

TE CONNECTIVITY® CEELOK FAS-T® CONNECTOR SYSTEM

The following procedures are based on Gore's best practices for terminating GORE® Aerospace Ethernet Cables with the TE Connectivity® CeeLok FAS-T® Connector System for both plug and receptacle versions. These procedures should be used as a guide in conjunction with current connector manufacturing instructions.

Preparing the Cable and Parts

1. Gather the tools and materials required for assembly and termination (Figures 1–9).
2. Verify that you have the correct parts for your assembly by checking the part numbers for the connectors and the GORE® Aerospace Ethernet Cables listed on drawing DDA0238.
3. Cut two 1.0-inch pieces of 0.50-inch thin-walled adhesive-lined tubing (TAT).
4. Cut the cable to the desired assembly length minus 1.9 centimeters (cm) to allow for length of the connectors (i.e., 1.3 cm for the plug connector and 0.6 cm for the receptacle connector).
5. Print any labels required by the end-user, and slide the center label onto the cable.
6. To identify the end for the receptacle connector, place a piece of tape on the end in which the pairs rotate clockwise in order of green → orange → blue → brown (Figure 10).



Figure 10: Pairs configuration at socket end

1. Gore recommends using copper foil tape instead of polyimide tape during termination procedures because copper tape is easier to use and improves signal integrity.

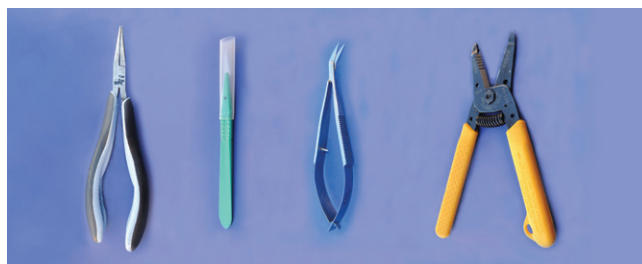


Figure 1: Needle nose pliers, scalpel, tweezer scissors, and hand strippers

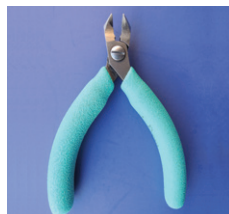


Figure 2: Cutters



Figure 4: Positioner (K1850)

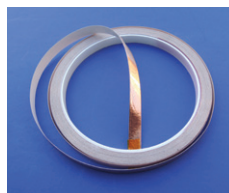


Figure 6: Copper foil tape¹ (3M-3313)



Figure 3: Crimpers (M22520/2-01)



Figure 5: Clamp tool (Tie-Dex® II)



Figure 7: Braid brush



Figure 8: Insertion/extraction tool (DHK 696)



Figure 9: Probe/pick

Terminating the Plug Connector (Termination A)

1. Slide one piece of the TAT onto the cable.
2. Measure and mark the cable 1.0 inch from the plug end of the cable (Figure 11).



Figure 11: Marking the cable

3. Using a scalpel or scissors, slit the cable's jacket from its edge to the mark (Figure 12).



Figure 12: Slitting the cable jacket

4. Using needle-nose pliers, gently pull the outer jacket down the cable until you have exposed approximately 2 inches of braid (Figure 13).



Figure 13: Exposing the braid

5. With your fingers, push the braid back over the cable to expose approximately 2 inches of the foil (Figure 14).



Figure 14: Exposing the foil

6. Remove the white filler as far down as possible.
7. Mark each pair 0.9 inch from the end of the cable (Figure 15).



Figure 15: Marking each pair

8. Cut a 0.5-inch piece of copper or polyimide tape for each pair of the cable. Wrap a piece around each pair at the mark made in Step 7, making sure that the foil shield is as tight as possible (Figure 16).

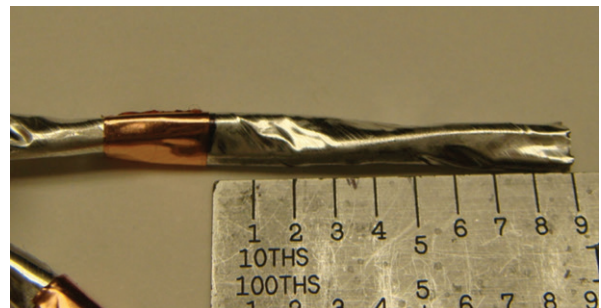


Figure 16: Wrapping the pair

9. With cutters, cut the foil edge where it meets the tape, and tear the foil along the tape edge (Figure 17).

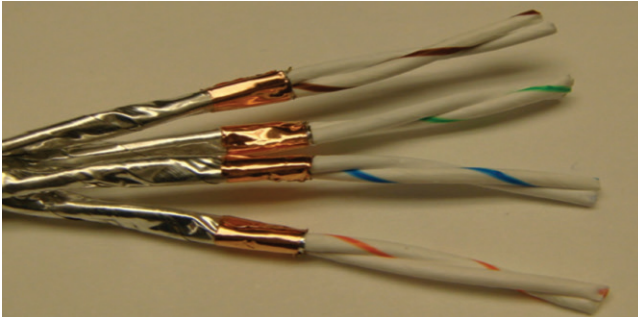


Figure 17: Removing the foil edge

10. Mark each primary 0.8 inch from the end of the cable (Figure 18).

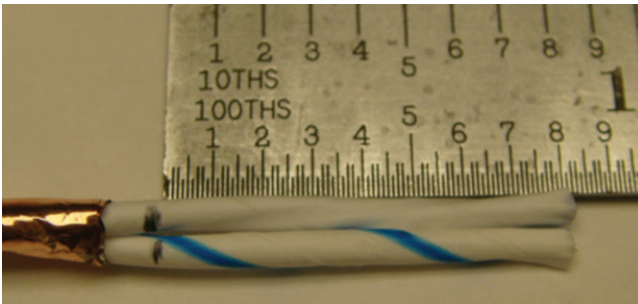


Figure 18: Marking each primary

11. Use 22-gauge hand strippers to strip the outer layer of dielectric off from the edge to the mark on each primary. If the strippers do not give a clean cut, use your fingers or tweezers to remove slug (Figures 19–20).

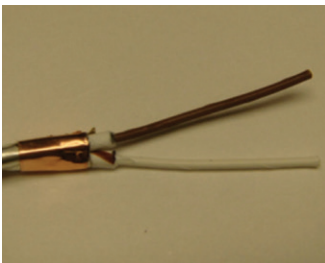


Figure 19: Stripping a primary

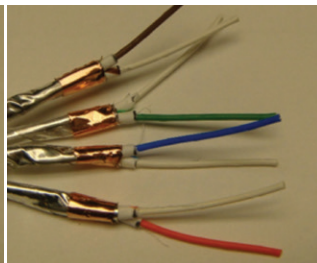


Figure 20: Primaries that have been stripped

12. Mark each primary at 0.125 inch from the end (Figure 21).

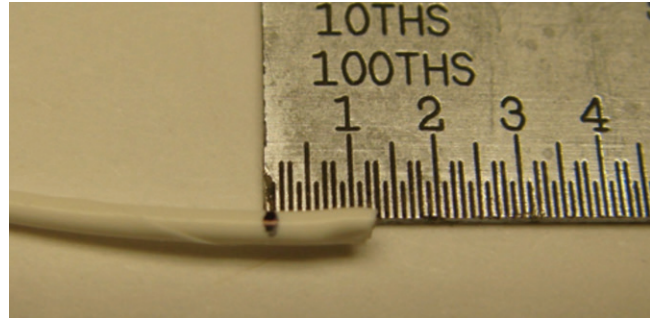


Figure 21: Marking a primary

13. Install the K1850 positioner for the pin contacts into the M22520/2-01, and select setting 3. To prevent stray wire strands during crimping, strip and crimp one primary at a time (Figure 22).

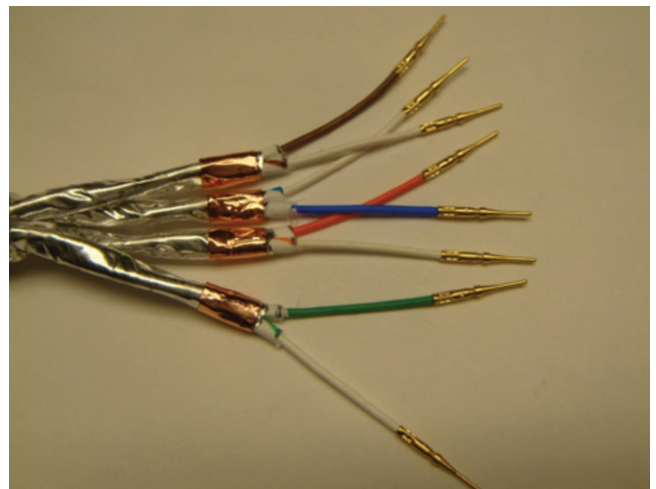


Figure 22: Stripping and crimping primaries

14. Using an insertion tool, insert each primary into the connector according to the following table (Figures 23–24):

Keyway Position	Pair
1	Green
2	Green/White
3	Brown
4	Brown/White
5	Blue
6	Blue/White
7	Orange
8	Orange/White



Figure 23: Diagram of pin positions



Figure 24: Inserting primaries into the connector

15. Slide the braid back toward the plug. Using the braid brush or pick, brush the braid until it fans over the knurled part of the connector (Figure 25).



Figure 25: Brushing the braid

16. With your fingers or needle-nose pliers, push the outer jacket as close as possible to the connector, and trim excess jacket material (Figure 26).

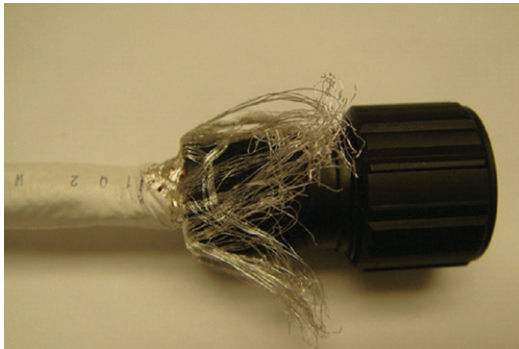


Figure 26: Returning the outer jacket

Terminating the Receptacle Connector (Termination B)

1. Slide the other piece of the TAT onto the cable.
2. Measure and mark the cable 1.0 inch from the receptacle end of the cable (Figure 27).



Figure 27: Marking the cable

3. Using a scalpel or scissors, slit the cable’s jacket from its edge to the mark (Figure 28).

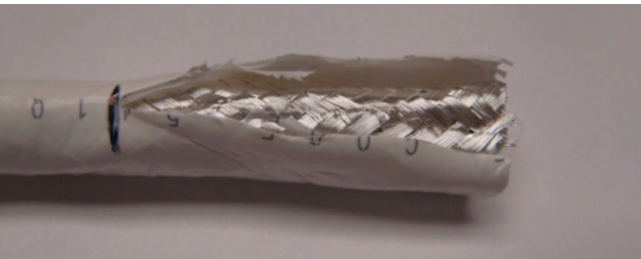


Figure 28: Slitting the cable jacket

4. Using needle-nose pliers, gently pull the outer jacket down the cable until you have exposed approximately 2 inches of braid (Figure 29).



Figure 29: Exposing the braid

5. With your fingers, push the braid back over the cable to expose approximately 2 inches of the foil (Figure 30).



Figure 30: Exposing the foil

6. Remove the white filler as far down as possible.

7. Mark each pair 0.9 inch from the end of the cable (Figure 31).



Figure 31: Marking each pair

8. Cut a 0.5-inch piece of copper or polyimide tape for each pair of the cable. Wrap a piece around each pair at the mark made in Step 7, making sure that the foil shield is as tight as possible (Figure 32).

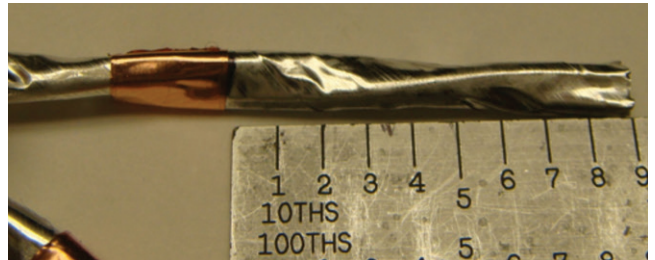


Figure 32: Wrapping the pair

9. With cutters, cut the foil edge where it meets the tape, and tear the foil along the tape edge (Figure 33).

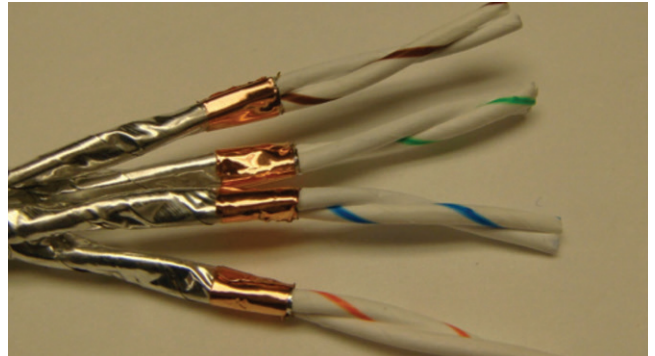


Figure 33: Removing the foil edge

10. Mark each primary 0.8 inch from the end of the cable (Figure 34).

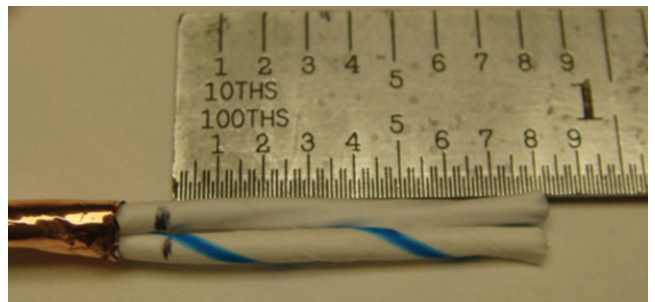


Figure 34: Marking each primary

11. Use 22-gauge hand strippers to strip the outer layer of dielectric off from the edge to the mark on each primary. If the strippers do not give a clean cut, use your fingers or tweezers to remove slug (Figures 35–36).

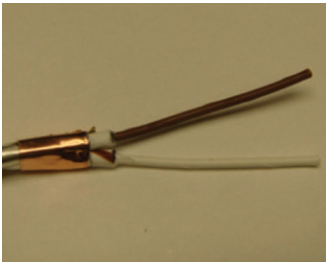


Figure 35: Stripping a primary

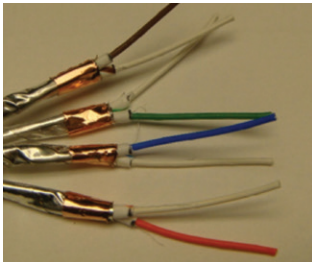


Figure 36: Primaries that have been stripped

12. Mark each primary at 0.125 inch from the end (Figure 37).

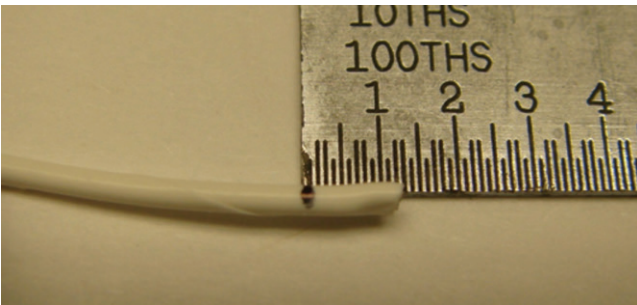


Figure 37: Marking a primary

13. Install the K1850 positioner for the pin contacts into the M22520/2-01, and select setting 3. To prevent stray wire strands during crimping, strip and crimp one primary at a time (Figure 38).

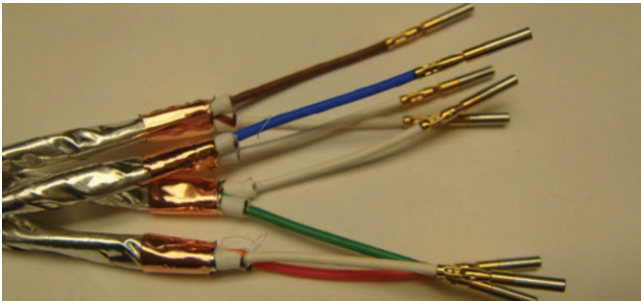


Figure 38: Stripping and crimping primaries

14. Using an insertion tool, insert each primary into the connector according to the following table and diagram (Figures 39–40):

Keyway Position	Pair
1	Green
2	Green/White
3	Brown
4	Brown/White
5	Blue
6	Blue/White
7	Orange
8	Orange/White



Figure 39: Diagram of pin positions

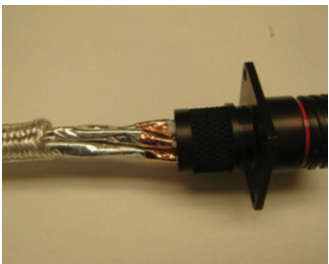


Figure 40: Inserting primaries into the connector

15. Slide the braid back toward the plug. Using the braid brush or pick, brush the braid until it fans over the knurled part of the connector (Figure 41).



Figure 41: Brushing the braid

16. With your fingers or needle-nose pliers, push the outer jacket as close as possible to the connector, and trim excess jacket material (Figure 42). With your fingers, push the braid back over the cable to expose approximately 1.5 inches of the foil (Figure 32).

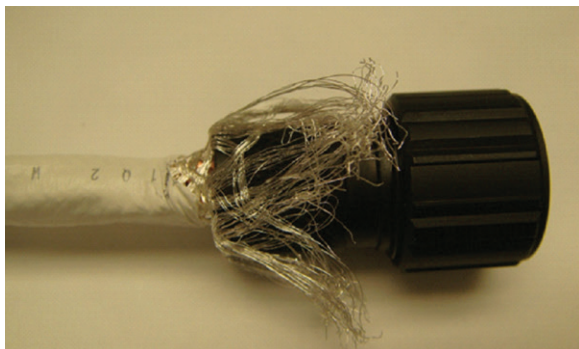


Figure 42: Returning the outer jacket

Closing the Connectors

1. Perform all required in-process testing. At a minimum, verify proper wiring and continuity, and check for shorts. Local authorities and end-users may require additional testing.
2. Verify that the assembly length is accurate.
3. Brush out the braid again so that it lays flat against the knurled section of the plug and the receptacle.
4. Using the Tie-Dex® II clamp tool, attach a Band-It® clamp to the end of each connector (Figures 43–44).



Figure 43: Attaching Band-It to plug



Figure 44: Attaching Band-It to receptacle

5. Using cutters, trim off the excess braid (Figures 45–46).



Figure 45: Trimming excess braid on plug

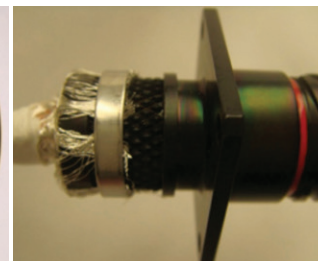


Figure 46: Trimming excess braid on receptacle

6. Cut two pieces of 0.25-inch polyimide tape, and wrap it around each Band-It at least twice (Figures 47–48). Be careful when wrapping the tape, because the Band-It is very sharp.



Figure 47: Taping the plug

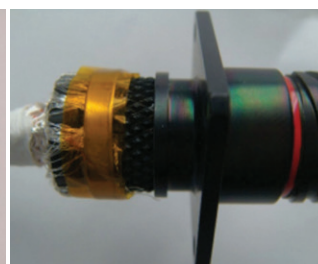


Figure 48: Taping the receptacle

7. Position the tubing so that it completely covers the band and braid. Using a heat-gun, shrink the tubing on each connector (Figures 49–50).



Figure 49: Shrinking tubing on plug



Figure 50: Shrinking tubing on receptacle

8. Perform all required testing. At a minimum, verify proper wiring and continuity, and check for shorts. Local authorities and end-users may require additional testing.
9. Using a heat-gun, shrink the center label, if appropriate.

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