1. General

1.1 This document describes the procedures for repairing two types of fiber optic cable sheath damage. These types are (Figure 1):

Type A 1) The sheath is peeled or chipped.
   2) No portion of the armor or cable core is exposed.

Type B - A damaged section of cable sheath with a portion of the armor or cable core exposed.

1.2 This issue includes updated corporate information.

2. Precautions

2.1 General Precautions

⚠️ WARNING: The wearing of safety glasses to protect the eyes from accidental injury is strongly recommended when handling chemicals and cutting fiber. Pieces of glass fiber are very sharp and can damage the cornea of the eye easily.

⚠️ The wearing of safety gloves to protect your hands from accidental injury from sharp objects is strongly recommended.

2.2 Cable Handling Precautions

⚠️ CAUTION: Fiber optic cable is sensitive to excessive pulling, bending and crushing forces. Consult the cable specification sheet for the cable you are installing. Do not bend cable more sharply than the minimum recommended bend radius. Do not apply more pulling force to the cable than specified. Do not crush the cable or allow it to kink. Doing so may cause damage that can alter the transmission characteristics of the cable - the cable may have to be replaced.

3. Tools and Materials

3.1 The following tools and materials are needed to perform cable sheath repairs.

- RTV sealant
- Scissors
- Side cutters (diagonal cutting pliers)
- 3M® 130C tape
- 3/4-in. Scotch® 88T vinyl electrical tape
- Sandpaper (medium grit)
- Alcohol wipes

4. Evaluating Cable Damage

4.1 Before beginning a repair, carefully evaluate the extent of the cable damage. If the aramid yarn is torn, a decision must be made to determine the acceptability of the cable if repaired. If the buffer tubes are visible, check each fiber for damage with an OTDR.

a) Examine the armor for flatness or an open seam. If the seam is open, carefully (yet firmly) close the seam. As much as possible, align the corrugations and bring the armor together, overlapping it 4-5 mm.

b) Do not flatten the armor. If the armor has been flattened, use a rounded wood or metal object (such as a cable knife handle) to return the armor as close as possible to its original shape. Do this by rubbing the handle along the length of the armor rather than pounding. Pounding the armor may damage the cable core.
5. “Type A” Repairs

5.1 “Type A” repairs should be done on chipped or peeled cable sheathes which have no exposed portions of the cable core. Use the following steps to make a “Type A” repair.

STEP 1) Taking care not to cause additional damage to the cable, use the scissors and side cutters to cut away pieces of severed sheath (Figure 2).

Figure 2

STEP 2) Carefully scuff the cable sheath around the damaged section using a piece of medium grit sand-paper. Take care to scuff around the cable, not lengthwise along the cable (Figure 3).

Figure 3

STEP 3) Using an alcohol wipe, remove as much grease, glue and sandpaper residue as possible from the damaged area.

STEP 4) Starting at least 2.5 cm (1 in.) away from the damaged area, apply a single layer of 130C tape by using a wrapping motion. Try to achieve a flat lay of the tape and maintain a half-width overlap. Continue wrapping until the tape is at least 2.5 cm (1 in.) past the damaged area (Figure 4).

Figure 4

STEP 5) After completing the wrap of 130C tape, apply a single layer wrap of 3/4-inch vinyl electrical tape beginning from the end opposite the end where the wrap of 130C was started. Again, try to maintain a flat lay of the tape, and use a half-width overlap. Continue wrapping until the tape is at least 2.5 cm (1 in.) past the damaged area (Figure 5).

Figure 5

6. “Type B” Repairs

6.1 “Type B” repairs are made on cables that have portions of the armor or cable core exposed. Use the following steps to make “Type B” repairs:

STEP 1) Carefully work any loose aramid yarn back into the core of the cable. Make sure that the aramid yarn is not broken and that buffer tubes are not damaged (Figure 6).

Figure 6

STEP 2) Prior to repair, any loose pieces of cable sheath, armor, frayed yarns etc. should be removed using side cutters or scissors (Figure 7). Take care not to inflict damage upon the exposed core of the cable.

Figure 7
STEP 3) Carefully scuff the cable sheath around the damaged section using a piece of medium grit sand-paper. Take care to scuff *around* the cable, and *not* lengthwise along the cable (Figure 8). Avoid scuffing any exposed cable core.

![Figure 8](image1.jpg)

STEP 4) Using an alcohol wipe remove as much grease, glue and sandpaper residue as possible from the damaged area.

STEP 5) Apply a layer of RTV sealant to the exposed cable core and allow it to dry to a skin (usually around 10 minutes) (Figure 9).

![Figure 9](image2.jpg)

STEP 6) Starting at least 2.5 cm (1 in.) away from the damaged area, apply a single layer of 130C tape by using a wrapping motion. Try to achieve a flat lay of the tape and maintain a half-width overlap (Figure 10).

![Figure 10](image3.jpg)

STEP 7) After completing the wrap of 130C tape, apply a single layer wrap of 3/4 in. vinyl electrical tape beginning from the end opposite the end where the wrap of 130C tape was started. Again, try to maintain a flat lay of the tape, and use a half-width overlap (Figure 11).

![Figure 11](image4.jpg)