

## SECTION 2

## CHAPTER 5

## REPAIRING WIRE AND CABLE

## INTRODUCTION

1. Aircraft wiring is sometimes damaged during normal operation and maintenance. This chapter provides information on repairing various types of wire and cable.

## NOTE

Where practicable, damaged wire or cable should be replaced from one termination to the next.

## SINGLE WIRE REPAIR

2. If an aircraft wire is damaged at a single point and there is sufficient slack in the wire, the damaged wire should be repaired with a single splice. If a wire is damaged along its length, the damaged segment must be cut out and replaced with a jumper wire and two splices (Figure 5-1).

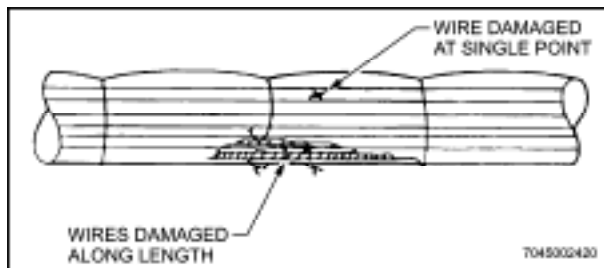


Figure 5-1 Damage Assessment

3. Carry out repairs as follows:
- Cut cable ties and remove cable clamps as required to access wire damage.
  - Work damaged wires to outside of wire bundle. Pull slack in wire toward damaged area to prevent strain on splice.
  - If more than one wire is to be spliced and wires are not colour coded or otherwise identified, tag wires before proceeding.

- Cut out the segment of wire with conductor or insulation damage. If a jumper wire is required, cut out at least 15cm of the damaged wire to allow room for splicing (Figure 5-2).

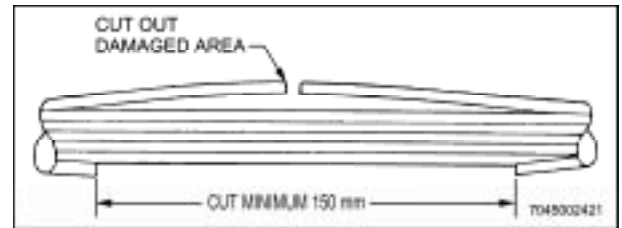


Figure 5-2 Removing Damaged Area

- If more than one jumper wire is to be installed, stagger splice positions by varying lengths of sections that are cut out of the damaged wires.
- Determine type and gauge of wire to be replaced from wire identification code or wiring diagram.
- Cut replacement wire 12.7mm longer than removed segment.
- From Table 5-1, select applicable splice for wire being replaced.

**WARNING**

DRY CLEANING SOLVENT P-D-680, TYPE II IS FLAMMABLE. AVOID EYE AND SKIN CONTACT OR BREATHING OF VAPOURS. APPROPRIATE PROTECTIVE EQUIPMENT IS REQUIRED.

- Clean 50mm of insulation, at wire ends to be spliced, with dry cleaning solvent.
- Strip wire insulation appropriate length for selected splice.
- Slide splice sealing sleeve over one end of stripped wire (Figure 5-3).

Table 5-1 Splice Selection

Wire Gauge	Splice Part Number	Colour Band	Crimp Tool	Crimp Die
26, 24, 22, 20	M81824/1-1	Red	M22520/5-01 or M22520/10-01	M22520/5-103 or M22520/10-104
20, 18, 16	M81824/1-2	Blue	M22520/5-01 or M22520/10-01	M22520/5-103 or M22520/10-104
16, 14, 12	M81824/1-3	Yellow	M22520/5-01 or M22520/10-01	M22520/5-102 or M22520/10-103

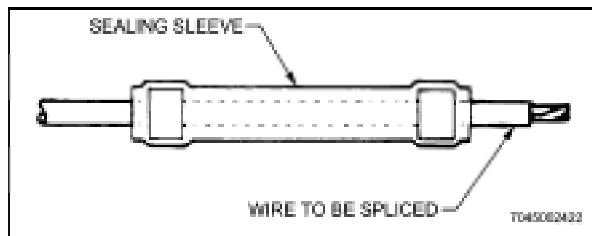


Figure 5-3 Sealing Sleeve placed on One Wire End

- i. Using appropriate crimping tool and die (Table 5-1) crimp splice to wire ends (Figure 5-4)

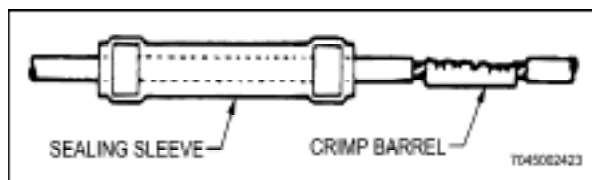


Figure 5-4 Correctly Installed Crimp Barrel

- m. Centre sealing sleeve over crimp barrel (Figure 5-5).

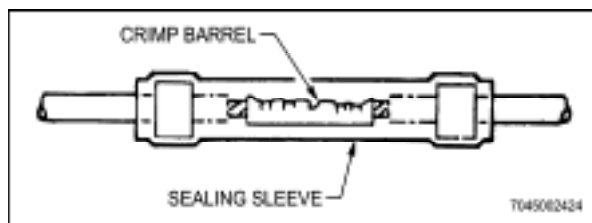


Figure 5-5 Sealing Sleeve Centred over Crimp Barrel

**WARNING**

USE ONLY HOT AIR GUN M83521/5-01 OR EQUIVALENT ON FUELLED AIRCRAFT

**WARNING**

USE OF NITROGEN WITH HOT AIR GUN M83521/5-01 IN AN ENCLOSED AREA CAN BE HAZARDOUS. ENSURE AREA IS WELL VENTILATED.

- n. Shrink sealing sleeve using hot air gun with small termination reflector. Shrink middle first and move heat towards one end until sealant melts and begins to flow out of sleeve (Figure 5-6). Repeat for other end. Allow to cool.

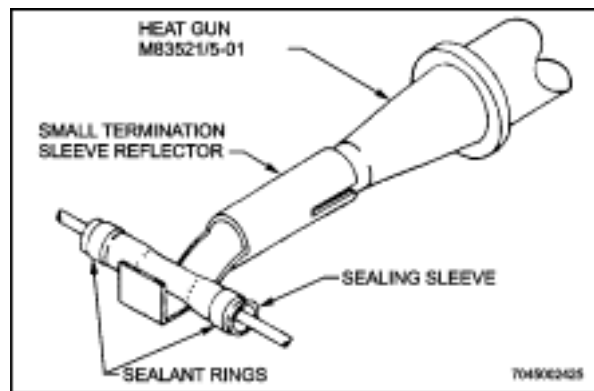
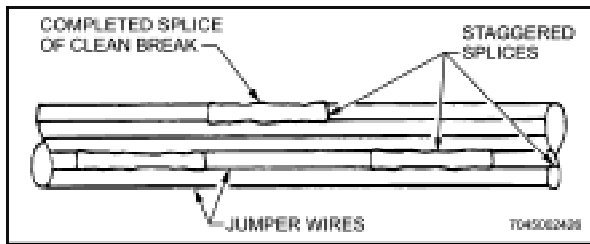


Figure 5-6 Splice Sealing

- o. If installing a jumper wire, repeat steps i to n.

- p. Work repaired wires into the bundle ensuring splices remain staggered (Figure 5-7).



**Figure 5-7 Completed Splices**

- q. Replace cable clamps and cable ties removed for access.

**MULTI-CONDUCTOR CABLE REPAIR**

4. The following paragraphs provide details of procedures, components and tooling for the repair of multi-conductor cables.

**NOTE**

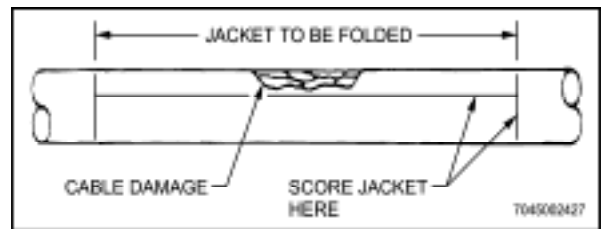
Where practicable, damaged cable should be replaced from one termination to the next.

- 5. **Unshielded Cable Repair.** Carry out repairs as follows:
  - a. Cut cable ties and remove cable clamps as required to access cable damage.



WHEN SCORING CABLE JACKET, ENSURE CONDUCTOR INSULATION IS NOT DAMAGED.

- b. Using a sharp blade or knife, score cable jacket around the cable and along the length of the damaged area (Figure 5-8).
- c. Flex cable at score marks until jacket separates.
- d. Remove jacket to gain access to damaged wires (Figure 5-9).

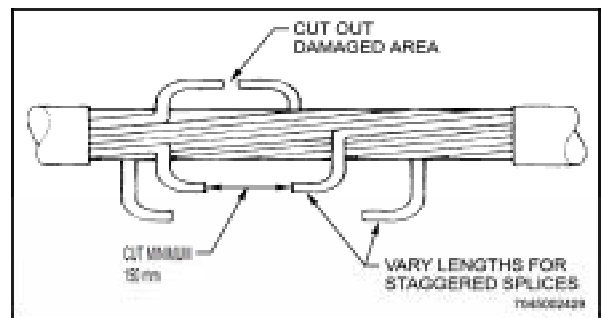


**Figure 5-8 Scored Jacket on Multi-Conductor Cable**



**Figure 5-9 Damage Assessment**

- e. If more than one wire is to be spliced and wires are not colour coded or otherwise identified, tag wires before proceeding.
- f. Cut out the segment of wire with conductor or insulation damage. If a jumper wire is required, cut out at least 15cm of the damaged wire to allow room for splicing (Figure 5-10).



**Figure 5-10 Removing Damaged Area**

- g. If more than one jumper wire is to be installed, stagger splice positions by varying lengths of sections that are cut out of the damaged wires.
- h. Determine type and gauge of wire to be replaced from wire identification code or wiring diagram.
- i. Cut replacement wire 12.7 mm longer than removed segment.
- j. Select applicable splice for wire being replaced from Table 5-2.

Table 5-2 Splice Selection

Wire Gauge	Splice Part Number	Colour Band	Crimp Tool	Crimp Die
26, 24, 22, 20	M81824/1-1	Red	M22520/5-01 or M22520/10-01	M22520/5-103 or M22520/10-104
20, 18, 16	M81824/1-2	Blue	M22520/5-01 or M22520/10-01	M22520/5-103 or M22520/10-104
16, 14, 12	M81824/1-3	Yellow	M22520/5-01 or M22520/10-01	M22520/5-102 or M22520/10-103

**WARNING**

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- k. Using dry cleaning solvent, clean 50 mm of insulation at wire ends to be spliced.
- l. Strip wire insulation appropriate length for selected splice.

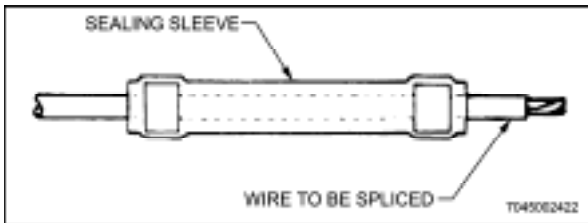


Figure 5-11 Sealing Sleeve Placed on One Wire End

- m. Slide splice sealing sleeve over one end of stripped wire (Figure 5-11).
- n. Using appropriate crimping tool and die (Table 5-2) crimp splice to wire ends (Figure 5-12).
- o. Centre sealing sleeve over crimp barrel (Figure 5-13).

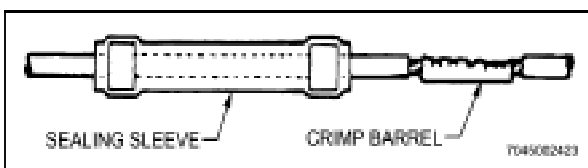


Figure 5-12 Correctly Installed Crimp Barrel

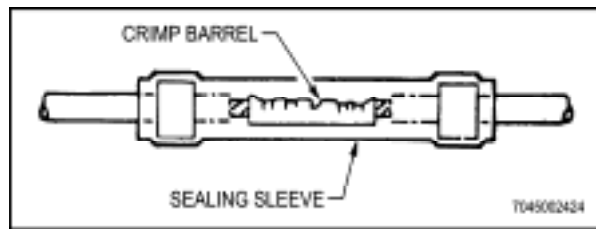


Figure 5-13 Sealing Sleeve Centred Over Crimp Barrel

**WARNING**

USE ONLY HOT AIR GUN M83521/5-01 OR EQUIVALENT ON FUELLED AIRCRAFT.

**WARNING**

USE OF NITROGEN WITH HOT AIR GUN M83521/5-01 IN AN ENCLOSED AREA CAN BE HAZARDOUS. ENSURE AREA IS WELL VENTILATED.

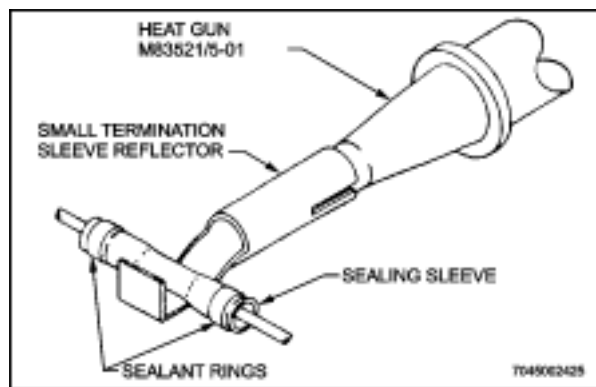


Figure 5-14 Splice Sealing

- p. Shrink sealing sleeve using hot air gun with small termination reflector. Shrink the middle first and heat towards one end until sealant melts and begins to flow out of sleeve (Figure 5-14).
- q. Repeat for other end. Allow to cool. If installing a jumper wire, repeat steps l. to p.

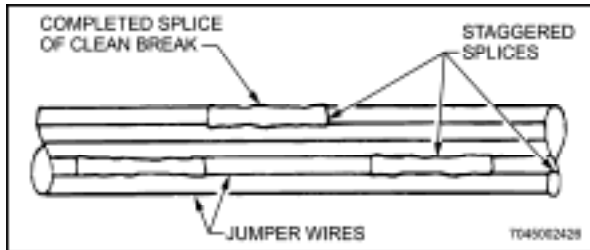


Figure 5-15 Completed Splices

- r. Work repaired wires into the bundle ensuring splices remain staggered (Figure 5-15).

**NOTE**

When applying insulating tape, hands should be free of dirt and oil.

- s. Apply insulating tape starting 12.7 mm before repaired area. Wrap tape one complete turn around cable parallel to jacket cut line (Figure 5-16).
- t. Keeping tape stretched firmly, begin wrapping around cable in a single layer, spiral wrap, using a 50% overlap.
- u. Continue wrapping until cable is wrapped 12.7 mm beyond repair area.
- v. Terminate tape by wrapping one complete turn around cable, keeping tape at a right angle to axis of bundle.
- w. Spot tie both ends of insulating tape (Figure 5-16).
- x. Replace cable clamps and cable ties removed for access.

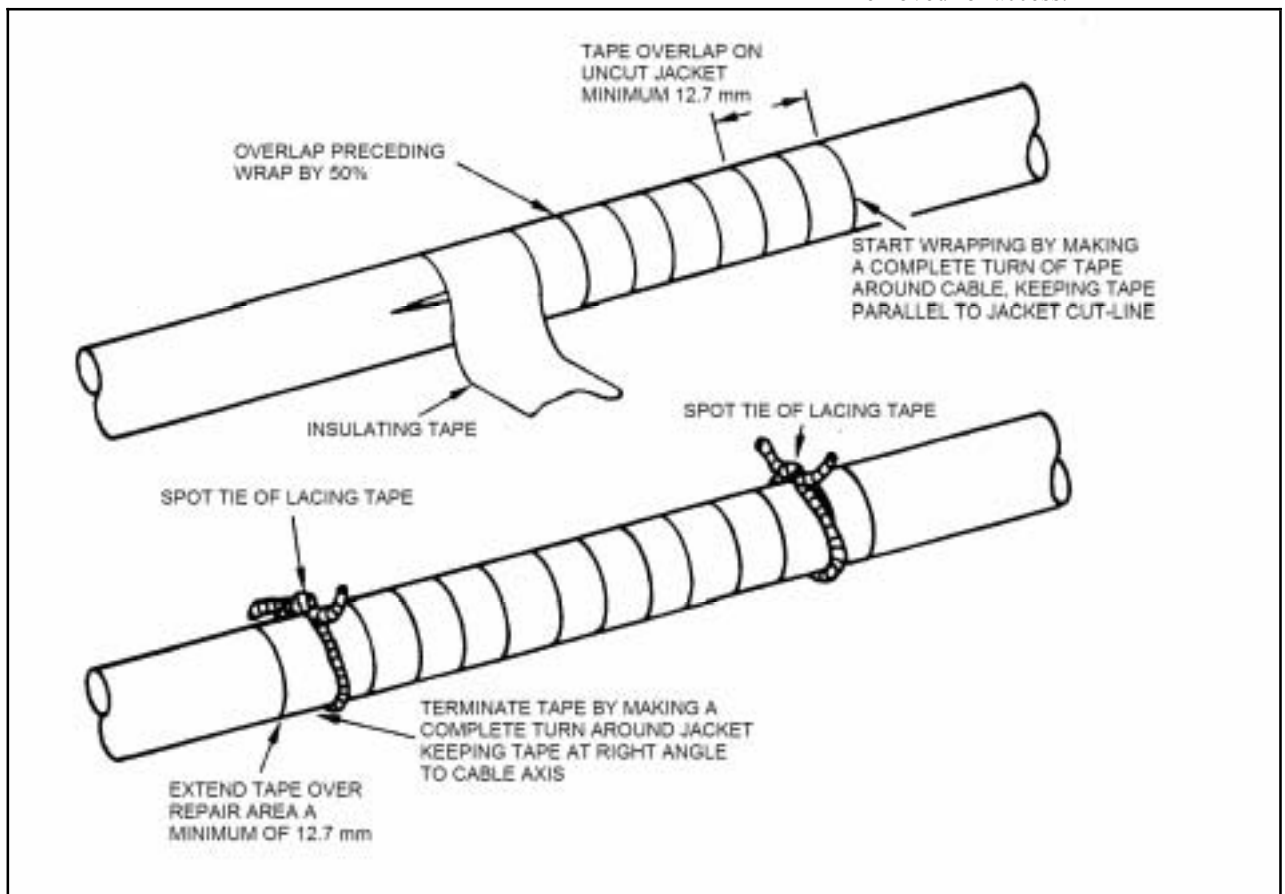


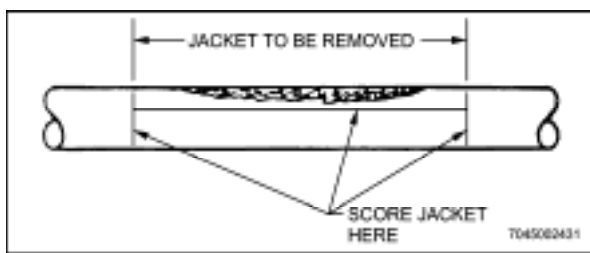
Figure 5-16 Taping Cable Jacket

- 6. **Shielded Cable Repair.** Carry out repairs as follows:

**NOTE**

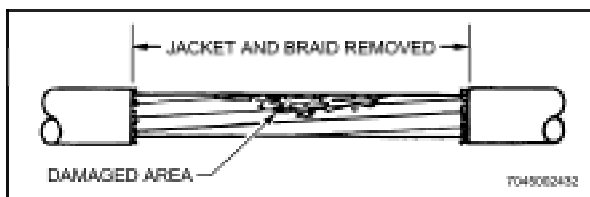
This procedure calls for cutting all conductors in the cable to allow installation of the repair braid and insulation tubing.

- a. Cut cable ties and remove cable clamps as required to access cable damage.
- b. Select shield repair kit according to the outside diameter of the damaged cable jacket (Table 5-3).
- c. Using a sharp blade, score cable jacket around the cable and along the length of the damaged area (Figure 5-17).



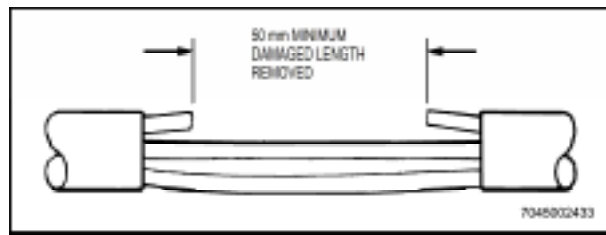
**Figure 5-17 Scored Jacket**

- d. Flex cable at score marks until jacket separates.
- e. Remove jacket.
- f. Using small scissors or diagonal cutter, remove shield, taking care not to damage underlying wire insulation (Figure 5-18).



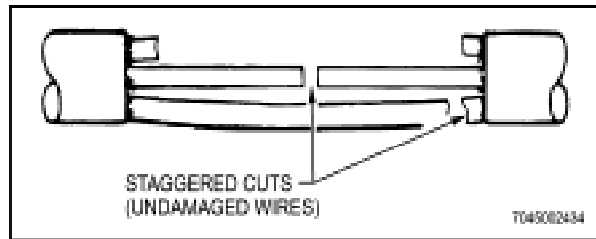
**Figure 5-18 Damaged Multi-conductor Cable**

- g. If wires are not colour coded or otherwise identified, tag all wires before proceeding.
- h. Cut wires to remove damage. If a segment of damaged wire must be cut out, remove at least 50 mm total length. (Figure 5-19). If damage is at a single point, damaged wire can be cut at the point of damage.



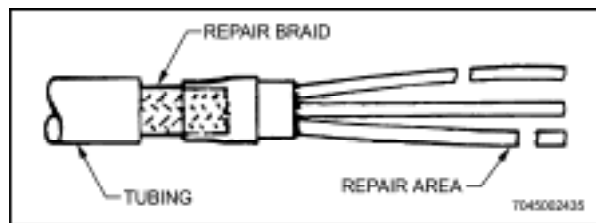
**Figure 5-19 Wire With Damaged Section Removed**

- i. Cut undamaged wires at staggered locations (Figure 5-20).



**Figure 5-20 Undamaged Wires Cut at Staggered Locations**

- j. Slide tubing and braid from shield repair kit, over one cable end (Figure 5-21). Tape tubing and braid away from repair area.



**Figure 5-21 Tubing and Braid Located on Cable End**

- k. If damaged sections of wire have been removed ensure that the removed sections are at least 50 mm long, to allow room for splicing.
- l. If more than one jumper wire is to be installed, stagger splice positions by varying lengths of sections that are cut out of the damaged wires.
- m. Determine type and gauge of wire to be replaced from cable identification code or wiring diagram.
- n. Cut replacement wire appropriate length to match removed segment (Figure 5-22).

**Table 5-3 Shield Repair Kit Selection**

Repair Kit	Cable Parameters		Kit Components		
Part Number	Number of Conductors	Conductor Size Range	Conductor Splice Part Number	Splice Quantity	Shield Splice Part Number
M81824/5-1 or D-150-0168	1	26-24-22-20	M81824/1-1	1	M81824/4-1
M81824/5-2 or D-150-0169	1	20-18-16	M81824/1-2	1	M81824/4-2
M81824/5-3 or D-150-0170	1	16-14-12	M81824/1-3	1	M81824/4-3
M81824/5-4 or D-150-0174	2	26-24-22-20	M81824/1-1	2	M81824/4-4
M81824/5-5 or D-150-0175	2	18-16	M81824/1-2	2	M81824/4-5
M81824/5-6 or D-150-0176	2	14	M81824/1-3	2	M81824/4-6
M81824/5-7 or D-150-0177	2	12	M81824/1-3	2	M81824/4-7
M81824/5-8 or D-150-0178	3 or 4	26-24	M81824/1-1	4	M81824/4-4
M81824/5-9 or D-150-0179	3 or 4	22-20	M81824/1-1	4	M81824/4-5
M81824/5-10 or D-150-0180	3 or 4	18-16	M81824/1-2	4	M81824/4-6
M81824/5-11 or D-150-0181	3 or 4	14-12	M81824/1-3	4	M81824/4-7

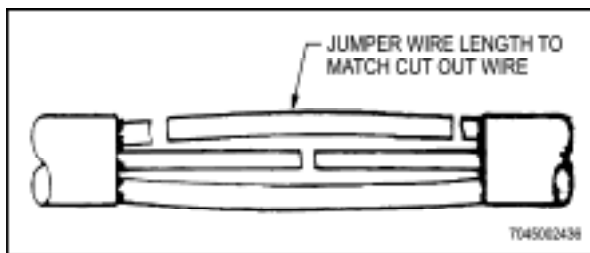


Figure 5-22 Jumper Wire Cut to Match Removed Segment

- o. Carry out wire splicing procedure as detailed in paragraph 3, steps i to n.
- p. When all wires have been reconnected, remove 12.7 mm of cable jacket at each end by carefully scoring around cable and along length to be stripped (Figure 5-17).

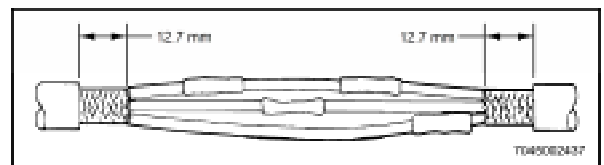
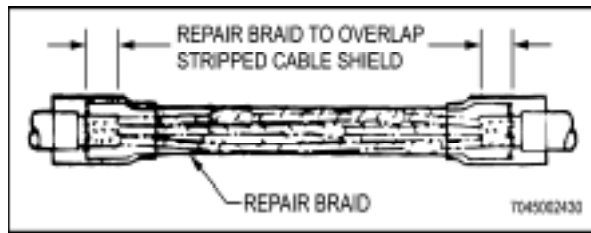


Figure 5-23 Jacket Removed

- q. Slide repair braid along cable and centre over repaired area (Figure 5-24).



**Figure 5-24 Repair Braid Centred Over Repair Area**

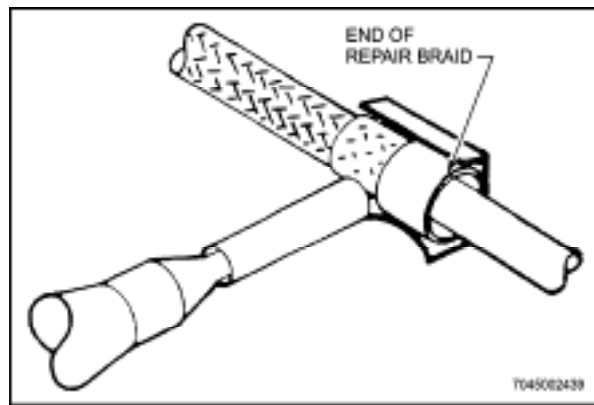
**WARNING**

USE ONLY HOT AIR GUN M83521/5-01 OR EQUIVALENT ON FUELLED AIRCRAFT.

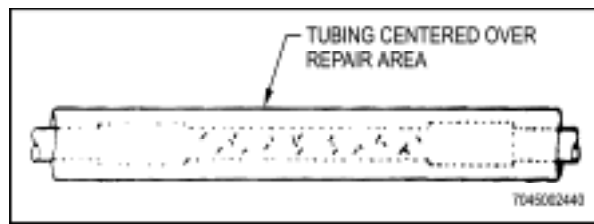
**WARNING**

USE OF NITROGEN WITH HOT AIR GUN M83521/5-01 IN AN ENCLOSED AREA CAN BE HAZARDOUS. ENSURE AREA IS WELL VENTILATED.

- r. Heat one end of the repair braid using hot air gun fitted with appropriate size reflector. Apply heat to the overlapping shield area until the solder melts and the sleeve shrinks onto the cable. Continue heating until solder flows into braid strands. Allow to cool undisturbed until solder solidifies (Figure 5-25).
- s. Repeat step r. for opposite end.
- t. Slide heat shrink tubing over repaired area and centre (Figure 5-26).
- u. Heat tubing using hot air gun fitted with appropriate size reflector. Start in the middle and heat until tubing shrinks moving out to one end. Repeat for other end.



**Figure 5-25 Heating Repair Braid**



**Figure 5-26 Tubing Centred Over Repaired Area**

#### MIL-STD-1553 DATA BUS CABLE REPAIR

7. The following paragraphs provide general information on MIL-STD-1553 data bus system and the tooling, materials, and procedures for repair of the data bus.
8. The 1553B Data Bus is a computerized and multiplex digital data distribution system for the many functions of command, control, communications, and intelligence designed for military aircraft. A twinax cable of 78 ohms was selected to provide the transmitted digital information with the required protection from magnetic and electrostatic interference including nuclear electromagnetic pulse. Therefore, complete shielding of the pair along the transmission path as well as within the multi-pin connector must be maintained.

**NOTE**

While the information and procedures contained in this supplement are appropriate for repairing MIL-STD-1553 data bus cables, aircraft specific repair procedures take precedence.

#### Single Shield Cable with Solder Sleeve Primary Splice.

9. Prepare the cable using the following procedure:
- a. Remove 31mm of cable jacket (Figure 5-27).

- b. Trim shield to 9mm from cable jacket.
- c. Strip primary conductors 12.7mm and pre-tin.
- d. Trim fillers flush with shield.
- d. Use a holding fixture to hold wires in alignment.

**WARNING**

10. Assemble as follows:

USE ONLY HOT AIR GUN M83521/5-01 OR EQUIVALENT ON FUELLED AIRCRAFT.

- a. Place D-150-0124-01 outer sleeve and D150-0124-02 shield splice (small end first) onto one cable.
- b. Insert primary conductors in D-150-0124-03 primary splice assembly.
- c. Overlap conductors under solder preforms.

**WARNING**

USE OF NITROGEN WITH HOT AIR GUN M83521/5-01 IN AN ENCLOSED AREA CAN BE HAZARDOUS. ENSURE AREA IS WELL VENTILATED.

- e. Heat solder preforms until they melt and form a fillet along wires.

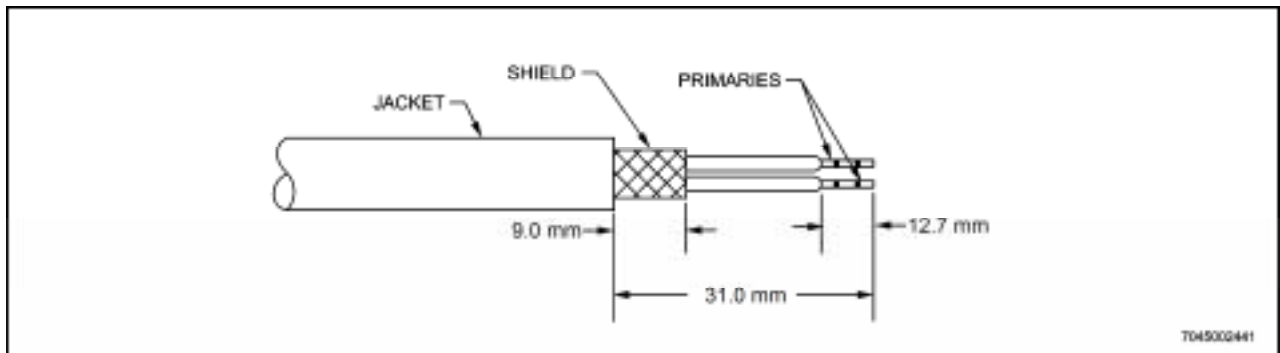


Figure 5-27 Single Shield Cable Strip Dimensions

Table 5-4 Tooling

Name	Part Number
Crimp Tool	AD-1377 or M22520/10-01 with die M22520/10-104
Holding Fixture	AD-1319
Hot Air Gun	M83521/5-01
Databus Harness Tester (Aircraft specific test leads required)	S2476N

Table 5-5 Materials

Name	Part Number
Splice Kit Solder Sleeve 24-22 AWG Single Shield	D-150-0124
Splice Kit Mini-Seal Crimp 24-22 AWG Double Shield	D-150-0133
Splice Kit Solder Sleeve 24-22 AWG Double Shield	D-150-0134
Splice Kit Mini-Seal Crimp 24-22 AWG Single Shield	D-150-0167

**NOTE**

The thermal indicator will lose its color when sufficient heat has been applied to make the joint.

- f. Heat ends of sleeves until inserts melt and flow along wires.
- g. Perform inspection (Paragraph 17).
- h. Centre D-150-0124-02 shield splice sleeve over splice and exposed cable shields.
- i. Using heat gun, heat centre of sleeve until solder melts and shield and tube recover.
- j. Move sleeve slowly through heat to one end of shield to keep sleeve recovering.
- k. Apply additional heat for 5 to 10 seconds to final 12.7mm of sleeve shield to ensure sufficient heat transfer to the cable to make a good joint.
- l. Apply heat to end of sleeve until ring melts and flows along cable jacket.
- m. Repeat for other end of sleeve.
- n. Perform inspection (Paragraph 19).
- o. Centre D-150-0124-01 strain relief sleeve over completed splice.

- p. Apply heat in centre of sleeve and move it through the heat until it has recovered onto the assembly.
- q. Perform inspection (Paragraph 20).

**Double Shield Cable With Solder Sleeve Primary Splice**

11. Prepare the cable using the following procedure:

- a. Remove 43mm of cable jacket (Figure 5-28).
- b. Trim shield to 18mm from cable jacket, then trim outer shield to 9mm from cable jacket.
- c. Strip primary conductors 12.7mm and pre-tin primaries.
- d. Trim fillers flush with shields.

12. Assemble as follows:

- a. Place D-150-0134-01 outer sleeve and D150-0134-02 shield splice (small end first) onto one cable.
- b. Insert primary conductors in D-150-0134-03 primary splice assembly.
- c. Overlap conductors under solder preforms.

- d. Use a holding fixture to hold wire in alignment.

**WARNING**

USE ONLY HOT AIR GUN M83521/5-01 OR EQUIVALENT ON FUELLED AIRCRAFT.

**WARNING**

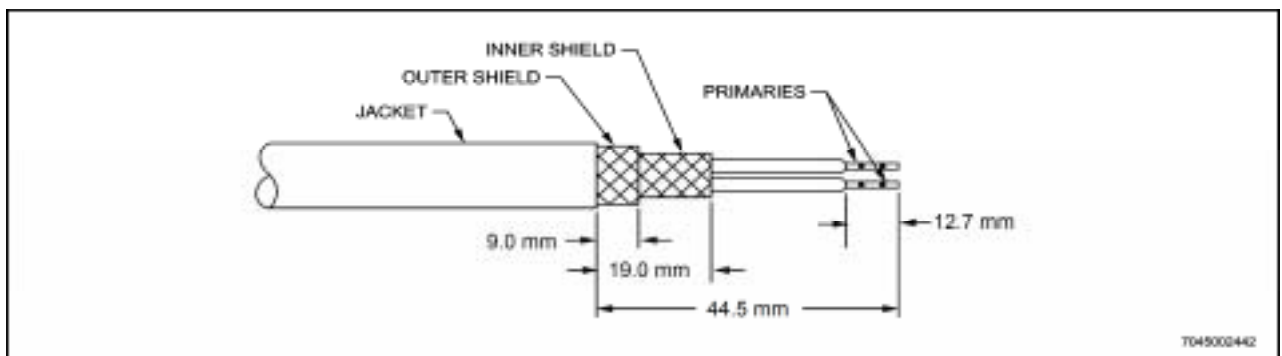
USE OF NITROGEN WITH HOT AIR GUN M83521/5-01 IN AN ENCLOSED AREA CAN BE HAZARDOUS. ENSURE AREA IS WELL VENTILATED.

- e. Using heat gun, heat solder preforms until melted and form a fillet along the conductors.

**NOTE**

The thermal indicator will lose its colour when sufficient heat has been applied to make the joint.

- f. Heat ends of sleeves until inserts melt and flow along wires
- g. Perform inspection (Paragraph 17).
- h. Centre D-150-0134-02 shield splice sleeve over splice and exposed cable shields.
- i. Using heat gun, heat centre of sleeve until solder melts and shield and tube recover.
- j. Move sleeve slowly through heat to one end of shield to keep sleeve recovering.



**Figure 5-28 Double Shield Cable Strip Dimensions**

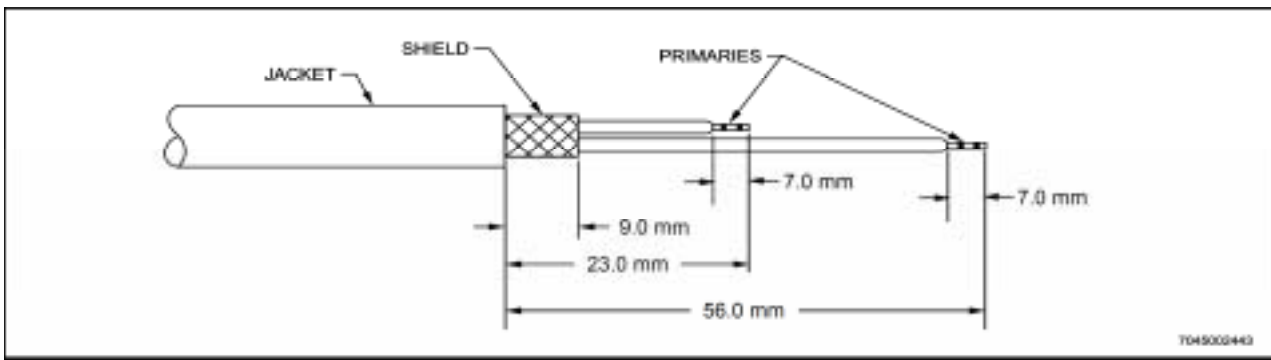
- k. Apply additional heat for 5 to 10 seconds to final 12.7mm of sleeve to ensure sufficient heat transfer to the cable shield to make a good joint.
- l. Apply heat to end of sleeve until rings melt and flow along cable jacket.
- m. Repeat for other end.
- n. Perform inspection (Paragraph 19).
- o. Centre D-150-0134-01 strain relief sleeve over completed splice.
- p. Apply heat in centre of sleeve and move it through the heat until it has recovered onto the assembly.

- q. Perform inspection (Paragraph 20).

**Single Shield Cable with Miniseal Crimp Primary Splice**

13. Prepare the cable using the following procedure:

- a. Remove 56mm of cable jacket (Figure 5-29).
- b. Trim shield to 9mm from cable jacket.
- c. Cut one primary 23mm from cable jacket.
- d. Strip both primaries 7mm.
- e. Trim fillers flush with shield.



**Figure 5-29 Single Shield Cable Strip Dimensions for Mini-Seal Crimp**

14. Assemble as follows:
- a. Place D-150-0167-04 outer sleeve and D-150-0167-01 shield splice (small end first) onto one of the cables.
  - b. Place one D-150-0167-03 sealing sleeve onto longer lead of each cable.
  - c. Crimp matching primaries into opposite ends of D-150-0167-02 crimp splice.
  - d. Centre D-150-0167-03 sleeves over splices.
  - e. Using heat gun, apply heat to centre of sleeves until recovered and then heat ends until sealing rings melt and flow along wires.
- WARNING**
- USE ONLY HOT AIR GUN M83521/5-01 OR EQUIVALENT ON FUELLED AIRCRAFT.
- WARNING**
- USE OF NITROGEN WITH HOT AIR GUN M83521/5-01 IN AN ENCLOSED AREA CAN BE HAZARDOUS. ENSURE AREA IS WELL VENTILATED.
- f. Heat ends of sleeves until inserts melt and flow along wires.
  - g. Perform inspection (Paragraph 18).
  - h. Centre D-150-0167-01 shield splice sleeve over splice and exposed cable shield.
  - i. Heat centre of sleeve until solder melts and shield and tube recover.
  - j. Move sleeve slowly through heat to one end of shield to keep sleeve recovering.
  - k. Apply additional heat for 5 to 10 seconds to final 0.5 inch (12.7mm) of sleeve to ensure sufficient heat transfer to cable shield to make a good joint.
  - l. Apply heat to end of sleeve until rings melt and flow along cable jacket.
  - m. Repeat for other end of sleeve.
  - n. Perform inspection (Paragraph 19).
  - o. Centre D-150-0167-04 strain relief sleeve over completed splice.
  - p. Starting at centre of sleeve, move sleeve through heat until it has recovered onto assembly.
  - q. Perform inspection (Paragraph 20).

#### **Double Shield Cable with Miniseal Crimp Primary Splice**

15. Prepare the cable using the following procedure:
- a. Remove 71mm of cable jacket (Figure 5-30).
  - b. Trim shield to 19mm from cable jacket, then trim outer shield to 9mm from cable jacket.
  - c. Cut one primary 32mm from cable jacket.

**NOTE**

The thermal indicator will lose its color when sufficient heat has been applied to make the joint.

- f. Heat ends of sleeves until inserts melt and flow along wires.
- g. Perform inspection (Paragraph 18).

- d. Strip primaries 7mm.
  - e. Trim fillers flush with shield.
16. Assemble as follows:
- a. Place D-150-0133-04 outer sleeve and D150-0133-02 shield splice (small end first) onto one cable.
  - b. Place one D-150-0133-04 sealing sleeve onto longer lead of each cable.
  - c. Crimp matching primaries into opposite end of D-150-0133-03 crimp splice.
  - d. Centre D-150-0133-04 sleeves over splices.

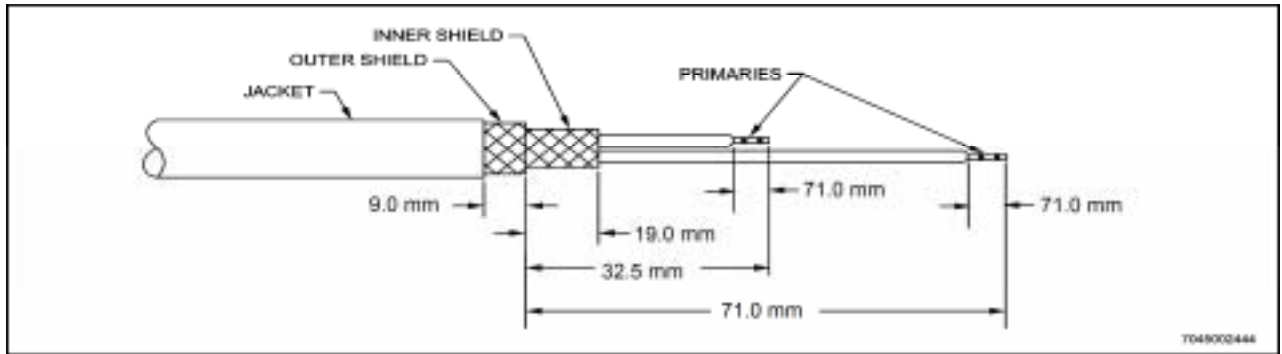


Figure 5-30 Double Shield Cable Strip Dimensions for Mini-Seal Crimp

**WARNING**

USE ONLY HOT AIR GUN M83521/5-01 OR EQUIVALENT ON FUELLED AIRCRAFT.

**WARNING**

USE OF NITROGEN WITH HOT AIR GUN M83521/5-01 IN AN ENCLOSED AREA CAN BE HAZARDOUS. ENSURE AREA IS WELL VENTILATED.

- e. Using heat gun, apply heat to centre of sleeves until recovered and then heat ends until sealing rings melt and flow along wires.

**NOTE**

The thermal indicator will lose its colour when sufficient heat has been applied to make the joint.

- f. Heat ends of sleeves until inserts melt and flow along wires.
- g. Perform inspection (Paragraph 18).
- h. Centre D-150-0133-02 shield splice sleeve over splice and exposed cable shield.

- i. Apply heat to centre of sleeve until solder melts and shield and tube recover.
- j. Move sleeve slowly through heat to one end of shield to keep sleeve recovering.
- k. Apply additional heat for 5 to 10 seconds to final 12.7mm of sleeve to ensure sufficient heat transfer to cable shield to make a good joint.
- l. Apply heat to end of sleeve until rings melt and flow along cable jacket.
- m. Repeat for other end of sleeve.
- n. Perform inspection (Paragraph 19).
- o. Centre D-150-0133-01 strain relief sleeve over completed splice.
- p. Starting from centre of sleeve, move sleeve through heat until it has recovered onto assembly.
- q. Perform inspection (Paragraph 20).

**Inspection**

17. Solder sleeve splices must be inspected for the following:

- a. Conductors must be overlapped a minimum 9mm.

- b. Fillet length must be a minimum 6mm.
  - c. Sealing rings must have flowed along the wire.
  - d. Sleeve must not have discoloured to the degree that joint cannot be inspected.
  - e. Sleeve must not be cut or split.
  - f. Strands of conductor must not be sticking through the sleeve.
- 18.** Mini-Seal splices must be inspected for the following:
- a. Conductors must be visible at point where they enter crimp barrel.
  - b. Both indentations of crimp, must be on crimp barrel.
  - c. Sealing sleeve inserts must have flowed along wire insulation.
  - d. Sleeve must not have discoloured to the degree that crimp barrel cannot be inspected.
  - e. Sleeve must not be cut or split.
- 19.** Shield splices must be inspected for the following:
- a. Sleeve/shield must be recovered along its entire length.
  - b. Sleeve must be recovered tightly around cable jacket.
  - c. Sealing rings must have flowed along cable jacket.
  - d. Sleeve must not have discoloured to the degree that the joint cannot be inspected.
  - e. Sleeve must not be cut or split.
  - f. Strands must not be sticking through of sleeve.
- 20.** Outer sleeves must be inspected for the following:
- a. Sleeves must be recovered tightly onto assembly along its full length.
  - b. An adhesive bead should be visible at ends of sleeve.
  - c. Sleeve must not be cut or split.

### Testing

- 21.** On completion of the inspection procedure the data bus should be tested to ensure there are no short circuits, shorts to shield, open circuits or crossovers, using test equipment detailed in Table 5-4, or equivalent.