

Examples of Mini EB Cable Assemblies

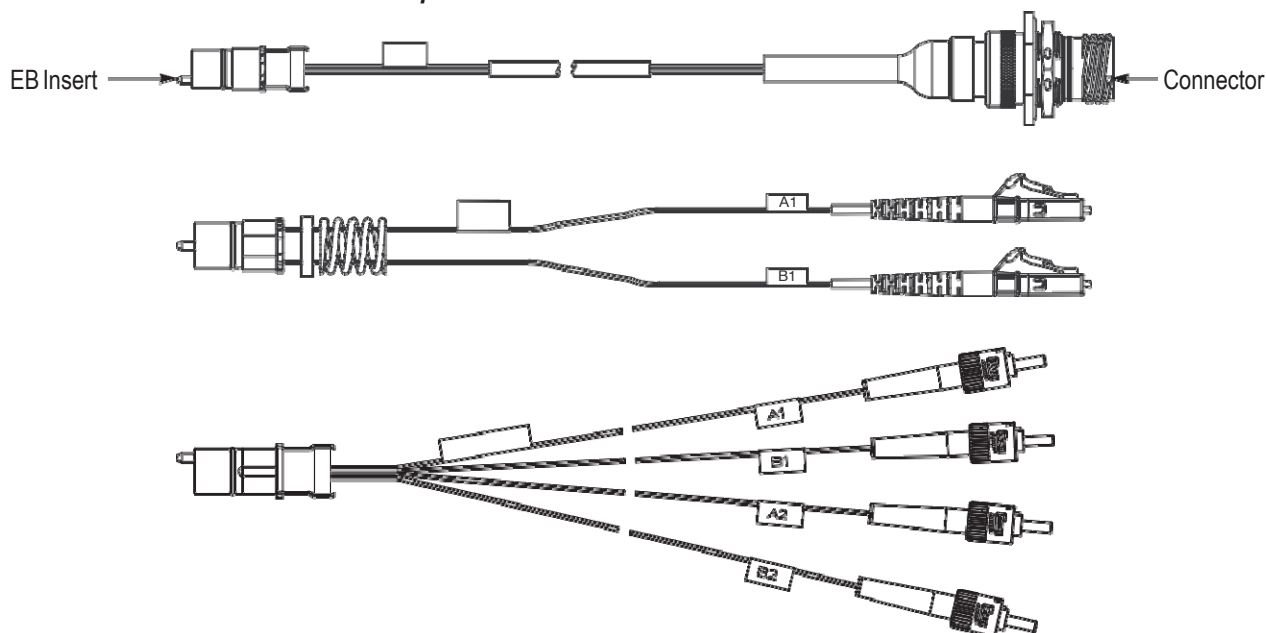


Figure 1

1. INTRODUCTION

Mini EB cable assemblies (end with the EB insert) are designed to be installed onto one of the following blind-mate connector shells:

- ARINC connectors (such as 404 and 600 series);
- MIL-DTL-83527 rectangular rack & panel connectors;
- general purpose rectangular connectors (GPRC);
- P-Zero (P0) connectors

See Figure 1 for samples of cable assemblies. Refer to the cable assembly drawing for specific part numbers and related descriptions.

NOTE



All numerical values in this instruction sheet are in metric units [with U.S. customary units in brackets]. Figures are not drawn to scale.

Reasons for reissue of this instruction sheet are provided in Section 7, REVISION SUMMARY.

2. HANDLING

DANGER



To avoid personal injury, NEVER look into the end of terminated or unterminated fibers. Laser radiation is invisible, but can damage eye tissue.

- DO NOT put your foot or any object on a fiber optic cable assembly
- DO NOT let fiber optic connectors fall on a hard surface
- After assembly, install a protective cap or mate the connector immediately to prevent contamination to the connector face
- DO NOT touch the lenses of the EB insert with your fingers or with any tools

NOTE



If lenses are touched or otherwise contaminated, clean the lenses according to Paragraph 4.3.

3. TOOLS AND MATERIALS

The following materials are necessary for installing, cleaning, and inspecting the EB insert end of the cable assemblies (these materials are customer supplied).

- lint-free applicator swabs
- isopropyl alcohol (99%) or acetone
- clean dry air
- 10x magnifier
- heat gun

- DOW CORNING MOLYKOTE 55M grease or Dupont Krytox LVP high-vacuum grease
- lint-free tissues or cloths

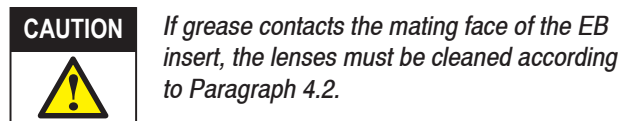
4. REQUIREMENTS

4.1. Lubricating O-Ring of EB Insert

The O-ring of **every** EB insert (including dummy EB inserts) **MUST be lubricated** before installation to allow for proper alignment and optimum optical performance.

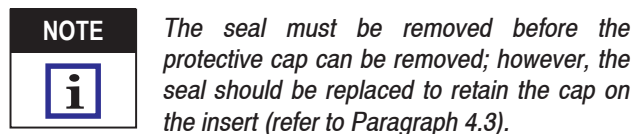
Lubricate as follows:

1. Apply a small amount of the grease to the tip of the applicator swab.
2. Using the applicator swab, apply a thin film of the grease completely around the surface of the O-ring on the EB insert. The O-ring should be shiny when lubricated — DO NOT allow grease to go beyond the O-ring. Wipe off any excess grease with a lint-free tissue.

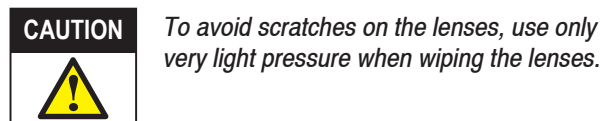


4.2. Cleaning

The cable assemblies are shipped with a shrink seal around the protective cap on the end of the EB insert. The lenses of the EB inserts are clean and ready for use; however, if the seal is not in place, the lenses may need to be cleaned (use the 10x magnifier to inspect the lenses for contamination) as follows:



1. Remove the protective cap.
2. Moisten the tip of the applicator swab with the isopropyl alcohol, then using a back-and-forth or swirling motion, wipe the lenses with the swab.



3. Blow clean dry air over the lenses until remaining isopropyl alcohol and stray particles are removed.
4. Using the 10x magnifier, inspect the lenses to make sure any contamination is removed.

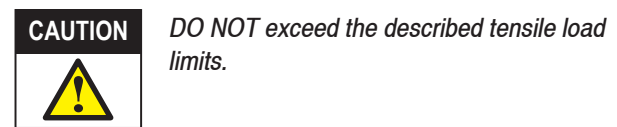
5. Re-install the protective cap, or install the EB inserts immediately to prevent contamination to the EB inserts.

4.3. Shrink Seal Replacement

If desired, apply a new shrink seal (p/n 905175-1) after receiving inspection or testing as follows:

1. Slide one of the open ends of the seal over the EB insert until only 6 mm [.25 in.] of the seal extends past the protective cap. If the EB insert is installed in a connector shell that has a flange, make sure that the perforated side of the seal is not over a corner (otherwise, the seal will tear).
2. Using the heat gun, apply heat to the front of the seal until the overhang portion of the seal shrinks. Note that the seal will shrink very fast.
3. Apply heat along the length of the seal *opposite* the perforated side. Applying heat to the perforated side may cause the seal to tear.
4. If further shrinking is needed, quickly apply heat $\pm 90^\circ$ away from the perforated side.

4.4. Tensile Load



- Non-operating (during installation): 40 kg [88 lbs] maximum
- Long-term (no load): 0 kg [0 lbs] maximum (recommended target)

4.5. Cable Bend Radius

Do not exceed the bend radius limits as specified by the cable manufacturer. Permanent damage to the fiber and loss of optical performance may result if bend limits are exceeded. If the cable manufacturer recommendations are not available, use the following guidelines.

- During installation under tensile load: 50 mm [2 in.] minimum radius
- Long-term without tensile load: 25 mm [1 in.] minimum radius

4.6. Cable Support

Adequate support for cable is essential for all installations. Make sure to base the maximum distance between mounting points on the cable type, bundle size, and physical shock and vibration exposures present at the time of installation.

Method and hardware used to secure the cable for support should not deform or indent the cable. A foam-lined clamp is recommended; however, self-clinching cable ties or cable lacing may be used

provided that they do not deform or indent the cable.

NOTE



For detailed recommendations, contact the cable manufacturer.

4.7. Dust Covers

It is recommended that dust covers are assembled onto the EB inserts and connectors when the EB inserts are not installed and when the connectors are not in use. Dust covers are available separately.

5. INSTALLATION

5.1. EB Insert onto Plug Shell

1. Slide the slot of the hold-down plate over the narrow portion of the heat shrink tubing of the EB insert. Refer to Figure 2. If the hold-down plate has multi-positions, load all positions with their respective EB inserts in the same manner.
2. Align the keyway of each EB insert with the respective key of the adapter block, and push each EB insert into the respective cavity. See Figure 2. There will be a momentary resistance as the O-ring compresses to enter the cavity, then a distinct bottoming when the EB insert is fully seated.
3. Thread the captive screws of the hold-down plate into the adapter block. Tighten to a torque between 0.6 and 0.8 N·m [5 and 7 in·lb].
4. Check that each EB insert is installed properly by moving it from side-to-side.

NOTE



This lateral movement is necessary to enable alignment during mating.

5. Route and secure the cable so that any side-load pull is minimized. This is important for proper alignment when mating. Refer to Figure 3.

5.2. EB Insert onto Receptacle Shell

1. Slide the spring spacer (with the counterbore facing the EB insert) and spring against the EB insert. Refer to Figure 4.
2. Slide the slot of the hold-down plate over the cable as shown in Figure 4. If the hold-down plate has multi-positions, load all positions with their respective EB inserts in the same manner.
3. Align the keyway of each EB insert with the respective key of the adapter block, then push each EB insert into the respective cavity. See Figure 4. There will be a momentary resistance

Installing EB Insert onto Plug Shell

Note: ARINC 600 Series Connector Shown

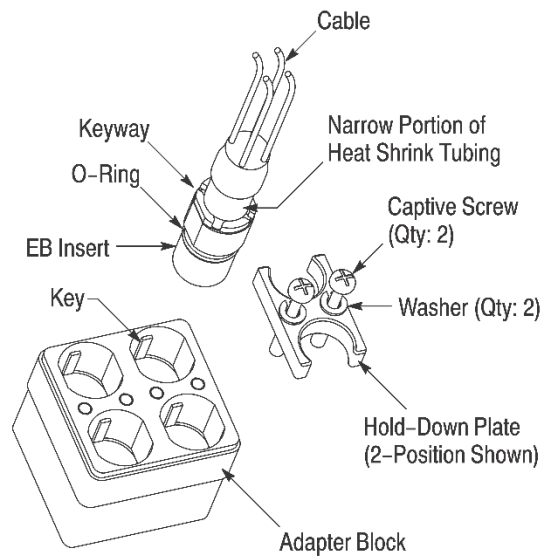


Figure 2

Minimizing Side-Load Pull

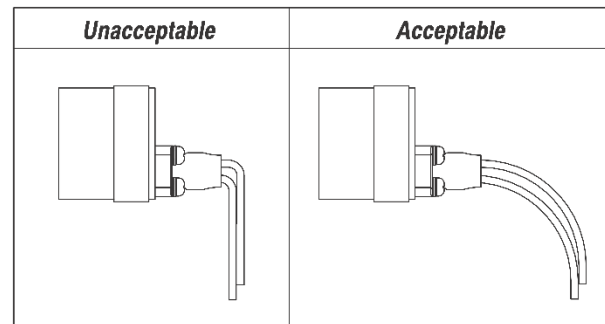


Figure 3

as the O-ring compresses to enter the cavity, then a distinct bottoming when the EB insert is fully seated.

4. Partially compress the spring against the spring spacer using the hold-down plate, then thread the captive screws of the hold-down plate into the adapter block. Tighten to a torque between 0.6 and 0.8 N·m [5 and 7 in·lb].
5. Check that the EB insert is installed properly by moving it from side-to-side.

NOTE



This lateral movement is necessary to enable alignment during mating.

6. Route and secure any cable (including cable contained in tubing) as required so that possible damage from long-term shock and vibration is minimized.

Installing EB Insert onto Receptacle Shell

Note: ARINC 600 Series Connector Shown

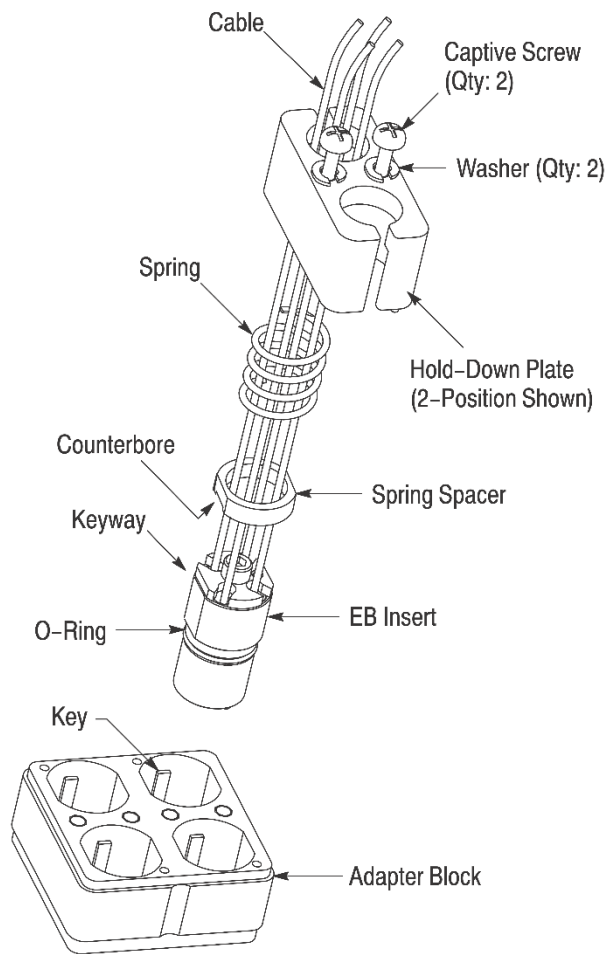


Figure 4

6. INSPECTION AND TESTING

6.1. External Examination

1. Make sure that there are no sharp bends or kinks in the fiber optic cables.



The cables should have a bend radius not less than 25 mm [.98 in].

2. Using the 10x magnifier, inspect the lenses in the EB inserts to make sure that the lenses are not contaminated. If they have been touched or contaminated, clean the lenses according to 408-8828.

6.2. Loss Testing

Cable assemblies can be measured for attenuation on-site before and/or after installation. For general maintenance and testing, standard grade test leads are recommended.

7. REVISION SUMMARY

Revisions to this instruction sheet include:

- Updated document to current corporate formatting requirements