

BEL STEWART SS-39200 SERIES CONNECTOR SYSTEM

The following procedures are based on Gore's best practices for terminating GORE® Aerospace Ethernet Cables with the Bel Stewart SS-39200 Series Connector System for the plug version. Following these procedures will enable you to maximize the performance of your assembly; however, results may vary depending on the specific application.

Preparing the Cable and Parts

1. Gather the tools and materials required for assembly and termination (Figures 1 – 4).
2. Be sure to evaluate the tools and procedures in these termination instructions for potential hazards; collect the proper personal protective equipment you will need.
3. 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.
4. Cut a piece of cable to the desired assembly length plus 1.0 inch to allow you to trim the cable in step 13 prior to crimping.
5. Print any labels required by the end-user, and slide the center label onto the cable.
6. To identify the end for the plug 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 1: Needle nose pliers, scalpel, and tweezer scissors



Figure 2: Cutters

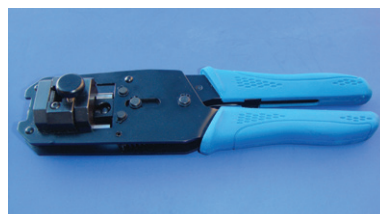


Figure 3: Bel Stewart Crimpers (2980075-01)

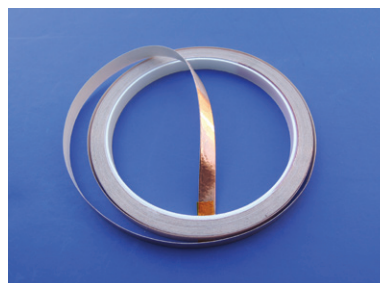


Figure 4: Copper foil tape¹ (3M-3313)

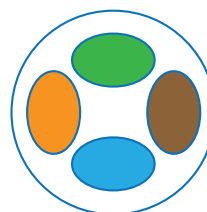


Figure 5: Pairs configuration at first plug connector

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.

Preparing the Plug Connector

1. Slide the strain relief grommet onto the cable (Figure 6).



Figure 6: Attaching the strain relief grommet

2. Measure and mark the cable 0.5 inch from its end (Figure 7).

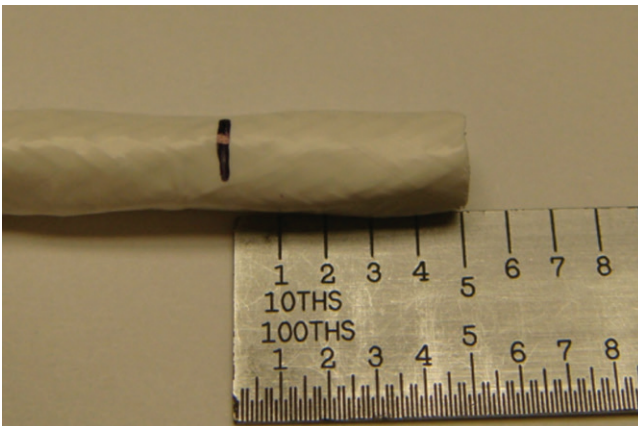


Figure 7: Marking the cable

3. Using a scalpel or scissors, slit the cable's jacket from its edge to the mark (Figure 8).

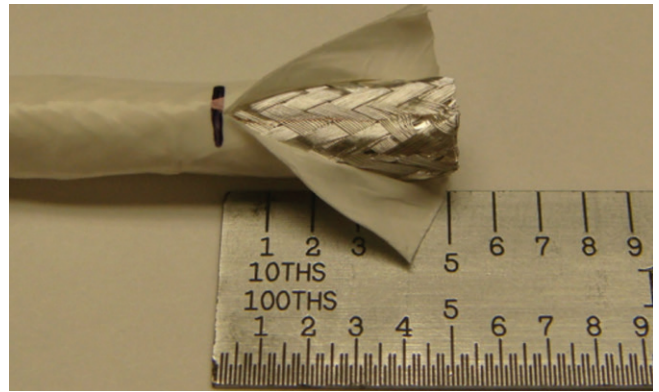


Figure 8: Slitting the cable jacket

4. Using needle-nose pliers, gently pull the outer jacket down the cable until you have exposed approximately 1.5 inches of braid (Figure 9).



Figure 9: Exposing the braid

5. With your fingers, push the braid back over the cable to expose approximately 1.5 inches of the foil (Figure 10).



Figure 10: Exposing the foil

7. With cutters, cut the foil on each pair where it meets the tape (Figure 12). Tear the foil along the edge.

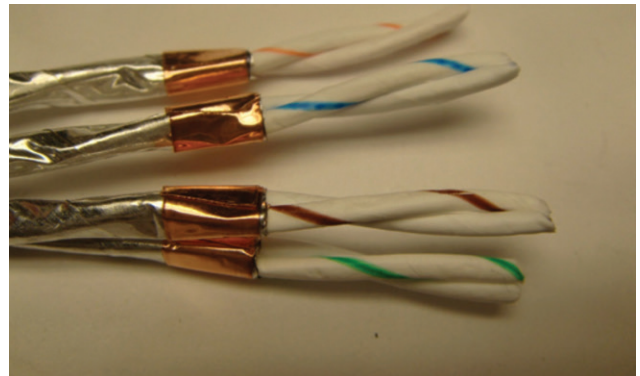


Figure 12: Cutting the foil

6. Cut four pieces of copper tape that are 0.50-inch long. Wrap a piece of the tape around each pair 1.0 inch from the end of the cable, keeping the foil shield wrapped as tight as possible (Figure 11).

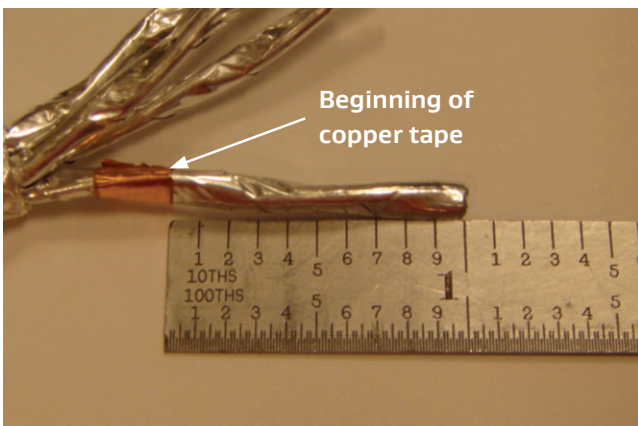


Figure 11: Wrapping the foil

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8. Remove as much white filler as possible.
9. Using 22-gauge hand strippers, carefully remove the outer-layer of the insulation from the copper tape to the end of each pair (Figure 13). Use your fingers or tweezers to remove any slug so that the cut is clean.

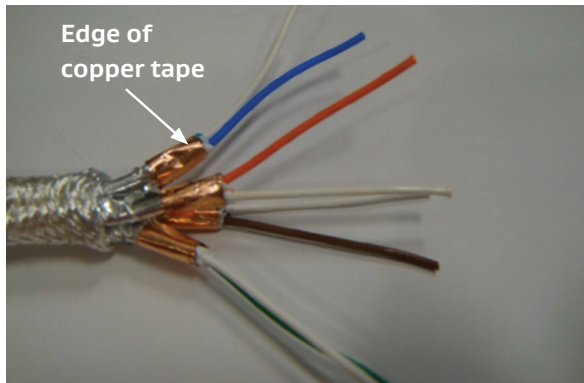


Figure 13: Stripping the pairs

10. Cut four 0.4-inch long pieces of copper tape, and wrap one piece around the newly exposed insulation of each pair (Figure 14).

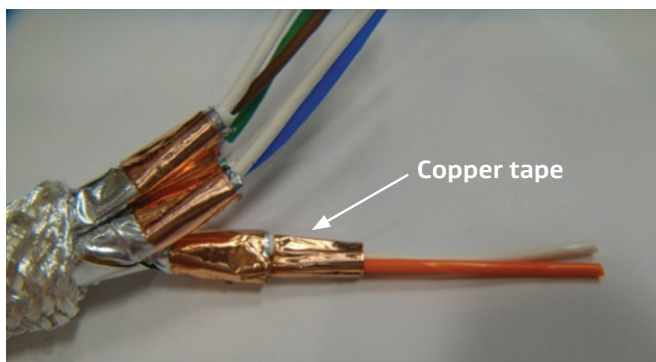


Figure 14: Taping the insulation

11. With the tapered end facing the foil, slide the plastic wire aligner in between the pairs until it reaches the cable shield (Figures 15 – 18).

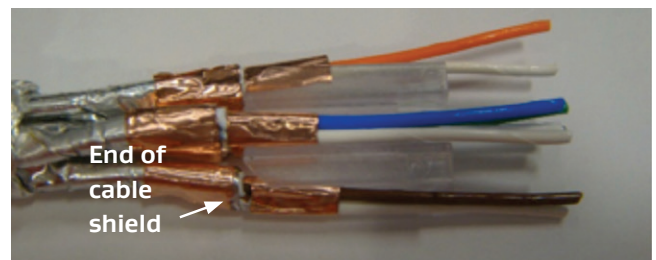


Figure 15: Sliding plastic wire aligner in first end

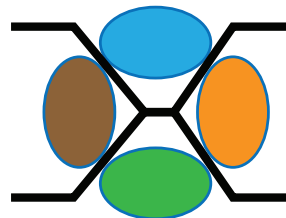


Figure 16: Front view of first end

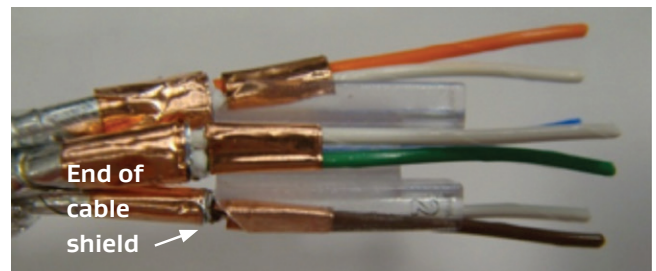


Figure 17: Sliding plastic wire aligner in second end

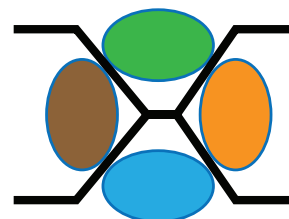


Figure 18: Front view of second end

12. Carefully slide the pairs into the load bar following the diagram in Figure 19. Be sure to maintain the nature twist of each pair as you insert the individual connectors into their positions (Figures 20 and 21).

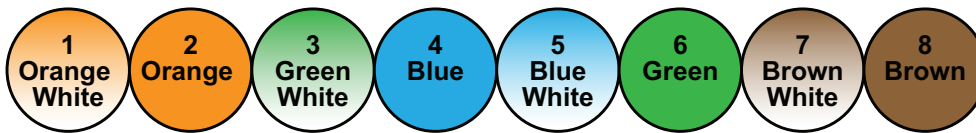


Figure 19: Positioning pairs in load bar

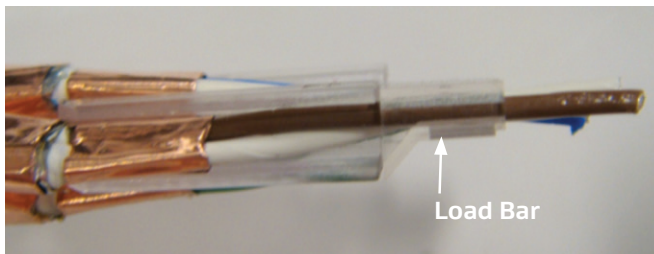


Figure 20: Side view of first end load bar

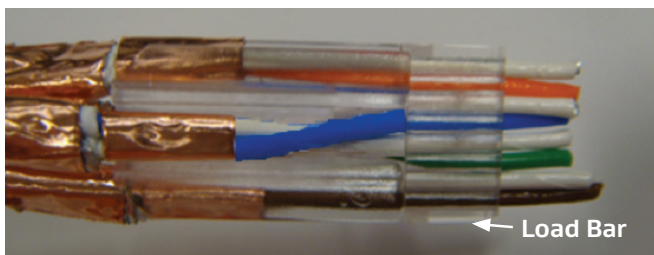


Figure 21: Top view of first end load bar

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13. Slide the load bar down the pair until it sits as close as possible to the plastic wire aligner. Using cutters, trim the conductors flush with the edge of the load bar (Figure 22).

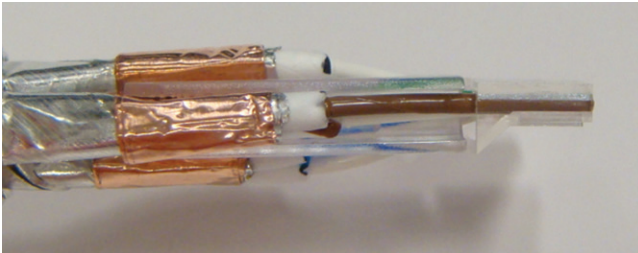


Figure 22: Trimming connectors

14. Insert the cable into the connector plug body with the flat side of the load bar aligning with the top of the connector body (Figure 23).

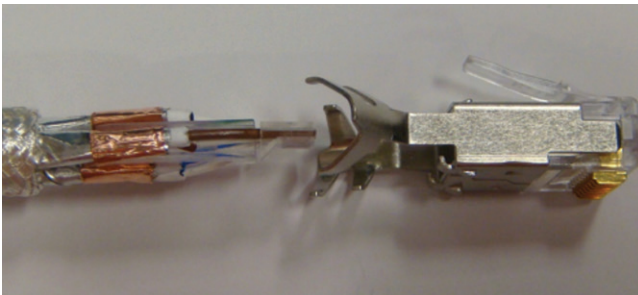


Figure 23: Inserting cable into connector plug body

15. Seat the load bar into the connector body plug until the wires come into contact with the inside surface of the plug (Figure 24).

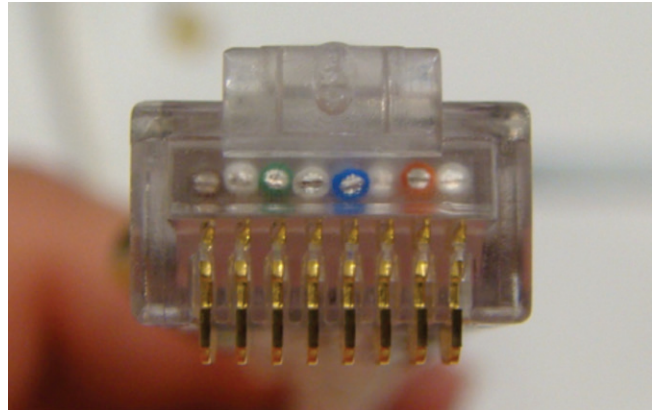


Figure 24: Seating the load bar

16. Slide the braid back toward the connector, and trim the braid where it meets the copper foil (Figure 25).

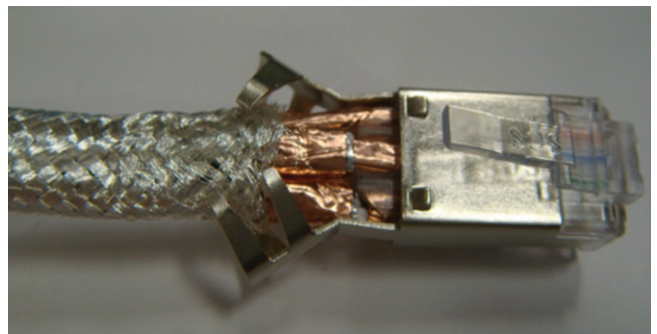


Figure 25: Replacing the braid

17. With the release tab facing the crimper handles, insert the connector into the Bel Stewart crimpers and crimp the connector (Figures 26 and 27).

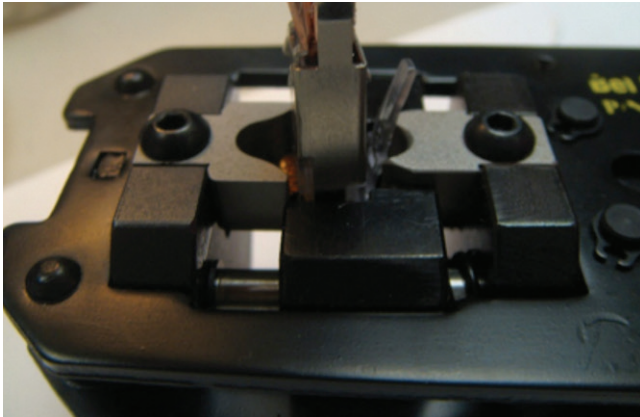


Figure 26: Crimping the connector

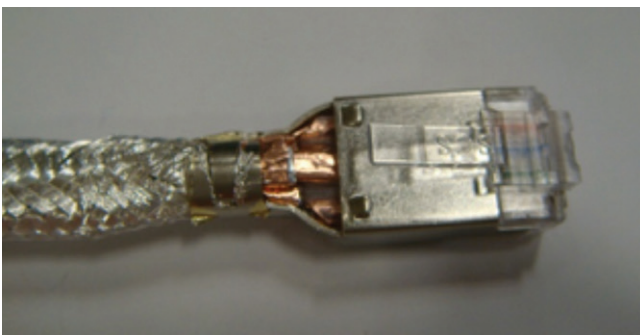


Figure 27: Crimped connector

18. Using your fingers or needle nose pliers, push the outer jacket as close to the connector as possible, and trim any excess material (Figure 28).



Figure 28: Returning the jacket

19. Slide the strain relief grommet toward the connector until it clicks into place (Figure 29).



Figure 29: Seating the strain relief grommet

Closing the Connector

1. 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. If you want to verify the complete assembly's performance to a wide range of Ethernet standards, Gore recommends using a Fluke Networks DSX Series or similar model.
2. Verify that the assembly length is accurate.
3. Using a heat-gun, shrink any applicable labels.

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