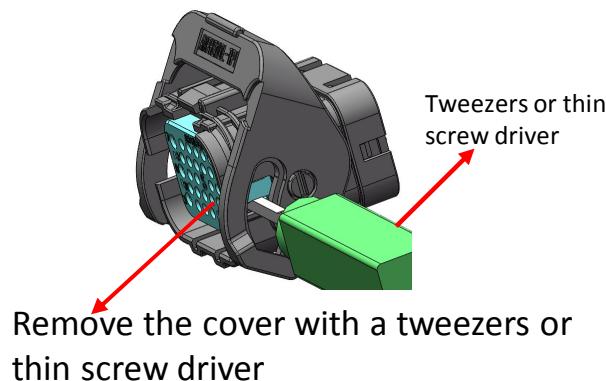


Note: The max rework cycles shall not exceed 5 times per terminal by the Amphenol tools. If the swing of the terminal is broken or deformed during the rework, a new terminal must be crimped for replacement



II-3-1 Replacement of 1.0mm terminal

1. Take out the front cover



Front cover remove process:

- 1.1 Rotate the rocker to a position where the clip is visible
- 1.2 Insert a tweezers or thin screw driver to the clip slot.
- 1.3 Pry the clip until the cover pop-out

Note:

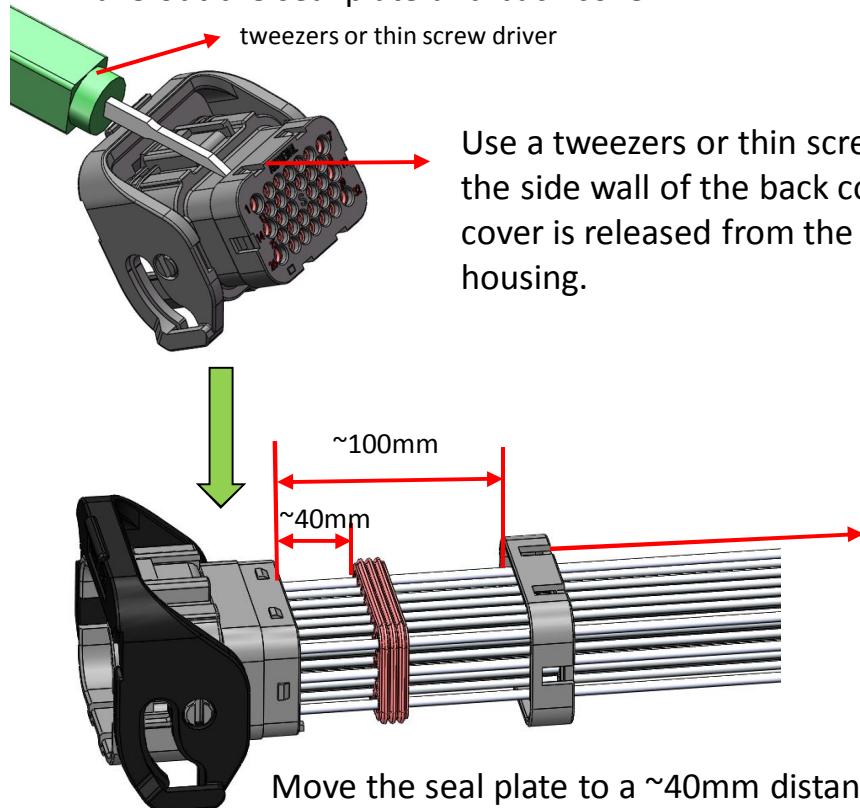
The max disassembly cycle for the green front cover should not exceed 5 times.





II-3-1 Replacement of 1.0mm terminal

2. Take out the seal plate and back cover



Use a tweezers or thin screw driver to pry the side wall of the back cover until the back cover is released from the 4 clips on the housing.

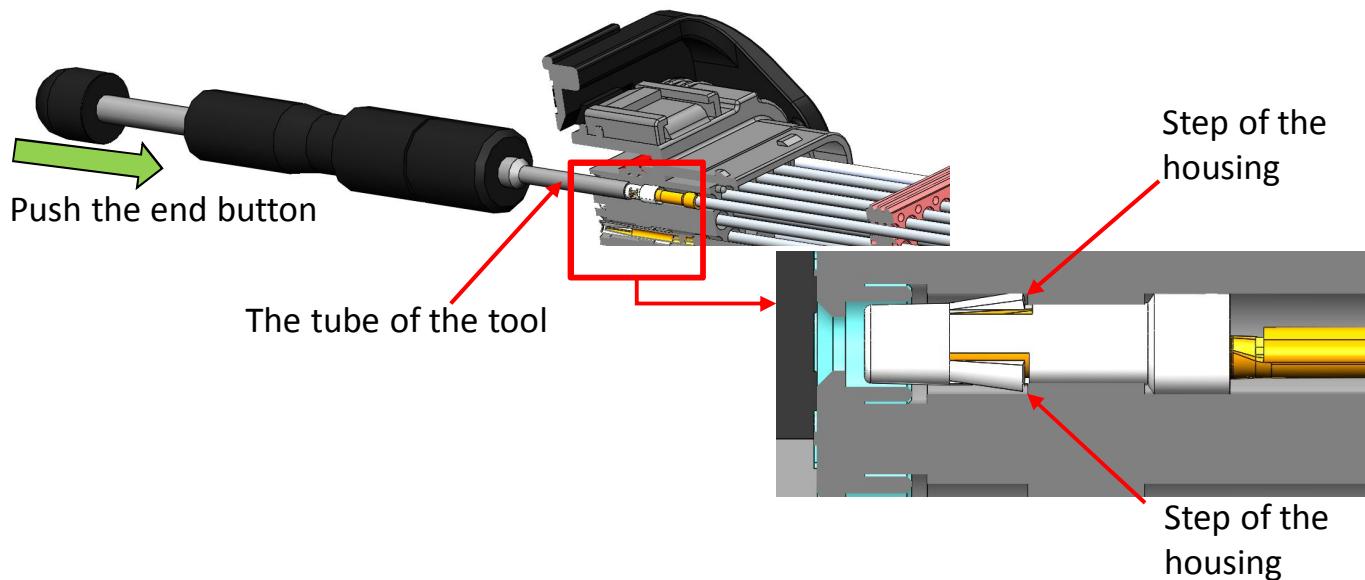
Move the seal plate to a $\sim 40\text{mm}$ distance from the connector and the back cover to a $\sim 100\text{mm}$ distance



II-3-1 Replacement of 1.0mm terminal

3. Withdrawn the terminals from housing

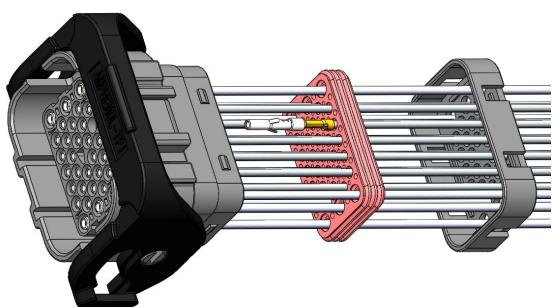
Insert the 1.0mm rework tool into the signal cavities from the front of the connector until the step of the housing. The tube of the tool will wrap the swing of the terminal when the tool arrives to the step of the housing. Then push the end button of the tool to withdrawn the terminal



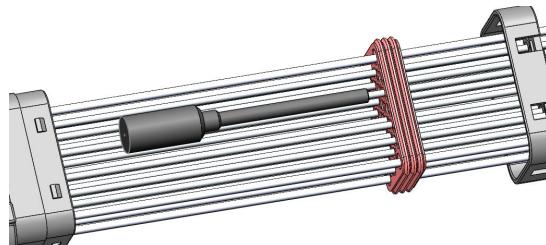


II-3-1 Replacement of 1.0mm terminal

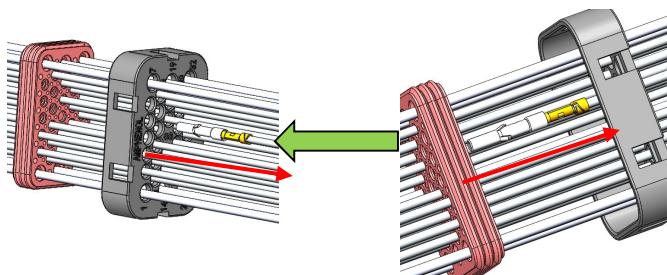
4. Withdrawn the terminals from seal plate



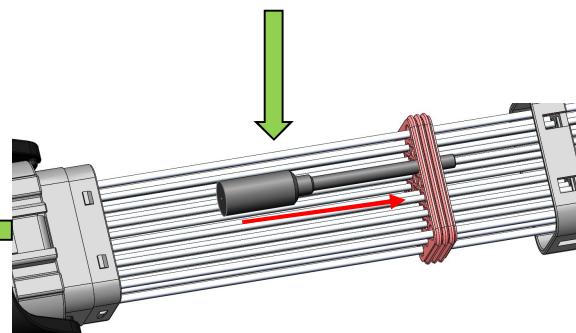
The terminals has to go through the seal plate after withdrawn from the housing



Use seal protection tool to hold the swing of the terminal



Finish the terminal withdrawal



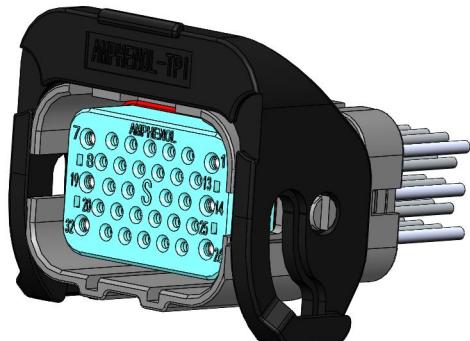
Go through the back cover without tool

The tool with terminal goes through the hole of the seal plate



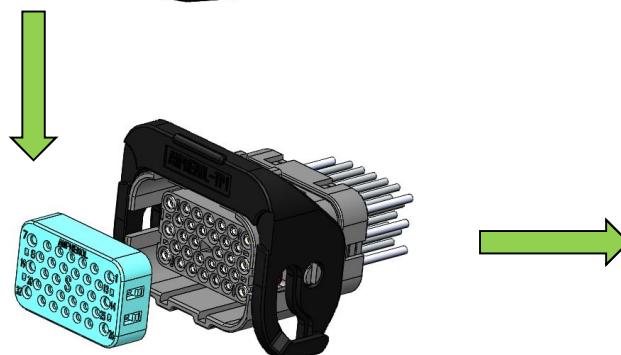
II-3-2 Replacement of 1.6mm terminal

1. Take out the front cover



Note:

The max disassembly cycle for the green front cover should not exceed 5 times.



Take out the green front cover

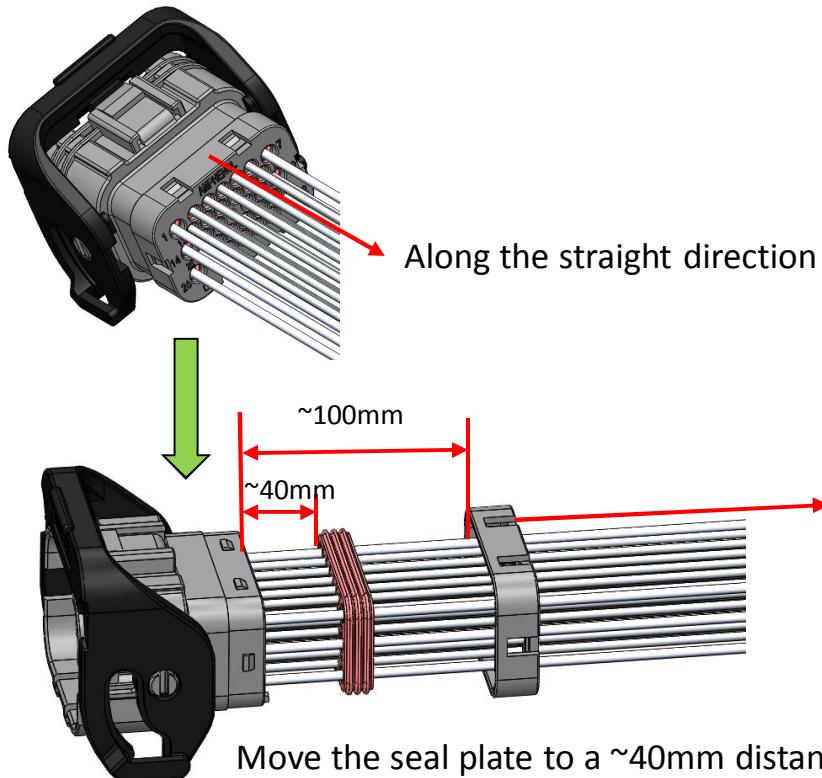


The connector without green front cover



II-3-2 Replacement of 1.6mm terminal

2. Take out the seal plate and back cover



Along the straight direction to open the cover

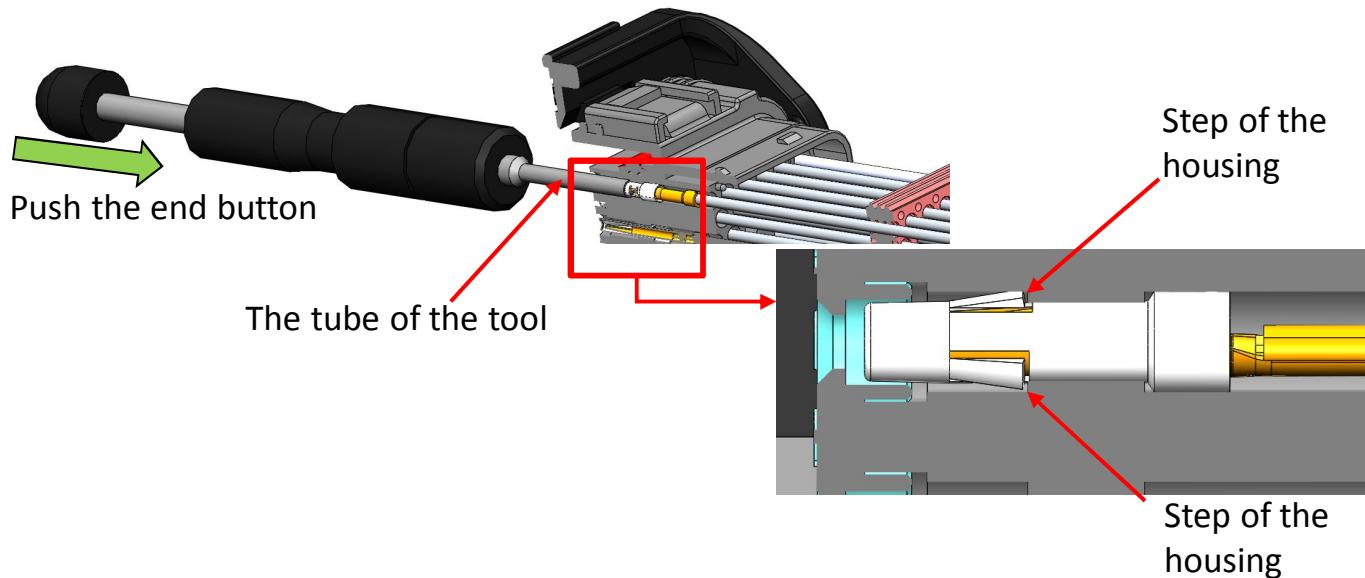
Move the seal plate to a ~40mm distance from the connector and the back cover to a ~100mm distance



II-3-2 Replacement of 1.6mm terminal

3. Withdrawn the terminals from housing

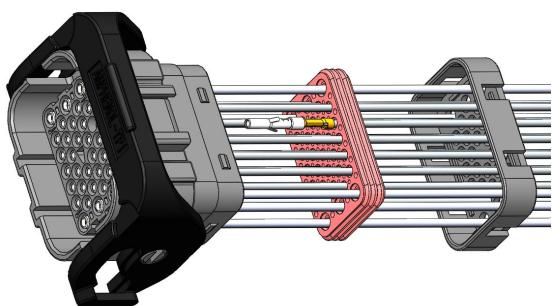
Insert the 1.6mm rework tool into the signal cavities from the front of the connector until the step of the housing. The tube of the tool will wrap the swing of the terminal when the tool arrive to the step of the housing. Then push the end button of the tool to withdrawn the terminal



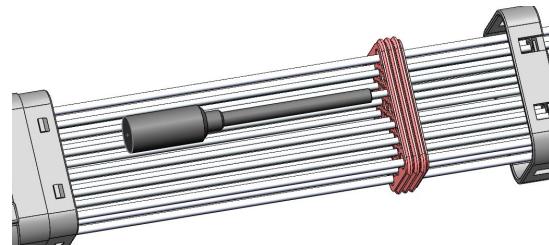


II-3-2 Replacement of 1.6mm terminal

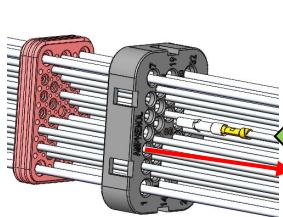
4. Withdrawn the terminals from seal plate



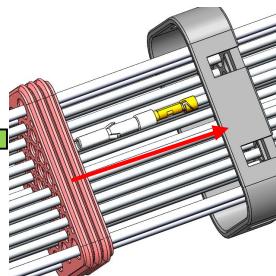
The terminals has to go through the seal plate after withdrawn from the housing



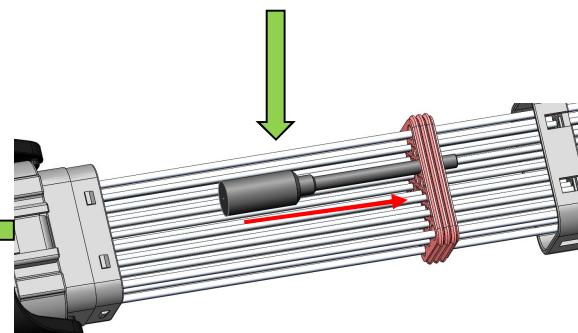
Use seal protection tool to hold the swing of the terminal



Finish the terminal withdrawal



Go through the back cover without tool

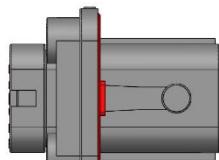


The tool with terminal goes through the hole of the seal plate

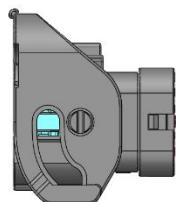


III Receptacle and Plug Mating&Unmating Instruction

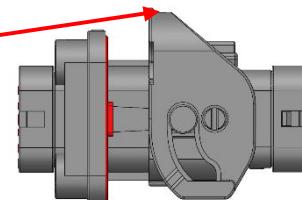
Mating Process Instruction



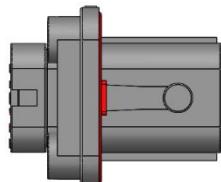
Align the receptacle and Plug



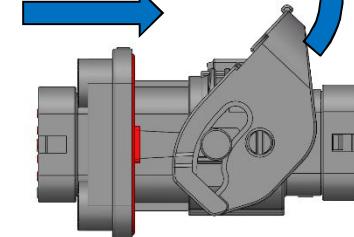
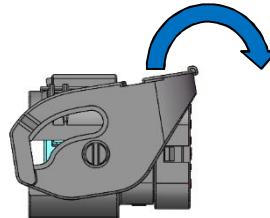
Final position
of the rocker



The rocker will be locked by the tab of the housing after reaching to the final position



Rotate the rocker clockwise

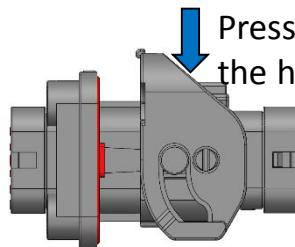


Insert the plug into the receptacle and rotate the rocker counterclockwise

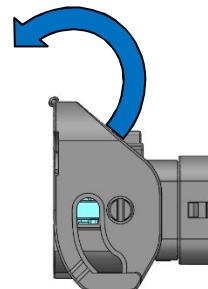
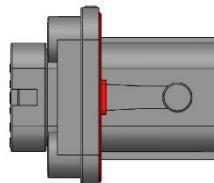


III Receptacle and Plug Mating&Unmating Instruction

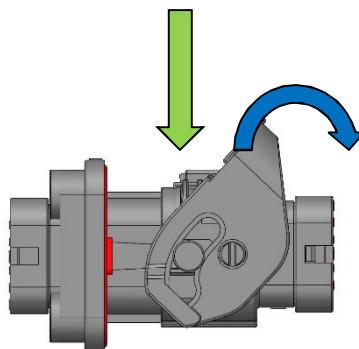
Unmating Process Instruction



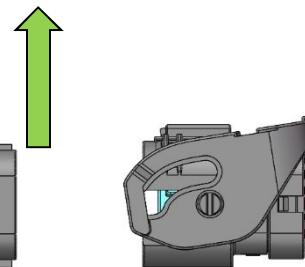
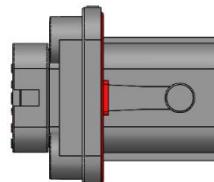
Press the tab of the housing



Press the tab to unlock the rocker



Rotate the rocker counterclockwise to the final position



Rotate the rocker clockwise

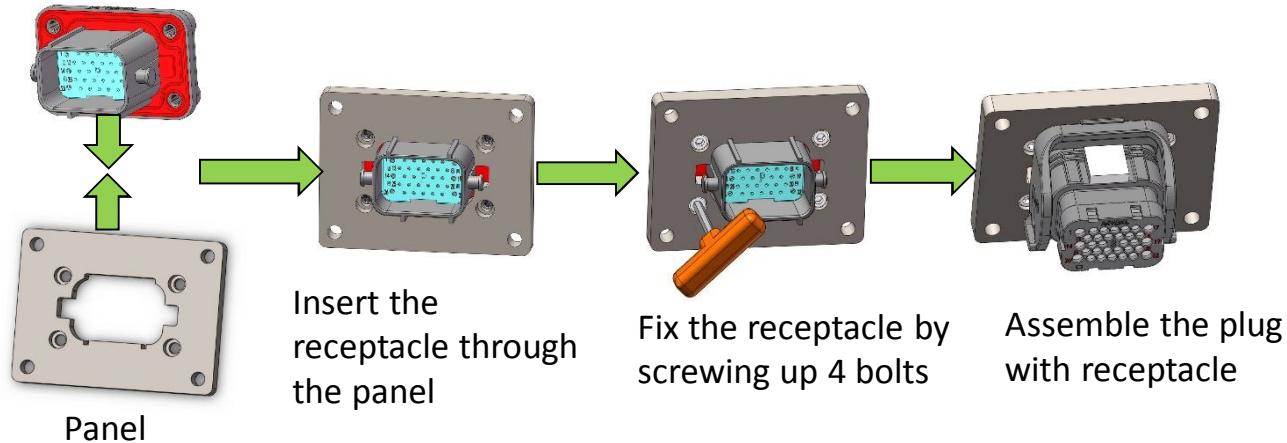
Separate the receptacle and plug

Note: The mating and unmating force on the rocker should be less than 75N. The recommended mating force is 25N max and unmating force 18.5N min per actual testing



IV Receptacle and Panel Mating Instruction

32Pin Receptacle



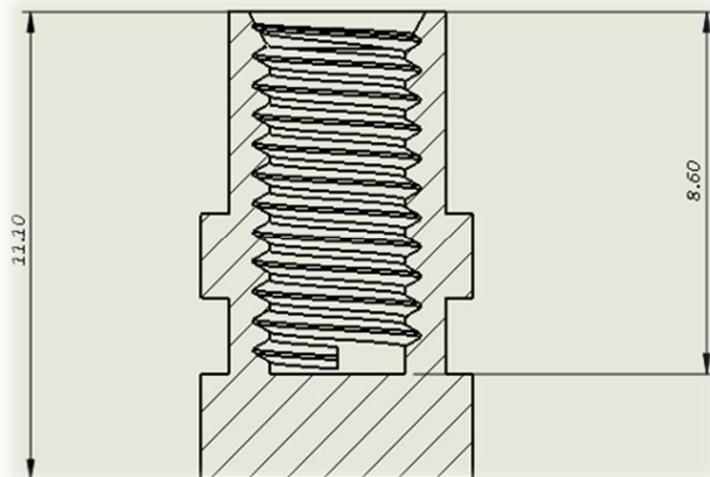
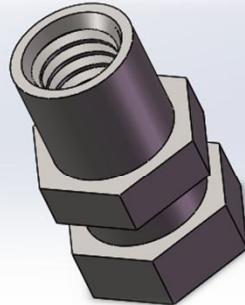
Note:

1. The panel thickness shall not exceed 6.5mm and the thickness from panel to the head of bolt shall not exceed 8mm
2. The panel coplanarity shall not exceed 0.15mm and the roughness of the panel shall not exceed Ra3.2
3. The inserted nut dimension is showed as blow drawing. Customer can select the proper bolt to tighten the connector.



IV Receptacle and Panel Mating Instruction

Inserted Nut of the Receptacle

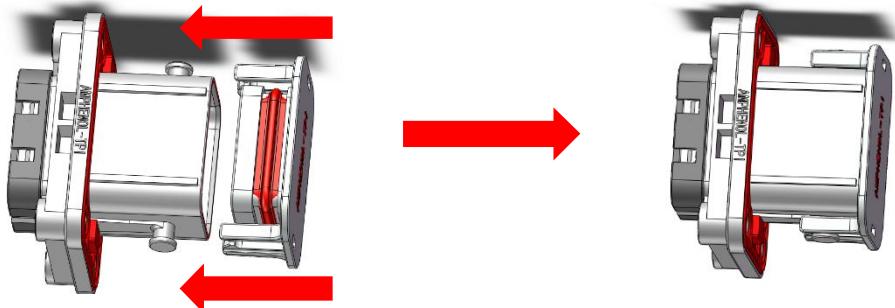


1. Inserted Nut Type: M4X0.7
2. Hole Depth: 8.6MM
3. Effective Thread Length: 7.0-8.0mm



V Protective Cap Mating & Unmating Instruction

Step 1: Protective Cap Mating



Correct Method of Mating: Hold the two sides of the cap by hand and press the cap parallel along the connector mating direction.

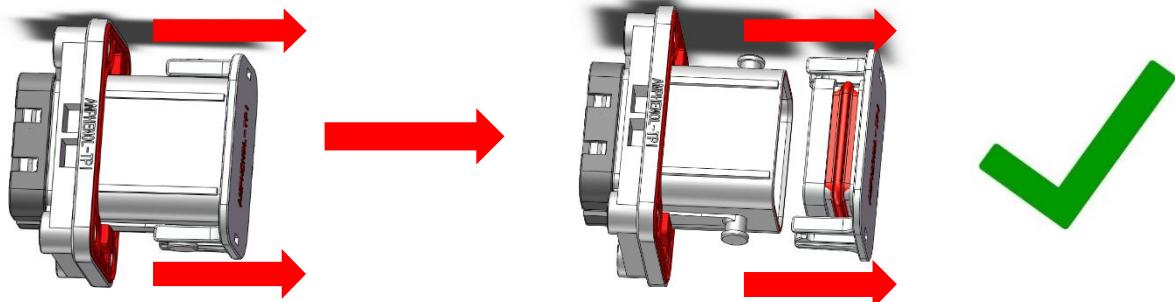


Wrong Method of Mating: Press one side of the cap and then rotate the cap until it is fully mated

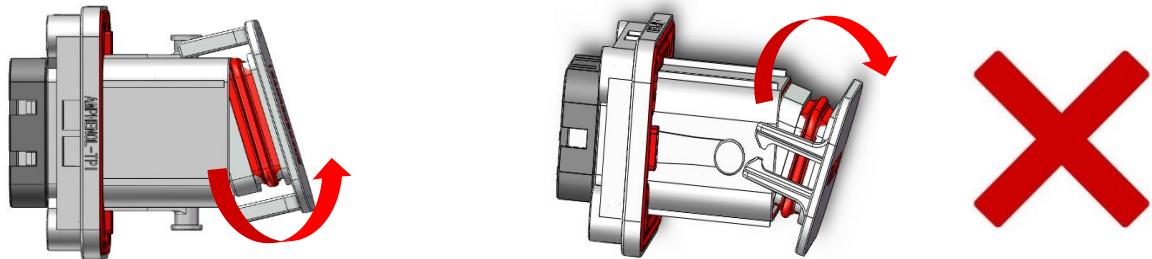


V Protective Cap Mating & Unmating Instruction

Step 2: Protective Cap Unmating



Correct Method of Unmating: Hold the two sides of the cap by hand and remove the cap parallel along the connector unmating direction.



Wrong Method of Unmating: Pull one side of the cap by hand and rotate the cap until it is fully removed.



VI Packaging & Storage

Amphenol P/N	Description	SPQ (PCS)	Packaging Type	Outer Box Dimension (Lx Wx H) mm	Total Weight (kg)
HC18A-S32	HC 32CKT Plug Straight Code A	150	Tray	395x345x290	7.1
HC18B-S32	HC 32CKT Plug Straight Code B	150	Tray	395x345x290	7.1
HC18C-S32	HC 32CKT Plug Straight Code C	150	Tray	395x345x290	7.1
HC18A-S32-2	HC 32CKT Plug Straight Code A	150	Tray	395x345x290	7.1
HC18B-S32-2	HC 32CKT Plug Straight Code B	150	Tray	395x345x290	7.1
HC18C-S32-2	HC 32CKT Plug Straight Code C	150	Tray	395x345x290	7.1
HC08A-P32R	HC 32CKT Receptacle Rear Code A	96	Tray	395x345x290	6.1
HC08B-P32R	HC 32CKT Receptacle Rear Code B	96	Tray	395x345x290	6.1
HC08C-P32R	HC 32CKT Receptacle Rear Code C	96	Tray	395x345x290	6.1
HCTF16161	HC Contact 16#SOCKET AWG16~18	15000	Tape& Reel	515x515x260	12.37
HCTF16164	HC Contact 16#SOCKET AWG16~18	15000	Tape& Reel	515x515x260	12.37
HCTF20101	HC Contact 20#Socket AWG20~22	15000	Tape& Reel	515x515x260	8.63
HCTF20104	HC Contact 20#Socket AWG20~22	15000	Tape& Reel	515x515x260	8.83
HCTM16161	HC Contact 16#Pin AWG16~18	15000	Tape& Reel	515x515x260	12.37
HCTM16164	HC Contact 16#Pin AWG16~18	15000	Tape& Reel	515x515x260	12.37
HCTM20101	HC Contact 20#Pin AWG20~22	15000	Tape& Reel	515x515x260	8.63
HCTM20104	HC Contact 20#Pin AWG20~22	15000	Tape& Reel	515x515x260	8.63
AC-CP000383	Seal Plug 16AWG	15000	PE Bag	200x260x200	3.1
AC-CP000382	Seal Plug 20AWG	15000	PE Bag	200x260x200	3.6

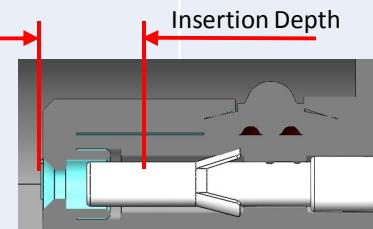
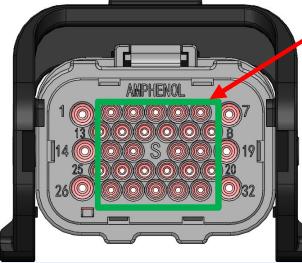
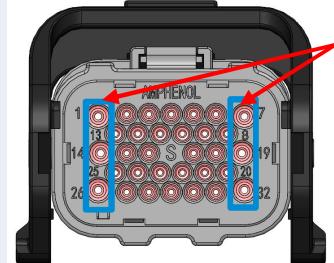


VI Packaging & Storage

Storage Condition	
Storage Time	12 Months Max
Storage Temperature	+5°C -- +30°C
Relative Humidity	40%--70%



VII Electrical Testing Probe Design Recommendation

Electrical Testing Probe Design Recommendation	
Test Probe for HCTF121XX size 20	Test Probe for contact HCTF215XX size 16
Insertion and Extraction Force: 0,5~2,5N	Insertion and Extraction Force: 1~4N
Test probe diameter: $\phi 1.0 +0/-0.04$, R0.5	Test probe diameter: $\phi 1.6 +0/-0.04$, R0.8
Insertion Depth: 4.1 min--7.0 max	Insertion Depth: 4.3 min--7.5 max
	
	
For 1.0 test probe	For 1.6 test probe

Note: A rigid copper alloy test probe is recommended and pogo pin is not accepted



Appendix

Obsoleted Terminal P/N List

Terminal P/N	Type	Description
HCTM21601	Pin	16#Pin 16~18AWG,Gold flash plate overall
HCTM12001	Pin	20#Pin 20~22AWG,Gold flash plate overall
HCTF21601	Socket	16#Socket 16~18AWG,Gold flash plate overall
HCTF12001	Socket	20#Socket 20~22AWG,Gold flash plate overall
HCTM21504	Pin	16#Pin 16~18AWG,Tin over nickel
HCTM12104	Pin	20#Pin 20~22AWG,Tin over nickel
HCTF21504	Socket	16#Socket 16~18AWG,Tin over nickel
HCTF12104	Socket	20#Socket 20~22AWG,Tin over nickel

The terminal P/N in the above table is obsoleted from Oct 1, 2022