Preparation Instructions for 3M™ Round Conductor Flat, Controlled Impedance Cable, 7700 Series

Using upgraded Model 47 Cable Stripper
from Carpenter Manufacturing Company, Inc.

General

This document covers cable preparation techniques and quality requirements for the 3M™ Round Conductor Flat, Controlled Impedance Cable, 7700 Series. The primary cable inside the flexible foil covering is a mass-terminable ribbon cable, constructed on a fixed-pitch interval to facilitate insulation displacement contact (IDC) connector terminations. It is critical to remove the foil covering from the primary cable only under the socket to prevent shorting. Removal of the covering can be accomplished as described in this document or with similar tooling and techniques.

To enhance the precision control of the Carpenter Model 47 Cable Stripper,* a few targeted upgrades were added. A micrometer on handle number two and bushings were added for accuracy and tolerance. The blade orientation was flipped and the angle was sharpened to 45° to better pierce through the 3M cable 7700 series flexible foil covering. A strip length stopper has been added to save time with cable alignment.

*Note: Carefully read and follow the manufacturer's precautions and directions for use when working with Carpenter Model 47 Cable Stripper.

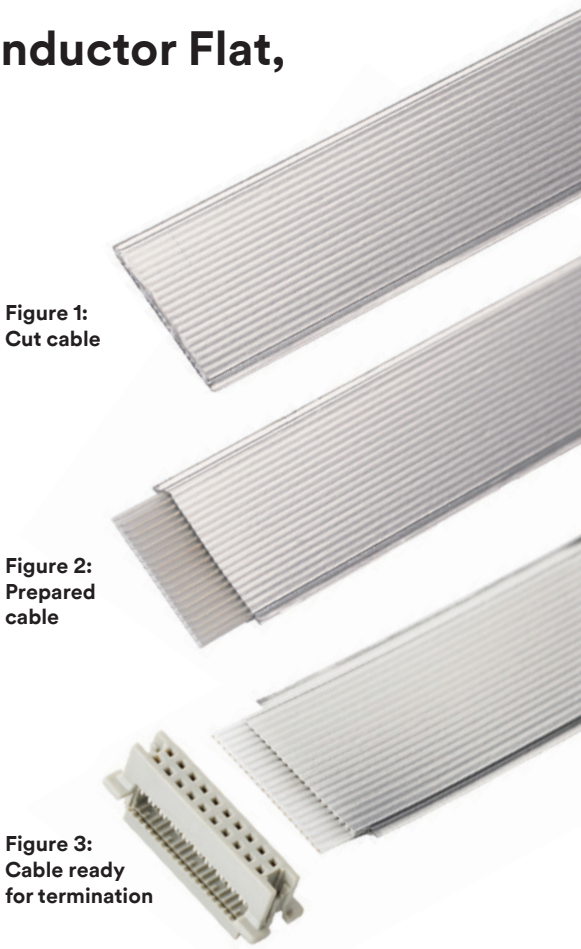

Figure 1: Cut cable

Figure 2: Prepared cable

Figure 3: Cable ready for termination

Tools needed

- Upgraded Carpenter Model 47 Cable Stripper
- Standard scissors or precision utility knife
- Standard ribbon cable cutter

Set blade depth (See Figures 4 and 5)

a. Lock a test sample of cable into the Upgraded Carpenter Model 47 using Handle 1

b. Open micrometer just more than cable height

c. Close micrometer a small increment and slice blades using Handle 2

d. Cycle Handle 3 to test strip foil covering

e. Open blades, remove sample, and inspect per guidelines below

f. Repeat steps c, d, and e until foil covering is removed but insulation is not damaged

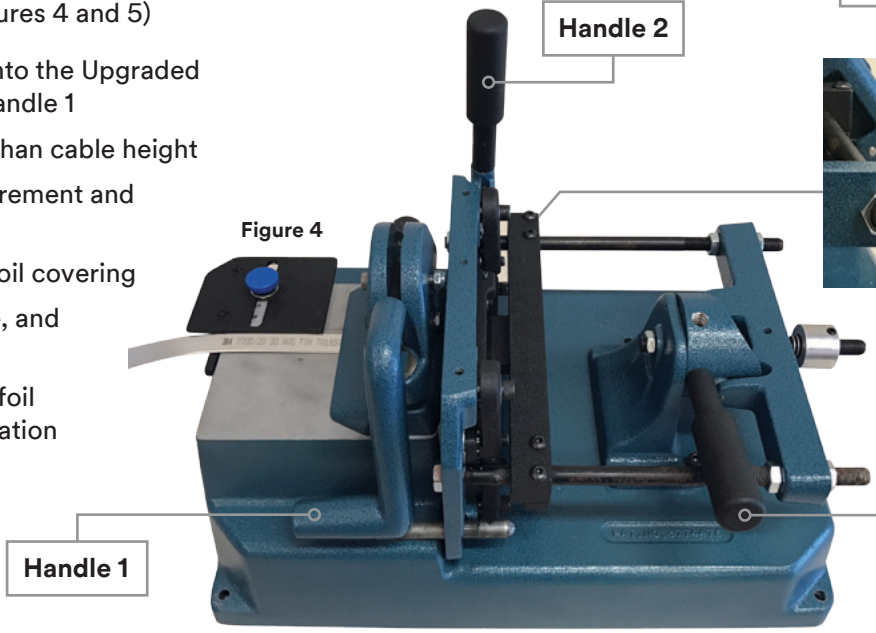

Figure 4

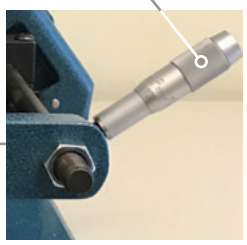

Figure 5

Steps

Step 1
Set blade depth on the upgraded Carpenter Model 47. See page 1 “Set blade depth” for details.

Step 2
Cut 3M cable 7700 series to the appropriate length, using any ribbon cable cutter.

Step 3
Align the cut portion of cable against the right angle guide on the upgraded Carpenter Model 47 Cable Stripper. Push forward to make contact with the strip length stopper. Lock cable alignment in place using Handle 1.

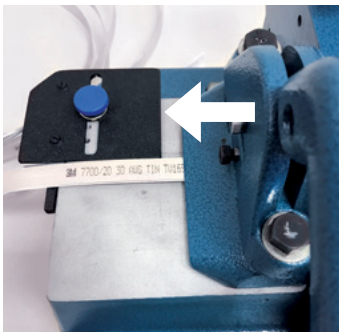

Figure 6

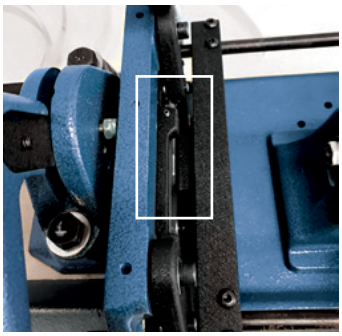

Figure 7

Step 4
Slice blades closed using Handle 2.

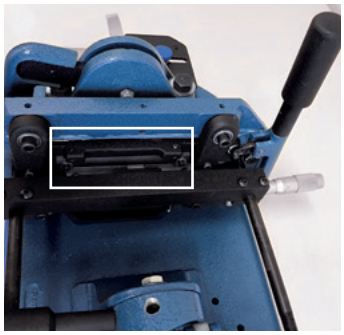

Figure 8

Step 5
Rotate Handle 3 to remove covering.

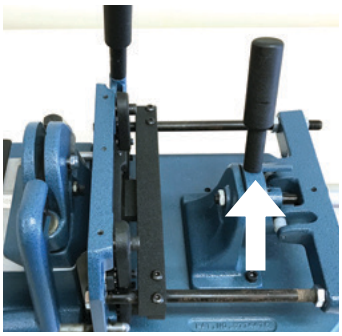

Figure 9

Step 6
Reset Handles 2 then 3 then 1 to starting positions.

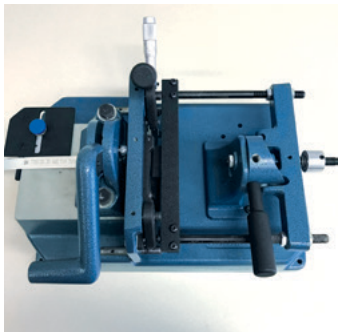

Figure 10

Step 7
Remove sample from upgraded Carpenter Model 47 Cable Stripper and carefully peel off any remaining foil covering, as necessary.

Step 8
Inspect sample specimen for covering removal and insulation damage.

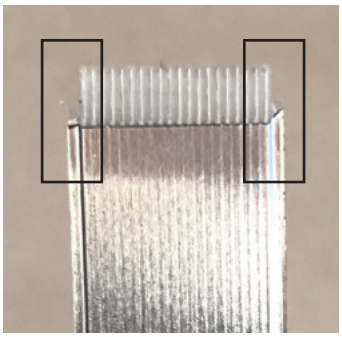

Figure 11

Step 9
Trim excess covering using a precision utility knife for clearance when terminating to 3M™ Ribbon Cable Wiremount Socket Assembly, 451 Series, optional.

Figure 12

Guidelines

The following tips are recommended when preparing and terminating the 3M cable 7700 series.

Preparation

- Take care to keep the new cut edge of 3M cable 7700 series perpendicular to the outer edge of the cable for easier termination to connectors.
- Do not allow blades to slice or scrape into polyolefin insulation.
- Cycling step five 2-3 times may aid removing the foil covering for increased conductor count cable samples.

Termination

- Push connector outer wall flush against covering, but leaving a minimal gap of exposed ribbon cable.
- Do not allow foil covering to connect to insulation displacement contacts.
- To maintain 3M socket assembly 451 series integrity, excess foil covering must be removed for clearance under socket assembly ears.

Inspection

- Insulation of exposed ribbon cable should not be scrapped or sliced. See Figure 13.
- Any remaining foil covering on sides of prepared cable should be removed. See Figure 14.
- Insulation around the conductors should not be pierced. See Figure 15.

Supporting documents

The following documents are related to and contain supplementary information for the 3M™ Round Conductor Flat, Controlled Impedance Cable, 7700 Series. Unless otherwise specified, latest edition of the reference documents applies. In the event of conflict between requirements of the references and 3M specification, 3M specification shall take precedence.

- 3M™ Round Conductor Flat, Controlled Impedance Cable, 7700 Series .025" Pitch Customer Drawing 2667
- Instructions for the assembly of 3M™ Ribbon Cable Wiremount Socket Assembly, 451 Series
  - o 3M™ Locator Plates 451
- For safety and regulatory information on Carpenter Model 47 Cable Stripper, contact the manufacturer directly using the contact information found on www.carpentermfg.com.

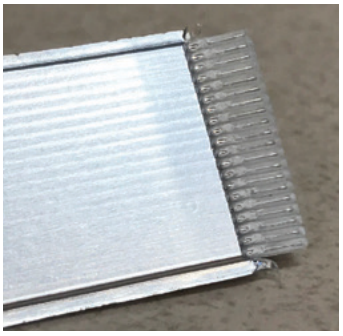

Figure 13

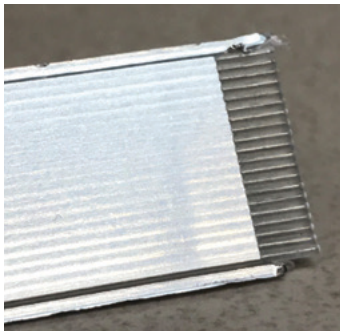

Figure 14

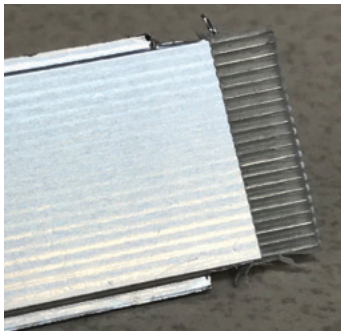

Figure 15

Over 50 years of interconnect innovation

3M™ Round Conductor Flat, Controlled Impedance Cable, 7700 Series is the latest in a long line of 3M firsts in electronics cabling technology, including the first mass-termination interconnect system; the first 64 wire termination; color-coded flat cabling; the first IDC solution for I/O applications; foldable twin axial cable and more – all designed to enable manufacturers to improve device performance, speed assembly and add more value to their products.

Regulatory: For regulatory information about this 3M product, visit 3M.com/regs. For safety and regulatory information on Carpenter Model 47 Cable Stripper, contact the manufacturer directly using the contact information found on www.carpentermfg.com.

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