

TE CONNECTIVITY® CEELOK FAS-X® CONNECTOR SYSTEM

The following procedures are based on Gore's best practices for terminating GORE® Aerospace Ethernet Cables with the TE Connectivity® CeeLok FAS-X® Connector System for both pin and socket 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 the cable to the desired assembly length minus 1.70 inches to allow for length of the connectors (i.e., 0.8 inches for the plug connector and 0.9 inches for the receptacle connector).
4. Print any labels required by the end-user, and slide the center label onto the cable.
5. To identify the end for the pin connector, place a piece of tape on the end in which the pairs rotate clockwise in order of orange → green → brown → blue (Figure 10).



Figure 10: Pairs configuration at pin end



Figure 1: Needle nose pliers, scalpel, tweezer scissors, cutters, or suitable equivalent tools



Figure 2: Wire strippers (45-125)

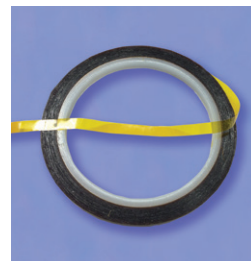


Figure 3: Materials/consumables: Polyimide tape (S-10518)



Figure 4: Crimpers (M22520/2-01 / AFM8)



Figure 5: Socket positioner M22520/2-07 (K40)



Figure 6: Pin positioner M22520/2-09 (K42)



Figure 7: Metal tweezer (M81969/8-01)

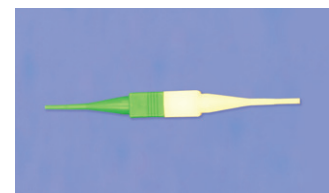


Figure 8: Installation removal tool (M81969/14-01)



Figure 9: Probe/pick

Terminating the Pin Connector (Termination A)

1. Slide one piece of the TAT onto the cable.
2. With the smallest end facing the cable, slide the backshell (i.e., rubber grommet) and washers onto the cable (Figure 11). NOTE: Kit includes 3 washers to fit various cable types. However, discard extra washer if using a Gore cable (RCN9034-24).



Figure 11: Sliding the backshell onto the cable

3. Measure and mark the jacket 0.5 inches from the end of the cable (Figure 12).

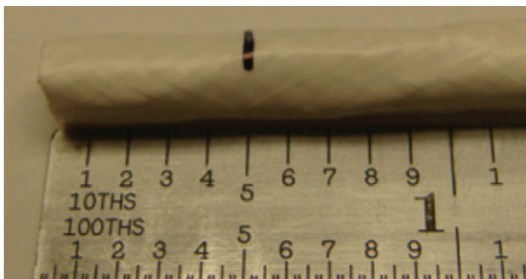


Figure 12: Marking the jacket

4. Using a scalpel or scissors, slit the cable's jacket from its edge to the mark (Figure 13).



Figure 13: Slitting the cable jacket

5. Using needle-nose pliers, gently pull the outer jacket down the cable until you have exposed approximately 1.5 inches of braid (Figure 14).

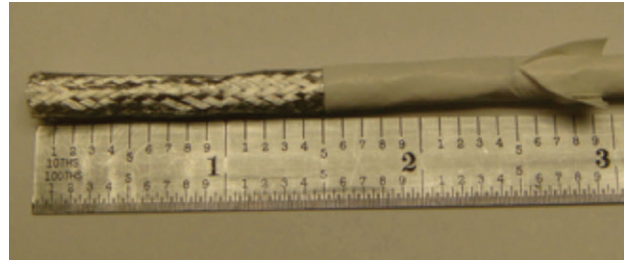


Figure 14: Exposing the braid

6. With your fingers, push the braid back over the cable to expose approximately 1.5 inches of the foil (Figure 15).



Figure 15: Exposing the foil

7. Using cutters, trim the white filler as far as possible from between the exposed pairs.
8. Cut a piece of polyimide tape for each pair. Wrap a piece of tape around the foil 0.5 inches from the end of the cable (Figure 16). Try to use as small a piece of tape as possible to minimize the buildup of material. The polyimide tape wrap should be in the same direction as the foil shield wrap.



Figure 16: Wrapping the foil

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

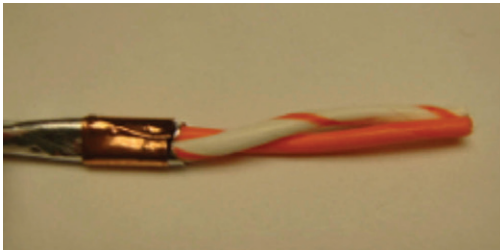


Figure 17: Tearing the foil

10. Mark each pair 0.15 inch from the end of the cable (Figure 18).

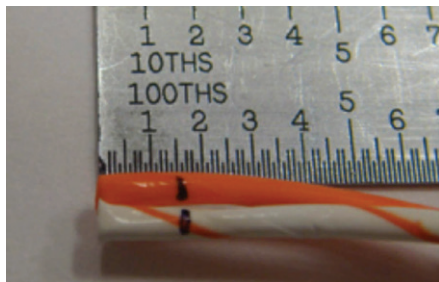


Figure 18: Marking each pair

11. Install the K42 positioner for the pin contact into the M22520/2-01, and select setting 3. To prevent stray wire strands during crimping, strip and crimp one primary at a time using contacts from the kit.

Using wire stripper tool (45-125 or equivalent), refer to the strip insulation from each wire using the stranded wire size marks for 24 AWG (Figure 19). If the metallic foil shield slid away from the wire ends while stripping the insulation, restore the metallic foil shield to its original configuration.

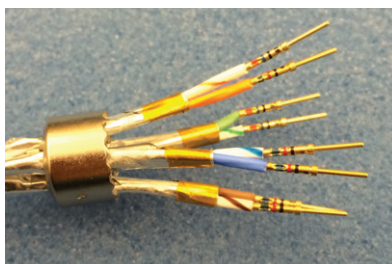


Figure 19: Stripping the primaries

12. According to the table in Step 13, insert correct wire pair in each cavity of the metal follower to match the sequence of the connector positions. Remove excess tape and foil on each wire pair before inserting into the metal follower (Figure 20).

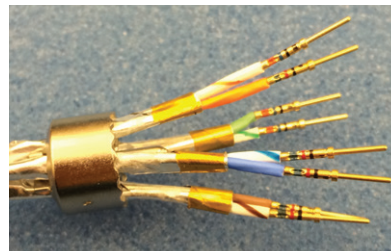


Figure 20: Inserting pairs through the metal follower

13. Using a metal tweezer (M81969/8-01) or installation removal tool (M81969/14-01), insert each wired contact into the connector according to the following table. It may be necessary to twist the pairs to align them with the appropriate position in the connector housing. If so, tighten the twist of the pair rather than loosen the twist of the wired contact (Figure 21).

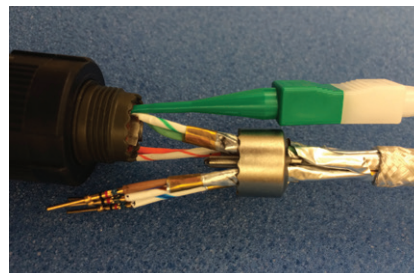


Figure 21: Inserting the wired contact in connector

Pin	Wire
1	Blue/White
2	Bue
3	Orange/White
4	Orange
5	Green/White
6	Green
7	Brown/White
8	Brown

14. Slide the metal follower to connector housing (Figure 20). The alignment pin on the metal follower fits into the center of the connector insert. (Figure 22).



Figure 22: Seating the metal follower

15. Gently slide the braid toward the connector, and fold it over the metal follower. Use a pick to loosen the braid to fold it over the backshell (Figure 23).



Figure 23: Folding the braid over the backshell

16. Push or slide the jacket back to the connector as far as it will go, and trim the excess (Figure 24).



Figure 24: Returning the jacket to the connector

17. Trim the braid material to halfway over the metal follower (Figure 25).



Figure 25: Trimming the excess braid material

18. Slide the washers toward the connector (Figure 26).



Figure 26: Placing the washers near the connector

19. Slide the backshell to the connector, and tighten it to the manufacturer's recommended torque value using the appropriate torque fixture (Figure 27).



Figure 27: Affixing the backshell

20. 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.

Terminating the Socket Connector (Termination B)

1. With the smallest end facing the cable, slide the backshell (i.e., rubber grommet) and washers onto the cable (Figure 28). Kit includes 3 washers to fit various cable types. However, discard extra washer if using a Gore cable (RCN9034-24).



Figure 28: Sliding the backshell onto the cable

2. Measure and mark the jacket 0.5 inches from the end of the cable (Figure 29).

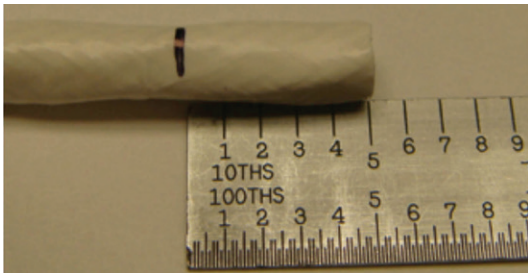


Figure 29: Marking the jacket

3. Using a scalpel or scissors, slit the cable's jacket from its edge to the mark (Figure 30).

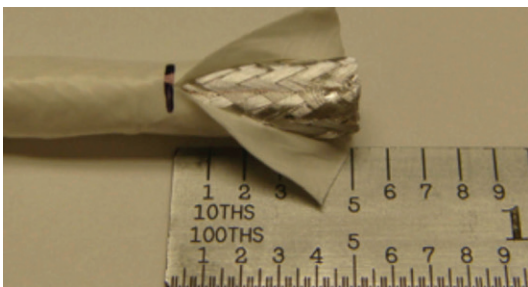


Figure 30: Slitting the cable jacket

4. Using needle-nose pliers, gently pull the outer jacket down the cable until you have exposed approximately 1.5 inches of braid (Figure 31).



Figure 31: Exposing the braid

5. With your fingers, push the braid back over the cable to expose approximately 1.5 inches of the foil (Figure 32).



Figure 32: Exposing the foil

6. Using cutters, trim the white filler as far as possible from between the exposed pairs.
7. Cut a piece of polyimide tape for each pair. Wrap a piece of polyimide tape around the foil 0.5 inches from the end of the cable (Figure 33). Try to use as small a piece of tape as possible to minimize the buildup of material. The polyimide tape wrap should be in the same direction as the foil shield wrap.

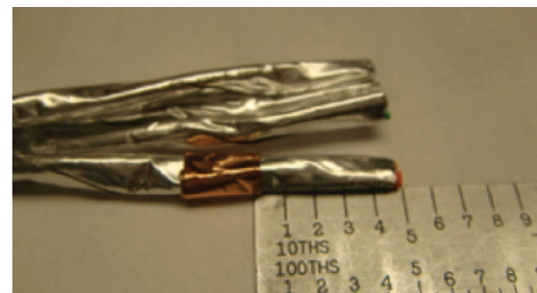


Figure 33: Wrapping the foil

8. With cutters, cut the foil edge where it meets the tape. Then, tear the foil along the tape edge (Figure 34).



Figure 34: Tearing the foil

9. Mark each pair 0.15 inch from the end of the cable (Figure 35).

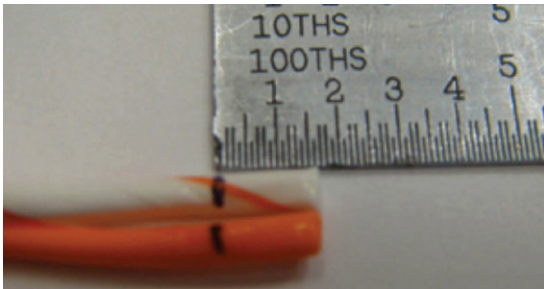


Figure 35: Marking each pair

10. Install the K40 (M25250/2-09) positioner for the socket contact into the M22520/2-01, and select setting 3. To prevent stray wire strands during crimping, strip and crimp one primary at a time using contacts from the kit.

Using wire stripper tool (45-125 or equivalent), refer to the strip insulation from each wire using the stranded wire size marks for 24 AWG (Figure 36). If the metallic foil shield slid away from the wire ends while stripping the insulation, restore the metallic foil shield to its original configuration.

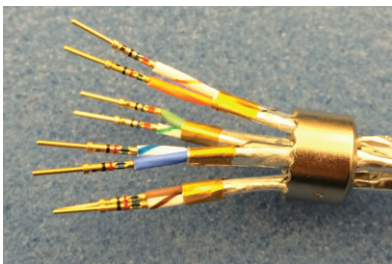


Figure 36: Stripping the primaries

11. Slide the metal follower over the pairs (Figure 37).

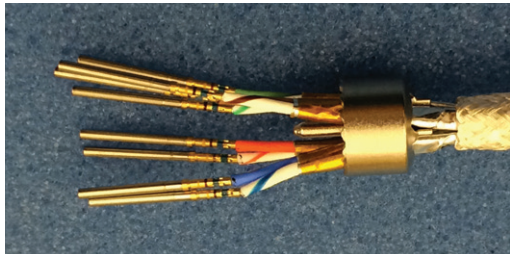


Figure 37: Inserting pairs through the metal follower

12. Using a metal tweezer (M81969/8-01) or installation removal tool (M81969/14-01), insert each wired contact into the connector according to the following table. It may be necessary to twist the pairs to align them with the appropriate position in the connector housing. If so, tighten the twist of the pair rather than loosen the twist of the wired contact (Figure 38).

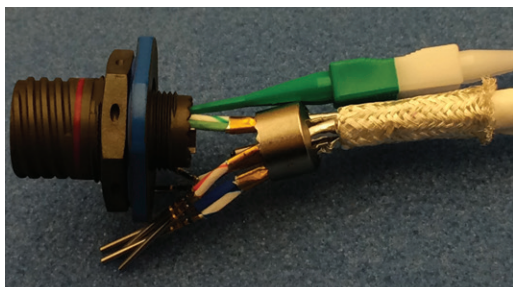


Figure 38: Inserting the wired contact in connector

Pin	Wire
1	Blue/White
2	Bue
3	Orange/White
4	Orange
5	Green/White
6	Green
7	Brown/White
8	Brown

13. Slide the inner metal follower to connector housing. The alignment pin on the metal follower fits into the center of the connector insert (Figure 39).

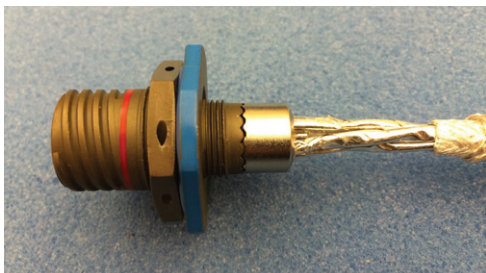


Figure 39: Seating the metal follower

14. Gently slide the braid toward the connector and fold it over the metal follower (Figure 40). Use a pick to loosen the braid to fold it over the backshell.



Figure 40: Folding the braid over the backshell

15. Push or slide the jacket back to the connector as far as it will go, and trim the excess (Figure 41).



Figure 41: Returning the jacket to the connector

16. Trim the braid material to halfway over the inner metal follower (Figure 42).



Figure 42: Trimming the excess braid material

17. Slide the washers toward the connector (Figure 43).

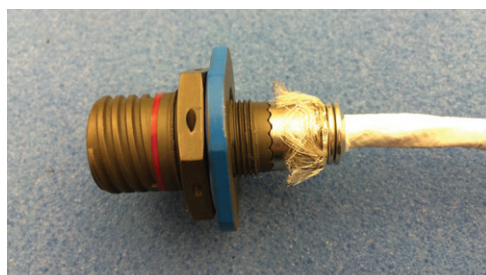


Figure 43: Placing the washers near the connector

18. Slide the backshell to the connector, and tighten it to the manufacturer's recommended torque value using the appropriate torque fixture (Figure 44).

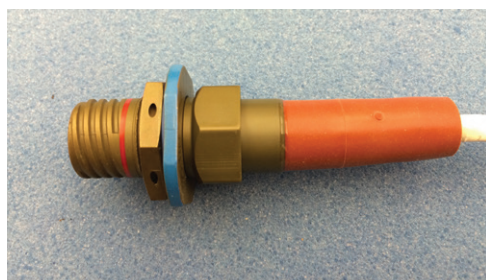


Figure 44: Affixing the backshell

19. 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. Gore recommends testing the final assembly using an advanced signal integrity tester such as the Fluke Networks® DSX-5000 or equivalent.

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