ARINC 629 WIRING

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ARINC 629 WIRING

1. GENERAL DATA

A. Conditions for Repair or Replacement

Refer to Subject 20-10-13 for the applicable damage conditions and repair conditions for:

- The ARINC 629 S280W651-() data bus cable
- The ARINC 629 S280W502-() stub cable.

2. PART NUMBERS AND DESCRIPTION

A. ARINC 629 Data Bus Components

Table 1
ARINC 629 DATA BUS COMPONENT PART NUMBERS

Boeing Specification		Supplier Data	
Part Number	**Description**	**Part Number**	**Supplier**
-	Backshell	S3682-1205-1	Sunbank
BACC10DK()()	Clamp for Cable or Terminator	-	Boeing
BACC10GE8A	Clamp for Ferrite Suppressor	-	Boeing
BACC10HF12C	Backshell Clamp, Strain Relief	-	Boeing
BACC63CB12-3()	Plug	-	Boeing
BACC63CC12-3()	Receptacle	-	Boeing
S227W001-1	ARINC 629 Two Piece Coupler	DB110777	Amphenol/Bendix
	ARINC 629 Coupler Base	DB110778	Amphenol/Bendix
	ARINC 629 Coupler Cover	DB110779	Amphenol/Bendix
S227W001-2	ARINC 629 Two Piece Coupler	5242500-100	SCI Technology
	ARINC 629 Coupler Base	5242515-100	SCI Technology
	ARINC 629 Coupler Cover	5242505-100	SCI Technology
S227W001-4	ARINC 629 Two Piece Coupler	5242500-101	SCI Technology
	ARINC 629 Coupler Base	5242515-101	SCI Technology
	ARINC 629 Coupler Cover	5242505-101	SCI Technology
S227W001-6	ARINC 629 Two Piece Coupler	5242500-102	SCI Technology
	ARINC 629 Coupler Base	5242515-102	SCI Technology
	ARINC 629 Coupler Cover	5242505-102	SCI Technology
S227W001-8	ARINC 629 One Piece Coupler	5446500-001	SCI Technology
S280W651-()	ARINC 629 Data Bus Cable Assembly	-	Boeing
S280W752-1	Ferrite Suppressor	-	Boeing

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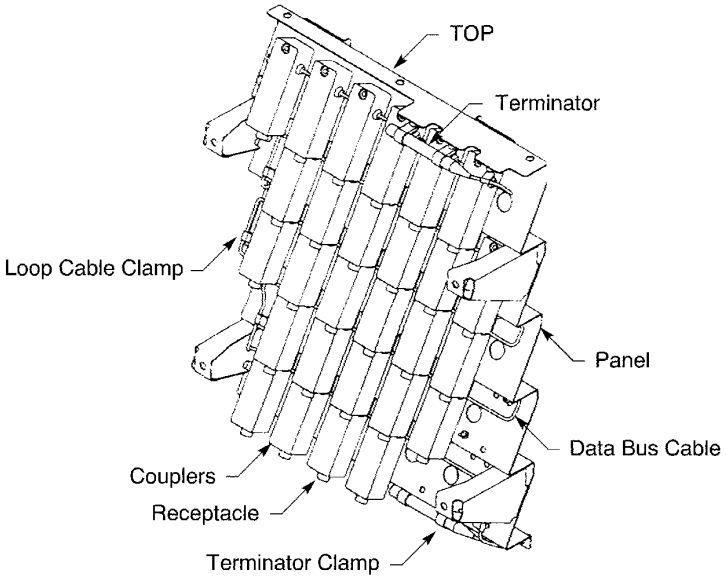
Table 2
NECESSARY MATERIALS

Material	Part Number or Specification	Size	Supplier
Tape, Foil	23-00159	-	Tecknit
Tape, Insulation, High Temperature	MIL-I-23594 Type I Class 4	0.5 inch wide	QPL
Tape, Polyester	No. 850	-	3M
Tape, Silicone	Scotch 70	1.5 inches wide	3M



USUAL CONFIGURATION OF THE ARINC 629 COUPLERS ON A PANEL
Figure 1

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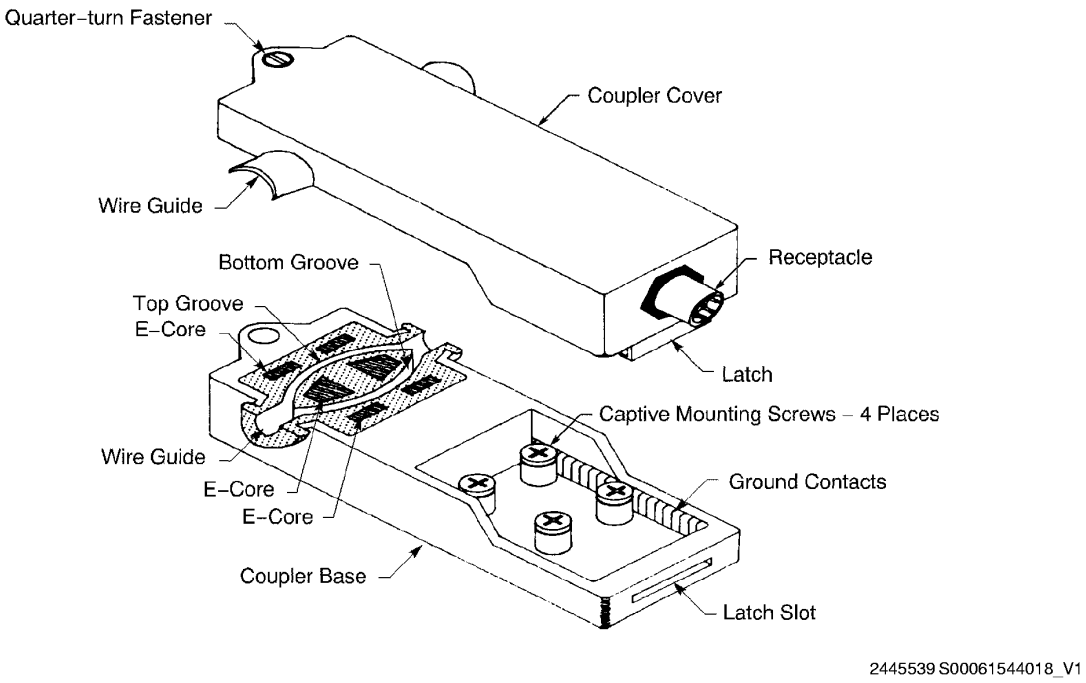

S227W001-1 TWO PIECE COUPLER
Figure 2

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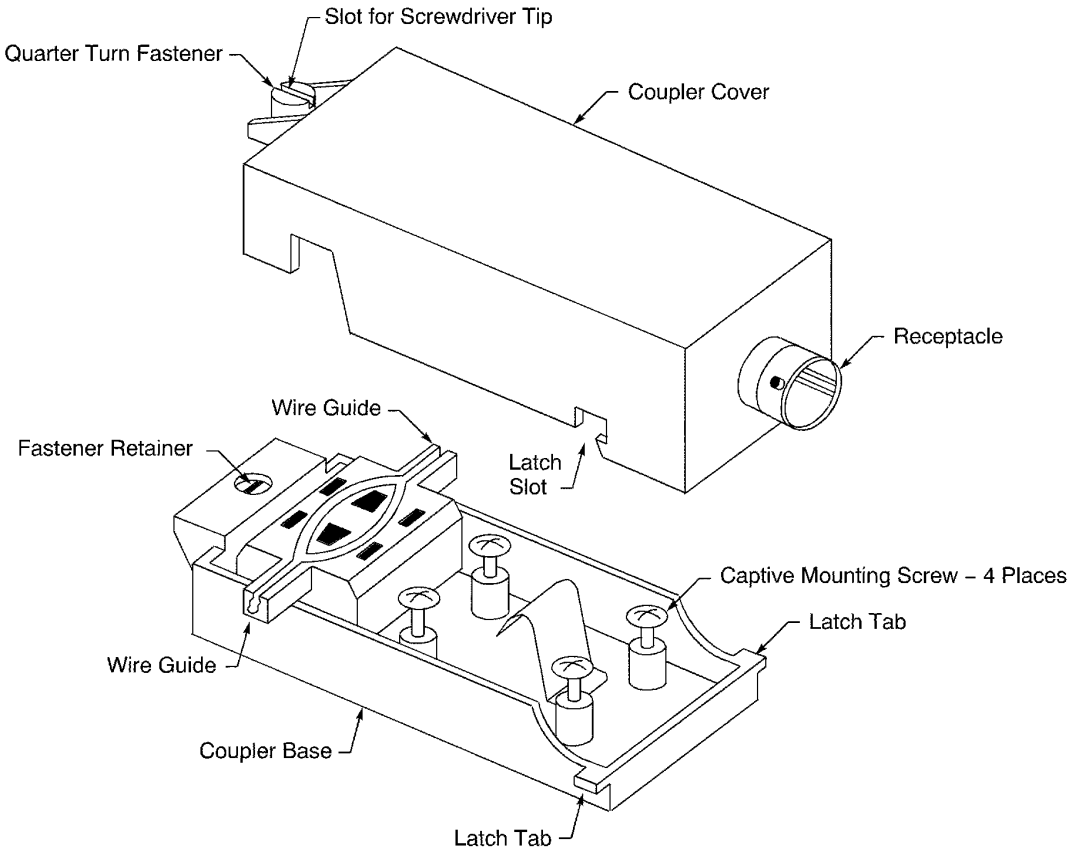

S227W001-2, S227W001-4, S227W001-6 TWO PIECE COUPLERS
Figure 3

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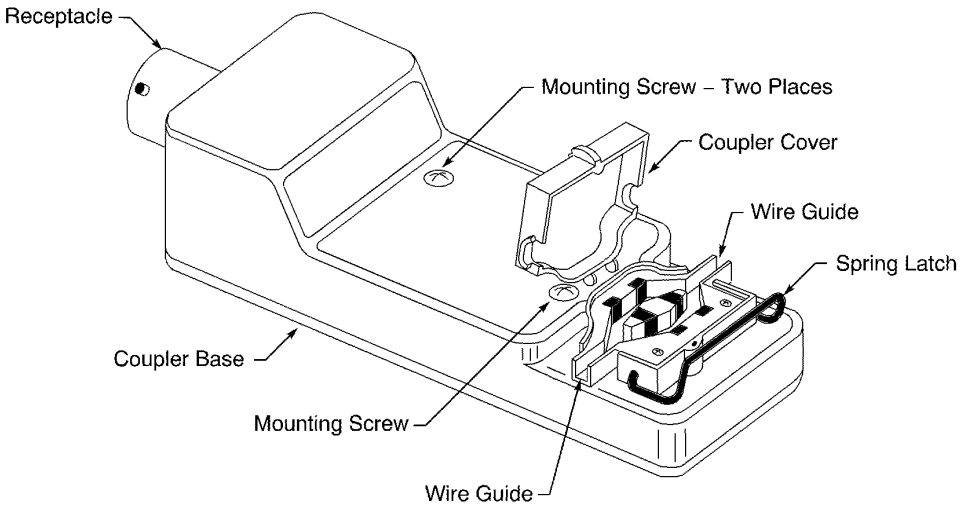

S227W001-8 ONE PIECE COUPLER
Figure 4

B. ARINC 629 Coupler-to-Stanchion Stub Cable Components

Table 3
COUPLER-TO-STANCHION STUB CABLE COMPONENT PART NUMBERS

Component	Part Number	Supplier
Backshell	S280W603-()	Boeing
	S280W605-()	Boeing
Cable	S280W502-4	Boeing
Plug	BACC63CB()	Boeing
Receptacle	BACC63CC()	Boeing

Table 4
NECESSARY MATERIALS

Material or Part	Part Number or Specification	Supplier	Description
Sleeve, Heat Shrinkable	DR-25	Tyco/Raychem	-
	MIL-DTL-23053/16	QPL	-
	MIL-LT	Tyco/Raychem	Blue
Solder Sleeve	BACS13CT()	Boeing	-
Tape, Shield	Scotch 24	3M	1.0 inch wide
Tape, Silicone	Scotch 70	3M	1.5 inches wide

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C. ARINC 629 Stanchion-to-LRU Stub Cable Components

Table 5
STANCHION-TO-LRU STUB CABLE COMPONENT PART NUMBERS

Component	Part Number	Supplier
Backshell	S280W603-()	Boeing
Cable	S280W502-1	Boeing
Contact, Twinax	S280W552-205	Boeing
Plug	BACC63CB()	Boeing
Receptacle	BACC63CC()	Boeing

Table 6
NECESSARY PARTS AND MATERIALS

Material or Part	Part Number or Specification	Supplier	Description
Sleeve, Heat Shrinkable	MIL-DTL-23053/16	QPL	-
	MIL-LT	Tyco/Raychem	Blue
	DR-25	Tyco/Raychem	-
Tape, Shield	Scotch 24	3M	1.0 inch wide
Tape, Silicone	Scotch 70	3M	1.5 inches wide

3. DATA BUS DISASSEMBLY

A. Removal of a Data Bus Cable for the S227W001-1, -2, -4, and -6 Two Piece Couplers

Table 7
NECESSARY TOOLS

Tool	Description
Screwdriver	Flat Head

(1) Loosen each loop cable clamp on the panel. Refer to Figure 1.

(2) If the data bus cable has a receptacle at one end, remove the receptacle from the panel.

(3) Remove the terminator from the terminator clamps.

(4) Make a selection of a screwdriver from Table 7.

(5) Turn the quarter turn fasteners on the coupler cover approximately 1/4 turn counter clockwise with the screwdriver. Refer to Figure 2 and Figure 3.

Make sure that you push on the screwdriver while you turn it.

(6) Remove the coupler cover from the coupler base.

(7) Carefully pull the data bus cable out of each wire guide of each coupler base.

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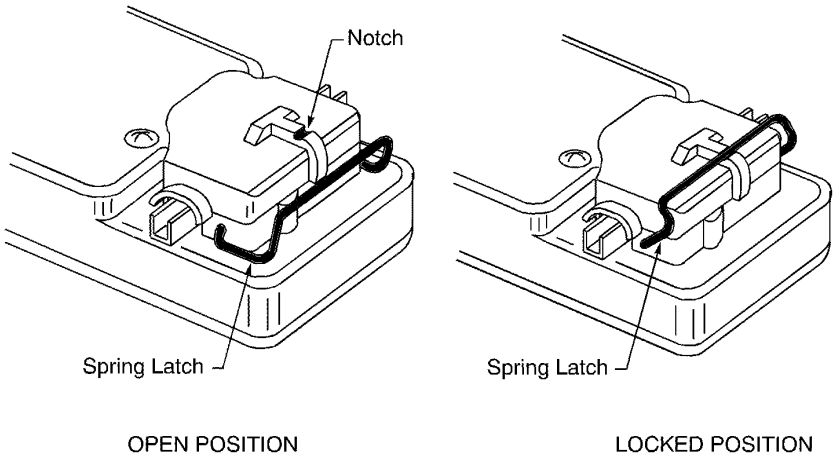
B. Removal of a data bus cable for the S227W001-8 One Piece Coupler

(1) Loosen each loop cable clamp on the panel. Refer to Figure 1.

(2) If the data bus cable has a receptacle at one end, remove the receptacle from the panel.

(3) Remove the terminator from the terminator clamps.

(4) Push the spring latch out of the notch to open the coupler lid. Refer to Figure 5.



S227W001-8 COUPLER SPRING LATCH ATTACHMENT
Figure 5

(5) Carefully pull the data bus cable out of each wire guide of each coupler base.

C. Removal of a Coupler Base from a Panel for the S227W001-1, -2, -4, and -6 Two Piece Couplers

Table 8
NECESSARY TOOLS

Tool	Description
Screwdriver	Flat Head
	Phillips Head

(1) If necessary, remove the data bus coupler from the wire guide of the coupler base:

(a) Make a selection of a flathead screwdriver from Table 8.

(b) Turn the quarter turn fastener on the coupler cover approximately turn counter clockwise with the screwdriver. Refer to Figure 2 and Figure 3.

Make sure that you push on the screwdriver while you turn it.

(c) Remove the coupler cover from the coupler base.

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(d) Carefully pull the data bus cable from the wire guide of the coupler base.

(2) Make a selection of a phillips head screwdriver from Table 8.

(3) Disengage the threads of the four captive mounting screws with the screwdriver. Refer to Figure 2 and Figure 3.

(4) Carefully pull the coupler base from the panel.

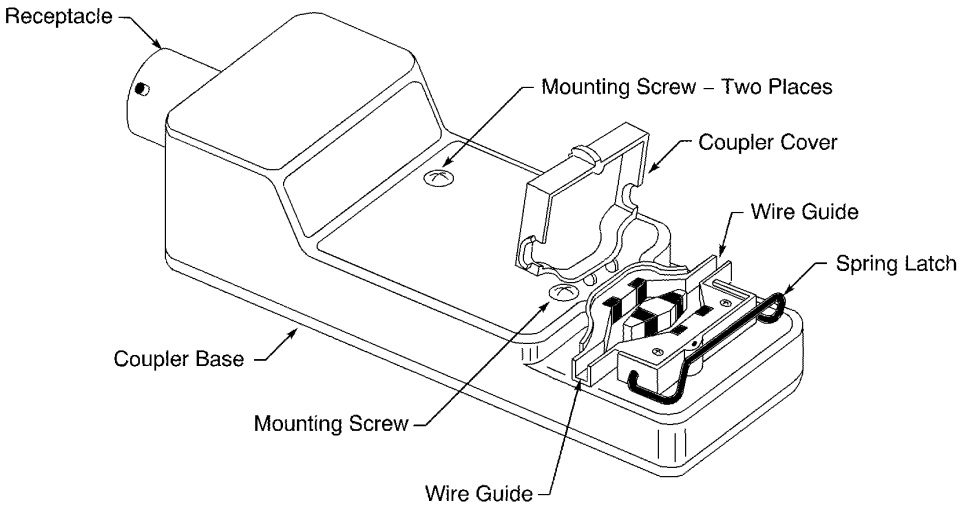
D. Removal of a S227W001-8 One Piece Coupler from a Panel

Table 9
NECESSARY TOOLS

Tool	Description
Screwdriver	Phillips Head

(1) Make a selection of a screwdriver from Table 9.

(2) Disengage the threads of the two mounting screws with the screwdriver. Refer to Figure 6.



S227W001-8 ONE PIECE COUPLER
Figure 6

(3) Carefully pull the coupler base from the panel.

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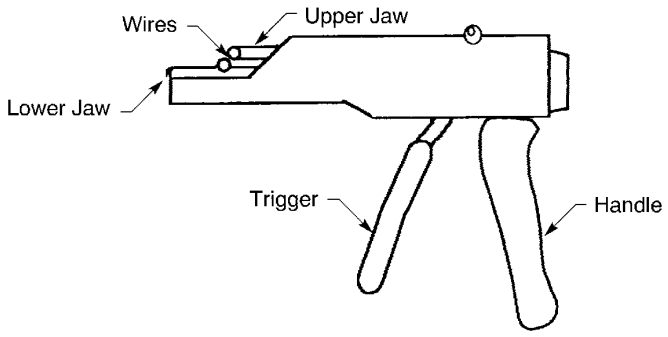
4. DATA BUS ASSEMBLY

A. Separation of the Data Bus Wires

Table 10
NECESSARY TOOLS

Tool	Part Number
Wire Separator	WST8139



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DANIELS WST8139 WIRE SEPARATOR TOOL
Figure 7

(1) Make a selection of a wire separator tool from Table 10.

CAUTION: ONLY USE A TOOL THAT IS SPECIFIED IN TABLE 10. OTHER TOOLS CAN CAUSE DAMAGE TO THE WIRES.

(2) Put one wire in the lower jaw and the other wire in the upper jaw of the tool. Refer to Figure 7.

(3) Pull the trigger until it is against the handle to move the wires apart.

(4) Remove the wires from the tool.

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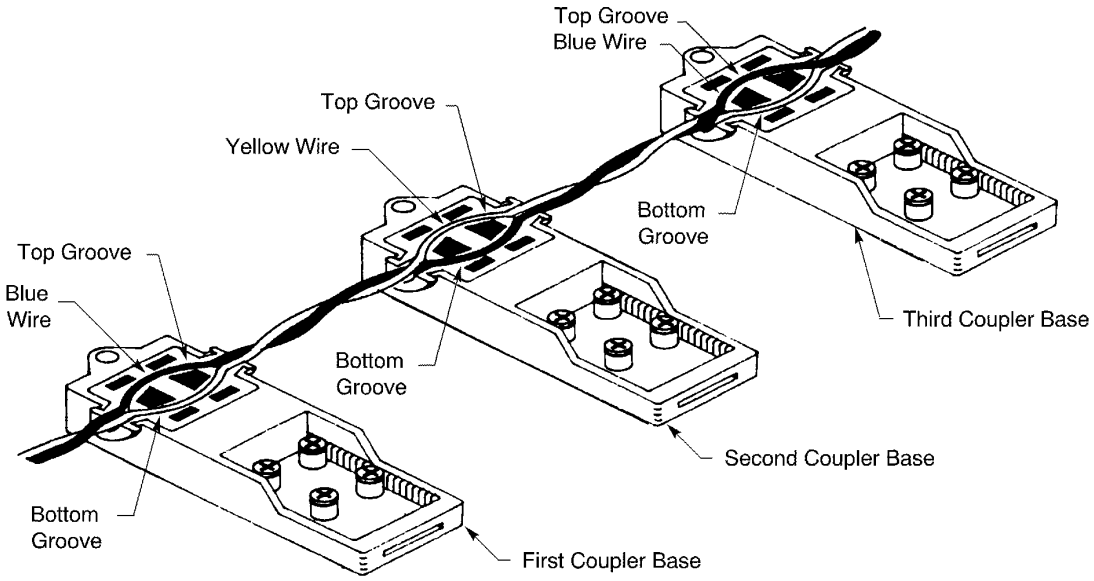
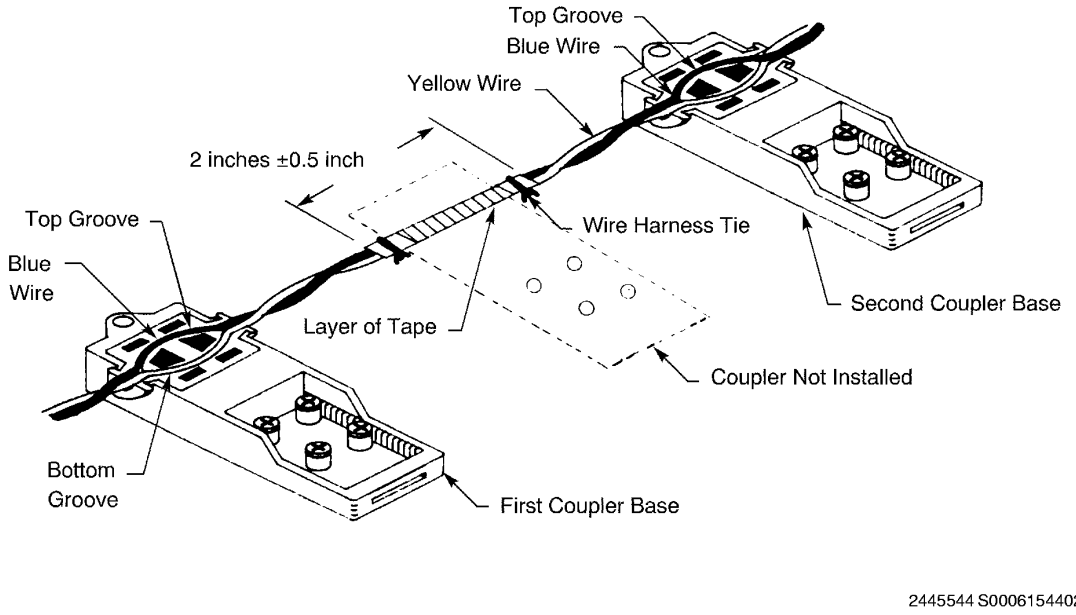
B. Coupler Installation Configurations



ROUTE OF THE DATA BUS WIRES THROUGH ADJACENT COUPLERS
Figure 8



ROUTE OF THE DATA BUS WIRES THROUGH COUPLERS - ONE EMPTY COUPLER POSITION BETWEEN COUPLERS
Figure 9

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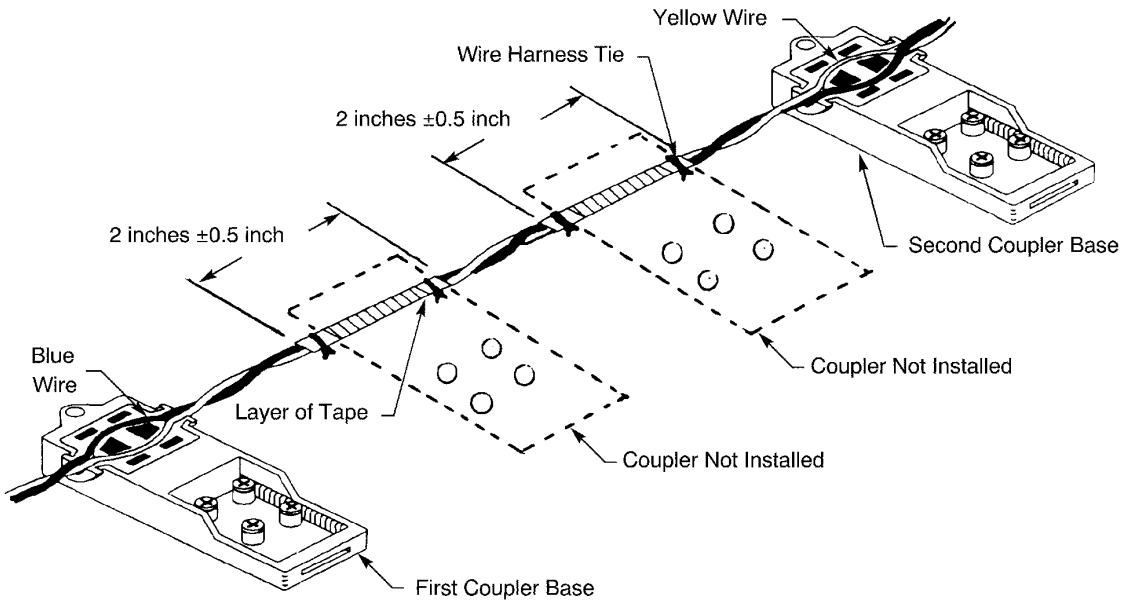

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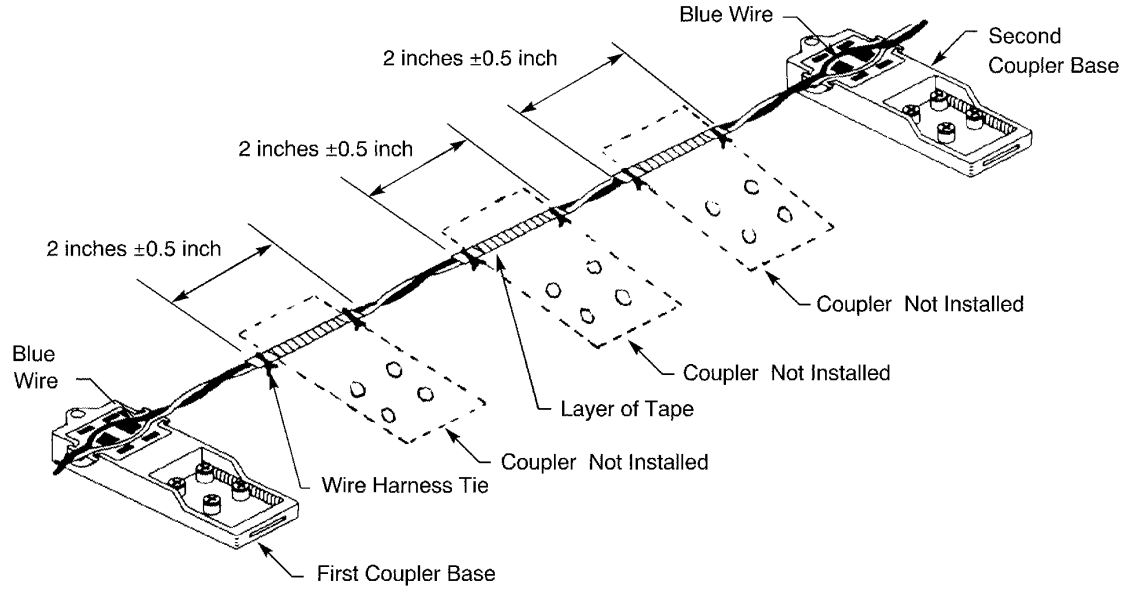
ROUTE OF THE DATA BUS WIRES THROUGH COUPLERS - TWO EMPTY COUPLER POSITIONS BETWEEN ADJACENT COUPLERS

Figure 10



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ROUTE OF THE DATA BUS WIRES THROUGH COUPLERS - THREE EMPTY COUPLER POSITIONS BETWEEN ADJACENT COUPLERS

Figure 11

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C. Installation of the S227W001-1, -2, -4, and -6 Two Piece Coupler Base

Table 11
NECESSARY TOOLS

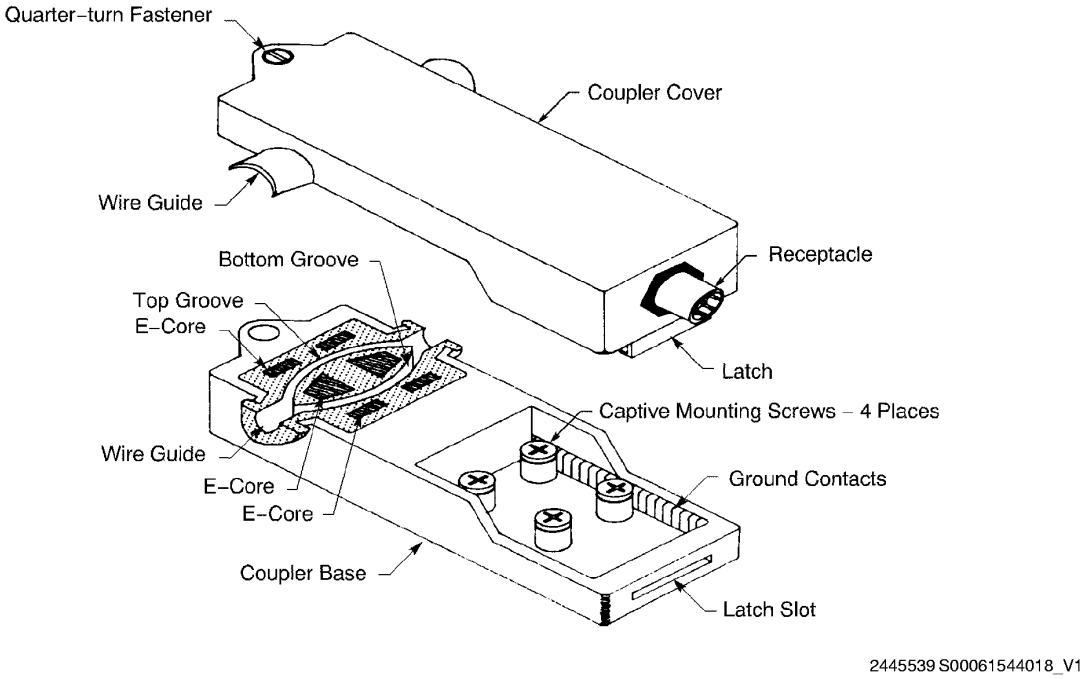
Tool	Description
Screwdriver	Flat blade
Torque	Phillips head screwdriver

(1) Make a selection of a solvent. Refer to Subject 20-00-11.

(2) Clean these surfaces with the solvent:

- The bottom surface of the coupler base
- The area of the panel where the coupler is installed.

(3) Remove the coupler cover from the coupler base. Refer to Figure 12 and Figure 13.



S227W001-1 TWO PIECE COUPLER
Figure 12

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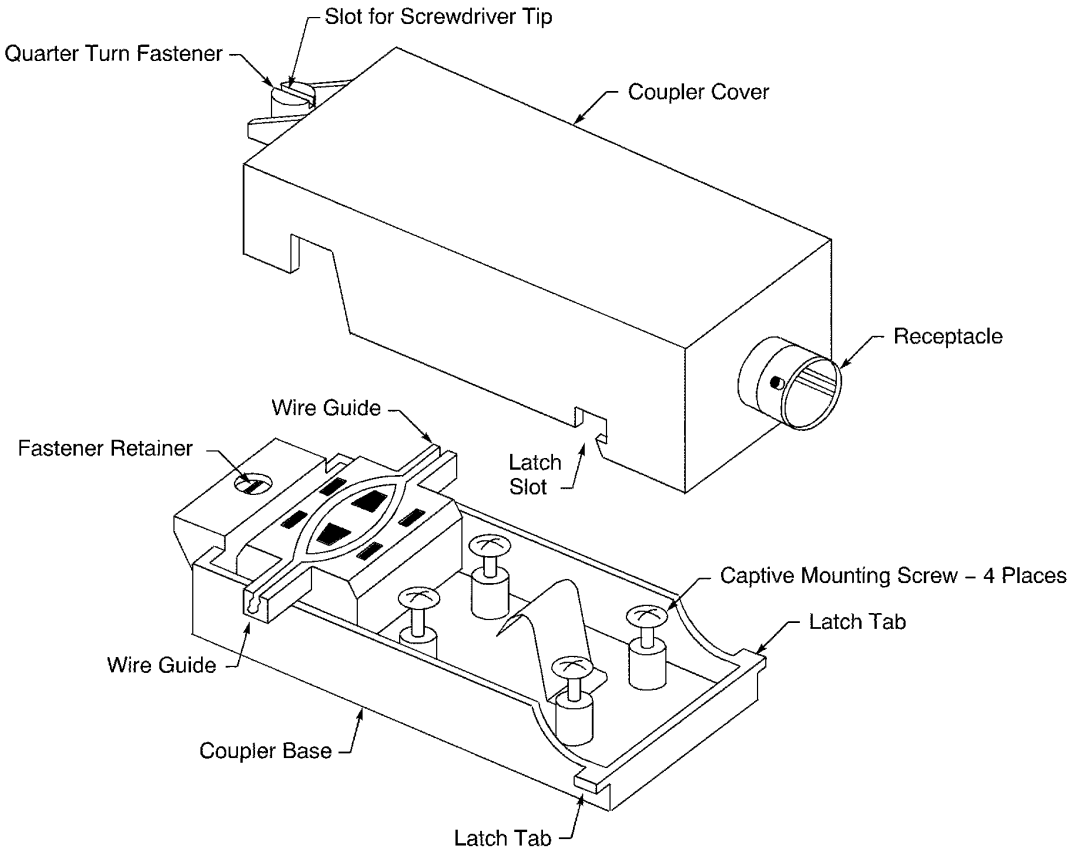

S227W001-2, -4, -6 TWO PIECE COUPLERS
Figure 13

(4) Align the ends of the captive screws with the four screw holes in the panel.

(5) Make a selection of a screwdriver from Table 11.

(6) Tighten the screws with the screwdriver.

(7) Make a selection of a torque tool from Table 11.

(8) Torque the screws 17.0 inch-pounds ±3.0 inch-pounds.

(9) Measure the electrical bond resistance between the coupler base and the panel. Refer to Subject 20-20-00.

(10) If the electrical resistance between the coupler base and the panel is greater than 5 milliohms, do Step 4.C.(2) through Step 4.C.(9) again.

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D. Installation of the S227W001-8 One Piece Coupler

Table 12
NECESSARY TOOLS

Tool	Description
Screwdriver	Phillips head
Torque	Phillips head screwdriver

(1) Make a selection of a solvent. Refer to Subject 20-00-11.

(2) Clean these surfaces with the solvent:

- The bottom surface of the coupler
- The area of the panel where the coupler is installed.

(3) Align the ends of the two mounting screws with the two screw holes in the panel.

(4) Make a selection of a screwdriver from Table 12.

(5) Tighten the screws with the screwdriver.

(6) Make a selection of a torque tool from Table 12.

(7) Torque the screws 17.0 inch-pounds ±3.0 inch-pounds.

(8) Measure the electrical bond resistance between the coupler and the panel. Refer to Subject 20-20-00.

(9) If the electrical resistance between the coupler and the panel is greater than 5 milliohms, do Step 4.D.(2) thru Step 4.D.(8) again.

E. Installation of the Data Bus Cable in the Couplers

For the position of the wires in the adjacent couplers, refer to:

- Figure 8 for no empty coupler positions between the couplers
- Figure 9 for one empty coupler position between the couplers
- Figure 10 for two empty coupler positions between the couplers
- Figure 11 for three empty coupler positions between the couplers.

(1) If it is specified, install the necessary:

- Foil tape on the data bus cable; refer to Paragraph 4.H.
- Ferrite suppressor on the data bus cable; refer to Paragraph 4.I.

(2) Make a selection of a BACC10DK loop clamp from Table 1.

(3) Install the necessary number of BACC10DK clamps for the cable and the terminators on the panel.

(4) Put the terminator that is nearest to the top of the panel in two BACC10DK clamps.

NOTE: Do not tighten the clamps on the terminators.

(5) Put the data bus cable through all of the loop clamps along the specified route of the cable.

(6) Put the cable above the center of the wire guide of the coupler base that is the nearest to the terminator at the top of the panel.

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(7) Make an estimate of the location to make a separation between the blue and yellow wires where the wires go in the grooves of the coupler base.

(8) Make a separation between the blue and yellow wires. Refer to Paragraph 4.A.

CAUTION: ONLY USE A TOOL THAT IS SPECIFIED IN TABLE 10. OTHER TOOLS CAN CAUSE DAMAGE TO THE WIRES.

(9) Install the wires in the coupler base. Refer to Figure 8.

Make sure that the insulation of the wire does not have damage.

(a) Push the blue wire into the top groove of the coupler.

(b) Push the yellow wire into the bottom groove of the coupler.

(10) If the panel has no empty coupler positions between the last coupler and the subsequent coupler. Refer to Figure 8.

(a) Put the cable above the center of the wire guide of the subsequent coupler base.

(b) Make an estimate of the location to make a separation between the blue and yellow wires where the wires go in grooves of the coupler base.

(c) Make a separation between the blue and yellow wires. Refer to Paragraph 4.A.

CAUTION: ONLY USE A TOOL THAT IS SPECIFIED IN TABLE 10. OTHER TOOLS CAN CAUSE DAMAGE TO THE WIRES.

(d) Push the yellow wire into the top groove of the coupler.

(e) Push the blue wire into the bottom groove of the coupler.

(f) Install the coupler cover. Refer to Paragraph 4.F.

(11) If the panel has one empty coupler position between the last coupler and the subsequent coupler, install the wires in the next coupler. Refer to Figure 9.

(a) Put the cable above the center of the wire guide of the subsequent coupler base.

(b) Make an estimate of the location to make a separation between the blue and yellow wires where the wires go in the grooves of the coupler base.

(c) Make a separation between the blue and yellow wires. Refer to Paragraph 4.A.

CAUTION: ONLY USE A TOOL THAT IS SPECIFIED IN TABLE 10. OTHER TOOLS CAN CAUSE DAMAGE TO THE WIRES.

(d) Push the blue wire into the top groove of the coupler.

(e) Push the yellow wire into the bottom groove of the coupler.

(f) Install the coupler cover. Refer to Paragraph 4.F.

(12) If the panel has two empty coupler positions between the last coupler and the subsequent coupler, install the wire in the next coupler. Refer to Figure 10.

(a) Put the cable above the center of the wire guide of the subsequent coupler base.

(b) Make an estimate of the location to make a separation between the blue and yellow wires where the wires go in the grooves of the coupler base.

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(c) Make a separation between the blue and yellow wires. Refer to Paragraph 4.A.

CAUTION: ONLY USE A TOOL THAT IS SPECIFIED IN TABLE 10. OTHER TOOLS CAN CAUSE DAMAGE TO THE WIRES.

(d) Push the yellow wire into the top groove of the coupler.

(e) Push the blue wire into the bottom groove of the coupler.

(f) Install the coupler cover.

Refer to:

- Paragraph 4.F. for the S227W001-1, -2, -4, and -6 Two Piece Couplers
- Paragraph 4.G. for the S227W001-8 One Piece Couplers

(13) If the panel has three empty coupler positions between the last coupler and the subsequent coupler, install the wires in the next coupler. Refer to Figure 11.

(a) Put the cable above the center of the wire guide of the subsequent coupler base.

(b) Make an estimate of the location to make a separation between the blue and yellow wires where the wires go in the grooves of the coupler base.

(c) Make a separation between the blue and yellow wires. Refer to Paragraph 4.A.

CAUTION: ONLY USE A TOOL THAT IS SPECIFIED IN TABLE 10. OTHER TOOLS CAN CAUSE DAMAGE TO THE WIRES.

(d) Push the blue wire into the top groove of the coupler.

(e) Push the yellow wire into the bottom groove of the coupler.

(f) Install the coupler cover.

Refer to:

- Paragraph 4.F. for the two piece coupler
- Paragraph 4.G. for the one piece coupler.

(14) Do Step 4.E.(10) thru Step 4.E.(13) again for the remaining length of data bus cable.

(15) If the data bus cable has a separation between the blue and yellow wires at the location of an empty coupler position, install the necessary layer of tape and wire harness ties at each location.

Refer to:

- Figure 9 for one empty coupler position where the cable has one separation
- Figure 10 for two empty coupler positions where the cable has two separations
- Figure 11 for three empty coupler positions where the cable has three separations.

(a) Make a selection of a silicone tape from Table 2.

(b) Put the wires together.

(c) Put a layer of tape on 2 inches ±0.5 inch of the cable.

Make sure that:

- The center of the layer of tape is aligned with the center of the coupler position
- The tape makes a 50 percent circumferential overlap.

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(d) Assemble a lacing tape wire harness tie on each end of the layer of tape. Refer to Subject 20-10-11.

Make sure that:

- The color of the lacing tape is yellow
- The lacing tape has a Temperature Grade and a Class that are applicable for the cable.

CAUTION: A PLASTIC TIE STRAP MUST NOT BE USED. DAMAGE TO THE INSULATION OF THE DATA BUS CABLE CAN OCCUR.

(16) Tighten the cable clamps.

(17) Tighten the terminator clamps.

F. Installation of the Coupler Cover for the S227W001-1, -2, -4, and -6, Two Piece Couplers

Table 13
NECESSARY TOOLS

Tool	Description
Screwdriver	Flat head
Microhmmeter	Bonding meter

CAUTION: DO NOT TRY TO PUT THE COUPLER COVER FROM ONE SUPPLIER ON THE COUPLER BASE FROM A DIFFERENT SUPPLIER. THE COVER AND THE BASE DO NOT HAVE THE CORRECT FIT.

(1) Make a selection of a microhmmeter from Table 13.

(2) Examine the coupler bases and the coupler covers for:

- Damage to the insulation between the E-Core and the wire grooves
- Separation of the insulation from the E-Core
- An E-Core that has a crack
- A piece of the E-Core that is missing.

CAUTION: DO NOT USE A COUPLER BASE OR A COUPLER COVER THAT HAS DAMAGE. A COUPLER THAT HAS DAMAGE CAN CAUSE UNSATISFACTORY PERFORMANCE.

(3) Remove contamination from the coupler covers and the E-Core assemblies of all the coupler bases with a suction hose that has a soft nozzle.

CAUTION: DO NOT USE A SUCTION HOSE THAT HAS A METAL NOZZLE. A METAL NOZZLE CAN CAUSE DAMAGE TO THE E-CORE ASSEMBLY.

NOTE: A coupler cover must be installed on a coupler base a maximum of 5 minutes after the E-Core assembly has been cleaned.

(4) Hold the wires in position. Refer to Figure 14.

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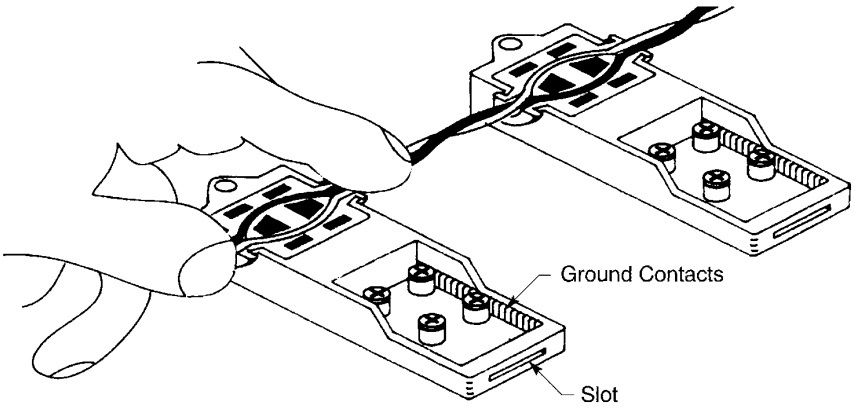

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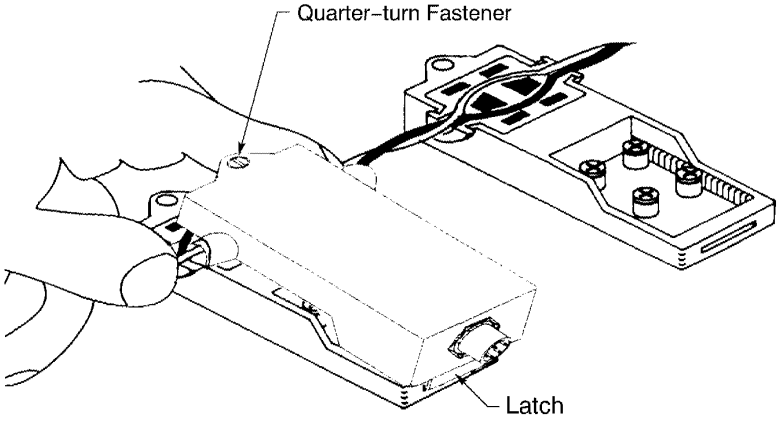
POSITION OF THE WIRES IN THE COUPLER BASE
Figure 14

(5) For the S277W001-1 Coupler, align the latch of the coupler cover with the slot of the coupler base. Refer to Figure 15.



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ALIGNMENT OF THE COUPLER COVER AND THE COUPLER BASE FOR THE S227W001-1 COUPLER
Figure 15

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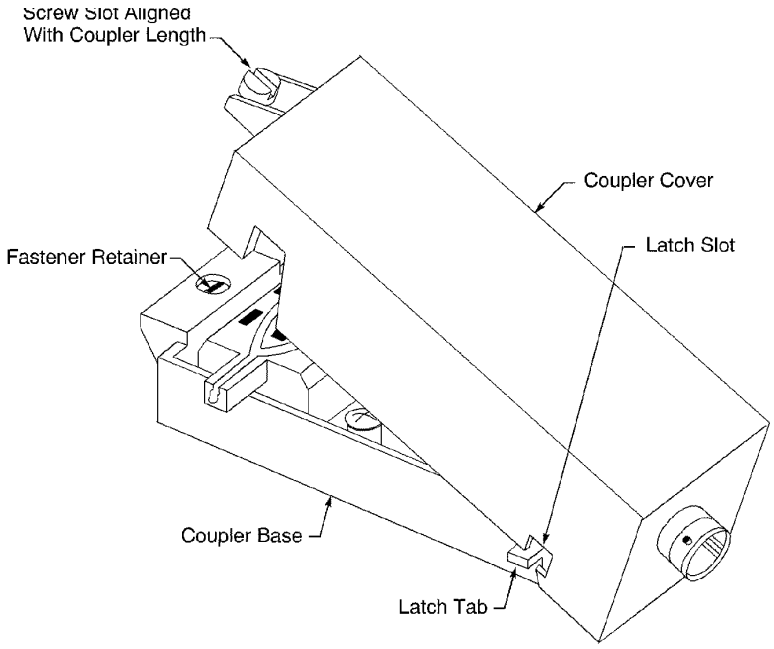
(6) For the S277W001-2, -4, and -6 Couplers, align the latch tabs of the coupler cover with the latch slots of the coupler base. Refer to Figure 16.



ALIGNMENT OF THE COUPLER COVER AND THE COUPLER BASE FOR THE S227W001-2, -4, AND -6 COUPLERS
Figure 16

(7) Carefully push the end of the cover that is opposite the latch down until it is engaged with the base.

(8) Make a selection of a screwdriver from Table 13.

(9) Install the coupler cover on the coupler base.

CAUTION: DO NOT USE THE SPRING-LOADED CENTER-PUNCH PROBE ON THE COUPLER COVER. THE PROBE CAN CAUSE DAMAGE TO THE COUPLER COVER.

(a) Align the screwdriver slot in the quarter turn fastener with the coupler length. Refer to Figure 12 and Figure 13.

Make sure that the fastener is aligned with the fastener retainer.

(b) Turn the quarter turn fastener clockwise until it is locked.

(c) Make sure that you push on the screwdriver while you turn it.

(10) Measure the resistance between the panel and each coupler cover with a microhmmeter. Refer to Subject 20-20-00.

Make sure that the resistance between the panel and each coupler cover is 1.5 milliohms or less.

(11) If the resistance between the panel and each coupler cover is more than 1.5 milliohms:

(a) Remove the coupler cover.

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(b) Clean the ground contacts. Refer to Figure 14.

(c) Do Step 4.F.(3) through Step 4.F.(10) again.

G. Installation of the coupler cover for the S227W001-8 One Piece Coupler

Table 14
NECESSARY TOOLS

Tool	Description
Screwdriver	Flat head
Microhmmeter	Bonding meter

(1) Make a selection of a microhmmeter from Table 13.

(2) Examine the coupler for:

- Damage to the insulation between the E-Core and the wire grooves
- Separation of the insulation from the E-Core
- An E-Core that has a crack
- A piece of the E-Core that is missing.

CAUTION: DO NOT USE A COUPLER THAT HAS DAMAGE. A COUPLER THAT HAS DAMAGE CAN CAUSE UNSATISFACTORY PERFORMANCE.

(3) Remove contamination from the coupler E-Core assemblies of all the couplers with a suction hose that has a soft nozzle.

CAUTION: DO NOT USE A SUCTION HOSE THAT HAS A METAL NOZZLE. A METAL NOZZLE CAN CAUSE DAMAGE TO THE E-CORE ASSEMBLY.

NOTE: A coupler lid must be closed on a one piece coupler a maximum of 5 minutes after the E-Core assembly has been cleaned.

(4) Hold the wires in position. Refer to Figure 17.

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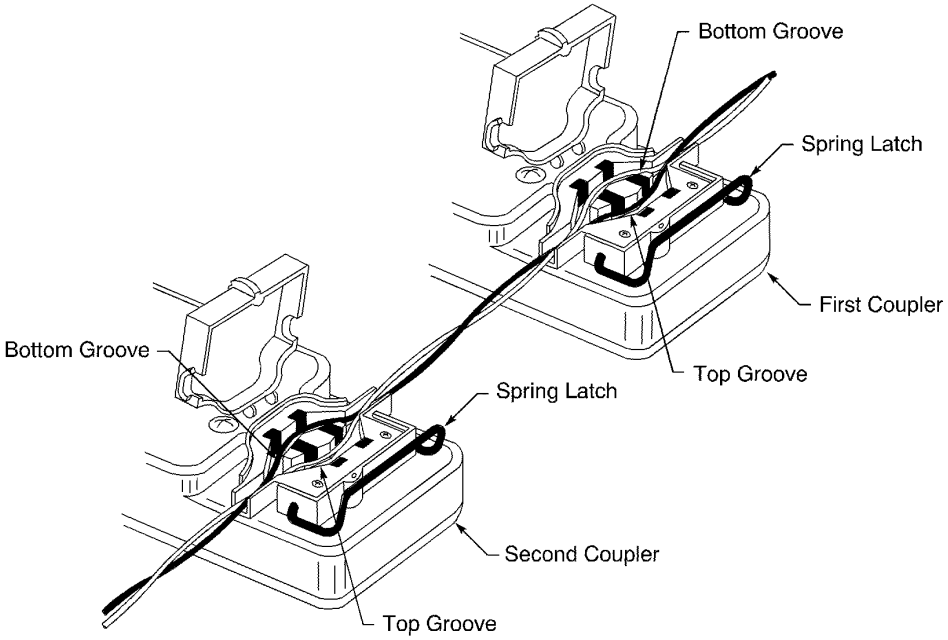

S227W001-8 ONE PIECE COUPLERS WITH DATA CABLE
Figure 17

(5) Carefully push the coupler lid down until it is engaged with the base.

(6) Push the spring latch up until it engages the notch. Refer to Figure 18.

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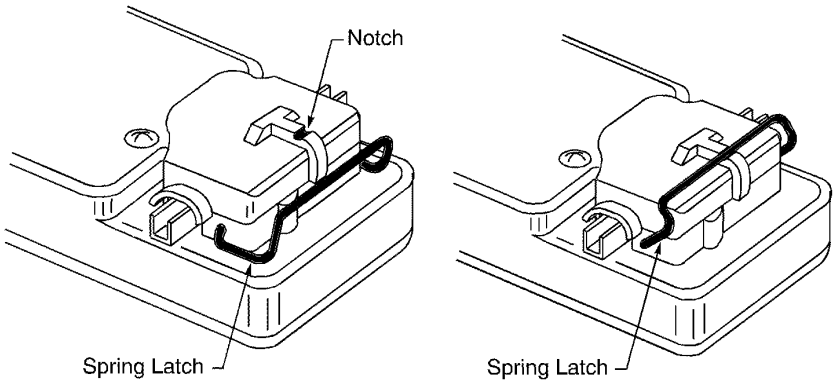


2448121 S00061544021_V1

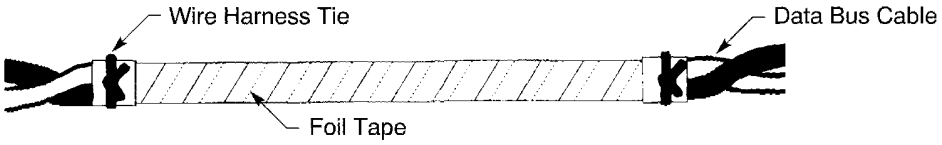
S227W001-8 COUPLER SPRING LATCH ATTACHMENT
Figure 18

H. Installation of Foil Tape on a Data Bus Cable

(1) Make a selection of the foil tape from Table 2.

(2) Install the foil tape on each specified location of the data bus cable. Refer to Figure 19.

NOTE: If a length of the data bus cable has a bend radius of less than 0.5 inch, a maximum length of 1.5 inches of cable in the bend area can be without foil tape.



2445541 S00061544038_V1

POSITION OF THE FOIL TAPE ON THE DATA BUS CABLE
Figure 19

(a) Put one full layer of the foil tape around the cable at the end of the cable clamp that is the nearest to the receptacle.

(b) Continue to put the layer of the tape along the specified length of the cable.

Make sure that the tape makes a 25 percent to 75 percent overlap.

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(c) Put one full layer of the foil tape around the end point.

(d) Cut the foil tape at the end point.

(e) Assemble a lacing tape wire harness tie at each end of the foil tape. Refer to Subject 20-10-11.

Make sure that:

- The color of the lacing tape is yellow
- The lacing tape has a Temperature Grade and a Class that are applicable for the cable.

CAUTION: A PLASTIC TIE STRAP IS NOT PERMITTED. DAMAGE TO THE INSULATION OF THE DATA BUS CABLE CAN OCCUR.

(3) If the foil tape breaks when the wire harness tie is tightened:

(a) Remove the wire harness tie.

(b) Put one more full layer of the foil tape on the broken area.

(c) Assemble the wire harness tie again.

I. Installation of a Ferrite Suppressor on the Data Bus Cable

CAUTION: IF THE FERRITE SUPPRESSOR IS INSTALLED ON A WIRE THAT DOES NOT HAVE A LAYER OF POLYESTER TAPE FOR PROTECTION, THE WIRE GUIDES CAN CAUSE DAMAGE TO THE INSULATION OF THE WIRE.

(1) Make a selection of a ferrite suppressor clamp from Table 1.

(2) Make a selection of a polyester tape from Table 2.

(3) If it is necessary to install the ferrite suppressor at an empty coupler position:

(a) Remove the wire harness ties.

(b) Remove the layer of silicone tape.

(4) Install a layer of the polyester tape on the data bus cable at the location of the ferrite suppressor. Refer to Figure 20.

Make sure that the layer of tape makes:

- A 20 percent to 80 percent overlap
- A 5 percent maximum overlap at the each end of the tape.

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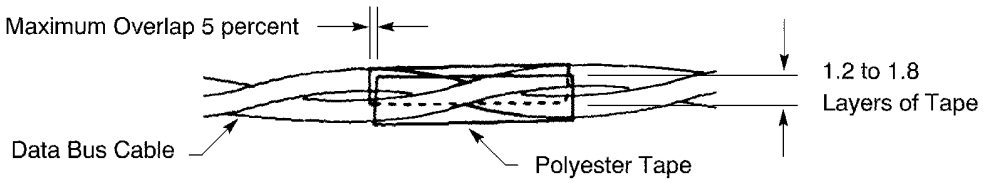
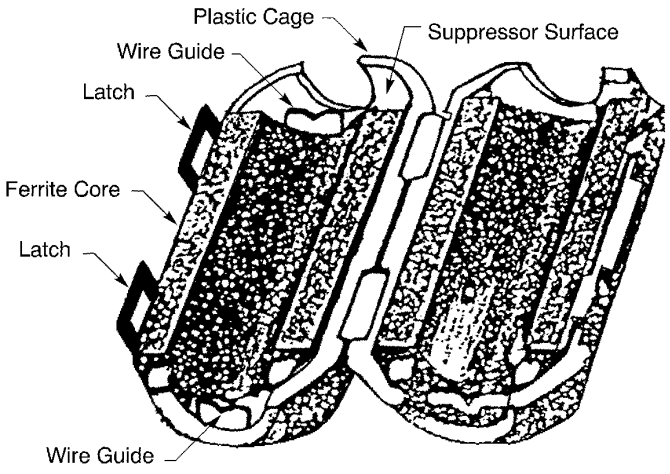


2445549 S00061544041_V1

POSITION OF THE POLYESTER TAPE ON THE CABLE
Figure 20

(5) Carefully open the ferrite suppressor. Refer to Figure 21.

CAUTION: MAKE SURE TO PREVENT DAMAGE TO THE FERRITE SUPPRESSOR AS IT IS OPENED. DAMAGE TO THE FERRITE CORE CAN CAUSE UNSATISFACTORY PERFORMANCE.



2445550 S00061544043_V1

S280W752-1 FERRITE SUPPRESSOR
Figure 21

(6) Remove dust or contamination from the ferrite core and the suppressor surfaces with a suction hose that has a soft nozzle.

CAUTION: DUST OR CONTAMINATION ON THE SURFACES OF THE CORE AND THE SUPPRESSOR CAN CAUSE UNSATISFACTORY PERFORMANCE.

(7) Put the suppressor on the cable.

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Make sure that:

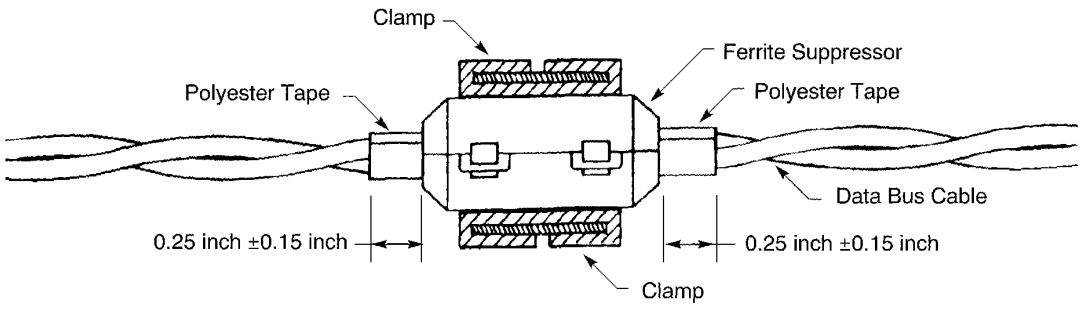
- The center of the taped area on the cable is approximately aligned with the longitudinal center of the core
- The wire guides are against the area of the cable that has a layer of polyester tape.

(8) Carefully push the two halves of the suppressor together until the latches are fully engaged in the latch retainers.

Make sure that the latches and the latch retainers are correctly engaged.

NOTE: The ferrite suppressor does not hold the data bus cable tightly.

(9) Install a clamp on each ferrite suppressor. Refer to Figure 22.



2445551 S00061544045_V1

POSITION OF THE FERRITE SUPPRESSOR IN THE CLAMP
Figure 22

(a) Put the clamp on the suppressor.

Make sure that each end of the clamp is 0.25 inch ±0.15 inch from the end of the tape on the cable.

(b) Tighten the clamp installation screw.

5. DATA BUS CONNECTOR ASSEMBLY

Refer to Paragraph 2.A. for the Data Bus components.

A. Shielded Cable Preparation

The paragraph gives the procedure to assemble a shield cable with a backshell.

(1) Put these components on the cable:

- The strain relief backshell; refer to Table 1

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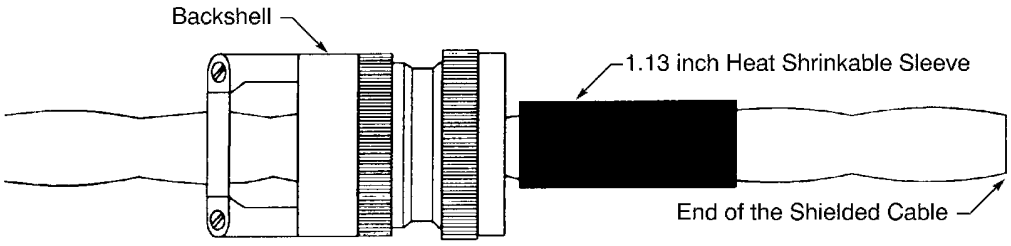
• A 1.13 inch length of 13/16 inch diameter heat shrinkable sleeve.

Refer to Figure 23.

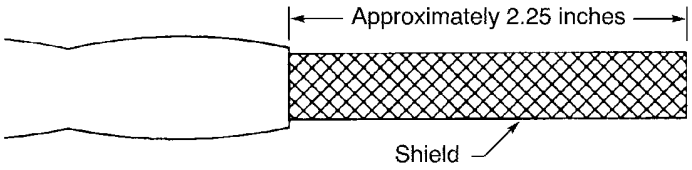


2445552 S00061544046_V1

POSITION OF THE BACKSHELL AND HEAT SHRINKABLE SLEEVE ON THE CABLE
Figure 23

(2) Carefully remove approximately 2.25 inches of the outer jacket from the end of the cable. Refer to Subject 20-00-15.

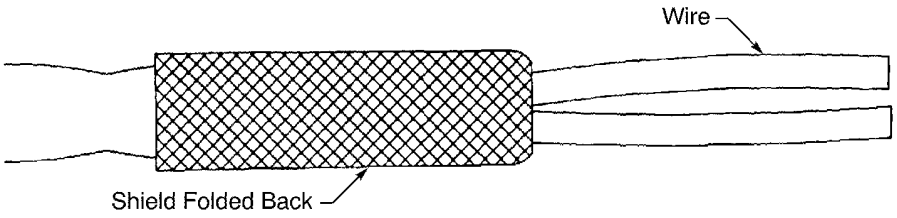
Refer to Figure 24.



2445553 S00061544047_V1

CABLE JACKET REMOVAL LENGTH
Figure 24

(3) Fold the shield back. Refer to Figure 25.



2445554 S00061544048_V1

POSITION OF THE SHIELD FOLDED BACK
Figure 25

(4) Remove approximately 0.25 inch of insulation from the end of each wire.

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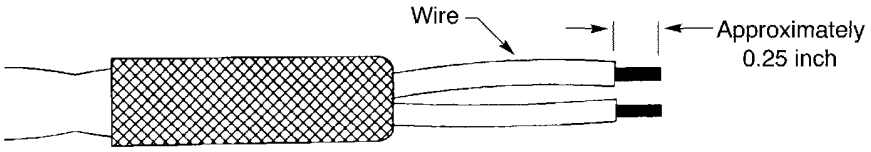
Refer to:

- Subject 20-00-15 for the insulation removal processes.
- Figure 26.



2445555 S00061544049_V1

INSULATION REMOVAL
Figure 26

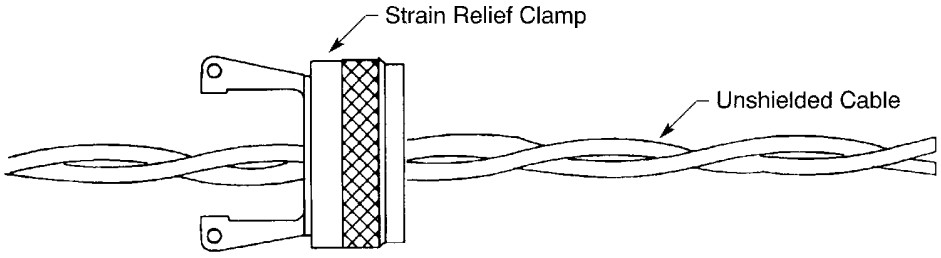
B. Unshielded Cable Preparation

Table 15
NECESSARY MATERIALS

Material	Part Number or Specification	Size	Supplier
Heat Shrinkable Sleeve	DR-25	-	Tyco/Raychem
	MIL-LT	-	Tyco/Raychem

(1) Make a selection of a strain relief clamp from Table 1.

(2) Put the strain relief clamp on the unshielded cable. Refer to Figure 27.



2445556 S00061544050_V1

POSITION OF THE STRAIN RELIEF CLAMP ON THE CABLE
Figure 27

(3) Make a selection of a 1.0 inch length of 1/4 inch diameter shrinkable sleeve from Table 15.

(4) Put the heat shrinkable sleeve on the cable to make the distance from the forward end of the sleeve to the end of the cable approximately 0.63 inch. Refer to Figure 28.

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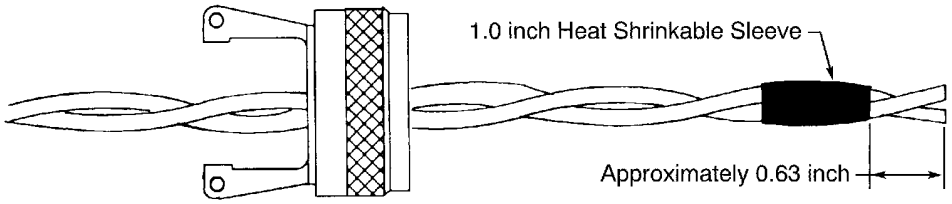


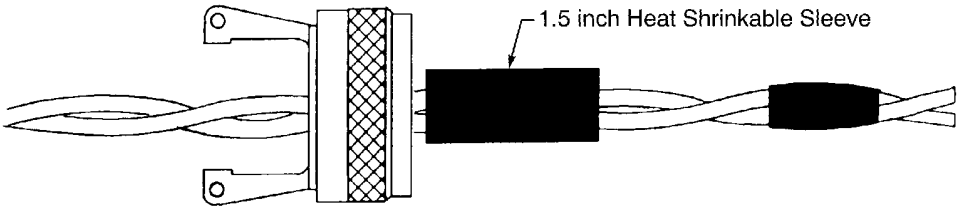
2445557 S00061544051_V1

POSITION OF THE HEAT SHRINKABLE SLEEVE ON THE CABLE
Figure 28

(5) Shrink the sleeve into its position. Refer to Subject 20-10-14.

(6) Make a selection of a 1.5 inch length of 3/8 inch diameter heat shrinkable sleeve from Table 15.

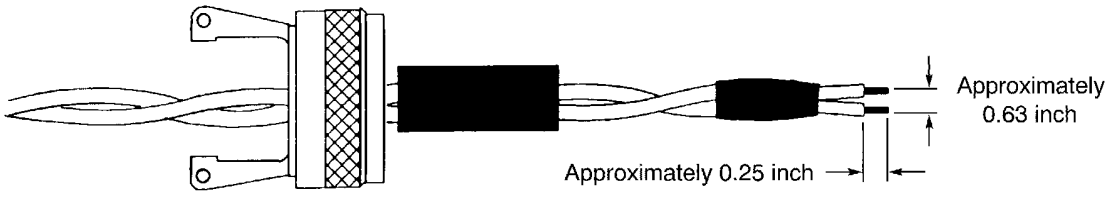
(7) Put the sleeve on the cable. Refer to Figure 29.



2445558 S00061544052_V1

TEMPORARY POSITION OF THE HEAT SHRINKABLE SLEEVE ON THE CABLE
Figure 29

(8) Move the end of the wires apart approximately 0.63 inch. Refer to Figure 30.



2445559 S00061544053_V1

INSULATION REMOVAL LENGTH
Figure 30

(9) Remove approximately 0.25 inch of insulation from the end of each wire.
Refer to:

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- Subject 20-00-15 for the wire insulation removal process
- Figure 30 for the insulation removal.

C. Connector Assembly

Table 16
NECESSARY MATERIALS

Material	Part Number or Specification	Size	Supplier
Heat Shrinkable Sleeve	DR-25	-	Tyco/Raychem
	MIL-LT	-	Tyco/Raychem

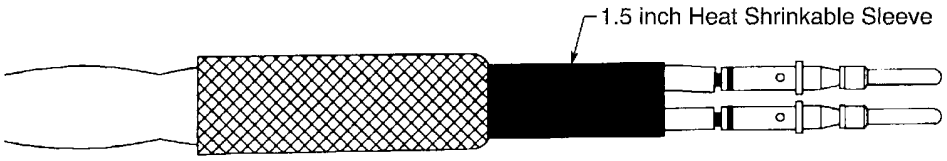
(1) Assemble the contacts. Refer to Subject 20-61-11.

(2) If the cable has a shield:

(a) Make a selection of a 1.5 inch length of 1/4 inch diameter heat shrinkable sleeve from Table 16.

(b) Put the heat shrinkable sleeve on the cable.

(c) Push the sleeve rearward until the end of the rear end of the sleeve is against the end of the forward end of the shield. Refer to Figure 31.



2445560 S00061544054_V1

POSITION OF THE SLEEVE ON THE CABLE
Figure 31

(3) Install the contacts in the connector. Refer to Subject 20-61-11.

Make sure that:

- The yellow wire is installed in contact cavity 1
- The blue wire is installed in contact cavity 2
- Each contact cavity that does not have a contact has a seal rod or seal plug.

(4) If the cable has a shield, shrink the 1.5 inch sleeve into its position.

Refer to:

- Figure 32
- Subject 20-10-14 to shrink the sleeve in its position.

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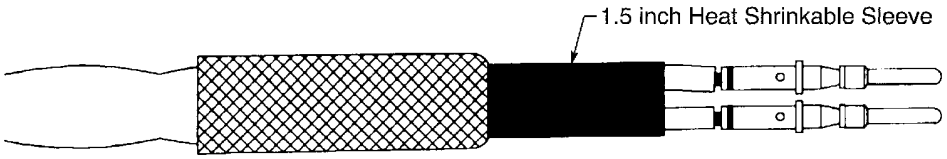

2445560 S00061544054_V1

POSITION OF THE SLEEVE ON THE CABLE
Figure 32

D. Backshell Assembly

Table 17
NECESSARY TOOLS

Tool	Description	Part Number
Microhmmeter	Meter	-
Strap Wrench	3/8 inch drive	TG-70
Torque Tool	-	76-101

(1) Make a selection of a torque tool or a strap wrench from Table 17.

(2) Engage the threads of the backshell and the connector.

(3) Torque the backshell 60 inch-pounds minimum.

(4) Attach the shield to the backshell with a shield termination band. Refer to Subject 20-25-14.

(5) Measure the electrical resistance from the band to the shield with a microhmmeter. Refer to Subject 20-20-00.

Make sure that the electrical resistance is less than 1.5 milliohms.

(6) Push the black heat shrinkable sleeve forward until the forward edge of the sleeve is on the shield terminator band.

(7) Shrink the sleeve into its position. Refer to Subject 20-10-14.

(8) Install the saddle clamp bars.

Make sure that the surface of each bar is against the surface of each strain relief arm.

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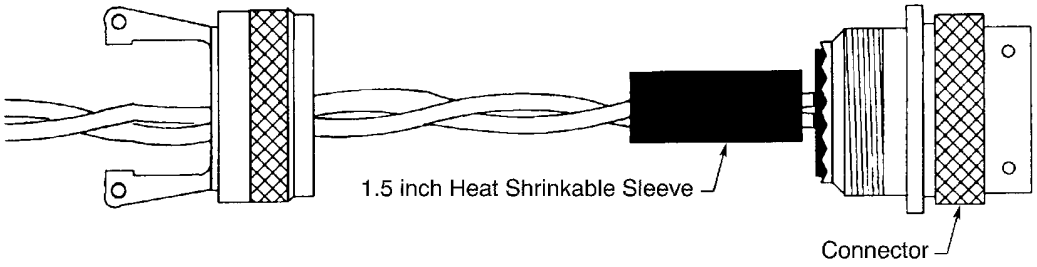
E. Strain Relief Clamp Assembly

Table 18
NECESSARY TOOLS

Tool	Part Number
Strap Wrench, 3/8 inch drive	TG-70
Torque Tool	76-101

(1) Make a selection of a torque tool or a strap wrench from Table 18.

(2) Push the 1.5 inch sleeve until the forward edge of the sleeve is as near the rear of the connector as possible. Refer to Figure 33.



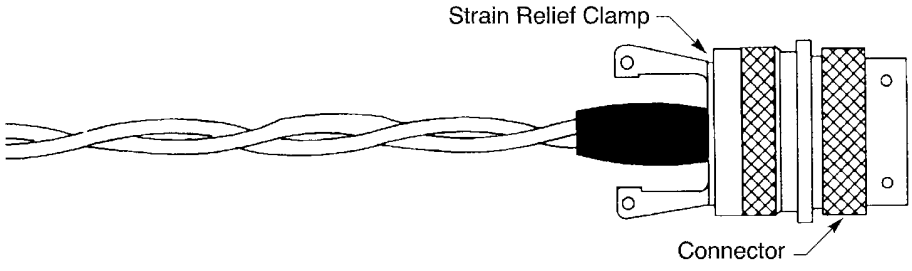
2445561 S00061544055_V1

POSITION OF THE HEAT SHRINKABLE SLEEVE
Figure 33

(3) Shrink the sleeve into its position. Refer to Subject 20-10-14.

(4) Engage the threads of the strain relief clamp and the connector.

(5) Torque the clamp 60 inch-pounds minimum. Refer to Figure 34.



2445562 S00061544056_V1

POSITION OF THE STRAIN RELIEF CLAMP AGAINST THE CONNECTOR
Figure 34

(6) Install the saddle clamp.

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6. STUB CABLE ASSEMBLY AND DISASSEMBLY

A. Connector Disassembly

(1) For a connector with a S280W603 backshell assembly that has a protective sleeve on the assembly:

(a) Make a cut in the sleeve along the longitudinal axis of the sleeve.

(b) Remove the sleeve.

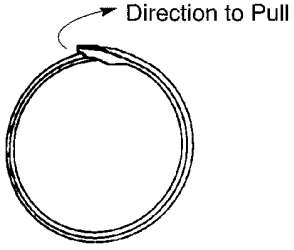
(c) Remove the wire harness tie.

(d) Unwind the silicon tape.

(e) Discard the tape.

(f) Hold the free end of the buckle on the shield terminator band with a pair of needle nose pliers.

(g) Pull the free end of the buckle in a direction that is up and away from the band until the end of the band is free from the buckle. Refer to Figure 35.



2445742 S00061544057_V1

BUCKLE RELEASE OF THE SHIELD TERMINATOR BAND
Figure 35

(h) Remove the metal band from the assembly.

(i) Discard the shield terminator band.

(j) Unwind the shield tape.

(2) Remove the saddle bars from the cable clamp.

(3) Disengage the threads of the connector and the backshell.

(4) Push the backshell rearward from the connector.

(5) Remove the contacts from the connector. Refer to Subject 20-61-11.

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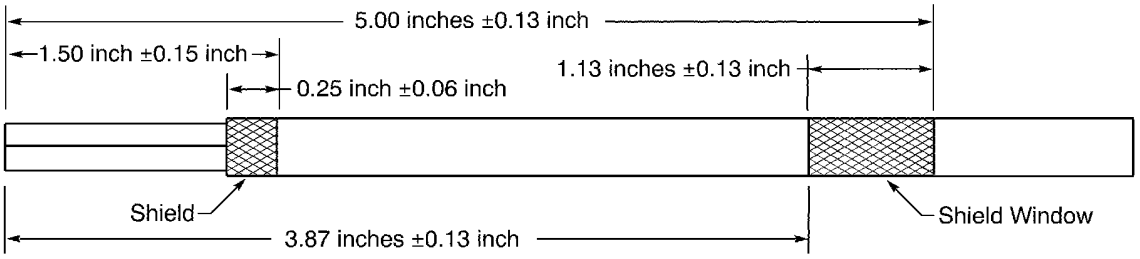
B. Twinax Contact Removal

Refer to Subject 20-71-14.

C. Preparation of the S280W502-() Cable with a Shield Ground Wire Pointed Rearward



2447451 S00061544058_V1

CABLE PREPARATION
Figure 36

Table 19
NECESSARY MATERIALS

Material	Part Number or Description	Color	Supplier
Heat Shrinkable Sleeve	DR-25	-	Tyco/Raychem
	Grade B, Class 1	Blue	Refer to Subject 20-00-11.
	MIL-LT	-	Tyco/Raychem

Table 20
FERRULE PART NUMBERS

Position	Ferrule	
	Part Number	Supplier
Inner	BACS13S297B	Boeing
Outer	BACS13S375C	Boeing

Table 21
APPROVED SUPPLERS OF BOEING STANDARD MECHANICAL FERRULES

Ferrule	Supplier
BACS13S()	Thomas & Betts

(1) Make a selection of a 4.00 inch ±0.25 inch length of shrinkable sleeve from Table 19.

(2) Put the sleeve on the cable.

(3) Make a mark on the cable 5.00 inches ±0.13 inch from the end of the cable. Refer to Figure 36.

(4) Make a mark on the cable 3.87 inches ±0.13 inch from the end of the cable.

(5) Remove the cable insulation between the two marks.
Make sure that the length of shield window is 1.13 inch ±0.13 inch.

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(6) Remove a 1.50 inches ±0.15 inch length of insulation from the end of cable.

(7) Remove the necessary length of shield to make the distance from the end of the cable insulation to the end of the shield equal to 0.25 inch ±0.06 inch.

(8) Make a selection of one of these shield ground wire configurations:

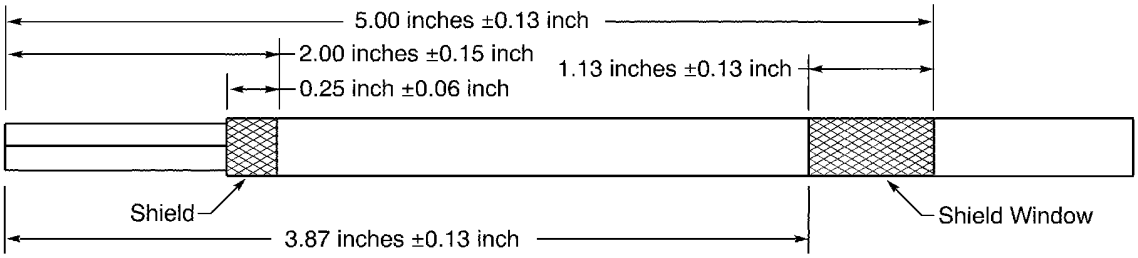
- A shield ground wire with a solder sleeve
- A shield ground wire with mechanical ferrules.

(9) If the configuration is a shield ground wire with mechanical ferrules, make a selection of the mechanical ferrules from Table 20.

(10) Assemble the shield ground wire. Refer to Subject 20-10-15.

For the assembly of a shield ground wire with a mechanical ferrule, make sure to use the specified mechanical ferrules in Table 20.

D. Preparation of the S280W502-() Cable with a Shield Ground Wire Pointed Forward



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CABLE PREPARATION
Figure 37

Table 22
NECESSARY MATERIALS

Material	Part Number or Description	Color	Supplier
Heat Shrinkable Sleeve	DR-25	-	Tyco/Raychem
	Grade B, Class 1	Blue	Refer to Subject 20-00-11.
	MIL-LT	-	Tyco/Raychem

Table 23
FERRULE PART NUMBERS

Position	Ferrule	
	Part Number	Supplier
Inner	BACS13S297B	Boeing
Outer	BACS13S375C	Boeing

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Table 24
APPROVED SUPPLERS OF BOEING STANDARD MECHANICAL FERRULES

Ferrule	Supplier
BACS13S()	Thomas & Betts

(1) Make a selection of a 4.00 inch ±0.25 inch length heat shrinkable sleeve from Table 22.

(2) Put the heat shrinkable sleeve on the cable.

(3) Make a mark on the cable 5.00 inches ±0.13 inch from the end of the cable. Refer to Figure 37.

(4) Make a mark on the cable 3.87 inches ±0.13 inch from the end of the cable.

(5) Remove the cable insulation between the two marks.

Make sure that the length of shield window is 1.13 inch ±0.13 inches.

(6) Remove a 2.0 inch ±0.15 inch length of insulation from the end of the wire.

(7) Remove the necessary length of shield to make the distance from the end of the cable insulation to the end of the shield equal to 0.25 inch ±0.06 inch.

(8) Make a selection of one of these shield ground wire configurations:

- A shield ground wire with a solder sleeve
- A shield ground wire with mechanical ferrules.

(9) If the configuration is a shield ground wire with mechanical ferrules, make a selection of the mechanical ferrules from Table 23.

(10) Assemble the shield ground wire. Refer to Subject 20-10-15.

For the assembly of a shield ground wire with a mechanical ferrule, make sure to use the specified mechanical ferrules in Table 23.

E. Connector Assembly with a S280W603() Backshell

Table 25
NECESSARY MATERIALS

Material	Part Number or Specification	Size	Supplier
Heat Shrinkable Sleeve	DR-25	-	Tyco/Raychem
	MIL-DTL-23053/16	-	QPL
Protective Tape	Scotch 70	-	3M
Shield Tape	Scotch No. 24	-	3M

(1) Make a selection of a 4.00 ±0.25 inch length of heat shrinkable sleeve from Table 25.

(2) Put the sleeve on the cable.

(3) Assemble the contacts. Refer to Subject 20-61-11.

(4) Installation the contacts. Refer to Subject 20-61-11.

(5) For the connection of the backshell with the connector refer to Subject 20-61-11.

(6) Put each shield ground wire through the slot in the backshell.

Make sure that:

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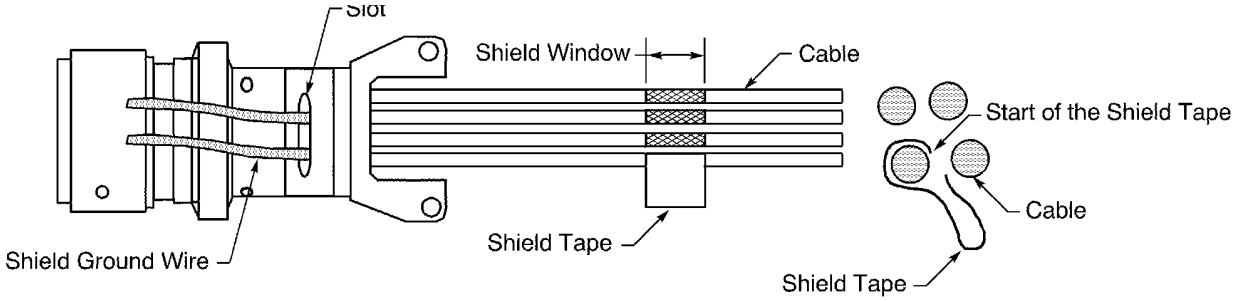
- The ground wires are equal around the backshell
- The end of the ground wire is pointed to the front of the connector
- Each ground wire has no unwanted length.

Refer to Figure 38.

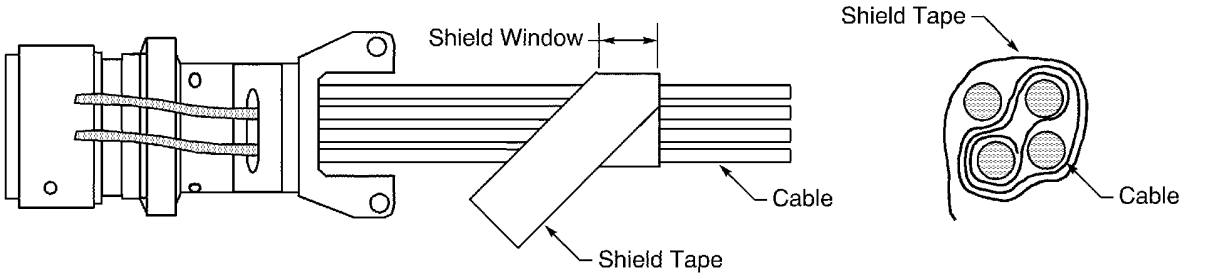


POSITION OF THE SHIELD TAPE ON THE WIRE
Figure 38

(7) Put the end of the shield tape on the shield window of one wire. Refer to Figure 38.
Make sure that the center of the shield tape is aligned with the center of the shield window.

(8) Wind a layer of the shield tape on the shield window of one wire. Refer to Figure 38.

(9) Continue to wind the shield tape on each shield window on each wire.
Make sure that the surface of the shield tape is against each shield in the shield window.



POSITION OF THE SHIELD TAPE ON EACH SHIELD WINDOW
Figure 39

(10) Wind one full layer of shield tape on all of the cables at the location of the shield windows.

(11) Continue to wind the shield tape forward on the cables until the tape is against the rear end of the backshell. Refer to Figure 40.
Make sure that the shield tape makes a 50 percent overlap.

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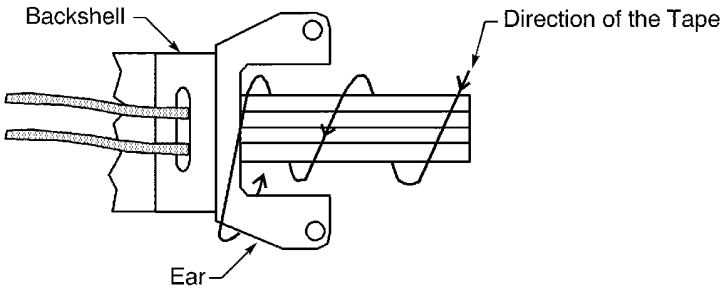

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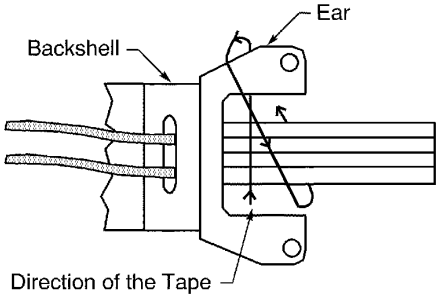
POSITION OF THE SHIELD TAPE AGAINST THE BACKSHELL
Figure 40

(12) Continue to wind the shield tape across one ear of the backshell. Refer to Figure 40.

(13) Continue to wind the shield tape across the other ear of the backshell. Refer to Figure 41.



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POSITION OF THE SHIELD TAPE ON THE EARS OF THE BACKSHELL
Figure 41

(14) Continue to wind the shield tape on the rear end of the shield termination band platform. Refer to Figure 42.

Make sure that:

- The forward edge of the shield tape is aligned with the rear edge of the slot of the backshell
- The shield termination platform has one full layer of shield tape.

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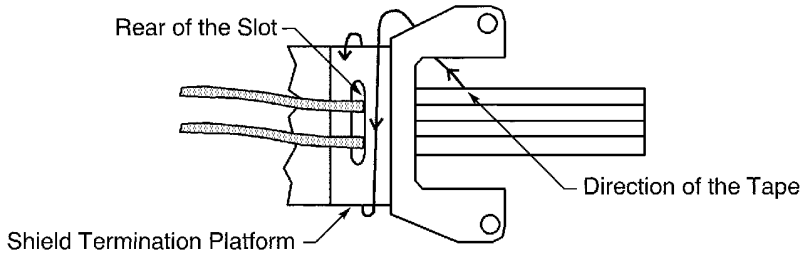

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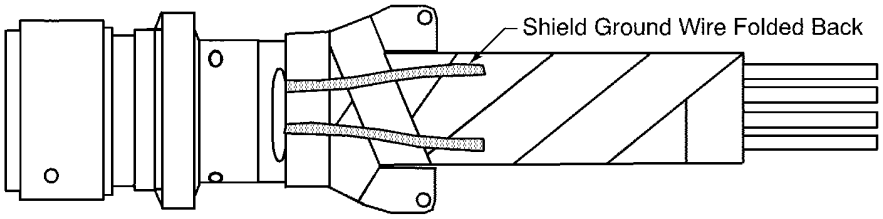
POSITION OF THE SHIELD TAPE ON THE SHIELD TERMINATION BACKSHELL PLATFORM
Figure 42

(15) Fold each shield ground wire back on the layer of shield tape. Refer to Figure 43.



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POSITION OF THE SHIELD GROUND WIRES
Figure 43

(16) Continue to wind the shield tape on the shield ground wires on the shield termination backshell platform.

Make sure that the shield ground wires have one full layer shield tape.

(17) Continue to wind the shield tape forward on the backshell. Refer to Figure 44.

Make sure that:

- The backshell slot has one or two layers of the shield tape
- The shield tape does not make an interference with the drain holes of the backshell
- The shield tape holds each ground wire in its position.

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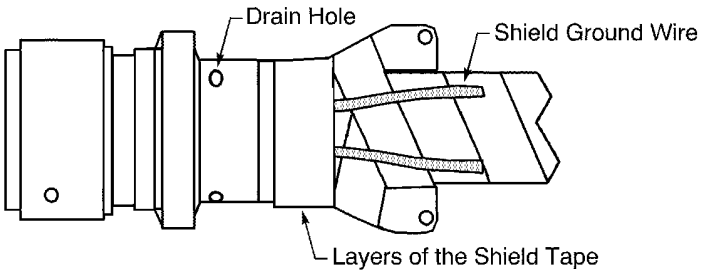

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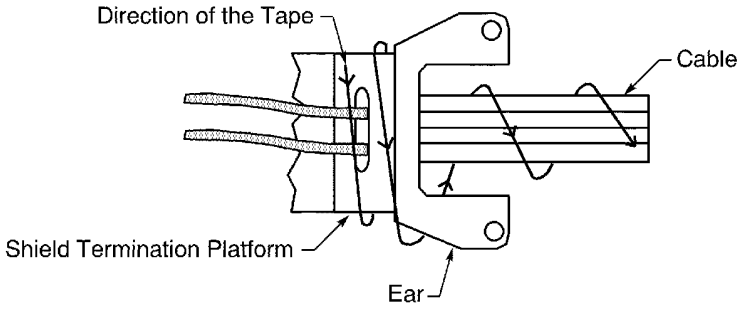
POSITION OF THE SHIELD TAPE ON THE SHIELD GROUND WIRES
Figure 44

(18) Continue to wind the shield tape rearward around the cables. Refer to Figure 45.



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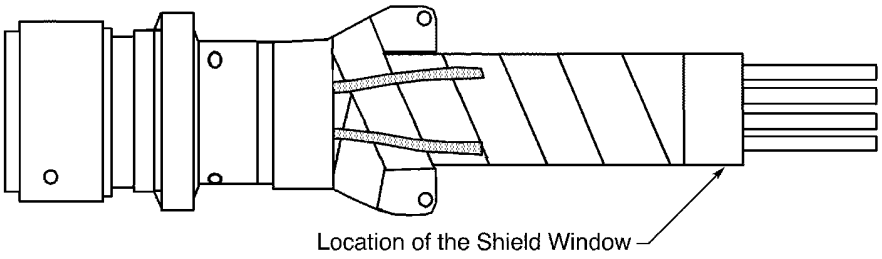
POSITION OF THE SHIELD TAPE ON THE CABLES
Figure 45

(19) Continue to wind the shield tape rearward to the location of the shield windows.

(20) Put one more layer of the shield tape on the cables at the location of the shield windows. Refer to Figure 46.



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LAYER OF SHIELD TAPE ON THE SHIELD WINDOW
Figure 46

(21) Cut the shield tape.

(22) Make a selection of a protective tape. Refer to Table 25.

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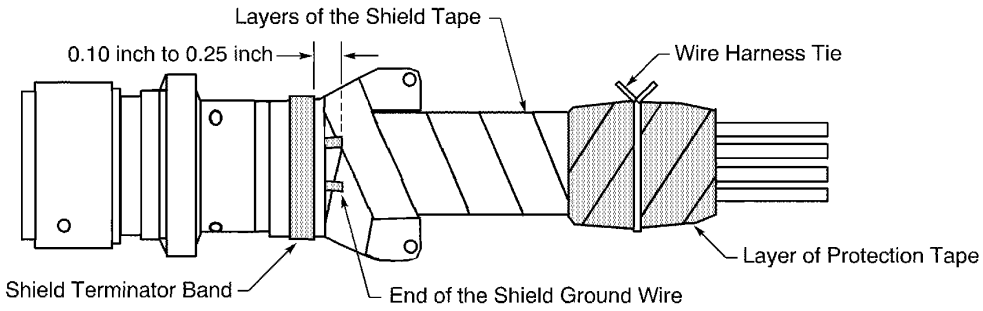
(23) Put two layers of protective tape on the shield tape. Refer to Figure 47.

Make sure that:

- The first layer of starts 0.5 inch from the forward end of the location of the shield windows
- The first layer stops at the read end of the location of the shield windows
- The second layer starts at the forward end of the location of the shield windows
- The second layer stops 0.5 inches from the rear end of the shield tape.



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POSITION OF THE LAYERS OF PROTECTIVE TAPE
Figure 47

(24) Assemble a lacing tape wire harness tie at the center of the protective tape.

Refer to:

- Figure 47
- Subject 20-10-11 for the procedure to assemble a lacing tape wire harness tie.

Make sure that:

- The color of the lacing tape is yellow
- The lacing tape has a Temperature Grade and a Class that are applicable for the cable.

CAUTION: A PLASTIC TIE STRAP MUST NOT BE USED. DAMAGE TO THE INSULATION OF THE DATA BUS CABLE CAN OCCUR.

(25) Install a shield terminator band on the shield termination platform of the backshell. Refer to Subject 20-25-14.

(26) Cut each shield ground wire to make the distance from the end of the shield ground wire to the rear edge of the shield terminator band 0.10 inch to 0.25 inches. Refer to Figure 47.

(27) Push the heat shrinkable sleeve forward until it stops. Refer to Figure 48.

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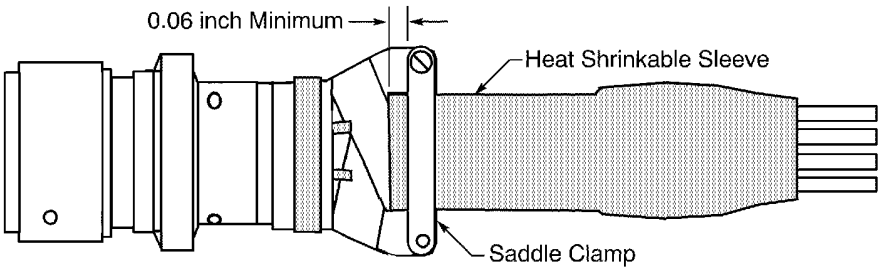
(28) Align the holes of the saddle clamp with the installation holes in the ears of the backshell.

Make sure that the end of the heat shrinkable sleeve extends a minimum of 0.6 inch from the forward edge of the saddle clamp.



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POSITION OF THE HEAT SHRINKABLE SLEEVE ON THE WIRE HARNESS
Figure 48

(29) Shrink the sleeve into its position. Refer to Subject 20-10-14.

(30) Install the saddle clamp.

F. Connector Assembly with a S280W605() Backshell

Refer to Subject 20-25-13.

G. Twinax Contact Assembly

Refer to Subject 20-71-14.

H. Twinax Contact Insertion

Refer to Subject 20-71-14.

I. Connection of the Plug and the Receptacle

(1) Engage the threads of the plug and the receptacle.

(2) Tighten the plug and receptacle hand tight plus 1/8 turn.

7. REPAIR OF ARINC 629 S280W502-() STUB CABLES

A. Necessary Parts and Materials

Table 26
NECESSARY MATERIALS

Material	Description	Part Number	Supplier
Sealant	Silicone	3145 RTV	Dow Corning
		738	Dow Corning
Shield Sleeve Material	Braid, Tubular, Tin Plated Copper	8669-50	Belden
		BAC3108-4	Boeing
Sleeve, Cold Shrink	-	8445-7.5	3M
Sleeve Kit, Cold Shrink	-	8443-2F	3M

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Table 26 NECESSARY MATERIALS (Continued)

Material	Description	Part Number	Supplier
Tape, Adhesive	-	-	An available source
Tape, Silicone	Self-bonding, 0.02 inch thick	608036-1	Tyco/AMP
	Self-bonding, 0.012 inch thick	Scotch 70	3M

Table 27
NAS1387-() BUTT SPLICE PART NUMBERS

Part Number	Supplier
NAS1387-4	An available source

Table 28
BUTT SPLICE PART NUMBERS FOR D-150-() SPLICE KITS

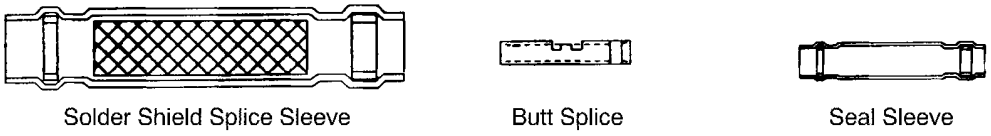
Splice Kit	Butt Splice Part Number
D-150-0174	D-609-06
D-150-0179	D-609-06

Table 29
RSK SHIELD-KON PART NUMBERS

Part Number	Supplier
RSK401	Thomas&Betts

Table 30
SOLDER SHIELD SPLICE KIT PART NUMBERS

ARINC 629 Stub Cable	Solder Shield Splice Kit	
	Part Number	Supplier
S280W502-1	D-150-0174	Tyco/Raychem
S280W502-4	D-150-0179	Tyco/Raychem



2445809 S00061544071_V1

COMPONENTS OF THE RAYCHEM SOLDER SHIELD SPLICE KIT
Figure 49

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B. Necessary Tools

Table 31
CRIMP TOOLS FOR NAS1387-() BUTT SPLICES

Crimp Tool Basic Unit		Holder		Crimp Tool Die	
Part Number	**Supplier**	**Part Number**	**Supplier**	**Part Number**	**Supplier**
49935	Tyco/AMP	-	-	-	-
M22520/5-01	QPL	-	-	Y641	Daniels
1213804-1 (battery powered)	TE Connectivity/AMP	1213757-1	TE Connectivity/AMP	49935	TE Connectivity/AMP

Table 32
CRIMP TOOLS RAYCHEM D-609-()BUTT SPLICES

Butt Splice Part Number	Crimp Tool Basic Unit		Crimp Tool Die	
	Part Number	**Supplier**	**Part Number**	**Supplier**
D-609-06	AD-1377	Tyco/AMP	-	-
	ST956C	Boeing	-	-
	ST956D	Boeing	-	-
	1213804-3	Tyco/AMP	1-1804834-1	Tyco/AMP

Table 33
CRIMP TOOLS FOR RSK SHIELD-KONS

Crimp Tool		
Basic Unit Part Number	**Type**	**Die Set**
13300	Pneumatic	401K
WT740	Hand	401K

Table 34
HOT AIR GUNS

Hot Air Gun		Reflector	
Basic Unit Part Number	**Supplier**	**Part Number**	**Supplier**
CV-5300	Tyco/Raychem	MG-1	Tyco/Raychem
CV-5000 Model 500	Tyco/Raychem	TG-135	Tyco/Raychem

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C. Splice Assembly Configurations

Refer to Subject 20-10-13 for:

- The conditions that are applicable for this procedure
- The general conditions that are applicable for the repair of a wire or a cable
- The general conditions that are applicable for the repair of a wire or a cable with a splice.

Table 35
SPLICE CONFIGURATIONS FOR S280W502-() STUB CABLES

Cable	Applicable Area	Configuration	Reference
S280W502-1	Fuel Vapor	RSK Shield-Kons with Cold Shrink Sleeves	Paragraph 7.D.
	No Fuel Vapor	RSK Shield-Kons with Cold Shrink Sleeves	Paragraph 7.D.
		Solder Splice Kit	Paragraph 7.E.
S280W502-4	Fuel Vapor	RSK Shield-Kons with Cold Shrink Sleeves	Paragraph 7.F.
	No Fuel Vapor	RSK Shield-Kons with Cold Shrink Sleeves	Paragraph 7.F.
		Solder Splice Kit	Paragraph 7.G.

D. Splice Assembly with RSK Shield-Kons and a Cold Shrink Sleeve - S280W502-1 Stub Cables

Refer to Paragraph 7.C. for:

- The conditions that are applicable for this procedure
- More splice configurations.

(1) Make a selection of these materials from Table 26:

- A sealant
- An adhesive tape
- A silicone tape
- A shield sleeve material
- A cold shrink sleeve
- A cold shrink sleeve kit.

NOTE: An equivalent shield sleeve material is a satisfactory alternative. Refer to Subject 20-00-11.

(2) Make a selection of two butt splices from Table 27.

(3) Make a selection of two RSK Shield-Kons from Table 29.

(4) Make a selection of a butt splice crimp tool from Table 31.

(5) Make a selection of a crimp tool for RSK Shield-Kons from Table 33.

(6) Cut the cable at each end of the area with damage.

(7) Put the length of cold shrink sleeve on one end of the cable.

(8) Put the necessary length of shield sleeve material on the end of the cable with the cold shrink sleeve.

Make sure that the length of the shield sleeve material is a minimum of 5.25 inches.

(9) Prepare the ends of the cable.

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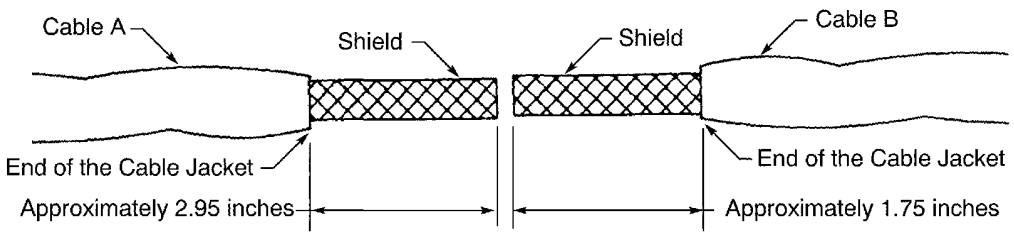
(a) Carefully remove approximately 2.95 inches of the outer jacket from the end of cable A.

Refer to:

- Figure 50
- Subject 20-00-15 for insulation removal procedures.



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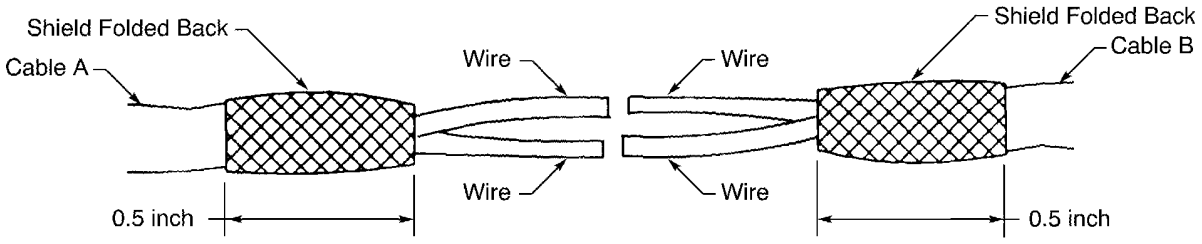
CABLE JACKET REMOVAL LENGTH
Figure 50

(b) Carefully remove approximately 1.75 inches of the outer jacket from the end of cable B.

Refer to:

- Figure 50
- Subject 20-00-15 for insulation removal procedures.

(c) Fold back the shield on the cable jacket. Refer to Figure 51.



2447888 S00061544073_V1

CABLE SHIELDS FOLDED BACK
Figure 51

(d) Remove the necessary length of shield that makes the distance from the end of the jacket to the end of the shield equal to 0.5 inch. Refer to Figure 51.

(e) Wind a length of adhesive tape on the end of each shield to temporarily hold the shields in position.

(f) Make the wires straight.

(g) Remove approximately 0.50 inch of insulation from the end of each wire.

Refer to:

- Figure 52

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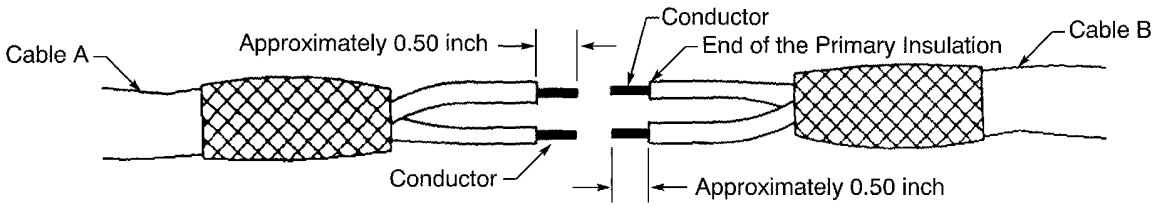
• Subject 20-00-15 for insulation removal procedures.



2447889 S00061544074_V1

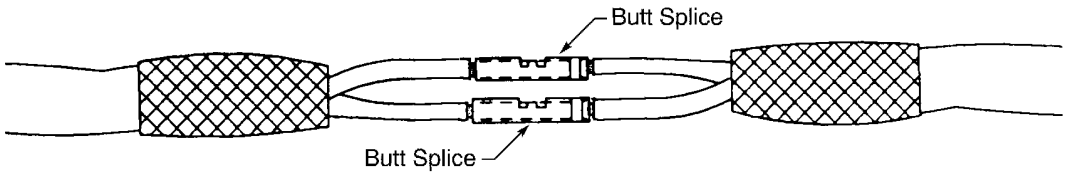
INSULATION REMOVAL LENGTH
Figure 52

(h) Fold the conductor back on itself.

(10) Put the wire in the splice.

Make sure that the color of the wire in each end of the splice is the same.

(11) Crimp the splice. Refer to Figure 53.



2447890 S00061544075_V1

ASSEMBLY OF THE BUTT SPLICE
Figure 53

(12) Wind two layers of 1 inch length of silicone tape on one butt splice.

Make sure that:

- The distance from one end of the layers of tape to the other end of the layers of tape is 1 inch
- The center of the layers of tape is aligned with the center of the splice
- The outer diameter of the layers of tape is equal to approximately 0.184 inch.

NOTE: If the tape is 0.012 inch thick, three layers of tape are necessary.

(13) Do again Step 7.D.(12) for the other butt splice.

(14) Remove the necessary length of the rubber fillers from the cold shrink splice kit to make the length of the filler equal to 1.15 inch.

NOTE: The length of cold shrink sleeve in the cold shrink sleeve kit is not needed and can be discarded.

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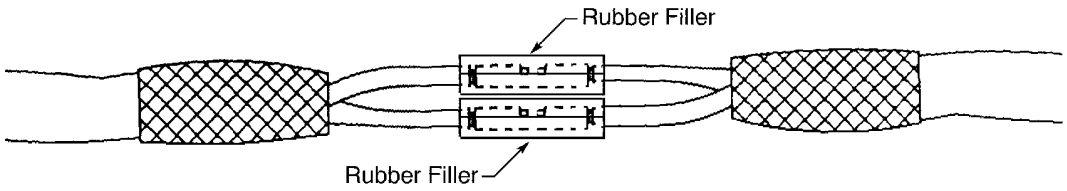
(15) Put a filler on each butt splice. Refer to Figure 54.

Make sure that the center of the filler is aligned with the center of the butt splice.



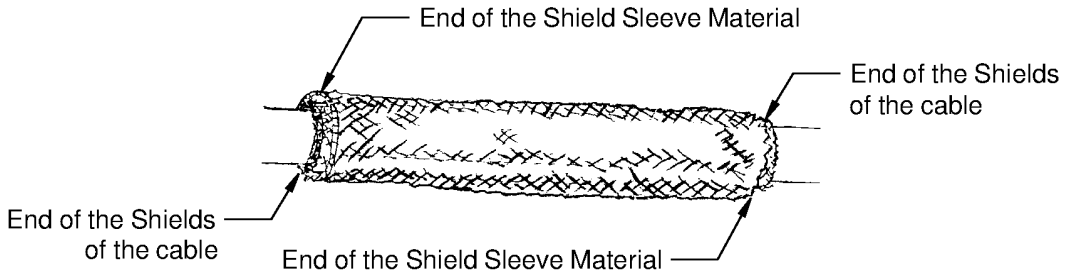
2447891 S00061544076_V1

POSITION OF THE RUBBER FILLERS
Figure 54

(16) Push the shield sleeve material on the splice assembly. Refer to Figure 55.

Make sure that:

- The shield sleeve material goes on the full splice area
- The ends of the shield sleeve material are approximately aligned with ends of the folded back shields
- The center of the shield sleeve material is approximately aligned with the center of the butt splices.



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POSITION OF THE SHIELD SLEEVE MATERIAL
Figure 55

(17) Assemble the splice of the shield. Refer to Figure 56.

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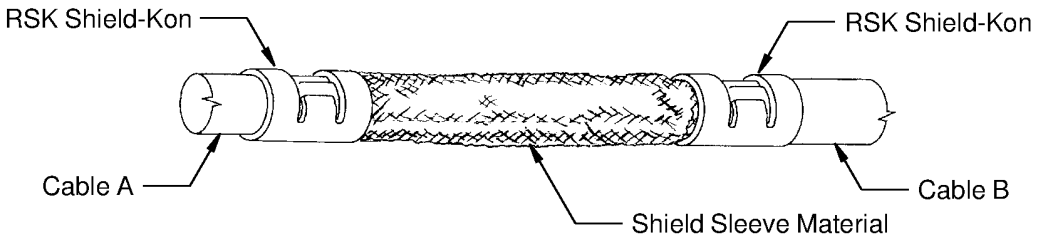

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ASSEMBLY OF THE SHIELD SPLICE
Figure 56

(a) Remove the temporary layer of tape around the end of each shield.

(b) Put one of the Shield-Kons into the die of the crimp tool.

Make sure that the center of the Shield-Kon is aligned with the center of the die.

(c) Put the crimp tool and the Shield-Kon on the shield sleeve material.

Make sure that the rear end of the Shield-Kon is aligned with the ends of the shield and the shield sleeve material.

(d) Crimp the Shield-Kon.

(e) Put the other Shield-Kon into the die of the crimp tool.

Make sure that the center of the Shield-Kon is aligned with the center of the die.

(f) Make the shield sleeve material smooth and tight.

(g) Put the crimp tool and the Shield-Kon on the other end of the shield sleeve material.

Make sure that the rear end of the Shield-Kon is aligned with the ends of the shield and the shield sleeve material.

(h) Crimp the Shield-Kon.

(i) Remove the shield and the shield sleeve material that extend farther than the rear end of the Shield-Kon on each end of the shield splice.

(18) Push the cold shrink sleeve on the splice assembly until one end of the cold shrink is approximately 0.25 inch from the end of shield sleeve material.

(19) Remove the necessary length of cold shrink sleeve to make the distance from each end of the sleeve to the ends of the shield sleeve material equal to 0.25 inch.

(20) Seal each end of the sleeve with sealant. Refer to Figure 57.

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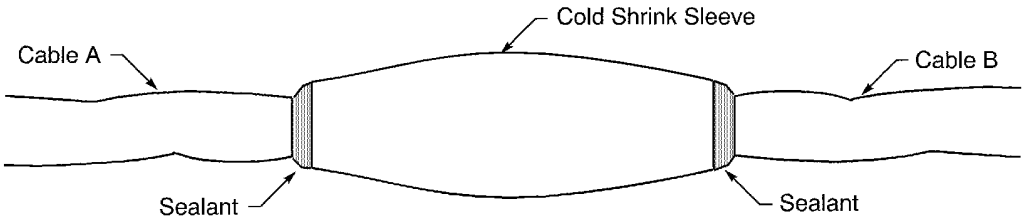

SEAL OF THE SLEEVE
Figure 57

E. Splice Assembly with a Solder Shield Splice Kit - S280W502-1 Stub Cables

Refer to Paragraph 7.C. for:

- The conditions that are applicable for this procedure
- More splice configurations.

Table 36
CABLE PREPARATION DIMENSIONS

Cable	Conductor	Trim Dimension (inch)		
		Dimension	Target	Tolerance
A	C1	D1	0.28	±0.02
		D2	1.92	
		D3	2.20	
	C2	D1	0.28	±0.02
		D2	0.77	
		D3	1.05	
B	C1	D1	0.28	±0.02
		D2	0.77	
		D3	1.05	
	C2	D1	0.28	±0.02
		D2	1.92	
		D3	2.20	

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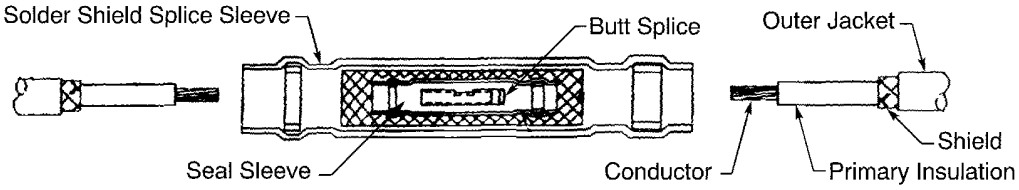

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ASSEMBLY CONFIGURATION OF THE SOLDER SHIELD SPLICE
Figure 58

Refer to Figure 69.

(1) Make a selection of solder shield splice kit from Table 30.

(2) Find the butt splice part number. Refer to Table 28.

(3) Make a selection of a crimp tool from Table 28.

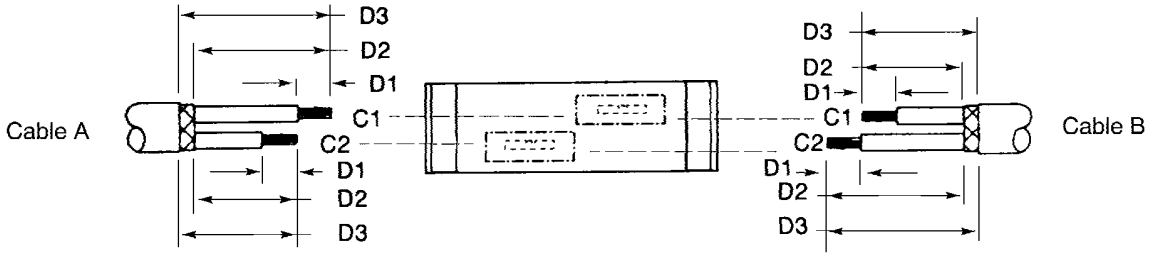
(4) Make a selection of a hot air gun from Table 34.

(5) Put the solder shield splice sleeve on each of the cables on one side of the splice assembly.

(6) Remove these specified lengths from the end of the cable or the wire:

- The outer jacket
- The shield
- The primary insulation
- The conductor.

Refer to Table 36 and Figure 59.



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CABLE PREPARATION
Figure 59

(7) Assemble the splice of each wire.

(a) Put the seal sleeve on the wire or wires.

Make sure that the large end of the sleeve is pointed to the end of the cable.

(b) Put the necessary conductors in one end of the butt splice.

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Make sure that the end of each conductor is against the wire stop at the center of the splice.

(c) Crimp the splice.

(d) Put the necessary conductors in the other end of the splice.

Make sure that the end of each conductor is against the notch at the center of the splice.

(e) Crimp the splice.

(f) Align the center of the seal sleeve with the center of the butt splice.

(g) Shrink the sleeve into its position. Refer to Subject 20-10-14.

(8) Align the center of the shield splice sleeve with the middle of the distance between the ends of the outer jackets of the cable on both sides of the splice assembly.

(9) Shrink one end of the shield splice sleeve:

(a) Apply heat at the center of the sleeve until the solder melts and the sleeve begins to shrink.

(b) Continue to apply heat from the center of the sleeve to one end of the sleeve until the solder ring melts and flows.

(10) Do Step 7.E.(9) again for the other end of the sleeve.

F. Splice Assembly with RSK Shield-Kons and a Cold Shrink Sleeve - S280W502-4 Stub Cables

Refer to Paragraph 7.C. for:

- The conditions that are applicable for this procedure
- More splice configurations.

Table 37
CABLE PREPARATION DIMENSIONS

Cable	Component Wire	
	Color	Necessary Length (inch)
A	Red	3.90
	Blue	3.25
	Red with Black Stripe	2.65
	Blue with Black Stripe	2.00
B	Red	2.00
	Blue	2.65
	Red with Black Stripe	3.25
	Blue with Black Stripe	3.90

(1) Make a selection of these materials from Table 26:

- A sealant
- An adhesive tape
- A silicone tape
- A shield sleeve material
- A cold shrink sleeve

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- A cold shrink sleeve kit.

NOTE: An equivalent shield sleeve material is a satisfactory alternative. Refer to Subject 20-00-11.

(2) Make a selection of four butt splices from Table 27.

(3) Make a selection of two RSK Shield-Kons from Table 29.

(4) Make a selection of a butt splice crimp tool from Table 31.

(5) Make a selection of a crimp tool for RSK Shield-Kons from Table 33.

(6) Cut the cable at each end of the area with damage.

(7) Put the length of cold shrink sleeve on one end of the cable.

(8) Put the necessary length of shield sleeve material on the end of the cable with the cold shrink sleeve.

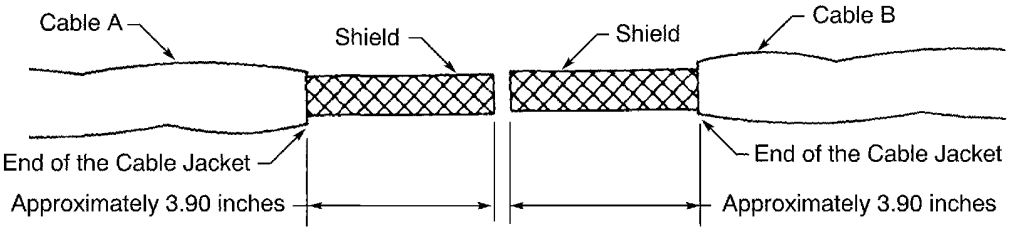
Make sure that the length of the shield sleeve material is a minimum of 7.25 inches.

(9) Prepare the ends of the cable.

(a) Carefully remove approximately 3.90 inches of the outer jacket from the end of cable A.

Refer to:

- Figure 60
- Subject 20-00-15 for insulation removal procedures.



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CABLE JACKET REMOVAL LENGTH
Figure 60

(b) Carefully remove approximately 3.90 inches of the outer jacket from the end of cable B.

Refer to:

- Figure 60
- Subject 20-00-15 for insulation removal procedures.

(c) Fold back the shield on the cable jacket. Refer to Figure 61.

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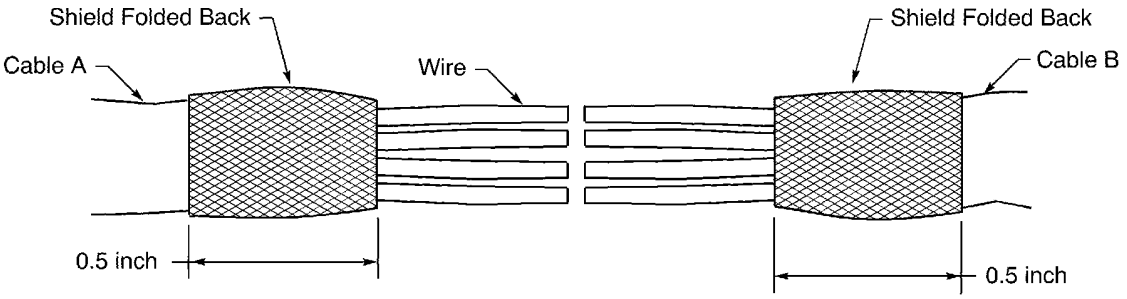


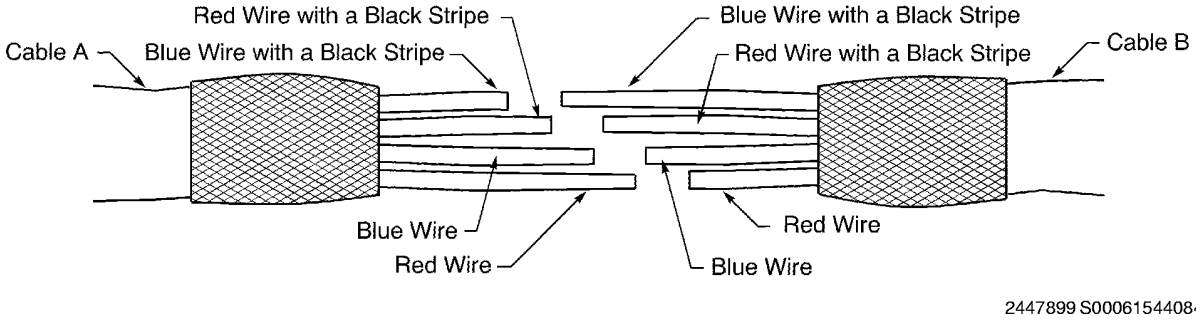
CABLE SHIELDS FOLDED BACK
Figure 61

(d) Remove the necessary length of shield that makes the distance from the end of the jacket to the end of the shield equal to 0.5 inch. Refer to Figure 61.

(e) Wind a length of adhesive tape on the end of each shield to temporarily hold the shields in position.

(f) Make the wires straight.

(g) Remove the necessary length of wire from the end of each component wire on cable A. Refer to Table 37 and Figure 62.



CABLE PREPARATION
Figure 62

(h) Remove the necessary length of wire from the end of each component wire on cable B. Refer to Table 37 and Figure 62.

(i) Remove approximately 0.50 inch of insulation from the end of each wire.

Refer to:

- Figure 63
- Subject 20-00-15 for insulation removal procedures.

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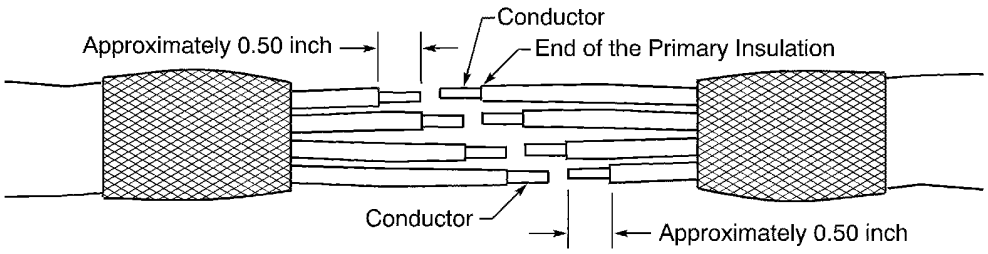

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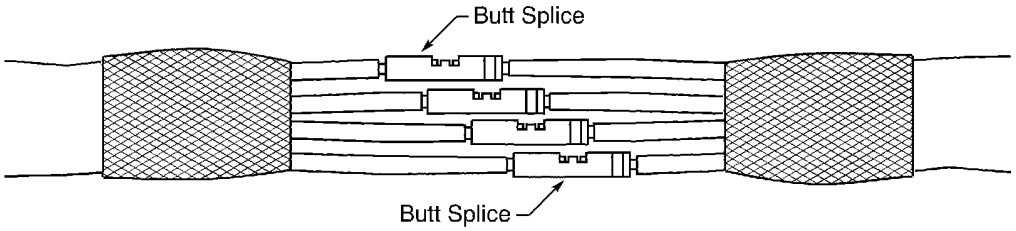
INSULATION REMOVAL LENGTH
Figure 63

(j) Fold the conductor back on itself.

(10) Put the wire in the splice.

Make sure that the color of the wire in each end of the splice is the same.

(11) Crimp the splice. Refer to Figure 64.



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ASSEMBLY OF THE BUTT SPLICE
Figure 64

(12) Wind two layers of 1 inch length of silicone tape on one butt splice.

Make sure that:

- The distance from one end of the layers of tape to the other end of the layers of tape is 1 inch
- The center of the layers of tape is aligned with the center of the splice
- The outer diameter of the layers of tape is equal to approximately 0.25 inch.

NOTE: If the tape is 0.012 inch thick, three layers of tape are necessary.

(13) Do again Step 7.F.(12) for the other butt splices.

(14) Remove the necessary length of the rubber fillers from the cold shrink splice kit to make the length of the filler equal to 1.15 inch.

NOTE: The length of cold shrink sleeve in the cold shrink sleeve kit is not needed and can be discarded.

(15) Put a filler on each butt splice. Refer to Figure 65.

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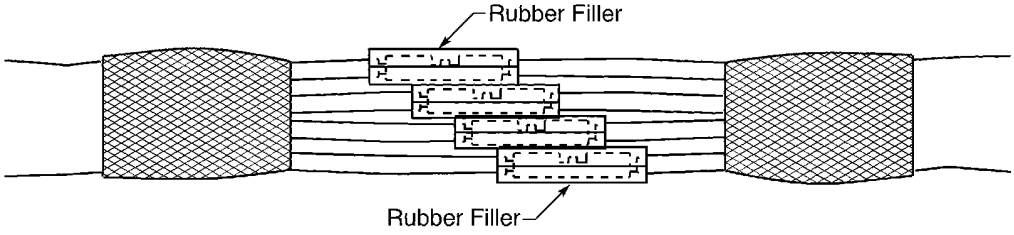
Make sure that the center of the filler is aligned with the center of the butt splice.



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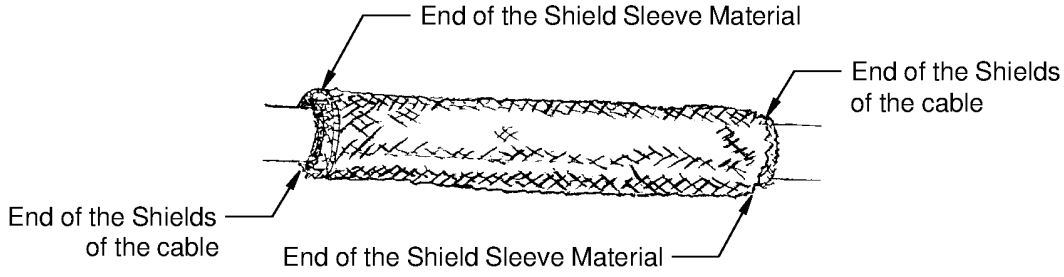
POSITION OF THE RUBBER FILLERS
Figure 65

(16) Push the shield sleeve material on the splice assembly. Refer to Figure 67.

Make sure that:

- The shield sleeve material goes on the full splice area
- The ends of the shield sleeve material are approximately aligned with ends of the folded back shields
- The center of the shield sleeve material is approximately aligned with the center of the butt splices.



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POSITION OF THE SHIELD SLEEVE MATERIAL
Figure 66

(17) Assemble the splice of the shield. Refer to Figure 67.

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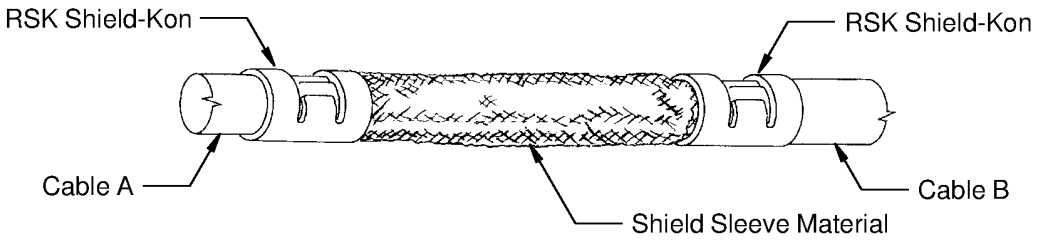

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ASSEMBLY OF THE SHIELD SPLICE
Figure 67

(a) Remove the temporary layer of tape around the end of each shield.

(b) Put one of the Shield-Kons into the die of the crimp tool.

Make sure that the center of the Shield-Kon is aligned with the center of the die.

(c) Put the crimp tool and the Shield-Kon on the shield sleeve material.

Make sure that the rear end of the Shield-Kon is aligned with the ends of the shield and the shield sleeve material.

(d) Crimp the Shield-Kon.

(e) Put the other Shield-Kon into the die of the crimp tool.

Make sure that the center of the Shield-Kon is aligned with the center of the die.

(f) Make the shield sleeve material smooth and tight.

(g) Put the crimp tool and the Shield-Kon on the other end of the shield sleeve material.

Make sure that the rear end of the Shield-Kon is aligned with the ends of the shield and the shield sleeve material.

(h) Crimp the Shield-Kon.

(i) Remove the shield and the shield sleeve material that extend farther than the rear end of the Shield-Kon on each end of the shield splice.

(18) Push the cold shrink sleeve on the splice assembly until one end of the cold shrink is approximately 0.25 inch from the end of shield sleeve material.

(19) Remove the necessary length of cold shrink sleeve to make the distance from each end of the sleeve to the ends of the shield sleeve material equal to 0.25 inch.

(20) Seal each end of the sleeve with sealant. Refer to Figure 68.

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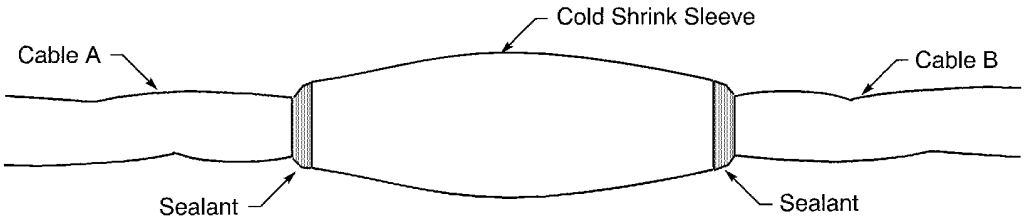

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SEAL OF THE SLEEVE
Figure 68

G. Splice Assembly with a Solder Shield Splice Kit - S280W502-4 Stub Cables

Refer to Paragraph 7.C. for:

- The conditions that are applicable for this procedure
- More splice configurations.

Table 38
CABLE PREPARATION DIMENSIONS

Cable	Conductor	Trim Dimension (inch)		
		Dimension	Target	Tolerance
A	C1	D1	0.28	±0.02
		D2	1.92	
		D3	2.20	
	C2	D1	0.28	±0.02
		D2	1.92	
		D3	2.20	
	C3	D1	0.28	±0.02
		D2	0.77	
		D3	1.05	
	C4	D1	0.28	±0.02
		D2	0.77	
		D3	1.05	

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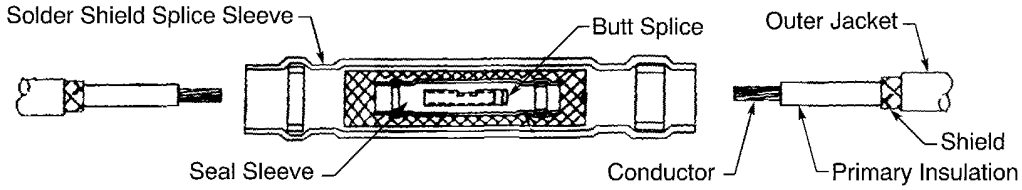
Table 38 CABLE PREPARATION DIMENSIONS (Continued)

Cable	Conductor	Trim Dimension (inch)		
		Dimension	Target	Tolerance
B	C1	D1	0.28	±0.02
		D2	.77	
		D3	1.05	
	C2	D1	0.28	±0.02
		D2	.77	
		D3	1.05	
	C3	D1	0.28	±0.02
		D2	1.92	
		D3	2.20	
	C4	D1	0.28	±0.02
		D2	1.92	
		D3	2.20	



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ASSEMBLY CONFIGURATION OF THE SOLDER SHIELD SPLICE
Figure 69

Refer to Figure 69.

(1) Make a selection of solder shield splice kit from Table 30.

(2) Find the butt splice part number. Refer to Table 28.

(3) Make a selection of a crimp tool from Table 32.

(4) Make a selection of a hot air gun from Table 34.

(5) Put the solder shield splice sleeve on each of the cables on one side of the splice assembly.

(6) Remove these specified lengths from the end of the cable or the wire:

- The outer jacket
- The shield
- The primary insulation
- The conductor.

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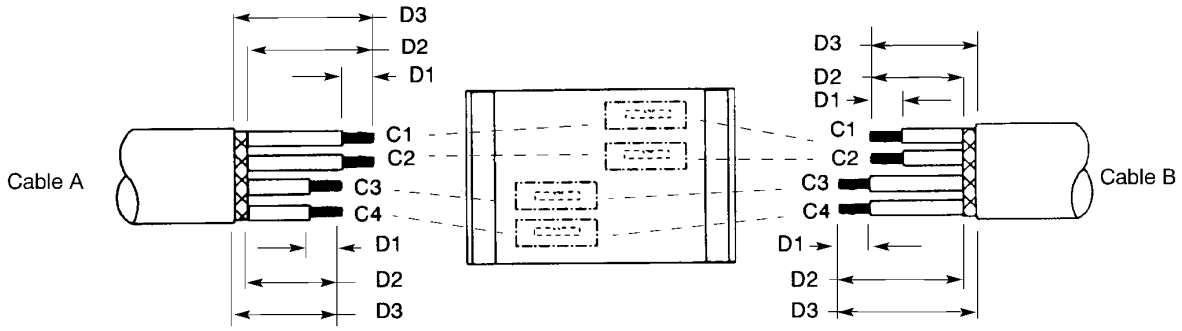
Refer to Table 38 and Figure 70.



CABLE PREPARATION
Figure 70

(7) Assemble the splice of each wire.

(a) Put the seal sleeve on the wire or wires.

Make sure that the large end of the sleeve is pointed to the end of the cable.

(b) Put the necessary conductors in one end of the butt splice.

Make sure that the end of each conductor is against the wire stop at the center of the splice.

(c) Crimp the splice.

(d) Put the necessary conductors in the other end of the splice.

Make sure that the end of each conductor is against the notch at the center of the splice.

(e) Crimp the splice.

(f) Align the center of the seal sleeve with the center of the butt splice.

(g) Shrink the sleeve into its position. Refer to Subject 20-10-14.

(8) Align the center of the shield splice sleeve with the middle of the distance between the ends of the outer jackets of the cable on both sides of the splice assembly.

(9) Shrink one end of the shield splice sleeve:

(a) Apply heat at the center of the sleeve until the solder melts and the sleeve begins to shrink.

(b) Continue to apply heat from the center of the sleeve to one end of the sleeve until the solder ring melts and flows.

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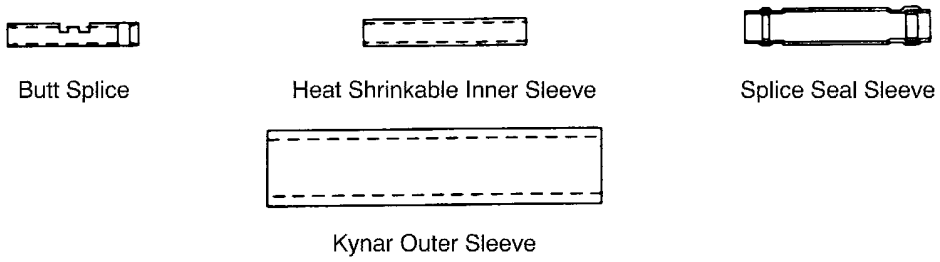
(10) Do Step 7.G.(9) again for the other end of the sleeve.

8. REPAIR OF ARINC 629 S280W651-() DATA BUS CABLE

A. Necessary Parts and Materials

Table 39
SPLICE ASSEMBLY COMPONENTS

Cable Type	Component	Part Number	Supplier
Unshielded	Butt Splice	D-609-06	Tyco/Raychem
	Splice Seal Sleeve	D-436-0097	Tyco/Raychem
	Inner Sleeve	RT-375	Tyco/Raychem
	Kynar Outer Sleeve	TAK	Tyco/Raychem
Shielded	Butt Splice	D-609-06	Tyco/Raychem
	Inner Sleeve	RT-375	Tyco/Raychem
	Splice Seal Sleeve	D-436-0097	Tyco/Raychem
	Seal Sleeve	D-436-10	Tyco/Raychem
	Solder Shield Splice Sleeve	D-155-0975	Tyco/Raychem
	Kynar Outer Sleeve	TAK	Tyco/Raychem
	Protection Sleeve	RT-375	Tyco/Raychem



SPLICE ASSEMBLY COMPONENTS FOR AN UNSHIELDED CABLE
Figure 71

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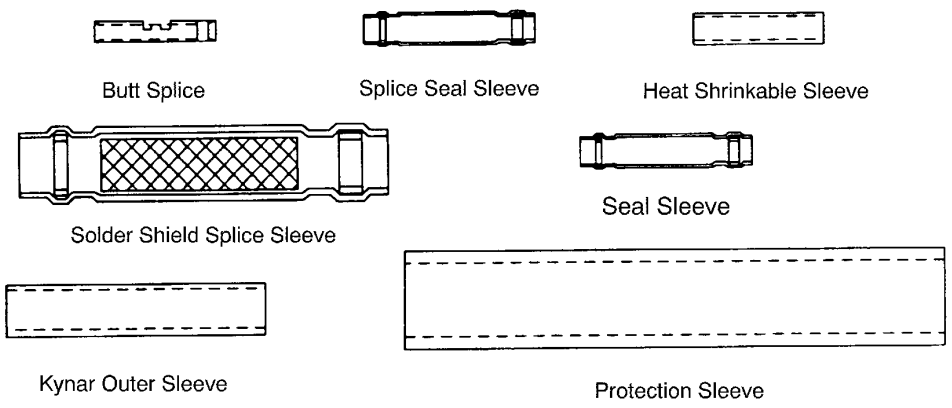

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SPLICE ASSEMBLY COMPONENTS FOR A SHIELDED CABLE
Figure 72

Table 40
INSULATION MATERIALS

Material	Temperature Grade	Class	Part Number	Supplier
Film Strip	D	1	E125-2	Fluorglas
			E125-2	Saint-Gobain Performance Plastics
			E125-3	Fluorglas
			E125-3	Saint-Gobain Performance Plastics
			P-412	Permacel
			Scotch 48	3M
			Scotch 3082	3M
			Scotch 4202	3M
Tape, Silicone	D	2	Scotch 70	3M

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Table 40 INSULATION MATERIALS (Continued)

Material	Temperature Grade	Class	Part Number	Supplier
Tape, TFE	B	1	Scotch 63	3M
			2242-2	Fluorglas
			2242-2	Saint-Gobain Performance Plastics
	C	2	Mystick 7505	Fluorglas
			Mystick 7505	Saint-Gobain Performance Plastics
			Scotch 61	3M
	D	2	P-421	Permacel
			2045-5	Fluorglas
			2045-5	Saint-Gobain Performance Plastics
			2245-5	Fluorglas
			2245-5	Saint-Gobain Performance Plastics
			Mil-I-23594, Type 1, Class 4	QPL

B. Necessary Tools

Table 41
CRIMP TOOLS FOR RAYCHEM D-609-06 BUTT SPLICES

Crimp Barrel Size	Crimp Tool		
	Basic Unit	Nest	Supplier
26-20	AD-1377	20-26	Tyco/Raychem
	GMT232	20-26	Daniels
	ST956C	20-26	Boeing
	ST956D	20-26	Boeing

Table 42
HOT AIR GUNS

Type	Temperature Range (Degrees C)		Hot Air Gun			
	Min.	Max.	Basic Unit		Reflector	
			Part Number	Supplier	Part Number	Supplier
Standard Temperature	232	371	CV-5300	Tyco/Raychem	MG-1	Tyco/Raychem
	260	371	CV-5000 Model 500	Tyco/Raychem	TG-135	Tyco/Raychem
High Temperature	399	538	CV-5000 Model 750	Tyco/Raychem	TG-33	Tyco/Raychem

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C. Repair of a Broken Bond Between the Component Wires

Table 43
NECESSARY MATERIALS

Material	Description	Part Number	Supplier
Tape	Polyester, Acrylic adhesive	850	3M

(1) Make a selection of a tape from Table 43.

NOTE: An equivalent tape is a satisfactory alternative. Refer to Subject 20-00-11.

(2) At the location of the broken bond, wind two layers of tape around the two component wires.

Make sure to keep the initial configuration of the twists in the wires.

D. Repair of a Broken Bond Between Overlaps in the Primary Insulation of a Wire

Refer to Subject 20-10-13 for:

- The conditions that are applicable for this procedure
- The general conditions that are applicable for the repair of a wire or a cable.

(1) Make a selection of one of these insulation materials from Table 40:

- Temperature Grade D TFE tape
- Temperature Grade D film strip
- Temperature Grade C silicone tape.

Make sure that the insulation material has a Temperature Grade that is applicable for the wire.

(2) Remove the rough edges of the insulation.

(3) Clean the insulation with isopropyl alcohol.

Make sure to:

- Clean the damaged area of the insulation
- Clean the insulation approximately 3 inches on each side of damage.

(4) Let the clean areas dry.

(5) Wind two layers of the insulation material on the cable.

Make sure that:

- The two wires are together
- Each end of the insulation material extends a minimum of 1 inch farther than each end of the damaged area
- Each layer has a minimum 50 percent overlap of the tape
- Each layer is wound a minimum of two times on the cable
- The second layer is wound in the opposite direction of the first layer.

(6) Assemble a lacing tape wire harness tie on each end of the insulation material approximately 0.25 inch from the end of the insulation material.

Refer to:

- Figure 73
- Subject 20-10-11 for the procedure to assemble a lacing tape wire harness tie.

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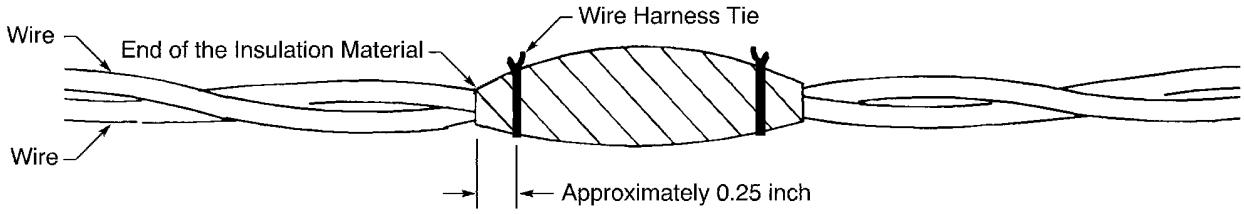
Make sure that:

- The color of the lacing tape is yellow
- The lacing tape has a Temperature Grade and a Class that are applicable for the cable.

CAUTION: A PLASTIC TIE STRAP MUST NOT BE USED. DAMAGE TO THE INSULATION OF THE DATA BUS CABLE CAN OCCUR.



2447447 S00061544091_V1

POSITION OF THE WIRE HARNESS TIES ON THE LAYERS OF INSULATION MATERIAL
Figure 73

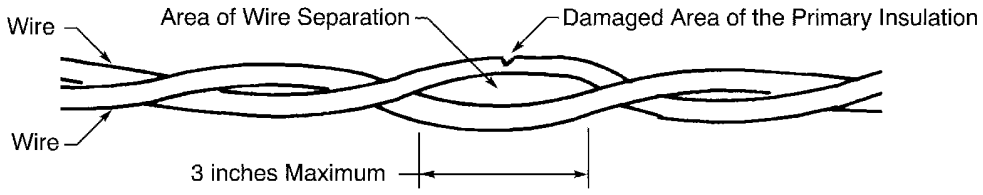
E. Repair of the Primary Insulation of a Wire in an Unshielded Cable

Refer to Subject 20-10-13 for:

- The conditions that are applicable for this procedure
- The general conditions that are applicable for the repair of a wire or a cable.

(1) Make a separation between the blue and yellow wires that has a maximum length of 1.5 inches from each end of the damaged area. Refer to Paragraph 4.A.

CAUTION: ONLY USE A TOOL THAT IS SPECIFIED IN PARAGRAPH 4.A. OTHER TOOLS CAN CAUSE DAMAGE TO THE WIRES.



2447444 S00061544093_V1

SEPARATION OF THE WIRES
Figure 74

(2) Clean the insulation of each wire with isopropyl alcohol. Refer to Figure 75.

Make sure to:

- Clean the damaged area of the insulation
- Clean the insulation of each wire approximately 3 inches on each side of the damage.

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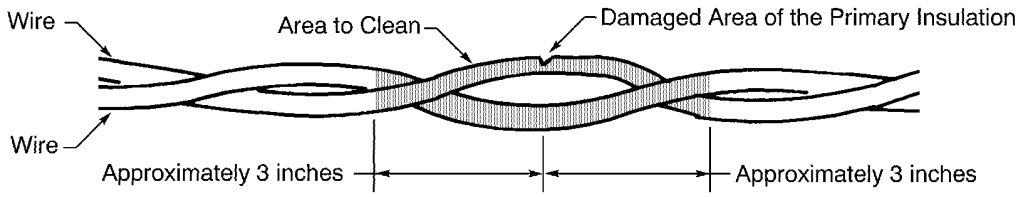


2447445 S00061544094_V1

CLEAN AREAS OF THE WIRES
Figure 75

(3) Let the clean areas dry.

(4) If the damage is a cavity in the insulation, fill in the cavity.

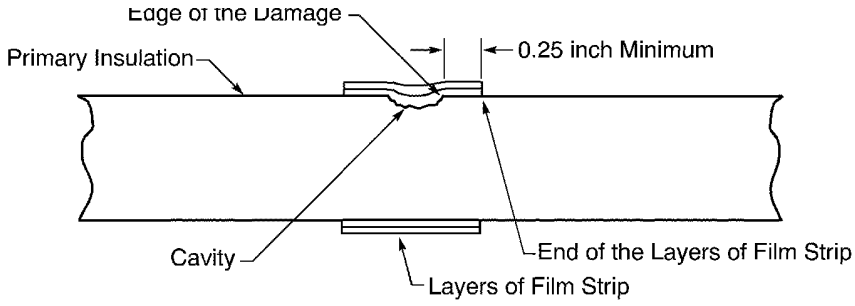
(a) Make a selection of a Temperature Grade D film strip from Table 40.

NOTE: A Temperature Grade D TFE tape from Table 40 is a satisfactory alternative to the film strip.

(b) Wind the necessary layers of film strip on the wire with damage to fill the cavity and make a smooth surface. Refer to Figure 76.

Make sure that each layer of film strip:

- Extends a minimum of 0.25 inch farther than each end of the damaged area
- Has a 50 percent minimum overlap of the tape
- Is wound a minimum of two times on the insulation
- Is wound in the opposite direction of the layer before.



2447158 S00061543465_V1

CAVITY FILLED WITH FILM STRIP
Figure 76

(5) Make a selection of one of these tapes from Table 40:

- Temperature Grade D TFE tape
- Temperature Grade C silicone tape.

Make sure that the tape has a Temperature Grade that is applicable for the cable.

(6) Wind two layers of the tape on the damaged area of the wire. Refer to Figure 77.

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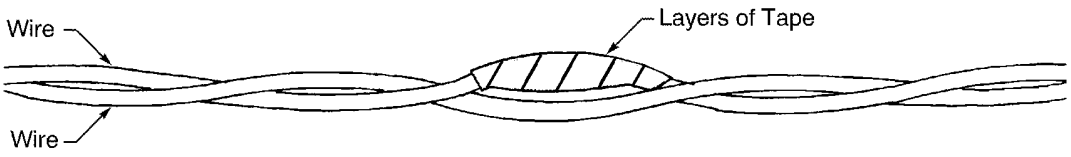
Make sure that:

- If a cavity is filled with film strip, each end of the tape extends a minimum of 0.75 inch farther than the end of the film strip
- If a cavity is not filled with film strip, each end of the tape extends a minimum of 1 inch farther than end of the damaged area
- Each layer has a 50 percent minimum overlap of the tape
- Each layer of tape is wound a minimum of two times on the wire
- The second layer of tape is wound in the opposite direction of the first layer.



2447446 S00061544095_V1

POSITION OF THE LAYERS OF TAPE
Figure 77

(7) Put the two wires together.

(8) Tightly wind a layer of tape around the two wires.

Make sure that the layer of tape:

- Extends 0.5 inch minimum farther than each end of the layers of tape on the wire or wires with damage
- Makes a 50 percent overlap.

(9) Assemble a lacing tape wire harness tie approximately 0.25 inch from each end of the tape.

Refer to:

- Figure 78
- Subject 20-10-11 for the procedure to assemble a lacing tape wire harness tie.

Make sure that:

- The color of the lacing tape is yellow
- The lacing tape has a Temperature Grade and a Class that are applicable for the cable.

CAUTION: A PLASTIC TIE STRAP MUST NOT BE USED. DAMAGE TO THE INSULATION OF THE DATA BUS CABLE CAN OCCUR.

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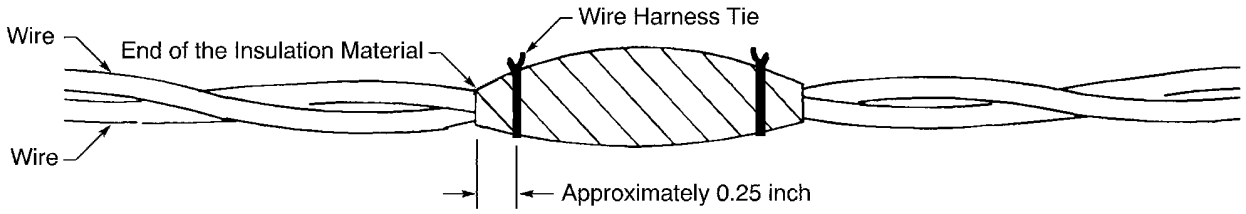

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POSITION OF THE WIRE HARNESS TIE ON THE LAYER OF TAPE
Figure 78

F. Splice Assembly on One Wire of an Unshielded Cable

Refer to Subject 20-10-13 for:

- The conditions that are applicable for this procedure
- The general conditions that are applicable for the repair of a wire or a cable
- The general conditions that are applicable for the repair of a wire or a cable with a splice.

(1) Make a selection of these splice assembly components from Table 39:

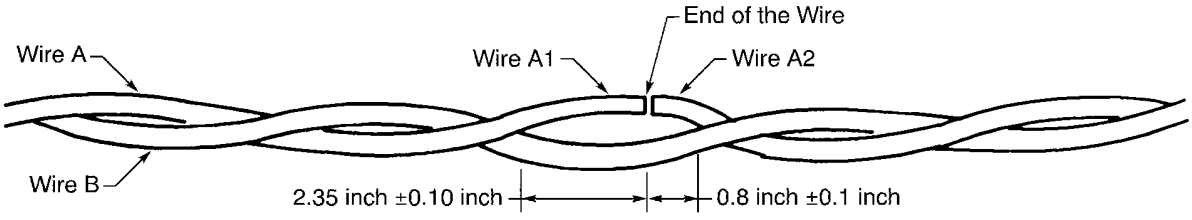
- One butt splice
- One splice seal sleeve
- One 0.55 inch ±0.05 inch length of inner sleeve
- One 2.0 inch ±0.1 inch length of Kynar outer sleeve.

Refer to Figure 71.

(2) Make a selection of a crimp tool from Table 41.

(3) Make a selection of a standard temperature hot air gun from Table 42.

(4) Prepare the cable. Refer to Figure 79.



2445836 S00061544096_V1

SEPARATION OF THE WIRES
Figure 79

(a) Remove the damaged area from the wire.

(b) Make a separation between Wire A1 and Wire B that has a maximum length of 2.35 inches ±0.10 inch from the end of Wire A1. Refer to Paragraph 4.A.

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CAUTION: ONLY USE A TOOL THAT IS SPECIFIED IN PARAGRAPH 4.A. OTHER TOOLS CAN CAUSE DAMAGE TO THE WIRES.

(c) Make a separation between Wire A2 and Wire B that has a maximum length of 0.8 inch ±0.1 inch from the end of Wire A2. Refer to Paragraph 4.A.

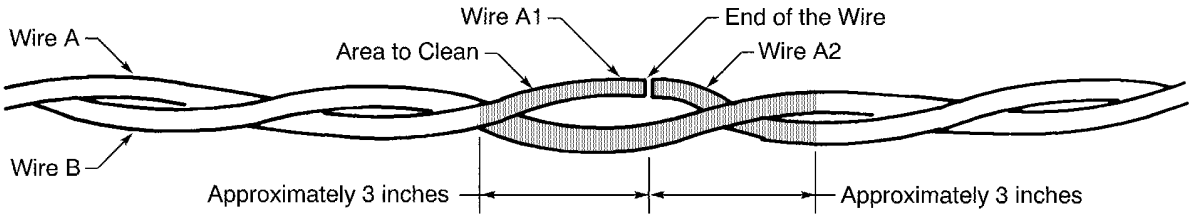
CAUTION: ONLY USE A TOOL THAT IS SPECIFIED IN PARAGRAPH 4.A. OTHER TOOLS CAN CAUSE DAMAGE TO THE WIRES.

(d) Remove a 0.25 inch ±0.03 inch of insulation from each end of Wire A. Refer to Subject 20-00-15.

(e) Clean the insulation of each wire with isopropyl alcohol. Refer to Figure 80.

Make sure to:

- Clean the insulation of Wire A1 and Wire A2 approximately 3 inches from the end of each wire
- Clean the length of Wire B that is parallel to the clean lengths of Wire A.



2447448 S00061544097_V1

CLEAN AREAS OF THE WIRES
Figure 80

(f) Let the clean areas dry.

(g) Put the inner sleeve on Wire A2.

(h) Put the seal splice sleeve on Wire A1.

(i) Put the Kynar outer sleeve on Wire A1.

(5) Assemble one end of the butt splice:

(a) Put the splice in the crimp tool.

(b) Hold the splice in position with light pressure.

(c) Put the conductor of one of the wires in the crimp barrel of one end of the splice.

Make sure that:

- The end of the conductor can be seen in the inspection hole of the splice
- The end of the conductor does not make an overlap with the wire stop in the splice
- The insulation of the wire is not in the crimp barrel
- The end of the wire insulation is a maximum of 0.13 inch from the end of the splice.

(d) Crimp the splice.

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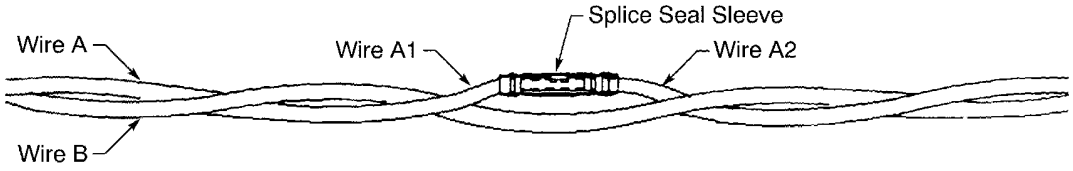
(6) Do Step 8.F.(5) again for the other end of the splice.

(7) Align the center of the inner sleeve with the center of the butt splice.

(8) Shrink the inner sleeve into its position. Refer to Subject 20-10-14.

(9) Align the center of the splice seal sleeve with the center of the inner sleeve. Refer to Figure 81.



2445837 S00061544098_V1

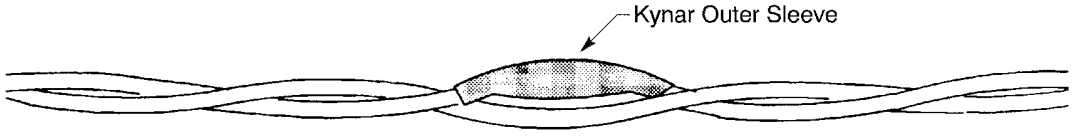
POSITION OF THE SPLICE SEAL SLEEVE
Figure 81

(10) Shrink the splice seal sleeve into its position:

(a) Apply heat from the center of the sleeve to one end of the sleeve.

(b) Apply heat from the center of the sleeve to the other end of the sleeve.

(11) Align the center of the Kynar outer sleeve with the center of the splice seal sleeve. Refer to Figure 82.



2445838 S00061544099_V1

POSITION OF THE KYNAR OUTER SLEEVE
Figure 82

(12) Shrink the Kynar outer sleeve into its position:

(a) Apply heat from the center of the sleeve to one end of the sleeve.

(b) Apply heat from the center of the sleeve to the other end of the sleeve.

(13) Make a selection of one of these tapes from Table 40:

- Temperature Grade D TFE tape
- Temperature Grade C silicone tape

Make sure that the tape has a Temperature Grade that is applicable for the cable.

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(14) Put the two wires together.

(15) Tightly wind a layer of tape on the two wires.

Make sure that the layer of tape:

- Starts a minimum of 0.5 inch farther than the end of the outer sleeve on the Wire A2 side of the splice assembly
- Stops a minimum of 0.5 inch farther than the end of the outer sleeve on the Wire A1 side of the splice assembly
- Has a 50 percent overlap of tape.

(16) Assemble a wire harness tie approximately 0.25 inch from the end of the tape on the Wire A1 side of the splice assembly.

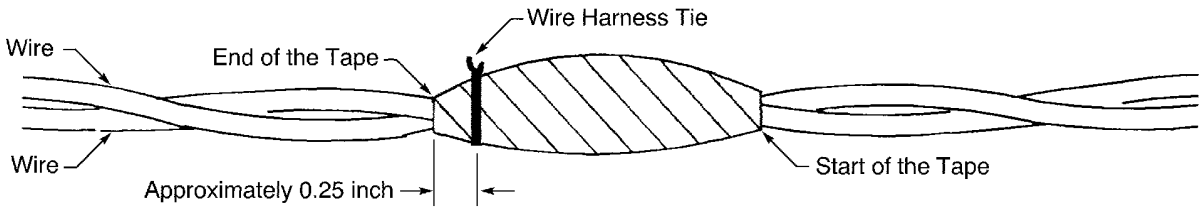
Refer to:

- Figure 83
- Subject 20-10-11 for the procedure to assemble a lacing tape wire harness tie.

Make sure that:

- The color of the lacing tape is yellow
- The lacing tape has a Temperature Grade and a Class that are applicable for the cable.

CAUTION: A PLASTIC TIE STRAP MUST NOT BE USED. DAMAGE TO THE INSULATION OF THE DATA BUS CABLE CAN OCCUR.



2445839 S00061544100_V1

POSITION OF THE WIRE HARNESS TIE ON LAYER OF TAPE
Figure 83

G. Splice Assembly on Each Wire of an Unshielded Cable

Refer to Subject 20-10-13 for:

- The conditions that are applicable for this procedure
- The general conditions that are applicable for the repair of a wire or a cable
- The general conditions that are applicable for the repair of a wire or a cable with a splice.

(1) Make a selection of these splice assembly components from Table 39:

- Two butt splices
- Two 0.55 inch ±0.05 inch lengths of heat shrinkable inner sleeves
- Two splice seal sleeves
- One 2.0 inch ±0.1 inch length of Kynar outer sleeve.

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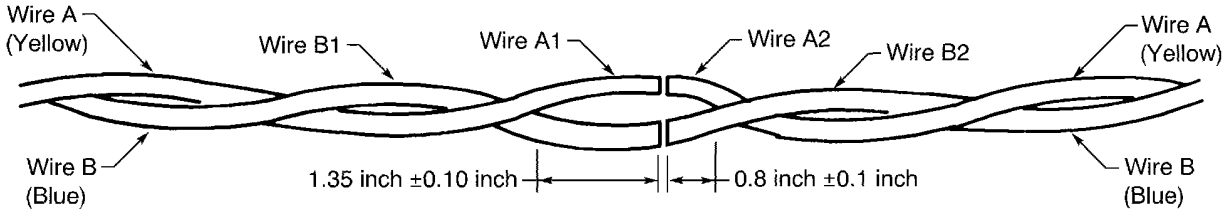
Refer to Figure 71.

(2) Make a selection of a crimp tool from Table 41.

(3) Make a selection of a standard temperature hot air gun from Table 42.

(4) Prepare the cable. Refer to Figure 84.



2445840 S00061544101_V1

SEPARATION OF THE WIRES
Figure 84

(a) Remove the damaged area from each wire.

(b) Make a separation between the Wire A1 and Wire B1 that has a maximum length of 1.35 inches ±0.10 inch from the end of Wire A1. Refer to Paragraph 4.A.

CAUTION: ONLY USE A TOOL THAT IS SPECIFIED IN PARAGRAPH 4.A. OTHER TOOLS CAN CAUSE DAMAGE TO THE WIRES.

(c) Make a separation between the Wire A2 and Wire B2 that has a maximum length of 0.8 inch ±0.1 inch from the end of Wire A2. Refer to Paragraph 4.A.

CAUTION: ONLY USE A TOOL THAT IS SPECIFIED IN PARAGRAPH 4.A. OTHER TOOLS CAN CAUSE DAMAGE TO THE WIRES.

Make sure that the distance from the end of each wire to the location where the wires are against each other is 0.8 inch ±0.1 inch

(d) Remove a 0.25 inch ±0.03 inch of insulation from each end of Wire A and Wire B. Refer to Subject 20-00-15.

(e) Clean the insulation of each wire with isopropyl alcohol. Refer to Figure 85.

Make sure to the length of insulation approximately 3 inches from the end of each wire.

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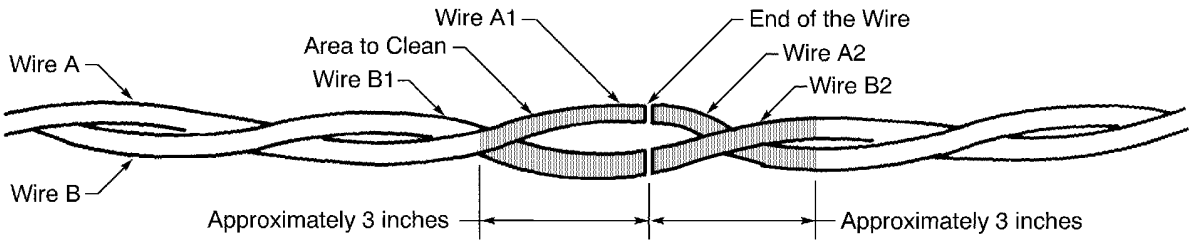

CLEAN AREAS OF THE WIRES
Figure 85

(f) Let the clean areas dry.

(g) Put an inner sleeve on the end of:

- Wire A2
- Wire B2.

(h) Put a splice seal sleeve on the end of:

- Wire A1
- Wire B1.

(i) Put Wire A2 and Wire B2 together.

(j) Put the Kynar outer sleeve on wires.

Make sure that Wire A2 and Wire B2 are together.

(5) Assemble the butt splice on Wire A:

(a) Put the splice in the crimp tool.

(b) Hold the splice in position with light pressure.

(c) Put the conductor of one end of the wire in the crimp barrel of one end of the splice.

Make sure that:

- The end of the conductor can be seen in the inspection hole of the splice
- The end of the conductor does not make an overlap with the wire stop in the splice
- The insulation of the wire is not in the crimp barrel
- The end of the wire insulation is a maximum of 0.13 inch from the end of the splice.

(d) Crimp the splice.

(e) Do Step (a) through Step (d) for the other end of the splice.

Make sure that the wire has the same color of insulation as the wire in the opposite end of the splice.

(6) Do Step 8.G.(5) again for Wire B.

(7) On one of the wires, align the center of the inner sleeve with the center of the splice.

(8) Shrink the inner sleeve into its position. Refer to Subject 20-10-14.

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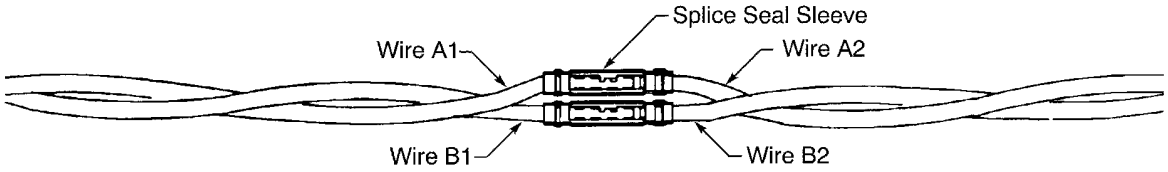
(9) Do Step 8.G.(7) and Step 8.G.(8) again for the other wire.

(10) On Wire A, align the center of the splice seal sleeve with the center of the inner sleeve. Refer to Figure 86.



2445841 S00061544103_V1

POSITION OF THE SPLICE SEAL SLEEVES ON THE WIRES
Figure 86

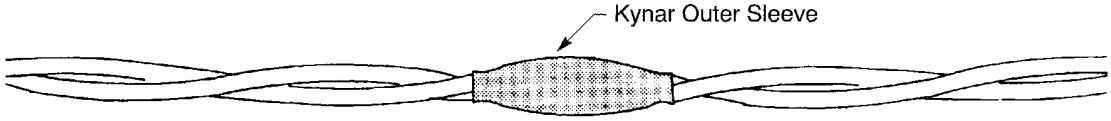
(11) Shrink the splice seal sleeve into position:

(a) Apply heat from the center of the sleeve to one end of the sleeve.

(b) Apply heat from the center of the sleeve to the other end of the sleeve.

(12) Do Step 8.G.(10) and Step 8.G.(11) again for Wire B.

(13) Align the center of the Kynar outer sleeve with the centers of the splice seal sleeves. Refer to Figure 87.



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POSITION OF THE KYNAR OUTER SLEEVE ON THE CABLE
Figure 87

(14) Shrink the Kynar outer sleeve into position:

(a) Apply heat from the center of the sleeve to one end of the sleeve.

(b) Apply heat from the center of the sleeve to the other end of the sleeve.

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H. Splice Assembly on Each Wire of a Shielded Cable

Refer to Subject 20-10-13 for:

- The conditions that are applicable for this procedure
- The general conditions that are applicable for the repair of a wire or a cable
- The general conditions that are applicable for the repair of a wire or a cable with a splice.

(1) Make a selection of these splice assembly components from Table 39:

- Two butt splices
- Two 0.55 inch ±0.05 inch lengths of inner sleeve
- Two splice seal sleeves
- One 3.0 inch ±0.1 inch length of Kynar outer sleeve
- Two seal sleeves
- One solder shield splice sleeve
- One 6.0 inch ±0.1 inch length of protection sleeve.

Refer to Figure 72.

(2) Make a selection of a crimp tool from Table 41.

(3) Make a selection of a standard temperature hot air gun from Table 42.

(4) Prepare each end of the cable:

(a) Remove the damaged area from the cable.

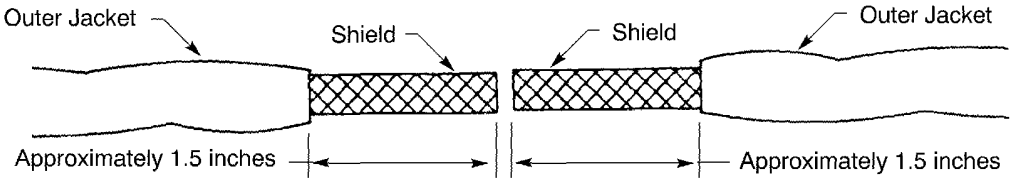
(b) Put these components on one end of the cable:

- The protection sleeve
- One seal sleeve with the large end pointed to the end of the cable.

(c) Put these components on the other end of the cable:

- One seal sleeve with the large end pointed to the end of the cable
- The solder shield splice sleeve
- The Kynar outer sleeve.

(d) Remove approximately 1.5 inches of the outer jacket from each end of the cable. Refer to Figure 88 and Subject 20-00-15.



2445843 S00061544105_V1

CABLE JACKET REMOVAL
Figure 88

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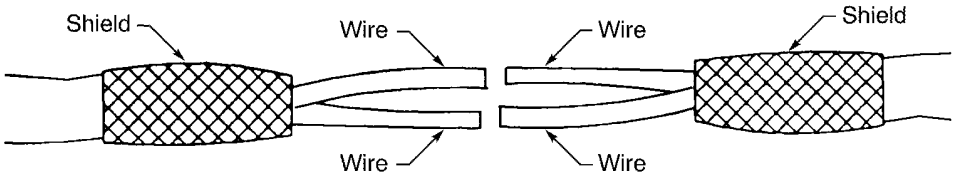
(e) Clean the jacket of each cable with isopropyl alcohol.

Make sure clean the length of jacket approximately 3 inches from the end of the jacket.

(f) Let the clean areas dry.

(g) Fold each shield back. Refer to Figure 89.



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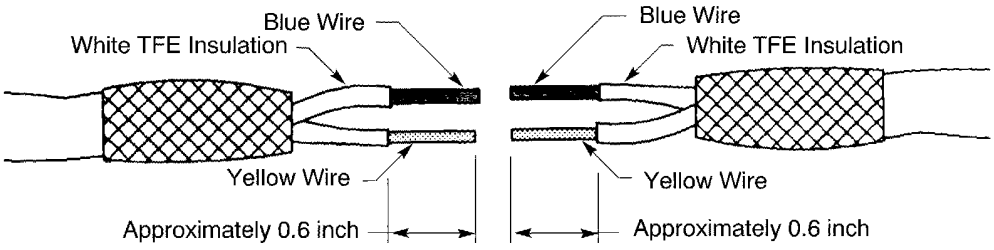
POSITION OF THE SHIELDS FOLDED BACK
Figure 89

(h) Put a temporary layer of tape around the end of each shield to prevent movement of the shields.

(i) Move the wires apart on each end of the cable.

(j) Remove approximately 0.6 inch of the white TFE insulation from each wire. Refer to Figure 90 and Subject 20-00-15.

CAUTION: DO NOT CUT THE PRIMARY INSULATION OF THE WIRES. DAMAGE TO THE BLUE INSULATION OR THE YELLOW INSULATION CAN CAUSE UNSATISFACTORY PERFORMANCE AND RELIABILITY OF THE CABLE.



2445845 S00061544108_V1

TFE INSULATION REMOVAL
Figure 90

(k) Remove a 0.25 inch ±0.03 inch of insulation from the end of each wire. Refer to Figure 91.

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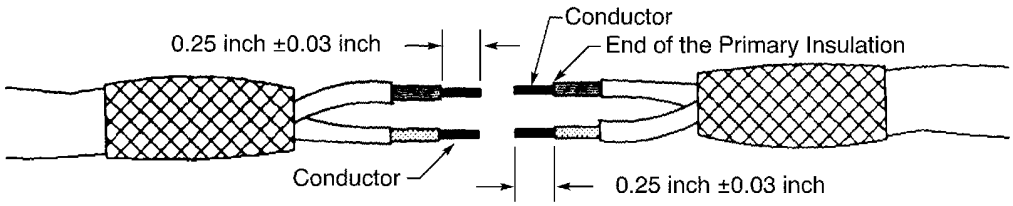


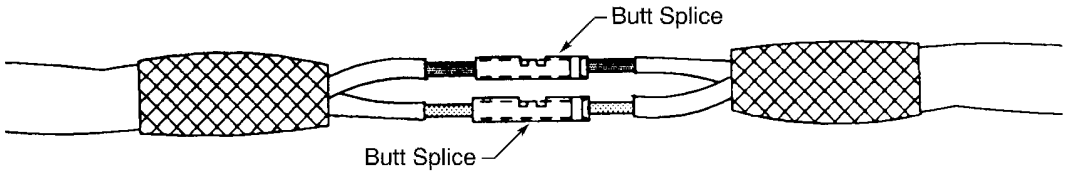
2445846 S00061544109_V1

PRIMARY INSULATION REMOVAL
Figure 91

(5) Put one splice seal sleeve on each wire of one of the cables.

(6) Put one inner sleeve on each wire of the other cable.

(7) Assemble the splice of the wires with the blue insulation. Refer to Figure 92.



2445847 S00061544110_V1

POSITION OF THE BUTT SPLICE
Figure 92

(a) Put the splice in the crimp tool.

(b) Hold the splice in position with light pressure.

(c) Put the conductor of one of the wires into the crimp barrel of splice.

Make sure that:

- The end of the conductor can be seen in the inspection hole of the splice
- The end of the conductor does not make an overlap with the wire stop in the splice
- The insulation of the wire is not in the crimp barrel
- The end of the wire insulation is a maximum of 0.13 inch from the end of the splice.

(d) Crimp the splice.

(e) Do Step (a) through Step (d) again for the other end of the splice.

Make sure that the wire has the same color of insulation as the wire in the opposite end of the splice.

(8) Do Step 8.H.(7) again for the wires with the yellow insulation.

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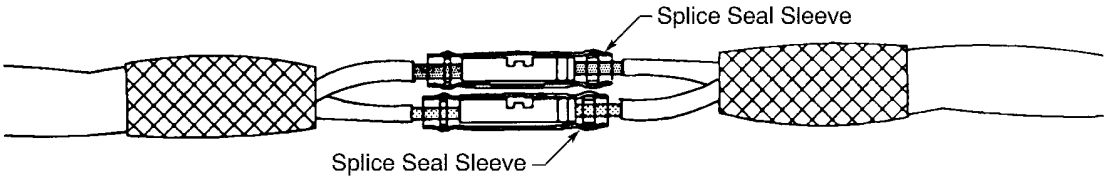
(9) Install the inner sleeve on the splice of the wires with the blue insulation:

(a) Align the center of the inner sleeve with the center of the butt splice.

(b) Shrink the sleeve into its position. Refer to Subject 20-10-14.

(10) Do Step 8.H.(9) again for the wires with the yellow insulation.

(11) Align the center of the splice seal sleeve with the center of the inner sleeve on the wire with blue insulation. Refer to Figure 93.



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POSITION OF THE SPLICE SEAL SLEEVE
Figure 93

(12) Shrink the splice seal sleeve into position:

(a) Apply heat from the center of the sleeve to one end of the sleeve.

(b) Apply heat from the center of the sleeve to the other end of the sleeve.

(13) Do Step 8.H.(11) and Step 8.H.(12) again for the wires with the yellow insulation.

(14) Align the center of the Kynar outer sleeve with the center of the splice seal sleeves.

(15) Align one end of the Kynar outer sleeve with the nearest folded edge of the shield.

(16) If it is necessary, remove the necessary length from the other end of the Kynar outer sleeve it align the end of the sleeve with the other folded edge of the shield.

(17) Shrink the Kynar outer sleeve into position:

(a) Apply heat from the center of the sleeve to one end of the sleeve.

(b) Apply heat from the center of the sleeve to the other end of the sleeve.

(18) Remove the temporary tape from the end of the shield on each side of the splice assembly.

(19) Fold each length of shield forward on the Kynar sleeve.

(20) Align the center of the solder shield splice sleeve with the center of the Kynar outer sleeve. Refer to Figure 94.

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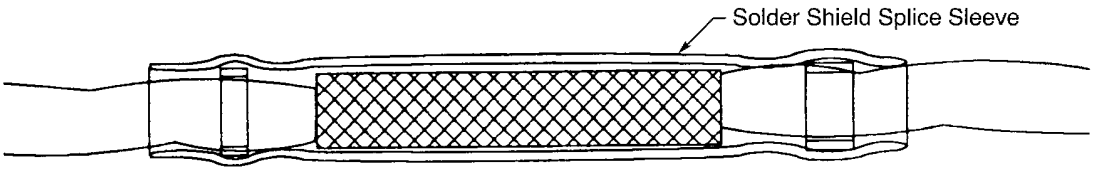

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POSITION OF THE SOLDER SHIELD SPLICE SLEEVE
Figure 94

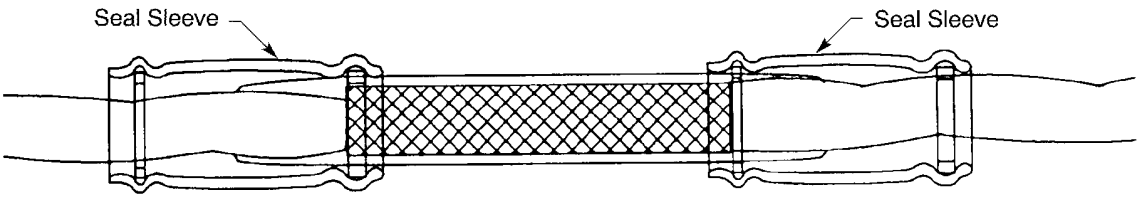
(21) Shrink one end of the solder shield splice sleeve:

(a) Apply heat at the center of the sleeve until the solder melts and the sleeve starts to shrink.

(b) Continue to apply heat from the center of the sleeve to one end of the sleeve until the solder melts and flows.

(22) Do Step 8.H.(21) again for the other end of the sleeve.

(23) Install the seal sleeve on one end of the splice assembly. Refer to Figure 95.



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POSITION OF THE SEAL SLEEVE
Figure 95

(a) Push the sleeve to the center of the splice until the forward edge of the sleeve makes an overlap with the end of the shield splice sleeve.

(b) Shrink sleeve into its position.

(24) Do Step 8.H.(23) again for the other end of the splice assembly.

(25) Align the center of the protection sleeve with the center of the solder shield splice sleeve. Refer to Figure 96.

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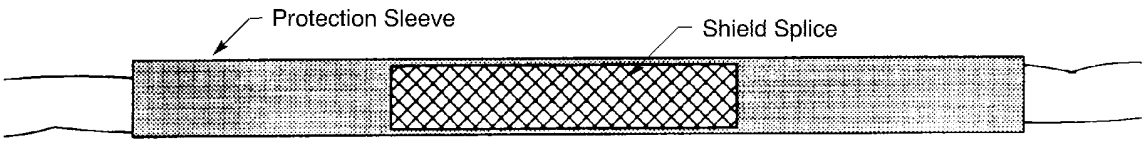

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POSITION OF THE PROTECTION SLEEVE
Figure 96

(26) Shrink the protection sleeve into its position:

(a) Apply heat from the center of the sleeve to one end of the sleeve.

(b) Apply heat from the center of the sleeve to the other end of the sleeve.

9. REPAIR OF THE STUB CABLE ASSEMBLY

A. Replacement of the Protective Sleeve on a S280W603() Backshell Assembly

Table 44
NECESSARY MATERIALS

Material	Part Number or Specification	Size	Supplier
Heat Shrinkable Sleeve	DR-25	-	Tyco/Raychem
	MIL-DTL-23053/16	-	QPL

(1) Remove the heat shrinkable sleeve from the cable assembly.

(2) Remove the saddle clamp from the connector.

(3) If it is necessary to replace the heat shrinkable sleeve, make a selection of a 4.00 inch ± 0.25 inch length of sleeve from Table 44.

Make sure that the sleeve has sufficient diameter that it can make a 0.5 inch overlap with its self when it is cut longitudinally. Refer to Figure 97.

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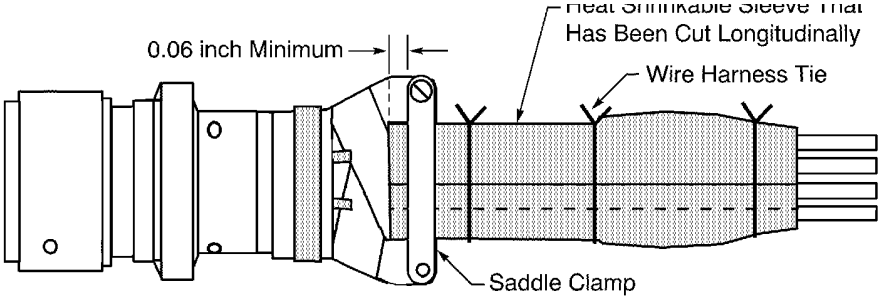

LOCATION OF THE WIRE HARNESS TIES ON THE SLEEVE
Figure 97

(4) Cut the sleeve along the longitudinal axis of the sleeve.

(5) Put the sleeve on the shield tape.

Make sure that the sleeve makes a tight fit on the cable assembly.

(6) Assemble three lacing tape wire harness ties on the sleeve. Refer to Subject 20-10-11.

Put one wire harness tie at:

- Each end of the sleeve
- The center of the sleeve.

Make sure that:

- The color of the lacing tape is yellow
- The lacing tape has a Temperature Grade and a Class that are applicable for the cable.

CAUTION: A PLASTIC TIE STRAP MUST NOT BE USED. DAMAGE TO THE INSULATION OF THE DATA BUS CABLE CAN OCCUR.

(7) Assemble the saddle clamp.

10. APPROVED TOOL SUPPLIERS

A. Tool Suppliers

Table 45
APPROVED TOOL SUPPLIERS

Tool	Supplier
1-1804834-1	Tyco/AMP
1213804-3	Tyco/AMP
13300	Thomas&Betts
401K	Thomas&Betts
49935	Tyco/AMP
76-101	Balmar
AD-1377	Tyco/Raychem

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Table 45 APPROVED TOOL SUPPLIERS (Continued)

Tool	Supplier
CV-5000 Model 500	Tyco/Raychem
CV-5000 Model 750	Tyco/Raychem
CV-5300	Tyco/Raychem
M22520/5-01	QPL
MG-1	Tyco/Raychem
ST956C	Boeing
ST956D	Boeing
TG-135	Tyco/Raychem
TG-33	Tyco/Raychem
TG-70	Glenair
WST8139	Tyco/Raychem
WT740	Thomas&Betts
Y641	Daniels

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