

General:

This Note describes assembly method and tips for proper use of CJP series Press fit Coax Jumper Cable.



Straight Type



Right Angle Type

Picture1 Press fit Coax Jumper Cable

(1) PC board design guide line (Plated through Hole size)

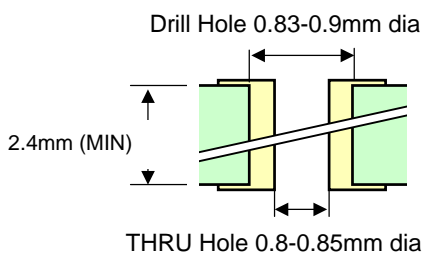
Press fit Coax Jumper Cable makes Electrical/Mechanical Connection by compliant pins that press fit to PCB plated through holes.

Plated through hole size 0.80-0.85 mm dia. (for Press fit)
Retention force (/ coax) 30N Min. (PC board Thickness > 2.4 mm)

Press fit method requires no soldering but simply pushing the pin into PC Board through hole. Press fit pin employs "compliant contact" which is widely used in connector industry such as Hard Metric connectors (Used in Compact PCI and telecommunication field).

Press fit method used for coax jumper is greatly beneficial when very thick PC Board such as 3.2mm (0.128") or more is used. For these thick boards, manual soldering is difficult due to thermal capacity of the PC Board especially for the through Hole connecting to GND plane. As it absorb much heat from soldering iron tip. Even more difficult is removing the cable once soldered to the PC board.

Press fit method on the other hand is free from PC board thermal capacity issue. Also it is possible to remove Press fit Coax Jumper Cable by pulling mold and pins out of through hole and replace with new one.



Unit:mm	Through Hole Size		
Board Thickness	0.8 dia	0.9 dia	1.0 dia
< 2.4	Soldering	Soldering	Soldering
> 2.4	Press Fit	Soldering	Soldering

Fig.-1 Through Hole size for Press fit and board thickness

The press fit pin can be press fitted to PC Board with minimum thickness of 2.4 mm. Each press fit pin has two press fit zones with 2 mm distance. This setup achieves lower insertion force while providing high retention force.

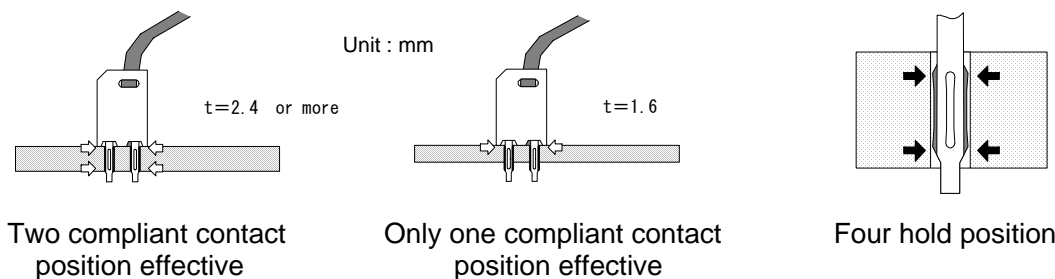


Fig.-2 Two Compliant contact position design

PC Board thickness less than 2.4 mm

Coax Jumper cable should be soldered to PC Board if the thickness is less than 2.4 mm. In this case, it is recommended to use 0.9mm through hole size so that Coax Jumper Cable does not come out from through hole easily. This setup is convenient for flow soldering method.

If the through hole size is 1.0mm or larger, it has to be soldered manually. Here are few important tips to remember.

- Solder Signal side with minimum amount of solder and do not solder shield to GND.
- Check connections after all the wiring are completed.
- Solder shield to GND and signal side to finish soldering.

For some reason, soldering to 0.8mm through hole is required, squash compliant pin with needle nosed pliers prior to the soldering. This will allow pins to be de-soldered and removed from PC Board

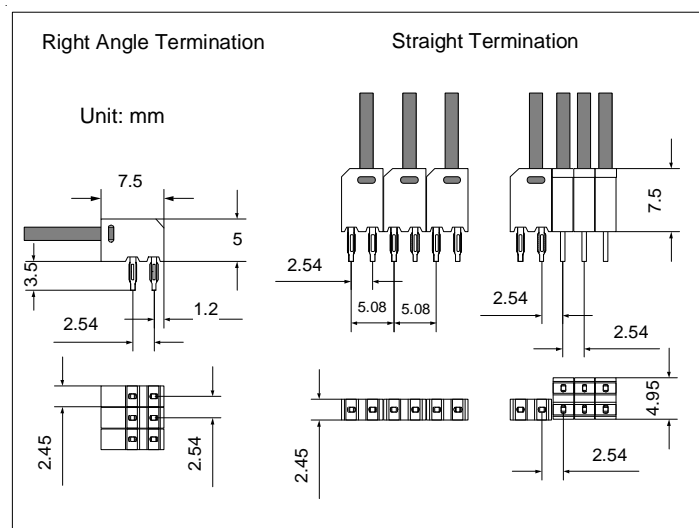
Removing press fit pin

Press fit pin can be removed with minimum damage to the through hole by pushing the pin end from PC board rear side. If the PC board thickness is 3 mm, pin end sticks out 0.5 mm long to rear side. By pushing back the pin using press fit tool for angle type coax jumper (see Fig.-6), will push out press fit pin 0.5 mm from through hole. This is sufficient to push out one compliant contact position from the through hole. Retention force of the pin become half and makes it possible to remove press fit pin with needle nosed pliers. The pin should be pulled at right angle to the PC Board. Never sway the pins while pulling, in order to avoid damages to the through hole.

Guideline for press fit pin removal

To achieve reliable use of the press fit coaxial connection, it is recommended to limit maximum reconnection to two times. Check damages to the through hole every time the pins are removed before replacing with new one. If there is any doubt, always play safe and solder the pin.

(2) Coax Jumper cable outline and PC Board Layout



Coax Jumper can be placed in 2.54 mm (0.1") mesh in vertical or horizontal position.

Fig.-3 Coax Jumper PC Board layout

(3) Coax Jumper Press fit Tool

Insertion force of press fit jumper pin into through hole is about 100N. This is not type of force one can maintain for more than few times if it is done by pure arm force. This work can be done easily by using press fit tool designed for the task. The press fit tool has built in slide hammer and replaceable press heads.

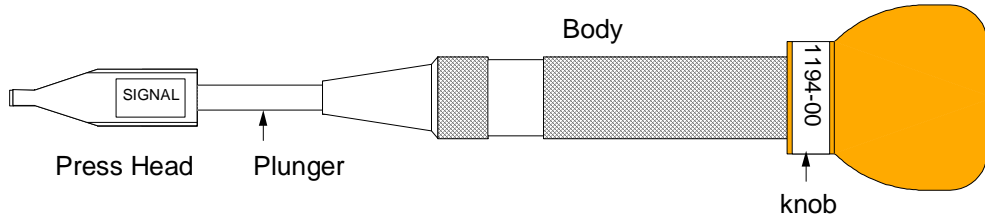


Fig.-4 Press fit Tool

There is a spring inside of tool body. The spring compresses by pushing the tool body for some depth until internal lock mechanism releases slide hammer movement. The slide hammer pushed by the spring moves toward the plunger and hits it's top. Impact of the slide hammer generates about 10G(100N) of force that pushes the press head and the press fit pins into through holes. Press fit tool knob is screwed into the tool body.

Press Head and guide tool

There are two types of Coax Jumper cable termination, Straight type and Right angle type. Straight type termination mold has a chamfer next to a pin connected to shield of coaxial cable. Right angle type termination mold has a chamfer at the end of cable. The pin next to the chamfer is connected to center conductor of the coaxial cable. The chamfer is made to indicate direction of the cable but does not signify signal or shield position.

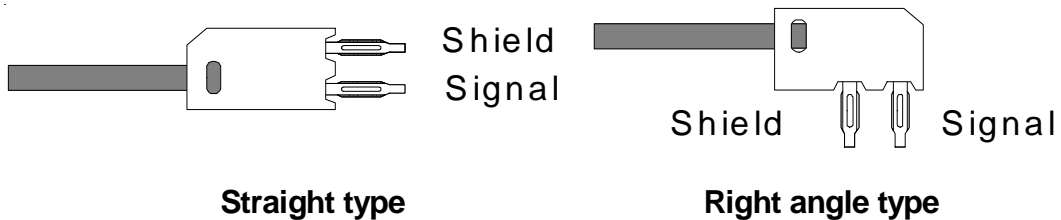


Fig.-5 Two types of termination mold

Three types of press head and a guide tool are shown in Fig.-6 below. Guide tool is used mainly with the press head for straight pin (M20-1185-00) to push in press fit cable in isolated position. It helps holding press head in exact right angle to the PC Board.



Head for Straight
M20-1185-00

Head for right angle
M20-1185-01

Head for straight w/o side guide
M20-1185-02

Guide tool
M20-1189-00

Fig.-6 Press fit Head

(4) Installation of coax jumper cable with press fit tools

Installing straight type cable

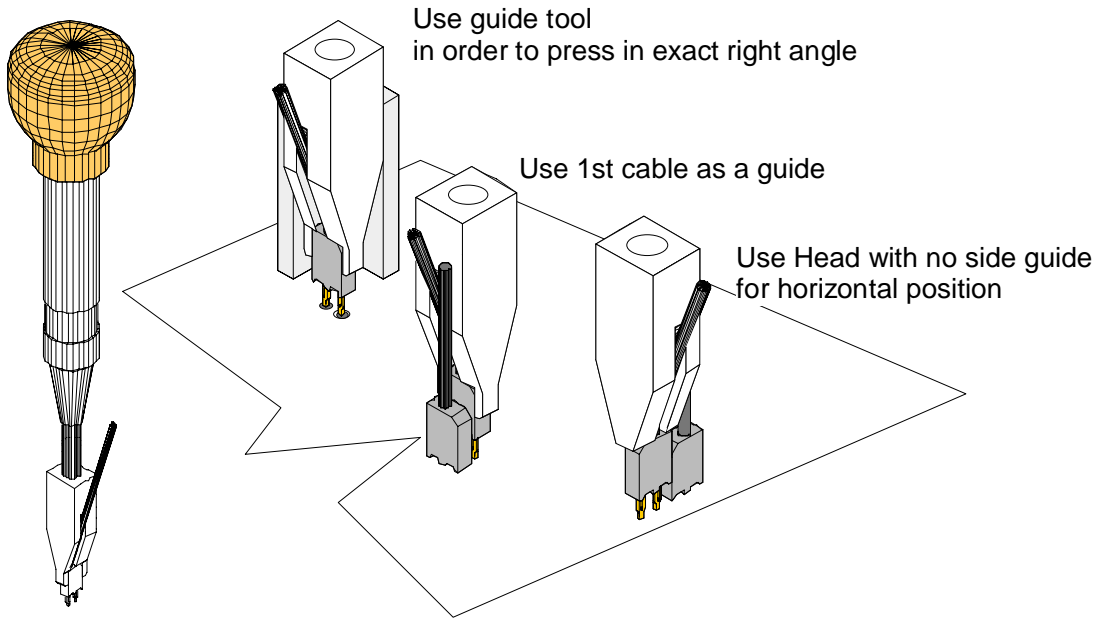


Fig.-7 installing straight type cable

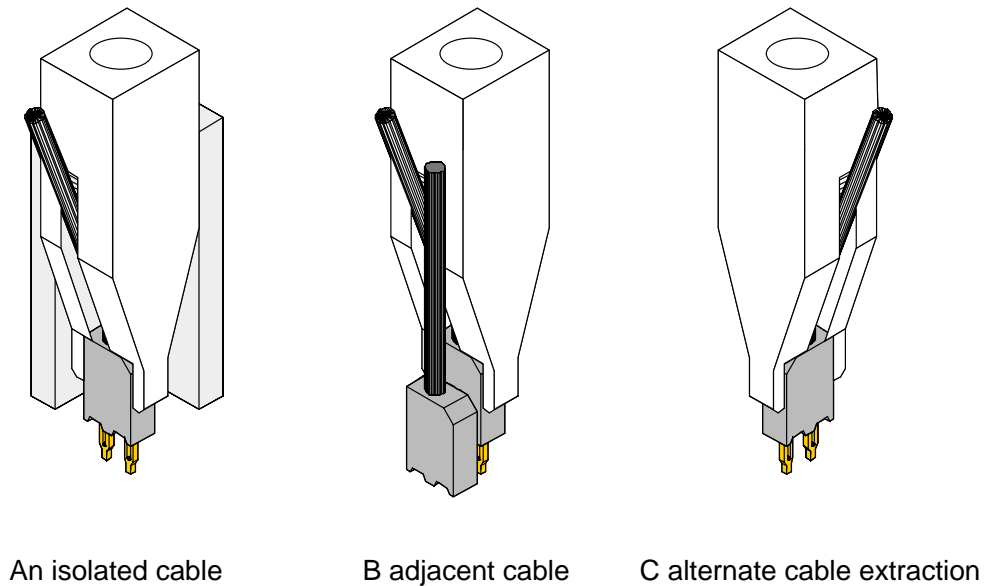
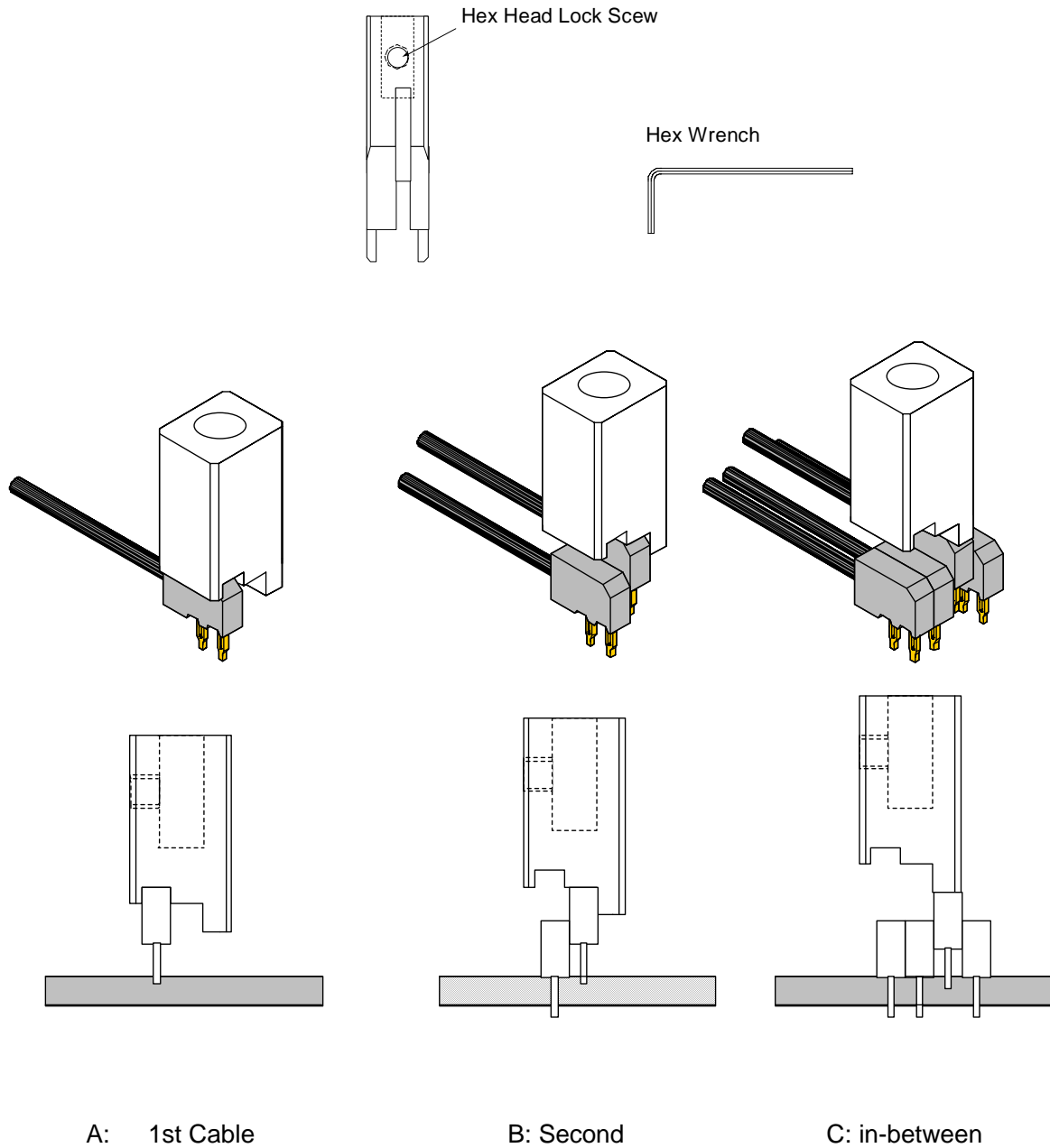


Fig.-8 Straight type cable installation

Caution; do not use press fit tool for other purposes other than those mentioned in the application.

Installing right angle type cable

When installing right angle type cable, press head for right angle type (M20-1185-01) is used. Exchange of press head can be done with hex wrench that is included in press fit tool kit.



Check that mold bottom is touching to the PC Board after installation.

Fig.-9 Right angle cable installation

Caution; do not use press fit tool for other purposes other than those mentioned in the application.

(5) Press fit tool Box

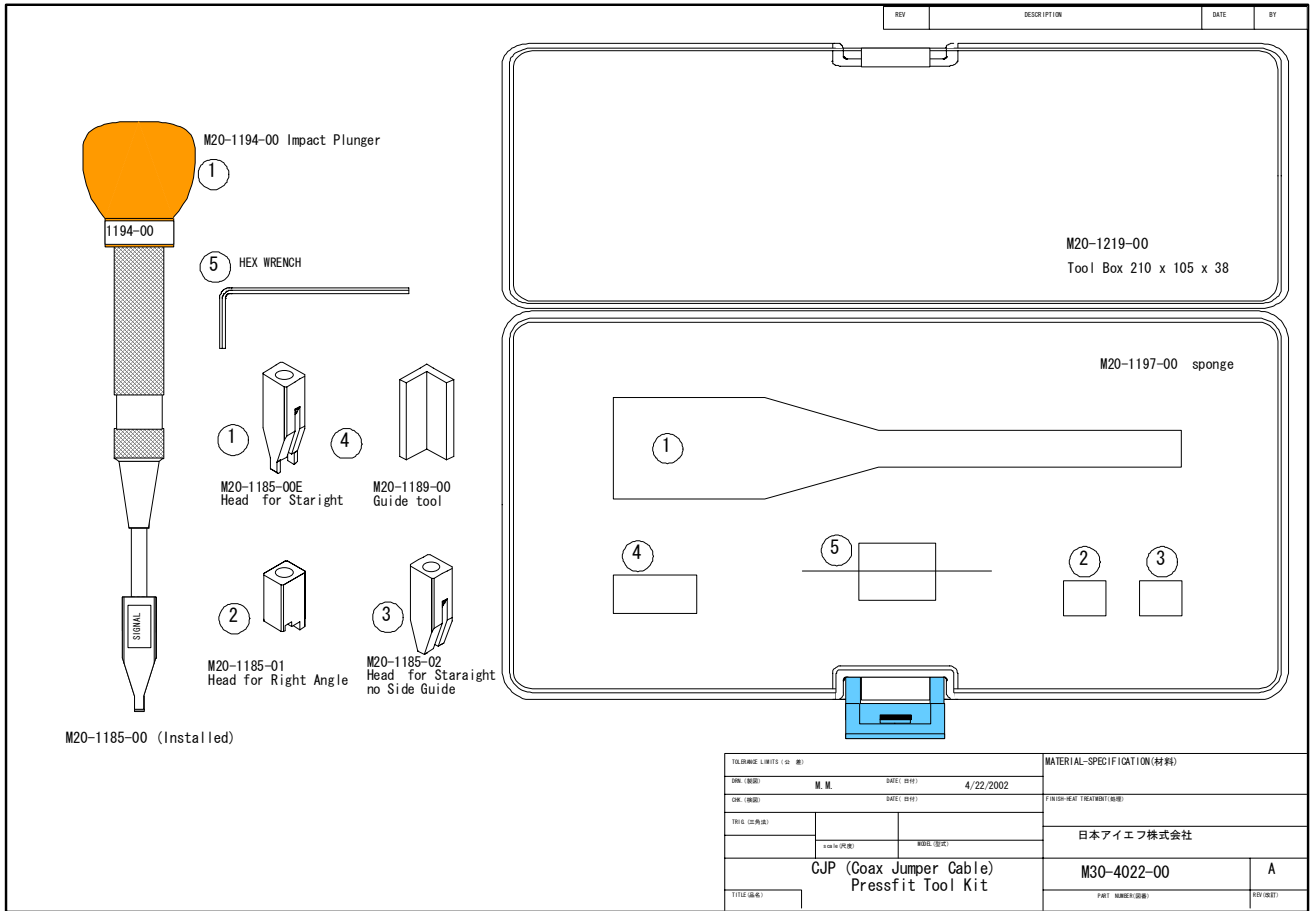


Fig.-10 M30-4022-XX Coax Jumper Cable Press fit tool

Two types of Tool Kit are available, Starter Kit and Professional Kit.

- M30-4022-00 Starter Kit Include Head for Straight type cable, Guide tool accessories
- M30-4022-01 Includes all accessories

See table below for detail

	Description	M20-1194-00	M20-1189-00	M20-1185-00	M20-1185-01	M20-1185-02
M30-4022-00	Coax Jumper Tool Starter Kit (Note1)	X	X	X		
M30-4022-01	Coax Jumper Tool Professional Kit (Note1)	X	X	X	X	X
M20-1194-00	Plunger (No Head)	X				
M20-1189-00	Guide Tool		X			
M20-1185-00	Head for Straight Coax Jumper Cable			X		
M20-1185-01	Head for Right Angle Coax Jumper Cable				X	
M20-1185-02	Head for Straight Coax Jumper Cable with no side guide					X

Table-1 M30-4022-XX Coax Jumper Cable Press fit tool Kit