CARLISLE OCTAX® M38999 SIZE 11 CONNECTOR SYSTEM

The following procedures are based on Gore's best practices for terminating GORE® Aerospace Ethernet Cables with the Carlisle M38999 Octax® Size 11 Connector System for both plug shell and socket shell versions. 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 – 11).
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 four 3-inch pieces of 0.5-inch, thin-walled adhesive-lined tubing (TAT).
4. Cut two pieces of cable to the desired assembly length adjusted for the length of the connectors you are terminating:
   - Subtract 1.5 cm per straight connector per end
   - Add 3.3 cm per right-angled connector per end
5. Cut the bottom insert braid shield to a length of two inches (Figure 12).
6. Print any labels required by the end-user, and slide the center label onto the cable.
7. 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 → brown → blue → orange (Figure 13).

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

Figure 2: Cutters

Figure 3: Crimpers (M22520/2-01)

Figure 4: Socket positioner (K41)

Figure 5: Pin positioner (K42)

Figure 6: DRP-10

Figure 7: Allen key

Figure 8: Thread locker

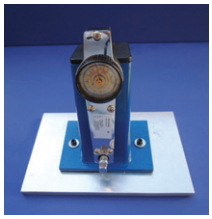

Figure 9: Torque meter

Figure 10: Contact retention tools

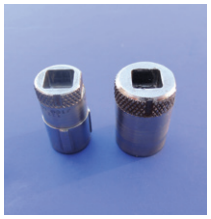

Figure 11: Torque adapters

Figure 12: Cutting bottom insert braid shield

Figure 13: Pairs configuration at plug end

Terminating the Plug Shell (Termination A)

Gore recommends that you complete each of the following steps for both cables before proceeding to the next step.

1. Slide one piece of the TAT onto each cable.
2. Insert the cable into the braid end of the bottom insert braided shield (Figure 14).

Figure 14: Inserting cable into braided shield

3. Measure and mark the cable 0.5 inch from the end of the cable (Figure 15).

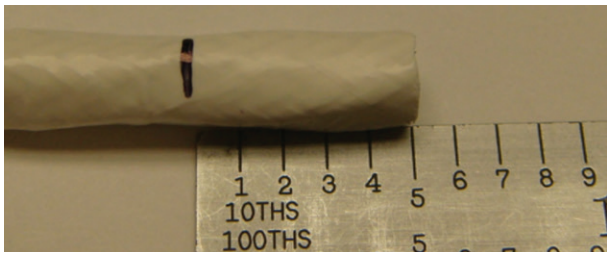

Figure 15: Marking the cable

4. Using a scalpel or scissors, slit the cable's jacket from its edge to the mark (Figure 16).

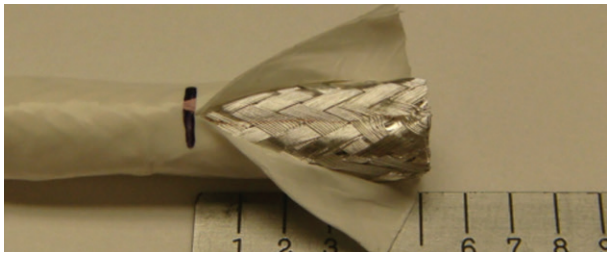

Figure 16: Slitting the cable jacket

5. Using needle-nose pliers, gently pull the outer jacket down the cable until you have exposed approximately 3.0 inches of braid (Figure 17).

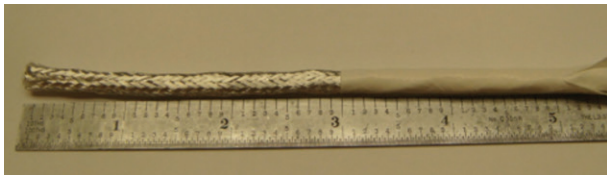

Figure 17: Exposing the braid

6. With your fingers, push the braid back over the cable to expose approximately 3.0 inches of the foil (Figure 18).

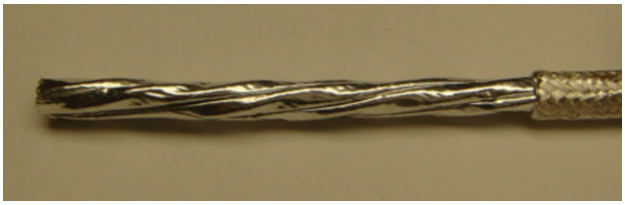

Figure 18: Exposing the foil

7. Remove the white filler as far down as possible.
8. Wrap a piece of 0.25-inch polyimide tape around the foil at the end of each pair, keeping the foil as tight as possible (Figure 19).

Figure 19: Wrapping the foil

9. Add another piece of 0.25-inch polyimide tape immediately next to the tape put on in step 8 (Figure 20).

Figure 20: Wrapping the foil

10. Pass the pairs from both cables through the bottom insert, with Cable 1 passing through Port A and Cable 2 through Port B. Be sure to start by inserting each blue pair in the center port (Figure 21).

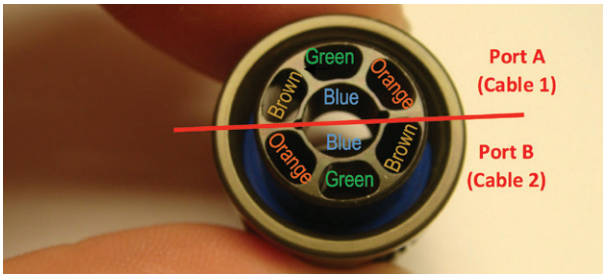

Figure 21: Inserting pairs through bottom insert

11. With cutters, remove both the piece of tape closest to the end and the foil down to where it meets the second piece of tape (Figure 22).

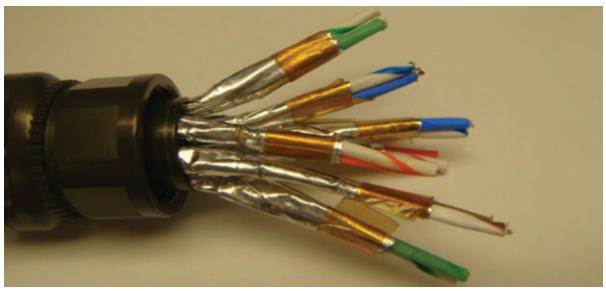

Figure 22: Removing the foil

12. Mark each primary 0.15 inch from the end of the cable (Figure 23). If necessary, trim the wires in each pair to be the same length.

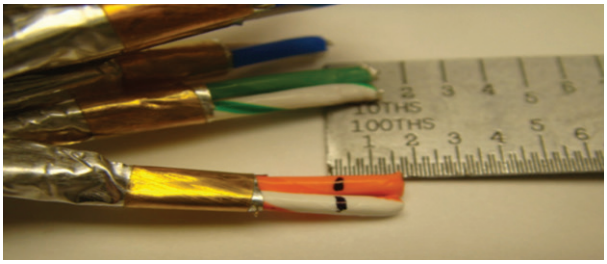

Figure 23: Marking each primary

13. 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 connector (Figure 24).

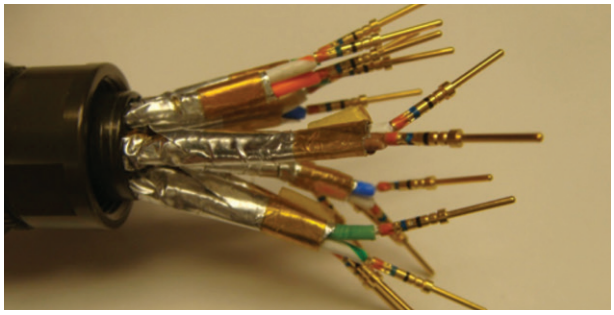

Figure 24: Stripping the primaries

14. Insert each pair into a blue insulator. With the insulator's slits facing you, the solid wire goes in the right, and the striped wire goes in the left (Figure 25).

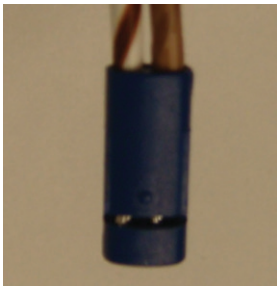

Figure 25: Inserting pair into plug insulator

15. Starting with the center position in port A (positions 13 and 14 in Figure 26), carefully insert the pairs into the top insert. Be sure to twist the pairs as you orient them in the top insert (Figure 27). Test their contact retention using the contact retention tools. Starting with positions 15 and 16, repeat for port B.

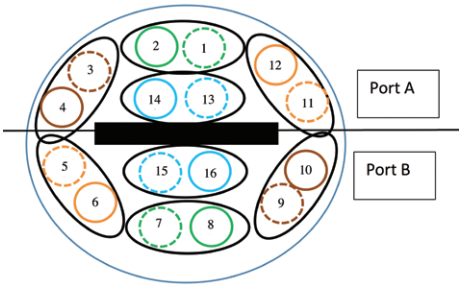

Figure 26: Inserting the pairs

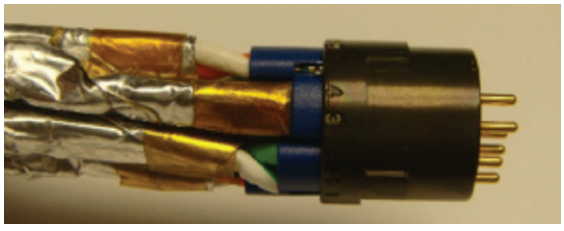

Figure 27: Pairs inserted into top insert

16. Once you have inserted all the pairs, slowly close the gap between the top and bottom inserts (Figure 28). Note: If you are working with a right-angle backshell, the major axis of the bottom insert port may affect its orientation. You may need to contact your local representative for further guidance.

Figure 28: Top and bottom inserts together

17. Align the connector shell's main key (e.g., marked by a dimple) to the top insert, attach the connector shell on the cable, and manually tighten until it is secure (Figure 29).

Figure 29: Inserting connector shell on cable

Terminating the Socket Shell (Termination B)

Gore recommends that you complete each of the following steps for both cables before proceeding to the next step.

1. Slide one piece of the TAT onto each cable.
2. Insert the cable into the braid end of the bottom insert braided shield (Figure 30).

Figure 30: Inserting cable into braided shield

3. Measure and mark the cable 0.5 inch from the end of the cable (Figure 31).

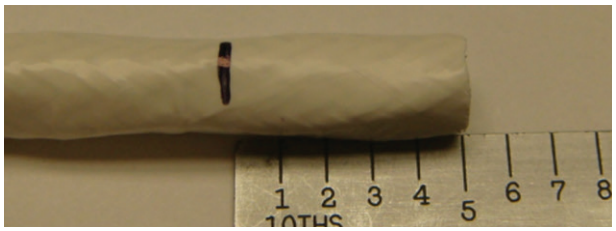

Figure 31: Marking the cable

4. Using a scalpel or scissors, slit the cable's jacket from its edge to the mark (Figure 32).

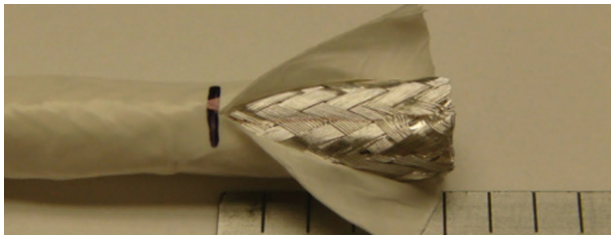

Figure 32: Slitting the cable jacket

5. Using needle-nose pliers, gently pull the outer jacket down the cable until you have exposed approximately 3.0 inches of braid (Figure 33).

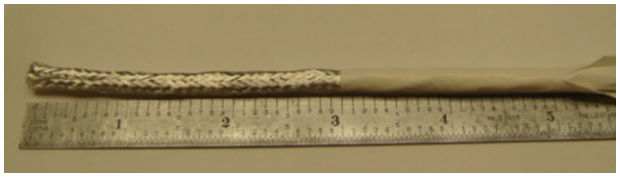

Figure 33: Exposing the braid

6. With your fingers, push the braid back over the cable to expose approximately 3.0 inches of the foil (Figure 34).

Figure 34: Exposing the foil

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

8. Wrap a piece of 0.25-inch polyimide tape around the foil at the end of each pair, keeping the foil as tight as possible (Figure 35).

Figure 35: Wrapping the foil

9. Add another piece of 0.25-inch polyimide tape immediately next to the tape put on in step 8 (Figure 36).

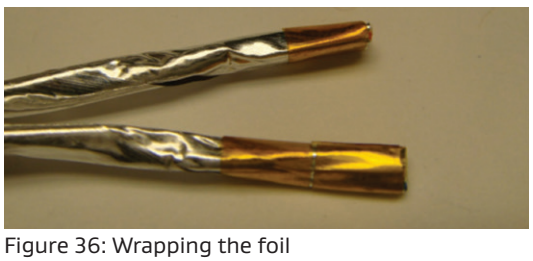

Figure 36: Wrapping the foil

10. Pass the pairs from both cables through the bottom insert, with Cable 1 passing through Port A and Cable 2 through Port B. Be sure to start by inserting each blue pair in the center port (Figure 37).

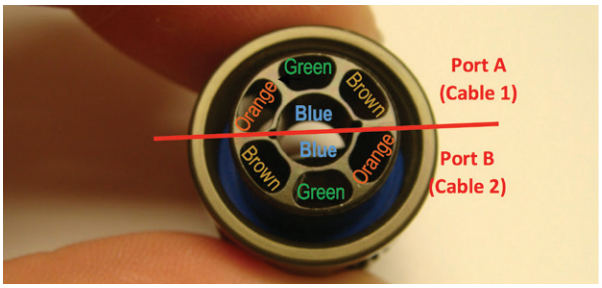

Figure 37: Inserting pairs through bottom insert

11. With cutters, remove both the piece of tape closest to the end and the foil down to where it meets the second piece of tape (Figure 38).

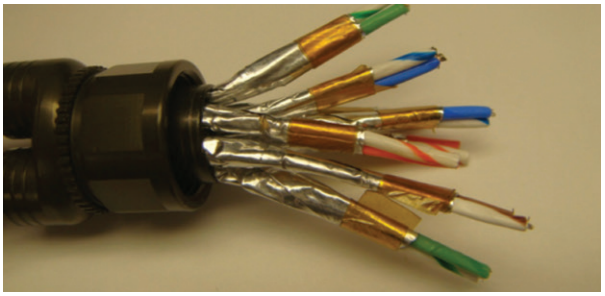

Figure 38: Removing the foil

12. Mark each primary 0.15 inch from the end of the cable (Figure 39). If necessary, trim the wires in each pair to be the same length.

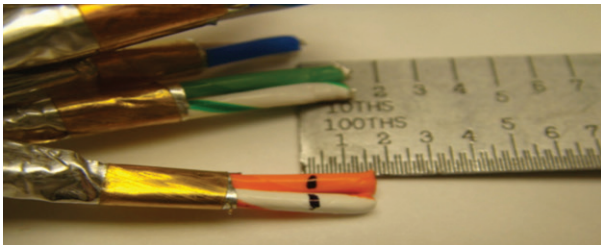

Figure 39: Marking each primary

13. Install the K41positioner 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 connector (Figure 40).

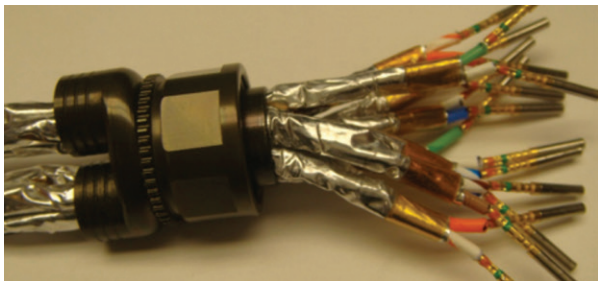

Figure 40: Stripping the primaries

14. Insert each pair into a blue insulator. With the insulator's slits facing you, the solid wire goes in the left, and the striped wire goes in the right (Figure 41).

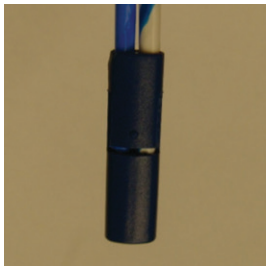

Figure 41: Inserting pair into insulator

15. Starting with the center position in port A (positions 13 and 14 in Figure 42), carefully insert the pairs into the top insert. Be sure to twist the pairs as you orient them in the top insert (Figure 43). Test their contact retention using the contact retention tools. Starting with positions 15 and 16, repeat for port B.

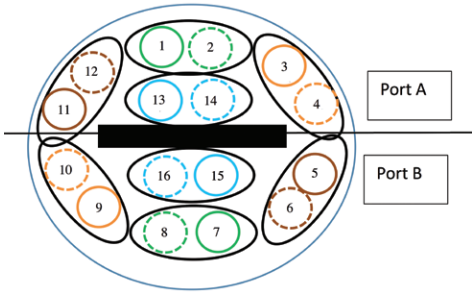

Figure 42: Inserting the pairs

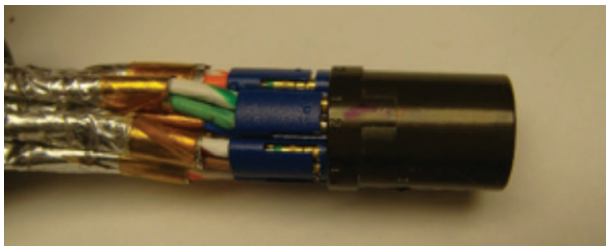

Figure 43: Pairs inserted into top insert

16. Once you have inserted all the pairs, slowly close the gap between the top and bottom inserts (Figure 44). Note: If you are working with a right-angle backshell, the major axis of the bottom insert port may affect its orientation. You may need to contact your local representative for further guidance.

Figure 44: Top and bottom inserts together

17. Align the connector shell's main key to the top insert, attach the connector shell on the cable, and manually tighten until it is secure (Figure 45).

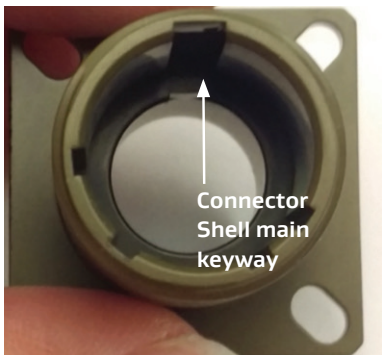

Figure 45: Inserting connector shell on cable

Closing the Connector

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. Using the DRP-10 tool, set the torque meter to 40 inch-pounds, and apply torque to the bottom insert coupling nut. Apply one drop of thread locker 08431 on each of the connector shell threads.
4. On each end of both cables, push the braid down until it covers the bottom insert; trim the braid where it meets the cups of the insert (Figure 46).

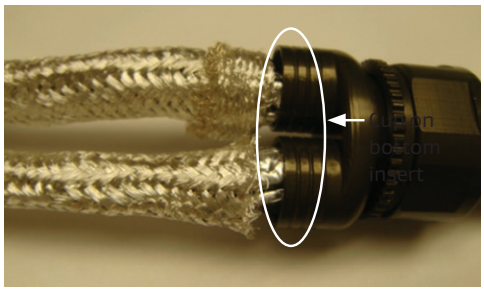

Figure 46: Resetting the braid

5. Slide the bottom insert braid shield toward the connector, capturing the cable braid underneath. Attach the braid shield to the bottom insert (Figure 47), and tape it to the cable braid.

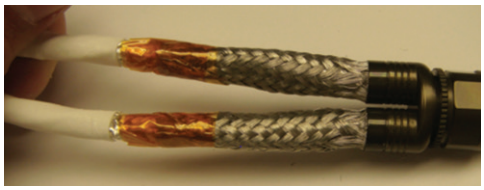

Figure 47: Taping the braid

6. Pull the outer jacket over as much of the tape as possible, and trim the excess (Figure 48).

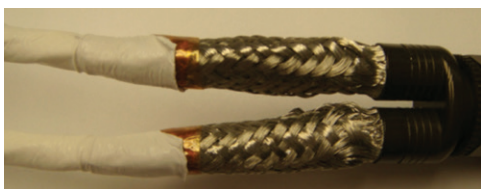

Figure 48: Repositioning the outer jacket

7. Position the piece of TAT material so that it completely covers the tape, braid, and cup of the bottom insert. Using a heat-gun, shrink the tubing over the insert (Figures 49 and 50).

Figure 49: Covering the plug with TAT material

Figure 50: Covering the receptacle with TAT material

8. To attach the backshell, align its lip onto the groove of the bottom insert, and use a 9/64-inch Allen key to fasten the screws (Figure 51). Note: If working with right-angle backshells, you must establish clocking by orienting the direction prior to placing the backshell (Figure 52).

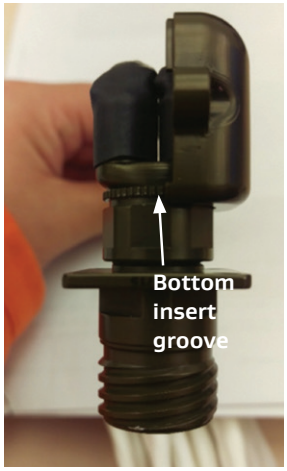

Figure 51: Attaching backshell

Figure 52: Attaching right-angle backshell

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

Closing the Connector

1. Perform all 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. Set a torque meter to 40 inch-pounds, and apply torque to the collet nut.
4. Slide the connector caps down the cable, and snap them onto the collet nuts of both connectors (Figures 44 and 45).
5. Perform all final testing. At a minimum, verify proper wiring and continuity, and check for shorts. Local authorities and end-users may require additional testing.
6. Using a heat-gun, shrink any applicable labels.

Figure 44: Installing the connector cap on plug end

Figure 45: Installing the connector cap on socket end

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ACS-0185-R2-REF-US-MAR22