Amphenol MTC-HD Assembly Instructions

Purpose

1. Instructions for proper assembly of MT ferrule termini into Amphenol MIL-DTL-38999 MTC-HD Fiber Optic connectors with the use of MTC-HD assembly kits.
2. Instructions for connector assembly of Amphenol MIL-DTL-38999 MTC-HD Fiber Optic connectors.

MTC-HD Termini Assembly Kits

Amphenol supplies MT termini assemblies in unassembled kits, with or without the MT ferrule.

Order these as follows:

MT **pin** assembly kit
- CF-198272-000 *without* MT Ferrule
- CF-198272-202 *with* 1x12 Elite MT ferrule
- CF-198272-205 *with* 2x12 Elite MT ferrule
- CF-198272-307 *with* 4x12 MT ferrule

MT **socket** assembly kit
- CF-198271-000 *without* MT Ferrule
- CF-198271-202 *with* 1x12 Elite MT ferrule
- CF-198271-205 *with* 2x12 Elite MT ferrule
- CF-198271-307 *with* 4x12 MT ferrule

Above are the most common configurations, contact Amphenol for more options. MT ferrules that meet the IEC 61754-5 specification are recommended for use. *Figure 1* shows contents of pin assembly kit on the left, and socket assembly kit on the right.

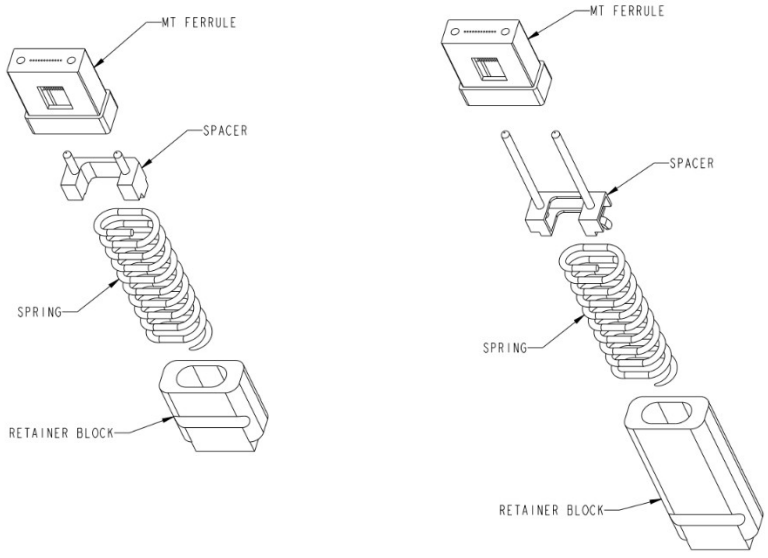

Figure 1

1. Assembling the MT Ferrule Components from Kit

a. MTC-HD connectors are intended to be used with ribbon fiber without strength members or jackets.

b. Pre-load retainer block and spring onto ribbon(s) such that the steps on the rear of the retainer blocks are away from the mating interface – see *Figure 2*.

Figure 2

c. Terminate the fiber ribbon(s) to the MT Ferrule per industry standard methods. Ensure fiber pinout is correct relative to MT fiber 1 indicator. If the rubber boot supplied with the MT ferrule is used, verify it is properly seated and there is no interference with the spacer nor the springs.

d. Verify that the guide holes are clear of any epoxy and that there is no epoxy on the rear surface of the MT ferrule.

e. PC Polish MT ferrule to achieve desired end face geometry.

2. Assembling the Cap, Spacer onto MT Ferrule

a. Install protective cap on MT ferrule and keep on until installation in connector – see *Figure 3*.

b. Place spacer pins into the guide pinholes of the MT ferrule.

c. Next, slide the assembled springs and retainer block forward against the spacer.

The spacer should be resting on the top of the MT ferrule for proper seated position.

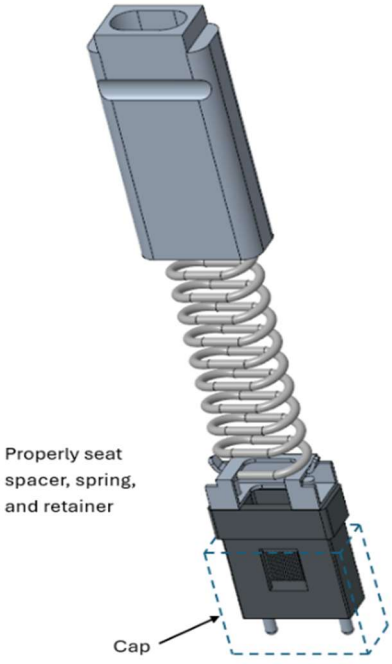

Figure 3

MTC-HD Connector Assembly

Amphenol supplies the necessary quantity of cross-pins and cross-pin retainers kitted with each connector. *Figure 4* identifies each component.

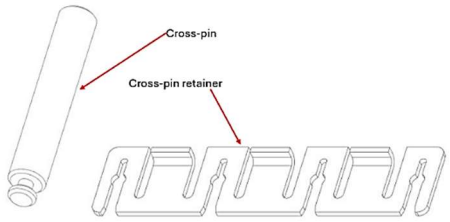

Figure 4

Figure 5 on the right shows:

- A connector pair, shell size 13 with two ferrule cavities on left
- A connector pair, shell size 21 with six ferrule cavities on right
- Pin and socket MTC-HD Termini assembly kits for installation

Pin termini are used in connectors with pin inserts, socket termini are used in connectors with socket inserts.

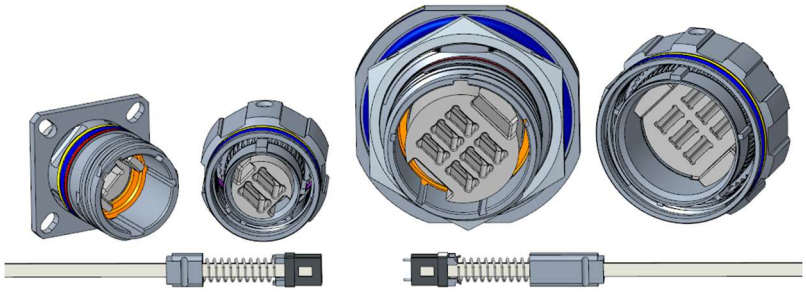

Figure 5

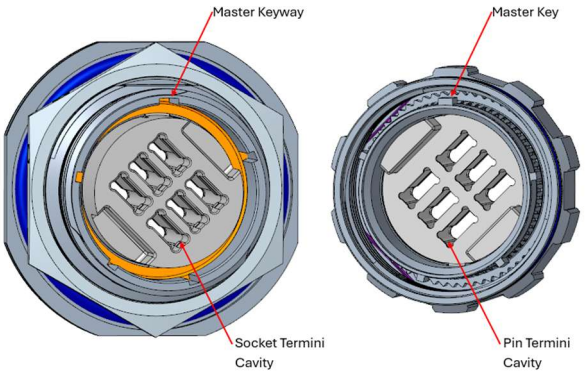

Figure 6

1. MT Connector Orientation

Figure 6 to the left shows the orientation of the master key and keyway on the front of the connector shell.

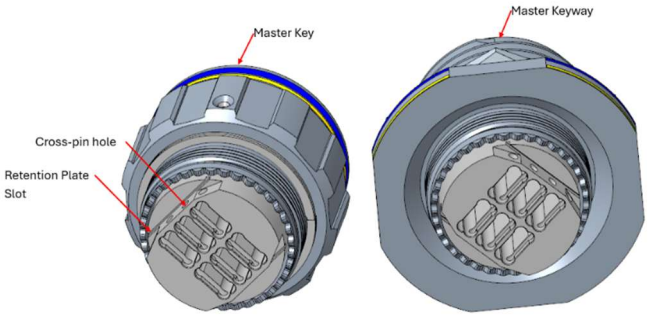

Figure 7

2. Rear View of Master Key and Insert Orientation

Rear of pin and socket inserts shown – see *Figure 7*.

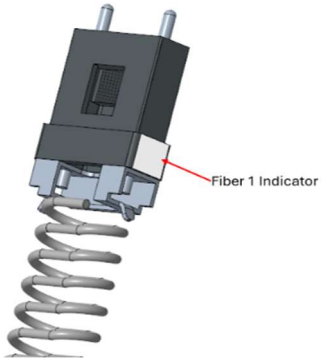

Figure 8

3. Find Fiber 1 on MT Ferrule

MT Ferrule manufacturers designate Fiber 1 with a mark. In example *Figure 8* shown to the left, the mark is the white dot. Some manufacturers have a symbol or letter to denote Fiber 1 location.

4. Front Connector Orientation for MT Ferrule

Termini are installed with Fiber 1 closest to the master key, as shown in *Figure 9*. Remove MT protective cap if present, then insert termini into rear of insert **with Fiber 1 in the "UP"** position. Insert termini until it is seated. It is the responsibility of the assembler to ensure proper orientation of the ferrules relative to the insert.

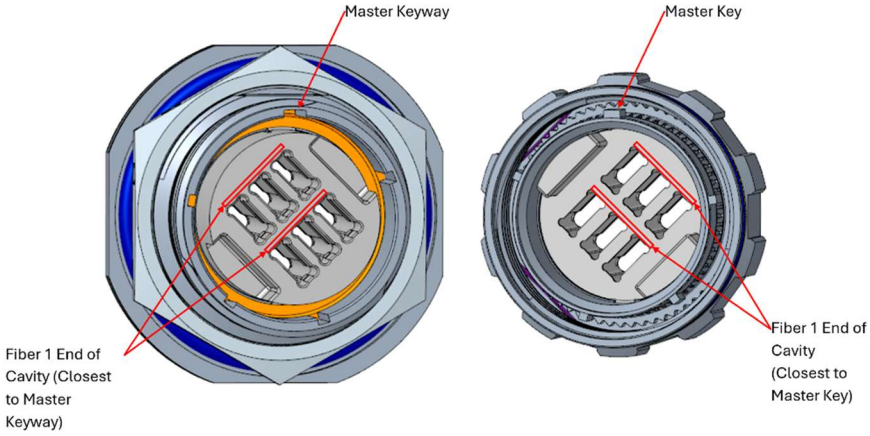

Figure 9

5. Verify MTC-HD Termini is Fully Seated

a. Observe front of connector and verify that the terminus is correctly aligned in the cavity and fully seated. If the terminus does not slide in, move it in the left/right direction while pushing.

b. Once fully seated, compress spring by pressing on rear steps of retainer until step is nearly flush with the rear of the insert. The cross-pin hole of the insert and scallop in the retainer will also be approximately aligned – see *Figure 10*.

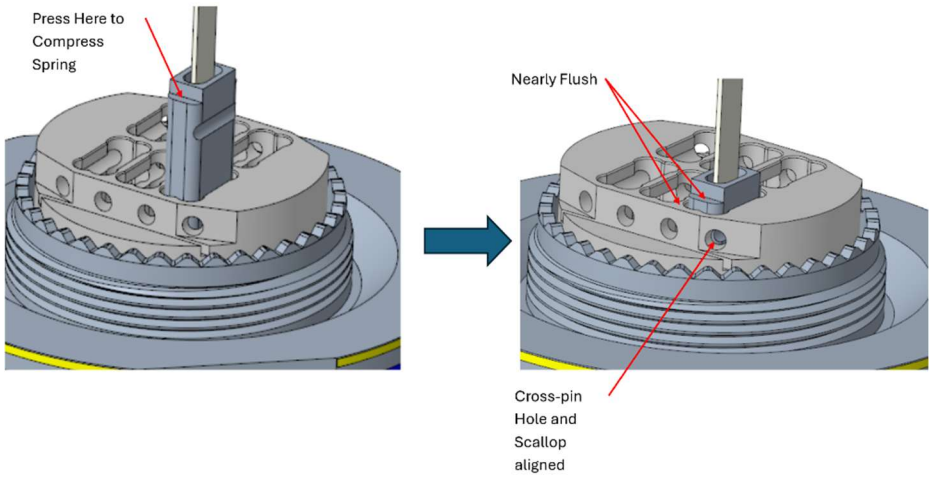

Figure 10

6. Retain terminated MTC-HD termini

a. Insert one cross-pin until cross-pin slot nearly aligns with retention plate slot in rear of insert.

b. Repeat until all cavities on one side of the insert are populated and all cross-pins on that side are installed – see *Figure 11*.

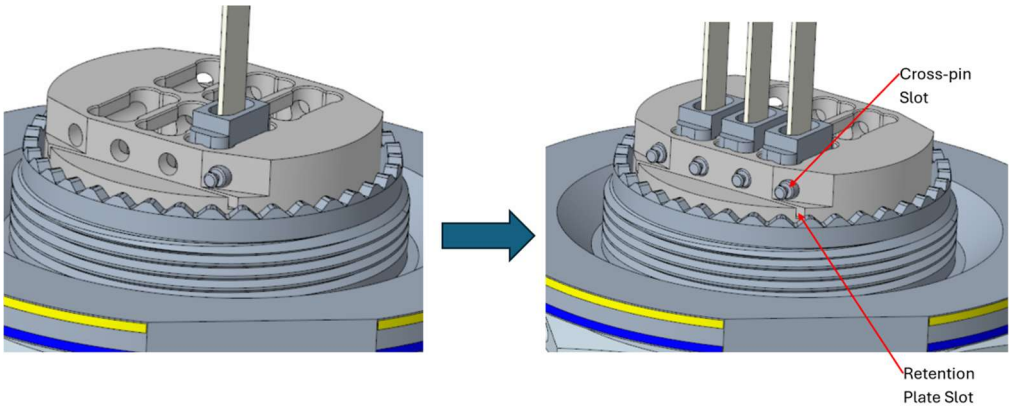

Figure 11

7. Install retention plate

a. Install one cross-pin retention plate (bent tang facing away from the insert) over cross-pin aligning all pins with their respective slot.

b. Seat the cross-pin retention plate until all pins are locked in place – see *Figure 12*.

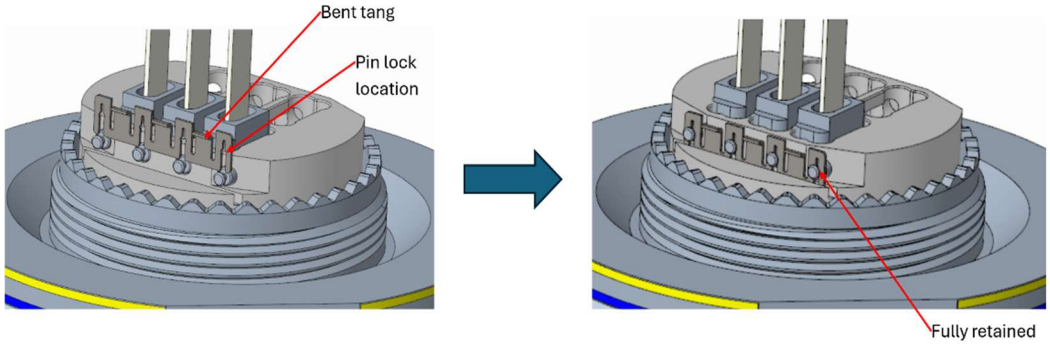

Figure 12

8. Finish Assembly

Repeat steps 5 through 7 for second column of cavities depending on insert arrangement requirements.