

STANDARD WIRING PRACTICES MANUAL

ELECTRICAL CONNECTION OF EQUIPMENT

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1. GENERAL DATA

A. Phase Identification of Three Phase Power Wires

The phase potential of the three phase power wires that are attached to a single equipment item must be identified. Refer to Table 1 and Table 2.

These conditions are applicable:

- Each end of the wire must have a phase identification sleeve
- The wire can have one phase identification sleeve if the length of the wire between the connections is not sufficient for two sleeves.
- It is necessary to install a phase identification sleeve on preinsulated terminals where the identification sleeve fully includes the terminal insulation.
- On AWG 10 and smaller wire, the end of the phase identification sleeve must extend a maximum of 1/16 inch past the end of the terminal insulation.
- On AWG 8 and larger wire, install a heat shrinkable phase identification sleeve, or assemble two or more lacing tape wire harness ties to hold a phase identification sleeve on the PTFE insulation sleeve of the terminal.
- It is satisfactory to use one piece of heat shrink sleeve on uninsulated terminals for both the terminal insulation sleeve, and the phase identification sleeve.
- If a cold shrink sleeve is on a terminal or splice, the forward end of the phase identification sleeve must be against the rearward end of the cold shrink sleeve.

Table 1

PHASE IDENTIFICATION SLEEVES FOR TEMPERATURE GRADES A AND B

Area Temperature Range (Degrees F)	Phase Identification Sleeve	Supplier	Phase	Color
Less than 275	AMS-DTL-23053/5 Class 1	An available source	A	Red
			B	Yellow
			C	Blue
	Grade B, Class 1 Heat Shrinkable Sleeve	Refer to Subject 20-00-11.	A	Red
			B	Yellow
			C	Blue

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Table 2
PHASE IDENTIFICATION SLEEVES FOR TEMPERATURE GRADES C AND D

Area Temperature Range (Degrees F)	Phase Identification Sleeve	Supplier	Phase	Phase Identification	
				Color	Mark
Greater than or equal to 275	AMS-DTL-23053/12-2()-2	QPL	A	Red	-
	AMS-DTL-23053/12-2()-4	QPL	B	Yellow	-
	AMS-DTL-23053/12-2()-6	QPL	C	Blue	-
	Raychem HT-SCE (Tape for wire identification)	Raychem	A	-	Phase A
			B	-	Phase B
			C	-	Phase C
	GENCOTE 125C (Protective Sleeve)	General Plastics Corp.	A	-	Phase A
			B	-	Phase B
			C	-	Phase C
	BEN-HAR 1151-FRB (Protective Sleeve)	Bentley-Harris (Federal-Mogul)	A	-	Phase A
			B	-	Phase B
			C	-	Phase C
	PTFE Heat-Shrinkable (Grade D, Class 1 Heat Shrinkable Sleeve)	Refer to Subject 20-00-11.	A	Red	-
			B	Yellow	-
			C	Blue	-

NOTE: There are two options to identify the wire with phase identification sleeve:

- Option 1: Colored sleeves for temperature grades C and D are available in basic colors-red, yellow, and blue. These can be installed on the wires to identify phase.
- Option 2: PTFE heat-shrinkable sleeve in natural color can be installed on the wires with phase identification mark, Phase A, Phase B, or Phase C, printed on a high temperature identification sleeve. The sleeve is installed on top of the PTFE heat-shrinkable sleeve or adjacent to the sleeve.

2. GENERAL CONDITIONS FOR THE INSTALLATION OF TERMINALS

A. General Data

Insulation of these wires is necessary before any system is energized:

- The end of a wire that has no termination
- The end of a wire that has a terminal, but is not connected.

Refer to Subject 20-30-11.

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These conditions are applicable:

- A minimum of 1-1/2 threads of the stud or the screw must go through the end of the nut
- The size of the stud hole in the terminal lug must be the same as the size of the stud.

If a terminal lug that has the same size hole as the stud is not available, these configurations of terminals lugs and studs are satisfactory alternatives:

- A terminal lug that has a size 10 hole on a size 8 stud
- A terminal lug that has a size 8 hole on a size 6 stud
- A terminal lug that has a size 6 hole on a size 4 stud
- A terminal lug that has a size 4 hole on a size 2 stud.

These conditions are applicable for studs that have more than one terminal lug:

- The maximum number of terminal lugs that can be attached to a stud is 4
- The largest terminal lug must be installed first at the base of the stud
- The remaining terminal lugs must be installed in order of decreasing size.

All electrical connections that are open to the air in the flammable leakage zones must be sealed. Refer to Paragraph 4.

NOTE: It is not necessary to seal insulated splices.

B. Permitted Bends of a Terminal

Uninsulated and preinsulated terminals can be bent:

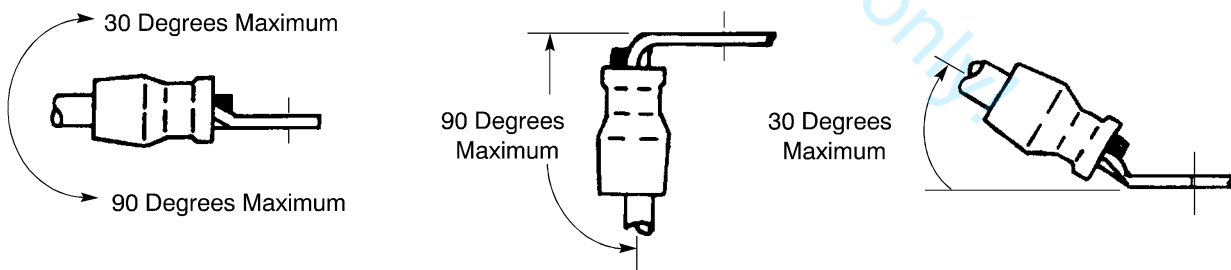
- A maximum of 90 degrees for installation in restricted spaces
- A maximum of 30 degrees for installation on a terminal block.

Refer to Figure 1.

CAUTION: A TERMINAL CAN BE BENT ONLY ONCE AND ONLY IN EITHER DIRECTION THAT IS SHOWN IN FIGURE 1. DO NOT USE TERMINALS THAT HAVE BEEN BENT BEFORE.

Make sure that:

- The bend radius is not greater than 5/32 inch \pm 1/32 inch
- There are no cracks in the bend area.



PERMITTED DIRECTION AND ANGLE OF THE BEND OF A TERMINAL

Figure 1

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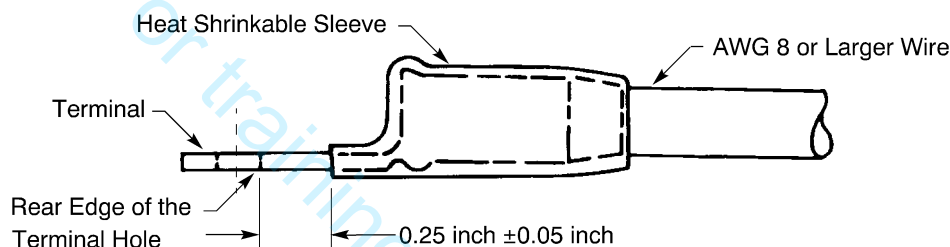
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C. Insulation of AWG 8 or Larger Terminals

Table 3
HEAT SHRINKABLE SLEEVES FOR SINGLE PHASE AND DC WIRES

Area Temperature Range (degrees F)	Heat Shrinkable Sleeve	
	Part Number or Description	Supplier
Less than or equal to 275	Grade B, Class 1 Heat Shrinkable Sleeve	Refer to Subject 20-00-11.
Greater than 275	Thermofit TFE	Raychem (Tyco)
	Thermofit TFE-R	Raychem (Tyco)
	Ben-Har 1151-FRB	Bentley-Harris (Federal-Mogul)



INSULATION OF AWG 8 AND LARGER WIRE WITH A TERMINAL

Figure 2

It is necessary to install a heat shrinkable sleeve on AWG 8 and larger wires that have a terminal attached. The sleeve:

- Must not be in between the different components of the terminal hardware
- Can extend over the pressure washer, but must not touch the terminal stud
- Must be yellow for single phase and DC wires; refer to Table 3
- Must be installed on the terminal after the terminal is attached to the wire
- Must have the smallest possible diameter that can be installed over the wire barrel of the terminal
- Must be 1-1/2 inches to 2 inches in length.

NOTE: When two wires from a single terminal start to go in different directions within 1/2 inch of the terminal, the permitted length of the sleeve is 1 inch minimum.

When a Thermofit TFE heat shrinkable sleeve is used:

- The phase identification sleeve is installed over the Thermofit TFE sleeve
- The sleeve is held in position with a wire bundle tie on the wire barrel of the terminal or on the wire beyond the terminal.

NOTE: In fuel vapor areas, the sleeve can be held in position with a wire bundle tie.

When the terminal is attached to the equipment, these conditions are applicable:

- If it is necessary, the sleeve can be cut so that it is clear of the hardware
- If there is a barrier between phases or components, the sleeves of adjacent terminals must not touch each other.

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D. Configuration of Terminals on an MS27212 Terminal Block

Refer to Paragraph 3.M. for the terminal torque values for the terminals on an MS27212 terminal block.

When a terminal lug is installed on the terminal block, make sure that the terminal lug cannot be moved in the direction that loosens it.

For the MS27212-2 terminal block:

- The size of the stud hole in the terminal lug must be the same as the size of the stud
- The maximum number of terminal lugs that can be attached to a stud is 4
- A maximum of 2 terminal lugs that have 8 AWG or larger wire can be installed on one stud on each side of the terminal block
- The largest terminal lug must be installed first at the base of the stud
- The remaining terminal lugs must be installed in order of decreasing size.

Refer to:

- Figure 3 for more than one terminal on a stud
- Figure 4 and Figure 5 for the different configurations of one or more terminals on a stud
- Figure 6 for the bus configuration.

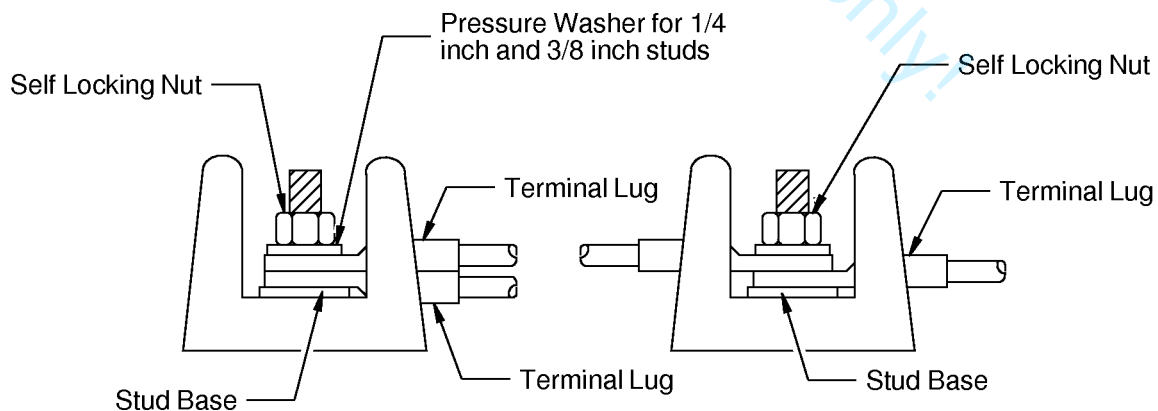
NOTE: To make the installation of one or more terminals easier, the top of the terminal can be turned toward the bottom of the stud.

For terminal block hardware that is not used, these conditions are applicable:

- A plain nut must be tightened sufficiently with a steel lock washer under the nut
- A plain nut must be held in position with a self-locking nut
- A self-locking nut must be tightened so that a minimum of one thread of the stud goes through the nut
- A terminal screw must be tightened sufficiently with a steel lock washer under the head of the screw.

NOTE: It is not necessary to install a self-lock nut at the bottom of a stud on the MS27212 terminal block.

NOTE: If it is necessary, the legs of an MS18029 terminal block cover can be cut to make a hole for the wire barrel of a terminal.



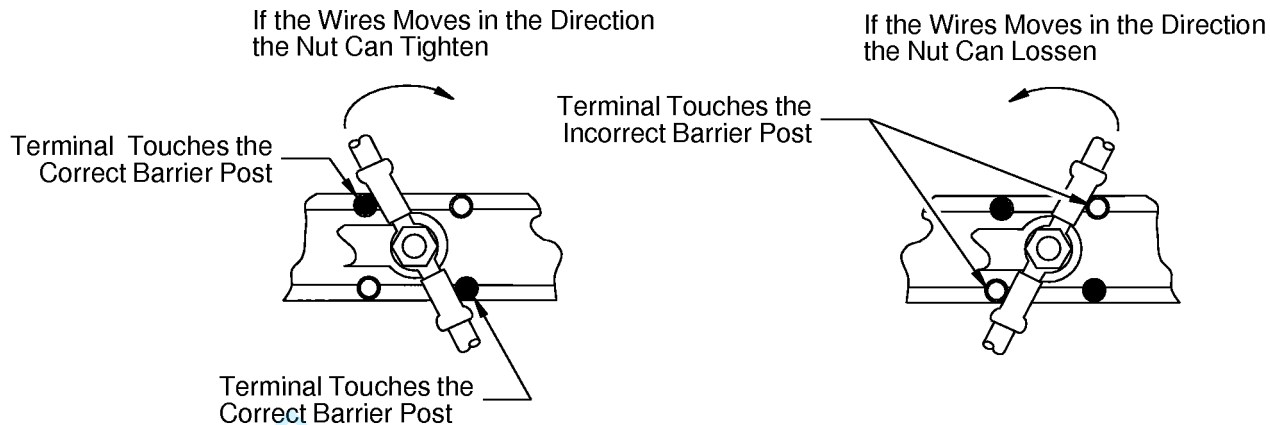
TERMINALS INSTALLED ON A TERMINAL BLOCK

Figure 3

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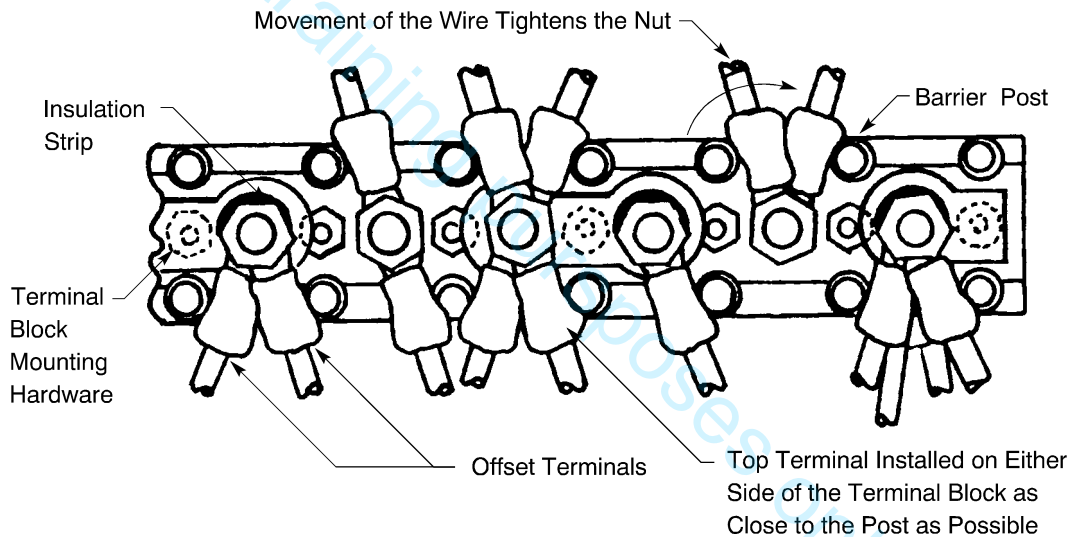
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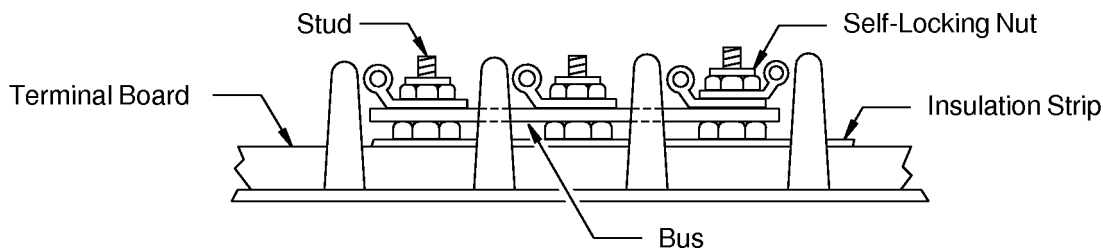
POSITIONS OF TERMINLA LUGS ON THE BARRIER POSTS

Figure 4



CONFIGURATION OF TERMINALS ON AN MS27212 TERMINAL BLOCK

Figure 5



BUS CONFIGURATION OF A TERMINAL BOARD

Figure 6

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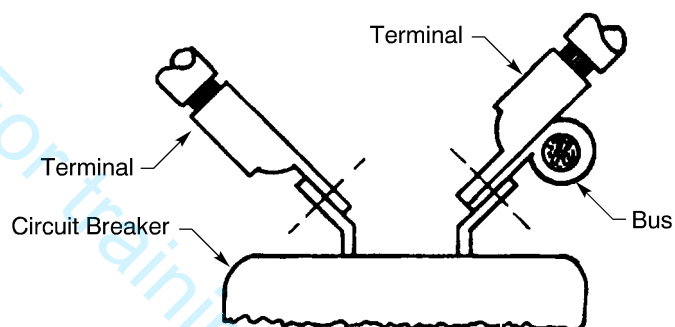
ELECTRICAL CONNECTION OF EQUIPMENT

E. Installation of a Terminal on a Circuit Breaker

Refer to Figure 7.

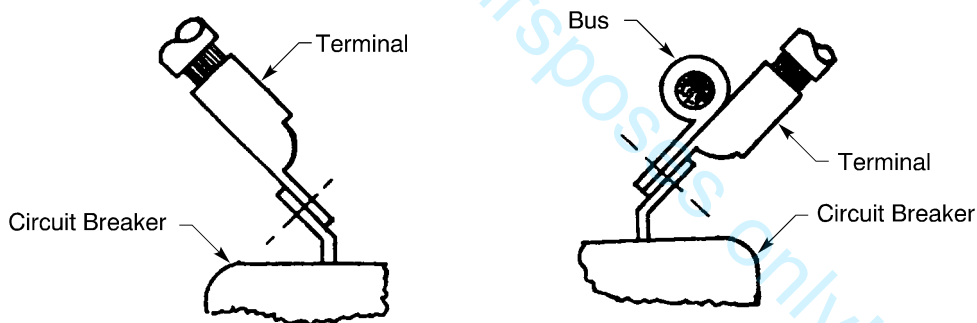
NOTE: When a terminal, with a hole that is larger than the hole of the circuit breaker terminal, is attached to a circuit breaker:

- An AN960 pressure washer is installed between the terminal and the lock washer
- The AN960 pressure washer has a hole that is the same size as the hole of the circuit breaker terminal; for example, an AN960-8 pressure washer is used when a size 10 terminal is attached to size 8 circuit breaker terminal.



CONFIGURATION OF TERMINALS AND BUSES ON A CIRCUIT BREAKER

Figure 7



ALTERNATIVE CONFIGURATIONS OF TERMINALS AND BUSES ON A CIRCUIT BREAKER

Figure 8

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3. TERMINAL INSTALLATION

A. Installation of Copper Terminals

CAUTION: DO NOT USE ANODIZED WASHERS, DYED WASHERS, OR STEEL WASHERS ON THE STUD OR FASTENER BETWEEN THE WIRE TERMINAL AND THE EQUIPMENT SURFACE OR THE TERMINAL BOARD. UNSATISFACTORY PERFORMANCE OF THE ELECTRICAL CONNECTION OCCURS.

NOTE: Copper terminals are attached to:

- Either brass studs or brass screws with tin plated brass nuts
- Either steel studs or steel screws with self-locking steel nuts.

Table 4
INSTALLATION HARDWARE FOR COPPER TERMINALS

Hardware	Part Number	Supplier
Nut, Plain	MS35649- ()	QPL
	MS35650-()	QPL
Nut, Self Locking	BACN10JC()	Boeing
	MS21042L()	QPL
Washer, Lock, for Plain Nuts	MS35338-()	QPL
Washer, Lock, for Self Locking Nuts	BACW10EC4S	Boeing
Washer, Flat	NAS1149F()P	QPL
Washer, Spacer, Flat	AN961-()	QPL

Table 5
INSTALLATION TORQUE FOR COPPER TERMINALS

Stud Size	Hardware	Torque (inch-pound)	
		Minimum	Maximum
6-32	Nut, Plain	7	9
	Nut, Plain With Lockwasher	7	9
	Nut, Self-Locking	7	9
8-32	Nut, Plain	12	16
	Nut, Plain With Lockwasher	12	16
	Nut, Self-Locking	12	16
10-32	Nut, Plain	28	32
	Nut, Plain With Lockwasher	28	32
	Nut, Self-Locking	28	32

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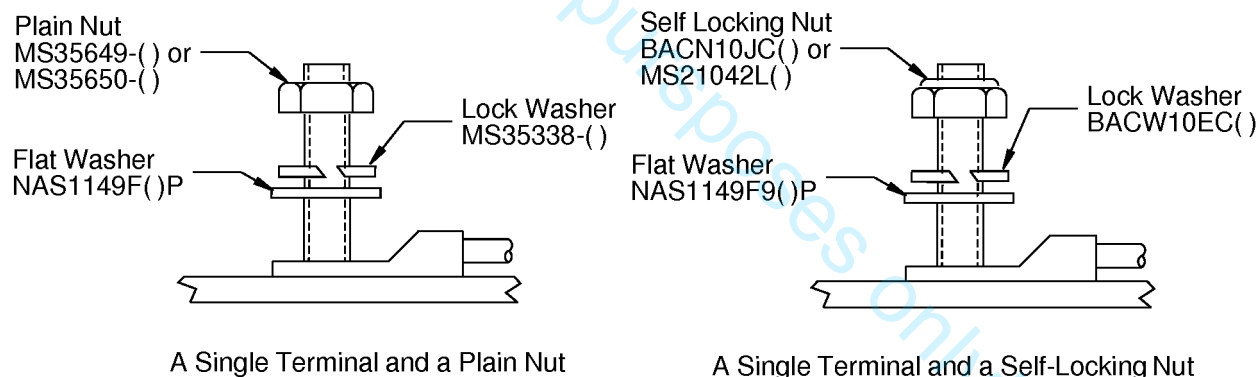
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Table 5 (continued)

Stud Size	Hardware	Torque (inch-pound)	
		Minimum	Maximum
1/4	Nut, Plain	65	75
	Nut, Plain With Lockwasher	65	75
	Nut, Self-Locking	65	75
5/16	Nut, Plain	115	125
	Nut, Plain With Lockwasher	135	145
	Nut, Self-Locking	135	145
3/8	Nut, Plain	150	170
	Nut, Plain With Lockwasher	170	190
	Nut, Self-Locking	180	200
1/2	Nut, Plain With Lockwasher	480	520
	Nut, Self-Locking	480	520

(1) To install a single terminal on a stud, refer to Figure 9 and Table 4.



INSTALLATION OF A SINGLE TERMINAL

Figure 9

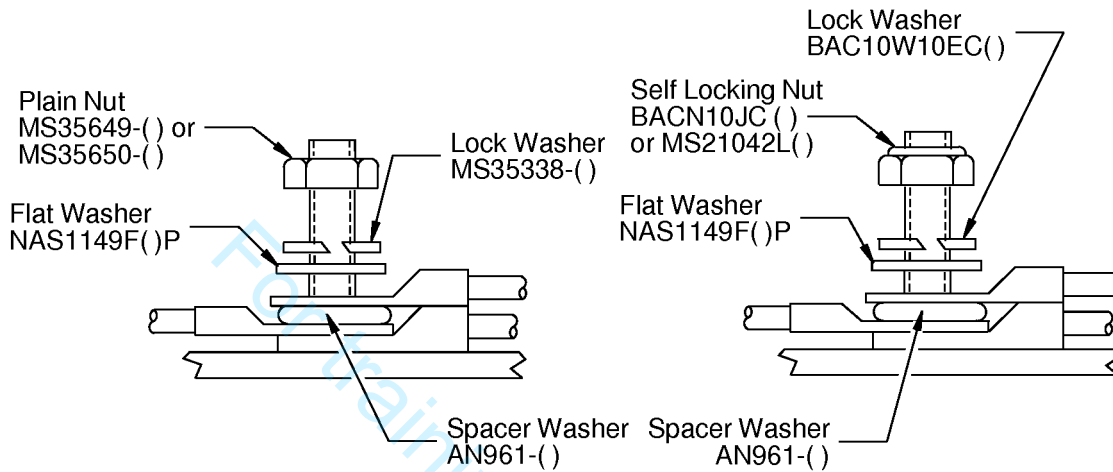
- Put the terminal on the stud.
 - Put these washers on the stud in this order:
 - An NAS1149F()P flat washer
 - An MS35338-() lock washer for a plain nut
 - An BACW10EC() lock washer for a self locking nut.
- (2) To install more than one terminal on the same stud, refer to Figure 10 and Table 4.

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Put these washers on the stud in this order:

- An NAS1149F()P flat washer
- An MS35338-() lock washer for a plain nut
- An BACW10EC() lock washer for a self locking nut.



Two or More Terminals and a Plain Nut

Two or More Terminals and a Self-Locking Nut

INSTALLATION OF TWO OR MORE TERMINALS

Figure 10

- (a) Put the terminals on the stud so that the terminals with the larger holes are nearer to the bottom of the stud.

Make sure that the bottom face and the top face of the adjacent terminals are parallel.

- (b) Put AN961-() spacer washers between adjacent terminals when more than one terminal is installed. Refer to Figure 10.

NOTE: A maximum of 4 terminals can be installed on 1 stud.

CAUTION: DO NOT USE ANODIZED WASHERS, DYED WASHERS, OR STEEL WASHERS BETWEEN ADJACENT TERMINALS.

- (c) Put these washers on the stud in this order:

- An NAS1149F()P flat washer
- An MS35338-() lock washer for a plain nut
- An BACW10EC() lock washer for a self locking nut.

- (3) Put the nut on the stud.

- (4) Torque the nut. Refer to Table 5.

If the torque value is not specified in Table 7 for the terminal hardware, make sure that:

- The lock washer is fully compressed
- The terminal does not move on the stud.

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B. Installation of Aluminum Terminals

CAUTION: DO NOT USE ANODIZED WASHERS, DYED WASHERS, OR STEEL WASHERS ON THE STUD OR FASTENER BETWEEN THE WIRE TERMINAL AND THE EQUIPMENT SURFACE OR THE TERMINAL BOARD. UNSATISFACTORY PERFORMANCE OF THE ELECTRICAL CONNECTION OCCURS.

Table 6
WASHERS FOR ALUMINUM TERMINALS

Wire Size (AWG)	Stud Size	Washer	
		Standard or Specification	Supplier
8	1/4	BACW10P-70	Boeing
		MS25440-4	QPL
	3/8	BACW10P-12	Boeing
		MS25440-6	QPL
	5/16	BACW10P-14	Boeing
		MS25440-5	QPL
6	1/4	BACW10P-70	Boeing
		MS25440-4	QPL
	3/8	BACW10P-12	Boeing
		MS25440-6	QPL
	5/16	BACW10P-14	Boeing
		MS25440-5	QPL
4	1/4	BACW10P-70	Boeing
		MS25440-4	QPL
	3/8	BACW10P-12	Boeing
		MS25440-6	QPL
	5/16	BACW10P-14	Boeing
		MS25440-5	QPL
2	1/2	BACW10P-14	Boeing
		MS25440-8	QPL
	1/4	BACW10P-70	Boeing
		MS25440-4A	QPL
	3/8	BACW10P-12	Boeing
		MS25440-6	QPL
	5/16	BACW10P-14	Boeing
		MS25440-5	QPL

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Table 6 (continued)

Wire Size (AWG)	Stud Size	Washer	
		Standard or Specification	Supplier
1	1/2	BACW10P-14	Boeing
		MS25440-8	QPL
	1/4	BACW10P-70	Boeing
		MS25440-4A	QPL
	3/8	BACW10P-12	Boeing
		MS25440-6	QPL
	5/16	BACW10P-14	Boeing
		MS25440-5	QPL
1/0	1/2	BACW10P-14	Boeing
		MS25440-8	QPL
	1/4	BACW10P-70	Boeing
		MS25440-4A	QPL
	3/8	BACW10P-12	Boeing
		MS25440-6	QPL
	5/16	BACW10P-14	Boeing
		MS25440-5	QPL
2/0	1/2	BACW10P-14	Boeing
		MS25440-8	QPL
	3/8	BACW10P-12	Boeing
		MS25440-6	QPL
	5/16	BACW10P-14	Boeing
		MS25440-5	QPL
3/0	1/2	BACW10P-14	Boeing
		MS25440-8	QPL
	3/8	BACW10P-12	Boeing
		MS25440-6A	QPL
4/0	1/2	BACW10P-14	Boeing
		MS25440-8	QPL
	3/8	BACW10P-12	Boeing
		MS25440-6A	QPL

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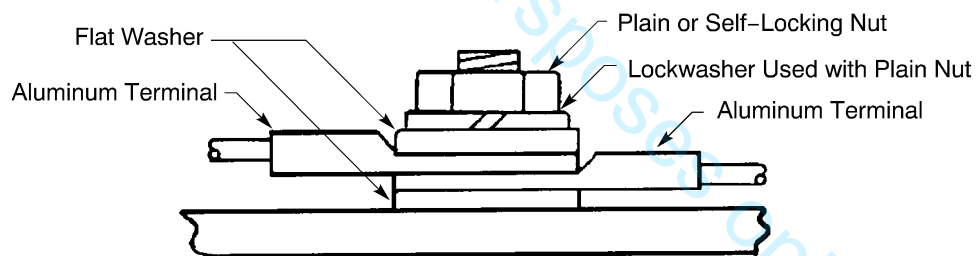
Table 7
INSTALLATION TORQUE FOR ALUMINUM TERMINALS

Stud Size	Hardware	Torque (inch-pound)	
		Minimum	Maximum
10-()	Nut, Plain With Lockwasher	28	35
	Nut, Self-Locking	33	40
1/4-()	Nut, Plain With Lockwasher	70	85
	Nut, Self-Locking	75	90
5/16-()	Nut, Plain With Lockwasher	125	155
	Nut, Self-Locking	135	165
3/8-()	Nut, Plain With Lockwasher	180	210
	Nut, Self-Locking	220	250
1/2-()	Nut, Plain With Lockwasher	380	440
	Nut, Self-Locking	430	490

- (1) Make a selection of a flat washer from Table 6.

NOTE: 2 washers are necessary.

- (2) Install one or more terminals. Refer to Figure 11.



POSITION OF THE WASHERS WITH ALUMINUM TERMINALS

Figure 11

- Put a flat washer on the stud against the terminal board or equipment.
- Put the terminal or terminals on the stud.
- Put the other flat washer on the stud against the top terminal.
- If a plain nut is used, put a lock washer on the stud against the last flat washer.
- Put the nut on the stud.
- Torque the nut. Refer to Table 7.

If the torque value is not specified in Table 7 for the terminal hardware, make sure that:

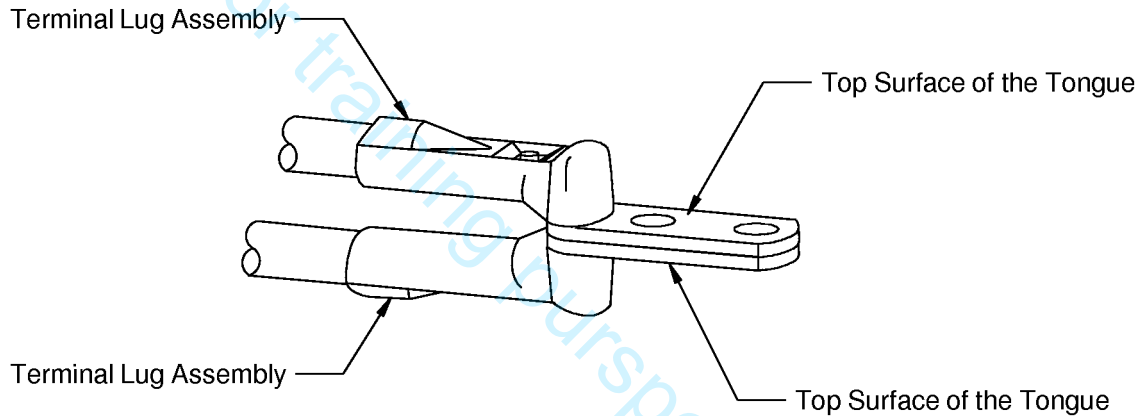
- The lock washer is fully compressed
- The terminal does not move on the stud.

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These conditions are applicable:

- The maximum number of terminal lugs that can be attached to a stud is 4
 - For the installation of two terminal lugs from the same side of the terminal block, the bottom surface of the tongues of the terminal lugs must be put together
 - The largest terminal lug must be put on the stud first
 - The remaining terminal lugs must be put on the stud in the order of decreasing size
 - After the terminals and hardware are installed, you can see a minimum of 2 1/2 stud threads beyond the nut
 - The nut must be torqued 200 inch-pounds to 240 inch-pounds.
- (1) For two terminal lugs from the same side of the terminal block, put the bottom surface of the tongues of the terminal lugs together. Refer to Figure 12.



POSITION OF TWO TERMINAL LUG ASSEMBLIES

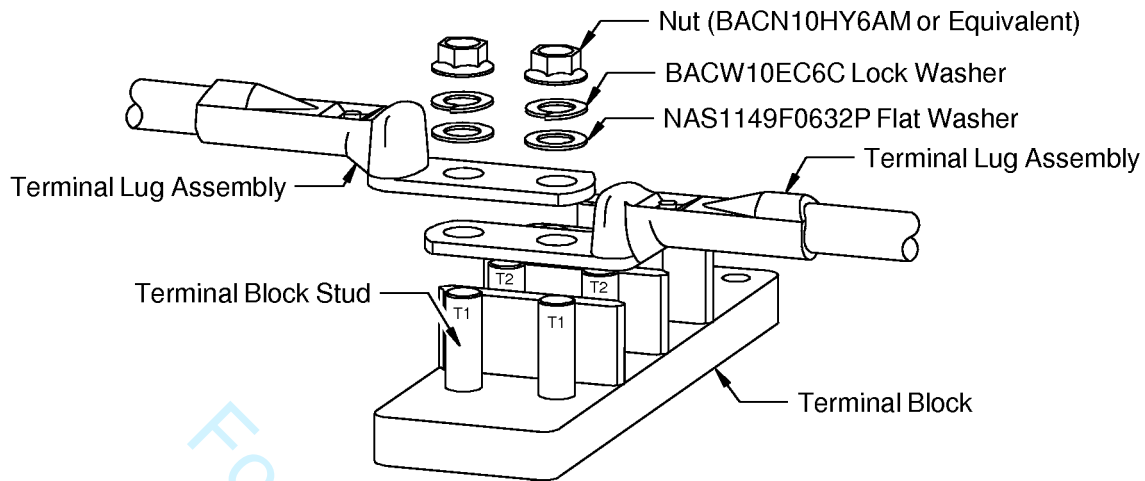
Figure 12

- (2) Align each hole of the terminal lugs and the studs of the terminal block. Refer to Figure 13.

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ALIGNMENT OF THE TERMINAL LUG ASSEMBLIES AND THE STUDS OF THE CTB TERMINAL BLOCK

Figure 13

- (3) Put the terminal lugs on the studs of the terminal block. Refer to Figure 14.

Make sure that:

- The maximum number of terminal lugs attached to a stud is 4
- The largest terminal lug is put on the stud first
- The remaining terminal lugs are put on the stud in the order of decreasing size
- After the terminals and hardware are installed, you can see a minimum of 2 1/2 stud threads beyond the nut.

- (4) For each stud, make a selection of:

- A new BACN10HY6AM (or equivalent) nut
- A new NAS1149F0632P flat washer
- A new BACW10EC6C lockwasher.

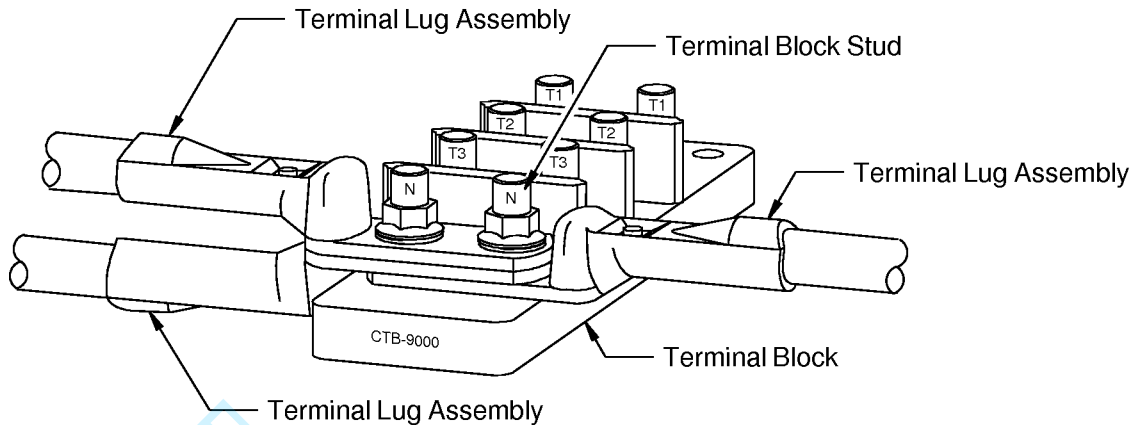
- (5) Put the flat washer, the lockwasher, and the nut on each stud. Refer to Figure 13.

- (6) Torque each nut 200 inch-pounds to 240 inch-pounds.

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POSITION OF THE TERMINAL LUG ASSEMBLIES ON THE CTB TERMINAL BLOCK

Figure 14

D. Terminal Lug Installation on an Amphenol 465-8238 Terminal Board

These conditions are applicable:

- The tongue of a BACT13T terminal lug does not have a bend that is more than 0.15 inch from the longitudinal axis of the bottom surface of the tongue; refer to Figure 16 and Figure 17
- The maximum number of terminal lugs that can be attached to a stud is 3
- For the installation of two terminal lugs from the same side of the terminal board, the bottom surface of the tongues of the terminal lugs must be put together
- The BACT13T breakaway terminal lug must be put on the studs first
- The remaining terminal lugs must be put on the studs in the order of decreasing size
- Each nut must be torqued 200 inch-pounds to 240 inch-pounds.

- (1) Examine the breakaway terminal lug assembly. Refer to Figure 15

Make sure that the tongue of the terminal lug does not have a bend that is more than 0.15 inch from the longitudinal axis

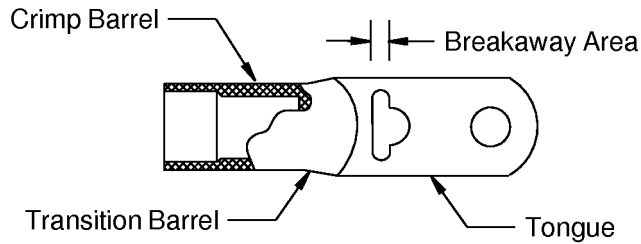
CAUTION: IF THE TONGUE OF A BACT13T TERMINAL LUG HAS A BEND THAT IS MORE THAN 0.15 INCH FROM THE LONGITUDINAL AXIS OF THE BOTTOM SURFACE OF THE TONGUE, THE TERMINAL LUG IS DAMAGED AND MUST NOT BE INSTALLED.

CAUTION: IF THE TONGUE OF BACT13T TERMINAL LUG HAS A BEND THAT IS MORE THAN 0.15 INCH FROM THE LONGITUDINAL AXIS OF THE BOTTOM SURFACE OF THE TONGUE, NO DOT TRY TO MAKE THE TONGUE STRAIGHT. THE TERMINAL LUG IS DAMAGED AND MUST NOT BE INSTALLED.

20-30-00

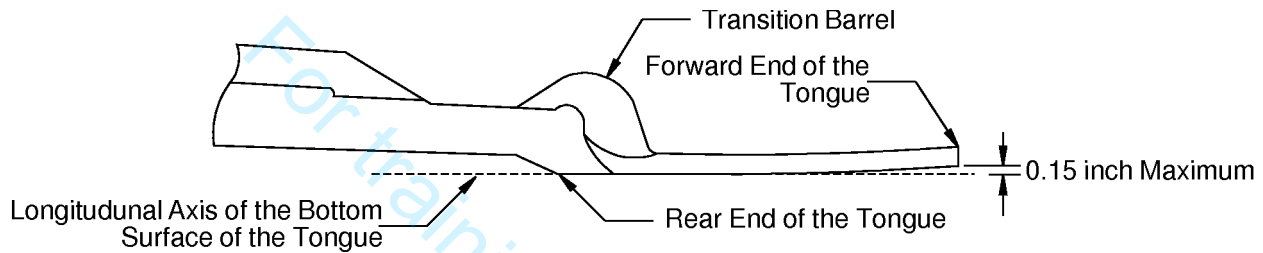
STANDARD WIRING PRACTICES MANUAL

ELECTRICAL CONNECTION OF EQUIPMENT



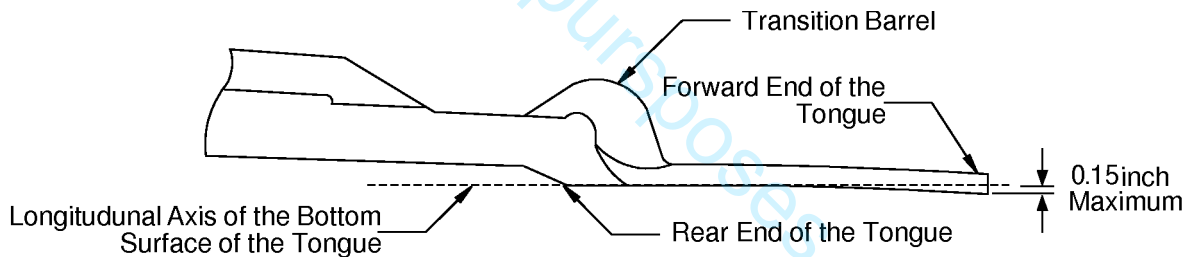
BACT13T BREAKAWAY TERMINAL LUG

Figure 15



TERMINAL LUG TONGUE-BENT UP

Figure 16



TERMINAL LUG TONGUE-BENT DOWN

Figure 17

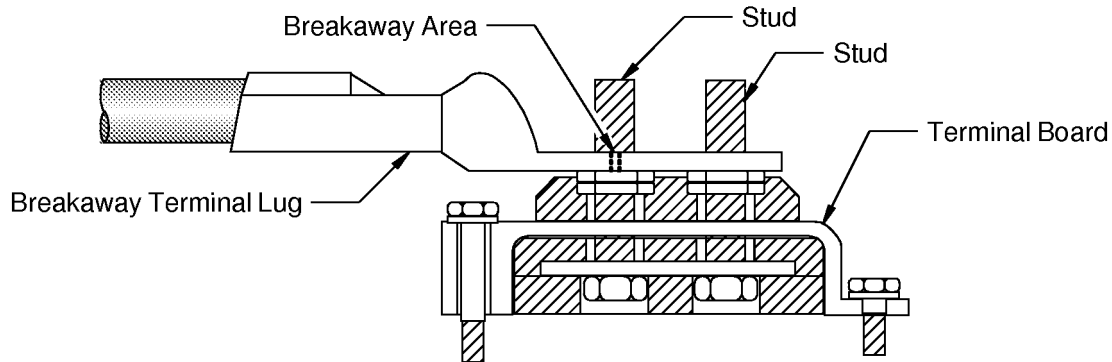
- (2) Put the breakaway terminal lug assembly on the two studs of the terminal board. Refer to Figure 18.

Make sure that:

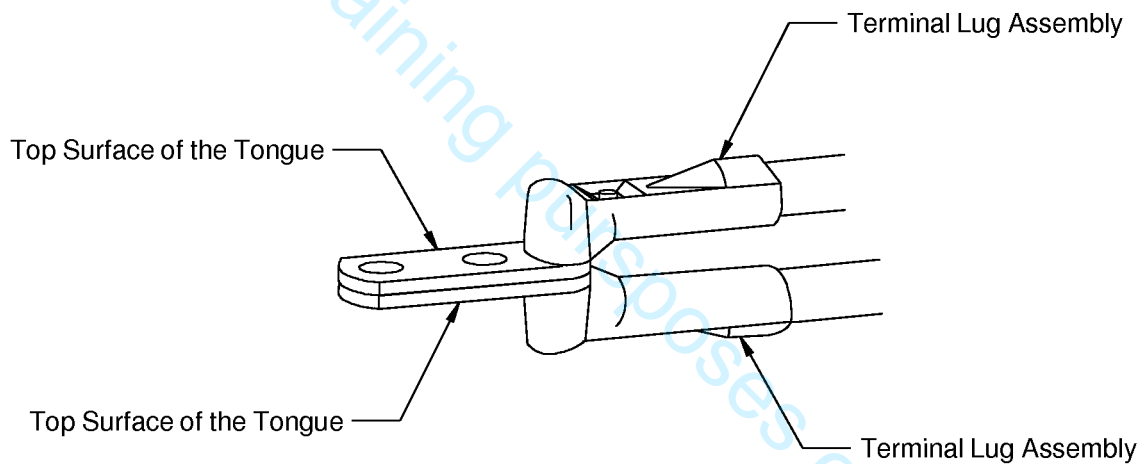
- The maximum number of terminal lugs that can be attached to a stud is 3
- The BACT13T breakaway terminal lug must be put on the studs first
- The remaining lugs must be out on the studs on the order of decreasing size.

CAUTION: UNEVEN PRESSURE OR A STRONG FORCE MUST NOT BE APPLIED TO THE TONGUE OF THE TERMINAL LUG. THE DAMAGE CAN CAUSE UNSATISFACTORY PERFORMANCE OF THE LUG ASSEMBLY.

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ELECTRICAL CONNECTION OF EQUIPMENT

POSITION OF THE BREAKAWAY TERMINAL LUG ASSEMBLY
Figure 18

- (3) For the two terminal lugs on the other side of the terminal board, put the bottom surface of the tongues of the lugs together. Refer to Figure 19.


POSITION OF TWO TERMINAL LUG ASSEMBLIES
Figure 19

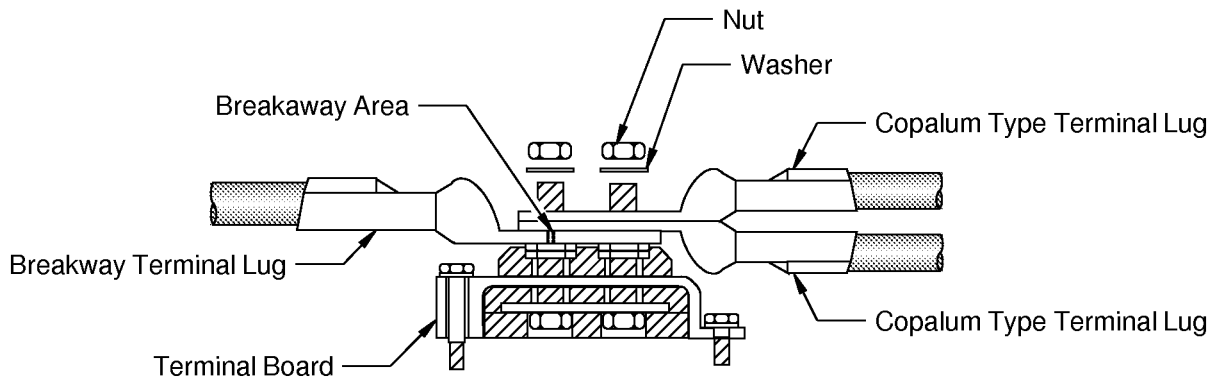
- (4) Put the two terminal lug assemblies on the two studs of the terminal board. Refer to Figure 20.

CAUTION: UNEVEN PRESSURE OR A STRONG FORCE MUST NOT BE APPLIED TO THE TONGUE OF THE TERMINAL LUG. THE DAMAGE CAN CAUSE UNSATISFACTORY PERFORMANCE OF THE LUG ASSEMBLY.

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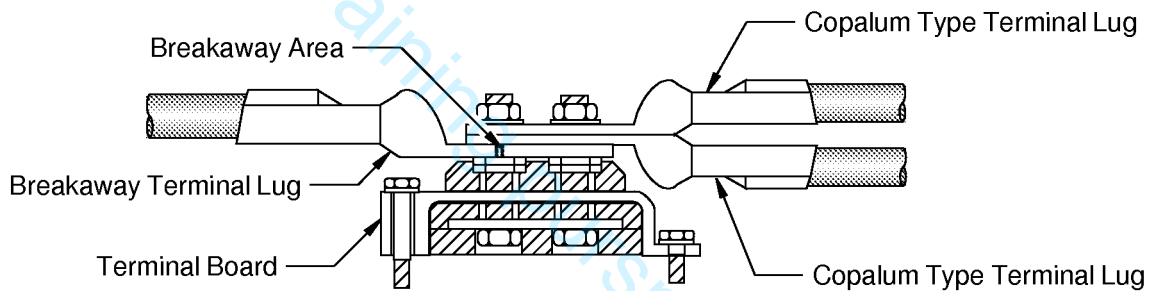
ELECTRICAL CONNECTION OF EQUIPMENT



POSITION OF THE TWO TERMINAL LUG ASSEMBLIES

Figure 20

- (5) Put a washer and a nut on each stud. Refer to Figure 21.



POSITION OF THE NUTS AND WASHERS

Figure 21

- (6) Torque each nut 200 inch-pounds to 240 inch-pounds.

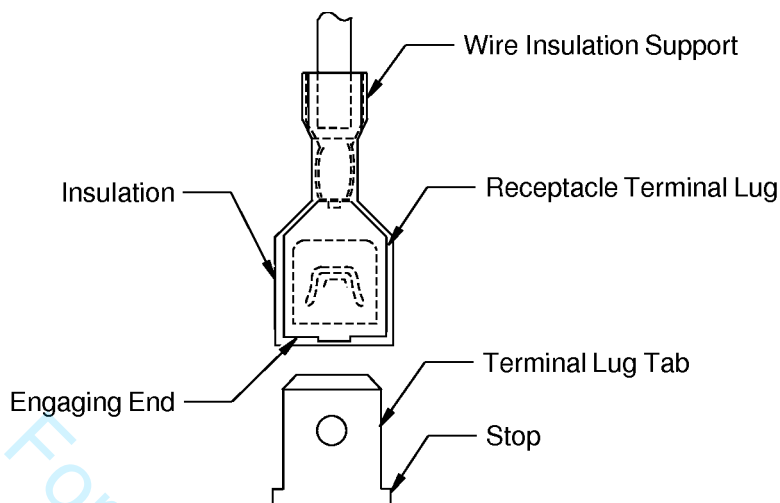
E. Installation of Ultra Fast Type Terminal Lugs

- (1) Align the engaging end of the terminal lug assembly and the terminal lug tab. Refer to Figure 22.

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STANDARD WIRING PRACTICES MANUAL

ELECTRICAL CONNECTION OF EQUIPMENT



ALIGNMENT OF THE TERMINAL LUG AND THE TAB

Figure 22

- (2) Push the terminal lug forward until the engaging end is against the stop of the terminal lug tab. Make sure that the terminal lug is not loose on the tab.

F. Installation of the 60789-2 Receptacle Terminal Lug

Table 8

TERMINAL LUG INSTALLATION TOOLS

Installation Tool	Supplier
452383-1	AMP

Table 9

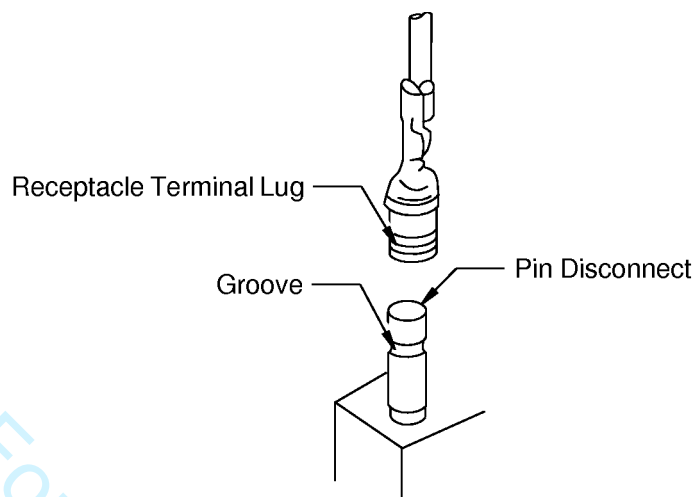
WIRING INSTALLATION COMPONENTS

Component	Type	Specification
Sleeve	Heat Shrinkable	M23053/5

- (1) Make a selection of a receptacle terminal lug installation tool from Table 8.
- (2) Make a selection of a heat shrinkable sleeve. Refer to Table 9.
- (3) Put a 0.6 inch length of the heat shrinkable sleeve on the wire.
- (4) Put the installation tool on the wire between the sleeve and the crimp barrel of the terminal lug.
- (5) Push the tool forward toward the end of the wire until the tool is against the rear end of the terminal lug.
- (6) Axially align the terminal lug and the pin disconnect. Refer to Figure 23.

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ELECTRICAL CONNECTION OF EQUIPMENT



ALIGNMENT OF THE TERMINAL LUG AND THE PIN DISCONNECT
Figure 23

- (7) Push the terminal lug forward until the ring on the inside of the engaging end of the receptacle is in the groove on the pin disconnect.

Make sure that the terminal lug and the pin disconnect stay aligned.

CAUTION: IF THE TERMINAL LUG AND THE PIN DISCONNECT DO NOT STAY ALIGNED, DAMAGE TO THE LUG OR THE PIN CAN OCCUR.

G. Installation Torque for Circuit Breaker, Relay, Contactor, and Time Delay Module Terminals

NOTE: If a terminal torque value is specified on the circuit breaker, relay, contactor, or time delay module, use that torque value.

NOTE: If the relay, contactor, or time delay module part number is not shown in Table 11, use the torque values specified in Table 12.

NOTE: For the MS27751-2 relay, use the torque values specified on the relay.

If the torque values are not specified on the MS27751-2 relay, use the values in Table 11 specified for the MS27751-2 relay.

Table 10
TERMINAL INSTALLATION TORQUE FOR CIRCUIT BREAKERS

Circuit Breaker			Terminal Installation Torque (inch-pounds)	
Part Number	Current Rating (Amps)	Stud Size	Minimum	Maximum
170-006-140	140	1/4-28	40	45
10-60806-()	5 THROUGH 35	8-32	14	15
	35 THROUGH 50	8-32	25	27
	60 THROUGH 100	1/4-28	40	45
BACC18W()	ALL	8-32	14	15

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ELECTRICAL CONNECTION OF EQUIPMENT

Table 10 (continued)

Circuit Breaker			Terminal Installation Torque (inch-pounds)	
Part Number	Current Rating (Amps)	Stud Size	Minimum	Maximum
BACC18Z()	ALL	8-32	14	15
BACC18AC()	ALL	8-32	14	15
BACC18AD()	ALL	8-32	14	15
BACC18AE()	ALL	8-32	14	15
BACC18AF()	5 THROUGH 25	10-32	18	20
	35 THROUGH 100	1/4-28	40	45
BACC18R()	5 THROUGH 50	8-32	14	15
BACC18R() (Type C)	60 THROUGH 100	1/4-28	40	45
BACC18X()	5 THROUGH 50	8-32	14	15
	60 THROUGH 100	1/4-28	40	45

Table 11

TERMINAL INSTALLATION TORQUE FOR RELAYS, CONTACTORS AND TIME DELAY MODULES BY PART NUMBER

Relay, Contactor or Time Delay Module			Terminal Installation Torque (inch-pounds)	
Part Number	Supplier	Stud Size	Minimum	Maximum
10-61445-21	Boeing	6-32	5.5	7.5
		10-32	22	24
10-61445-23	Boeing	6-32	5.5	7.5
		1/4-28	46	56
10-61445-24	Boeing	6-32	5.5	7.5
		1/4-28	46	56
530740-()	Ducommun	6-32	5.5	7.5
530750-()	Ducommun	6-32	5.5	7.5
60B00010-()	Boeing	3/8-24	115	125
60B40021-()	Boeing	3/8-24	115	125
9131-8506	Leach	6-32	5.5	7.5
		10-32	22	24
D-25BD	Hartman	6-32	5.5	7.5
		1/4-28	46	56

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STANDARD WIRING PRACTICES MANUAL

ELECTRICAL CONNECTION OF EQUIPMENT

Table 11 (continued)

Relay, Contactor or Time Delay Module			Terminal Installation Torque (inch-pounds)	
Part Number	Supplier	Stud Size	Minimum	Maximum
D-31C	Hartman	6-32	5.5	7.5
		1/4-28	46	56
HT-C7N-060	Leach	6-32	5.5	7.5
		10-32	22	24
MS27751-2	QPL	6-32	5.5	7.5
		10-32	22	24
TD-1982-()	Leach	6-32	5.5	7.5
ZCD-A1A-047	Hartman	6-32	5.5	7.5
		1/4-28	46	56
ZD-A5A-045	Leach	6-32	5.5	7.5
		1/4-28	46	56

Table 12

TERMINAL INSTALLATION TORQUE FOR RELAYS, CONTACTORS AND TIME DELAY MODULES BY TERMINAL STUD SIZE

Stud Size	Terminal Installation Torque (inch-pounds)	
	Minimum	Maximum
6-32	5.5	7.5
8-32	18	20
10-32	22	24
1/4-28	46	56
3/8-24	112	117

H. Installation Torque for ELCU Terminals

Table 13

INSTALLATION TORQUE FOR ELCU TERMINALS

ELCU		Torque (inch-pounds)	
Part Number	Stud Size	Minimum	Maximum
S281T003-()	3/8-24	115	125
60B00176-()	3/8-24	120	125

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STANDARD WIRING PRACTICES MANUAL

ELECTRICAL CONNECTION OF EQUIPMENT

I. Installation Torque for External Power Connector Terminal Studs

Table 14

INSTALLATION TORQUE FOR EXTERNAL POWER CONNECTOR TERMINALS

External Power Connector				Fastener Torque (inch-pounds)	
Part Number	Fastener		Terminal Identification	Minimum	Maximum
	Thread Size	Configuration			
MS90362-()	3/8-24	Nut	A	120	125
			B	120	125
			C	120	125
			N	120	125
	10-32	Nut	E	20	22
			F	20	22
BACC65BL-1	3/8-24	Bolt	A	240	300
			B	240	300
			C	240	300
			N	240	300
	10-32	Nut	E	180	300
			F	180	300
BACC65BL-2	3/8-24	Bolt	A	240	300
			B	240	300
			E	240	300
			F	240	300
	10-32	Nut	C	180	300
			N	180	300

J. Installation Torque for the Fuel Quantity Probe Terminals

Table 15

INSTALLATION TORQUE FOR FUEL QUANTITY PROBE TERMINALS

Wire Color	Terminal Size	Maximum Torque (inch-pound)
Red	10-32	13
Black	8-32	10
White	6-32	10

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ELECTRICAL CONNECTION OF EQUIPMENT

K. Installation Torque for the IDG Generator Terminals

Table 16
INSTALLATION TORQUE FOR THE IDG GENERATOR TERMINALS

Generator Terminals	Torque			
	(foot-pounds)		(inch-pounds)	
	Minimum	Maximum	Minimum	Maximum
Power Output	12	14	144	168

L. Installation of Jay-El 10167 Time Delay Terminals

Table 17
PRESSURE WASHER FOR JAY-EL TIME DELAY TERMINALS

Description	Material	Plating	Part Number	Supplier
Pressure washer	Steel	Cadmium	AN960-6L	An available source

The terminal stud hardware buildup on the 10167-()-() time delays includes a flat, cadmium plated steel pressure washer between the lock washer and the wire terminal lug.

- (1) Put the wire terminal lug on the terminal stud.
- (2) Make a selection of a pressure washer from Table 17.
- (3) Put the pressure washer on the stud on the lug.
- (4) Put the lockwasher on the stud on the pressure washer.
- (5) Engage the threads of the top nut and the stud.
- (6) Do Step (2) through Step (5) for the remaining terminals of the Jay-El 10167 Time Delay.
- (7) Torque the terminals. Refer to Table 12.

NOTE: The terminal stud size is 6-32.

M. Installation Terminal Torque for the MS27212-() Terminal Block

Refer to Paragraph 2.D. for the configuration of the terminals on the MS27212 terminal block.

Table 18
INSTALLATION TORQUE FOR FOR MS27212-() TERMINAL STRIP TERMINALS

Terminal Strip		Torque (inch-pounds)	
Part Number	Stud Size	Minimum	Maximum
MS27212-()-()	6-32	15	16
	8-32	20	22
	10-32	30	32
	1/4-28	70	75
	5/16-24	135	155

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STANDARD WIRING PRACTICES MANUAL

ELECTRICAL CONNECTION OF EQUIPMENT

N. Installation Torque for Transformer Terminals

Table 19
INSTALLATION TORQUE FOR TRANSFORMER TERMINALS

Stud Size	Torque (inch-pounds)	
	Minimum	Maximum
8-32	7	9
10-32	28	32

4. PROTECTION OF ELECTRICAL CONNECTIONS IN A FLAMMABLE LEAKAGE ZONE

A. General Conditions for Electrical Connections in a Flammable Leakage Zone

CAUTION: THE SEAL OF AN ELECTRICAL CONNECTION IN A FUEL TANK IS NOT A STANDARD PROCEDURE. FOR FUEL SYSTEM WIRING REPAIRS THAT ARE PERMITTED, REFER TO SUBJECT 20-10-13.

The seal of a ground assembly in a flammable leakage zone that is not sealed initially is not necessary:
All other electrical connections in a flammable leakage zone must be sealed.

For the procedure to seal a ground stud ground assembly that is in a flammable leakage zone, refer to Subject 20-20-10.

B. Location of the Flammable Leakage Zones

For the locations of the flammable leakage zones, refer to Subject 20-02-10.

C. Seal of an Electrical Connection in a Flammable Leakage Zone

For the conditions that are applicable for this procedure, refer to Paragraph 4.A.

NOTE: The cure times and tack-free times that are specified in Table 20 are applicable for 77 degrees F \pm 5 degrees F and 50 percent relative humidity.

NOTE: The cure time and the tack free time:

- Increase at lower temperature and lower humidity
- Decrease at higher temperature and higher humidity.

Table 20
RECOMMENDED SEALANTS FOR A FUEL VAPOR AREA

Cure Time (Hours)	Tack Free Time (Hours)	Part Number	Supplier	Special Instructions
2	1	PR 1826 B-1/4	PRC-DeSoto International	Not applicable for clad aluminum
3	2	PR 1826 B-1/2	PRC-DeSoto International	Not applicable for clad aluminum
8	3	Proseal 860 B-1/6	PRC-DeSoto International	Not applicable for CRES or bare titanium
20	10	BMS5-95 B-1/2	Boeing	-

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STANDARD WIRING PRACTICES MANUAL

ELECTRICAL CONNECTION OF EQUIPMENT

Table 20 (continued)

Cure Time (Hours)	Tack Free Time (Hours)	Part Number	Supplier	Special Instructions
24	10	BMS5-142 B-1/2	Boeing	Not applicable for faying surfaces
	12	BMS5-37 B-2	Boeing	-
48	24	BMS5-26 B-2 Type II	Boeing	-
		BMS5-45 B-2	Boeing	-
		BMS5-142 B-2	Boeing	Not applicable for faying surfaces
	36	BMS5-95 B-2	Boeing	-
72	36	BMS5-26 A-2 Type II	Boeing	-

Table 21

APPROVED SUPPLIERS OF BOEING STANDARD SEALANTS

Boeing Standard	Supplier
BMS5-26 A-2 Type II	Courtaulds Aerospace
BMS5-26 B-2 Type II	Courtaulds Aerospace
BMS5-37 B-2	PRC-DeSoto International
BMS5-45 B-2	PRC-DeSoto International
BMS5-45 B-2	Le Joint Francais
BMS5-45 B-2	Yokohama Rubber
BMS5-95 B-1/2	PRC-DeSoto International
BMS5-95 B-2	PRC-DeSoto International
BMS5-95 B-2	Le Joint Francais
BMS5-95 B-2	Yokohama Rubber

- (1) Make a selection of a sealant from Table 20.
- (2) With a clean cloth and naphtha or an equivalent solvent, remove all contamination from:
 - The connection
 - The 1 inch minimum area around the connection.
- (3) Let the area dry for a minimum of 15 minutes.
- (4) For a lamp terminal, with or without a sleeve, apply one continuous layer of sealant with a brush on:
 - The end of the terminal
 - The hardware that is attached to the lamp.

Make sure that the sealant is not applied on:

- The shank of the terminal
- A soldered filament connection.

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ELECTRICAL CONNECTION OF EQUIPMENT

CAUTION: ANY SEALANT ON THE SHANK CAN PREVENT THE MOTION OF THE LAMP CONTACT. THE LAMP CAN BECOME TOO HOT WHICH CAN CAUSE THE FAILURE OF THE LIGHT ASSEMBLY.

- (5) For a switch terminal that is not connected, apply one continuous layer of sealant on the terminal with a brush.
- (6) For a switch lead wire that is not connected, assemble a crimp type end cap on the wire. Refer to Subject 20-30-16.
- (7) For all other connections, apply a layer of sealant on the connection with a brush.
Make sure that the sealant is fully applied on the outer surface of the connection.
- (8) Let the sealant cure.

NOTE: The full cure of a sealant is recommended, but the sealant is serviceable when:

- It is tack free
- It is in an area where wind shear does not occur.

For training purposes only!

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF INSULATED AND UNINSULATED TERMINAL LUGS

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF INSULATED AND UNINSULATED TERMINAL LUGS

1. PART NUMBERS AND DESCRIPTION

A. General Data

Refer to Subject 20-30-14 for the assembly these terminals:

- BACT12AW()
- BACT12AY()
- BACT13K()
- BACT13L()
- BACT13T()
- Amp (Tyco) CopAlum terminals
- Aluminum terminals.

Refer to Subject 20-30-15 for the assembly of Amp (Tyco) Faston terminals.

Refer to Subject 20-30-00 for the:

- The procedures to attach terminal lugs to equipment
- The configuration of the terminal lugs attached to equipment
- The installation of colored identification sleeves on terminals on three phase power wires.

Refer to Subject 20-30-22 for the:

- Assembly of a terminal lug with more than one conductor
- Assembly of a terminal lug with a conductor that is smaller than the crimp barrel size of the terminal lug
- Assembly of a terminal lug with a wire size that is not given in this Subject
- Assembly of a terminal lug with a wire that has an insulation O.D. that is smaller than the insulation grip of the terminal lug.

If a terminal lug that has the same size hole as the stud is not available, these configurations of terminals lugs and studs are satisfactory alternatives:

- A terminal lug that has a size 10 hole on a size 8 stud
- A terminal lug that has a size 8 hole on a size 6 stud
- A terminal lug that has a size 6 hole on a size 4 stud
- A terminal lug that has a size 4 hole on a size 2 stud.

For the Circular Area Units (CAU) of a conductor, refer to Table 1.

CAU can be calculated if the Circular Mil Area (CMA) of a conductor is known. Refer to Figure 1.

NOTE: The circular mils of a conductor can be found in all wire tables. If the tables are not available, the CMA can be calculated. Refer to Figure 1.

$$CAU = \frac{CMA}{100} = \frac{(1000 \times \text{Strand Diameter})^2}{100} \times \text{Number of Strands}$$

CIRCULAR AREA UNITS OF A CONDUCTOR
Figure 1

Table 1 gives the CAU of conductors of wire.

Refer to Paragraph 2.C. for the CAU of the shield of different shielded wires and cables.

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF INSULATED AND UNINSULATED TERMINAL LUGS

Table 1
CAU OF CONDUCTORS OF WIRE

Wire Size (AWG)	Conductor		
	Type	Maximum O.D. (inch)	CAU
32	Solid	0.008	0.6
	Stranded	0.009	0.6
30	Solid	0.010	1
	Stranded	0.012	1
28	Solid	0.013	1.6
	Stranded	0.015	1.6
26	Solid	0.016	3
	Stranded	0.019	3
24	Solid	0.020	5
	Stranded	0.024	5
22	Solid	0.025	8
	Stranded	0.030	8
20	Solid	0.032	12
	Stranded	0.038	12
18	Solid	0.040	19
	Stranded	0.046	19
16	Solid	0.051	24
	Stranded	0.059	24
15	Solid	0.057	33
	Stranded	0.065	33
14	Solid	0.064	38
	Stranded	0.074	38
13	Solid	0.072	52
	Stranded	0.082	52
12	Solid	0.081	59
	Stranded	0.093	59
10	Solid	0.102	99
	Stranded	0.117	99
8	Solid	0.129	170
	Stranded	0.148	170

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF INSULATED AND UNINSULATED TERMINAL LUGS

Table 1 (continued)

Wire Size (AWG)	Conductor		
	Type	Maximum O.D. (inch)	CAU
6	Solid	0.162	268
	Stranded	0.186	268
4	Solid	0.204	426
	Stranded	0.235	426
2	Solid	0.258	665
	Stranded	0.297	665
1	Solid	0.290	837
	Stranded	0.328	837
1/0	Solid	0.352	1045
	Stranded	0.374	1045
2/0	Solid	0.365	1330
	Stranded	0.420	1330
3/0	Solid	0.410	1665
	Stranded	0.472	1665
4/0	Solid	0.460	2109
	Stranded	0.530	2109

Table 2 gives the diameter in inches for the standard stud sizes.

Table 2
STANDARD STUD SIZES

Stud Size	Diameter (inch)
2	0.086
4	0.112
5	0.125
6	0.138
8	0.164
10	0.190
1/4	0.250
5/16	0.312
3/8	0.375
7/16	0.438

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF INSULATED AND UNINSULATED TERMINAL LUGS

Table 2 (continued)

Stud Size	Diameter (inch)
1/2	0.500
5/8	0.625
3/4	0.750
7/8	0.875

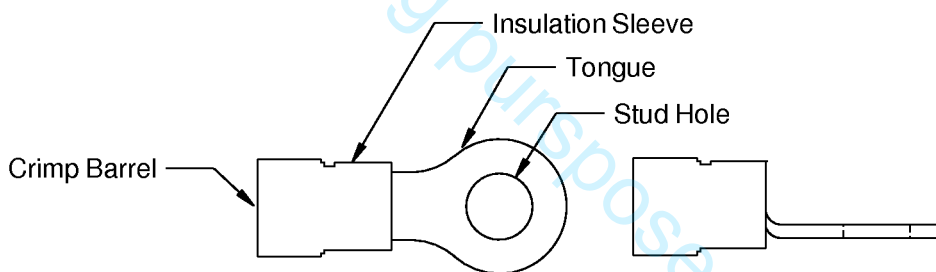
B. BACT12AC General Purpose Terminal Lugs

Refer to Paragraph 2.D. for the procedure to assemble these terminals.

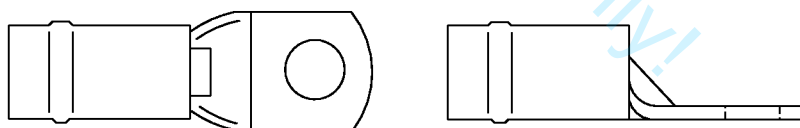
Some BACT12AC terminal lugs have an insulation grip. Some of the larger size BACT12AC terminal lugs do not have an insulation grip.

BACT12AC insulated terminal lugs must be used:

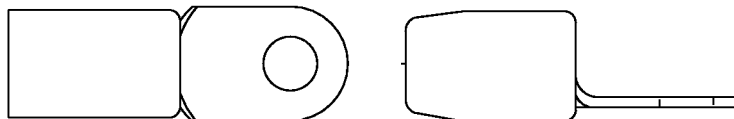
- To terminate BMS 13-51 Grade B AWG 8 and larger wire
- To terminate BMS 13-48 AWG 8 and larger wire
- To terminate BMS 13-31 wire in Temperature Grade Zone A and Zone B.



TERMINALS FOR WIRE SIZES 26 THROUGH 10



TERMINALS FOR WIRE SIZES 8 THROUGH 4/0



OPTIONAL CONFIGURATION FOR WIRE SIZES 8 THROUGH 4/0

TYPICAL BACT12AC TERMINALS

Figure 2

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF INSULATED AND UNINSULATED TERMINAL LUGS

Table 3
BACT12AC GENERAL PURPOSE TERMINAL LUG PART NUMBERS

Crimp Barrel Size (Wire Size Range) (AWG)	CAU Range		Insulation Color	Stud Hole Size	Boeing Standard
	Minimum	Maximum			
26 - 24	3	8	Yellow	2	BACT12AC43
				4	BACT12AC44
				6	BACT12AC45
				8	BACT12AC46
				10	BACT12AC47
22 - 18	7	24	Red	4	BACT12AC48
				6	BACT12AC1
					BACT12AC2
				8	BACT12AC49
				10	BACT12AC3
				1/4	BACT12AC50
				5/16	BACT12AC4
				3/8	BACT12AC5
16 - 14	15	51	Blue	1/2	BACT12AC51
				4	BACT12AC52
				6	BACT12AC6
					BACT12AC7
				8	BACT12AC53
				10	BACT12AC8
				1/4	BACT12AC54
				5/16	BACT12AC9
12 - 10	43	138	Yellow	3/8	BACT12AC10
				1/2	BACT12AC55
				6	BACT12AC11
				8	BACT12AC56
				10	BACT12AC12
				1/4	BACT12AC57
				5/16	BACT12AC13
				3/8	BACT12AC14
				1/2	BACT12AC58

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF INSULATED AND UNINSULATED TERMINAL LUGS

Table 3 (continued)

Crimp Barrel Size (Wire Size Range) (AWG)	CAU Range		Insulation Color	Stud Hole Size	Boeing Standard
	Minimum	Maximum			
8	132	208	Red	8	BACT12AC62
				10	BACT12AC15
				1/4	BACT12AC16
				5/16	BACT12AC17
				3/8	BACT12AC18
6	209	331	Blue	10	BACT12AC19
				1/4	BACT12AC20
				5/16	BACT12AC21
				3/8	BACT12AC22
4	332	526	Yellow	1/4	BACT12AC23
				5/16	BACT12AC24
				3/8	BACT12AC25
				1/2	BACT12AC61
2	527	837	Red	1/4	BACT12AC26
				3/8	BACT12AC27
				1/2	BACT12AC28
1/0	838	1195	Blue	1/4	BACT12AC32
				3/8	BACT12AC33
				1/2	BACT12AC34
2/0	1196	1505	Yellow	5/16	BACT12AC35
				3/8	BACT12AC36
				1/2	BACT12AC37
4/0	1901	2310	Blue	3/8	BACT12AC40
					BACT12AC60
				1/2	BACT12AC41
				5/8	BACT12AC59
				7/8	BACT12AC42

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF INSULATED AND UNINSULATED TERMINAL LUGS

Table 4
SUPPLIER PART NUMBERS FOR BACT12AC TERMINAL LUGS

Boeing Standard	Part Number	Supplier
BACT12AC1	36149	AMP
	AA-820-06	ETC
	R1881SN	Hollingsworth
BACT12AC10	320564	AMP
	BB-818-38	ETC
	R1908SN	Hollingsworth
BACT12AC11	320567	AMP
	C-828-06	ETC
	R5107N	Hollingsworth
BACT12AC12	36161	AMP
	C-828-10	ETC
	R5109N	Hollingsworth
BACT12AC13	320576	AMP
	C-830-56	ETC
	R5111N	Hollingsworth
BACT12AC14	320577	AMP
	C-840-38	ETC
	R5112N	Hollingsworth
BACT12AC15	324043	AMP
	YAEV8C-L	Burndy
BACT12AC16	324082	AMP
	YAEV8C-L1	Burndy
BACT12AC17	324044	AMP
	YAEV8C-L2	Burndy
BACT12AC18	324045	AMP
	YAEV8C-L3	Burndy
BACT12AC19	324046	AMP
	YAEV6C-L1	Burndy
BACT12AC2	51863	AMP
	AA-832-06	ETC
	R1885SN	Hollingsworth

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF INSULATED AND UNINSULATED TERMINAL LUGS

Table 4 (continued)

Boeing Standard	Part Number	Supplier
BACT12AC20	324047	AMP
	YAEV6C-L	Burndy
BACT12AC21	324048	AMP
	YAEV6C-L4	Burndy
BACT12AC22	324049	AMP
	YAEV6C-L2	Burndy
BACT12AC23	324050	AMP
	YAEV4C-L	Burndy
BACT12AC24	324051	AMP
	YAEVAC-L4	Burndy
BACT12AC25	324052	AMP
	YAEVAC-L2	Burndy
BACT12AC26	324053	AMP
	YAEV2C-L1	Burndy
BACT12AC27	324054	AMP
	YAEV2C-L	Burndy
BACT12AC28	324055	AMP
	YAEV2C-L4	Burndy
BACT12AC3	36153	AMP
	AA-821-10	ETC
	R1891SN	Hollingsworth
BACT12AC32	324056	AMP
	YAEV25-G25	Burndy
BACT12AC33	324057	AMP
	YAEV25-G24	Burndy
BACT12AC34	324058	AMP
	YAEV25-G26	Burndy
BACT12AC35	324083	AMP
	YAEV26-L2	Burndy
BACT12AC36	324084	AMP
	YAEV26-L	Burndy
BACT12AC37	324085	AMP
	YAEV26-L3	Burndy

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF INSULATED AND UNINSULATED TERMINAL LUGS

Table 4 (continued)

Boeing Standard	Part Number	Supplier
BACT12AC4	320572	AMP
	AA-822-56	ETC
	R1895SN	Hollingsworth
BACT12AC40	324187	AMP
	YAEV28-G1	Burndy
BACT12AC41	324188	AMP
	YAEV28-G2	Burndy
BACT12AC42	324189	AMP
	YAEV28-G4	Burndy
BACT12AC43	323912	AMP
BACT12AC44	323914	AMP
BACT12AC45	323915	AMP
BACT12AC46	323916	AMP
BACT12AC47	324075	AMP
BACT12AC48	320553	AMP
	AA-820-04	ETC
	R1880SN	Hollingsworth
BACT12AC49	320551	AMP
	AA-821-08	ETC
	R1890SN	Hollingsworth
BACT12AC5	320573	AMP
	AA-826-38	ETC
	R1896SN	Hollingsworth
BACT12AC50	320571	AMP
	AA-822-14	ETC
	R1894SN	Hollingsworth
BACT12AC51	328975	AMP
BACT12AC52	324159	AMP
	BB-823-04	ETC
	R2441SN	Hollingsworth
BACT12AC53	51864-1	AMP
	BB-837-08	ETC
	R1902SN	Hollingsworth

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF INSULATED AND UNINSULATED TERMINAL LUGS

Table 4 (continued)

Boeing Standard	Part Number	Supplier
BACT12AC54	320563	AMP
	BB-825-14	ETC
	R1906SN	Hollingsworth
BACT12AC55	328849	AMP
BACT12AC56	320568	AMP
	C-828-08	ETC
	R5108N	Hollingsworth
BACT12AC57	320569	AMP
	C-830-14	ETC
	R5110N	Hollingsworth
BACT12AC58	331467	AMP
	R5117N	Hollingsworth
BACT12AC59	329151	AMP
	YAEV28-G3	Burndy
BACT12AC6	320561	AMP
	BB-823-06	ETC
	R2442SN	Hollingsworth
BACT12AC60	329150	AMP
	YAEV28-G5	Burndy
BACT12AC61	324114	AMP
	YAEVAC-L5	Burndy
BACT12AC62	53041	AMP
	YAEV8C-L14	Burndy
BACT12AC7	51864	AMP
	BB-837-06	ETC
	R1901SN	Hollingsworth
BACT12AC8	51864-2	AMP
	BB-839-10	ETC
	R1903SN	Hollingsworth
BACT12AC9	328998	AMP
	BB-825-56	ETC
	R1907SN	Hollingsworth

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STANDARD WIRING PRACTICES MANUAL

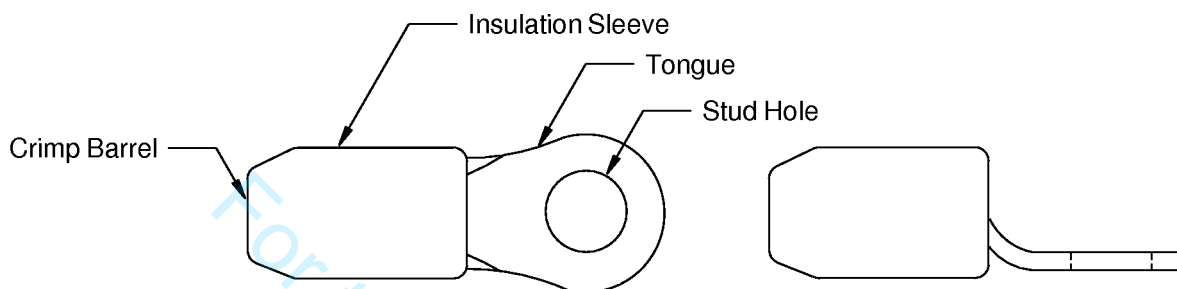
ASSEMBLY OF INSULATED AND UNINSULATED TERMINAL LUGS

C. BACT12AL General Purpose Terminal Lugs

Refer to Paragraph 2.E. for the procedure to assemble these terminals.

BACT12AL terminal lugs:

- Are insulated
- Have no wire insulation grip.



TYPICAL BACT12AL TERMINAL

Figure 3

Table 5

BACT12AL GENERAL PURPOSE TERMINAL LUG PART NUMBERS

Crimp Barrel Size (Wire Size) (AWG)	CAU Range		Insulation Color	Stud Hole Size	Boeing Standard
	Minimum	Maximum			
8	132	208	Red	8	BACT12AL2
				10	BACT12AL3
				1/4	BACT12AL4
				5/16	BACT12AL5
				3/8	BACT12AL6
6	209	331	Blue	8	BACT12AL9
				10	BACT12AL10
				1/4	BACT12AL11
				5/16	BACT12AL12
				3/8	BACT12AL13
4	332	526	Yellow	8	BACT12AL15
				10	BACT12AL16
				1/4	BACT12AL17
				5/16	BACT12AL18
				3/8	BACT12AL19

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF INSULATED AND UNINSULATED TERMINAL LUGS

Table 6
SUPPLIER PART NUMBERS FOR BACT12AL TERMINAL LUGS

Boeing Standard	Part Number	Supplier
BACT12AL10	1-331460-0	AMP
	RE9261	Thomas & Betts
BACT12AL11	1-331460-1	AMP
	RE9711	Thomas & Betts
BACT12AL12	331461	AMP
	RE9721	Thomas & Betts
BACT12AL13	1-331461-0	AMP
	RE9731	Thomas & Betts
BACT12AL15	331456	AMP
	690-52622-3	Thomas & Betts
BACT12AL16	1-331456-0	AMP
	RF9261	Thomas & Betts
BACT12AL17	1-331456-1	AMP
	RF9711	Thomas & Betts
BACT12AL18	331457	AMP
	RF9721	Thomas & Betts
BACT12AL19	1-331457-0	AMP
	RF9731	Thomas & Betts
BACT12AL2	331458	AMP
	690-52622-1	Thomas & Betts
BACT12AL3	1-331458-0	AMP
	RD9361	Thomas & Betts
BACT12AL4	1-331458-1	AMP
	RD9711	Thomas & Betts
BACT12AL5	331459	AMP
	RD9721	Thomas & Betts
BACT12AL6	1-331459-0	AMP
	RD9731	Thomas & Betts
BACT12AL9	331460	AMP
	690-52622-2	Thomas & Betts

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF INSULATED AND UNINSULATED TERMINAL LUGS

D. BACT12AR Restrictive Entry Terminal Lugs

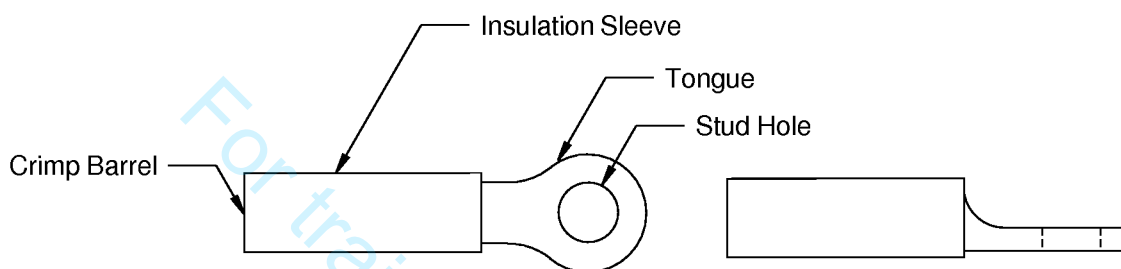
Refer to Paragraph 2.F. for the procedure to assemble these terminals.

BACT12AR terminal lugs have a wire insulation grip.

One BACT12AR terminal lug can be used to terminate only one wire.

An AWG 26 through AWG 10 wire can be terminated with a BACT12AR terminal lug.

NOTE: A BACT12AC terminal lug is a satisfactory alternative to a BACT12AR terminal lug for AWG 12 and smaller wire. Refer also to Table 9.



TYPICAL BACT12AR TERMINAL LUG

Figure 4

Table 7

BACT12AR RESTRICTIVE ENTRY TERMINAL LUG PART NUMBERS

Crimp Barrel Size (Wire Size) (AWG)	CAU Range		Insulation Color		Stud Hole Size	Boeing Standard
	Minimum	Maximum	Sleeve	Band		
24	4	5	Yellow	Blue	4	BACT12AR241
					6	BACT12AR242
					8	BACT12AR243
					10	BACT12AR244
						BACT12AR245
22	5	8	Red	Green	4	BACT12AR221
					6	BACT12AR222
					8	BACT12AR223
					10	BACT12AR224
					1/4	BACT12AR225
					5/16	BACT12AR226
					3/8	BACT12AR227

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF INSULATED AND UNINSULATED TERMINAL LUGS

Table 7 (continued)

Crimp Barrel Size (Wire Size) (AWG)	CAU Range		Insulation Color		Stud Hole Size	Boeing Standard
	Minimum	Maximum	Sleeve	Band		
20	8	12	Red	Red	4	BACT12AR201
					6	BACT12AR202
					8	BACT12AR203
					10	BACT12AR204
					1/4	BACT12AR205
					5/16	BACT12AR206
					3/8	BACT12AR207
18	12	19	Red	White	4	BACT12AR181
					6	BACT12AR182
					8	BACT12AR183
					10	BACT12AR184
					1/4	BACT12AR185
					5/16	BACT12AR186
					3/8	BACT12AR187
16	19	26	Blue	Blue	6	BACT12AR161
					8	BACT12AR162
					10	BACT12AR163
					1/4	BACT12AR164
					5/16	BACT12AR165
					3/8	BACT12AR166
14	27	41	Blue	Green	6	BACT12AR141
					8	BACT12AR142
					10	BACT12AR143
					5/16	BACT12AR144
12	42	65	Yellow	Yellow	6	BACT12AR121
					8	BACT12AR122
					10	BACT12AR123
					1/4	BACT12AR124
					5/16	BACT12AR125
					3/8	BACT12AR126

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF INSULATED AND UNINSULATED TERMINAL LUGS

Table 7 (continued)

Crimp Barrel Size (Wire Size) (AWG)	CAU Range		Insulation Color		Stud Hole Size	Boeing Standard
	Minimum	Maximum	Sleeve	Band		
10	66	105	Yellow	Brown	6	BACT12AR101
					8	BACT12AR102
					10	BACT12AR103
					1/4	BACT12AR104
					5/16	BACT12AR105
					3/8	BACT12AR106

Table 8

SUPPLIER PART NUMBERS FOR BACT12AR TERMINAL LUGS

Boeing Standard	Part Number	Supplier
BACT12AR101	2-36161-6	AMP
BACT12AR102	2-320568-3	AMP
BACT12AR103	2-36161-4	AMP
BACT12AR104	2-320569-6	AMP
BACT12AR105	2-320576-3	AMP
BACT12AR106	2-320577-2	AMP
BACT12AR121	2-36161-5	AMP
BACT12AR122	2-320568-2	AMP
BACT12AR123	2-36161-3	AMP
BACT12AR124	2-320569-5	AMP
BACT12AR125	2-320576-2	AMP
BACT12AR126	2-320577-1	AMP
BACT12AR141	51864-8	AMP
BACT12AR142	1-51864-1	AMP
BACT12AR143	51864-9	AMP
BACT12AR144	2-320575-3	AMP
BACT12AR161	51864-6	AMP
BACT12AR162	1-51864-0	AMP
BACT12AR163	51864-7	AMP
BACT12AR164	2-320563-3	AMP
BACT12AR165	2-320575-2	AMP
BACT12AR166	3-320564-1	AMP

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF INSULATED AND UNINSULATED TERMINAL LUGS

Table 8 (continued)

Boeing Standard	Part Number	Supplier
BACT12AR181	52273-2	AMP
BACT12AR182	51863-4	AMP
BACT12AR183	1-320551-4	AMP
BACT12AR184	2-36153-5	AMP
BACT12AR185	2-320571-5	AMP
BACT12AR186	2-320572-4	AMP
BACT12AR187	2-320573-3	AMP
BACT12AR201	52273-1	AMP
BACT12AR202	51863-3	AMP
BACT12AR203	1-320551-3	AMP
BACT12AR204	2-36153-4	AMP
BACT12AR205	2-320571-4	AMP
BACT12AR206	2-320572-3	AMP
BACT12AR207	2-320573-2	AMP
BACT12AR221	52273	AMP
BACT12AR222	51863-2	AMP
BACT12AR223	1-320551-2	AMP
BACT12AR224	2-36153-3	AMP
BACT12AR225	2-320571-3	AMP
BACT12AR226	2-320572-2	AMP
BACT12AR227	2-320573-1	AMP
BACT12AR241	53054	AMP
BACT12AR242	53055	AMP
BACT12AR243	53056	AMP
BACT12AR244	53057	AMP

Table 9

ALTERNATIVE BACT12AR TERMINAL LUGS

Specified Terminal Lug		Alternative Terminal Lug	
Part Number	Supplier	Part Number	Supplier
BACT12AR241	Boeing	BACT12AC44	Boeing
BACT12AR242	Boeing	BACT12AC45	Boeing
BACT12AR243	Boeing	BACT12AC46	Boeing

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF INSULATED AND UNINSULATED TERMINAL LUGS

Table 9 (continued)

Specified Terminal Lug		Alternative Terminal Lug	
Part Number	Supplier	Part Number	Supplier
BACT12AR244	Boeing	BACT12AC47	Boeing
BACT12AR245	Boeing	BACT12AC47	Boeing
BACT12AR246	Boeing	BACT12AC44	Boeing
BACT12AR247	Boeing	BACT12AC45	Boeing
BACT12AR248	Boeing	BACT12AC46	Boeing
BACT12AR249	Boeing	BACT12AC47	Boeing

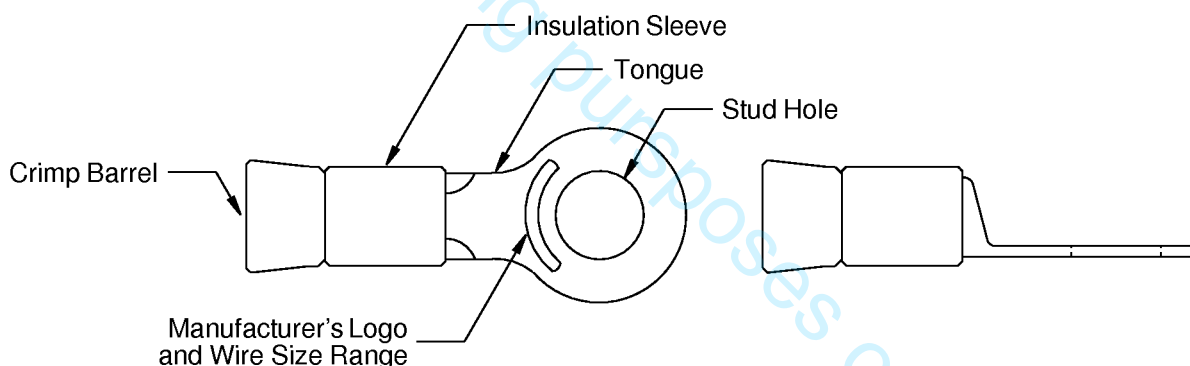
NOTE: Refer to Paragraph 1.B. for the BACT12AC part numbers.

E. BACT12AV Solid Nickel High Temperature Terminal Lugs

Refer to Paragraph 2.I. for the procedure to assemble these terminals.

These terminal lugs do not have a wire insulation grip.

NOTE: A solid nickel terminal lug from Table 10 is a satisfactory alternative to a BACT12M terminal lug.



TYPICAL BACT12AV TERMINAL LUG

Figure 5

Table 10

BACT12AV SOLID NICKEL HIGH TEMPERATURE TERMINAL LUG PART NUMBERS

Crimp Barrel Size (Wire Size Range) (AWG)	CAU Range		Stud Hole Size	Part Number
	Minimum	Maximum		
22 - 18	7	24	6	BACT12AV011
			8	BACT12AV012
			10	BACT12AV013
			1/4	BACT12AV014

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF INSULATED AND UNINSULATED TERMINAL LUGS

Table 10 (continued)

Crimp Barrel Size (Wire Size Range) (AWG)	CAU Range		Stud Hole Size	Part Number
	Minimum	Maximum		
16 - 14	15	51	6	BACT12AV021
			8	BACT12AV022
			10	BACT12AV023
			1/4	BACT12AV024
12 - 10	43	138	6	BACT12AV031
			8	BACT12AV032
			10	BACT12AV033
			1/4	BACT12AV034

Table 11

ALTERNATIVE TERMINAL LUG PART NUMBERS

Specified Terminal Lug		Alternative Terminal Lug	
Part Number	Supplier	Part Number	Supplier
BACT12AV011	Boeing	321892	Amp
BACT12AV012	Boeing	321896	Amp
BACT12AV013	Boeing	321898	Amp
BACT12AV014	Boeing	322320	Amp
BACT12AV021	Boeing	322332	Amp
BACT12AV022	Boeing	322337	Amp
BACT12AV023	Boeing	322338	Amp
BACT12AV024	Boeing	322341	Amp
BACT12AV031	Boeing	323748	Amp
BACT12AV032	Boeing	323749	Amp
BACT12AV033	Boeing	323750	Amp
BACT12AV034	Boeing	323751	Amp

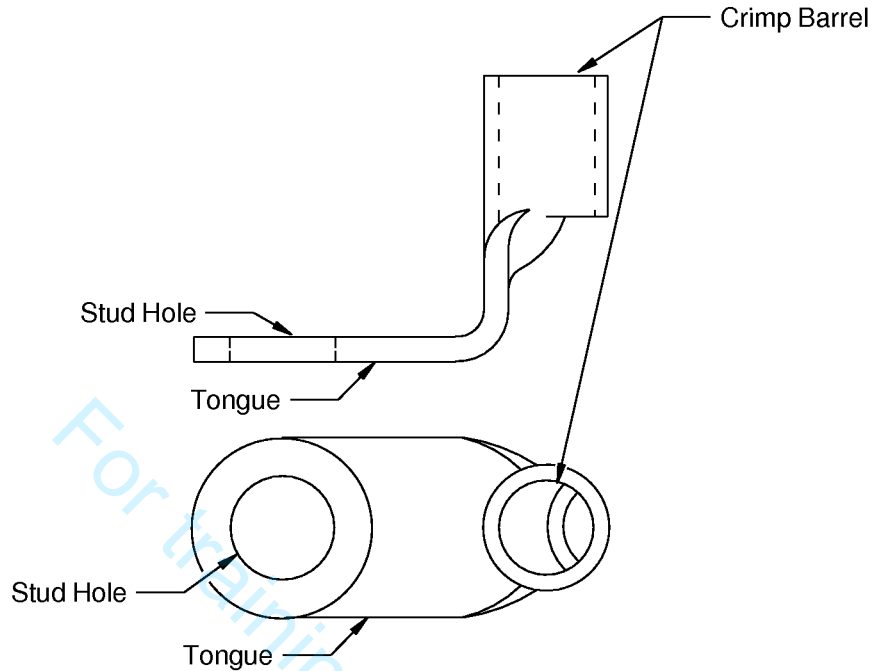
F. BACT12E 90 Degree Upright Terminal Lugs

Refer to Paragraph 2.J. for the procedure to assemble these terminals.

BACT12E terminal lugs do not have a wire insulation grip.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF INSULATED AND UNINSULATED TERMINAL LUGS



TYPICAL BACT12E 90 DEGREE UPRIGHT TERMINAL LUG

Figure 6

Table 12

BACT12E 90 DEGREE UPRIGHT TERMINAL LUG PART NUMBERS

Crimp Barrel Size (Wire Size Range) (AWG)	CAU Range		Stud Hole Size	Boeing Standard
	Minimum	Maximum		
22-18	5	20	10	BACT12E18
16-14	21	42	10	BACT12E14
12-10	50	100	10	BACT12E10
			1/4	BACT12E11
8	131	181	10	BACT12E81
6	206	288	1/4	BACT12E6
4	327	457	1/4	BACT12E4
2	524	735	3/8	BACT12E2
1/0	831	1119	3/8	BACT12E101
			1/2	BACT12E102
2/0	1049	1458	3/8	BACT12E201
3/0	1323	1810	3/8	BACT12E300
4/0	1666	2257	3/8	BACT12E401
			1/2	BACT12E402

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF INSULATED AND UNINSULATED TERMINAL LUGS

Table 13
SUPPLIER PART NUMBERS FOR BACT12E TERMINAL LUGS

Boeing Standard	Part Number	Supplier
BACT12E10	C26U	Thomas & Betts
	YAV10-R	Burndy
	YAV10R	FCI
BACT12E101	YAV25-RS	Burndy
	YAV25RS	FCI
BACT12E102	YAV25-RS3	Burndy
	YAV25RS3	FCI
BACT12E11	YAV10-R3	Burndy
	YAV10R3	FCI
BACT12E14	B-36U	Thomas & Betts
	YAV14-R	Burndy
	YAV14R	FCI
BACT12E18	A-36U	Thomas & Betts
	YAV18-R	Burndy
	YAV18R	FCI
BACT12E2	YAV2C-RS	Burndy
	YAV2CRS	FCI
BACT12E201	YAV26-RS	Burndy
	YAV26RS	FCI
BACT12E300	YAV27-RS	Burndy
	YAV27RS	FCI
BACT12E4	YAV4C-RS	Burndy
	YAV4CRS	FCI
BACT12E401	YAV28-RS	Burndy
	YAV28RS	FCI
BACT12E402	YAV28-RS12	Burndy
	YAV28RS12	FCI
BACT12E6	YAV6C-RS	Burndy
	YAV6CRS	FCI
BACT12E81	YAV8C-RS	Burndy
	YAV8CRS	FCI

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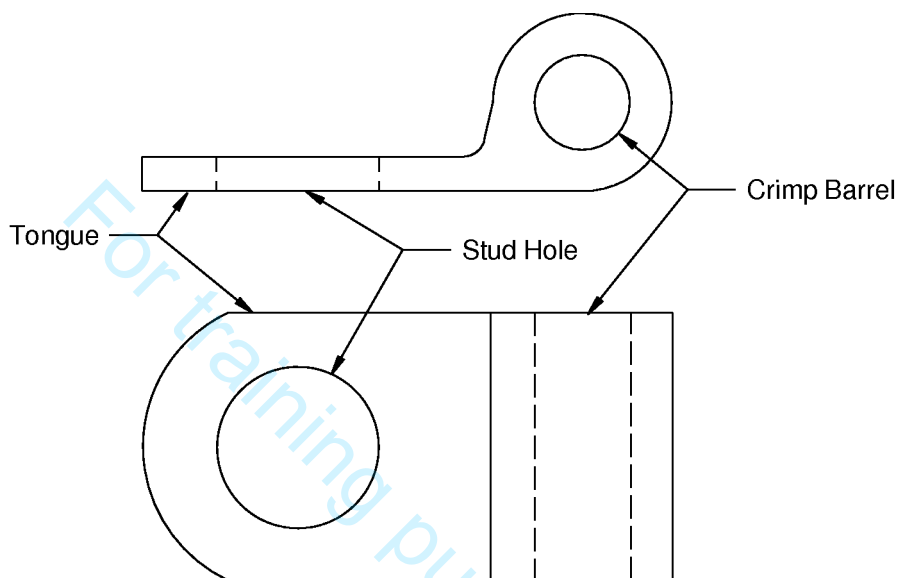
ASSEMBLY OF INSULATED AND UNINSULATED TERMINAL LUGS

G. BACT12G and Burndy YBM Series Flag Terminal Lugs

Refer to Paragraph 2.K. for the procedure to assemble these terminals.

BACT12G and Burndy YBM Series flag terminal lugs:

- Are not insulated
- Have no wire insulation grip.



TYPICAL BACT12G OR BURNDY YBM SERIES FLAG TERMINAL LUG

Figure 7

Table 14
BACT12G FLAG TERMINAL LUG PART NUMBERS

Crimp Barrel Size (Wire Size) (AWG)	CAU Range		Stud Hole Size	Boeing Standard
	Minimum	Maximum		
8	131	181	10	BACT12G81
			1/4	BACT12G82
6	206	288	1/4	BACT12G62
			5/16	BACT12G64
4	327	457	1/4	BACT12G42
			3/8	BACT12G44
2	524	735	1/4	BACT12G23
			3/8	BACT12G24
1/0	831	1119	3/8	BACT12G102
2/0	1049	1458	3/8	BACT12G202

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ASSEMBLY OF INSULATED AND UNINSULATED TERMINAL LUGS

Table 15
OTHER BURNDY FLAG TERMINAL LUG PART NUMBERS

Crimp Barrel Size	CAU Range		Stud Hole Size	Part Number	Supplier
	Minimum	Maximum			
1/0	831	1119	1/4	YBM25-L1	Burndy

Table 16
SUPPLIER PART NUMBERS FOR BACT12G FLAG TERMINAL LUGS

Boeing Standard	Part Number	Supplier
BACT12G102	YBM25-L	Burndy
	YBM25L	FCI
BACT12G202	YBM26-L	Burndy
	YBM26L	FCI
BACT12G23	YBM2C-L1	Burndy
	YBM2CL1	FCI
BACT12G24	YBM2C-L	Burndy
	YBM2CL	FCI
BACT12G42	YBM4C-L	Burndy
	YBM4CL	FCI
BACT12G44	YBM4C-L2	Burndy
	YBM4CL2	FCI
BACT12G62	YBM6C-L	Burndy
	YBM6CL	FCI
BACT12G64	YBM6C-L2	Burndy
	YBM6CL2	FCI
BACT12G81	YBM8C	Burndy
	YBM8C	FCI
BACT12G82	YBM8CT2	FCI
	YBM8C-T2	Burndy

H. BACT12M and 280U0010-1 Nickel Plated High Temperature Terminal Lugs

Refer to Paragraph 2.L. for the procedure to assemble these terminals.

The FCI / Burndy configuration terminal lugs do not have a wire insulation grip.

The 280U0010-1 terminal lug has the same configuration as BACT12M28-2 but has additional nickel plating.

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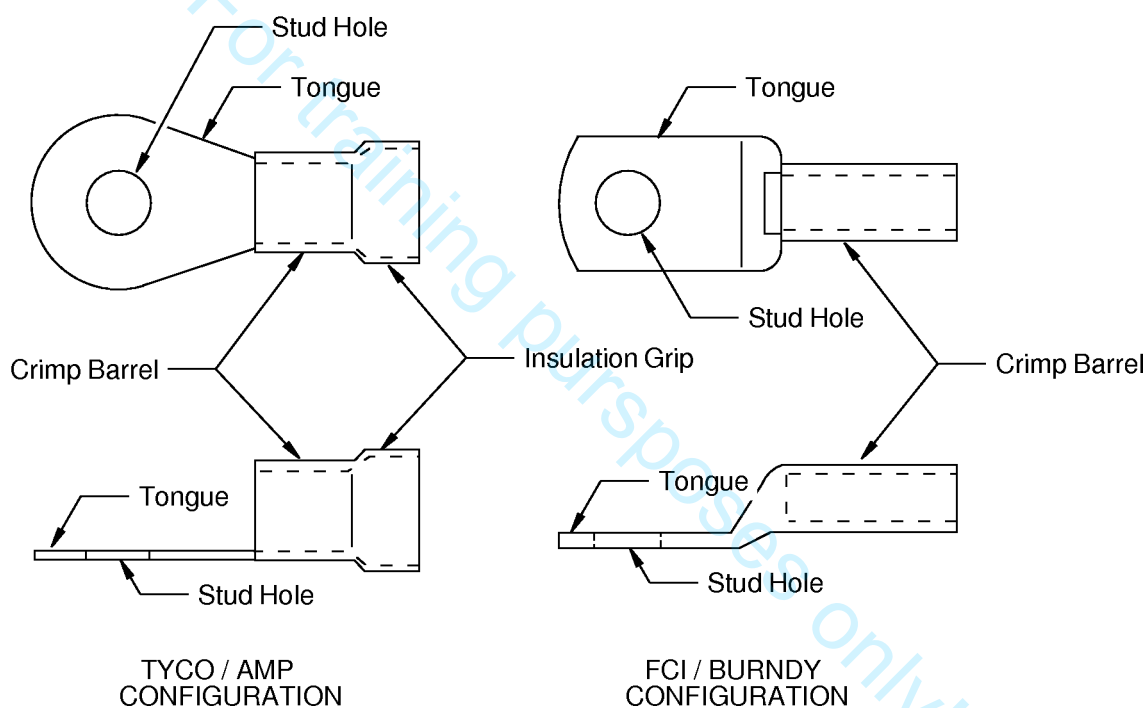
ASSEMBLY OF INSULATED AND UNINSULATED TERMINAL LUGS

BACT12M terminals are nickel plated copper except for BACT12M144, BACT12M145 and BACT12M148 which are solid nickel.

These conditions are applicable:

- For AWG 14 and smaller wire, a BACT12M terminal lug with a hole that is one size larger than the specified stud size can be used
- When high temperature terminal lugs are used as ground lugs, it is not necessary to put insulation on the post
- When a terminal lug is specified for a high temperature area or a high vibration area or both, the terminal lug must be a BACT12M, 280U0010-1, or an AMP solid nickel terminal lug
- AWG 18 is the largest wire size that is permitted in a BACT12M terminal that is marked 22-16.

NOTE: A solid nickel terminal lug from Table 20 is a satisfactory alternative to a BACT12M terminal lug.



TYPICAL BACT12M TERMINAL LUGS

Figure 8

Table 17

BACT12M AND 280U0010-1 HIGH TEMPERATURE TERMINAL LUG PART NUMBERS

Crimp Barrel Size (Wire Size Range) (AWG)	CAU Range		Stud Hole Size	Boeing Standard
	Minimum	Maximum		
22 - 18	7	24	4	BACT12M2
			6	BACT12M130
			10	BACT12M4
			1/4	BACT12M5

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ASSEMBLY OF INSULATED AND UNINSULATED TERMINAL LUGS

Table 17 (continued)

Crimp Barrel Size (Wire Size Range) (AWG)	CAU Range		Stud Hole Size	Boeing Standard
	Minimum	Maximum		
16 - 14	15	51	4	BACT12M7
			6	BACT12M147
			8	BACT12M173
			10	BACT12M198
			1/4	BACT12M8
			3/8	BACT12M148
12 - 10	43	138	6	BACT12M139
			10	BACT12M140
			1/4	BACT12M141
			5/16	BACT12M144
			3/8	BACT12M145
8	131	181	8	BACT12M8-1
			10	BACT12M8-2
			1/4	BACT12M8-3
			5/16	BACT12M8-4
			3/8	BACT12M8-5
			1/2	BACT12M8-6
6	206	288	10	BACT12M6-1
			1/4	BACT12M6-2
			5/16	BACT12M6-3
			3/8	BACT12M6-4
			1/2	BACT12M6-5
4	327	457	10	BACT12M4-1
			1/4	BACT12M4-2
			5/16	BACT12M4-3
			3/8	BACT12M4-4
			1/2	BACT12M4-5
2	524	735	10	BACT12M2-1
			1/4	BACT12M2-2
			5/16	BACT12M2-3
			3/8	BACT12M2-4
			1/2	BACT12M2-5

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ASSEMBLY OF INSULATED AND UNINSULATED TERMINAL LUGS

Table 17 (continued)

Crimp Barrel Size (Wire Size Range) (AWG)	CAU Range		Stud Hole Size	Boeing Standard
	Minimum	Maximum		
1	662	878	10	BACT12M1-1
			1/4	BACT12M1-2
			5/16	BACT12M1-3
			3/8	BACT12M1-4
			1/2	BACT12M1-5
1/0	831	1119	1/4	BACT12M25-1
			5/16	BACT12M25-2
			3/8	BACT12M25-3
			1/2	BACT12M25-4
			5/8	BACT12M25-5
2/0	1049	1458	1/4	BACT12M26-1
			5/16	BACT12M26-2
			3/8	BACT12M26-3
			1/2	BACT12M26-4
			5/8	BACT12M26-5
			3/4	BACT12M26-6
3/0	1323	1810	5/16	BACT12M27-1
			3/8	BACT12M27-2
			1/2	BACT12M27-3
			5/8	BACT12M27-4
4/0	1666	2257	5/16	BACT12M28-1
			3/8	BACT12M28-2
				280U0010-1
			1/2	BACT12M28-3
			5/8	BACT12M28-4
			3/4	BACT12M28-5
			7/8	BACT12M28-6

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF INSULATED AND UNINSULATED TERMINAL LUGS

Table 18
SUPPLIER PART NUMBERS FOR BACT12M TERMINAL LUGS

Boeing Standard	Part Number	Supplier
BACT12M1	322362	AMP
BACT12M1-1	YAV1C-L6NK	Burndy
BACT12M1-2	YAV1C-L1NK	Burndy
	YAV1CL1NK	FCI
BACT12M1-3	YAV1C-L2NK	Burndy
	YAV1CL2NK	FCI
BACT12M1-4	YAV1C-LNK	Burndy
	YAV1CLNK	FCI
BACT12M1-5	YAV1C-L3NK	Burndy
BACT12M130	323199	AMP
BACT12M139	323066	AMP
BACT12M140	325154	AMP
BACT12M141	323069	AMP
	325155	AMP
BACT12M142	325156	AMP
BACT12M143	325157	AMP
BACT12M144	323064	AMP
	323752	AMP
BACT12M145	323065	AMP
	323747	AMP
BACT12M147	322373	AMP
BACT12M148	322344	AMP
BACT12M173	322374	AMP
BACT12M198	322375	AMP
	YAV14G88	Burndy
BACT12M2	322363	AMP
BACT12M2-1	YAV2C-L3NK	Burndy
	YAV2CL3NK	FCI
BACT12M2-2	YAV2C-L1NK	Burndy
	YAV2CL1NK	FCI
BACT12M2-3	YAV2C-L2NK	Burndy
	YAV2CL2NK	FCI

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF INSULATED AND UNINSULATED TERMINAL LUGS

Table 18 (continued)

Boeing Standard	Part Number	Supplier
BACT12M2-4	YAV2C-LNK	Burndy
	YAV2CLNK	FCI
BACT12M2-5	YAV2C-L4NK	Burndy
	YAV2CL4NK	FCI
BACT12M25-1	YAV25-L1NK	Burndy
	YAV25L1NK	FCI
BACT12M25-2	YAV25-L2NK	Burndy
	YAV25L2NK	FCI
BACT12M25-3	YAV25-LNK	Burndy
	YAV25LNK	FCI
BACT12M25-4	YAV25-L3NK	Burndy
	YAV25L3NK	FCI
BACT12M25-5	YAV25-L4NK	Burndy
	YAV25L4NK	FCI
BACT12M26-1	YAV26-L1NK	Burndy
	YAV26L1NK	FCI
BACT12M26-2	YAV26-L2NK	Burndy
BACT12M26-3	YAV26-LNK	Burndy
	YAV26LNK	FCI
BACT12M26-4	YAV26-L3NK	Burndy
	YAV26L3NK	FCI
BACT12M26-5	YAV26-L12NK	Burndy
	YAV26L12NK	FCI
BACT12M26-6	YAV26-L22NK	Burndy
	YAV26L22NK	FCI
BACT12M27-1	YAV27-L20NK	Burndy
BACT12M27-2	YAV27-LNK	Burndy
	YAV27LNK	FCI
BACT12M27-3	YAV27-L1NK	Burndy
	YAV27L1NK	FCI
BACT12M27-4	YAV27-L15NK	Burndy
BACT12M28-5	YAV28L14NK	FCI
BACT12M28-1	YAV28-L56NK	Burndy

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF INSULATED AND UNINSULATED TERMINAL LUGS

Table 18 (continued)

Boeing Standard	Part Number	Supplier
BACT12M28-2	YAV28-LNK	Burndy
	YAV28LNK	FCI
BACT12M28-3	YAV28-L12NK	Burndy
	YAV28L12NK	FCI
BACT12M28-4	YAV28-L13NK	Burndy
BACT12M28-5	YAV28-L14NK	Burndy
	YAV28L14NK	FCI
BACT12M28-6	YAV28-L54NK	Burndy
BACT12M3	322364	AMP
BACT12M4	322366	AMP
	YAD18HNK	Burndy
BACT12M4-1	YAV4C-L3NK	Burndy
	YAV4CL3NK	FCI
BACT12M4-2	YAV4C-LNK	Burndy
	YAV4CLNK	FCI
BACT12M4-3	YAV4C-L4NK	Burndy
BACT12M4-4	YAV4C-L2NK	Burndy
	YAV4CL2NK	FCI
BACT12M4-5	YAV4C-L5NK	Burndy
	YAV4CL5NK	FCI
BACT12M5	322367	AMP
BACT12M6	322369	AMP
BACT12M6-1	YAV6C-L1NK	Burndy
	YAV6CL1NK	FCI
BACT12M6-2	YAV6C-LNK	Burndy
	YAV6CLNK	FCI
BACT12M6-3	YAV6C-L4NK	Burndy
	YAV6CL4NK	FCI
BACT12M6-4	YAV6C-L2NK	Burndy
	YAV6CL2NK	FCI
BACT12M6-5	YAV6C-L10NK	Burndy
	YAV6CL10NK	FCI
BACT12M7	322371	AMP

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF INSULATED AND UNINSULATED TERMINAL LUGS

Table 18 (continued)

Boeing Standard	Part Number	Supplier
BACT12M8	322376	AMP
BACT12M8-1	YAV8C-L14NK	Burndy
	YAV8CL14NK	FCI
BACT12M8-2	280U0010-1	Boeing
	YAV8C-LNK	Burndy
	YAV8CLNK	FCI
BACT12M8-3	YAV8C-L1NK	Burndy
	YAV8CL1NK	FCI
BACT12M8-4	YAV8C-L2NK	Burndy
	YAV8CL2NK	FCI
BACT12M8-5	YAV8C-L3NK	Burndy
	YAV8CL3NK	FCI
BACT12M8-6	YAV8C-L4NK	Burndy
	YAV8CL4NK	FCI
BACT12M9	322378	AMP

Table 19

ALTERNATIVE BACT12M TERMINAL LUGS

Specified Terminal Lug	Alternative Terminal Lug
BACT12M1	-
BACT12M142	BACT12M144
BACT12M143	BACT12M145
BACT12M3	-
BACT12M6	-
BACT12M9	BACT12M148

I. AMP Solid Nickel High Temperature Terminal Lugs

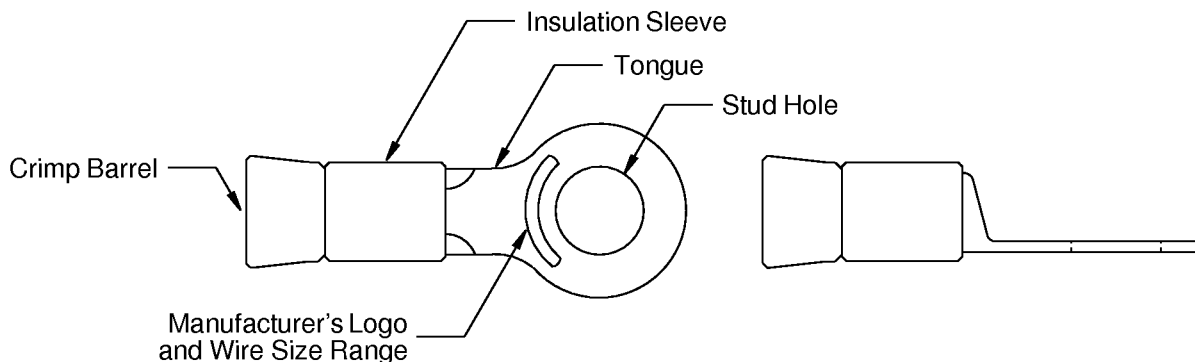
Refer to Paragraph 2.I. for the procedure to assemble these terminals.

These terminal lugs do not have a wire insulation grip.

NOTE: A solid nickel terminal lug from Table 20 is a satisfactory alternative to a BACT12M terminal lug.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF INSULATED AND UNINSULATED TERMINAL LUGS



TYPICAL AMP SOLID NICKEL TERMINAL

Figure 9

Table 20
SOLID NICKEL HIGH TEMPERATURE TERMINAL LUG PART NUMBERS

Crimp Barrel Size (Wire Size Range) (AWG)	CAU Range		Stud Hole Size	Part Number	Supplier
	Minimum	Maximum			
22 - 18	7	24	6	321892	AMP
			8	321893	
				321897	
			10	321894	
				321898	
			1/4	322320	
16 - 14	15	51	6	322332	AMP
			8	322337	
			10	322338	
			1/4	322341	
12 - 10	43	138	8	323749	AMP
			10	323750	
			1/4	323751	

Table 21
ALTERNATIVE TERMINAL LUG PART NUMBERS

Specified Terminal Lug		Alternative Terminal Lug	
Part Number	Supplier	Part Number	Supplier
321892	Amp	BACT12AV11	Boeing
321896	Amp	BACT12AV12	Boeing
321898	Amp	BACT12AV13	Boeing

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ASSEMBLY OF INSULATED AND UNINSULATED TERMINAL LUGS

Table 21 (continued)

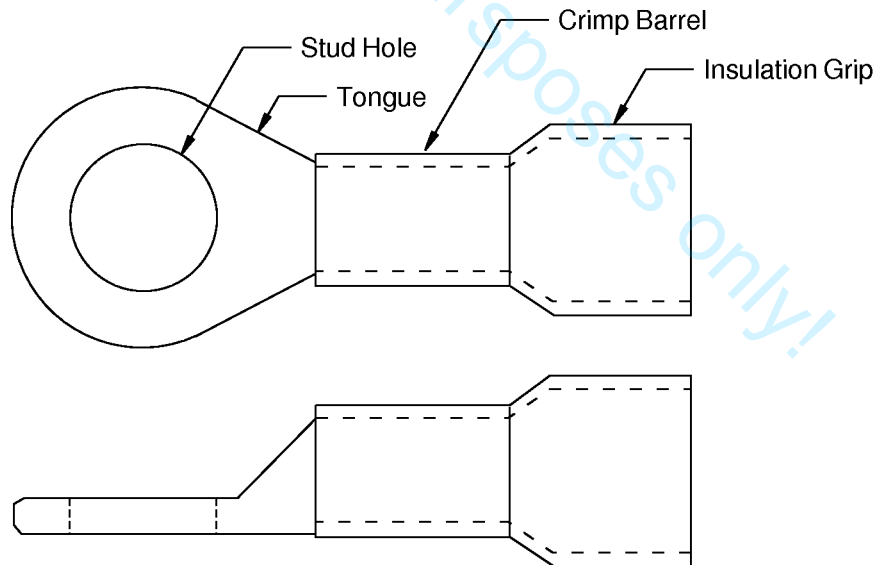
Specified Terminal Lug		Alternative Terminal Lug	
Part Number	Supplier	Part Number	Supplier
322320	Amp	BACT12AV14	Boeing
322332	Amp	BACT12AV21	Boeing
322337	Amp	BACT12AV22	Boeing
322338	Amp	BACT12AV23	Boeing
322341	Amp	BACT12AV24	Boeing
323748	Amp	BACT12AV31	Boeing
323749	Amp	BACT12AV32	Boeing
323750	Amp	BACT12AV33	Boeing
323751	Amp	BACT12AV34	Boeing

J. M7928/1 Terminal Lugs

Refer to Paragraph 2.M. for the procedure to assemble these terminals.

M7928/1 terminal lugs have a wire insulation grip.

M7928/1 terminal lugs are available from AMP (Tyco).



TYPICAL M7928/1 TERMINAL LUG

Figure 10

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF INSULATED AND UNINSULATED TERMINAL LUGS

Table 22
M7928/1 TERMINAL LUG PART NUMBERS

Crimp Barrel Size (Wire Size) (AWG)	CAU Range		Stud Hole Size	Part Number	Supplier
	Minimum	Maximum			
26	2	3	2	M7928/1-1	QPL
			4	M7928/1-2	
			6	M7928/1-3	
			8	M7928/1-4	
			10	M7928/1-5	
24	4	5	2	M7928/1-6	QPL
			4	M7928/1-7	
			6	M7928/1-8	
			8	M7928/1-9	
			10	M7928/1-10	
22	5	8	2	M7928/1-70	QPL
			4	M7928/1-11	
			6	M7928/1-12	
				M7928/1-13	
			8	M7928/1-14	
			10	M7928/1-15	
			1/4	M7928/1-16	
			5/16	M7928/1-17	
			3/8	M7928/1-18	
			1/2	M7928/1-19	
20	8	12	2	M7928/1-71	QPL
			4	M7928/1-20	
			6	M7928/1-21	
				M7928/1-22	
			8	M7928/1-23	
			10	M7928/1-24	
			1/4	M7928/1-25	
			5/16	M7928/1-26	
			3/8	M7928/1-27	
			1/2	M7928/1-28	

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ASSEMBLY OF INSULATED AND UNINSULATED TERMINAL LUGS

Table 22 (continued)

Crimp Barrel Size (Wire Size) (AWG)	CAU Range		Stud Hole Size	Part Number	Supplier
	Minimum	Maximum			
18	12	19	2	M7928/1-74	QPL
			4	M7928/1-29	
			6	M7928/1-30	
				M7928/1-31	
			8	M7928/1-32	
			10	M7928/1-33	
			1/4	M7928/1-34	
			5/16	M7928/1-35	
			3/8	M7928/1-36	
			1/2	M7928/1-37	
16	19	26	4	M7928/1-38	QPL
			6	M7928/1-39	
				M7928/1-40	
			8	M7928/1-41	
			10	M7928/1-42	
			1/4	M7928/1-43	
			5/16	M7928/1-44	
			3/8	M7928/1-45	
			1/2	M7928/1-46	
14	27	41	4	M7928/1-47	QPL
			6	M7928/1-48	
				M7928/1-49	
			8	M7928/1-50	
			10	M7928/1-51	
			1/4	M7928/1-52	
			5/16	M7928/1-53	
			3/8	M7928/1-54	
			1/2	M7928/1-55	

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ASSEMBLY OF INSULATED AND UNINSULATED TERMINAL LUGS

Table 22 (continued)

Crimp Barrel Size (Wire Size) (AWG)	CAU Range		Stud Hole Size	Part Number	Supplier
	Minimum	Maximum			
12	42	65	6	M7928/1-56	QPL
			8	M7928/1-57	
			10	M7928/1-58	
			1/4	M7928/1-59	
			5/16	M7928/1-60	
			3/8	M7928/1-61	
			1/2	M7928/1-62	
10	66	105	6	M7928/1-63	QPL
			8	M7928/1-64	
			10	M7928/1-65	
			1/4	M7928/1-66	
			5/16	M7928/1-67	
			3/8	M7928/1-68	
			1/2	M7928/1-69	

K. MS20659 Terminal Lugs

Refer to Paragraph 2.N. for the procedure to assemble these terminals.

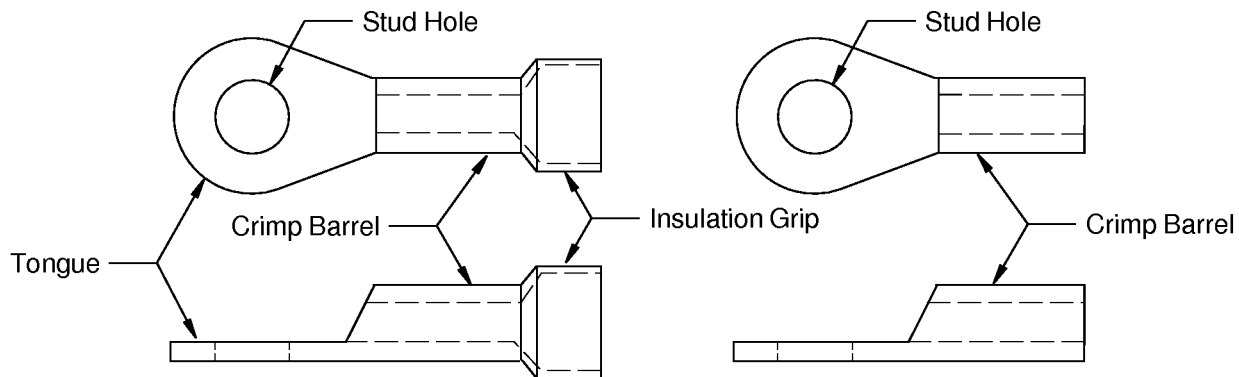
Some of the small MS20659 terminal lugs have a wire insulation grip. Most of the MS10659 terminal lugs do not have a wire insulation grip.

MS20659 terminal lugs are available from these suppliers:

- Burndy
- Thomas & Betts.

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ASSEMBLY OF INSULATED AND UNINSULATED TERMINAL LUGS



TERMINALS FOR WIRE SIZES 22 TO 14

TERMINALS FOR WIRE SIZES 12 TO 4/0

TYPICAL M20659 TERMINAL LUGS

Figure 11

Table 23
MS20659 TERMINAL LUG PART NUMBERS

Crimp Barrel Size (Wire Size Range) (AWG)	CAU Range		Stud Hole Size	Part Number	Supplier
	Minimum	Maximum			
22-18	5	20	4	MS20659-138	QPL
			6	MS20659-101	
			10	MS20659-102	
			5/16	MS20659-161	
			3/8	MS20659-125	
			1/2	MS20659-162	
16-14	21	42	4	MS20659-139	QPL
			6	MS20659-103	
			6	MS20659-126	
			10	MS20659-104	
			5/16	MS20659-163	
			3/8	MS20659-127	
			1/2	MS20659-164	
12-10	50	100	6	MS20659-165	QPL
			10	MS20659-105	
			5/16	MS20659-106	
			3/8	MS20659-128	
			1/2	MS20659-166	

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ASSEMBLY OF INSULATED AND UNINSULATED TERMINAL LUGS

Table 23 (continued)

Crimp Barrel Size (Wire Size Range) (AWG)	CAU Range		Stud Hole Size	Part Number	Supplier
	Minimum	Maximum			
8	131	181	8	MS20659-140	QPL
			10	MS20659-107	
			1/4	MS20659-141	
			5/16	MS20659-108	
			3/8	MS20659-129	
			1/2	MS20659-142	
6	206	288	10	MS20659-130	QPL
			1/4	MS20659-109	
			5/16	MS20659-131	
			3/8	MS20659-110	
			1/2	MS20659-143	
4	327	457	10	MS20659-144	QPL
			1/4	MS20659-111	
			5/16	MS20659-132	
			3/8	MS20659-112	
			1/2	MS20659-145	
2	524	735	10	MS20659-146	QPL
			1/4	MS20659-113	
			5/16	MS20659-147	
			3/8	MS20659-114	
			7/16	MS20659-148	
			1/2	MS20659-133	
1	736	878	1/4	MS20659-115	QPL
			5/16	MS20659-149	
			3/8	MS20659-116	
			7/16	MS20659-150	
			1/2	MS20659-134	
1/0	879	1119	1/4	MS20659-117	QPL
			5/16	MS20659-151	
			3/8	MS20659-118	
			7/16	MS20659-152	
			1/2	MS20659-135	

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ASSEMBLY OF INSULATED AND UNINSULATED TERMINAL LUGS

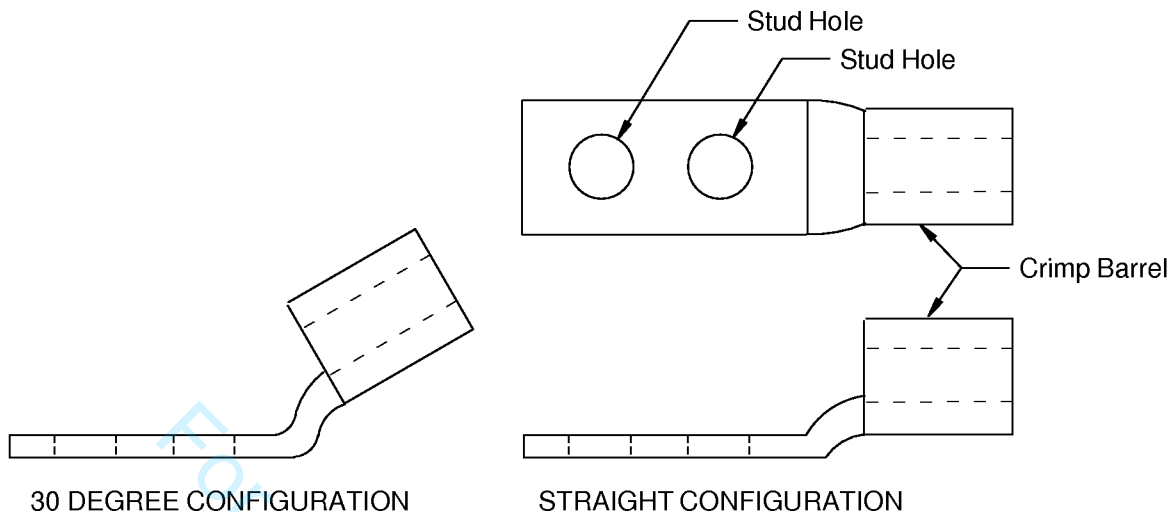
Table 23 (continued)

Crimp Barrel Size (Wire Size Range) (AWG)	CAU Range		Stud Hole Size	Part Number	Supplier
	Minimum	Maximum			
2/0	1120	1345	1/4	MS20659-153	QPL
			5/16	MS20659-119	
			3/8	MS20659-120	
			7/16	MS20659-154	
			1/2	MS20659-136	
3/0	1346	1810	5/16	MS20659-155	QPL
			3/8	MS20659-121	
			7/16	MS20659-156	
			1/2	MS20659-122	
4/0	1811	2310	5/16	MS20659-157	QPL
			3/8	MS20659-123	
			7/16	MS20659-158	
			1/2	MS20659-124	
			5/8	MS20659-159	
			3/4	MS20659-160	
			7/8	MS20659-137	

L. Burndy Dual Hole, Upright, and Heavy Duty YAV Terminal Lugs

Refer to Paragraph 2.O. for the procedure to assemble these terminals.

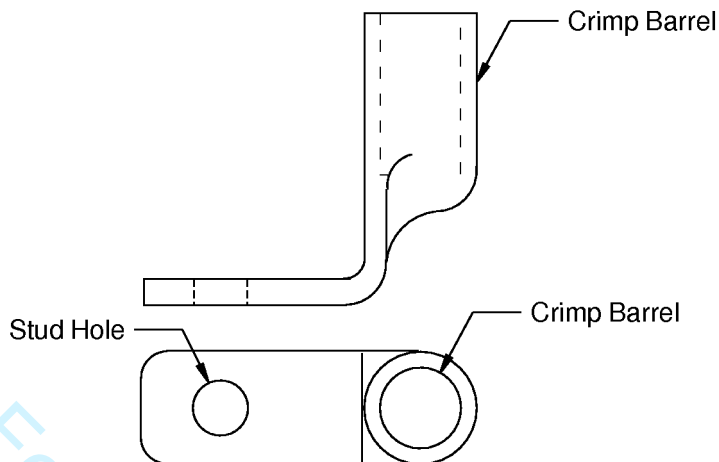
These terminal lugs do not have a wire insulation grip.

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TYPICAL BURNDY DUAL HOLE TERMINALS
Figure 12
Table 24
BURNDY DUAL HOLE YAV TERMINAL LUG PART NUMBERS

Crimp Barrel Size (Wire Size Range) (AWG)	CAU Range		Stud Hole Size	Configuration	Part Number	Supplier
	Minimum	Maximum				
6	206	288	3/8	Straight	YAV6C-2L38-NK	Burndy
4	327	457	3/8	30 Degree	YAV4C-2L38-30-NK	Burndy
				Straight	YAV4C-2L38-NK	
2	524	735	3/8	Straight	YAV2C-2L38-NK	Burndy
1/0	831	1119	3/8	Straight	YAV25-2L38-NK	Burndy
2/0	1049	1458	3/8	30 Degree	YAV26-2L38-30-NK	Burndy
				Straight	YAV26-2L38-NK	
3/0	1323	1810	3/8	30 Degree	YAV27-2L38-30-NK	Burndy
				Straight	YAV27-2L38-NK	

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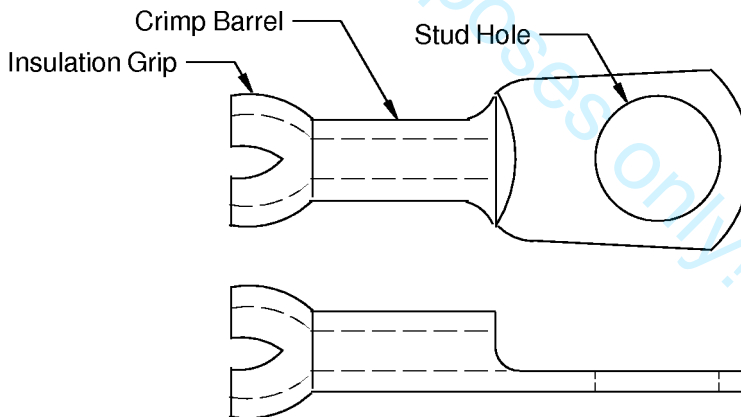


TYPICAL BURNDY UPRIGHT YAV TERMINALS

Figure 13

Table 25
BURNDY UPRIGHT YAV TERMINAL LUG PART NUMBERS

Crimp Barrel Size	CAU Range		Stud Hole Size	Part Number	Supplier
	Minimum	Maximum			
4	327	457	3/8	YAV4CRS2NK	Burndy
1/0	831	1119	3/8	YAV25RSNK	Burndy



TYPICAL BURNDY HEAVY DUTY YAV TERMINALS

Figure 14

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Table 26
BURNDY HEAVY DUTY YAV TERMINAL LUG PART NUMBERS

Crimp Barrel Size	CAU Range		Stud Hole Size	Part Number	Supplier
	Minimum	Maximum			
16-14	21	42	8	YAV14G82	Burndy
			10	YAV14G88	Burndy
20-14	21	42	8	YAV14-H1	Burndy
			10	YAV14-H	Burndy
22-18	7	24	10	YAV18-H	Burndy

NOTE: When two 18 AWG wires are specified to be terminated to a YAV14G82 or a YAV14G88 terminal, an alternative terminal lug can be selected from Table 27.

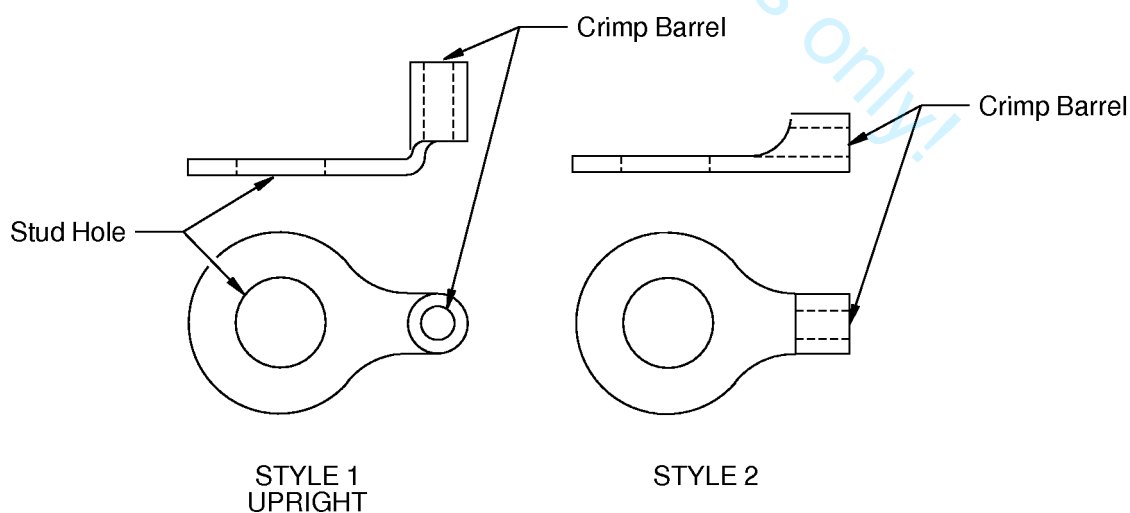
Table 27
ALTERNATIVE HEAVY DUTY TERMINAL LUG PART NUMBERS FOR TWO AWG 18 WIRES

Specified Terminal Lug		Alternative Terminal Lug	
Part Number	Supplier	Part Number	Supplier
YAV14G82	Burndy	323749	AMP
YAV14G88	Burndy	323750	AMP

M. BACT12AB, BACT12AM, BACT12S, Rolls-Royce, Thermocouple, and Other Terminal Lugs

Refer to Paragraph 2.P. for the procedure to assemble these terminals.

BACT12AB and BACT12AM terminal lugs do not have a wire insulation grip. BACT12S terminal lugs have a wire insulation grip.



TYPICAL BACT12AB TERMINALS

Figure 15

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ASSEMBLY OF INSULATED AND UNINSULATED TERMINAL LUGS

Table 28

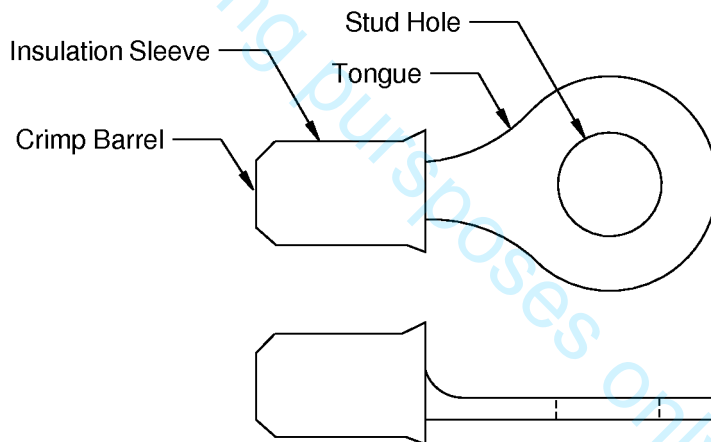
BACT12AB 90 DEGREE UPRIGHT TERMINAL LUG PART NUMBERS

Crimp Barrel Size (Wire Size Range) (AWG)	CAU Range		Material		Style	Stud Hole Size	Boeing Standard
	Minimum	Maximum	Body	Plating			
22-18	7	24	Cu	Tin	1	1/4	BACT12AB1
					1	10	BACT12AB2

Table 29

SUPPLIER PART NUMBERS FOR BOEING STANDARD BACT12AB TERMINAL LUGS

Boeing Standard	Part Number	Supplier
BACT12AB1	328965	AMP
	A-326-14R90	Molex
BACT12AB2	329696	AMP
	A-321-10R90	Molex



TYPICAL BACT12AM TERMINALS
Figure 16

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ASSEMBLY OF INSULATED AND UNINSULATED TERMINAL LUGS

Table 30
BACT12AM TERMINAL LUG PART NUMBERS

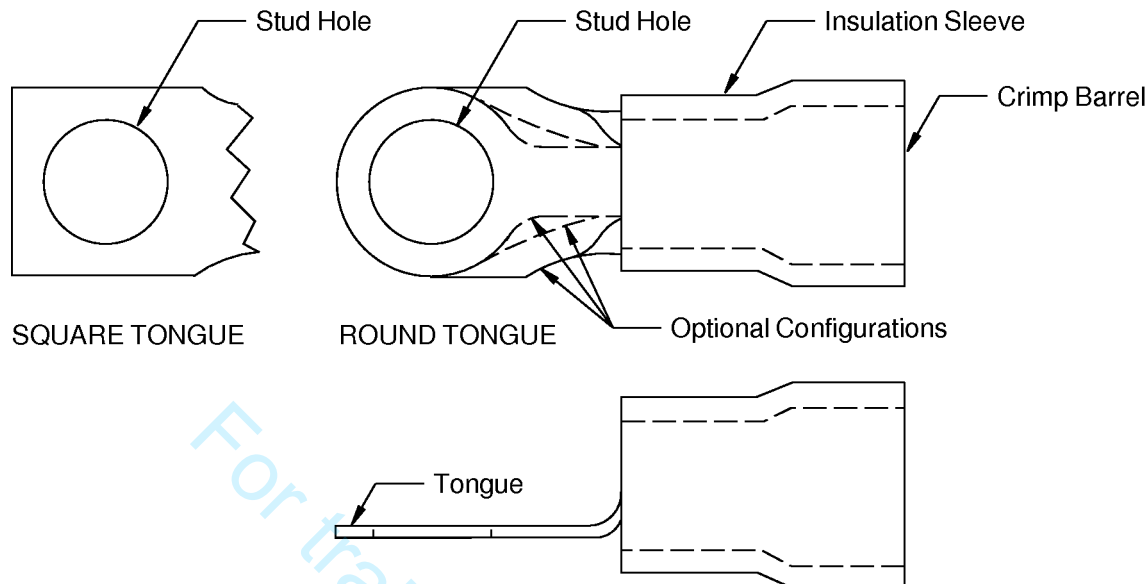
Crimp Barrel Size (Wire Size Range) (AWG)	CAU Range		Insulation Color	Material		Stud Hole Size	Boeing Standard
	Minimum	Maximum		Body	Plating		
22-20	8	24	Green	Cu	Ni	4	BACT12AM04-20
						6	BACT12AM06-20
						8	BACT12AM08-20
						10	BACT12AM3-20
						1/4	BACT12AM4-20
						5/16	BACT12AM5-20
						3/8	BACT12AM6-20
12-10	52	131	Black	Cu	Ni	5/16	BACT12AM5-10

Table 31
SUPPLIER PART NUMBERS FOR BOEING STANDARD BACT12AM TERMINAL LUGS

Boeing Standard	Part Number	Supplier
BACT12AM04-20	50831	AMP
BACT12AM06-20	50831-1	AMP
BACT12AM08-20	50832	AMP
BACT12AM3-20	50832-1	AMP
BACT12AM4-20	50833	AMP
BACT12AM5-10	50847	AMP
BACT12AM5-20	50833-1	AMP
BACT12AM6-20	50833-2	AMP

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TYPICAL BACT12S TERMINALS

Figure 17

Table 32
BACT12S TERMINAL LUG PART NUMBERS

Crimp Barrel Size (Wire Size Range) (AWG)	CAU Range		Material		Tongue Style	Stud Hole Size	Boeing Standard
	Minimum	Maximum	Body	Plating			
24-20	4	13	Cu	Tin	Round	4	BACT12S12
					Round	8	BACT12S13
					Round	6	BACT12S8
					Round	10	BACT12S9

Table 33
SUPPLIER PART NUMBERS FOR BOEING STANDARD BACT12S TERMINAL LUGS

Boeing Standard	Part Number	Supplier
BACT12S12	323985	AMP
BACT12S13	323989	AMP
BACT12S8	323986	AMP
BACT12S9	323990	AMP

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Table 34
ROLLS-ROYCE TERMINAL LUG PART NUMBERS

Crimp Barrel Size (Wire Size Range) (AWG)	CAU Range		Stud Hole Size	Part Number	Supplier
	Minimum	Maximum			
20-16	8	27	5	1909156	Rolls Royce
22-16	8	26	4	2509293	Rolls Royce

Table 35
ALTERNATIVE PART NUMBERS FOR ROLLS-ROYCE TERMINAL LUGS

Specified Terminal Lug		Alternative Terminal Lug	
Part Number	Supplier	Part Number	Supplier
1909156	Rolls-Royce	150456	AMP
2509293	Rolls-Royce	150471	AMP

Table 36
REPLACEMENT TERMINAL LUGS FOR ROLLS-ROYCE TERMINAL LUGS

Rolls-Royce Terminal Lug	Crimp Barrel Size (Wire Size Range) (AWG)	Replacement Terminal Lug
1909156	20	BACT12M5
	18	BACT12M5
	16	BACT12M8
2509293	22	BACT12M130
	20	BACT12M130
	18	BACT12M130
	16	BACT12M147

NOTE: Refer to Paragraph 1.H. for the BACT12M part numbers.

Table 37
THERMOCOUPLE TERMINAL LUG PART NUMBERS

Part Number	Crimp Barrel Size	Mark	Stud Hole Size	Material	Style	Supplier
1387-3	-	CR	-	Chromel	Ring	Thermo-Electric
1387-4	-	AL	-	Alumel	Ring	Thermo-Electric
1-321897-0	22-16	-	8	Chromel	Ring	AMP
1-321898-0	22-16	-	10	Alumel	Ring	AMP

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Table 38
OTHER TERMINAL LUG PART NUMBERS

Part Number	Crimp Barrel Size (Wire Size Range) (AWG)	CAU Range		Insulation Color		Stud Hole Size	Material		Style	Supplier
		Min	Max	Sleeve	Band		Body	Plating		
2-320561-3	16	19	26	Blue	Blue	6	Cu	Ni	Ring	AMP
2-320561-4	14	27	41	Blue	Green	6	Cu	Ni	Ring	AMP
2-321670-2	6	206	288	-	-	8	-	-	Ring	AMP
2-321672-1	2	524	735	-	-	8	-	-	Ring	AMP
2-323914-2	24	4	5	Yellow	Blue	4	Cu	Ni	Ring	AMP
2-323916-3	24	4	5	Yellow	Blue	8	Cu	Tin	Ring	AMP
2-326875-4	24	4	5	Yellow	Blue	6	Cu	Tin	Ring	AMP
2-326875-5	24	4	5	Yellow	Blue	10	Cu	Ni	Ring	AMP
2-36149-3	22	6	8	Red	Green	6	Cu	Tin	Ring	AMP
2-36149-4	20	8	12	Red	Red	6	Cu	Tin	Ring	AMP
2-36149-5	18	12	19	Red	White	6	Cu	Tin	Ring	AMP
320381	16-14	15	51	Blue	-	6	Cu	Tin	Hook	AMP
320634	12-10	43	138	Yellow	-	6	Cu	Tin	Ring	AMP
322215	1/0	1196	1505	-	-	1/4	Cu	Tin	Flag	AMP
322220	4/0	1666	2257	-	-	3/8	-	-	Ring	AMP
323067	12-10	43	138	-	-	8	Cu	Ni	Ring	AMP
324111	4	327	457	Yellow	-	10	Cu	Tin	Ring	AMP
324112	2	527	837	Red	-	5/16	Cu	Tin	Ring	AMP
324113	1/0	1196	1505	Blue	-	5/16	Cu	Tin	Ring	AMP
324158	22-18	7	24	Red	-	2	Cu	Tin	Ring	AMP
32456	22-18	7	24	Red	-	8	Cu	Tin	Hook	AMP
328655	2	524	735	Red	-	10	Cu	Tin	Ring	AMP
329636	24-20	4	12	-	-	2	Cu	Tin	Ring	AMP
329951	26-22	3	8	Yellow	-	2	Cu	Tin	Ring	AMP
50847	12-10	52	131	-	-	5/16	Cu	Ni	Ring	AMP
51927	12-10	43	138	-	-	5/16	-	-	Ring	AMP
52124	26-22	3	8	-	-	8	Cu	Tin	Ring	AMP
52274	16	19	26	Blue	Blue	4	Cu	Tin	Ring	AMP

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Table 38 (continued)

Part Number	Crimp Barrel Size (Wire Size Range) (AWG)	CAU Range		Insulation Color		Stud Hole Size	Material		Style	Supplier
		Min	Max	Sleeve	Band		Body	Plating		
52307	22	6	8	Red	Green	2	Cu	Tin	Ring	AMP
52409	22-18	7	24	Red	-	6	Ph-Br	Tin	Spade	AMP
52420	16-14	15	51	Blue	-	6	Ph-Br	Tin	Spade	AMP
53057-1	24	4	5	Yellow	Blue	10	Cu	Tin	Ring	AMP
53580-1	16	19	26	Blue	-	6	Cu	Ni	Ring	AMP
54746-1	6	206	288	Blue	Blue	10	Cu	Tin	Ring	AMP
69B40570-2	2/0	-	-	-	-	3/8	Cu	Tin	Ring	Boeing

Table 39

ALTERNATIVE TERMINAL LUGS

Specified Terminal Lug		Alternative Terminal Lug	
Part Number	Supplier	Part Number	Supplier
51927	AMP	BACT12AM5-10	Boeing
		50847	AMP

2. ASSEMBLY OF TERMINAL LUGS

A. Crimp Tool Power Pumps and Heads

Table 40

CRIMP TOOL POWER PUMPS

Power Pump	Maximum Pressure (psi)
13597	10,000
13600	10,000
69120-()	8400
Y6NP	6000

NOTE: Other power pumps than those shown in Table 40 can be used. A power pump must obey the minimum and maximum pressures shown in Table 41 for the specified crimp tool head.

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Table 41
SATISFACTORY PRESSURES FOR THE OPERATION OF CRIMP TOOL HEADS

Crimp Tool Head		Pressure (psi)	
Supplier	Part Number	Minimum	Maximum
AMP	58422-1	8000	8400
	69051	8000	8400
	69061	8000	8400
	69066	8000	8400
	69069	8000	8400
Boeing	ST970-12	8000	8400
Burndy	Y29B	5700	6000
	Y34A	5700	6000
	Y35BH	9500	10500
Daniels	BDHD1	8500	9000
	PPFC-1H	8500	9000
	TBHD1	8500	9000
Thomas & Betts	13642	9500	10000
	13642M	9500	10000
	TBM12	9500	10000

WARNING: IF THE PRESSURE OF THE POWER PUMP IS MORE THAN THE MAXIMUM PRESSURE PERMITTED FOR THE CRIMP TOOL HEAD, AN INJURY TO PERSONNEL CAN OCCUR.

CAUTION: IF THE PRESSURE OF THE POWER PUMP IS MORE THAN THE MAXIMUM PRESSURE PERMITTED FOR THE CRIMP TOOL HEAD, DAMAGE TO THE CRIMP TOOL HEAD CAN OCCUR.

CAUTION: IF THE PRESSURE OF THE POWER PUMP IS LESS THAN THE MINIMUM PRESSURE PERMITTED FOR THE CRIMP TOOL HEAD, THE CRIMP CONNECTION OF THE TERMINAL LUG AND THE WIRE IS NOT SATISFACTORY.

B. Crimp Tools with an Insulation Crimp Adjustment

The insulation crimp part of the hand crimp tool has three positions:

- 1 for a tight crimp
- 2 for a medium crimp
- 3 for a loose crimp.

It is necessary to test each combination of a tool, a terminal lug, and a wire to find the correct adjustment:

- (1) Set the adjustment to the loose position.
- (2) Put a terminal lug in the crimp jaw of the crimp tool.
- (3) Push the end of the wire into the insulation grip of the terminal lug until it stops.

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Make sure that:

- The insulation is not removed from the end of the wire
 - The end of the wire insulation is against the forward end of the insulation grip of the terminal lug
 - The wire insulation does not go into the crimp barrel of the terminal lug.
- (4) Crimp the terminal lug.
 - (5) Examine the insulation support.
 - (6) Bend the wire back and forward once to make sure that the wire does not come out of the terminal lug.
 - (7) If the wire comes out of the terminal lug:
 - (a) Set the insulation adjustment to the subsequent position that is more tight.
 - (b) Use a new terminal lug to do Step (2) through Step (6) again.

Make sure that:

- The insulation adjustment pins are in the same position
- The adjustment is not more tight than is sufficient.

C. Assembly of a Cable Shield in a Terminal Lug

Table 42

LOCATION OF THE CAU DATA FOR SHIELDS OF SHIELDED WIRES AND CABLES

Wire Type Code	Location of the Shield CAU Data
C1	Table 50
C2	Table 50
C3	Table 50
C4	Table 50
C9	Table 43
DU	Table 43
D2	Table 43
D3	Table 43
D4	Table 43
D6	Table 43
D7	Table 43
D9	Table 43
FF	Table 43
GE	Table 44
GF	Table 44
GG	Table 44
GH	Table 44
GP	Table 44

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Table 42 (continued)

Wire Type Code	Location of the Shield CAU Data
GQ	Table 44
GR	Table 44
GT	Table 46
GU	Table 44
GV	Table 44
GW	Table 43
G2	Table 43
G7	Table 44
HE	Table 45
HF	Table 45
HG	Table 45
HP	Table 45
HQ	Table 45
HR	Table 45
HS	Table 45
HW	Table 43
HX	Table 43
H1	Table 46
H2	Table 46
H3	Table 46
H5	Table 43
H9	Table 45
M2	Table 43
M3	Table 43
M3	Table 43
OA	Table 49
OC	Table 49
QS	Table 44
QT	Table 44
QU	Table 44
QV	Table 44
QW	Table 44
QX	Table 44

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Table 42 (continued)

Wire Type Code	Location of the Shield CAU Data
RQ	Table 43
TA	Table 43
TK	Table 43
T2	Table 43
U4	Table 47
VF	Table 47
VG	Table 47
VH	Table 47
XQ	Table 47
Y6	Table 51
Y7	Table 51
Y8	Table 51
2Z	Table 43
4J	Table 43
46	Table 43
5T	Table 43
7J	Table 48
8Q	Table 47
8C	Table 48
8D	Table 48
8E	Table 48
8K	Table 48
9L	Table 43

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Table 43
CAU OF THE SHIELD FOR SHIELDED WIRES

Shielded Wire						CAU	
Supplier	Specification	Type	Class	AWG	Wire Type Code	Inner Shield	Outer Shield
Boeing	10-60816-61	-	1	18	TK	24	32
	65B47866-5	-	2	20	RQ	21	23
	BMS 13-31	VII	2	18	FF	-	28
				20	FF	-	24
	BMS 13-48	32	2	24	46	-	10
	BMS 13-55	IV	1	16	9L	-	16
		III	2	20	C9	-	26
	BMS 13-60	25	1	20	HW	10	13
			2	20	HX	13	18
		27	2	20	M2	13	18
				22	M2	11	15
		3		20	M3	12	16
				18	M3	18	23
		15	2	24	G2	-	6
		13	4	20	GW	-	14
			1	20	H5	-	10
Judd	C42016310902	-	1	18	T2	-	13
	JW647-99	-	2	20	D9	13	17
Raychem	CTC-0039-20-06090	-	2	20	DU	-	16
	CTC-0039-22-06090	-	2	22	DU	-	15
	55A6160-20-06090	-	2	20	2Z	13	23
	55A6087-20-06090	-	1	20	4J	10	15
	55PC6021-20-06090	-	2	20	D6	16	18
	55PC6022-20-06090	-	3	20	D7	16	18
	CTC-0062-20-9/5-9	-	2	20	TA	-	12
Tensolite	20721/20087Q-2	-	2	20	5T	15	18
Thermax	550-292	-	2	20	D2	28	36
	551-292	-	3	20	D3	32	42
	552-292	-	2	18	D4	28	42

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Table 44
CAU OF THE SHIELD FOR BMS 13-60 TYPES 2 AND 5, WIRE TYPE CODES G7, GE, GF, GG, GH, GP, GQ, GR, GU, GV, QS, QT, QU, QV, QW AND QX

AWG	Class	CAU of the Shield
14	1	13
16	1	10
	2	15
	3	21
18	1	10
	2	15
	3	18
	4	21
20	1	10
	2	13
	3	15
	4	18
22	1	6
	2	11
	3	12

Table 45
CAU OF THE SHIELD FOR BMS 13-60 TYPES 8 AND 11, WIRE TYPE CODES H9, HE, HF, HG, HP, HQ, HR AND HS

AWG	Class	CAU of the Shield
12	1	14
	2	28
	3	31
14	1	13
	2	25
	3	27
16	1	10
	2	22
	3	24
18	1	10
	2	20
	3	22
	4	27

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Table 45 (continued)

AWG	Class	CAU of the Shield
20	1	9
	2	18
	3	19
	4	26
22	2	18
	3	20

Table 46
CAU OF THE SHIELD FOR BMS 13-60 TYPE 13, WIRE TYPE CODES GT, H1, H2 AND H3

AWG	Class	CAU of the Shield
18	1	8
	3	16
20	1	7
	2	12
	3	14
22	1	6
	3	12

Table 47
CAU OF THE SHIELD FOR BMS 13-48 TYPE 12, WIRE TYPE CODES U4, VF, VG, VH, XQ AND 8Q

AWG	Class	CAU of the Shield
10	1	21
12	1	17
	2	26
	3	31
14	1	14
	3	20
16	1	12
	2	18
	3	20
18	1	10
	2	17
	3	19
	4	23

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Table 47 (continued)

AWG	Class	CAU of the Shield
20	1	9
	2	14
	3	17
	4	19
22	1	8
	2	12
	3	14

Table 48
CAU OF THE SHIELD FOR BMS 13-48 TYPE 24, WIRE TYPE CODES 7J, 8C, 8D, 8E AND 8K

CAU	Class	CAU of the Shield
16	2	19
	3	23
18	1	12
	2	18
	3	21
	4	23
20	1	10
	2	15
	3	18
	4	21

Table 49
CAU OF THE SHIELD FOR BMS 13-48 TYPE 15, WIRE TYPE CODES OA AND OC

AWG	Class	CAU of the Shield
12	1	17
14	1	14
	3	28

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Table 50
CAU OF THE SHIELD FOR TLS-200-()-20NA, WIRE TYPE CODES C1, C2, C3 AND C4

AWG	Class	CAU	
		Inner Shield	Outer Shield
20	1	13	-
			18
	2	18	-
	4	26	-

Table 51
CAU OF THE SHIELD FOR BMS 13-48 TYPE 32, WIRE TYPE CODES Y6, Y7 AND Y8

AWG	Class	CAU of the Shield
16	1	12
	2	18
	3	20
18	1	10
	2	17
	3	19
20	1	9
	2	14
	3	17
22	1	8
	2	12
	3	14

Table 52
CAU OF THE DIFFERENT BAC3108 SHIELDS

Shield Part Number	CAU of the Shield	An Applicable Terminal Crimp Barrel Size
BAC3108-1B	6	18-22
BAC3108-1D	12	18-22
BAC3108-1E	18	16-14
BAC3108-1G	24	16-14
BAC3108-1	30	16-14
BAC3108-2C	42	16-14
BAC3108-2B	60	12-10

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Table 52 (continued)

Shield Part Number	CAU of the Shield	An Applicable Terminal Crimp Barrel Size
BAC3108-2E	76	12-10
BAC3108-2F	77	12-10
BAC3108-2	96	12-10
BAC3108-3	96	12-10
BAC3108-3D	96	12-10
BAC3108-4	132	8

- (1) Make shield ground wire from the end of the shield of the cable or shielded wire.
Refer to Subject 20-10-15 for the assembly of a shield ground wire with a shield pull-through.
- (2) Find the CAU of the shield.
Refer to:
 - Table 42 for the table that has the CAU data for the shielded wire or cable
 - Table 52 for the CAU data for the different BAC3108 shields.
- (3) Make a selection of a terminal lug.
Use the CAU of the shield and the stud hole size to make the selection.
- (4) Assemble the terminal lug. Refer to the paragraph applicable to the assembly of the terminal lug.

D. Assembly of BACT12AC Terminal Lugs

Refer to Paragraph 1.B. for the description of the BACT12AC terminal lugs.

Table 53
CRIMP TOOLS FOR SMALL BACT12AC TERMINAL LUGS

Crimp Barrel Size	Insulation Color	Crimp Tool				Special Instructions
		Basic Unit	Holder	Head	Die	
26-24	Yellow	59275	-	-	-	-

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF INSULATED AND UNINSULATED TERMINAL LUGS

Table 53 (continued)

Crimp Barrel Size	Insulation Color	Crimp Tool				Special Instructions
		Basic Unit	Holder	Head	Die	
22-18	Red	189721-1	356303-1	-	314270-1	For one AWG 24 wire, fold back the conductor
		314423-()	-	-	314270-1	
		314423-()	-	-	314270-2	
		314597-()	-	-	314270-1	
		314597-()	-	-	314270-2	
		46110	-	-	-	
		4B2-457540-6	-	687658-1	69872	
		59250	-	-	-	
		68075	-	-	69872	
		69004	-	-	47451	
		69005	-	47516	-	
		69118-()	-	-	45185-7	
		69365-()	-	-	47806-2	
		69875	-	-	69872	
16-14	Blue	189721-1	356303-1	-	314269-1	-
		314423-()	-	-	314269-1	
		314423-()	-	-	314269-2	
		314597-()	-	-	314269-1	
		314597-()	-	-	314269-2	
		46110	-	-	-	
		565435-5	-	567200-2	69872	
		565435-5	-	567200-2	69873	
		59250	-	-	-	
		68075	-	-	69873	
		69004	-	-	47852	
		69005	-	47517	-	
		69118-()	-	-	45225-2	
		69118-()	-	-	45225-5	
		69365-()	-	-	47807-1	

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF INSULATED AND UNINSULATED TERMINAL LUGS

Table 53 (continued)

Crimp Barrel Size	Insulation Color	Crimp Tool				Special Instructions
		Basic Unit	Holder	Head	Die	
12-10	Yellow	189721-1	356302-1	-	679300-1	-
		314590-()	-	-	314268-1	
		314590-()	-	-	314268-2	
		314590-2	-	-	314268-1	
		314590-2	-	-	314268-2	
		314700-()	-	-	314268-1	
		314700-()	-	-	314268-2	
		565435-5	-	567200-2	69874	
		59239-()	-	-	-	
		68075	-	-	69874 Model C	
		69004	-	-	47453	
		69010	-	47518-1	-	
		69365	-	-	47808	
		69365-()	-	-	47808-6	
		69875	-	-	69874 Model C	

Table 54

CRIMP TOOLS FOR LARGE BACT12AC TERMINAL LUGS

Crimp Barrel Size	Insulation Color	Crimp Tool			
		Basic Unit	Holder	Head	Die Set
8	Red	189721-1	356443-1	-	904395-1
		69010	-	68285-1	-
		59974-1	-	-	47820
		Power Pump	-	69051	47820
			-	69061	47820
			-	ST970-12	47820
6	Blue	59974-1	-	-	47821
		Power Pump	-	69051	47821
			-	69061	47821
			-	ST970-12	47821

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Table 54 (continued)

Crimp Barrel Size	Insulation Color	Crimp Tool			
		Basic Unit	Holder	Head	Die Set
4	Yellow	59974-1	-	-	47822
		Power Pump	-	69051	47822
			-	69061	47822
			-	ST970-12	47822
2	Red	59974-1	-	-	47823
		Power Pump	-	69051	47823
			-	69061	47823
			-	ST970-12	47823
1/0	Blue	Power Pump	-	58422-1	47824
			-	69066	47824
			-	PPFC-1H	47824
2/0	Yellow	Power Pump	-	58422-1	47825
			-	69066	47825
			-	PPFC-1H	47825
4/0	Blue	Power Pump	-	58422-1	47918
			-	69066	47918

NOTE: Refer to Table 40 for the part numbers of the recommended Power Pumps.

NOTE: Refer to Subject 20-30-22 for the assembly of a terminal lug with a conductor that is smaller than the crimp barrel size of the terminal lug.

- (1) Make a selection of a terminal lug from Table 3.

NOTE: For the selection of the terminal, use:

- The crimp barrel size, if one wire is to be terminated
- The CAU range, if more than one wire is to be terminated.

NOTE: Refer to Subject 20-30-22 if more than one wire is to be terminated.

- (2) Make a selection of a crimp tool from Table 53 or Table 54.
- (3) If the crimp tool basic unit is a power pump, adjust the pressure to make it satisfactory for the crimp tool head. Refer to Table 41.

WARNING: IF THE PRESSURE OF THE POWER PUMP IS MORE THAN THE MAXIMUM PRESSURE PERMITTED FOR THE CRIMP TOOL HEAD, AN INJURY TO PERSONNEL CAN OCCUR.

CAUTION: IF THE PRESSURE OF THE POWER PUMP IS MORE THAN THE MAXIMUM PRESSURE PERMITTED FOR THE CRIMP TOOL HEAD, DAMAGE TO THE CRIMP TOOL HEAD CAN OCCUR.

- (4) Remove the necessary length of the insulation from the end of the wire.

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STANDARD WIRING PRACTICES MANUAL**ASSEMBLY OF INSULATED AND UNINSULATED TERMINAL LUGS**

Refer to Subject 20-00-15 for the insulation removal procedures.

To attach one AWG 24 wire to a terminal lug with a 22-18 size crimp barrel, remove twice the length of insulation and fold back the conductor.

Make sure that:

- When the wire is in the terminal lug, and the end of the wire insulation is in the insulation grip of the terminal lug, the end of the conductor extends farther than the end of the crimp barrel
- The clearance from the end of the conductor is sufficient for the installation of the washer and the nut
- The conductor does not have nicked or cut strands
- If the insulation is removed by the application of heat, the conductor has not moved from the center of the wire
- If the insulation is removed by the application of heat, the remaining insulation does not have blisters or evidence of overheating
- The remaining insulation is not frayed.

- (5) Put the conductor of the wire in the crimp barrel of the terminal lug.

Make sure that:

- All of the strands of the conductor are in the crimp barrel
- The end of the conductor extends farther than the end of the crimp barrel
- If the terminal lug has an insulation grip, the end of the wire insulation is in the insulation grip of the terminal lug
- If the terminal lug does not have an insulation grip, the maximum distance from the end of the wire insulation of a single wire to the end of the crimp barrel is 0.12 inch for AWG 10 and smaller, and 0.25 inch for AWG 8 and larger
- The clearance from the end of the conductor is sufficient for the installation of the washer and the nut.

- (6) Crimp the terminal lug.

Make sure that:

- All of the strands of the conductor are in the crimp barrel
- The end of the conductor extends farther than the end of the crimp barrel
- If the terminal lug has an insulation grip, the end of the wire insulation is in the insulation grip of the terminal lug
- If the terminal lug has an insulation grip, the crimp tool is adjusted to give the correct insulation support. Refer to Paragraph 2.B.
- If the terminal lug does not have an insulation grip, the maximum distance from the end of the wire insulation of a single wire to the end of the crimp barrel is 0.12 inch for AWG 10 and smaller, and 0.25 inch for AWG 8 and larger
- The clearance from the end of the conductor is sufficient for the installation of the washer and the nut.

E. Assembly of BACT12AL Terminal Lugs

Refer to Paragraph 1.C. for the description of the BACT12AL terminal lugs.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF INSULATED AND UNINSULATED TERMINAL LUGS

Table 55
CRIMP TOOLS FOR BACT12AL TERMINAL LUGS

Crimp Barrel Size	Insulation Color	Crimp Tool		
		Basic Unit	Head	Die Set
8	Red	59974-1	-	47820
		69010	68285-1	-
		Power Pump	69051	47820
			69061	47820
			ST970-12	47820
6	Blue	59974-1	-	47821
		Power Pump	69051	47821
			69061	47821
			ST970-12	47821
4	Yellow	59974-1	-	47822
		Power Pump	69051	47822
			69061	47822
			ST970-12	47822

NOTE: Refer to Table 40 for the part numbers of the recommended Power Pumps.

NOTE: Refer to Subject 20-30-22 for the assembly of a terminal lug with a conductor that is smaller than the crimp barrel size of the terminal lug.

- (1) Make a selection of a terminal lug from Table 5.

NOTE: For the selection of the terminal, use:

- The crimp barrel size, if one wire is to be terminated
- The CAU range, if more than one wire is to be terminated.

NOTE: Refer to Subject 20-30-22 if more than one wire is to be terminated.

- (2) Make a selection of a crimp tool from Table 79.
- (3) Remove the necessary length of the insulation from the end of the wire.
Refer to Subject 20-00-15 for the insulation removal procedures.

STANDARD WIRING PRACTICES MANUAL**ASSEMBLY OF INSULATED AND UNINSULATED TERMINAL LUGS**

Make sure that:

- When the wire is in the terminal lug, the end of the conductor extends farther than the end of the crimp barrel
 - The clearance from the end of the conductor is sufficient for the installation of the washer and the nut
 - The maximum distance from the end of the wire insulation of a single wire to the end of the crimp barrel is 0.12 inch for AWG 10 and smaller, and 0.25 inch for AWG 8 and larger
 - The conductor does not have nicked or cut strands
 - If the insulation is removed by the application of heat, the conductor has not moved from the center of the wire
 - If the insulation is removed by the application of heat, the remaining insulation does not have blisters or evidence of overheating
 - The remaining insulation is not frayed.
- (4) If the crimp tool basic unit is a power pump, adjust the pressure to make it satisfactory for the crimp tool head. Refer to Table 41.

WARNING: IF THE PRESSURE OF THE POWER PUMP IS MORE THAN THE MAXIMUM PRESSURE PERMITTED FOR THE CRIMP TOOL HEAD, AN INJURY TO PERSONNEL CAN OCCUR.

CAUTION: IF THE PRESSURE OF THE POWER PUMP IS MORE THAN THE MAXIMUM PRESSURE PERMITTED FOR THE CRIMP TOOL HEAD, DAMAGE TO THE CRIMP TOOL HEAD CAN OCCUR.

- (5) Put the conductor of the wire in the crimp barrel of the terminal lug.

Make sure that:

- All of the strands of the conductor are in the crimp barrel
 - The end of the conductor extends farther than the end of the crimp barrel
 - The maximum distance from the end of the wire insulation of a single wire to the end of the crimp barrel is 0.12 inch for AWG 10 and smaller, and 0.25 inch for AWG 8 and larger
 - The clearance from the end of the conductor is sufficient for the installation of the washer and the nut.
- (6) Crimp the terminal lug.

Make sure that:

- All of the strands of the conductor are in the crimp barrel
- The end of the conductor extends farther than the end of the crimp barrel
- The maximum distance from the end of the wire insulation of a single wire to the end of the crimp barrel is 0.12 inch for AWG 10 and smaller, and 0.25 inch for AWG 8 and larger
- The clearance from the end of the conductor is sufficient for the installation of the washer and the nut.

F. Assembly of BACT12AR and Other Restrictive Entry Terminal Lugs

Refer to Paragraph 1.D. for the description of the BACT12AR terminal lugs.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF INSULATED AND UNINSULATED TERMINAL LUGS

Table 56
CRIMP TOOLS FOR BACT12AR TERMINAL LUGS

Wire Size	Terminal Lug			Crimp Tool			
	Crimp Barrel Size	Sleeve Color	Band Color	Basic Unit	Holder	Head	Die
26	24	Yellow	Blue	59275	-	-	-
24	24	Yellow	Blue	47907	-	-	-
				565435-5	-	567200-2	69878
				59275	-	-	-
				68075	-	-	69878
				69692-1	-	-	-
				69875	-	-	69878
22	22	Red	Green	189721-1	356303-1	-	314270-1
				314423-()	-	-	314270-1
							314270-2
				314597-()	-	-	314270-1
							314270-2
				46110	-	-	-
				4B2-457540-6	-	687658-1	69872
				59250	-	-	-
				68075	-	-	69872
				69004	-	-	47451
				69005	-	47516	-
				69118-()	-	-	45185-7
				69365-()	-	-	47806-2
				69875	-	-	69872

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Table 56 (continued)

Wire Size	Terminal Lug			Crimp Tool			
	Crimp Barrel Size	Sleeve Color	Band Color	Basic Unit	Holder	Head	Die
20	20	Red	Red	189721-1	356303-1	-	314270-1
				314423-()	-	-	314270-1
							314270-2
				314597-()	-	-	314270-1
							314270-2
				46110	-	-	-
				4B2-457540-6	-	687658-1	69872
				565435-5	-	567200-2	69872
				59250	-	-	-
				68075	-	-	69872
				69004	-	-	47451
				69005	-	47516	-
				69118-()	-	-	45185-7
				69365-()	-	-	47806-2
				69692-1	-	-	-
				69875	-	-	69872

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ASSEMBLY OF INSULATED AND UNINSULATED TERMINAL LUGS

Table 56 (continued)

Wire Size	Terminal Lug			Crimp Tool			
	Crimp Barrel Size	Sleeve Color	Band Color	Basic Unit	Holder	Head	Die
18	18	Red	White	189721-1	356303-1	-	314270-1
				314423-()	-	-	314270-1
							314270-2
				314597-()	-	-	314270-1
							314270-2
				46110	-	-	-
				4B2-457540-6	-	687658-1	69872
				565435-5	-	567200-2	69872
				59250	-	-	-
				68075	-	-	69872
				69004	-	-	47451
				69005	-	47516	-
				69118-()	-	-	45185-7
				69319-1	-	-	47806-2
16	16	Blue	Blue	189721-1	356303-1	-	314269-1
				314423-()	-	-	314269-1
							314269-2
				314597-()	-	-	314269-1
							314269-2
				46110	-	-	-
				59250	-	-	-
				68075	-	-	69873
				69004	-	-	47852
				69005	-	47517	-
				69118-()	-	-	45225-2
							45225-5
				69365-()	-	-	47807-1
				69875	-	-	69873

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Table 56 (continued)

Wire Size	Terminal Lug			Crimp Tool			
	Crimp Barrel Size	Sleeve Color	Band Color	Basic Unit	Holder	Head	Die
14	14	Blue	Green	189721-1	356303-1	-	314269-1
				314423-()	-	-	314269-1
							314269-2
				314597-()	-	-	314269-1
							314269-2
				46110	-	-	-
				4B2-457540-6	-	687658-1	69872
				565435-5	-	567200-2	69872
				59250	-	-	-
				68075	-	-	69873
				69004	-	-	47852
				69005	-	47517	-
				69118-()	-	-	45225-2
							45225-5
				69365-()	-	-	47807-1
				69693-1	-	-	-
				69875	-	-	69873
12	12	Yellow	Yellow	189721-1	356302-1	-	679300-1
				314590-()	-	-	314268-1
							314268-2
				314700-()	-	-	314268-1
							314268-2
				59239-()	-	-	-
				68075	-	-	69874 Model C
				69004	-	-	47453
				69010	-	47518-1	-
				69365	-	-	47808
				69365-()	-	-	47808-6
				69875	-	-	69874 Model C

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Table 56 (continued)

Wire Size	Terminal Lug			Crimp Tool			
	Crimp Barrel Size	Sleeve Color	Band Color	Basic Unit	Holder	Head	Die
10	10	Yellow	Brown	189721-1	356302-1	-	679300-1
				314590-()	-	-	314268-1
							314268-2
				314700-()	-	-	314268-1
							314268-2
				565435-5	-	567200-2	69874
				59239-()	-	-	-
				68075	-	-	69874 Model C
				69004	-	-	47453
				69010	-	47518-1	-
				69365	-	-	47808
				69365-()	-	-	47807-1
							47808-6
				69875	-	-	69874 Model C

NOTE: Refer to Subject 20-30-22 for the assembly of a terminal lug with a conductor that is smaller than the crimp barrel size of the terminal lug.

- (1) Make a selection of a terminal lug from Table 7.

Make sure that the crimp barrel size of the terminal lug is the same as the wire size.

NOTE: BACT12AR terminal lugs are intended to be terminated to only one wire. If more than one wire is to be terminated, refer to Subject 20-30-22.

- (2) Remove the necessary length of the insulation from the end of the wire.

Refer to Subject 20-00-15 for the insulation removal procedures.

STANDARD WIRING PRACTICES MANUAL**ASSEMBLY OF INSULATED AND UNINSULATED TERMINAL LUGS**

Make sure that:

- When the wire is in the terminal lug, and the end of the wire insulation is in the insulation grip of the terminal lug, the end of the conductor extends farther than the end of the crimp barrel
 - The clearance from the end of the conductor is sufficient for the installation of the washer and the nut
 - The conductor does not have nicked or cut strands
 - If the insulation is removed by the application of heat, the conductor has not moved from the center of the wire
 - If the insulation is removed by the application of heat, the remaining insulation does not have blisters or evidence of overheating
 - The remaining insulation is not frayed.
- (3) If a BACT12AR terminal lug for AWG 12 wire and smaller is not available, and a heat gun can be used:
- (a) Make a selection of a BACT12AC terminal lug from Table 3.
 - (b) Put a 0.5 inch to 0.75 inch length of heat shrinkable sleeve on the wire.
- Make sure that:
- The sleeve has the smallest diameter that will let the sleeve move easily on the wire
 - The end of the sleeve is aligned with the end of the wire insulation.
- (c) Shrink the sleeve into its position.
- (4) If a BACT12AR terminal lug for AWG 12 wire and smaller is not available, and a heat gun cannot be used:
- (a) Make a selection of a BACT12AC terminal lug from Table 3.
 - (b) Make a selection of a Grade D TFE tape. Refer to Subject 20-00-11.
 - (c) Wind a sufficient number of layers of tape around the end of the wire insulation.
- Make sure that:
- The end of the tape layers is aligned with the end of the wire insulation
 - The outer diameter of the layers of tape and the inside diameter of the insulation grip of the terminal make a fit.
 - The tape layers make a 50 percent minimum overlap
 - The length of the tape layers on the wire insulation is approximately 1.0 inch.
- (d) Assemble a wire harness tie near each end of the tape layers to hold the layers in their position.
- (5) Make a selection of a crimp tool from:
- Table 56 for a BACT12AR terminal lug
 - Table 53 for a BACT12AC terminal lug.
- (6) Put the conductor of the wire in the crimp barrel of the terminal lug.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF INSULATED AND UNINSULATED TERMINAL LUGS

Make sure that:

- All of the strands of the conductor are in the crimp barrel
- The end of the conductor extends farther than the end of the crimp barrel
- The end of the wire insulation is in the insulation grip of the terminal lug
- If a sleeve or tape is on the wire, the end the sleeve or tape is in the insulation grip of the terminal lug
- If a sleeve or tape is on the wire, the sleeve or tape does not go into the crimp barrel of the terminal lug
- The clearance from the end of the conductor is sufficient for the installation of the washer and the nut.

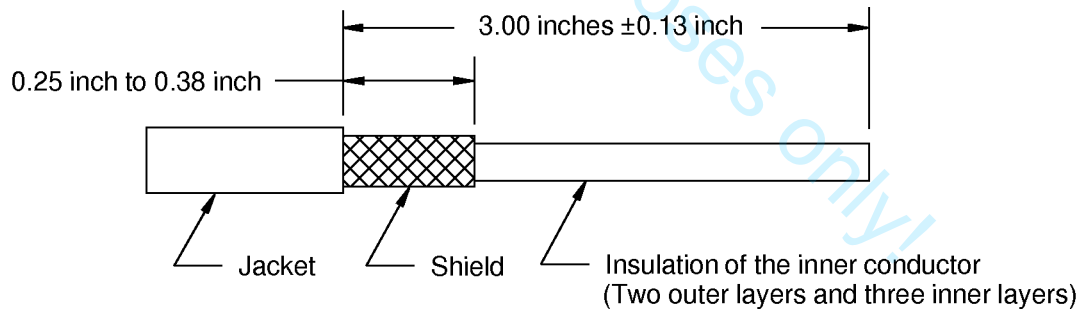
(7) Crimp the terminal lug.

Make sure that:

- All of the strands of the conductor are in the crimp barrel
- The end of the conductor extends farther than the end of the crimp barrel
- The end of the wire insulation is in the insulation grip of the terminal lug
- The crimp tool is adjusted to give the correct insulation support. Refer to Paragraph 2.B.
- If a sleeve or tape is on the wire, the end the sleeve or tape is in the insulation grip of the terminal lug
- If a sleeve or tape is on the wire, the sleeve or tape does not go into the crimp barrel of the terminal lug
- The clearance from the end of the conductor is sufficient for the installation of the washer and the nut.

G. Preparation of Cable Type 9U (BMS 13-67 Type 2, Class 1) for Terminals 32189(), 323749 and 323750

Refer to Figure 18:



CABLE PREPARATION

Figure 18

- (1) Remove 3.00 inches \pm 0.13 inch of the jacket from the end of the wire.
- (2) Remove the necessary length of the shield to make the distance from the end of the shield to the end of the jacket 0.25 inch to 0.38 inch.
- (3) Assemble a shield dead end.

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ASSEMBLY OF INSULATED AND UNINSULATED TERMINAL LUGS

Refer to:

- Subject 20-10-15.
- Figure 19.

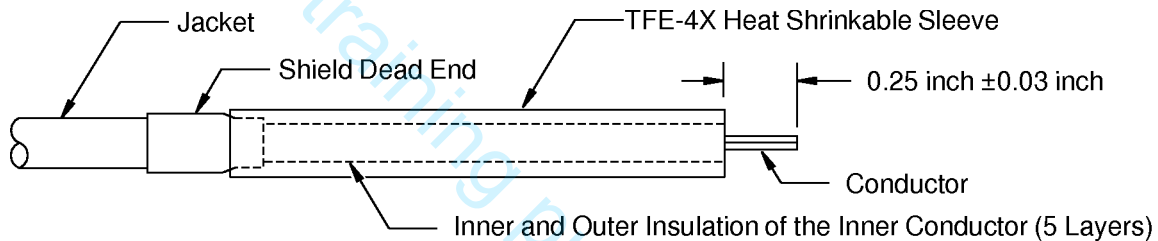
- (4) Remove 0.25 inch \pm 0.03 inch of the inner insulation layer from the end of the inner conductor.
- (5) Make a selection of a 0.25 inch diameter TFE-4X heat shrinkable sleeve from Subject 20-00-11.
- (6) Put a length of the TFE-4X heat shrinkable sleeve on the inner conductor.
- (7) Shrink the sleeve into its position.

Refer to:

- Subject 20-10-14.
- Figure 19.

Make sure that:

- The forward end of the sleeve is aligned with the end of the inner layer of insulation
- The rearward end of the sleeve makes an overlap with the shield dead end.

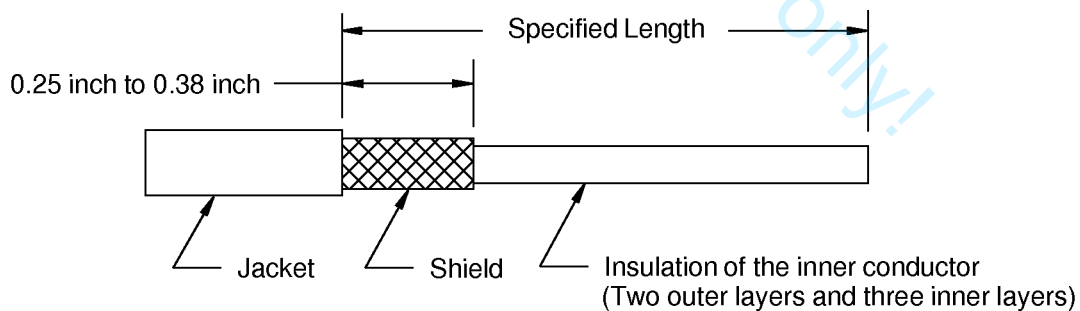


POSITION OF THE SLEEVES ON THE WIRE

Figure 19

H. Preparation of Cable Type 9U (BMS 13-67 Type 2, Class 1) for Terminals 32189(), 323749 and 323750 with a Shield Ground Wire

Refer to Figure 20:



CABLE PREPARATION

Figure 20

- (1) Remove the specified length of the jacket from the end of the wire.
If the length is not specified, remove 1.00 inch \pm 0.03 inch of the jacket from the end of the wire.
- (2) Remove the necessary length of the shield to make the distance from the end of the shield to the end of the jacket 0.25 inch to 0.35 inch.

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- (3) Assemble a shield ground wire shield termination with mechanical ferrules.

Refer to:

- Subject 20-10-15.
- Figure 21.

- (4) Remove 0.25 inch \pm 0.03 inch of the three inner insulation layers from the end of the inner conductor.

- (5) Make a selection of a 0.25 inch diameter TFE-4X heat shrinkable sleeve from Subject 20-00-11.

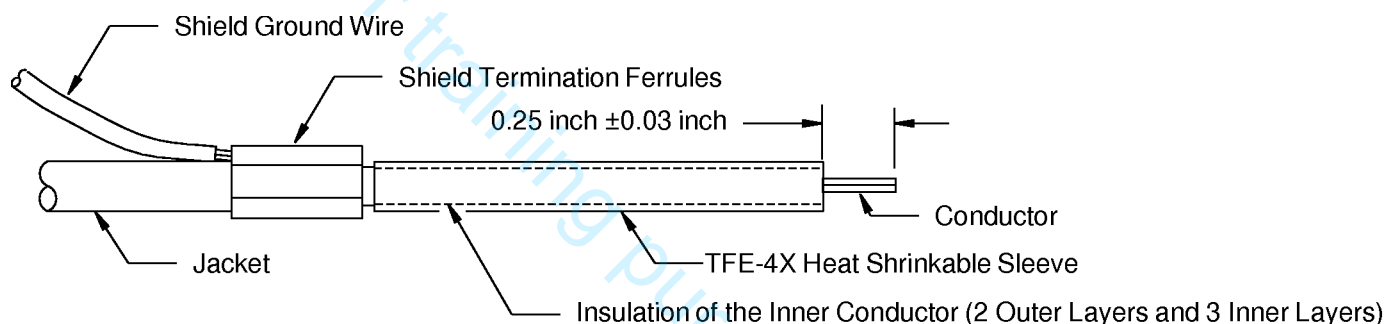
- (6) Put a length of the TFE-4X heat shrinkable sleeve on the inner conductor.

- (7) Shrink the sleeve into its position.

Refer to:

- Subject 20-10-14.
- Figure 21.

Make sure that the end of the sleeve is aligned with the end of the inner layer of insulation.



POSITION OF THE SHIELD TERMINATION FERRULES AND THE HEAT SHRINKABLE SLEEVE

Figure 21

I. Assembly of BACT12AV and AMP Solid Nickel Terminal Lugs

Refer to Paragraph 1.E. and to Paragraph 1.I. and for the description of the BACT12AV and AMP solid nickel, high temperature terminal lugs.

Table 57

CRIMP TOOLS FOR BACT12AV AND AMP SOLID NICKEL TERMINAL LUGS

Crimp Barrel Size	Wire Size	Crimp Tool			
		Basic Unit	Holder	Head	Die
22-18	22-18	189721-1	356302-1	356744-1	-
		314590-()	-	-	314542-1
		314590-()	-	-	314542-2
		314700-()	-	-	314542-1
		314700-()	-	-	314542-2
		46673	-	-	-
		69010	-	45175	-
	18	W400-5060	-	-	22-18 AWG

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ASSEMBLY OF INSULATED AND UNINSULATED TERMINAL LUGS

Table 57 (continued)

Crimp Barrel Size	Wire Size	Crimp Tool			
		Basic Unit	Holder	Head	Die
16-14	16-14	189721-1	356302-1	356744-2	-
		314590-()	-	-	314543-1
		314590-()	-	-	314543-2
		314700-()	-	-	314543-1
		314700-()	-	-	314543-2
		46988	-	-	-
		59294-()	-	-	-
		69010	-	45176	-
12-10	12-10	314937-1	-	-	314915-1
		59461	-	-	-
		PHRPU2	-	PHST-59461	-

NOTE: Refer to Subject 20-30-22 for the assembly of a terminal lug with a conductor that is smaller than the crimp barrel size of the terminal lug.

- (1) Make a selection of a terminal lug from Table 20.

NOTE: A BACT12AV or an AMP solid nickel terminal lug is a satisfactory alternative to a BACT12M terminal lug.

NOTE: For the selection of the terminal, use:

- The crimp barrel size, if one wire is to be terminated
- The CAU range, if more than one wire is to be terminated.

NOTE: Refer to Subject 20-30-22 if more than one wire is to be terminated.

- (2) Make a selection of a crimp tool from Table 57.
- (3) If the tool has an insulation crimp adjustment, set the position of the adjustment. Refer to Paragraph 2.B.

Make sure to set the adjustment at position 2 for these wires:

- Champlain 24-00034 wire
- Champlain 24-00523 wire
- Filotex 85842 wire.

- (4) Remove the necessary length of the insulation from the end of the wire.

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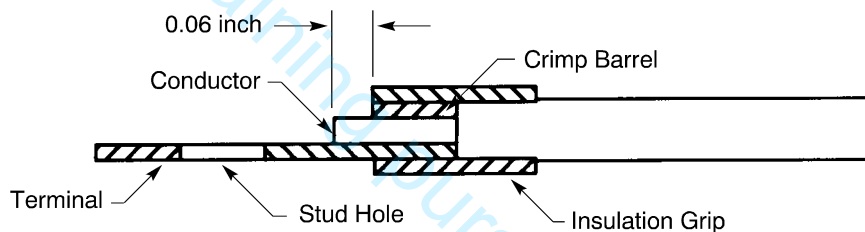
ASSEMBLY OF INSULATED AND UNINSULATED TERMINAL LUGS

Refer to:

- Figure 22
- Subject 20-00-15 for the insulation removal procedures

Make sure that:

- When the wire is in the terminal lug, the end of the conductor extends 0.06 ± 0.03 inch farther than the end of the crimp barrel
- The clearance from the end of the conductor is sufficient for the installation of the washer and the nut
- The maximum distance from the end of the wire insulation of a single wire to the end of the crimp barrel is 0.12 inch for AWG 10 and smaller, and 0.25 inch for AWG 8 and larger
- The conductor does not have nicked or cut strands
- If the insulation is removed by the application of heat, the conductor has not moved from the center of the wire
- If the insulation is removed by the application of heat, the remaining insulation does not have blisters or evidence of overheating
- The remaining insulation is not frayed.



INSULATION REMOVAL LENGTH

Figure 22

- (5) For a terminal lug in a high temperature area or in a high vibration area, if a heat gun can be used, put a 1.00 inch ± 0.06 inch length of TFE 2X heat shrinkable sleeve on the wire.

Make sure that the sleeve has the smallest diameter that will let the sleeve move easily on the wire and on the crimp barrel of the terminal.

- (6) Put the conductor of the wire in the crimp barrel of the terminal lug. Refer to Figure 22.

Make sure that:

- All of the strands of the conductor are in the crimp barrel
- The end of the conductor extends 0.06 ± 0.03 inch farther than the end of the crimp barrel
- If the terminal lug has an insulation grip, the end of the wire insulation is in the insulation grip of the terminal lug
- If the terminal lug does not have an insulation grip, the maximum distance from the end of the wire insulation of a single wire to the end of the crimp barrel is 0.12 inch for AWG 10 and smaller, and 0.25 inch for AWG 8 and larger
- If a sleeve is on the wire, the sleeve does not go into the crimp barrel of the terminal lug
- The clearance from the end of the conductor is sufficient for the installation of the washer and the nut.

- (7) Crimp the terminal lug.

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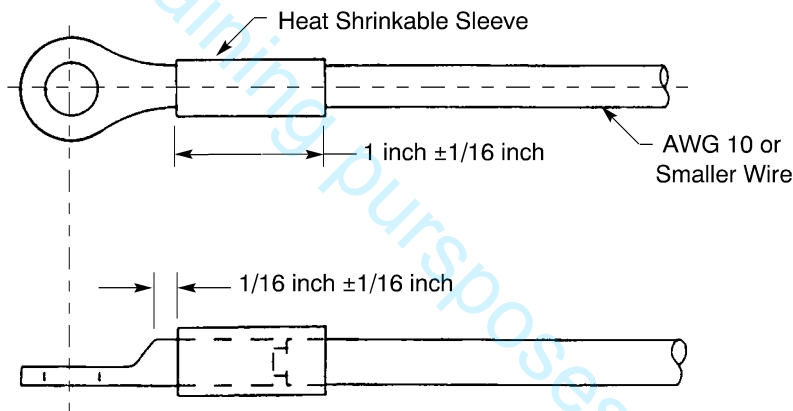
ASSEMBLY OF INSULATED AND UNINSULATED TERMINAL LUGS

Make sure that:

- All of the strands of the conductor are in the crimp barrel
- The end of the conductor extends 0.06 ± 0.03 inch farther than the end of the crimp barrel
- If the terminal lug has an insulation grip, the end of the wire insulation is in the insulation grip of the terminal lug
- If the terminal lug has an insulation grip, the crimp tool is adjusted to give the correct insulation support. Refer to Paragraph 2.B.
- If the terminal lug does not have an insulation grip, the maximum distance from the end of the wire insulation of a single wire to the end of the crimp barrel is 0.12 inch for AWG 10 and smaller, and 0.25 inch for AWG 8 and larger
- The clearance from the end of the conductor is sufficient for the installation of the washer and the nut.

(8) If a heat shrinkable sleeve is on the wire:

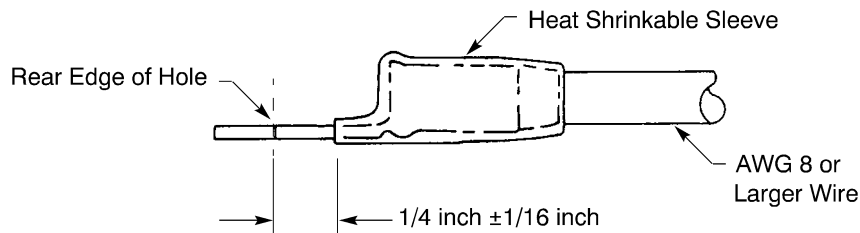
- (a) For terminal lugs on AWG 10 or smaller wire, push the sleeve over the terminal lug until the end of the sleeve is $1/16$ inch $\pm 1/16$ inch from the forward end of the crimp barrel. Refer to Figure 23.



POSITION OF THE SLEEVE FOR SIZE AWG 10 OR SMALLER WIRE

Figure 23

- (b) For terminal lugs on AWG 8 or larger wire, push the sleeve over the terminal lug until the end of the sleeve is $1/4$ inch $\pm 1/16$ inch from the rear edge of the stud hole. Refer to Figure 24.



POSITION OF THE SLEEVE FOR SIZE AWG 8 OR LARGER WIRE

Figure 24

- (c) Shrink the sleeve into its position.

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- (9) For a terminal lug in a high temperature area or in a high vibration area, if a heat gun cannot be used:
- Make a selection of a Grade D TFE tape. Refer to Subject 20-00-11.
 - Wind a sufficient number of layers of tape around the crimp barrel of the terminal and around the end of the wire insulation.
- Make sure that:
- The tape layers include the crimp barrel of the terminal
 - The tape layers make a 50 percent minimum overlap
 - The length of the tape layers on the wire insulation is approximately 1.0 inch.
- (c) Assemble a wire harness tie near each end of the tape layers to hold the layers in their position.

J. Assembly of BACT12E 90 Degree Upright Terminal Lugs

Refer to Paragraph 1.F. for the description of the BACT12E upright terminal lugs.

Table 58
CRIMP TOOLS FOR BACT12E UPRIGHT TERMINAL LUGS

Crimp Barrel Size	Crimp Tool				
	Basic Unit	Head	Die		
			Primary	Secondary	Cavity
22 - 18	46447	-	-	-	-
	49935	-	-	-	-
16 - 14	49935	-	-	-	-
	M8ND	-	N14HT	-	-
	Y8ND	-	N14HT	-	-
12 - 10	314700-1	-	314656-1	-	12-10
	46447	-	-	-	-
	49935	-	-	-	-
	59461	-	-	-	-
	M8ND	-	N10HT	-	-
	Power Pump	Y34A	V8L	34PL	-
	Y10MRF-4	-	-	-	-
	Y10MRF-5	-	-	-	-
	Y8ND	-	N10HT	-	-

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF INSULATED AND UNINSULATED TERMINAL LUGS

Table 58 (continued)

Crimp Barrel Size	Crimp Tool				
	Basic Unit	Head	Die		
			Primary	Secondary	Cavity
8	M8ND	-	N8CT	-	-
	MR8-5	-	-	-	-
	Power Pump	13642M	ST2354-5	11732	-
		69069	47321	47322	-
		BDHD1	DV8L-1	Y29PL	-
		TBHD1	ST2354-5	11732	-
		TBM12	ST2354-5	11732	-
		Y29B	DV8L-1	Y29PL	-
	Y8ND	-	N8CT	-	-
6	Power Pump	13642M	ST2354-6	-	-
		69069	47321	47322	-
		BDHD1	DV6L	Y29PL	-
		TBHD1	ST2354-6	-	-
		TBM12	ST2354-6	-	-
		Y29B	DV8L-1	Y29PL	-
4	Power Pump	13642	ST2354-2	11734	-
		13642M	ST2354-2	11734	-
		69069	47321	47322	-
		BDHD1	DV4L	Y29PL	-
		TBHD1	ST2354-2	11734	-
		TBM12	ST2354-2	11734	-
		Y29B	DV4L	Y29PL	-
2	Power Pump	13642M	ST2354-1	-	-
		69069	47321	47322	-
		BDHD1	DV2L	Y29PL	-
		TBHD1	ST2354-1	-	-
		TBM12	ST2354-1	-	-
		Y29B	DV2L	Y29PL	-

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ASSEMBLY OF INSULATED AND UNINSULATED TERMINAL LUGS

Table 58 (continued)

Crimp Barrel Size	Crimp Tool				
	Basic Unit	Head	Die		
			Primary	Secondary	Cavity
1/0	Power Pump	13642	11738	11737	-
		13642M	11738	11737	-
		BDHD1	DV25L	Y29PR	-
		TBHD1	11738	-	-
		TBM12	11738	11737	-
		Y29B	DV25L	Y29PR	-
2/0	Power Pump	13642M	11739	11737	-
		BDHD1	DV26L	Y29PR	-
		TBHD1	11739	-	-
		TBM12	11739	11737	-
		Y29B	DV26L	Y29PR	-
3/0	Power Pump	13642M	ST2354-3	-	-
		BDHD1	DV27L	Y29PR	-
		TBHD1	ST2354-3	-	-
		TBM12	ST2354-3	-	-
		Y29B	DV27L	Y29PR	-
4/0	Power Pump	BDHD1	DV28L	Y29PR	-
		Y29B	DV28L	Y29PR	-

Table 59

INSULATION REMOVAL LENGTHS FOR BACTA12E UPRIGHT TERMINAL LUGS

Crimp Barrel Size	Insulation Removal Length (inch)	Stud Hole Size
22-18	0.25	10
16-14	0.25	10
12-10	0.43	10
		1/4
8	0.43	10
6	0.50	1/4
4	0.50	1/4
2	0.63	3/8

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF INSULATED AND UNINSULATED TERMINAL LUGS

Table 59 (continued)

Crimp Barrel Size	Insulation Removal Length (inch)	Stud Hole Size
1/0	0.69	3/8
		1/2
2/0	0.81	3/8
3/0	0.88	3/8
4/0	0.88	3/8
		1/2

NOTE: Refer to Table 40 for the part numbers of the recommended Power Pumps.

NOTE: Refer to Subject 20-30-22 for the assembly of a terminal lug with a conductor that is smaller than the crimp barrel size of the terminal lug.

- (1) Make a selection of a BACT12E upright terminal lug from Table 12.

NOTE: For the selection of the terminal, use:

- The crimp barrel size, if one wire is to be terminated
- The CAU range, if more than one wire is to be terminated.

NOTE: Refer to Subject 20-30-22 if more than one wire is to be terminated.

- (2) Make a selection of a crimp tool from Table 58.
- (3) If the crimp tool basic unit is a power pump, adjust the pressure to make it satisfactory for the crimp tool head. Refer to Table 41.

WARNING: IF THE PRESSURE OF THE POWER PUMP IS MORE THAN THE MAXIMUM PRESSURE PERMITTED FOR THE CRIMP TOOL HEAD, AN INJURY TO PERSONNEL CAN OCCUR.

CAUTION: IF THE PRESSURE OF THE POWER PUMP IS MORE THAN THE MAXIMUM PRESSURE PERMITTED FOR THE CRIMP TOOL HEAD, DAMAGE TO THE CRIMP TOOL HEAD CAN OCCUR.

- (4) Remove the necessary length of the insulation from the end of the wire.

STANDARD WIRING PRACTICES MANUAL**ASSEMBLY OF INSULATED AND UNINSULATED TERMINAL LUGS**

Refer to:

- Table 59 for the insulation removal length
- Subject 20-00-15 for the insulation removal procedures

Make sure that:

- When the wire is in the terminal lug, the end of the conductor extends farther than the end of the crimp barrel
- The maximum distance from the end of the wire insulation of a single wire to the end of the crimp barrel is 0.12 inch for AWG 10 and smaller, and 0.25 inch for AWG 8 and larger
- The conductor does not have nicked or cut strands
- If the insulation is removed by the application of heat, the conductor has not moved from the center of the wire
- If the insulation is removed by the application of heat, the remaining insulation does not have blisters or evidence of overheating
- The remaining insulation is not frayed.

- (5) Put the conductor of the wire in the crimp barrel of the terminal lug.

Make sure that:

- All of the strands of the conductor are in the crimp barrel
- The end of the conductor extends farther than the end of the crimp barrel
- The maximum distance from the end of the wire insulation of a single wire to the end of the crimp barrel is 0.12 inch for AWG 10 and smaller, and 0.25 inch for AWG 8 and larger.

- (6) Crimp the terminal lug.

Make sure that:

- All of the strands of the conductor are in the crimp barrel
- The end of the conductor extends farther than the end of the crimp barrel
- The maximum distance from the end of the wire insulation of a single wire to the end of the crimp barrel is 0.12 inch for AWG 10 and smaller, and 0.25 inch for AWG 8 and larger.

- (7) If the crimp tool is a hex type tool and Table 12 gives a secondary die, crimp the terminal lug again with the secondary die:

NOTE: The second crimp removes the flash that is made by the first crimp.

NOTE: The removal of the plating from the terminal lug caused by the second crimp is permitted.

- (a) Put the secondary die in the crimp tool.
- (b) Turn the terminal lug one flat, approximately 60 degrees.
- (c) Crimp the terminal lug again.

Make sure that the second crimp is in the same location along crimp barrel as the first crimp.

K. Assembly of BACT12G and Burndy YBM Series Flag Terminal Lugs

Refer to Paragraph 1.G. for the description of these terminal lugs.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF INSULATED AND UNINSULATED TERMINAL LUGS

Table 60
CRIMP TOOLS FOR BACT12G AND BURNDY YBM SERIES FLAG TERMINAL LUGS

Crimp Barrel Size	Crimp Tool					
	Basic Unit	Type	Head	Adapter	Nest	Indenter
8	BAT35	Battery Powered	-	Y35P3	UV8B-1	Y29PBL
	MY28	Large Adjustable Hand Tool	-	-	-	-
	Power Pump	-	BDHD1	-	DV8BL-1	Y29PBL-1
			Y29B	-	DV8BL	Y29PBL
			Y35BH	Y35P3	UV8B-1	Y29PBL
	Y29BH	Hydraulic Head	-	-	DV88	Y29PBL
	Y29NC	Pneumatic Head	-	-	DV88	Y29PBL
	Y35	Hydraulic Hand	-	Y35P3	UV8B-1	Y29PBL
	Y6NP-5	-	Y29B	-	DV88	Y29PBL
6	BAT35	Battery Powered	-	Y35P3	UV6B-1	Y29PBL
	MY28	Large Adjustable Hand Tool	-	-	-	-
	Power Pump	-	BDHD1	-	DV6BL	Y29PBL-1
			Y29B	-	DV6BL	Y29PBL
			Y35BH	Y35P3	UV6B-1	Y29PBL
	Y29BH	Hydraulic Head	-	-	DV6L	Y29PBL
	Y29NC	Pneumatic Head	-	-	DV6L	Y29PBL
	Y35	Hydraulic Hand	-	Y35P3	UV6B-1	Y29PBL
	Y6NP-5	-	Y29B	-	DV6L	Y29PBL

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF INSULATED AND UNINSULATED TERMINAL LUGS

Table 60 (continued)

Crimp Barrel Size	Crimp Tool					
	Basic Unit	Type	Head	Adapter	Nest	Indenter
4	BAT35	Battery Powered	-	Y35P3	UV4B-1	Y29PL
	MY28	Large Adjustable Hand Tool	-	-	-	-
	Power Pump	-	BDHD1	-	DV4BL	Y29PBL
			Y29B	-	DV4BL	Y29PBL
			Y35BH	Y35P3	UV4B-1	Y29PL
	Y29BH	Hydraulic Head	-	-	DV4BL	Y29PBL
	Y29NC	Pneumatic Head	-	-	DV4BL	Y29PBL
	Y35	Hydraulic Hand	-	Y35P3	UV4B-1	Y29PL
	Y6NP-5	-	Y29B	-	DV4BL	Y29PBL
2	BAT35	Battery Powered	-	Y35P3	UV2B-1	Y29PA
	MY28	Large Adjustable Hand Tool	-	-	-	-
	Power Pump	-	BDHD1	-	DV2BL	Y29PBL
			Y29B	-	DV2BL	Y29PBL
			Y35BH	Y35P3	UV2B-1	Y29PA
	Y29BH	Hydraulic Head	-	-	DV2BL	Y29PL
	Y29NC	Pneumatic Head	-	-	DV2BL	Y29PL
	Y35	Hydraulic Hand	-	Y35P3	UV2B-1	Y29PA
	Y35BH	-	-	Y35P3	UV2B-1	Y29PA
	Y6NP-5	-	Y29B	-	DV2BL	Y29PL

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF INSULATED AND UNINSULATED TERMINAL LUGS

Table 60 (continued)

Crimp Barrel Size	Crimp Tool					
	Basic Unit	Type	Head	Adapter	Nest	Indenter
1/0	BAT35	Battery Powered	-	Y35P3	UV25B-1	Y29PA-1
	MY28	Large Adjustable Hand Tool	-	-	-	-
	Power Pump	-	BDHD1	-	DV25BL-1	Y29PR
			Y29B	-	DV25BL	
			Y35BH	Y35P3	UV25B-1	
	Y29BH	Hydraulic Head	-	-	DV25BL	Y29PA
	Y29NC	Pneumatic Head	-	-	DV25BL	Y29PA-1
	Y35	Hydraulic Hand	-	Y35P3	UV25B-1	Y29PR
	Y6NP-5	-	Y29B	-	DV25BL	Y29PA
2/0	BAT35	Battery Powered	-	Y35P3	UV26B-1	Y29PA-1
	MY28	Large Adjustable Hand Tool	-	-	-	-
	Power Pump	-	BDHD1	-	DV26BL	Y29PR
			Y29B	-	DV26BL	Y29PR
			Y35BH	Y35P3	UV26B-1	Y29PA-1
	Y35	Hydraulic Hand	-	Y35P3	UV26B-1	Y29PA-1

Table 61

GAGE PIN DIAMETER FOR THE CALIBRATION OF THE BURNDY MY28 CRIMP TOOL

Terminal Crimp Barrel Size	Gage Pin Diameter (inch)	
	Target	Tolerance
8	0.1360	0.0005
6	0.1360	0.0005
4	0.1960	0.0005
2	0.2950	0.0005
1/0	0.3906	0.0005
2/0	0.4375	0.0005

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF INSULATED AND UNINSULATED TERMINAL LUGS

Table 62
INSULATION REMOVAL LENGTH FOR BACT12G AND BURNDY YBM FLAG TERMINAL LUGS

Crimp Barrel Size	Stud Hole Size	Insulation Removal Length (inch)	
		Target	Tolerance
8	10	0.44	0.06
	1/4	0.50	0.06
6	1/4	0.50	0.06
	5/16	0.56	0.06
4	1/4	0.50	0.06
	3/8	0.63	0.06
2	1/4	0.63	0.06
	3/8	0.63	0.06
1/0	1/4	0.63	0.06
	3/8	0.75	0.06
2/0	3/8	0.81	0.06

NOTE: Refer to Table 40 for the part numbers of the recommended power pumps.

NOTE: Refer to Subject 20-30-22 for the assembly of a terminal lug with a conductor that is smaller than the crimp barrel size of the terminal lug.

NOTE: Refer to Subject 20-20-12 for:

- Information on the operation of the Burndy MY28 crimp tool
- The assembly of a dual ground that has two flag terminals.

(1) Make a selection of a BACT12G flag terminal lug from Table 14.

NOTE: For the selection of the terminal, use:

- The crimp barrel size, if one wire is to be terminated
- The CAU range, if more than one wire is to be terminated.

NOTE: Refer to Subject 20-30-22 if more than one wire is to be terminated.

(2) Make a selection of a crimp tool from Table 60.

(3) If the crimp tool basic unit is a power pump, adjust the pressure to make it satisfactory for the crimp tool head. Refer to Table 41.

WARNING: IF THE PRESSURE OF THE POWER PUMP IS MORE THAN THE MAXIMUM PRESSURE PERMITTED FOR THE CRIMP TOOL HEAD, AN INJURY TO PERSONNEL CAN OCCUR.

CAUTION: IF THE PRESSURE OF THE POWER PUMP IS MORE THAN THE MAXIMUM PRESSURE PERMITTED FOR THE CRIMP TOOL HEAD, DAMAGE TO THE CRIMP TOOL HEAD CAN OCCUR.

(4) Remove the necessary length of the insulation from the end of the wire.

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STANDARD WIRING PRACTICES MANUAL**ASSEMBLY OF INSULATED AND UNINSULATED TERMINAL LUGS**

Refer to:

- Table 62 for the insulation removal length
- Subject 20-00-15 for the insulation removal procedures

Make sure that:

- The maximum distance from the end of the wire insulation of a single wire to the end of the crimp barrel is 0.12 inch for AWG 10 and smaller, and 0.25 inch for AWG 8 and larger
 - The conductor does not have nicked or cut strands
 - If the insulation is removed by the application of heat, the conductor has not moved from the center of the wire
 - If the insulation is removed by the application of heat, the remaining insulation does not have blisters or evidence of overheating
 - The remaining insulation is not frayed.
- (5) If the wire has a braid jacket, put a 1.0 0.06 length of heat shrinkable sleeve on the jacket.
- (6) Put the conductor of the wire in the crimp barrel of the terminal lug.

Make sure that:

- All of the strands of the conductor are in the crimp barrel
 - The end of the conductor extends farther than the end of the crimp barrel
 - The maximum distance from the end of the wire insulation of a single wire to the end of the crimp barrel is 0.12 inch for AWG 10 and smaller, and 0.25 inch for AWG 8 and larger.
- (7) If two flag terminals are to be attached to the end of a wire, put the conductor through the crimp barrels of both flag terminal lugs.

Make sure that:

- All of the strands of the conductor go through both crimp barrels
 - The maximum distance from the end of the wire insulation of a single wire to the end of the crimp barrel is 0.12 inch for AWG 10 and smaller, and 0.25 inch for AWG 8 and larger
 - The distance between the terminal lugs is correct for the installation
 - The end of the conductor extends farther than the end of the crimp barrel of the terminal lug nearest to the end of the wire.
- (8) Crimp the terminal lug or lugs.

Make sure that:

- The end of the conductor extends farther than the end of the crimp barrel
- The maximum distance from the end of the wire insulation of a single wire to the end of the crimp barrel is 0.12 inch for AWG 10 and smaller, and 0.25 inch for AWG 8 and larger
- If two flag terminals are on the wire, the crimp of the flag terminal nearest to the end of the wire is made first
- If two flag terminals are on the wire, the distance between the terminal lugs is correct for the installation.

NOTE: If two flag terminals are on the wire, the crimp of the flag terminal at the end of the wire completed first, keeps the strands of the conductor together until the crimp of both flag terminals is completed.

- (9) If a length of heat shrinkable sleeve is on the wire, shrink it into its position.

Make sure that the end of the heat shrinkable sleeve is aligned with the end of the wire insulation.

NOTE: This keeps the strands of the insulation braid together.

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L. Assembly of BACT12M, and 280U0010-1 Terminal Lugs

Refer to Paragraph 1.H. for the description of the BACT12M, and the 280U0010-1 terminal lugs.

Table 63
CRIMP TOOLS FOR SMALL BACT12M TERMINAL LUGS

Crimp Barrel Size	Crimp Tool			
	Basic Unit	Holder	Head	Die
22-18	189721-1	356302-1	356744-1	-
	314590-()	-	-	314542-1
	314590-()	-	-	314542-2
	314700-()	-	-	314542-1
	314700-()	-	-	314542-2
	46673	-	-	-
	69010	-	45175	-
	W400-5060	-	-	22-18 AWG
16-14	189721-1	356302-1	356744-2	-
	314590-()	-	-	314543-1
	314590-()	-	-	314543-2
	314700-()	-	-	314543-1
	314700-()	-	-	314543-2
	46988	-	-	-
	59294-()	-	-	-
	69010	-	45176	-
	W400-5060	-	-	16-14 AWG
12-10	314937-1	-	-	314915-1
	59461	-	-	-
	PHRPU2	-	PHST-59461	-

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF INSULATED AND UNINSULATED TERMINAL LUGS

Table 64
INDENTER TYPE CRIMP TOOLS FOR LARGE BACT12M AND 280U0010-1 TERMINAL LUGS

Crimp Barrel Size	Crimp Tool					
	Basic Unit	Head	Adapter	Nest	Indenter	Special Instructions
8	59973-1	-	-	48126	48355	-
	69020	-	-	48126	48355	-
	BAT35	-	Y35P3	UV8L	Y34PL	Use for Burndy terminal lugs only
	M8ND	-	-	-	N8CT	Use for Burndy terminal lugs only
	MR8-5	-	-	-	-	-
	Power Pump	69046	-	47321	47322	-
		69069	-	47321	47322	-
		BDHD1	-	DV8L-1	Y29PL	Use for Burndy terminal lugs only
		Y29B	-	DV8L-1	Y29PL	Use for Burndy terminal lugs only
		Y35BH	Y35P3	UV8L	Y34PL	Use for Burndy terminal lugs only
	Y35	-	Y35P3	UV8L	Y34PL	Use for Burndy terminal lugs only
	Y8ND	-	-	-	N8CT	Use for Burndy terminal lugs only
6	59973-1	-	-	48128	48127	-
	69020	-	-	48128	48127	-
	BAT35	-	Y35P3	UV6L	Y34PLA	Use for Burndy terminal lugs only
	Power Pump	69046	-	47321	47322	-
		69069	-	47321	47322	-
		BDHD1	-	DV6L	Y29PL	Use for Burndy terminal lugs only
		Y29B	-	DV6L	Y29PL	Use for Burndy terminal lugs only
		Y35BH	Y35P3	UV6L	Y34PLA	Use for Burndy terminal lugs only
	Y35	-	Y35P3	UV6L	Y34PLA	Use for Burndy terminal lugs only

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Table 64 (continued)

Crimp Barrel Size	Crimp Tool					
	Basic Unit	Head	Adapter	Nest	Indenter	Special Instructions
4	59973-1	-	-	48129	48127	-
	69020	-	-	48129	48127	-
	BAT35	-	Y35P3	UV4L	Y34PLA	Use for Burndy terminal lugs only
	Power Pump	69046	-	47321	47322	-
		69069	-	47321	47322	-
		BDHD1	-	DV4L	Y29PL	Use for Burndy terminal lugs only
		Y29B	-	DV4L	Y29PL	Use for Burndy terminal lugs only
		Y35BH	Y35P3	UV4L	Y34PLA	Use for Burndy terminal lugs only
	Y35	-	Y35P3	UV4L	Y34PLA	Use for Burndy terminal lugs only
2	59973-1	-	-	48130	48127	-
	69020	-	-	48130	48127	-
	BAT35	-	Y35P3	UV2L	Y34PLA	Use for Burndy terminal lugs only
	Power Pump	69046	-	47321	47322	-
		69069	-	47321	47322	-
		BDHD1	-	DV2L	Y29PL	Use for Burndy terminal lugs only
		Y29B	-	DV2L	Y29PL	Use for Burndy terminal lugs only
		Y35BH	Y35P3	UV2L	Y34PLA	Use for Burndy terminal lugs only
	Y35	-	Y35P3	UV2L	Y34PLA	Use for Burndy terminal lugs only

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ASSEMBLY OF INSULATED AND UNINSULATED TERMINAL LUGS

Table 64 (continued)

Crimp Barrel Size	Crimp Tool					
	Basic Unit	Head	Adapter	Nest	Indenter	Special Instructions
1/0	59973-1	-	-	48132	48131	-
	69020	-	-	48132	48131	-
	BAT35	-	Y35P3	UV25L	Y34PA	Use for Burndy terminal lugs only
	Power Pump	BDHD1	-	DV25L	Y29PR	Use for Burndy terminal lugs only
		Y29B	-	DV25L	Y29PR	Use for Burndy terminal lugs only
		Y35BH	Y35P3	UV25L	Y34PA	Use for Burndy terminal lugs only
	Y35	-	Y35P3	UV25L	Y34PA	Use for Burndy terminal lugs only
2/0	59973-1	-	-	48133	48131	-
	69020	-	-	48133	48131	-
	BAT35	-	Y35P3	UV26L	Y34PA	Use for Burndy terminal lugs only
	Power Pump	BDHD1	-	DV26L	Y29PR	Use for Burndy terminal lugs only
		Y29B	-	DV26L	Y29PR	Use for Burndy terminal lugs only
		Y35BH	Y35P3	UV26L	Y34PA	Use for Burndy terminal lugs only
	Y35	-	Y35P3	UV26L	Y34PA	Use for Burndy terminal lugs only
3/0	59973-1	-	-	48134	48131	-
	69020	-	-	48134	48131	-
	BAT35	-	Y35P3	UV27L	Y34PA	Use for Burndy terminal lugs only
	Power Pump	BDHD1	-	DV27L	Y29PR	Use for Burndy terminal lugs only
		Y29B	-	DV27L	Y29PR	Use for Burndy terminal lugs only
		Y35BH	Y35P3	UV27L	Y34PA	Use for Burndy terminal lugs only
	Y35	-	Y35P3	UV27L	Y34PA	Use for Burndy terminal lugs only

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ASSEMBLY OF INSULATED AND UNINSULATED TERMINAL LUGS

Table 64 (continued)

Crimp Barrel Size	Crimp Tool					
	Basic Unit	Head	Adapter	Nest	Indenter	Special Instructions
4/0	59973-1	-	-	300430	48131	-
	69020	-	-	300430	48131	-
	Power Pump	BDHD1	-	DV28L	Y29PR	Use for Burndy terminal lugs only
		Y29B	-	DV28L	Y29PR	Use for Burndy terminal lugs only

NOTE: Refer to Table 40 for the part numbers of the recommended Power Pumps.

Table 65

HEX TYPE CRIMP TOOLS FOR LARGE BACT12M AND 280U0010-1 TERMINAL LUGS

Crimp Barrel Size	Crimp Tool				
	Basic Unit	Head	Adapter	Die Set	
				Primary	Secondary
8	Power Pump	13642	-	ST2354-5	11732
		13642M	-	ST2354-5	11732
		BDHD1	-	ST2354B-5	-
		TBHD1	-	ST2354-5	11732
		TBM12	TBM12D-AR	ST2354-5	11732
		Y29B	-	ST2354B-5	-
6	Power Pump	13642	-	ST2354-6	-
		13642M	-	ST2354-6	-
		BDHD1	-	ST2354B-6	-
		TBHD1	-	ST2354-6	-
		TBM12	TBM12D-AR	ST2354-6	-
		Y29B	-	ST2354B-6	-
4	Power Pump	13642	-	ST2354-2	-
		13642M	-	ST2354-2	-
		BDHD1	-	ST2354B-2	-
		TBHD1	-	ST2354-2	11734
		TBM12	TBM12D-AR	ST2354-2	11734
		Y29B	-	ST2354B-2	-

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ASSEMBLY OF INSULATED AND UNINSULATED TERMINAL LUGS

Table 65 (continued)

Crimp Barrel Size	Crimp Tool				
	Basic Unit	Head	Adapter	Die Set	
				Primary	Secondary
2	Power Pump	13642	-	ST2354-1	-
		13642M	-	ST2354-1	-
		BDHD1	-	ST2354B-1	-
		TBHD1	-	ST2354-1	-
		TBM12	TBM12D-AR	ST2354-1	-
		Y29B	-	ST2354B-1	-
1/0	Power Pump	13642	-	11738	11737
		13642M	-	11738	11737
		TBHD1	-	11738	11737
		TBM12	TBM12D-AR	11738	11737
2/0	Power Pump	13642	-	11739	-
		13642M	-	11739	-
		TBHD1	-	11739	-
		TBM12	TBM12D-AR	11739	-
3/0	Power Pump	13642	-	ST2354-16	ST2354-3
		13642M	-	ST2354-16	ST2354-3
		BDHD1	-	ST2354B-3	-
		TBHD1	-	ST2354-16	ST2354-3
		TBM12	TBM12D-AR	ST2354-16	ST2354-3
		Y29B	-	ST2354B-3	-
4/0	Power Pump	13642	-	ST2354-13	-
		13642M	-	ST2354-13	-

NOTE: Refer to Table 40 for the part numbers of the recommended Power Pumps.

NOTE: Refer to Subject 20-30-22 for the assembly of a terminal lug with a conductor that is smaller than the crimp barrel size of the terminal lug.

- (1) Make a selection of a terminal lug from Table 17.

NOTE: An AMP solid nickel terminal lug is a satisfactory alternative to a BACT12M terminal lug.

NOTE: For the selection of the terminal, use:

- The crimp barrel size, if one wire is to be terminated
- The CAU range, if more than one wire is to be terminated.

NOTE: Refer to Subject 20-30-22 if more than one wire is to be terminated.

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ASSEMBLY OF INSULATED AND UNINSULATED TERMINAL LUGS

- (2) Make a selection of a crimp tool from:
 - Table 63 for small BACT12M terminal lugs
 - Table 64 or Table 65 for large BACT12M terminal lugs
- (3) If the tool has an insulation crimp adjustment, set the position of the adjustment. Refer to Paragraph 2.B.

Make sure to set the adjustment at position 2 for these wires:

- Champlain 24-00034 wire
- Champlain 24-00523 wire
- Filotex 85842 wire.

- (4) If the crimp tool basic unit is a power pump, adjust the pressure to make it satisfactory for the crimp tool head. Refer to Table 41.

WARNING: IF THE PRESSURE OF THE POWER PUMP IS MORE THAN THE MAXIMUM PRESSURE PERMITTED FOR THE CRIMP TOOL HEAD, AN INJURY TO PERSONNEL CAN OCCUR.

CAUTION: IF THE PRESSURE OF THE POWER PUMP IS MORE THAN THE MAXIMUM PRESSURE PERMITTED FOR THE CRIMP TOOL HEAD, DAMAGE TO THE CRIMP TOOL HEAD CAN OCCUR.

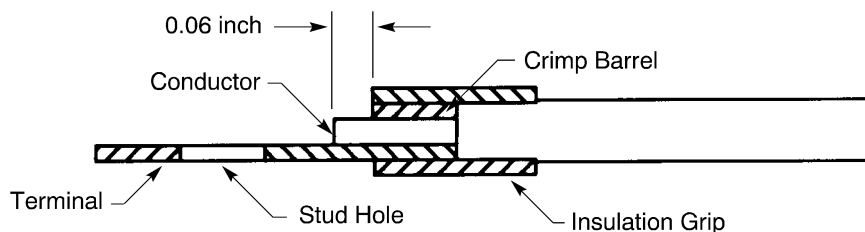
- (5) Remove the necessary length of the insulation from the end of the wire.

Refer to:

- Figure 25
- Subject 20-00-15 for the insulation removal procedures

Make sure that:

- When the wire is in the terminal lug, the end of the conductor extends 0.06 ± 0.03 inch farther than the end of the crimp barrel
- The clearance from the end of the conductor is sufficient for the installation of the washer and the nut
- The maximum distance from the end of the wire insulation of a single wire to the end of the crimp barrel is 0.12 inch for AWG 10 and smaller, and 0.25 inch for AWG 8 and larger
- The conductor does not have nicked or cut strands
- If the insulation is removed by the application of heat, the conductor has not moved from the center of the wire
- If the insulation is removed by the application of heat, the remaining insulation does not have blisters or evidence of overheating
- The remaining insulation is not frayed.



INSULATION REMOVAL LENGTH

Figure 25

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- (6) For a terminal lug in a high temperature area or in a high vibration area, if a heat gun can be used, put a 1.00 inch \pm 0.06 inch length of TFE 2X heat shrinkable sleeve on the wire.

Make sure that the sleeve has the smallest diameter that will let the sleeve move easily on the wire and on the crimp barrel of the terminal.

- (7) Put the conductor of the wire in the crimp barrel of the terminal lug. Refer to Figure 25.

Make sure that:

- All of the strands of the conductor are in the crimp barrel
- The end of the conductor extends 0.06 \pm 0.03 inch farther than the end of the crimp barrel
- If the terminal lug has an insulation grip, the end of the wire insulation is in the insulation grip of the terminal lug
- If a sleeve is on the wire, the sleeve does not go into the insulation grip or the crimp barrel of the terminal
- If the terminal lug does not have an insulation grip, the maximum distance from the end of the wire insulation of a single wire to the end of the crimp barrel is 0.12 inch for AWG 10 and smaller, and 0.25 inch for AWG 8 and larger
- The clearance from the end of the conductor is sufficient for the installation of the washer and the nut.

- (8) Crimp the terminal lug.

Make sure that:

- All of the strands of the conductor are in the crimp barrel
- The end of the conductor extends 0.06 \pm 0.03 inch farther than the end of the crimp barrel
- If the terminal lug has an insulation grip, the end of the wire insulation is in the insulation grip of the terminal lug
- If the terminal lug has an insulation grip, the crimp tool is adjusted to give the correct insulation support. Refer to Paragraph 2.B.
- If the terminal lug does not have an insulation grip, the maximum distance from the end of the wire insulation of a single wire to the end of the crimp barrel is 0.12 inch for AWG 10 and smaller, and 0.25 inch for AWG 8 and larger
- The clearance from the end of the conductor is sufficient for the installation of the washer and the nut.

- (9) If the crimp tool is a hex type tool from Table 65, crimp the terminal lug again with the secondary die.

NOTE: The second crimp removes the flash that is made by the first crimp.

NOTE: The removal of the plating from the terminal lug caused by the second crimp is permitted.

- (a) Put the secondary die in the crimp tool.
- (b) Turn the terminal lug one flat, approximately 60 degrees.
- (c) Crimp the terminal lug again.

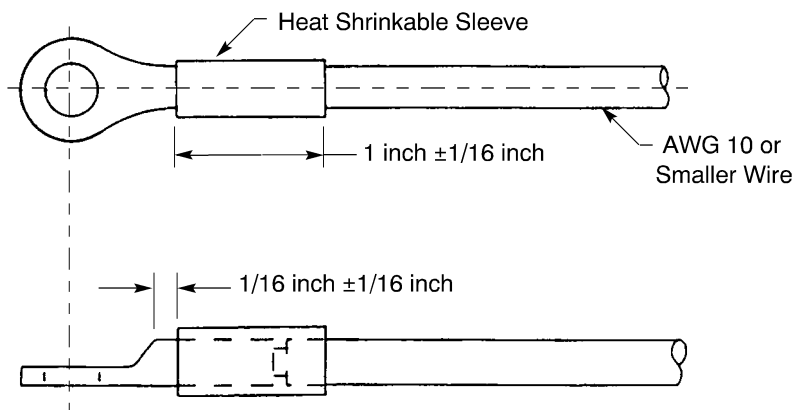
Make sure that the second crimp is in the same location along crimp barrel as the first crimp.

- (10) If a heat shrinkable sleeve is on the wire:

- (a) For terminal lugs on AWG 10 or smaller wire, push the sleeve over the terminal lug until the end of the sleeve is 1/16 inch \pm 1/16 inch from the forward end of the crimp barrel. Refer to Figure 26.

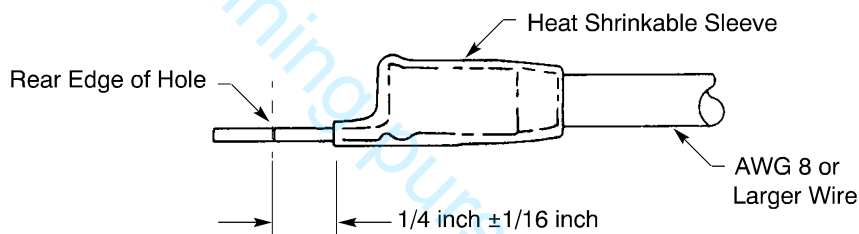
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ASSEMBLY OF INSULATED AND UNINSULATED TERMINAL LUGS



POSITION OF THE SLEEVE FOR SIZE AWG 10 OR SMALLER WIRE
Figure 26

- (b) For terminal lugs on AWG 8 or larger wire, push the sleeve over the terminal lug until the end of the sleeve is $1/4$ inch $\pm 1/16$ inch from the rear edge of the stud hole. Refer to Figure 27.



POSITION OF THE SLEEVE FOR SIZE AWG 8 OR LARGER WIRE
Figure 27

- (c) Shrink the sleeve into its position.
- (11) For a terminal lug in a high temperature area or in a high vibration area, if a heat gun cannot be used:
- Make a selection of a Grade D TFE tape. Refer to Subject 20-00-11.
 - Wind a sufficient number of layers of tape around the crimp barrel of the terminal and around the end of the wire insulation.
- Make sure that:
- The tape layers include the crimp barrel of the terminal
 - The tape layers make a 50 percent minimum overlap
 - The length of the tape layers on the wire insulation is approximately 1.0 inch.
- (c) Assemble a wire harness tie near each end of the tape layers to hold the layers in their position.

M. Assembly of M7928/1 Terminal Lugs

Refer to Paragraph 1.J. for the description of the M7928/1 terminal lugs.

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ASSEMBLY OF INSULATED AND UNINSULATED TERMINAL LUGS

Table 66
CRIMP TOOLS FOR M7928/1 TERMINAL LUGS

Crimp Barrel Size	Crimp Tool		
	Basic Unit	Head	Die Set
26	59275	-	-
24	565435-5	567200-2	69878
	59275	-	-
	68075	-	69878
	69692-1	-	-
	69875	-	69878
22	46110	-	-
	4B2-457540-6	687658-1	69872
	59250	-	-
	68075	-	69872
	69004	-	47451
	69005	-	-
	69118-()	-	45185-7
	69365-()	-	47806-2
	69875	-	69872
20	565435-5	567200-2	69872
	59250	-	-
	69692-1	-	-
18	565435-5	567200-2	69872
	59250	-	-
	69319-1	-	47806-2
16	46110	-	-
	59250	-	-
	68075	-	69873
	69004	-	47852
	69005	47517	-
	69118-()	-	45225-2
	69118-()	-	45225-5
	69365-()	-	47807-1
	69875	-	69873

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ASSEMBLY OF INSULATED AND UNINSULATED TERMINAL LUGS

Table 66 (continued)

Crimp Barrel Size	Crimp Tool		
	Basic Unit	Head	Die Set
14	565435-5	567200-2	69872
	69693-1	-	-
12	59239-()	-	-
	68075	-	69874 Model C
	69004	-	47453
	69010	47518-1	-
	69365	-	47808
	69365-()	-	47808-6
	69875	-	69874 Model C
10	565435-5	567200-2	69874
	69365-()	-	47807-1

NOTE: Refer to Table 40 for the part numbers of the recommended Power Pumps.

NOTE: Refer to Subject 20-30-22 for the assembly of a terminal lug with a conductor that is smaller than the crimp barrel size of the terminal lug.

- (1) Make a selection of a terminal lug from Table 22.

NOTE: For the selection of the terminal, use:

- The crimp barrel size, if one wire is to be terminated
- The CAU range, if more than one wire is to be terminated.

NOTE: Refer to Subject 20-30-22 if more than one wire is to be terminated.

- (2) Make a selection of a crimp tool from Table 66.
- (3) Remove the necessary length of the insulation from the end of the wire.

Refer to Subject 20-00-15 for the insulation removal procedures.

Make sure that:

- When the wire is in the terminal lug, and the end of the wire insulation is in the insulation grip of the terminal lug, the end of the conductor extends farther than the end of the crimp barrel
- The clearance from the end of the conductor is sufficient for the installation of the washer and the nut
- The conductor does not have nicked or cut strands
- If the insulation is removed by the application of heat, the conductor has not moved from the center of the wire
- If the insulation is removed by the application of heat, the remaining insulation does not have blisters or evidence of overheating
- The remaining insulation is not frayed.

- (4) If the crimp tool basic unit is a power pump, adjust the pressure to make it satisfactory for the crimp tool head. Refer to Table 41.

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ASSEMBLY OF INSULATED AND UNINSULATED TERMINAL LUGS

WARNING: IF THE PRESSURE OF THE POWER PUMP IS MORE THAN THE MAXIMUM PRESSURE PERMITTED FOR THE CRIMP TOOL HEAD, AN INJURY TO PERSONNEL CAN OCCUR.

CAUTION: IF THE PRESSURE OF THE POWER PUMP IS MORE THAN THE MAXIMUM PRESSURE PERMITTED FOR THE CRIMP TOOL HEAD, DAMAGE TO THE CRIMP TOOL HEAD CAN OCCUR.

- (5) Put the conductor of the wire in the crimp barrel of the terminal lug.

Make sure that:

- All of the strands of the conductor are in the crimp barrel
- The end of the conductor extends farther than the end of the crimp barrel
- The end of the wire insulation is in the insulation grip of the terminal lug
- The clearance from the end of the conductor is sufficient for the installation of the washer and the nut.

- (6) Crimp the terminal lug.

Make sure that:

- All of the strands of the conductor are in the crimp barrel
- The end of the conductor extends farther than the end of the crimp barrel
- The end of the wire insulation is in the insulation grip of the terminal lug
- The crimp tool is adjusted to give the correct insulation support. Refer to Paragraph 2.B.
- The clearance from the end of the conductor is sufficient for the installation of the washer and the nut.

N. Assembly of MS20659 Terminal Lugs

Refer to Paragraph 1.K. for the description of the MS20659 terminal lugs.

Table 67
CRIMP TOOLS FOR SMALL MS20659 TERMINAL LUGS

Crimp Barrel Size	Crimp Tool					
	Basic Unit	Head	Die Set	Nest	Indenter	Special Instructions
22 - 18	46673	-	-	-	-	-
	49900	-	-	-	-	-
	49935	-	-	-	-	-
	Bandolug SME	-	S18HT	-	-	-
	M8ND	-	N14HT	-	-	Use for Burndy terminal lugs only
	Y8ND	-	N14HT	-	-	Use for Burndy terminal lugs only

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ASSEMBLY OF INSULATED AND UNINSULATED TERMINAL LUGS

Table 67 (continued)

Crimp Barrel Size	Crimp Tool					
	Basic Unit	Head	Die Set	Nest	Indenter	Special Instructions
16 - 14	49900	-	-	-	-	-
	49935	-	-	-	-	-
	59294-()	-	-	-	-	-
	Bandolug SME	-	S14HT	-	-	-
	M8ND	-	N10HT	-	-	Use for Burndy terminal lugs only
	Y8ND	-	N10HT	-	-	Use for Burndy terminal lugs only
12 - 10	46447	-	-	-	-	-
	49900	-	-	-	-	-
	49935	-	-	-	-	-
	59461	-	-	-	-	-
	M8ND	-	N10HT	-	-	Use for Burndy terminal lugs only
	Power Pump	Y34A	-	V8L	34PL	-
		Y34A	-	V8L	34PL-2	-
	Y10MRF-4	-	-	-	-	-
	Y10MRF-5	-	-	-	-	-
	Y8ND	-	N10HT	-	-	Use for Burndy terminal lugs only

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ASSEMBLY OF INSULATED AND UNINSULATED TERMINAL LUGS

Table 68
INDENTER TYPE CRIMP TOOLS FOR LARGE MS20659 TERMINAL LUGS

Crimp Barrel Size	Crimp Tool					
	Basic Unit	Head	Adapter	Nest	Indenter	Special Instructions
8	59973-1	-	-	48126	48355	-
	69020	-	-	48126	48355	-
	M8ND	-	-	-	N8CT	Use for Burndy terminal lugs only
	MR8-5	-	-	-	-	-
	Power Pump	69069	-	47321	47322	-
		BDHD1	-	DV8L-1	Y29PL	Use for Burndy terminal lugs only
		Y29B	-	DV8L-1	Y29PL	Use for Burndy terminal lugs only
		Y35BH	Y35P3	UV8L	Y34PLA	-
	Y35	-	Y35P3	UV8L	Y34PLA	Use for Burndy terminal lugs only
6	59973-1	-	-	48128	48127	-
	69020	-	-	48128	48127	-
	Power Pump	69069	-	47321	47322	-
		BDHD1	-	DV6L	Y29PL	Use for Burndy terminal lugs only
		Y29B	-	DV6L	Y29PL	Use for Burndy terminal lugs only
		Y35BH	Y35P3	UV6L	Y34PLA	-
	Y35	-	Y35P3	UV6L	Y34PLA	Use for Burndy terminal lugs only
4	59973-1	-	-	48129	48127	-
	69020	-	-	48129	48127	-
	Power Pump	69069	-	47321	47322	-
		BDHD1	-	DV4L	Y29PL	Use for Burndy terminal lugs only
		Y29B	-	DV4L	Y29PL	Use for Burndy terminal lugs only
		Y35BH	Y35P3	UV4L	Y34PLA	-
	Y35	-	Y35P3	UV4L	Y34PLA	Use for Burndy terminal lugs only

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Table 68 (continued)

Crimp Barrel Size	Crimp Tool					
	Basic Unit	Head	Adapter	Nest	Indenter	Special Instructions
2	59973-1	-	-	48130	48127	-
	69020	-	-	48130	48127	-
	Power Pump	69069	-	47321	47322	-
		BDHD1	-	DV2L	Y29PL	Use for Burndy terminal lugs only
		Y29B	-	DV2L	Y29PL	Use for Burndy terminal lugs only
		Y35BH	Y35P3	UV2L	Y34PLA	-
	Y35	-	Y35P3	UV2L	Y34PLA	Use for Burndy terminal lugs only
1	Power Pump	BDHD1	-	DV1L	Y29PL	Use for Burndy terminal lugs only
		Y29B	-	DV1L	Y29PL	Use for Burndy terminal lugs only
1/0	59973-1	-	-	48132	48131	-
	69020	-	-	48132	48131	-
	Power Pump	BDHD1	-	DV25L	Y29PR	Use for Burndy terminal lugs only
		Y29B	-	DV25L	Y29PR	Use for Burndy terminal lugs only
		Y35BH	Y35P3	UV25L	Y34PA	-
	Y35	-	Y35P3	UV25L	Y34PA	Use for Burndy terminal lugs only
2/0	59973-1	-	-	48133	48131	-
	69020	-	-	48133	48131	-
	Power Pump	BDHD1	-	DV26L	Y29PR	Use for Burndy terminal lugs only
		Y29B	-	DV26L	Y29PR	Use for Burndy terminal lugs only
		Y35BH	Y35P3	UV26L	Y34PA	-
	Y35	-	Y35P3	UV26L	Y34PA	Use for Burndy terminal lugs only

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ASSEMBLY OF INSULATED AND UNINSULATED TERMINAL LUGS

Table 68 (continued)

Crimp Barrel Size	Crimp Tool					
	Basic Unit	Head	Adapter	Nest	Indenter	Special Instructions
3/0	59973-1	-	-	48134	48131	-
	69020	-	-	48134	48131	-
	Power Pump	BDHD1	-	DV27L	Y29PR	Use for Burndy terminal lugs only
		Y29B	-	DV27L	Y29PR	Use for Burndy terminal lugs only
		Y35BH	Y35P3	UV27L	Y34PA	-
	Y35	-	Y35P3	UV27L	Y34PA	Use for Burndy terminal lugs only
4/0	59973-1	-	-	300430	48131	-
	69020	-	-	300430	48131	-
	Power Pump	BDHD1	-	DV28L	Y29PR	Use for Burndy terminal lugs only
		Y29B	-	DV28L	Y29PR	Use for Burndy terminal lugs only

NOTE: Refer to Table 40 for the part numbers of the recommended Power Pumps.

Table 69

HEX TYPE CRIMP TOOLS FOR LARGE MS20659 TERMINAL LUGS

Crimp Barrel Size	Crimp Tool				
	Basic Unit	Head	Adapter	Die Set	
				Primary	Secondary
8	Power Pump	13642	TBM12D-AR	ST2354-5	11732
		13642M	TBM12D-AR	ST2354-5	11732
		BDHD1	-	ST2354B-5	-
		TBHD1	-	ST2354-5	11732
		TBM12	TBM12D-AR	ST2354-5	11732
		Y29B	-	ST2354B-5	-
6	Power Pump	13642	TBM12D-AR	ST2354-6	-
		13642M	TBM12D-AR	ST2354-6	-
		BDHD1	-	ST2354B-6	-
		TBHD1	-	ST2354-6	-
		TBM12	TBM12D-AR	ST2354-6	-
		Y29B	-	ST2354B-6	-

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Table 69 (continued)

Crimp Barrel Size	Crimp Tool				
	Basic Unit	Head	Adapter	Die Set	
				Primary	Secondary
4	Power Pump	13642	TBM12D-AR	ST2354-2	11734
		13642M	TBM12D-AR	ST2354-2	11734
		BDHD1	-	ST2354B-2	-
		TBHD1	-	ST2354-2	11734
		TBM12	TBM12D-AR	ST2354-2	11734
		Y29B	-	ST2354B-2	-
2	Power Pump	13642	TBM12D-AR	ST2354-1	-
		13642M	TBM12D-AR	ST2354-1	-
		BDHD1	-	ST2354B-1	-
		TBHD1	-	ST2354-1	-
		TBM12	TBM12D-AR	ST2354-1	-
		Y29B	-	ST2354B-1	-
1/0	Power Pump	13642	TBM12D-AR	11738	11737
		13642M	TBM12D-AR	11738	11737
		TBHD1	-	11738	11737
		TBM12	TBM12D-AR	11738	11737
2/0	Power Pump	13642	TBM12D-AR	11739	-
		13642M	TBM12D-AR	11739	-
		TBHD1	-	11739	-
		TBM12	TBM12D-AR	11739	-
3/0	Power Pump	13642	TBM12D-AR	ST2354-16	ST2354-3
		13642M	TBM12D-AR	ST2354-16	ST2354-3
		BDHD1	-	ST2354B-3	-
		TBHD1	-	ST2354-16	ST2354-3
		TBM12	TBM12D-AR	ST2354-16	ST2354-3
		Y29B	-	ST2354B-3	-

NOTE: Refer to Table 40 for the part numbers of the recommended Power Pumps.

NOTE: Refer to Subject 20-30-22 for the assembly of a terminal lug with a conductor that is smaller than the crimp barrel size of the terminal lug.

STANDARD WIRING PRACTICES MANUAL**ASSEMBLY OF INSULATED AND UNINSULATED TERMINAL LUGS**

- (1) Make a selection of a terminal lug from Table 23.

NOTE: For the selection of the terminal, use:

- The crimp barrel size, if one wire is to be terminated
- The CAU range, if more than one wire is to be terminated.

NOTE: Refer to Subject 20-30-22 if more than one wire is to be terminated.

- (2) Make a selection of a crimp tool from:

- Table 67 for small MS20659 terminal lugs
- Table 68 or Table 69 for large MS20659 terminal lugs.

- (3) If the tool has an insulation crimp adjustment, set the adjustment of the tool. Refer to Paragraph 2.B.

- (4) If the crimp tool basic unit is a power pump, adjust the pressure to make it satisfactory for the crimp tool head. Refer to Table 41.

WARNING: IF THE PRESSURE OF THE POWER PUMP IS MORE THAN THE MAXIMUM PRESSURE PERMITTED FOR THE CRIMP TOOL HEAD, AN INJURY TO PERSONNEL CAN OCCUR.

CAUTION: IF THE PRESSURE OF THE POWER PUMP IS MORE THAN THE MAXIMUM PRESSURE PERMITTED FOR THE CRIMP TOOL HEAD, DAMAGE TO THE CRIMP TOOL HEAD CAN OCCUR.

- (5) Remove the necessary length of the insulation from the end of the wire.

Refer to:

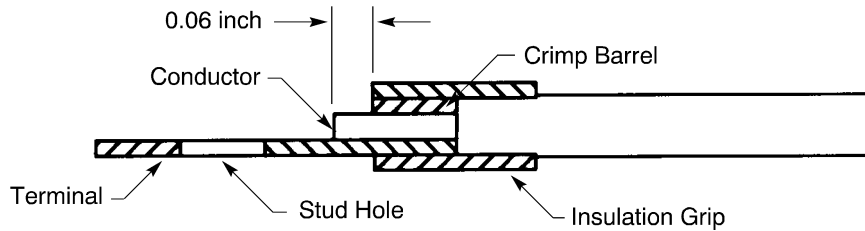
- Figure 28
- Subject 20-00-15 for the insulation removal procedures

Make sure that:

- When the wire is in the terminal lug, and the end of the wire insulation is in the insulation grip of the terminal lug, the end of the conductor extends 0.06 ± 0.03 inch farther than the end of the crimp barrel
- If the terminal lug does not have an insulation grip, the maximum distance from the end of the wire insulation of a single wire to the end of the crimp barrel is 0.12 inch for AWG 10 and smaller, and 0.25 inch for AWG 8 and larger
- The clearance from the end of the conductor is sufficient for the installation of the washer and the nut
- The conductor does not have nicked or cut strands
- If the insulation is removed by the application of heat, the conductor has not moved from the center of the wire
- If the insulation is removed by the application of heat, the remaining insulation does not have blisters or evidence of overheating
- The remaining insulation is not frayed.

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ASSEMBLY OF INSULATED AND UNINSULATED TERMINAL LUGS



INSULATION REMOVAL LENGTH

Figure 28

- (6) Put the conductor of the wire in the crimp barrel of the terminal lug.

Make sure that:

- All of the strands of the conductor are in the crimp barrel
- The end of the conductor extends 0.06 ± 0.03 inch farther than the end of the crimp barrel
- If the terminal lug has an insulation grip, the end of the wire insulation is in the insulation grip of the terminal lug
- If the terminal lug does not have an insulation grip, the maximum distance from the end of the wire insulation of a single wire to the end of the crimp barrel is 0.12 inch for AWG 10 and smaller, and 0.25 inch for AWG 8 and larger
- The clearance from the end of the conductor is sufficient for the installation of the washer and the nut.

- (7) Crimp the terminal lug.

Make sure that:

- All of the strands of the conductor are in the crimp barrel
- The end of the conductor extends 0.06 ± 0.03 inch farther than the end of the crimp barrel
- If the terminal lug has an insulation grip, the end of the wire insulation is in the insulation grip of the terminal lug
- If the terminal lug has an insulation grip, the crimp tool is adjusted to give the correct insulation support. Refer to Paragraph 2.B.
- If the terminal lug does not have an insulation grip, the maximum distance from the end of the wire insulation of a single wire to the end of the crimp barrel is 0.12 inch for AWG 10 and smaller, and 0.25 inch for AWG 8 and larger
- The clearance from the end of the conductor is sufficient for the installation of the washer and the nut.

- (8) If the crimp tool is a hex type tool from Table 69, crimp the terminal lug again with the secondary die.

NOTE: The second crimp removes the flash that is made by the first crimp.

NOTE: The removal of the plating from the terminal lug caused by the second crimp is permitted.

- Put the secondary die in the crimp tool.
- Turn the terminal lug one flat, approximately 60 degrees.
- Crimp the terminal lug again.

Make sure that the second crimp is in the same location along crimp barrel as the first crimp.

O. Assembly of Burndy Dual Hole, Upright, and Heavy Duty Terminal Lugs

Refer to Paragraph 1.L. for the description of the Burndy dual hole, upright, and heavy duty terminal lugs.

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Table 70
INDENTER TYPE CRIMP TOOLS FOR BURNDY DUAL HOLE YAV TERMINAL LUGS

Crimp Barrel Size	Crimp Tool				
	Basic Unit	Head	Adapter	Nest	Indenter
6	BAT35	-	Y35P3	UV6L	Y34PLA
	Power Pump	Y29B	-	DV6L	Y29PL
		Y35BH	Y35P3	UV6L	Y34PLA
	Y35	-	Y35P3	UV6L	Y34PLA
4	BAT35	-	Y35P3	UV4L	Y34PLA
	Power Pump	69069	-	47321	47322
		Y29B	-	DV4L	Y29PL
		Y35BH	Y35P3	UV4L	Y34PLA
	Y35	-	Y35P3	UV4L	Y34PLA
2	BAT35	-	Y35P3	UV2L	Y34PLA
	Power Pump	Y29B	-	DV2L	Y29PL
		Y35BH	Y35P3	UV2L	Y34PLA
	Y35	-	Y35P3	UV2L	Y34PLA
1/0	BAT35	-	Y35P3	UV25L	Y34PA
	Power Pump	Y29B	-	DV25L	Y29PR
		Y35BH	Y35P3	UV25L	Y34PA
	Y35	-	Y35P3	UV25L	Y34PA
2/0	BAT35	-	Y35P3	UV26L	Y34PA
	Power Pump	Y29B	-	DV26L	Y29PR
		Y35BH	Y35P3	UV26L	Y34PA
	Y35	-	Y35P3	UV26L	Y34PA
3/0	BAT35	-	Y35P3	UV27L	Y34PA
	Power Pump	Y29B	-	DV27L	Y29PR
		Y35BH	Y35P3	UV27L	Y34PA
	Y35	-	Y35P3	UV27L	Y34PA

NOTE: Refer to Table 40 for the part numbers of the recommended Power Pumps.

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ASSEMBLY OF INSULATED AND UNINSULATED TERMINAL LUGS

Table 71
HEX TYPE CRIMP TOOLS FOR BURNDY DUAL HOLE YAV TERMINAL LUGS

Crimp Barrel Size	Crimp Tool				
	Basic Unit	Head	Adapter	Die Set	
				Primary	Secondary
6	Power Pump	13642	-	ST2354-6	-
		13642M	-	ST2354-6	-
4	Power Pump	13642	-	ST2354-2	11734
		13642M	-	ST2354-2	11734
		69069	-	47321	47322
		TBM12	TBM12D-AR	ST2354-2	11734
2	Power Pump	13642	-	ST2354-1	-
		13642M	-	ST2354-1	-
1/0	Power Pump	13642	-	11738	11737
		13642M	-	11738	11737
		TBM12	TBM12D-AR	11738	11737
2/0	Power Pump	13642	-	11739	-
		13642M	-	11739	-
3/0	Power Pump	13642	-	ST2354-3	-
		13642M	-	ST2354-3	-
		TBM12	TBM12D-AR	ST2354-3	-
		Y29B	-	ST2354B-3	-

NOTE: Refer to Table 40 for the part numbers of the recommended Power Pumps.

Table 72
CRIMP TOOLS FOR BURNDY UPRIGHT YAV TERMINAL LUGS

Crimp Barrel Size	Crimp Tool			
	Basic Unit	Head	Die Set	
			Primary	Secondary
4	Power Pump	13642	ST2354-2	11734
		13642M	ST2354-2	11734
1/0	Power Pump	13642	11738	11737
		13642M	11738	11737

NOTE: Refer to Table 40 for the part numbers of the recommended Power Pumps.

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Table 73
CRIMP TOOLS FOR BURNDY HEAVY DUTY YAV14 TERMINAL LUGS

Crimp Barrel Size	Crimp Tool		
	Basic Unit	Die Set	Die Cavity
16 - 14	M8ND	N14HT	14
	MR8-4	-	-
	MR8G98	-	-
	WT130	-	-
	WT1300	-	-
	Y8ND	N14HT	14

Table 74
INSULATION REMOVAL LENGTH AND SPECIAL INSTRUCTIONS FOR YAV14G82 AND YAV14G88 TERMINAL LUGS

Crimp Barrel Size	Part Number	Conductors in the Crimp Barrel		Insulation Removal Length (inch)	Special Instructions
		First Wire (AWG)	Second Wire (AWG)		
16-14	YAV14G82	14	-	0.25 ± 0.03	-
		16	-	0.25 ± 0.03	-
		18	20	0.25 ± 0.03	-
		18	18	0.25 ± 0.03	-
		18	-	0.50 ± 0.03	Fold back the conductor
		20	-	0.50 ± 0.03	Fold back the conductor
	YAV14G88	14	-	0.25 ± 0.03	-
		16	-	0.25 ± 0.03	-
		18	20	0.25 ± 0.03	-
		18	18	0.25 ± 0.03	-
		18	-	0.50 ± 0.03	Fold back the conductor
		20	-	0.50 ± 0.03	Fold back the conductor

Table 75
INSULATION REMOVAL LENGTH

Crimp Barrel Size	Insulation Removal Length (inch)	Part Number
20-14	0.28 ± 0.03	YAV14-H
		YAV14-H1
22-18	0.28 ± 0.03	YAV18-H

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Table 75 (continued)

Crimp Barrel Size	Insulation Removal Length (inch)	Part Number
6	0.50 ± 0.03	YAV6C-2L38-NK
4	0.50 ± 0.03	YAV4C-2L38-NK
		YAV4C-2L38-30-NK
		YAV4CRS2NK
2	0.63 ± 0.03	YAV2C-2L38-NK
1/0	0.69 ± 0.03	YAV25-2L38-NK
		YAV25RSNK
2/0	0.81 ± 0.03	YAV26-2L38-NK
		YAV26-2L38-30-NK
3/0	0.81 ± 0.03	YAV27-2L38-NK
		YAV27-2L38-30-NK

NOTE: For the assembly of the Burndy heavy duty YAV terminal lugs with AWG 20 or AWG 18 wire, refer to Subject 20-30-22.

NOTE: Refer to Subject 20-30-22 for the assembly of a terminal lug with a conductor that is smaller than the crimp barrel size of the terminal lug.

- (1) Make a selection of a terminal lug from:
- Table 24 for dual hole YAV terminal lugs
 - Table 25 for upright YAV terminal lugs
 - Table 26 for heavy duty YAV terminal lugs.

NOTE: For the selection of the terminal, use:

- The crimp barrel size, if one wire is to be terminated
- The CAU range, if more than one wire is to be terminated.

NOTE: Refer to Subject 20-30-22 if more than one wire is to be terminated.

- (2) Make a selection of a crimp tool from:
- Table 70 or Table 71 for dual hole YAV terminal lugs
 - Table 72 for upright YAV terminal lugs
 - Table 73 for heavy duty YAV terminal lugs.
- (3) If the crimp tool basic unit is a power pump, adjust the pressure to make it satisfactory for the crimp tool head. Refer to Table 41.

WARNING: IF THE PRESSURE OF THE POWER PUMP IS MORE THAN THE MAXIMUM PRESSURE PERMITTED FOR THE CRIMP TOOL HEAD, AN INJURY TO PERSONNEL CAN OCCUR.

CAUTION: IF THE PRESSURE OF THE POWER PUMP IS MORE THAN THE MAXIMUM PRESSURE PERMITTED FOR THE CRIMP TOOL HEAD, DAMAGE TO THE CRIMP TOOL HEAD CAN OCCUR.

- (4) Remove the necessary length of the insulation from the end of the wire.

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Refer to:

- Table 74 for the insulation removal length for YAV14G82 and YAV14G88 terminal lugs
- Table 75 for the insulation removal length for the other terminal lug part numbers
- Subject 20-00-15 for the insulation removal procedures

Make sure that:

- The conductor does not have nicked or cut strands
 - If the insulation is removed by the application of heat, the conductor has not moved from the center of the wire
 - If the insulation is removed by the application of heat, the remaining insulation does not have blisters or evidence of overheating
 - The remaining insulation is not frayed.
- (5) If it is specified, fold the conductor back.
- (6) Put the conductor of the wire in the crimp barrel of the terminal lug.

Make sure that:

- All of the strands of the conductor are in the crimp barrel
 - The maximum distance from the end of the wire insulation of a single wire to the end of the crimp barrel is 0.12 inch for AWG 10 and smaller, and 0.25 inch for AWG 8 and larger
 - The clearance from the end of the conductor is sufficient for the installation of the washer and the nut.
- (7) Crimp the terminal lug.

Make sure that:

- All of the strands of the conductor are in the crimp barrel
 - The maximum distance from the end of the wire insulation of a single wire to the end of the crimp barrel is 0.12 inch for AWG 10 and smaller, and 0.25 inch for AWG 8 and larger
 - The clearance from the end of the conductor is sufficient for the installation of the washer and the nut.
- (8) If the crimp tool is a hex type tool and a secondary die is specified, crimp the terminal lug again with the secondary die.

NOTE: The second crimp removes the flash that is made by the first crimp.

NOTE: The removal of the plating from the terminal lug caused by the second crimp is permitted.

- (a) Put the secondary die in the crimp tool.
- (b) Turn the terminal lug one flat, approximately 60 degrees.
- (c) Crimp the terminal lug again.

Make sure that the second crimp is in the same location along crimp barrel as the first crimp.

P. Assembly of BACT12AB, BACT12AM, BACT12S, Rolls-Royce, Thermocouple, 69B40570, and Other Terminal Lugs

Refer to Paragraph 1.M. for the description of the terminal lugs applicable to this procedure.

Table 76
CRIMP TOOLS FOR BACT12AB TERMINAL LUGS

Crimp Barrel Size	Crimp Tool Basic Unit
22 - 18	49935

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Table 77
CRIMP TOOLS FOR BACT12AM TERMINAL LUGS

Crimp Barrel Size	Crimp Tool		
	Basic Unit	Head	Die
22 - 20	4B2-457450-6	687658-1	69936
	69692-1	-	-
	69875	-	69936
12 - 10	189721-2	318161-1	69735
	189722-2	318161-1	69735
	69710-1	-	69735

Table 78
CRIMP TOOLS FOR BACT12S TERMINAL LUGS

Crimp Barrel Size	Crimp Tool		
	Basic Unit	Head	Die
24 - 20	565435-5	5672000-2	69878
	59275	-	-
	68075	-	69878
	69005	69957	-
	69118-()	-	69341
	69875	-	69878

Table 79
CRIMP TOOLS FOR ROLLS-ROYCE TERMINAL LUGS

Terminal Lug	Crimp Barrel Size	Crimp Tool	
		Basic Unit	Die
1909156	20 - 16	574191-8	574191-1
2509293	22 - 16	574191-8	574191-1

Table 80
CRIMP TOOLS FOR THERMOCOUPLE TERMINAL LUGS

Terminal Lug	Crimp Barrel Size	Crimp Tool					
		Basic Unit	Setting	Holder	Head	Nest	Die
1-321897-0	22-16	46673	Insulation Grip Setting 3	-	-	-	-
1-321898-0	22-16	46673	Insulation Grip Setting 3	-	-	-	-

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Table 80 (continued)

Terminal Lug	Crimp Barrel Size	Crimp Tool					
		Basic Unit	Setting	Holder	Head	Nest	Die
1387-3	-	Y14MV	-	-	-	-	-
1387-4	-	Y14MV	-	-	-	-	-

Table 81

CRIMP TOOLS FOR 69B40570-2 TERMINAL LUGS

Terminal Lug		Wire		Crimp Tool			
Part Number	Crimp Barrel Size	AWG	Quantity of Wires in the Crimp Barrel	Basic Unit	Head	Die	
						Primary	Secondary
69B40570-2	2/0	4	2	Power Pump	13642M	11738	11737
		1/0	1				

Table 82

INSULATION REMOVAL LENGTH FOR THERMOCOUPLE AND 69B40570 TERMINAL LUGS

Terminal Lug Part Number	Insulation Removal Length (inch)
1-321897-0	0.25 ± 0.03
1-321898-0	0.25 ± 0.03
1387-3	0.31 ± 0.06
1387-4	0.31 ± 0.06
69B40570-2	0.75 ± 0.03

Table 83

CRIMP TOOLS FOR OTHER TERMINAL LUGS

Terminal Lug	Crimp Barrel Size	Crimp Tool					
		Basic Unit	Setting	Holder	Head	Nest	Die
150456	20-16	574191-8	-	-	-	-	574191-1
150471	22-16	574191-8	-	-	-	-	574191-1
2-320561-3	16	59250	-	-	-	-	-
2-320561-4	14	59250	-	-	-	-	-
2-321670-2	6	Power Pump	-	-	69051	-	47821
2-321672-1	2	Power Pump	-	-	69051	-	47823
2-323914-2	24	59275	-	-	-	-	-
2-323916-3	24	59275	-	-	-	-	-

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Table 83 (continued)

Terminal Lug	Crimp Barrel Size	Crimp Tool					
		Basic Unit	Setting	Holder	Head	Nest	Die
2-326875-4	24	59275	-	-	-	-	-
2-326875-5	24	59275	-	-	-	-	-
2-36149-3	22	59250	-	-	-	-	-
2-36149-4	20	59250	-	-	-	-	-
2-36149-5	18	59250	-	-	-	-	-
320381	16-14	59250	-	-	-	-	Blue
320634	12-10	69694-1	-	-	-	-	-
322215	1/0	MY28	Size 2 Flag Terminal	-	-	-	-
		Y29BH	-	-	-	DV26LM1	Y29PA
322220	4/0	Power Pump	-	-	13642	-	ST2354-13
		Power Pump	-	-	13642M	-	ST2354-13
323067	12-10	314937-1	-	-	-	-	314915-1
		59461	-	-	-	-	-
		PHRPU2	-	-	PHST-59461	-	-
324111	4	Power Pump	-	-	69051	-	47822
324112	2	Power Pump	-	-	69051	-	47823
324113	1/0	Power Pump	-	-	69066	-	47824
324915	12-10	59239-4	-	-	-	-	-
32456	22-18	59250	-	-	-	-	Red
328655	2	Power Pump	-	-	69051	-	47823
329636	24-20	59275	-	-	-	-	-
329951	26-22	69692-1	-	-	-	-	-
50847	12-10	189721-2	-	-	318161-1	-	69735
		189722-2	-	-	318161-1	-	69735
		69710-1	-	-	-	-	69735
51927	12-10	59054	-	-	-	-	-
52124	26-22	59275	-	-	-	-	-
52274	16	59250	-	-	-	-	-
52307	22	59250	-	-	-	-	-

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Table 83 (continued)

Terminal Lug	Crimp Barrel Size	Crimp Tool					
		Basic Unit	Setting	Holder	Head	Nest	Die
52409	22-18	189721-1	-	356303-1	-	-	314270-1
		314597-()	-	-	-	-	-
		46110	-	-	-	-	-
		4B2-457540-6	-	-	687658-1	-	69872
		59250	-	-	-	-	Red
		59275	-	-	-	-	-
		69004	-	-	-	-	47451
		69005	-	-	47516	-	-
		69075	-	-	-	-	69872
		69118-()	-	-	-	-	45185-7
		69365-()	-	-	-	-	47806-2
		69875	-	-	-	-	69872
52420	16-14	59250	-	-	-	-	Blue
53057-1	24	59250	-	-	-	-	-
53580-1	16	59250	-	-	-	-	Blue
		69875-H	-	-	69875	-	-
54746-1	6	59974-1	-	-	-	-	47822
		Power Pump	-	-	69061	-	47821

NOTE: Refer to Table 40 for the part numbers of the recommended Power Pumps.

NOTE: Refer to Subject 20-30-22 for the assembly of a terminal lug with a conductor that is smaller than the crimp barrel size of the terminal lug.

(1) Make a selection of a:

- BACT12AB terminal lug from Table 28
- BACT12AM terminal lug from Table 30
- BACT12S terminal lug from Table 32
- Rolls-Royce terminal lug from Table 34
- Thermocouple terminal lug from Table 37 or a
- Terminal lug from Table 38.

NOTE: For the selection of the terminal, use:

- The crimp barrel size, if one wire is to be terminated
- The CAU range, if more than one wire is to be terminated.

NOTE: Refer to Subject 20-30-22 if more than one wire is to be terminated.

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- (2) Make a selection of a crimp tool from:
- Table 76 for BACT12AB terminal lugs
 - Table 77 for BACT12AM terminal lugs
 - Table 78 for BACT12S terminal lugs
 - Table 79 for Rolls-Royce terminal lugs
 - Table 80 for thermocouple terminal lugs
 - Table 81 for a 69B40570-() terminal lug
 - Table 83 for other terminal lugs.
- (3) If the crimp tool basic unit is a power pump, adjust the pressure to make it satisfactory for the crimp tool head. Refer to Table 41.

WARNING: IF THE PRESSURE OF THE POWER PUMP IS MORE THAN THE MAXIMUM PRESSURE PERMITTED FOR THE CRIMP TOOL HEAD, AN INJURY TO PERSONNEL CAN OCCUR.

CAUTION: IF THE PRESSURE OF THE POWER PUMP IS MORE THAN THE MAXIMUM PRESSURE PERMITTED FOR THE CRIMP TOOL HEAD, DAMAGE TO THE CRIMP TOOL HEAD CAN OCCUR.

- (4) Remove the necessary length of the insulation from the end of the wire.

Refer to:

- Table 82 for the insulation removal length for thermocouple or 69B40570 terminal lugs
- Subject 20-00-15 for the insulation removal procedures.

Make sure that:

- When the wire is in the terminal lug, and the end of the wire insulation is in the insulation grip of the terminal lug, the end of the conductor extends farther than the end of the crimp barrel
 - The clearance from the end of the conductor is sufficient for the installation of the washer and the nut
 - If the terminal lug does not have an insulation grip, the maximum distance from the end of the wire insulation of a single wire to the end of the crimp barrel is 0.12 inch for AWG 10 and smaller, and 0.25 inch for AWG 8 and larger
 - The conductor does not have nicked or cut strands
 - If the insulation is removed by the application of heat, the conductor has not moved from the center of the wire
 - If the insulation is removed by the application of heat, the remaining insulation does not have blisters or evidence of overheating
 - The remaining insulation is not frayed.
- (5) If the wire has a braid jacket, put a 1.0 ± 0.06 length of heat shrinkable sleeve on the jacket.
- (6) If two flag terminals are to be attached to the end of a wire, put the conductor through the crimp barrels of both flag terminal lugs.
- Make sure that:
- All of the strands of the conductor go through both crimp barrels
 - The end of the conductor extends farther than the end of the crimp barrel of the terminal lug nearest to the end of the wire
 - The distance between the terminal lugs is correct for the installation.
- (7) Put the conductor of the wire in the crimp barrel of the terminal lug.

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If the terminal lug is a thermocouple terminal lug, make sure that:

- The Alumel wire that has green insulation attaches to the Alumel terminal lug
- The Chromel wire that has white insulation attaches to the Chromel terminal lug.

If the terminal is a flag terminal or an upright terminal, make sure that:

- All of the strands of the conductor are in the crimp barrel
- The end of the conductor extends farther than the end of the crimp barrel
- The maximum distance from the end of the wire insulation of a single wire to the end of the crimp barrel is 0.12 inch for AWG 10 and smaller, and 0.25 inch for AWG 8 and larger

If the terminal is not a flag terminal or an upright terminal, make sure that:

- All of the strands of the conductor are in the crimp barrel
- The end of the conductor extends farther than the end of the crimp barrel
- If the terminal lug has an insulation grip, the end of the wire insulation is in the insulation grip of the terminal lug
- If the terminal lug does not have an insulation grip, the maximum distance from the end of the wire insulation of a single wire to the end of the crimp barrel is 0.12 inch for AWG 10 and smaller, and 0.25 inch for AWG 8 and larger
- The clearance from the end of the conductor is sufficient for the installation of the washer and the nut.

(8) Crimp the terminal lug or lugs.

Make sure that:

- All of the strands of the conductor are in the crimp barrel
- The end of the conductor extends farther than the end of the crimp barrel
- If the terminal lug has an insulation grip, the end of the wire insulation is in the insulation grip of the terminal lug
- If the terminal lug has an insulation grip, the crimp tool is adjusted to give the correct insulation support. Refer to Paragraph 2.B.
- If the terminal lug does not have an insulation grip, the maximum distance from the end of the wire insulation of a single wire to the end of the crimp barrel is 0.12 inch for AWG 10 and smaller, and 0.25 inch for AWG 8 and larger
- If the terminal lug is not a flag or an upright terminal, the clearance from the end of the conductor is sufficient for the installation of the washer and the nut
- If two flag terminals are assembled on the wire, the crimp of the flag terminal nearest to the end of the wire is made first
- If two flag terminals are assembled on the wire, the distance between the terminal lugs is correct for the installation.

NOTE: If two flag terminals are on the wire, the crimp of the flag terminal at the end of the wire first, keeps the strands of the conductor together until the crimp of both flag terminals is completed.

(9) If a secondary die is specified, crimp the terminal lug again with the secondary die.

NOTE: The second crimp removes the flash that is made by the first crimp.

NOTE: The removal of the plating from the terminal lug caused by the second crimp is permitted.

- (a) Put the secondary die in the crimp tool.
- (b) Turn the terminal lug one flat, approximately 60 degrees.

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ASSEMBLY OF INSULATED AND UNINSULATED TERMINAL LUGS

- (c) Crimp the terminal lug again.

Make sure that the second crimp is in the same location along crimp barrel as the first crimp.

- (10) If the terminal is a Thermo-Electric thermocouple terminal lug part number 1387-3 or 1387-4:
- Make a selection of a flux and a high temperature silver/lead solder. Refer to Subject 20-00-11.
 - Solder the terminal lug to the conductor.
- (11) If a length of heat shrinkable sleeve is on the wire, shrink it into its position on the end of the wire insulation.

NOTE: The heat shrinkable sleeve keeps the strands of the insulation braid together.

3. APPROVED TOOL SUPPLIERS

A. Crimp Tools

Table 84
CRIMP TOOL SUPPLIERS

Tool	Description	Supplier
11732	Crimp Die	Thomas & Betts
11734	Crimp Die	Thomas & Betts
11737	Crimp Die	Thomas & Betts
11738	Crimp Die	Thomas & Betts
11739	Crimp Die	Thomas & Betts
13597	Power Pump	Thomas & Betts
13600	Power Crimp Tool	Thomas & Betts
13642	Power Crimp Tool	Thomas & Betts
13642M	Head	Thomas & Betts
189721-1	Hand Actuated Pneumatic Power Crimp Tool	AMP
189721-2	Hand Actuated Pneumatic Power Crimp Tool	AMP
189722-2	Foot Actuated Pneumatic Power Crimp Tool	AMP
300430	Nest	AMP
314268-1	Fixed Die	AMP
314268-2	Fixed Die	AMP
314269-1	Fixed Die	AMP
314269-2	Fixed Die	AMP
314270-1	Fixed Die	AMP
314270-2	Fixed Die	AMP
314423-()	Power Crimp	AMP
314542-1	Fixed Die	AMP

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ASSEMBLY OF INSULATED AND UNINSULATED TERMINAL LUGS
Table 84 (continued)

Tool	Description	Supplier
314542-2	Fixed Die	AMP
314543-1	Fixed Die	AMP
314543-2	Fixed Die	AMP
314590-()	Power Crimp	AMP
314590-2	Power Crimp	AMP
314597-()	Power Crimp	AMP
314656-1	Die	AMP
314700-()	Power Crimp	AMP
314700-1	Power Crimp	AMP
314915-1	Crimp Die	AMP
314937-1	Power Crimp	AMP
318161-1	Head	AMP
34PL	Indenter	Burndy
34PL-2	Indenter	Burndy
356302-1	Tool Holder	AMP
356303-1	Tool Holder	AMP
356443-1	Tool Holder	AMP
356744-1	Head	AMP
356744-2	Head	AMP
45175	Head	AMP
45176	Head	AMP
45185-7	Die Set	AMP
45225-2	Die	AMP
45225-5	Die Set	AMP
46110	Power Hand Crimp Tool	AMP
46447	Hand Crimp Tool	AMP
46673	Hand Crimp Tool	AMP
46988	Hand Crimp Tool	AMP
47321	Nest	AMP
47322	Indenter	AMP
47451	Die Set	AMP
47453	Die Set	AMP
47516	Head	AMP

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ASSEMBLY OF INSULATED AND UNINSULATED TERMINAL LUGS
Table 84 (continued)

Tool	Description	Supplier
47517	Head	AMP
47518-1	Head	AMP
47806-2	Die Set	AMP
47807-1	Die Set	AMP
47808	Die Set	AMP
47808-6	Die Set	AMP
47820	Die Set	AMP
47821	Die Set	AMP
47822	Die Set	AMP
47823	Die Set	AMP
47824	Die Set	AMP
47825	Die Set	AMP
47852	Die Set	AMP
47907	Hand Crimp Tool	AMP
47918	Die Set	AMP
48126	Nest	AMP
48127	Indenter	AMP
48128	Nest	AMP
48129	Nest	AMP
48130	Nest	AMP
48131	Indenter	AMP
48132	Nest	AMP
48133	Nest	AMP
48134	Nest	AMP
48355	Indenter	AMP
49900	Hand Crimp Tool	AMP
49935	Hand Crimp Tool	AMP
4B2-457450-6	Power Bench Crimp Tool	AMP
4B2-457540-6	Power Bench Crimp Tool	AMP
565435-5	Power Bench Crimp Tool	AMP
567200-2	Fixed Crimp Head	AMP
5672000-2	Fixed Crimp Head	AMP
574191-1	Die	AMP

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ASSEMBLY OF INSULATED AND UNINSULATED TERMINAL LUGS
Table 84 (continued)

Tool	Description	Supplier
574191-8	Hand Crimp Tool	AMP
58422-1	Head	AMP
59054	Hand Crimp Tool	AMP
59239-()	Hand Crimp Tool	AMP
59250	Hand Crimp Tool	AMP
59275	Hand Crimp Tool	AMP
59294-()	Hand Crimp Tool	AMP
59461	Hand Crimp Tool	AMP
59973-1	Hand Crimp Tool	AMP
59974-1	Power Crimp Tool - Use with Boeing Support Equipment.	AMP
679300-1	Fixed Die	AMP
68075	Power Bench Crimp Tool	AMP
68285-1	Adjustable Head or Die	AMP
687658-1	Fixed Crimp Head	AMP
69004	Power Bench Crimp Tool	AMP
69005	Power Hand Crimp Tool	AMP
69010	Power Hand Crimp Tool	AMP
69020	Crimp Tool	AMP
69046	Head	AMP
69051	Head - Use with Boeing support Equipment.	AMP
69061	Head - Use with Boeing support Equipment.	AMP
69066	Head	AMP
69069	Head	AMP
69075	Power Bench Crimp Tool	AMP
69118-()	Power Hand Crimp Tool	AMP
69120-()	Power Pump	AMP
69319-1	Power Hand Crimp Tool	AMP
69341	Die Set	AMP
69365	Power Hand Crimp Tool	AMP
69365-()	Power Hand Crimp Tool	AMP
69692-1	Hand Crimp Tool	AMP
69693-1	Hand Crimp Tool	AMP

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STANDARD WIRING PRACTICES MANUAL
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Table 84 (continued)

Tool	Description	Supplier
69694-1	Hand Crimp Tool	AMP
69710-1	Crimp Tool	AMP
69735	Die	AMP
69872	Die Set	AMP
69873	Die Set	AMP
69874	Die Set	AMP
69874 Model C	Die Set	AMP
69875	Power Bench Crimp Tool	AMP
69875-H	Power Bench Crimp Tool for Parts Packaged on Reel	AMP
69878	Die Set	AMP
69936	Fixed Adjustment Die Set	AMP
69957	Head	AMP
904395-1	Die Set	AMP
BAT35	Crimp Tool - Use with Burndy parts only	Burndy
BDHD1	Head	Daniels
Bandolug SME	Power Crimp Tool	Burndy
DV1L	Nest	Burndy
DV25L	Nest	Burndy
DV26L	Nest	Burndy
DV27L	Nest	Burndy
DV28L	Nest	Burndy
DV2BL	Nest	Burndy
DV2L	Nest	Burndy
DV25BL	Nest	Burndy
DV25BL-1	Nest	Burndy
DV26BL	Nest	Burndy
DV26LM1	Nest	Burndy
DV4BL	Nest	Burndy
DV4L	Nest	Burndy
DV6BL	Nest	Burndy
DV6L	Nest	Burndy
DV8BL	Nest	Burndy

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ASSEMBLY OF INSULATED AND UNINSULATED TERMINAL LUGS

Table 84 (continued)

Tool	Description	Supplier
DV8BL-1	Nest	Burndy
DV8L-1	Nest	Burndy
M8ND	Hand Crimp Tool - Use with Burndy parts only.	Burndy
MR8-4	Hand Crimp Tool	Burndy
MR8-5	Hand Crimp Tool	Burndy
MR8G98	Hand Crimp Tool	Burndy
MY28	Hand Crimp Tool	Burndy
N10HT	Die Set	Burndy
N14HT	Die Set	Burndy
N8CT	Die Set	Burndy
PHRPU2	Power Hand Crimp Tool	Daniels
PHST-59461	Head	Daniels
PPFC-1H	Head	Daniels
S14HT	Die Set	Burndy
S18HT	Die Set	Burndy
ST2354-1	Die Set	Boeing
ST2354-13	Die	Boeing
ST2354-16	Die	Boeing
ST2354-2	Die Set	Boeing
ST2354-3	Die Set	Boeing
ST2354-5	Die	Boeing
ST2354-6	Die Set	Boeing
ST2354B-1	Die Set	Boeing
ST2354B-2	Die Set	Boeing
ST2354B-3	Die Set	Boeing
ST2354B-5	Die Set	Boeing
ST2354B-6	Die Set	Boeing
ST970-12	Head - Use with Boeing support Equipment.	Boeing
TBHD1	Die Set	Daniels
TBM12	Head - NOTE: A Crimp Tool that has the Thomas and Betts TBM12 head and the TBM12D-AR adapter is the same as the Thomas and Betts 13400 crimp tool.	Thomas & Betts

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STANDARD WIRING PRACTICES MANUAL
ASSEMBLY OF INSULATED AND UNINSULATED TERMINAL LUGS
Table 84 (continued)

Tool	Description	Supplier
TBM12D-AR	Adapter - NOTE: A Crimp Tool that has the Thomas and Betts TBM12 head and the TBM12D-AR adapter is the same as the Thomas and Betts 13400 crimp tool.	Thomas & Betts
UV25B-1	Nest	Burndy
UV25L	Nest	Burndy
UV26B-1	Nest	Burndy
UV26L	Nest	Burndy
UV27L	Nest	Burndy
UV2B-1	Nest	Burndy
UV2L	Nest	Burndy
UV4B-1	Nest	Burndy
UV4L	Nest	Burndy
UV6B-1	Nest	Burndy
UV6L	Nest	Burndy
UV8B-1	Nest	Burndy
UV8L	Nest	Burndy
V8L	Die	Burndy
W400-5060	Crimp Tool	Western Industrial Products
WT130	Crimp Tool	Thomas & Betts
WT1300	Crimp Tool	Thomas & Betts
Y10MRF-4	Crimp Tool	Burndy
Y10MRF-5	Crimp Tool	Burndy
Y14MV	Crimp Tool	Burndy
Y29B	Head	Burndy
Y29BH	Crimp Tool	Burndy
Y29PA	Indenter	Burndy
Y29PA-1	Indenter	Burndy
Y29PBL	Indenter	Burndy
Y29PBL-1	Indenter	Burndy
Y29PL	Indenter	Burndy
Y29PR	Indenter	Burndy
Y34A	Head	Burndy
Y34PA	Indenter	Burndy

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STANDARD WIRING PRACTICES MANUAL**ASSEMBLY OF INSULATED AND UNINSULATED TERMINAL LUGS****Table 84 (continued)**

Tool	Description	Supplier
Y34PL	Indenter	Burndy
Y34PLA	Indenter	Burndy
Y35	Power Hand Crimp Tool - Use with Burndy parts only.	Burndy
Y35BH	Use Y35P3 adapter for Y23() Series indentors with Y35, BAT35, and Y35BH heads.	Burndy
Y35P3	Use Y35P3 adapter for Y23() Series indentors with Y35, BAT35, and Y35BH heads.	Burndy
Y6NP	Power Pump	Burndy
Y8ND	Power Hand Crimp Tool - Use with Burndy parts only.	Burndy

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18. APPROVED TOOL SUPPLIERS (continued)

C. Shield-Kon Crimp Tools

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For training purposes only!

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

1. GENERAL DATA

NOTE: Refer to Subject 20-14-11 for the repair of 777 flight control cables.

Refer to Subject 20-14-11 for the repair of 777 flight control cables.

Refer to Subject 20-30-19 for the assembly of BACS52R shielded splices.

A. Applicable Conditions for the Assembly of Splices

For the conditions that are applicable for:

- The repair of a wire or cable, refer to Subject 20-10-13
- The repair of a splice assembly, refer to Subject 20-10-13
- The assembly of a wire harness that has a splice, refer to Subject 20-10-11
- The installation of a wire harness that has a splice, refer to Subject 20-10-11.

For the assembly of:

- A splice that connects aluminum wires or an aluminum wire to a copper wire, refer to Subject 20-30-13
- A specified splice, refer to Paragraph 1.B.
- A closed end splice, refer to Paragraph 5.A.
- An unsealed butt splice, refer to Paragraph 6.A.
- A sealed splice, refer to Paragraph 1.C.

B. Assembly of Specified Splices

Table 1 gives the location of the assembly procedure or the selection of the assembly procedure for the applicable splice assembly configuration of a specified splice.

Table 1
ASSEMBLY PROCEDURES FOR SPECIFIED SPLICES

Specified Splice	Supplier	Splice Assembly Configuration	Reference
34137	Tyco/AMP	Sealed Closed End Splice	Paragraph 5.C.
		Unsealed Closed End Splice	Paragraph 5.E.
34138	Tyco/AMP	Sealed Closed End Splice	Paragraph 5.C.
		Unsealed Closed End Splice	Paragraph 5.E.
48-7190	Amphenol	Removable Pin Contact Splice Plug	Paragraph 17.
48-7190-1	Amphenol	Removable Pin Contact Splice Plug	Paragraph 17.
48-7191	Amphenol	Removable Socket Contact Splice Receptacle	Paragraph 17.
48-7191-1	Amphenol	Removable Socket Contact Splice Receptacle	Paragraph 17.
BACT12C11	Boeing	High Temperature Butt Splice	Paragraph 8.A.
BACT12C15	Boeing	High Temperature Butt Splice	Paragraph 8.A.
BACT12C20	Boeing	High Temperature Butt Splice	Paragraph 8.A.
D-150-0251	Tyco/Raychem	High Temperature Solder Sleeve Splice Kit	Paragraph 16.A.
D-150-0272	Tyco/Raychem	Solder Shield Splice Kit	Paragraph 14.A.

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Table 1 (continued)

Specified Splice	Supplier	Splice Assembly Configuration	Reference
D-436-36	Tyco/Raychem	Sealed Butt Splice Kits - One to Two Wires	Paragraph 7.F.
		Sealed Butt Splice Kits - One to Five Wires	Paragraph 7.H.
D-436-37	Tyco/Raychem	Sealed Butt Splice Kits - One to Two Wires	Paragraph 7.F.
		Sealed Butt Splice Kits - One to Five Wires	Paragraph 7.H.
D-436-38	Tyco/Raychem	Sealed Butt Splice Kits - One to Two Wires	Paragraph 7.F.
		Sealed Butt Splice Kits - One to Five Wires	Paragraph 7.H.
D-436-60	Tyco/Raychem	Sealed Closed End Splice Kit	Paragraph 5.B.
NAS1387-()	QPL	Butt Splice With Sleeve - One Wire	Paragraph 6.D.
		Butt Splice With Sleeve - More Than One Wire	Paragraph 6.E.
NAS1388-()	QPL	Insulated Butt Splice - One Wire	Paragraph 6.B.
		Insulated Butt Splice - More Than One Wire	Paragraph 6.C.
NAS1389-()	QPL	Insulated Butt Splice - One Wire	Paragraph 6.B.
		Insulated Butt Splice - More Than One Wire	Paragraph 6.D.

C. Selection of a Sealed Splice Configuration

For the applicable splice assembly configurations for:

- Unshielded wire and unshielded cable, refer to Table 2
- Shielded wire and shielded cable, refer to Table 3.

Table 2

SEALED SPLICE CONFIGURATIONS FOR UNSHIELDED WIRE AND UNSHIELDED CABLE

Maximum Temperature Grade	Wire Size (AWG)		Reference
	Minimum	Maximum	
B	24	2	Paragraph 7.A.
D	24	10	Paragraph 8.A.
	8	2/0	Subject 20-30-13

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ASSEMBLY OF SPLICES

Table 3
SEALED SPLICE CONFIGURATIONS FOR SHIELDED WIRE AND SHIELDED CABLE

Maximum Temperature Grade	Number of Shields	Shield Conductor	Applicable Area	Splice Assembly	
				Configuration	Reference
B	1	Flat	No Fuel Vapor	Solder Shield Splice Kit	Paragraph 14.A.
				Solder Sleeve Shield Splice	Paragraph 15.A.
		Round	Fuel Vapor	Mechanical Ferrule	Paragraph 10.A.
				Shield-Kon	Paragraph 12.A.
			No Fuel Vapor	Mechanical Ferrule	Paragraph 10.A.
				Shield-Kon	Paragraph 12.A.
				Solder Shield Splice Kit	Paragraph 14.A.
	2	Flat Inner, Round Outer	No Fuel Vapor	Solder Shield Splice Kit	Paragraph 14.A.
		Round Inner, Round Outer	Fuel Vapor	Mechanical Ferrule	Paragraph 10.A.
				Shield-Kon	Paragraph 12.A.
			No Fuel Vapor	Mechanical Ferrule	Paragraph 10.A.
				Shield-Kon	Paragraph 12.A.
				Solder Shield Splice Kit	Paragraph 14.A.

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ASSEMBLY OF SPLICES

Table 3 (continued)

Maximum Temperature Grade	Number of Shields	Shield Conductor	Applicable Area	Splice Assembly	
				Configuration	Reference
D	1	Flat	No Fuel Vapor	Solder Sleeve Splice Kit	Paragraph 16.A.
		Round	Fuel Vapor	Mechanical Ferrule	Paragraph 11.A.
				Shield Termination Rings and Bands	Paragraph 13.A.
			No Fuel Vapor	Mechanical Ferrule	Paragraph 11.A.
				Shield Termination Rings and Bands	Paragraph 13.A.
				Solder Sleeve Splice Kit	Paragraph 16.A.
	2	Flat Inner, Round Outer	No Fuel Vapor	Solder Sleeve Splice Kit	Paragraph 16.A.
		Round Inner, Round Outer	Fuel Vapor	Mechanical Ferrule	Paragraph 11.A.
				Shield Termination Rings and Bands	Paragraph 13.A.
			No Fuel Vapor	Mechanical Ferrule	Paragraph 11.A.
				Shield Termination Rings and Bands	Paragraph 13.A.
				Solder Sleeve Splice Kit	Paragraph 16.A.

D. Conductor CAU

This paragraph gives the procedure to find the CAU of the conductor or conductors.

Table 4
AWG TO CAU CONVERSION

Wire Size (AWG)	Circular Area Units (CAU)
32	0.6
30	1
28	1.6
26	3
24	5
22	8
20	12
18	19

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ASSEMBLY OF SPLICES

Table 4 (continued)

Wire Size (AWG)	Circular Area Units (CAU)
16	24
14	38
12	59
10	99
8	170
6	268
4	426
2	665
1	837
1/0	1045
2/0	1330
3/0	1665
4/0	2109

- Find the CAU of each conductor. Refer to Table 4.
- For more than one conductor, add the CAU of each conductor for the total CAU of the conductors.

2. INCREASE OF CONDUCTOR CAU

A. Applicable Conditions

If the total CAU of the conductors is less than the minimum CAU of the conductor splice, increase the CAU of the conductor.

For example, an AWG 20 wire can be assembled in a size 12-10 NAS1388 butt splice, but the CAU of the AWG 20 conductor must be increased by a minimum of 31 CAU and a maximum of 126 CAU because:

- The CAU of the AWG 20 conductor is 12
- The minimum CAU of the size 12-10 splice is 43
- The maximum CAU of the size 12-10 splice is 138.

Refer to:

- Paragraph 2.B. for the assembly of a conductor splice with a conductor that is folded back
- Paragraph 2.C. for the assembly of a conductor splice with a filler wire.

B. Assembly of a Conductor Splice with a Conductor that is Folded Back

- (1) Find the correct insulation removal length L for the conductor splice.
- (2) Remove two times the removal length L of the insulation from the end of the wire.

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ASSEMBLY OF SPLICES

CAUTION: DO NOT CUT OR CAUSE DAMAGE TO THE STRANDS OF THE CONDUCTOR. THE MECHANICAL STRENGTH OF THE WIRE CAN BE DECREASED.

CAUTION: MAKE SURE THAT THE END OF THE INSULATION IS EQUAL AND SYMMETRICAL AROUND THE CIRCUMFERENCE OF THE CONDUCTOR. UNWANTED INSULATION IN THE CRIMP CAN INCREASE THE ELECTRICAL RESISTANCE.

CAUTION: MAKE SURE THAT THE BASE METAL OF THE CONDUCTOR CANNOT BE SEEN. CORROSION OF THE CONDUCTOR CAN OCCUR.

- (3) Fold the conductor back.

Make sure that the distance from the end of the insulation to the end of the conductor is the removal length L.

- (4) Assemble the conductor splice.

Refer to the applicable paragraph for the procedure to assemble the specified splice.

C. Assembly of a Conductor Splice with a Filler Wire

- (1) Make a selection of a filler wire.
- (2) Remove the necessary length of insulation from the end of the filler wire.
- (3) Put the filler wire and the primary wire in the conductor splice at the same time.
- (4) Assemble the conductor splice.

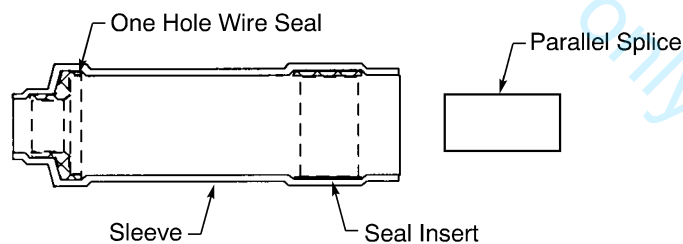
Refer to the applicable paragraph for the procedure to assemble the specified splice.

- (5) After the conductor splice is crimped, remove the unwanted length of the filler wire as near as possible to the end of the splice.

CAUTION: DO NOT CUT OR CAUSE DAMAGE TO THE STRANDS OF THE CONDUCTOR. THE MECHANICAL STRENGTH OF THE WIRE CAN BE DECREASED.

3. SPLICE PART NUMBERS AND DESCRIPTION

A. Closed End Splices



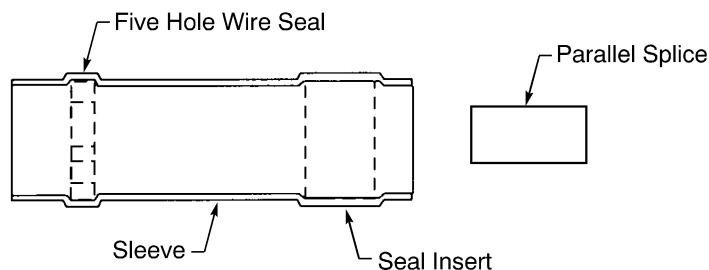
CLOSED END SPLICE KIT WITH A 1 HOLE WIRE SEAL

Figure 1

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES



CLOSED END SPLICE KIT WITH A 5 HOLE WIRE SEAL

Figure 2

Table 5

PART NUMBERS OF SEALED CLOSED END SPLICE KITS

CAU Range		Maximum Number of Wires	Part Number	Number of Holes in Wire Seal	Supplier
Minimum	Maximum				
8	27	2	D-436-58	1	Tyco/Raychem
		5	D-436-60	5	Tyco/Raychem
19	67	2	D-436-59	1	Tyco/Raychem
		5	D-436-61	5	Tyco/Raychem

Table 6

COMPONENT PART NUMBERS OF SEALED CLOSED END SPLICE KITS

Splice Kit	Component	Part Number	Crimp Barrel Size	Color Strip	Supplier
D-436-58	Parallel Splice	D-609-04	20-16	Blue	Tyco/Raychem
	Sleeve	D-436-45	-	-	Tyco/Raychem
D-436-59	Parallel Splice	D-609-05	16-12	Yellow	Tyco/Raychem
	Sleeve	D-436-45	-	-	Tyco/Raychem
D-436-60	Parallel Splice	D-609-04	20-16	Blue	Tyco/Raychem
	Sleeve	D-436-46	-	-	Tyco/Raychem
D-436-61	Parallel Splice	D-609-05	16-12	Yellow	Tyco/Raychem
	Sleeve	D-436-46	-	-	Tyco/Raychem

Table 7

PART NUMBERS OF INSULATED CLOSED END SPLICES

CAU Range		Part Number	Crimp Barrel Size	Supplier
Minimum	Maximum			
20	52	35115	22-14	Tyco/AMP
32	131	35653	18-10	Tyco/AMP

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ASSEMBLY OF SPLICES

Table 8
PART NUMBERS OF PARALLEL SPLICES

CAU Range		Part Number	Crimp Barrel Size	Color Stripe	Supplier
Minimum	Maximum				
8	27	D-609-04	20-16	Blue	Tyco/Raychem
15	51	34137	16-14	-	Tyco/AMP
19	67	D-609-05	16-12	Yellow	Tyco/Raychem
43	138	34138	12-10	-	Tyco/AMP

Table 9
SLEEVE PART NUMBERS FOR SEALED CLOSED END SPLICES

Parallel Splice	Maximum Number of Wires	Sleeve		
		Part Number	Number of Holes in Wire Seal	Supplier
D-609-04	2	D-436-0098	1	Tyco/Raychem
		D-436-45	1	Tyco/Raychem
		D-436-73	1	Tyco/Raychem
	5	D-436-46	5	Tyco/Raychem
D-609-05	2	D-436-0098	1	Tyco/Raychem
		D-436-45	1	Tyco/Raychem
		D-436-73	1	Tyco/Raychem
	5	D-436-46	5	Tyco/Raychem
34137	2	D-436-0098	1	Tyco/Raychem
		D-436-45	1	Tyco/Raychem
		D-436-73	1	Tyco/Raychem
		DWP-125	1	Tyco/Raychem
		MWSF	1	Remtek
	5	D-436-46	5	Tyco/Raychem
34138	2	D-436-73	1	Tyco/Raychem
		DWP-125	1	Tyco/Raychem
		MWSF	1	Remtek
	5	D-436-46	5	Tyco/Raychem

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ASSEMBLY OF SPLICES

B. Insulated Butt Splices

Table 10
PART NUMBERS OF INSULATED BUTT SPLICES

CAU Range		Part Number	Crimp Barrel Size	Description	Insulation Color	Supplier
Minimum	Maximum					
3	8	NAS1388-5	26-22	Insulation Grip	Yellow	QPL
4	12	NAS1388-4	24-20	Insulation Grip	White	QPL
7	24	NAS1388-1	22-18	Insulation Grip	Red	QPL
15	51	NAS1388-2	16-14	Insulation Grip	Blue	QPL
59	138	NAS1388-3	12-10	Insulation Grip	Yellow	QPL
132	208	NAS1389-1	8	No Insulation Grip	Red	QPL
209	331	NAS1389-4	6	No Insulation Grip	Blue	QPL
332	526	NAS1389-7	4	No Insulation Grip	Yellow	QPL
527	837	NAS1389-10	2	No Insulation Grip	Red	QPL
838	1195	NAS1389-13	1/0	No Insulation Grip	Blue	QPL

Table 11
APPROVED SUPPLIERS OF INSULATED BUTT SPLICES

Splice	Supplier
NAS1388-1	Tyco/ AMP
NAS1388-2	Tyco/ AMP
NAS1388-3	Tyco/ AMP
NAS1388-4	Tyco/ AMP
NAS1388-5	Tyco/ AMP
NAS1389-1	Tyco/ AMP
NAS1389-4	Tyco/ AMP
NAS1389-7	Tyco/ AMP
NAS1389-10	Tyco/ AMP
NAS1389-13	Tyco/ AMP

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ASSEMBLY OF SPLICES
C. Uninsulated Butt Splices

Table 12
PART NUMBERS OF BUTT SPLICES

CAU Range		Part Number	Crimp Barrel Size	Supplier
Minimum	Maximum			
3	15	BACS52K1	26-20	Boeing
7	24	NAS1387-4	22-18	QPL
8	27	BACS52K2	20-16	Boeing
15	51	NAS1387-5	16-14	QPL
19	67	BACS52K3	16-12	Boeing
65	104	BACT12C12	12-10	Boeing
43	138	NAS1387-6	12-10	QPL
132	181	BACT12C8	8	Boeing
206	288	BACT12C6	6	Boeing
327	457	BACT12C4	4	Boeing
524	735	BACT12C21	2	Boeing
975	1119	BACT12C101	1/0	Boeing

Table 13
APPROVED SUPPLIERS OF BUTT SPLICES

Splice	Supplier
BACS52K1	Tyco/Raychem
BACS52K2	Tyco/Raychem
BACS52K3	Tyco/Raychem
BACT12C4	FCI/Burndy
BACT12C6	FCI/Burndy
BACT12C8	FCI/Burndy
BACT12C12	FCI/Burndy
BACT12C21	FCI/Burndy
BACT12C101	FCI/Burndy
NAS1387-4	Tyco/AMP
NAS1387-5	Tyco/AMP
NAS1387-6	Tyco/AMP

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Table 14
PART NUMBERS OF RAYCHEM D-609-0() BUTT SPLICES

CAU Range		Part Number	Crimp Barrel Size	Color Stripe	Supplier
Minimum	Maximum				
3	15	D-609-06	26-20	Red	Tyco/Raychem
8	27	D-609-07	20-16	Blue	Tyco/Raychem
23	67	D-609-08	16-12	Yellow	Tyco/Raychem

Table 15
PART NUMBERS OF BUTT SPLICES FOR HIGH TEMPERATURE

CAU Range		Boeing Standard	Crimp Barrel Size	Type	Supplier
Minimum	Maximum				
7	24	BACT12C20	22-18	Insulation Grip	Boeing
15	51	BACT12C15	16-14	Insulation Grip	Boeing
43	138	BACT12C11	12-10	Insulation Grip	Boeing

Table 16
APPROVED SUPPLIERS OF BOEING STANDARD BUTT SPLICES FOR HIGH TEMPERATURE

Splice	Supplier
BACT12C11	Tyco/AMP
BACT12C15	Tyco/AMP
BACT12C20	Tyco/AMP

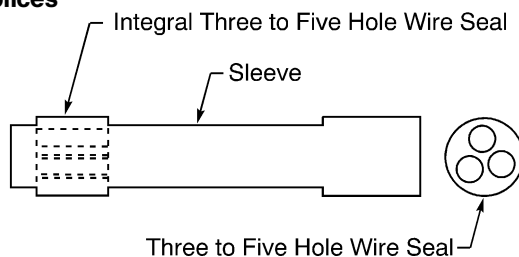
Table 17
PART NUMBERS OF RAYCHEM D-609-1() BUTT SPLICES FOR HIGH TEMPERATURE

CAU Range		Part Number	Crimp Barrel Size	Color Stripe	Supplier
Minimum	Maximum				
8	27	D-609-10	20-16	Blue	Tyco/Raychem
23	67	D-609-11	16-12	Yellow	Tyco/Raychem

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

D. Seal Sleeves for Butt Splices



SLEEVE WITH A 3 TO 5 HOLE WIRE SEAL
Figure 3

Table 18
SLEEVE PART NUMBERS FOR BUTT SPLICES

Splice	Sleeve				
	Maximum Number of Wires for the Seal of the End	Number of Holes in the Wire Seal	Part Number	Color Stripe	Supplier
BACT12C12	2	1	D-436-73	-	Tyco/Raychem
	1	1	DWP-125	-	Tyco/Raychem
	4	4	D-436-40	Yellow	Tyco/Raychem
	5	5	D-436-39	Red	Tyco/Raychem
BACT12C4	1	1	DWP-125	-	Tyco/Raychem
	5	3	D-436-41	Blue	Tyco/Raychem
BACT12C6	1	1	DWP-125	-	Tyco/Raychem
	5	3	D-436-41	Blue	Tyco/Raychem
BACT12C8	1	1	DWP-125	-	Tyco/Raychem
	5	3	D-436-41	Blue	Tyco/Raychem
D-609-06	2	1	D-436-0096	Red	Tyco/Raychem
	5	3	D-436-95	Yellow	Tyco/Raychem
D-609-07	2	1	D-436-0097	Blue	Tyco/Raychem
	2	1	D-436-73	-	Tyco/Raychem
	5	4	D-436-40	Yellow	Tyco/Raychem
	5	5	D-436-39	Red	Tyco/Raychem
	5	3	D-436-95	Yellow	Tyco/Raychem

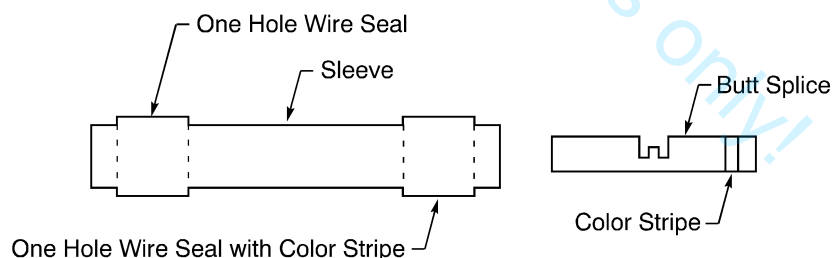
STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Table 18 (continued)

Splice	Sleeve				
	Maximum Number of Wires for the Seal of the End	Number of Holes in the Wire Seal	Part Number	Color Stripe	Supplier
D-609-08	2	1	D-436-0098	Yellow	Tyco/Raychem
	2	1	D-436-73	-	Tyco/Raychem
	5	4	D-436-40	Yellow	Tyco/Raychem
	5	5	D-436-39	Red	Tyco/Raychem
	5	3	D-436-95	Yellow	Tyco/Raychem
NAS1387-4	2	1	D-436-73	-	Tyco/Raychem
	5	4	D-436-40	Yellow	Tyco/Raychem
	5	5	D-436-39	Red	Tyco/Raychem
NAS1387-5	2	1	D-436-73	-	Tyco/Raychem
	5	4	D-436-40	Yellow	Tyco/Raychem
	5	5	D-436-39	Red	Tyco/Raychem
NAS1387-6	2	1	D-436-73	-	Tyco/Raychem
	1	1	DWP-125	-	Tyco/Raychem
	4	4	D-436-40	Yellow	Tyco/Raychem
	5	5	D-436-39	Red	Tyco/Raychem

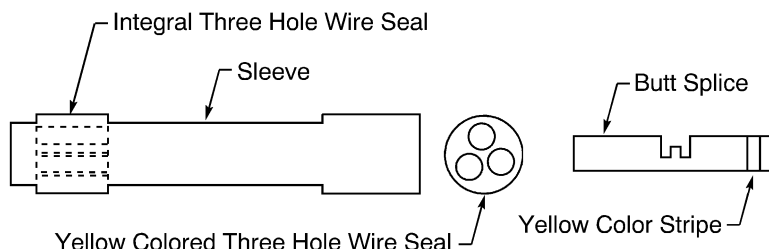
E. Sealed Splice Kits for Unshielded Wire and Unshielded Cable


SEALED SPLICE KIT WITH A BUTT SPLICE AND A 1 HOLE WIRE SEAL
Figure 4

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ASSEMBLY OF SPLICES



SEALED SPLICE KIT WITH A BUTT SPLICE AND A 3 HOLE WIRE SEAL
Figure 5

Table 19

PART NUMBERS OF SEALED SPLICE KITS FOR UNSHIELDED WIRE AND UNSHIELDED CABLE

Sleeve		CAU Range		Part Number	Supplier
Maximum Number of Wires for the Seal of the End	Number of Holes in the Wire Seal	Minimum	Maximum		
2	1	3	15	M81824/1-1	QPL
				D-436-36	Tyco/Raychem
		8	27	M81824/1-2	QPL
				D-436-37	Tyco/Raychem
		19	67	M81824/1-3	QPL
				D-436-38	Tyco/Raychem
5	3	8	27	D-436-42	Tyco/Raychem
		19	67	D-436-43	Tyco/Raychem

Table 20

COMPONENT PART NUMBERS OF SEALED SPLICE KITS

Splice Kit	Component	Part Number	Crimp Barrel Size	Color Stripe	Supplier
M81824/1-1	Butt Splice	BACS52K1	26-20	Red	Boeing
	Sleeve	BACS13CM1	-	Red	Boeing
M81824/1-2	Butt Splice	BACS52K2	20-16	Blue	Boeing
	Sleeve	BACS13CM2	-	Blue	Boeing
M81824/1-3	Butt Splice	BACS52K3	16-12	Yellow	Boeing
	Sleeve	BACS13CM3	-	Yellow	Boeing
D-436-36	Butt Splice	D-609-06	26-20	Red	Tyco/Raychem
	Sleeve	D-436-0096	-	Red	Tyco/Raychem
D-436-37	Butt Splice	D-609-07	20-16	Blue	Tyco/Raychem
	Sleeve	D-436-0097	-	Blue	Tyco/Raychem

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ASSEMBLY OF SPLICES

Table 20 (continued)

Splice Kit	Component	Part Number	Crimp Barrel Size	Color Stripe	Supplier
D-436-38	Butt Splice	D-609-08	16-12	Yellow	Tyco/Raychem
	Sleeve	D-436-0098	-	Yellow	Tyco/Raychem
D-436-42	Butt Splice	D-609-07	20-16	Blue	Tyco/Raychem
	Sleeve	D-436-95	-	-	Tyco/Raychem
D-436-43	Butt Splice	D-609-08	16-12	Yellow	Tyco/Raychem
	Sleeve	D-436-95	-	-	Tyco/Raychem

Table 21

APPROVED SUPPLIERS OF BOEING STANDARD COMPONENTS FOR SEALED SPLICE KITS

Component	Supplier
BACS13CM1	Tyco/Raychem
BACS13CM2	Tyco/Raychem
BACS13CM3	Tyco/Raychem
BACS52K1	Tyco/Raychem
BACS52K2	Tyco/Raychem
BACS52K3	Tyco/Raychem

F. Sealed Splice Kit for Shielded Wire and Shielded Cable

Table 22

PART NUMBERS OF SEALED SPLICE KITS FOR SHIELDED WIRE AND SHIELDED CABLE

CAU Range		Crimp Barrel Size	Part Number	Supplier
Minimum	Maximum			
3	15	26-20	D-150-0168	Tyco/Raychem
			D-150-0174	Tyco/Raychem
			D-150-0179	Tyco/Raychem
8	27	20-16	D-150-0169	Tyco/Raychem
			D-150-0175	Tyco/Raychem
			D-150-0180	Tyco/Raychem

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Table 22 (continued)

CAU Range		Crimp Barrel Size	Part Number	Supplier
Minimum	Maximum			
19	67	16-12	D-150-0170	Tyco/Raychem
			D-150-0176	Tyco/Raychem
			D-150-0177	Tyco/Raychem
			D-150-0181	Tyco/Raychem
			D-150-0285	Tyco/Raychem
43	138	12-10	D-150-0272	Tyco/Raychem
			D-150-0273	Tyco/Raychem

Table 23

COMPONENT PART NUMBERS OF SEALED SPLICE KITS

Splice Kit	Component	Quantity	Part Number	Supplier
D-150-0168	Butt Splice	1	D-609-06	Tyco/Raychem
	Sleeve	1	D-436-0097	Tyco/Raychem
	Solder Shield Splice	1	D-155-0350	Tyco/Raychem
D-150-0169	Butt Splice	1	D-609-07	Tyco/Raychem
	Sleeve	1	D-436-0098	Tyco/Raychem
	Solder Shield Splice	1	D-155-0450	Tyco/Raychem
D-150-0170	Butt Splice	1	D-609-08	Tyco/Raychem
	Sleeve	1	D-436-0098	Tyco/Raychem
	Solder Shield Splice	1	D-155-0550	Tyco/Raychem
D-150-0174	Butt Splice	2	D-609-06	Tyco/Raychem
	Sleeve	2	D-436-0096	Tyco/Raychem
	Solder Shield Splice	1	D-155-0475	Tyco/Raychem
D-150-0175	Butt Splice	2	D-609-07	Tyco/Raychem
	Sleeve	2	D-436-0097	Tyco/Raychem
	Solder Shield Splice	1	D-155-0575	Tyco/Raychem
D-150-0176	Butt Splice	2	D-609-08	Tyco/Raychem
	Sleeve	2	D-436-0098	Tyco/Raychem
	Solder Shield Splice	1	D-155-0675	Tyco/Raychem
D-150-0177	Butt Splice	2	D-609-08	Tyco/Raychem
	Sleeve	2	D-436-0098	Tyco/Raychem
	Solder Shield Splice	1	D-155-0975	Tyco/Raychem

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Table 23 (continued)

Splice Kit	Component	Quantity	Part Number	Supplier
D-150-0179	Butt Splice	4	D-609-06	Tyco/Raychem
	Sleeve	4	D-436-0096	Tyco/Raychem
	Solder Shield Splice	1	D-155-0575	Tyco/Raychem
D-150-0180	Butt Splice	4	D-609-07	Tyco/Raychem
	Sleeve	4	D-436-0097	Tyco/Raychem
	Solder Shield Splice	1	D-155-0675	Tyco/Raychem
D-150-0181	Butt Splice	4	D-609-08	Tyco/Raychem
	Sleeve	4	D-436-0098	Tyco/Raychem
	Solder Shield Splice	1	D-155-0975	Tyco/Raychem
D-150-0272	Butt Splice	1	NAS1387-6	QPL
	Sleeve	1	D-436-73	Tyco/Raychem
	Solder Shield Splice	1	D-155-0650	Tyco/Raychem
D-150-0273	Butt Splice	2	NAS1387-6	QPL
	Sleeve	2	D-436-73	Tyco/Raychem
	Solder Shield Splice	1	D-155-0975	Tyco/Raychem
D-150-0285	Butt Splice	1	D-609-08	Tyco/Raychem
	Sleeve	1	D-436-73	Tyco/Raychem
	Solder Shield Splice	1	D-155-0550	Tyco/Raychem

Table 24

APPROVED SUPPLIERS OF COMPONENTS FOR SEALED SPLICE KITS

Component	Supplier
NAS1387-6	Tyco/Raychem

Table 25

PART NUMBERS OF SEALED SPLICE KITS FOR HIGH TEMPERATURE SHIELDED WIRE AND SHIELDED CABLE

CAU Range		Crimp Barrel Size	Part Number	Supplier
Minimum	Maximum			
8	27	20-16	D-150-0250	Tyco/Raychem
			D-150-0252	Tyco/Raychem
19	67	16-12	D-150-0251	Tyco/Raychem
			D-150-0253	Tyco/Raychem

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Table 26
COMPONENT PART NUMBERS OF SEALED SPLICE KITS FOR HIGH TEMPERATURE

Splice Kit	Component	Quantity	Part Number	Special Features	Supplier
D-150-0250	Butt Splice	1	D-609-10	-	Tyco/Raychem
	Splice Sleeve	1	ZDS-S-130	1.5 inch length	Zeus
	Shield	1	10494-9	-	Tyco/Raychem
	Solder Splice	2	D-108-11	-	Tyco/Raychem
	Outer Sleeve	1	ZDS-L-190	4.5 inch length	Zeus
D-150-0251	Butt Splice	1	D-609-11	-	Tyco/Raychem
	Splice Sleeve	1	ZDS-S-160	1.5 inch length	Zeus
	Shield	1	10494-9	-	Tyco/Raychem
	Solder Splice	1	D-108-11	-	Tyco/Raychem
		1	D-108-12	-	Tyco/Raychem
	Seal Insert	2	FEP Tubing, Lightweight	Size 7, 0.5 inch length	Zeus
	Outer Sleeve	1	ZDS-L-240	5 inch length	Zeus
D-150-0252	Butt Splice	2	D-609-10	-	Tyco/Raychem
	Splice Sleeve	2	ZDS-S-130	1.5 inch length	Zeus
	Shield	1	10494-9	-	Tyco/Raychem
	Solder Splice	2	D-108-12	-	Tyco/Raychem
	Outer Sleeve	1	ZDS-L-240	6.5 inch length	Zeus
D-150-0253	Butt Splice	2	D-609-11	-	Tyco/Raychem
	Splice Sleeve	2	ZDS-S-160	1.5 inch length	Zeus
	Shield	1	10494-7	-	Tyco/Raychem
	Solder Splice	1	D-108-12	-	Tyco/Raychem
		1	D-108-0033	-	Tyco/Raychem
	Seal Insert	2	FEP Tubing, Lightweight	Size 4, 0.5 inch length	Zeus
	Outer Sleeve	1	ZDS-L-350	6.5 inch length	Zeus

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ASSEMBLY OF SPLICES

G. Removable Contact Splices

Table 27
PART NUMBERS OF REMOVABLE CONTACT SPLICES

Splice Plug			Splice Receptacle		
Part Number	Contact Type	Supplier	Part Number	Contact Type	Supplier
48-7190	Pin	Amphenol	48-7191	Socket	Amphenol
48-7190-1	Pin	Amphenol	48-7191-1	Socket	Amphenol
AIS16P	Pin	AIE	AIS16R	Socket	AIE
AIS16P-1	Pin	AIE	AIS16R-1	Socket	AIE

Table 28
ALTERNATIVE REMOVABLE CONTACT SPLICES

Specified Removable Contact Splice		Alternative Removable Contact Splice	
Part Number	Supplier	Part Number	Supplier
48-7190	Amphenol	AIS16P	AIE
48-7190-1	Amphenol	AIS16P-1	AIE
48-7191	Amphenol	AIS16R	AIE
48-7191-1	Amphenol	AIS16R-1	AIE
AIS16P	AIE	AIS16P-1	AIE
AIS16R	AIE	AIS16R-1	AIE

Table 29
CONTACT PART NUMBERS FOR REMOVABLE CONTACT SPLICES

Wire Size (AWG)	Contact Size		Contact Type	Part Number	Supplier
	Engaging End	Crimp Barrel			
16	16	16	Pin	BACC47CN2()	Boeing
			Socket	BACC47CP2()	Boeing
14	16	14	Pin	48-100-5021P-02	Amphenol
			Socket	248-136-1614S-02	Amphenol
				P-208575-S	Pyle-National

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Table 30

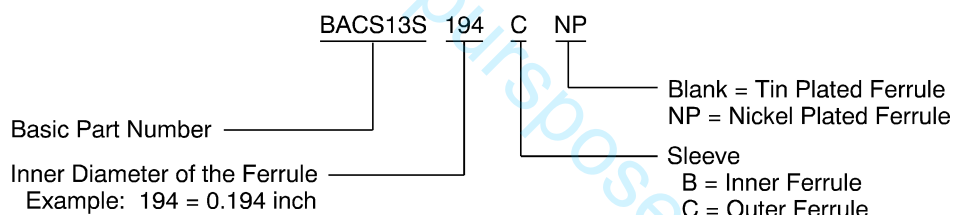
APPROVED SUPPLIERS OF BOEING STANDARD CONTACTS FOR REMOVABLE CONTACT SPLICES

Contact	Supplier
BACC47CN2()	Amphenol
	Framatome
	Pyle-National
	Tri-Star
BACC47CP2()	Amphenol
	Framatome
	Pyle-National
	Tri-Star

H. Mechanical Ferrules

NOTE: A satisfactory alternative for the BACS13S()B ferrule is the MS21981-() ferrule that has the equivalent size.

NOTE: The nickel plated ferrules are not color coded.



BOEING FERRULE PART NUMBER STRUCTURE

Figure 6

Table 31

FERRULE TEMPERATURE GRADE

Temperature Grade	Part Number
B	BACS13S()
D	BACS13S()NP

Table 32

PART NUMBERS OF INNER AND OUTER FERRULES

Inner Ferrule		Outer Ferrule	
Boeing Standard	Color	Boeing Standard	Color
BACS13S046B	Tin	BACS13S128C	Blue
BACS13S058B	Yellow	BACS13S149C	Purple

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Table 32 (continued)

Inner Ferrule		Outer Ferrule	
Boeing Standard	Color	Boeing Standard	Color
BACS13S063B	Red	BACS13S149C	Purple
		BACS13S156C	Yellow
BACS13S071B	Green	BACS13S156C	Yellow
BACS13S080B	Blue	BACS13S156C	Yellow
		BACS13S175C	Blue
BACS13S090B	Orange	BACS13S175C	Blue
BACS13S096B	Purple	BACS13S175C	Blue
		BACS13S187C	Orange
BACS13S101B	Yellow	BACS13S187C	Orange
BACS13S109B	Red	BACS13S187C	Orange
		BACS13S194C	Red
BACS13S124B	Green	BACS13S205C	Yellow
BACS13S128B	Tin	BACS13S219C	Green
BACS13S134B	Orange	BACS13S219C	Green
BACS13S149B	Blue	BACS13S232C	Orange
BACS13S175B	Green	BACS13S275C	Tin
		BACS13S281C	Purple
BACS13S187B	Yellow	BACS13S287C	Blue
BACS13S194B	Blue	BACS13S287C	Blue
BACS13S205B	Orange	BACS13S279C	Green
		BACS13S312C	Yellow
BACS13S219B	Tin	BACS13S312C	Yellow
		BACS13S327C	Tin
BACS13S225B	Yellow	BACS13S312C	Yellow
		BACS13S327C	Tin
BACS13S250B	Green	BACS13S348C	Orange
BACS13S261B	Blue	BACS13S359C	Purple
BACS13S266B	Tin	BACS13S359C	Purple
BACS13S275B	Orange	BACS13S359C	Purple
		BACS13S375C	Yellow
BACS13S287B	Tin	BACS13S405C	Red
BACS13S312B	Purple	BACS13S425C	Tin

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Table 32 (continued)

Inner Ferrule		Outer Ferrule	
Boeing Standard	Color	Boeing Standard	Color
BACS13S375B	Blue	BACS13S460C	Tin

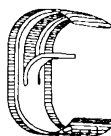
Table 33

APPROVED SUPPLIERS OF BOEING STANDARD MECHANICAL FERRULES

Ferrule	Supplier
BACS13S()	Thomas & Betts

NOTE: Refer to the D-590 Boeing to Vendor Cross Reference Index for the Supplier Part Numbers for the BACS13S() Ferrules.

I. RSK Shield-Kons



RSK SHIELD-KON
Figure 7

Table 34

PART NUMBERS OF RSK SHIELD-KONS

Temperature Grade	Part Number	Shield Diameter (inch)		Color	Plating	Supplier
		Minimum	Maximum			
B	RSK101	0.050	0.090	Red	Tin	Thomas & Betts
	RSK201	0.090	0.145	Blue	Tin	Thomas & Betts
	RSK301	0.144	0.200	Yellow	Tin	Thomas & Betts
	RSK401	0.200	0.300	Green	Tin	Thomas & Betts
D	SK501HT	0.301	0.325	-	Nickel	Thomas & Betts
	SK601HT	0.401	0.425	-	Nickel	Thomas & Betts

NOTE: SK501HT and SK601HT are no longer manufactured.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

4. TOOLS AND MATERIALS

A. Conductor Splice Crimp Tools

Table 35
CRIMP TOOLS FOR INSULATED CLOSED END SPLICES

Crimp Barrel Size	Crimp Tool	
	Basic Unit	Die
22-14	45216	-
	46110	45218
18-10	45219	-
	45219-2	-
	46110	45221
	69365-()	45221
	69100	45221

Table 36
CRIMP TOOLS FOR AMP 3413() PARALLEL SPLICES

Crimp Barrel Size	Crimp Tool		
	Basic Unit	Die	
		Part Number	Nest
16-14	49900	-	16-14
	49935	-	16-14
	69004	47452	-
	69365-()	47807-1	-
	69693-1	-	-
12-10	49900	-	12-10
	49935	-	12-10
	59239-()	-	-
	69365-()	47808-6	-

Table 37
CRIMP TOOLS FOR RAYCHEM D-609-0() PARALLEL SPLICES

Crimp Barrel Size	Crimp Tool	
	Basic Unit	Nest
20-16	AD-1377	16-20
	ST956C	16-20
	ST956D	16-20

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Table 37 (continued)

Crimp Barrel Size	Crimp Tool	
	Basic Unit	Nest
16-12	AD-1377	12-16
	ST956C	12-16
	ST956D	12-16

Table 38

CRIMP TOOLS FOR INSULATED BUTT SPLICES

Crimp Barrel Size	Crimp Tool		
	Basic Unit	Locator Die	
		Part Number	Nest
24-20	59275	-	-
	69692-1	-	-
26-22	59275	-	-
	69692	-	-
22-18	47386	-	-
	59250	-	Red
	69692-1	-	-
16-14	47387	-	-
	59250	-	Blue
	69693-1	-	-
12-10	59239	-	-
8	59974-1	47820	-
	69061	47820	-
	69091	47820	-
6	59974-1	47821	-
	69061	47821	-
	69091	47821	-
4	59974-1	47822	-
	69061	47822	-
	69091	47822	-
2	59974-1	47823	-
	69061	47823	-
	69091	47823	-

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Table 38 (continued)

Crimp Barrel Size	Crimp Tool		
	Basic Unit	Locator Die	
		Part Number	Nest
1/0	58422-1	47824	-
	69066	47824	-

Table 39

CRIMP TOOL POWER PUMPS

Power Pump	Maximum Pressure (psi)
13597	10,000
13600	10,000
69120-()	8400
Y6NP	6000

Table 40

SATISFACTORY PRESSURES FOR THE OPERATION OF CRIMP TOOL HEADS

Crimp Tool Head	Pressure (psi)	
	Minimum	Maximum
69069	8000	8400
Y29B	5700	6000
BDHD1	8500	9000
13642M	9500	10000

NOTE: For the crimp tool heads shown in table 40, other power pumps that supply more than the minimum specified pressure, and less than the maximum specified pressure shown in table 40, can be used.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

WARNING: IF THE PRESSURE OF THE POWER PUMP IS MORE THAN THE MAXIMUM PERMITTED PRESSURE FOR THE CRIMP TOOL HEAD, AN INJURY TO PERSONNEL CAN OCCUR.

CAUTION: IF THE PRESSURE OF THE POWER PUMP IS MORE THAN THE MAXIMUM PERMITTED PRESSURE FOR THE CRIMP TOOL HEAD, DAMAGE TO THE CRIMP TOOL HEAD CAN OCCUR.

Table 41
CRIMP TOOLS FOR BACT12C() UNINSULATED BUTT SPLICES

Crimp Barrel Size	Crimp Tool				
	Basic Unit	Head	Die	Nest	Indenter
12-10	46447	-	-	12-10	-
	49900	-	-	12-10	-
	49935	-	-	12-10	-
	59461	-	-	-	-
	M8ND	-	N10HT	-	-
	Y10MRF-5	-	-	-	-
8	M8ND	-	N8CT	-	-
	MR8-5	-	-	-	-
	Power Pump	1901343-1	-	1901001-1	1901002-2
		69069	-	47321	47322
		BDHD1	-	DV8L-1	Y29PL
		Y29B	-	DV8L-1	Y29PL
	Y8ND	-	N8CT	-	-
6	Power Pump	13642M	ST2354-6	-	-
		69069	-	47321	47322
		BDHD1	-	DV6L	Y29PL
		Y29B	-	DV6L	Y29PL
4	Power Pump	69069	-	47321	47322
		BDHD1	ST2354B-2	-	-
			-	DV4L	Y29PL
		Y29B	-	DV4L	Y29PL
2	Power Pump	13642M	ST2354-1	-	-
		69069	-	47321	47322
		BDHD1	-	DV2L	Y29PL
		Y29B	-	DV2L	Y29PL

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Table 41 (continued)

Crimp Barrel Size	Crimp Tool				
	Basic Unit	Head	Die	Nest	Indenter
1/0	Power Pump	13642M	11738	-	-
		BDHD1	-	DV25L	Y29PL
		Y29B	-	DV25L	Y29PR

Table 42

CRIMP TOOLS FOR NAS1387-() UNINSULATED BUTT SPLICES

Crimp Barrel Size	Crimp Tool		
	Basic Unit	Die	Nest
22-18	46673	-	-
	49900	-	22-18
	49935	-	22-18
	M22520/5-01	Y641	22-18
16-14	46988	-	-
	49900	-	16-14
	49935	-	16-14
	59294	-	-
	M22520/5-01	Y641	16-14
12-10	49900	-	12-10
	49935	-	12-10
	59461	-	-
	M22520/5-01	Y641	12-10

Table 43

CRIMP TOOLS FOR BACS52K() AND RAYCHEM D-609-() UNINSULATED BUTT SPLICES

Crimp Barrel Size	Crimp Tool	
	Basic Unit	Nest
26-20	AD-1377	20-26
	ST956C	20-26
	ST956D	20-26
20-16	AD-1377	16-20
	ST956C	16-20
	ST956D	16-20

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Table 43 (continued)

Crimp Barrel Size	Crimp Tool	
	Basic Unit	Nest
16-12	AD-1377	12-16
	ST956C	12-16
	ST956D	12-16

Table 44

CRIMP TOOLS FOR NICKEL PLATED UNINSULATED BUTT SPLICES

Crimp Barrel Size	Crimp Tool	
	Basic Unit	Nest
22-18	46673	-
16-14	46988	-
	59294	-
12-10	59461	-

B. Mechanical Ferrule Crimp Tools

Table 45

FERRULE CRIMP TOOLS

Outer Ferrule	Crimp Tool		
	Basic Unit	Die	
		Part Number	Cavity
BACS13S101C	44-000	44-136	B
	612648	612734	-
	613214	613812	-
	620175	620304	B
	HX-4	Y136	B
	M22520/5-01	M22520/5-33	B
	ST2966M	-	-
	ST965-19	-	-
	ST965A-19	-	-
	ST965B	ST965B-19	-
	WT219	-	-
	WT419	-	-
	WT440	4419	-

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ASSEMBLY OF SPLICES

Table 45 (continued)

Outer Ferrule	Crimp Tool		
	Basic Unit	Die	
		Part Number	Cavity
BACS13S128C	44-000	44-137	B
	612648	612778	-
	613214	613848	-
	620175	620305	B
	HX-4	Y137	B
	M22520/5-01	M22520/5-35	B
	ST2966M	-	1
	ST965-5	-	-
	ST965A-0	-	-
	ST965B	ST965B-0	-
	WT200	-	-
	WT200-12	-	S
	WT400	-	-
	WT440	4400	-
BACS13S149C	44-000	44-138	B
	612648	612981	-
	612648	613844	S
	613214	613003	-
	620175	620306	B
	HX-4	Y138	B
	M22520/5-01	M22520/5-37	B
	ST2966M	-	2
	ST965-4	-	S
	ST965A-1	-	-
	ST965B	ST965B-1	-
	WT201	-	-
	WT201-03-10	-	S
	WT401	-	-
	WT440	4401	-

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Table 45 (continued)

Outer Ferrule	Crimp Tool		
	Basic Unit	Die	
		Part Number	Cavity
BACS13S156C	44-000	44-139	B
	612648	612661	-
	612648	613844	L
	613214	613847	-
	620175	620307	B
	HX-4	Y139	B
	M22520/5-01	M22520/5-39	B
	ST2966M	-	3
	ST965-1	-	S
	ST965A-2	-	-
	ST965B	ST965B-2	-
	WT202	-	-
	WT202-06-08	-	S
	WT402	-	-
	WT440	4402	-
BACS13S175C	44-000	44-140	B
	612648	612663	S
	612648	612742	-
	613214	613849	-
	620175	620308	B
	HX-4	Y140	B
	M22520/5-01	M22520/5-41	B
	ST2966M	-	4
	ST965-4	-	M
	ST965A-3	-	-
	ST965B	ST965B-3	-
	WT201-03-10	-	M
	WT203	-	-
	WT403	-	-
	WT440	4403	-

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Table 45 (continued)

Outer Ferrule	Crimp Tool		
	Basic Unit	Die	
		Part Number	Cavity
BACS13S187C	44-000	44-141	B
	612648	612746	-
	612648	620467	S
	613214	613810	-
	620175	620309	B
	HX-4	Y141	B
	M22520/5-01	M22520/5-43	B
	ST2966M	-	5
	ST965-1	-	M
	ST965A-6	-	-
	ST965B	ST965B-6	-
	WT202-06-08	-	M
	WT206	-	-
	WT406	-	-
	WT440	4406	-
BACS13S194C	44-000	44-141	B
	612648	612746	-
	612648	620467	S
	613214	613810	-
	620175	620309	B
	HX-4	Y141	B
	M22520/5-01	M22520/5-43	B
	ST2966M	-	5
	ST965-1	-	M
	ST965A-6	-	-
	ST965B	ST965B-6	-
	WT202-06-08	-	M
	WT206	-	-
	WT406	-	-
	WT440	4406	-

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ASSEMBLY OF SPLICES

Table 45 (continued)

Outer Ferrule	Crimp Tool		
	Basic Unit	Die	
		Part Number	Cavity
BACS13S199C	44-000	44-141	B
	612648	612746	-
	612648	620467	S
	613214	613810	-
	620175	620309	B
	HX-4	Y141	B
	M22520/5-01	M22520/5-43	B
	ST2966M	-	5
	ST965-1	-	M
	ST965A-6	-	-
	ST965B	ST965B-6	-
	WT202-06-08	-	M
	WT206	-	-
	WT406	-	-
	WT440	4406	-
BACS13S205C	44-000	44-142	B
	612648	612763	-
	612648	620467	L
	613214	613851	-
	620175	620299	B
	HX-4	Y142	B
	M22520/5-01	M22520/5-19	B
	ST2966M	-	6
	ST965-1	-	L
	ST965A-8	-	-
	ST965B	ST965B-8	-
	WT202-06-08	-	L
	WT208	-	-
	WT408	-	-
	WT440	4408	-

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Table 45 (continued)

Outer Ferrule	Crimp Tool		
	Basic Unit	Die	
		Part Number	Cavity
BACS13S219C	44-000	44-142	B
	612648	612763	-
	612648	620467	L
	613214	613851	-
	620175	620299	B
	HX-4	Y142	B
	M22520/5-01	M22520/5-19	B
	ST2966M	-	6
	ST965-1	-	L
	ST965A-8	-	-
	ST965B	ST965B-8	-
	WT202-06-08	-	L
	WT208	-	-
	WT408	-	-
	WT440	4408	-
BACS13S225C	44-000	44-143	B
	612648	612971	-
	613214	613005	-
	620175	620310	B
	HX-4	Y143	B
	M22520/5-01	M22520/5-45	B
	ST2966M	-	-
	ST965-9	-	-
	ST965A-9	-	-
	ST965B	ST965B-9	-
	WT209	-	-
	WT409	-	-
	WT440	4409	-

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Table 45 (continued)

Outer Ferrule	Crimp Tool		
	Basic Unit	Die	
		Part Number	Cavity
BACS13S232C	44-000	44-143	A
	612648	612663	L
	612648	612675	S
	612648	612748	-
	613214	613846	-
	620175	620310	A
	HX-4	Y143	A
	M22520/5-01	M22520/5-45	A
	ST2966M	-	7
	ST965-4	-	L
	ST965A-10	-	-
	ST965B	ST965B-10	-
	WT201-03-10	-	L
	WT210	-	-
	WT410	-	-
	WT440	4410	-
BACS13S261C	44-000	44-142	A
	612648	612675	L
	612648	612766	-
	613214	613850	-
	620175	620299	A
	HX-4	Y142	A
	M22520/5-01	M22520/5-19	A
	ST2966M	-	8
	ST965-2	-	S
	ST965A-11	-	-
	ST965B	ST965B-11	-
	WT211	-	-
	WT211-14	-	S
	WT411	-	-
	WT440	4411	-

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Table 45 (continued)

Outer Ferrule	Crimp Tool		
	Basic Unit	Die	
		Part Number	Cavity
BACS13S275C	44-000	44-141	A
	612648	612776	-
	613214	613009	-
	620175	620309	A
	HX-4	Y141	A
	M22520/5-01	M22520/5-43	A
	ST2966M	-	9
	ST965-12	-	-
	ST965A-12	-	-
	ST965B	ST965B-12	-
	WT200-12	-	L
	WT212	-	-
	WT412	-	-
	WT440	4412	-
BACS13S281C	44-000	44-140	A
	612648	612893	-
	613214	613011	-
	620175	620308	A
	HX-4	Y140	A
	M22520/5-01	M22520/5-41	A
	ST2966M	-	10
	ST965-2	-	L
	ST965A-14	-	-
	ST965B	ST965B-14	-
	WT211-14	-	L
	WT214	-	-
	WT414	-	-
	WT440	4414	-

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Table 45 (continued)

Outer Ferrule	Crimp Tool		
	Basic Unit	Die	
		Part Number	Cavity
BACS13S287C	44-000	44-140	A
	612648	612893	-
	613214	613011	-
	620175	620308	A
	HX-4	Y140	A
	M22520/5-01	M22520/5-41	A
	ST2966M	-	10
	ST965-2	-	L
	ST965A-14	-	-
	ST965B	ST965B-14	-
	WT211-14	-	L
	WT214	-	-
	WT414	-	-
	WT440	4414	-
BACS13S297C	44-000	44-140	A
	612648	612893	-
	613214	613011	-
	620175	620308	A
	HX-4	Y140	A
	M22520/5-01	M22520/5-41	A
	ST2966M	-	10
	ST965-2	-	L
	ST965A-14	-	-
	ST965B	ST965B-14	-
	WT211-14	-	L
	WT214	-	-
	WT414	-	-
	WT440	4414	-

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Table 45 (continued)

Outer Ferrule	Crimp Tool		
	Basic Unit	Die	
		Part Number	Cavity
BACS13S312C	44-000	44-139	A
	612648	612973	-
	613214	613013	-
	620175	620307	A
	HX-4	Y139	A
	M22520/5-01	M22520/5-39	A
	ST2966M	-	11
	ST965-6	-	S
	ST965A-15	-	-
	ST965B	ST965B-15	-
	WT215	-	-
	WT215-16	-	S
	WT415	-	-
	WT440	4415	-
BACS13S327C	44-000	44-138	A
	612648	612899	-
	620175	620306	A
	HX-4	Y138	A
	M22520/5-01	M22520/5-37	A
	ST2966M	-	-
	ST965A-16	-	-
	ST965B	ST965B-16	-
	WT215-16	-	L
	WT216	-	-
	WT416	-	-
	WT440	4416	-

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Table 45 (continued)

Outer Ferrule	Crimp Tool		
	Basic Unit	Die	
		Part Number	Cavity
BACS13S348C	44-000	44-137	A
	612648	612989	-
	620175	620305	A
	HX-4	Y137	A
	M22520/5-01	M22520/5-35	A
	ST2966M	-	12
	ST965-3	-	S
	ST965A-17	-	-
	ST965B	ST965B-17	-
	WT217	-	-
	WT217-18	-	S
	WT417	-	-
	WT440	4417	-
BACS13S359C	44-000	44-136	A
	612648	612992	-
	620175	620304	A
	HX-4	Y136	A
	M22520/5-01	M22520/5-33	A
	WT221	-	-
	WT221-22	-	S
	WT540	5450	-
BACS13S375C	44-000	44-144	-
	612648	612969	-
	620175	620311	-
	HX-4	Y144	-
	M22520/5-01	M22520/5-47	-
	WT221-22	-	L
	WT222	-	-
	WT540	5451	-

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Table 45 (continued)

Outer Ferrule	Crimp Tool		
	Basic Unit	Die	
		Part Number	Cavity
BACS13S405C	44-000	44-145	-
	612648	612739	-
	620175	620301	-
	HX-4	Y145	-
	M22520/5-01	M22520/5-23	-
	ST2966M	-	13
	ST965-3	-	L
	WT217-18	-	L
	WT218	-	-
	WT540	5452	-
BACS13S415C	44-000	44-145	-
	612648	612739	-
	620175	620301	-
	HX-4	Y145	-
	M22520/5-01	M22520/5-23	-
	ST2966M	-	13
	ST965-3	-	L
	WT217-18	-	L
	WT218	-	-
	WT540	5452	-
BACS13S425C	44-000	44-178	-
	612648	612807	-
	620175	620316	-
	HX-4	Y178	-
	M22520/5-01	M22520/5-61	-
	ST2966M	-	16
	ST965-29	-	-
	WT229	-	-
	WT540	5454	-

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Table 45 (continued)

Outer Ferrule	Crimp Tool		
	Basic Unit	Die	
		Part Number	Cavity
BACS13S460C	44-000	44-148	-
	612648	612909	-
	620175	620314	-
	HX-4	Y148	-
	M22520/5-01	M22520/5-53	-
	ST2966M	-	14
	ST965-6	-	L
	WT215-20	-	L
	WT220	-	-
	WT540	5456	-
BACS13S500C	44-000	44-149	-
	612648	612977	-
	620175	620300	-
	HX-4	Y149	-
	M22520/5-01	M22520/5-21	-
	ST2966M	-	15
	ST965-23	-	-
	WT223	-	-
	WT540	5457	-

C. Shield-Kon Crimp Tools

Table 46
CRIMP TOOLS FOR THE SHIELD-KON

Shield-Kon Part Number	Shield Diameter (inch)		Crimp Tool		
	Minimum	Maximum	Basic Unit		Die Set
			Part Number	Type	
RSK101	0.050	0.070	13300	Pneumatic	101A
			WT740	Hand	101A
RSK101	0.070	0.090	13300	Pneumatic	101B
			WT740	Hand	101B

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Table 46 (continued)

Shield-Kon Part Number	Shield Diameter (inch)		Crimp Tool		
	Minimum	Maximum	Basic Unit		Die Set
			Part Number	Type	
RSK201	0.090	0.100	13300	Pneumatic	201C
			WT740	Hand	201C
RSK201	0.100	0.118	13300	Pneumatic	201D
			WT740	Hand	201D
RSK201	0.119	0.131	13300	Pneumatic	201E
			WT740	Hand	201E
RSK201	0.132	0.143	13300	Pneumatic	201F
			WT740	Hand	201F
RSK301	0.143	0.185	13300	Pneumatic	301H
			WT740	Hand	301H
RSK301	0.144	0.162	13300	Pneumatic	301G
			WT740	Hand	301G
RSK301	0.186	0.201	13300	Pneumatic	301J
			WT740	Hand	301J
RSK401	0.200	0.230	13300	Pneumatic	401K
			WT740	Hand	401K
RSK401	0.231	0.250	13300	Pneumatic	401L
			WT740	Hand	401L
RSK401	0.251	0.275	13300	Pneumatic	401M
			WT740	Hand	401M
RSK401	0.276	0.300	13300	Pneumatic	401N
			WT740	Hand	401N
SK501HT	0.301	0.325	HX4	Hand	501P
			M22520/5-01	Hand	501P
SK601HT	0.401	0.425	HX4	Hand	601Q
			M22520/5-01	Hand	601Q

NOTE: SK501HT and SK601HT are no longer manufactured.

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ASSEMBLY OF SPLICES

D. Hot Air Guns

Table 47
HOT AIR GUNS

Type	Temperature Range (Degrees C)		Hot Air Gun			
	Minimum	Maximum	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
			CV-5000 Model 500B	Tyco/Raychem	TG-135	Tyco/Raychem
High Temperature	399	538	CV-5000 Model 750	Tyco/Raychem	TG-33	Tyco/Raychem
			CV-5000 Model 750B	Tyco/Raychem	TG-33	Tyco/Raychem

Table 48
ALTERNATIVE HOT AIR GUNS

Specified Hot Air Gun		Alternative Hot Air Gun	
Part Number	Supplier	Part Number	Supplier
CV-5000 Model 500	Tyco/Raychem	HG-501A	Master Appliance
		CV-5000 Model 500B	Tyco/Raychem
CV-5000 Model 500B	Tyco/Raychem	HG-501A	Master Appliance
CV-5000 Model 750	Tyco/Raychem	CV-5000 Model 750B	Tyco/Raychem
		HG-S-751-10	Master Appliance
CV-5000 Model 750B	Tyco/Raychem	HG-S-751-10	Master Appliance

E. Splice Assembly Materials

Table 49
HEAT SHRINKABLE SLEEVES

Temperature Grade	Fluid Class	Description
B	1	Refer to Heat Shrinkable Sleeves in Subject 20-00-11.
D	1	Refer to Heat Shrinkable Sleeves in Subject 20-00-11.

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ASSEMBLY OF SPLICES

Table 50
INSULATION TAPES

Temperature Grade	Fluid Class	Description
B	1	Refer to PTFE and TFE Tapes in Subject 20-00-11.
C	1	Refer to PTFE and TFE Tapes in Subject 20-00-11.
D	1	Refer to PTFE and TFE Tapes in Subject 20-00-11.

Table 51
SILICONE TAPES

Temperature Grade	Fluid Class	Description
C	1	Refer to Silicone Tapes in Subject 20-00-11.
D	1	Refer to Silicone Tapes in Subject 20-00-11.

Table 52
INSULATION FILM STRIPS

Temperature Grade	Part Number	Supplier
D	E125-2	Fluorglas
		Saint Gobain Performance Plastics
	E125-3	Fluorglas
		Saint Gobain Performance Plastics
	P-412	Permacel
	Scotch 48	3M
	Scotch 3082	3M
	Scotch 4202	3M

Table 53
SOLDER SLEEVE PART NUMBERS

Minimum O.D. of the Jacket (inch)	Minimum O.D. of the Shield (inch)	Solder Sleeve	
		Part Number	Supplier
0.095	0.020	D-144-25	Raychem
0.105	0.020	BACS13CT1N	Boeing
0.145	0.030	BACS13CT2N	Boeing
		M83519/1-2	QPL
0.200	0.050	BACS13CT3N	Boeing
		M83519/1-3	QPL

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Table 54
APPROVED SUPPLIERS OF BOEING STANDARD SOLDER SLEEVES

Boeing Standard	Supplier
BACS13CT	Raychem

Table 55
SHIELD MATERIALS

Temperature Grade	Boeing Standard
B	BAC3108-()
D	BAC3106-()

NOTE: For sizes and suppliers of shield materials, refer to Subject 20-00-11.

5. CLOSED END SPLICE CONFIGURATIONS

A. Splice Assembly Configurations

For the conditions that are applicable for a closed end splice, refer to Paragraph 1.A.

Table 56
CLOSED END SPLICE CONFIGURATIONS

Seal	Splice Assembly	
	Configuration	Procedure
Sealed	Splice Kit	Paragraph 5.B.
	Parallel Splice and a Sleeve	Paragraph 5.C.
Unsealed	Insulated Closed End Splice	Paragraph 5.D.
	Parallel Splice and a Sleeve	Paragraph 5.E.

B. Sealed Closed End Splice - Splice Kit

NOTE: A satisfactory alternative for a sealed closed end splice kit is a sealed closed end splice with a parallel splice and a sleeve. Refer to Paragraph 5.C.

- (1) Make a selection of a sealed closed end splice kit from Table 5.

Make sure that the splice kit has:

- The smallest CAU range that can accept the total CAU of the conductors
- The correct maximum number of wires.

Refer to Paragraph 1.D. for the procedure to calculate the CAU of the conductors.

- (2) Find the part number of the parallel splice in the splice kit from Table 6.
- (3) Find the crimp barrel size of the splice from Table 6.
- (4) Make a selection of a crimp tool from Table 37.
- (5) For a sleeve with a 1 hole wire seal, put the sleeve on the wires. Refer to Figure 1.
Make sure to put the end of the sleeve with the wire seal on the wires first.

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ASSEMBLY OF SPLICES

- (6) For a sleeve with a 5 hole wire seal, put the sleeve on the wires. Refer to Figure 2.

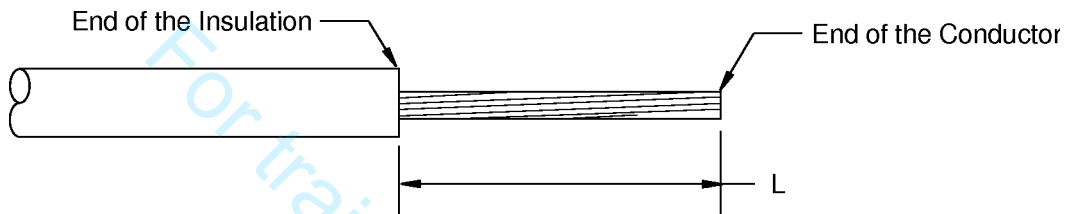
Make sure to:

- Put the end of the sleeve with the wire seal on the wires first
- Put one wire in each hole of the wire seal.

- (7) Remove the necessary length of insulation from the end of each wire.

Refer to:

- Figure 8
- Table 57 for the insulation removal length
- Subject 20-00-15 for the insulation removal procedures.



INSULATION REMOVAL LENGTH

Figure 8

Table 57
INSULATION REMOVAL LENGTH

Splice Part Number	Insulation Removal Length L (inch)	
	Target	Tolerance
D-609-04	0.28	± 0.03
D-609-05	0.28	± 0.03

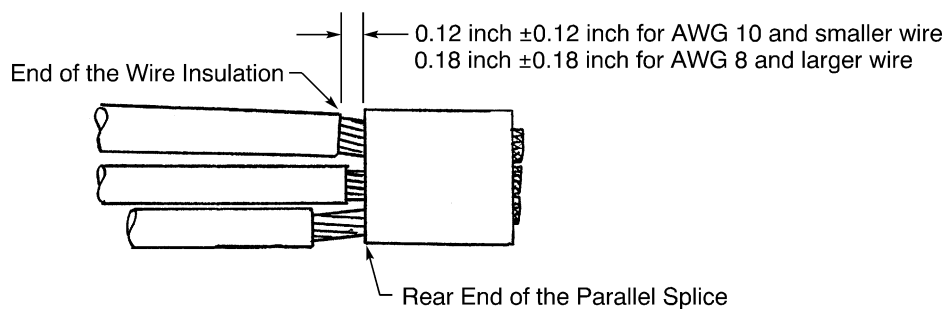
- (8) Put the splice in the crimp tool.
- (9) Hold the splice in position with light pressure.
- (10) Put each wire in the same end of the splice. Refer to Figure 9.

Make sure that the distance from the end of the wire insulation to the rear end of the splice is:

- 0.12 inch ± 0.12 inch for wires AWG 10 and smaller
- 0.18 inch ± 0.18 inch for wires AWG 8 and larger.

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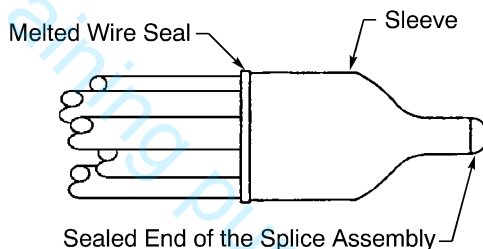
ASSEMBLY OF SPLICES



POSITION OF EACH WIRE IN THE PARALLEL SPLICE

Figure 9

- (11) Crimp the splice.
- (12) Align the center of the sleeve with the center of the splice.
- (13) Shrink the sleeve into position. Refer to Figure 10 and Subject 20-10-14.



CONFIGURATION OF THE SPLICE ASSEMBLY

Figure 10

C. Sealed Closed End Splice - Parallel Splice, Sleeve

- (1) Make a selection of a parallel splice from Table 8.

Make sure that the splice has the smallest CAU range that can accept the total CAU of the conductors. Refer to Paragraph 1.D. for the procedure to calculate the CAU of the conductors.

- (2) Make a selection of a sleeve from Table 9.

Make sure the sleeve is for:

- The applicable parallel splice
- The maximum number of wires.

- (3) Find the crimp barrel size of the splice from Table 8.

- (4) Make a selection of a crimp tool from:

- Table 36 for AMP 3413() parallel splices
- Table 37 for Raychem D-609-0() parallel splices.

- (5) For a sleeve with a 5 hole wire seal, put the sleeve on the wires. Refer to Figure 2.

Make sure to:

- Put the end of the sleeve with the wire seal on the wires first
- Put one wire in each hole of the wire seal.

- (6) Remove the necessary length of insulation from the end of each wire.

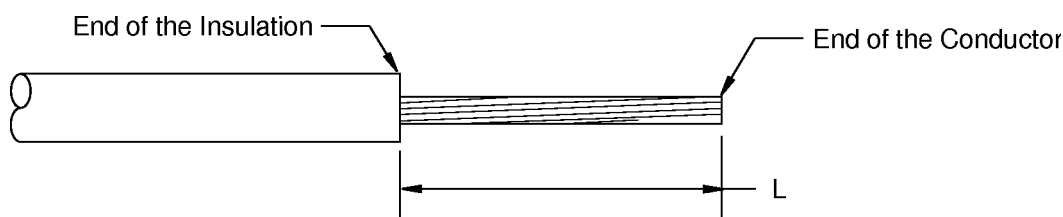
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ASSEMBLY OF SPLICES

Refer to:

- Figure 11
- Table 59 for the insulation removal length
- Subject 20-00-15 for the insulation removal procedures.



INSULATION REMOVAL LENGTH

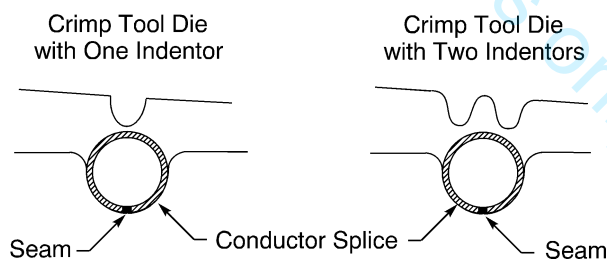
Figure 11

Table 58

INSULATION REMOVAL LENGTH

Splice Part Number	Insulation Removal Length L (inch)	
	Target	Tolerance
D-609-04	0.28	± 0.03
D-609-05	0.28	± 0.03
34137	0.34	± 0.03
34138	0.34	± 0.03

- (7) Put the splice in the crimp tool.
- (8) If the splice has a seam, align the seam opposite the indenter. Refer to Figure 12.



POSITION OF THE PARALLEL SPLICE IN THE CRIMP TOOL

Figure 12

- (9) Hold the splice in position with light pressure.
- (10) Put each wire in the same end of the splice. Refer to Figure 13.

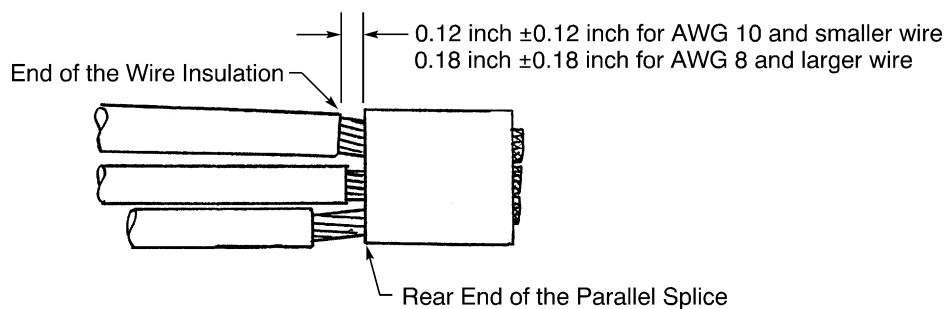
Make sure that the distance from the end of the wire insulation to the rear end of the splice is:

- 0.12 inch ± 0.12 inch for wires AWG 10 and smaller
- 0.18 inch ± 0.18 inch for wires AWG 8 and larger.

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STANDARD WIRING PRACTICES MANUAL

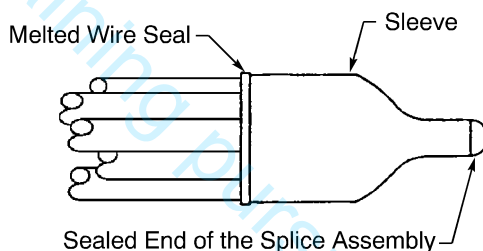
ASSEMBLY OF SPLICES



POSITION OF EACH WIRE IN THE PARALLEL SPLICE

Figure 13

- (11) Crimp the splice.
- (12) Put the sleeve on the splice assembly.
Make sure to align the center of the sleeve with the center of the splice.
- (13) Shrink the sleeve into position. Refer to Figure 14 and Subject 20-10-14.



CONFIGURATION OF THE SPLICE ASSEMBLY

Figure 14

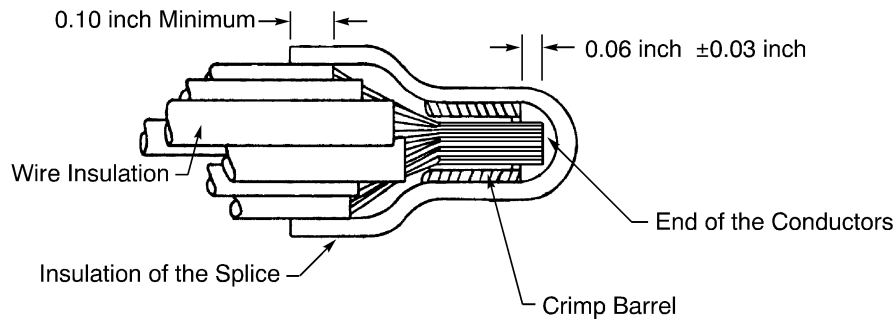
D. Unsealed Insulated Closed End Splice

NOTE: A satisfactory alternative for an unsealed closed end splice is a sealed closed end splice. Refer to Paragraph 5.B. or Paragraph 5.C.

- (1) Make a selection of an insulated closed end splice from Table 7.
Make sure that the splice has the smallest CAU range that can accept the total CAU of the conductors. Refer to Paragraph 1.D. for the procedure to calculate the CAU of the conductors.
- (2) Find the crimp barrel size of the splice from Table 7.
- (3) Make a selection of a crimp tool from Table 35.
- (4) Remove the necessary length of insulation from the end of each wire.
Refer to:
 - Figure 15
 - Subject 20-00-15 for the insulation removal procedures.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES



POSITION OF EACH WIRE IN THE SPLICE

Figure 15

- (5) Put the wire in the splice. Refer to Figure 15.

Make sure that when the wire is in the splice:

- The insulation of the splice makes a 0.1 inch minimum overlap with the wire insulation
- The wire insulation is not in the crimp barrel of the splice
- The distance from the end of the conductor to the end of the crimp barrel of the splice is 0.06 inch ± 0.03 inch.

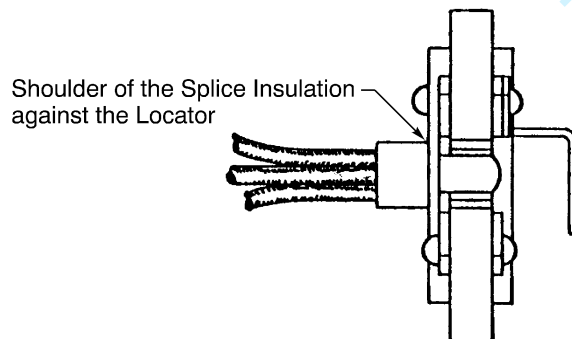
NOTE: The wire insulation, the crimp barrel, and the conductor can be seen through the insulation of the closed end splice.

- (6) If it is necessary, remove more insulation from the end of the wire to make a correct fit of the wire in the splice.
- (7) Put the splice in the crimp tool.
- (8) Hold the splice in position with light pressure.
- (9) Put each wire in the splice. Refer to Figure 15.

Make sure that each wire is in the correct position.

- (10) Crimp the splice. Refer to Figure 16.

Make sure that the shoulder of the insulation on the splice is against the locator of the crimp tool.



POSITION OF THE SPLICE IN THE CRIMP TOOL

Figure 16

- (11) After the wire harness assembly is installed, examine the splice assembly.

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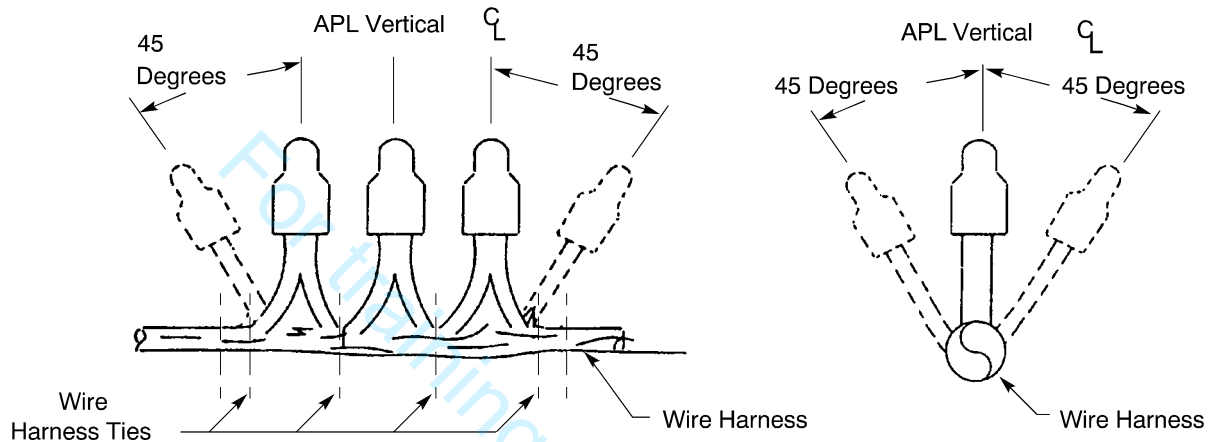
ASSEMBLY OF SPLICES

Make sure that:

- The start of each branch is near the top side of the harness
- The end of each closed end splice is pointed up
- Each closed end splice is in the position that is ± 45 degrees from the vertical.

Refer to Figure 17.

NOTE: This configuration is not necessary for splices that are in a module.



CONFIGURATION OF THE CLOSED END SPLICES

Figure 17

E. Unsealed Closed End Splice - Parallel Splice, Sleeve

NOTE: A satisfactory alternative for an unsealed closed end splice is a sealed closed end splice. Refer to Paragraph 5.B. or Paragraph 5.C.

- (1) Make a selection of an uninsulated parallel splice from Table 8.

Make sure that the splice has the smallest CAU range that can accept the total CAU of the conductors. Refer to Paragraph 1.D. for the procedure to calculate the CAU of the conductors.

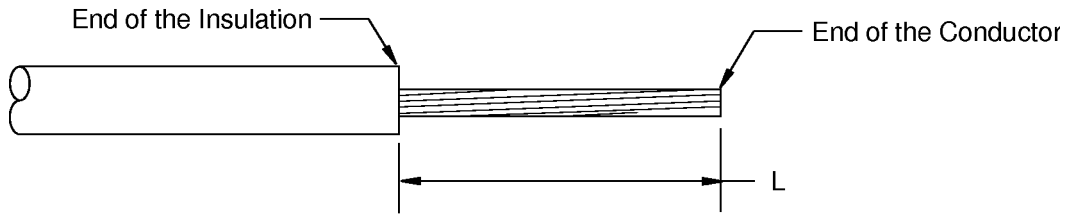
- (2) Find the crimp barrel size of the splice from Table 8.
- (3) Make a selection of a crimp tool from:
 - Table 36 for AMP 3413() parallel splices
 - Table 37 for Raychem D-609-0() parallel splices.
- (4) Remove the necessary length of insulation from the end of each wire.

Refer to:

- Figure 18
- Table 59 for the insulation removal length
- Subject 20-00-15 for the insulation removal procedures.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES



INSULATION REMOVAL LENGTH

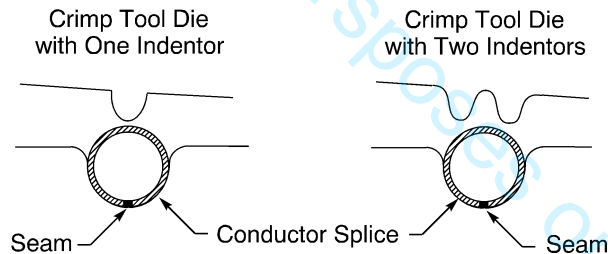
Figure 18

Table 59

INSULATION REMOVAL LENGTH

Parallel Splice Part Number	Insulation Removal Length L (inch)	
	Target	Tolerance
D-609-04	0.28	± 0.03
D-609-05	0.28	± 0.03
34137	0.34	± 0.03
34138	0.34	± 0.03

- (5) Put the splice in the crimp tool.
- (6) If the splice has a seam, align the seam opposite the indenter. Refer to Figure 19.



POSITION OF THE PARALLEL SPLICE IN THE CRIMP TOOL

Figure 19

- (7) Hold the splice in position with light pressure.
- (8) Put each wire in the same end of the splice. Refer to Figure 20.

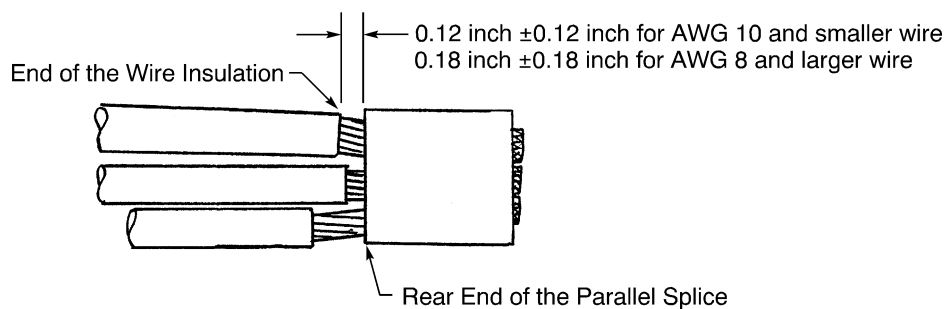
Make sure that the distance from the end of the wire insulation to the forward end of the splice is:

- 0.12 inch ± 0.12 inch for wires AWG 10 and smaller
- 0.18 inch ± 0.18 inch for wires AWG 8 and larger.

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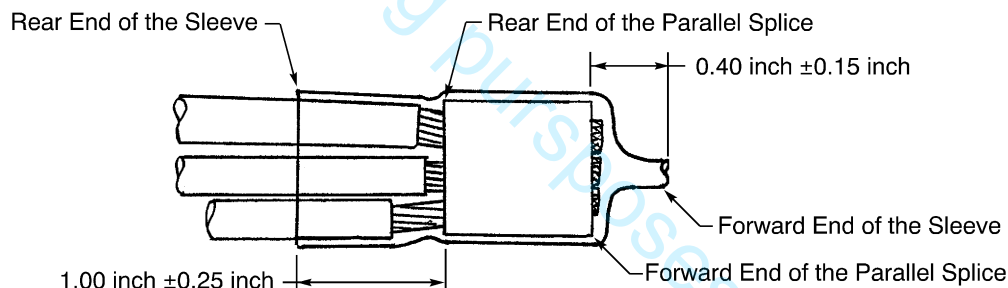
ASSEMBLY OF SPLICES



POSITION OF EACH WIRE IN THE PARALLEL SPLICE

Figure 20

- (9) Crimp the splice.
- (10) Make a selection of a Temperature Grade B heat shrinkable sleeve from Table 49. Make sure that the sleeve has the smallest diameter that can be put on the splice assembly.
NOTE: For alternative heat shrinkable sleeves, refer to Subject 20-00-11.
- (11) Cut the necessary length of the sleeve. Refer to Figure 21.
NOTE: The necessary length is a minimum of 2.0 inches plus the length of the splice.



POSITION OF THE SLEEVE ON THE SPLICE ASSEMBLY

Figure 21

- (12) Put the sleeve on the splice assembly. Refer to Figure 21.
Make sure that:
 - The distance from the forward end of the sleeve to the forward end of the splice is 0.40 inch ± 0.15 inch
 - The distance from the rear end of the sleeve to the rear end of the splice is 1.00 inch ± 0.25 inch.
- (13) Shrink the sleeve into position. Refer to Subject 20-10-14.
- (14) After the wire harness assembly is installed, examine the splice assembly.

STANDARD WIRING PRACTICES MANUAL

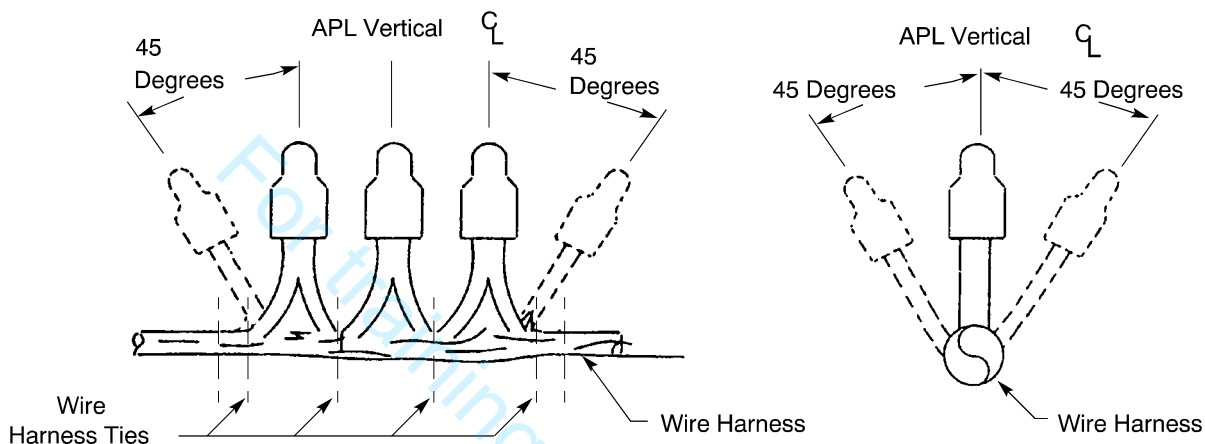
ASSEMBLY OF SPLICES

Make sure that:

- The start of each branch is near the top side of the harness
- The end of each splice is pointed up
- Each splice is in the position that is ± 45 degrees from the vertical.

Refer to Figure 22.

NOTE: This configuration is not necessary for splices that are in a module.



CONFIGURATION OF THE CLOSED END SPLICES

Figure 22

6. UNSEALED BUTT SPlice CONFIGURATIONS

A. Splice Assembly Configurations

For the conditions that are applicable for an unsealed butt splice, refer to Paragraph 1.A.

Table 60
UNSEALED BUTT SPlice CONFIGURATIONS

One End of Splice Assembly	Other End of Splice Assembly	Splice Assembly	
		Configuration	Procedure
One Wire	One Wire	Insulated Butt Splice	Paragraph 6.B.
		Uninsulated Butt Splice with Sleeve	Paragraph 6.D.
More Than One Wire	More Than One Wire	Insulated Butt Splice	Paragraph 6.C.
		Uninsulated Butt Splice with Sleeves	Paragraph 6.E.

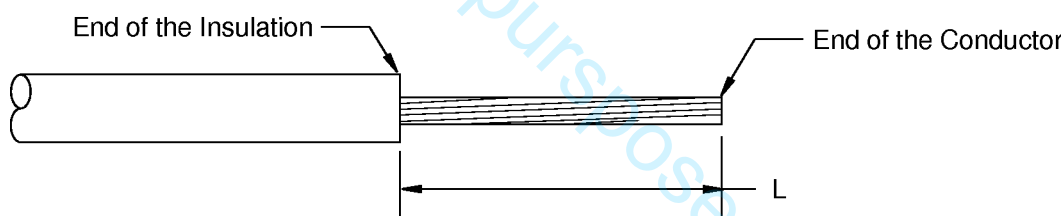
STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

B. One Wire to One Wire - Insulated Butt Splice

Table 61
INSULATION REMOVAL LENGTH

Splice Part Number	Insulation Removal Length L (inch)	
	Target	Tolerance
BACT12C12	0.35	± 0.03
BACT12C4	0.53	± 0.03
BACT12C6	0.53	± 0.03
BACT12C8	0.47	± 0.03
D-609-06	0.28	± 0.03
D-609-07	0.28	± 0.03
D-609-08	0.28	± 0.03
NAS1387-4	0.28	± 0.03
NAS1387-5	0.28	± 0.03
NAS1387-6	0.28	± 0.03



INSULATION REMOVAL LENGTH

Figure 23

NOTE: A satisfactory alternative for an insulated butt splice on one wire is an uninsulated butt splice and sleeves on one wire. Refer to Paragraph 6.D.

- (1) Make a selection of an insulated butt splice from Table 10.
Make sure that the splice has the smallest CAU range that can accept the total CAU of the conductor. Refer to Paragraph 1.D. for the procedure to calculate the CAU of the conductor.
- (2) Find the crimp barrel size of the splice from Table 10.
- (3) Make a selection of a crimp tool from Table 38.
- (4) Remove the necessary length of insulation from the end of each wire. Refer to Subject 20-00-15.
Refer to:
 - Table 61 for the insulation removal length
 - Figure 23
 - Subject 20-00-15 for the insulation removal procedures.
- (5) For butt splices with an insulation grip, put the wire in the splice.

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

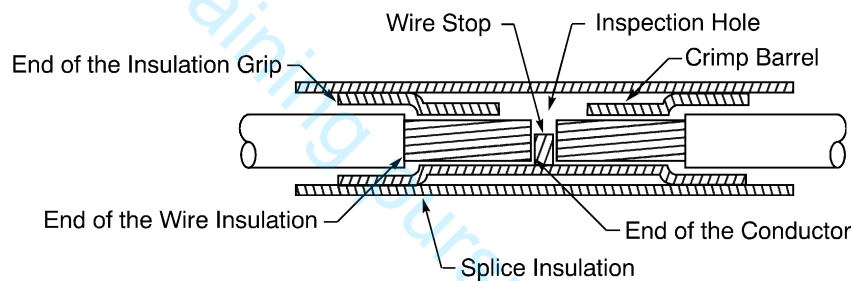
Refer to:

- Figure 24 for the position of the wire in the splice with the wire insulation in the insulation grip
- Figure 25 for the position of the wire in the splice with the wire insulation out of the insulation grip.

Make sure that:

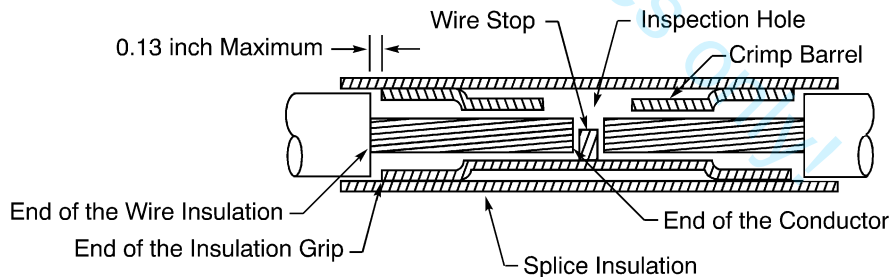
- The end of the conductor can be seen in the inspection hole
- The end of the conductor does not make an overlap with the wire stop
- The wire insulation is not in the crimp barrel
- If the wire insulation can go into the insulation grip, the insulation grip makes an overlap with the wire insulation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

NOTE: The wire insulation, the crimp barrel, and the conductor can be seen through the insulation of the butt splice.



POSITION OF THE WIRE IN THE SPLICE WITH THE WIRE INSULATION IN THE INSULATION GRIP

Figure 24



POSITION OF THE WIRE IN THE SPLICE WITH THE WIRE INSULATION OUT OF THE INSULATION GRIP

Figure 25

- (6) For butt splices without an insulation grip, put the wire in the splice. Refer to Figure 26.

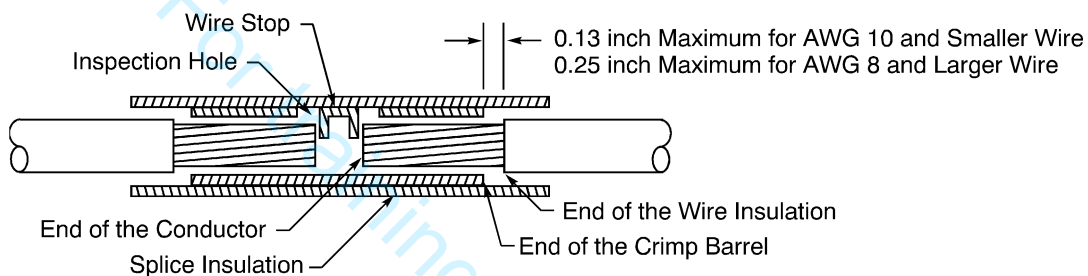
STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Make sure that:

- The end of the conductor can be seen in the inspection hole
- The end of the conductor does not make an overlap with the wire stop
- The wire insulation is not in the crimp barrel
- For AWG 10 and smaller wire, the end of the wire insulation is a maximum of 0.13 inch from the end of the crimp barrel
- For AWG 8 and larger wire, the end of the wire insulation is a maximum of 0.25 inch from the end of the crimp barrel
- The splice insulation makes an overlap with the wire insulation.

NOTE: The wire insulation, the crimp barrel, and the conductor can be seen through the insulation of the butt splice.



POSITION OF THE WIRE IN THE INSULATED BUTT SPLICE

Figure 26

- (7) If it is necessary, remove more insulation from the wire to make a correct fit of the wire in the splice.
- (8) Assemble one end of the splice.
 - (a) Put the splice in the crimp tool.
 - (b) Hold the splice in position with light pressure.
 - (c) Put the wire in the end of the splice.
Make sure that the wire is in the correct position.
 - (d) Crimp the splice.
- (9) Do Step (8) again to assemble the other end of the splice.

C. More Than One Wire to More Than One Wire - Insulated Butt Splice

NOTE: A satisfactory alternative for an insulated butt splice on more than one wire is an uninsulated butt splice and sleeves on more than one wire. Refer to Paragraph 6.E.

- (1) Make a selection of an insulated butt splice from Table 10.
Make sure that the splice has the smallest CAU range that can accept the total CAU of the conductor. Refer to Paragraph 1.D. for the procedure to calculate the CAU of the conductor.
- (2) Find the crimp barrel size of the splice from Table 10.
- (3) Make a selection of a crimp tool from Table 38.
- (4) Remove the necessary length of insulation from the end of each wire. Refer to Subject 20-00-15.
- (5) For butt splices with an insulation grip, put the wires in the splice. Refer to Figure 27.

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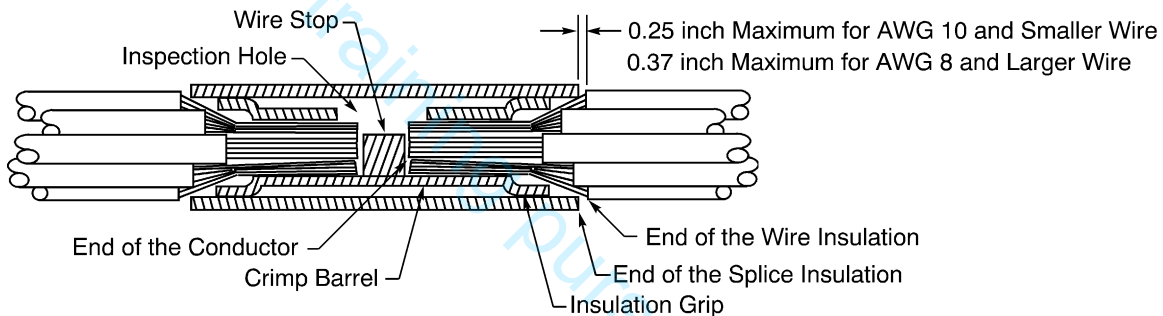
STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Make sure that for each wire:

- The end of the conductor can be seen in the inspection hole
- The end of the conductor does not make an overlap with the wire stop
- The wire insulation is not in the crimp barrel
- If the wire insulation can go into the insulation grip, the insulation grip makes an overlap with the wire insulation
- If the wire insulation can go into the splice insulation, the splice insulation makes an overlap with the wire insulation
- If the wire insulation of a AWG 10 and smaller wire cannot go into the splice insulation, the end of the wire insulation is a maximum of 0.25 inch from the end of the splice insulation
- If the wire insulation of a AWG 8 and larger wire cannot go into the splice insulation, the end of the wire insulation is a maximum of 0.37 inch from the end of the splice insulation.

NOTE: The wire insulation, the crimp barrel, and the conductor can be seen through the insulation of the butt splice.



POSITION OF THE WIRES IN THE INSULATED BUTT SPLICE WITH AN INSULATION GRIP

Figure 27

- (6) For butt splices without an insulation grip, put the wires in the splice. Refer to Figure 28.

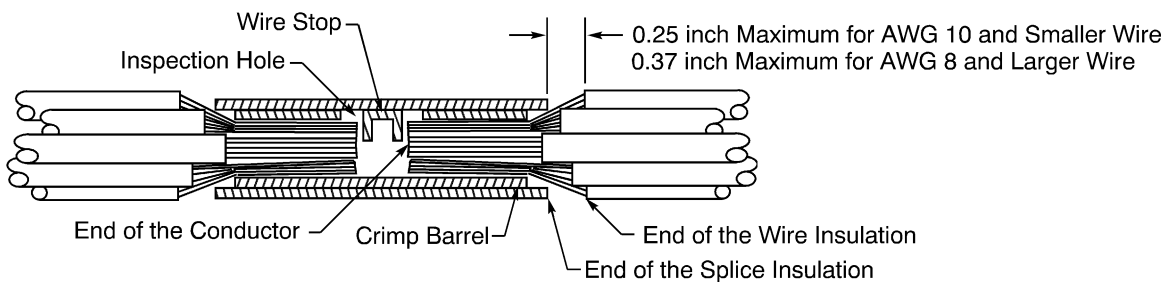
Make sure that for each wire:

- The end of the conductor can be seen in the inspection hole
- The end of the conductor does not make an overlap with the wire stop
- The wire insulation is not in the crimp barrel
- If the wire insulation can go into the splice insulation, the splice insulation makes an overlap with the wire insulation
- If the wire insulation of a AWG 10 and smaller wire cannot go into the splice insulation, the end of the wire insulation is a maximum of 0.25 inch from the end of the splice insulation
- If the wire insulation of a AWG 8 and larger wire cannot go into the splice insulation, the end of the wire insulation is a maximum of 0.37 inch from the end of the splice insulation.

NOTE: The wire insulation, the crimp barrel, and the conductor can be seen through the insulation of the butt splice.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES



POSITION OF THE WIRE IN THE INSULATED BUTT SPLICE

Figure 28

- (7) If it is necessary, remove more insulation from the wire to make a correct fit of the wire in the splice.
- (8) If the end of a wire insulation is not in the splice insulation, put a sleeve on the splice assembly.
 - (a) Make a selection of a Temperature Grade B sleeve. Refer to Table 49.
Make sure that the sleeve has the smallest diameter that can be put on the wires and the splice.
 - (b) Cut a length of the sleeve.
Make sure that the sleeve makes a 0.8 inch minimum overlap with the wire insulation on each wire on each end of the splice assembly.
 - (c) Put the sleeve on the wires on one side of the splice assembly.
- (9) Assemble one end of the splice.
 - (a) Put the splice in the crimp tool.
 - (b) Hold the splice in position with light pressure.
 - (c) Put the wires in the end of the splice.
Make sure that the wires are in the correct position.
 - (d) Crimp the splice.
- (10) Do Step (9) again to assemble the other end of the splice.
- (11) If a sleeve is on the wires, install the sleeve on the splice assembly.
 - (a) Align the center of the sleeve with the center of the splice.
 - (b) Shrink the sleeve into position. Refer to Subject 20-10-14.

D. One Wire to One Wire - Butt Splice, Sleeves

Table 62
INSULATION REMOVAL LENGTH

Splice Part Number	Insulation Removal Length L (inch)	
	Target	Tolerance
BACT12C12	0.35	± 0.03
BACT12C4	0.53	± 0.03
BACT12C6	0.53	± 0.03
BACT12C8	0.47	± 0.03

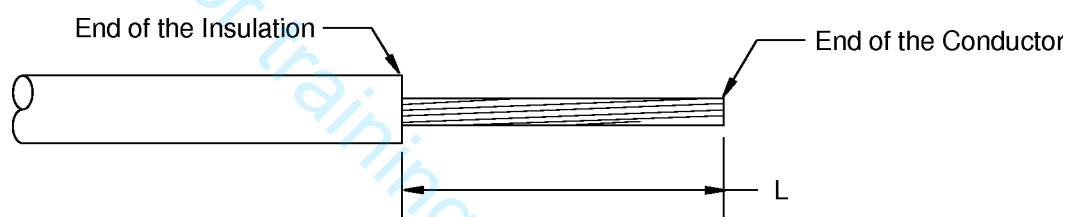
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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Table 62 (continued)

Splice Part Number	Insulation Removal Length L (inch)	
	Target	Tolerance
D-609-06	0.28	± 0.03
D-609-07	0.28	± 0.03
D-609-08	0.28	± 0.03
NAS1387-4	0.28	± 0.03
NAS1387-5	0.28	± 0.03
NAS1387-6	0.28	± 0.03



INSULATION REMOVAL LENGTH

Figure 29

NOTE: A satisfactory alternative for an uninsulated butt splice and sleeves on one wire is an insulated butt splice on one wire. Refer to Paragraph 6.B.

- (1) Make a selection of an uninsulated butt splice from Table 12 or Table 14.
Make sure that the splice has the smallest CAU range that can accept the total CAU of the conductor. Refer to Paragraph 1.D. for the procedure to calculate the CAU of the conductor.
- (2) Find the crimp barrel size of the splice from Table 12 or Table 14.
- (3) Make a selection of a crimp tool from Table 41.
- (4) Make a selection of a Temperature Grade B heat shrinkable sleeve from Table 49.
Make sure that the sleeve has the smallest diameter that can be put on the wire and the splice.

NOTE: For alternative heat shrinkable sleeves, refer to Subject 20-00-11.

- (5) Cut a 4.0 inch ± 0.2 inch length of the sleeve.
- (6) For an AWG 8 and larger wire, cut one more piece of the sleeve that is 2.4 inches ± 0.2 inch in length.
- (7) Put the sleeves on the end of one of the wires.
- (8) Remove the necessary length of insulation from the end of each wire.

Refer to:

- Figure 29
- Table 62 for the insulation removal length
- Subject 20-00-15 for the insulation removal procedures.

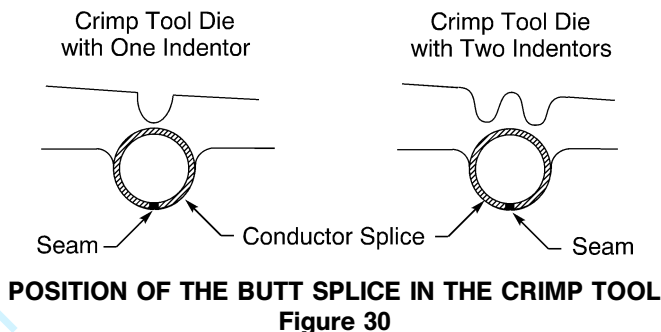
- (9) Assemble one end of the butt splice:

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

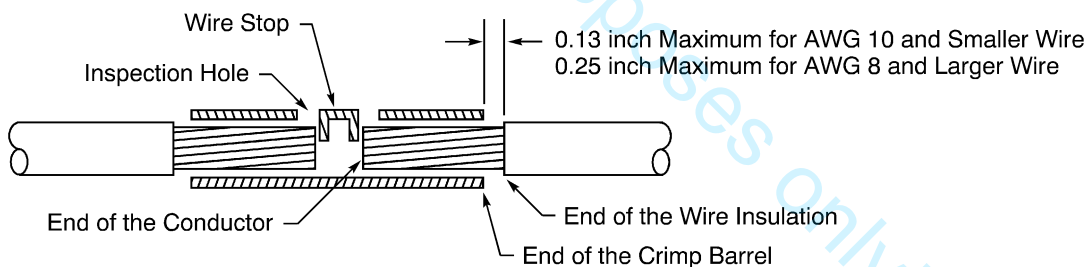
- (a) Put the splice in the crimp tool.
- (b) If the splice has a seam, align the seam opposite the indenter. Refer to Figure 30.



- (c) Hold the splice in position with light pressure.
- (d) Put the wire in the end of the splice. Refer to Figure 31.

Make sure that:

- The end of the conductor can be seen in the inspection hole
- The end of the conductor does not make an overlap with the wire stop
- The wire insulation is not in the crimp barrel
- For AWG 10 and smaller wire, the end of the wire insulation is a maximum of 0.13 inch from the end of the crimp barrel
- For AWG 8 and larger wire, the end of the wire insulation is a maximum of 0.25 inch from the end of the crimp barrel.

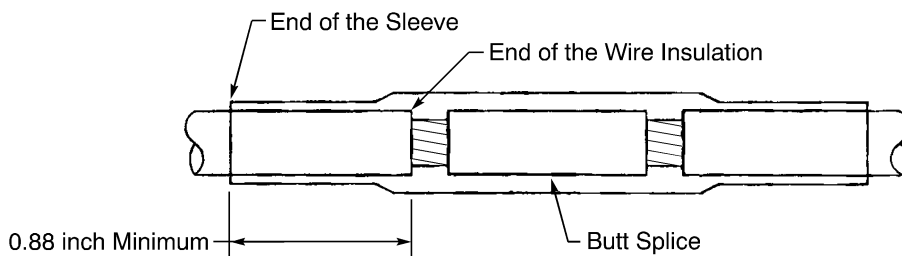


- (e) Crimp the splice.
- (10) Do Step (9) again to assemble the other end of the butt splice.
- (11) For an AWG 10 and smaller wire:
 - (a) Align the center of the sleeve with the center of the splice. Refer to Figure 32.

Make sure that the sleeve makes a 0.88 inch minimum overlap with the wire insulation on each end of the splice assembly.

STANDARD WIRING PRACTICES MANUAL

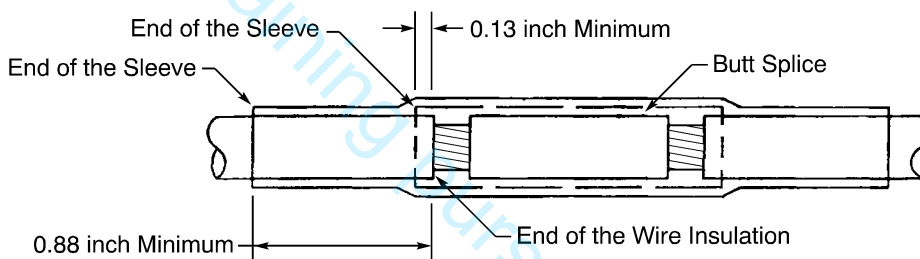
ASSEMBLY OF SPLICES



POSITION OF THE SLEEVE ON THE SPLICE ASSEMBLY WITH AWG 10 AND SMALLER WIRE

Figure 32

- (b) Shrink the sleeve into position. Refer to Subject 20-10-14.
- (12) For an AWG 8 and larger wire:
 - (a) Align the center of the short sleeve with the center of the splice. Refer to Figure 33. Make sure that the short sleeve makes a 0.13 inch minimum overlap with the wire insulation on each end of the splice assembly.



POSITION OF THE SLEEVES ON THE SPLICE ASSEMBLY WITH AWG 8 AND LARGER WIRE

Figure 33

- (b) Shrink the short sleeve in position. Refer to Subject 20-10-14.
- (c) Align the center of the long sleeve with the center of the splice. Refer to Figure 33. Make sure that the long sleeve makes a 0.88 inch minimum overlap with the wire insulation on each end of the splice assembly.
- (d) Shrink the long sleeve into position. Refer to Subject 20-10-14.

E. More Than One Wire to More Than One Wire - Butt Splice, Sleeves

Table 63
INSULATION REMOVAL LENGTH

Splice Part Number	Insulation Removal Length L (inch)	
	Target	Tolerance
BACT12C12	0.47	± 0.03
BACT12C4	0.53	± 0.03
BACT12C6	0.53	± 0.03
BACT12C8	0.47	± 0.03

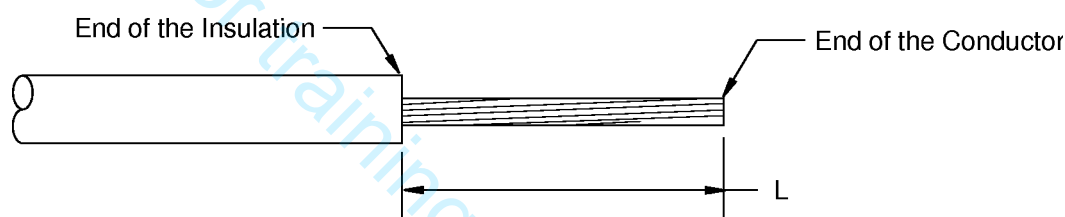
20-30-12

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ASSEMBLY OF SPLICES

Table 63 (continued)

Splice Part Number	Insulation Removal Length L (inch)	
	Target	Tolerance
D-609-06	0.28	± 0.03
D-609-07	0.28	± 0.03
D-609-08	0.28	± 0.03
NAS1387-4	0.28	± 0.03
NAS1387-5	0.28	± 0.03
NAS1387-6	0.28	± 0.03



INSULATION REMOVAL LENGTH

Figure 34

NOTE: A satisfactory alternative for an uninsulated butt splice and sleeves on more than one wire is an insulated butt splice on more than one wire. Refer to Paragraph 6.C.

- (1) Make a selection of an uninsulated butt splice from Table 12 or Table 14.
Make sure that the splice has the smallest CAU size that can accept the total CAU of the conductors. Refer to Paragraph 1.D. for the procedure to calculate the CAU of the conductors.
- (2) Find the crimp barrel size of the splice from Table 12 or Table 14.
- (3) Make a selection of a crimp tool from Table 41.
- (4) Make a selection of a Temperature Grade B heat shrinkable sleeve from Table 49.
Make sure that the sleeve has the smallest diameter that can be put on the wires and the splice.

NOTE: For alternative heat shrinkable sleeves, refer to Subject 20-00-11.

- (5) Cut a 4.0 inch ± 0.2 inch length of the sleeve.
- (6) Cut one more piece of sleeve that is 2.4 inches ± 0.2 inch in length.
- (7) Put the sleeves on the end of one of the wires.
- (8) Remove the necessary length of insulation from the end of each wire.

Refer to:

- Figure 34
- Table 63 for the insulation removal length
- Subject 20-00-15 for the insulation removal procedures.

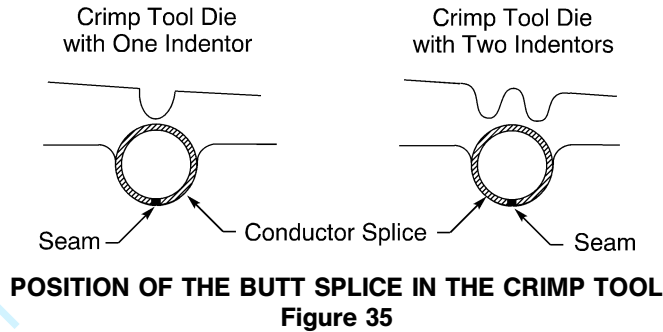
- (9) Assemble one end of the butt splice:

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ASSEMBLY OF SPLICES

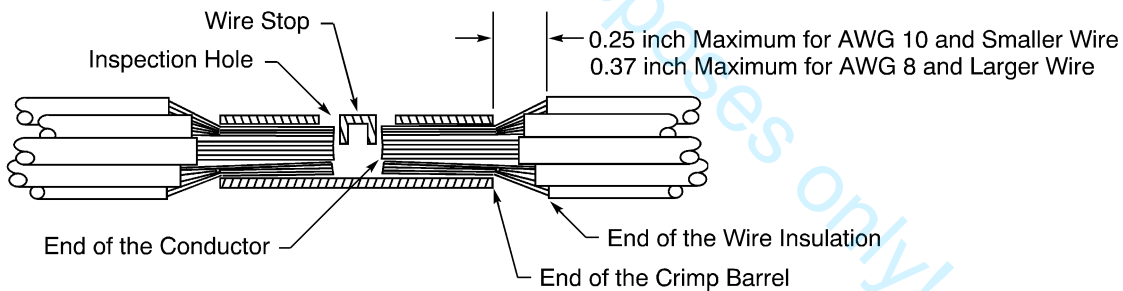
- (a) Put the splice in the crimp tool.
- (b) If the splice has a seam, align the seam opposite the indenter. Refer to Figure 35.



- (c) Hold the splice in position with light pressure.
- (d) Put the wires in the end of the splice. Refer to Figure 36.

Make sure that:

- The end of the each conductor can be seen in the inspection hole
- The end of the each conductor does not make an overlap with the wire stop
- The wire insulation is not in the crimp barrel
- For AWG 10 and smaller wires, the end of the wire insulation is a maximum of 0.25 inch from the end of the crimp barrel
- For AWG 8 and larger wires, the end of the wire insulation is a maximum of 0.37 inch from the end of the crimp barrel.



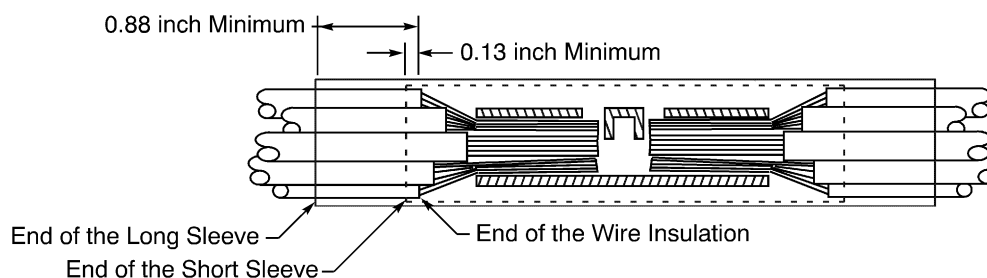
POSITION OF THE WIRES IN THE BUTT SPLICE
Figure 36

- (e) Crimp the splice.
- (10) Do Step (9) again to assemble the other end of the butt splice.
- (11) Align the center of the short sleeve with the center of the splice. Refer to Figure 37.

Make sure that the short sleeve makes a 0.13 inch minimum overlap with each wire insulation on each end of the splice assembly.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES



POSITION OF THE SLEEVES ON THE SPLICE ASSEMBLY

Figure 37

- (12) Shrink the short sleeve into position. Refer to Subject 20-10-14.
- (13) Align the center of the long sleeve with the center of the splice. Refer to Figure 37.
Make sure that the long sleeve makes a 0.88 inch minimum overlap with the wire insulation on each end of the splice assembly.
- (14) Shrink the long sleeve into position. Refer to Subject 20-10-14.

7. SEALED SPLICE CONFIGURATIONS FOR UNSHIELDED WIRES AND UNSHIELDED CABLES

A. Splice Assembly Configurations

For the conditions that are applicable for:

- The repair of a wire or a cable with a splice, refer to Subject 20-10-13
- The selection of the correct sealed splice configuration, refer to Paragraph 1.C.

To calculate the CAU of the conductor, refer to Table 4.

Table 64
SEALED SPLICE ASSEMBLY CONFIGURATIONS

One End of Splice Assembly	Other End of Splice Assembly	CAU Range		Applicable Condition	Splice Assembly	
		Minimum	Maximum		Configuration	Procedure
One Wire	One Wire	3	457	Fuel Vapor	Tape, Ties	Paragraph 7.B.
				No Fuel Vapor	Tape, Ties	Paragraph 7.B.
				Fuel Vapor	Sealant, Sleeve, Ties	Paragraph 7.C.
				No Fuel Vapor	Sealant, Sleeve, Ties	Paragraph 7.C.
One Wire	Two Wires	3	457	Fuel Vapor	Tape, Ties	Paragraph 7.D.
				No Fuel Vapor	Tape, Ties	Paragraph 7.D.
Two Wires	Two Wires	3	457	Fuel Vapor	Tape, Ties	Paragraph 7.E.
				No Fuel Vapor	Tape, Ties	Paragraph 7.E.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

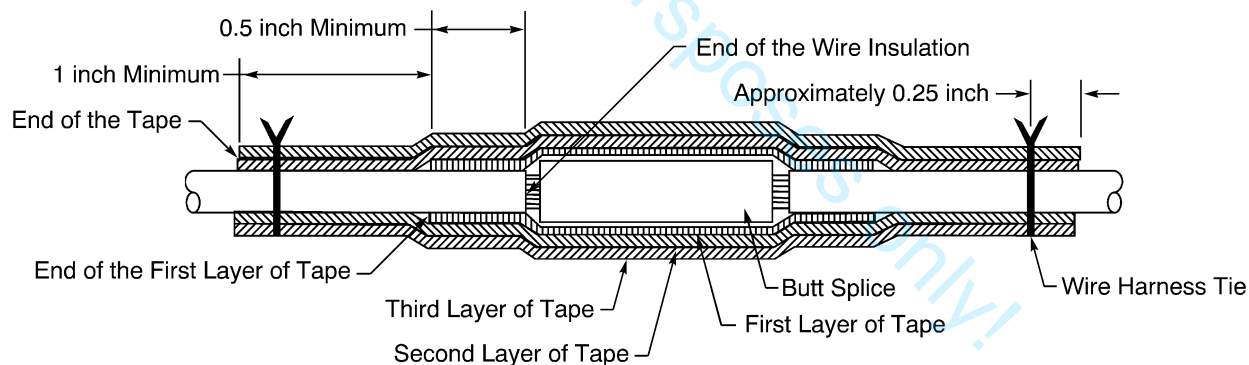
Table 64 (continued)

One End of Splice Assembly	Other End of Splice Assembly	CAU Range		Applicable Condition	Splice Assembly	
		Minimum	Maximum		Configuration	Procedure
One or Two Wires	One or Two Wires	3	67	No Fuel Vapor	Splice Kit	Paragraph 7.F.
		3	457	No Fuel Vapor	Sleeve	Paragraph 7.G.
One to Five Wires	One to Five Wires	3	457	No Fuel Vapor	Sleeve - 3 to 5 Hole Wire Seal	Paragraph 7.I.
		19	67	No Fuel Vapor	Splice Kit - 3 Hole Wire Seal	Paragraph 7.H.
One Cable	One Cable	3	457	Fuel Vapor	Tape, Ties	Paragraph 7.J.
				No Fuel Vapor	Tape, Ties	Paragraph 7.J.
					Tape, Sleeve	Paragraph 7.K.

B. One Wire to One Wire - Tape, Ties

For the conditions that are applicable for:

- The repair of a wire or a cable with a splice, refer to Subject 20-10-13
- The selection of the correct sealed splice configuration, refer to Paragraph 1.C.



CONFIGURATION OF THE SPLICE ASSEMBLY

Figure 38

Refer to Figure 38.

- (1) Make a selection of a butt splice from Table 12 or Table 14.

Make sure that the splice has the smallest CAU range that can accept the total CAU of the conductor.

Refer to Paragraph 1.D. for the procedure to calculate the CAU of the conductor.

- (2) Find the crimp barrel size of the splice from Table 12 or Table 14.

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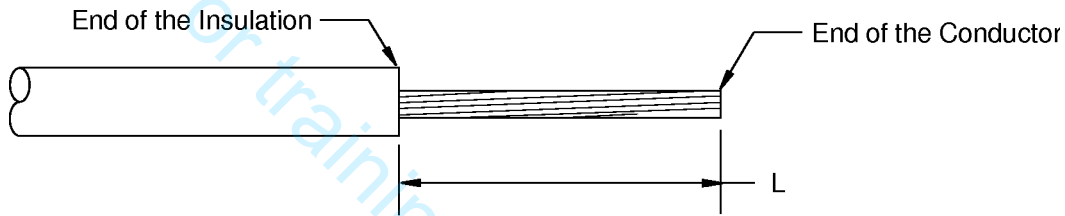
STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

- (3) Make a selection of a crimp tool from:
 - Table 41 for BACT12C() splices
 - Table 42 for NAS1387-() splices
 - Table 43 for BACS52K() splices
 - Table 43 for Raychem D-609-0() splices.
- (4) Make a selection of a Temperature Grade B or higher insulation tape from Table 50.
- (5) Remove the necessary length of insulation from the end of each wire.

Refer to:

- Figure 39
- Table 65 for the insulation removal length
- Subject 20-00-15 for the insulation removal procedures.



INSULATION REMOVAL LENGTH

Figure 39

Table 65

INSULATION REMOVAL LENGTH

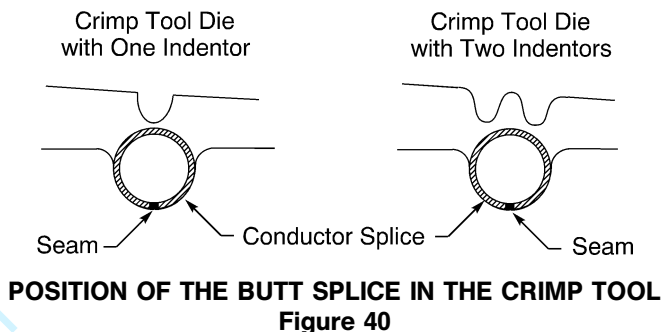
Splice Part Number	Insulation Removal Length L (inch)	
	Target	Tolerance
BACT12C101	0.72	± 0.03
BACT12C12	0.34	± 0.03
BACT12C21	0.65	± 0.03
BACT12C4	0.53	± 0.03
BACT12C6	0.53	± 0.03
BACT12C8	0.47	± 0.03
D-609-06	0.28	± 0.03
D-609-07	0.28	± 0.03
D-609-08	0.28	± 0.03
NAS1387-4	0.28	± 0.03
NAS1387-5	0.28	± 0.03
NAS1387-6	0.28	± 0.03

- (6) Assemble one end of the butt splice.

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ASSEMBLY OF SPLICES

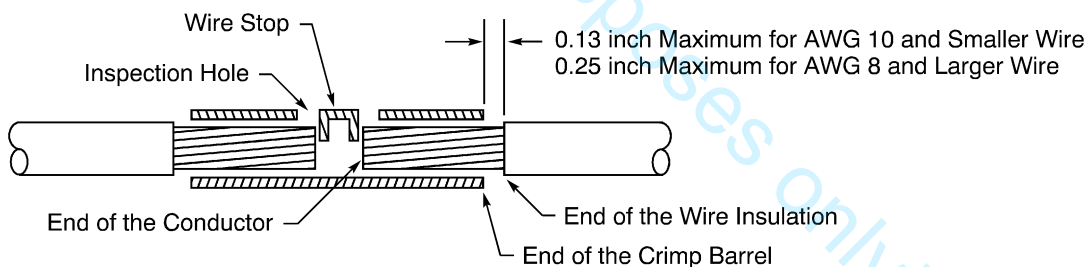
- (a) Put the splice in the crimp tool.
- (b) If the splice has a seam, align the seam opposite the indenter. Refer to Figure 40.



- (c) Hold the splice in position with light pressure.
- (d) Put the wire in the splice. Refer to Figure 41.

Make sure that:

- The end of the conductor can be seen in the inspection hole
- The end of the conductor does not make an overlap with the wire stop
- The insulation of the wire is not in the crimp barrel
- For an AWG 10 and smaller wire, the end of the wire insulation is a maximum of 0.13 inch from the end of the crimp barrel
- For an AWG 8 and larger wire, the end of the wire insulation is a maximum of 0.25 inch from the end of the crimp barrel.



- (e) Crimp the splice.
- (7) Do Step (6) again to assemble the other end of the butt splice.
- (8) Put three layers of the insulation tape on the splice assembly.
- (a) Tightly wind the first layer of tape on the splice assembly.

NOTE: An alternative to the first layer of tape is two layers of Temperature Grade D insulation film strip from Table 52.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Make sure that:

- The layer of tape or each layer of film strip starts 0.5 inch minimum farther than the end of the wire insulation
- The layer of tape or each layer of film strip stops 0.5 inch minimum farther than the end of the wire insulation at the other end of the splice assembly
- The layer of tape or each layer of film strip makes a 50 percent overlap
- The second layer of film strip is wound in the opposite direction of the first layer.

- (b) Tightly wind the second layer of tape on the splice assembly in the opposite direction of the first layer.

Make sure that the layer of tape:

- Starts 1 inch minimum farther than the end of the first layer of tape
- Stops 1 inch minimum farther than the end of the first layer of tape at the other end of the splice assembly
- Makes a minimum 50 percent overlap.

- (c) Tightly wind the third layer of tape on the splice assembly in the opposite direction of the second layer.

Make sure that the layer:

- Starts where the second layer stops
- Stops where the second layer starts
- Makes a 50 percent overlap.

- (9) Assemble a lacing tape wire harness tie on each end of the splice assembly approximately 0.25 inch from the end of the tape. Refer to Subject 20-10-11.

Make sure that the Temperature Grade of the lacing tape is Temperature Grade B or higher.

C. One Wire to One Wire - Sealant, Sleeve, Ties

For the conditions that are applicable for:

- The repair of a wire or a cable with a splice, refer to Subject 20-10-13
- The selection of the correct sealed splice configuration, refer to Paragraph 1.C.

Table 66
NECESSARY MATERIALS

Material	Part Number or Description	Diameter (inch)	Color	Supplier
Sleeve	Grade B, Class 1 heat shrinkable sleeve	1/4	Yellow	Refer to Subject 20-00-11
		5/16	Yellow	Refer to Subject 20-00-11
Sealant	BMS 5-63, Type II, Class B-1/2, Form A	-	-	Boeing
	BMS 5-95, Type II, Class B-1/2	-	-	Boeing
	BMS 5-95, Type II, Class B-2	-	-	Boeing

- (1) Make a selection of a sleeve from Table 66.

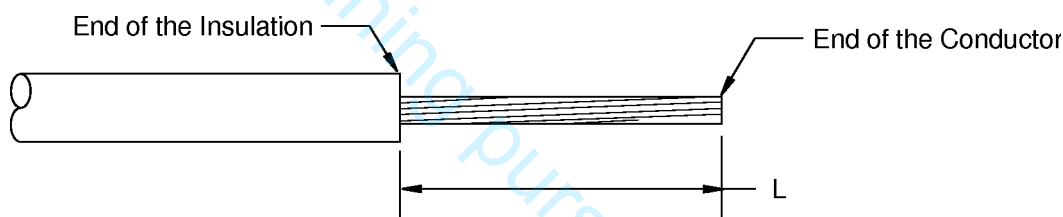
- (2) Make a selection of a sealant from Table 66.

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

- (3) Make a selection of a butt splice from Table 12 or Table 14.
Make sure that the splice has the smallest CAU range that can accept the total CAU of the conductor.
Refer to Paragraph 1.D. for the procedure to calculate the CAU of the conductor.
 - (4) Cut a length of sleeve a minimum of 3.00 inches longer than the splice.
 - (5) Find the crimp barrel size of the splice from Table 12 or Table 14.
 - (6) Make a selection of a crimp tool from:
 - Table 41 for BACT12C() splices
 - Table 42 for NAS1387-() splices
 - Table 43 for BACS52K() splices
 - Table 43 for Raychem D-609-0() splices.
 - (7) Remove the necessary length of insulation from the end of each wire.
- Refer to:
- Figure 42
 - Table 67 for the insulation removal length
 - Subject 20-00-15 for the insulation removal procedures.



INSULATION REMOVAL LENGTH

Figure 42

Table 67
INSULATION REMOVAL LENGTH

Splice Part Number	Insulation Removal Length L (inch)	
	Target	Tolerance
BACT12C101	0.72	± 0.03
BACT12C12	0.34	± 0.03
BACT12C21	0.65	± 0.03
BACT12C4	0.53	± 0.03
BACT12C6	0.53	± 0.03
BACT12C8	0.47	± 0.03
D-609-06	0.28	± 0.03
D-609-07	0.28	± 0.03
D-609-08	0.28	± 0.03
NAS1387-4	0.28	± 0.03

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Table 67 (continued)

Splice Part Number	Insulation Removal Length L (inch)	
	Target	Tolerance
NAS1387-5	0.28	± 0.03
NAS1387-6	0.28	± 0.03

- (8) Put the length of sleeve on one of the two wires that are to be spliced together.
- (9) Assemble one end of the butt splice.
 - (a) Put the splice in the crimp tool.
 - (b) If the splice has a seam, align the seam opposite the indenter. Refer to Figure 43.

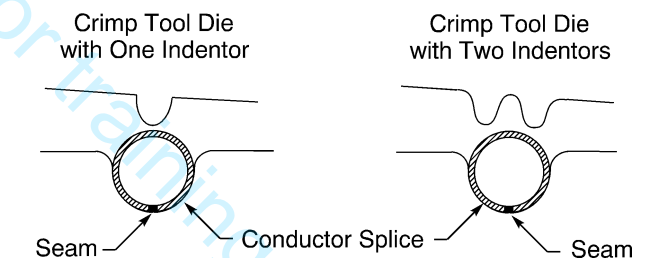

POSITION OF THE BUTT SPLICE IN THE CRIMP TOOL

Figure 43

- (c) Hold the splice in position with light pressure.
- (d) Put the wire in the splice. Refer to Figure 44.

Make sure that:

- The end of the conductor can be seen in the inspection hole
- The end of the conductor does not make an overlap with the wire stop
- The insulation of the wire is not in the crimp barrel
- For an AWG 10 and smaller wire, the end of the wire insulation is a maximum of 0.13 inch from the end of the crimp barrel
- For an AWG 8 and larger wire, the end of the wire insulation is a maximum of 0.25 inch from the end of the crimp barrel.

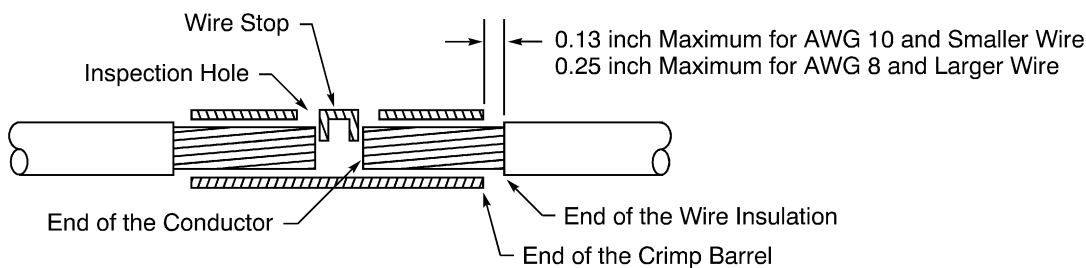

POSITION OF THE WIRE IN THE BUTT SPLICE

Figure 44

20-30-12

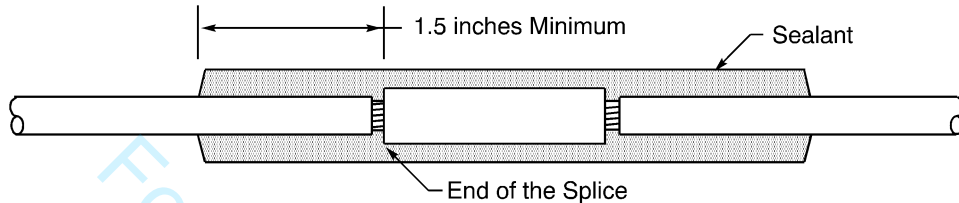
STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

- (e) Crimp the splice.
- (10) Do Step (9) again to assemble the other end of the butt splice.
- (11) Apply a continuous layer of the sealant on the area of the splice. Refer to Figure 45.

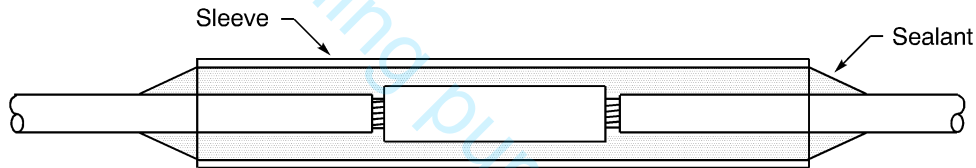
Make sure that:

- The splice has a full layer of sealant on the length and the circumference of the splice surface
- The sealant extends a minimum of 1.5 inches farther than each end of the splice.



CONFIGURATION OF THE SEALANT ON THE SPLICE
Figure 45

- (12) Slowly push the sleeve until the center of the sleeve is aligned with the center of the butt splice.



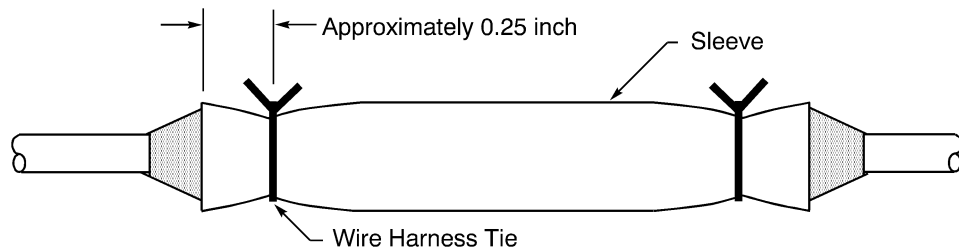
POSITION OF THE SLEEVE ON THE SEALANT
Figure 46

- (13) Apply pressure with the fingers to the sleeve to push the air bubbles out.
- (14) Assemble a lacing tape wire harness tie on each end of the splice assembly approximately 0.25 inch from the end of the sleeve.

Refer to:

- Subject 20-10-11 for the procedure to assemble a wire harness tie
- Figure 47 for the position of the wire harness ties.

Make sure that the Temperature Grade of the lacing tape is Temperature Grade B or higher.



POSITION OF THE WIRE HARNESS TIES ON THE SLEEVE
Figure 47

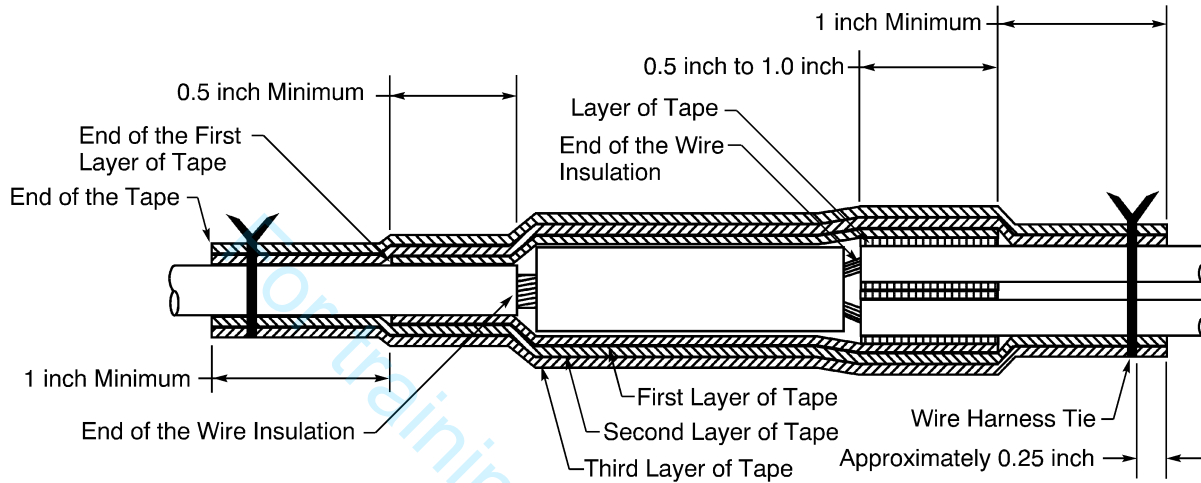
STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

D. One Wire to Two Wires - Tape, Ties

For the conditions that are applicable for:

- The repair of a wire or a cable with a splice, refer to Subject 20-10-13
- The selection of the correct sealed splice configuration, refer to Paragraph 1.C.



CONFIGURATION OF THE SPLICE ASSEMBLY

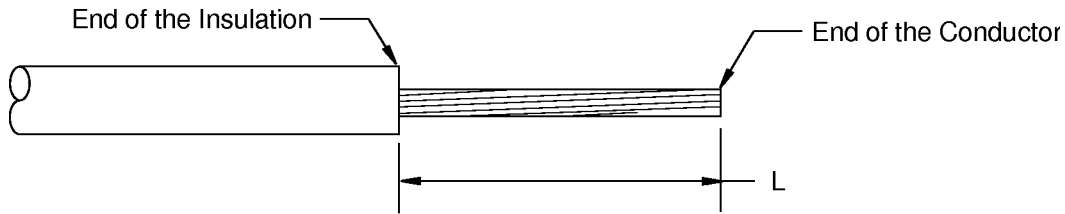
Figure 48

Refer to Figure 48.

- (1) Make a selection of a butt splice from Table 12 or Table 14.
Make sure that the splice has the smallest CAU range that can accept the total CAU of the conductor.
Refer to Paragraph 1.D. for the procedure to calculate the CAU of the conductor.
- (2) Find the crimp barrel size of the splice from Table 12 or Table 14.
- (3) Make a selection of a crimp tool from:
 - Table 41 for BACT12C() splices
 - Table 42 for NAS1387-() splices
 - Table 43 for BACS52K() splices
 - Table 43 for Raychem D-609-0() splices.
- (4) Make a selection of a Temperature Grade B or higher insulation tape from Table 50.
Make sure that the tape has a width of 0.5 inch minimum to 1.0 inch maximum.
- (5) Remove the necessary length of insulation from the end of each wire.

Refer to:

- Figure 49
- Table 68 for the insulation removal length
- Subject 20-00-15 for the insulation removal procedures.

STANDARD WIRING PRACTICES MANUAL
ASSEMBLY OF SPLICES

INSULATION REMOVAL LENGTH
Figure 49
**Table 68
INSULATION REMOVAL LENGTH**

Splice Part Number	Insulation Removal Length L (inch)	
	Target	Tolerance
BACT12C101	0.72	± 0.03
BACT12C12	0.34	± 0.03
BACT12C21	0.65	± 0.03
BACT12C4	0.53	± 0.03
BACT12C6	0.53	± 0.03
BACT12C8	0.47	± 0.03
D-609-06	0.28	± 0.03
D-609-07	0.28	± 0.03
D-609-08	0.28	± 0.03
NAS1387-4	0.28	± 0.03
NAS1387-5	0.28	± 0.03
NAS1387-6	0.28	± 0.03

- (6) Wind a layer of the insulation tape on each of the two wires for the side of the splice with two wires.

Make sure that:

- The edge of the tape is aligned with the end of the wire insulation
- The tape goes around the circumference of the wire a minimum of two times
- The tape makes a 100 percent overlap.

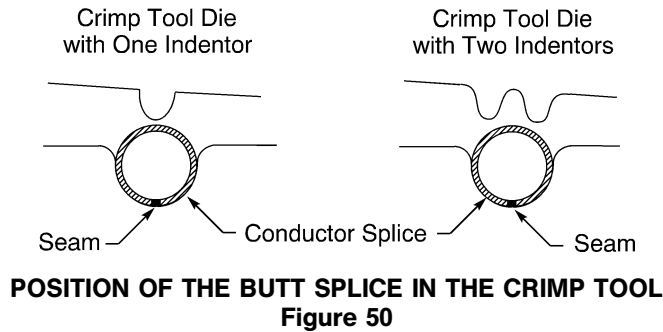
- (7) Assemble one end of the butt splice.

(a) Put the splice in the crimp tool.

(b) If the splice has a seam, align the seam opposite the indenter. Refer to Figure 50.

STANDARD WIRING PRACTICES MANUAL

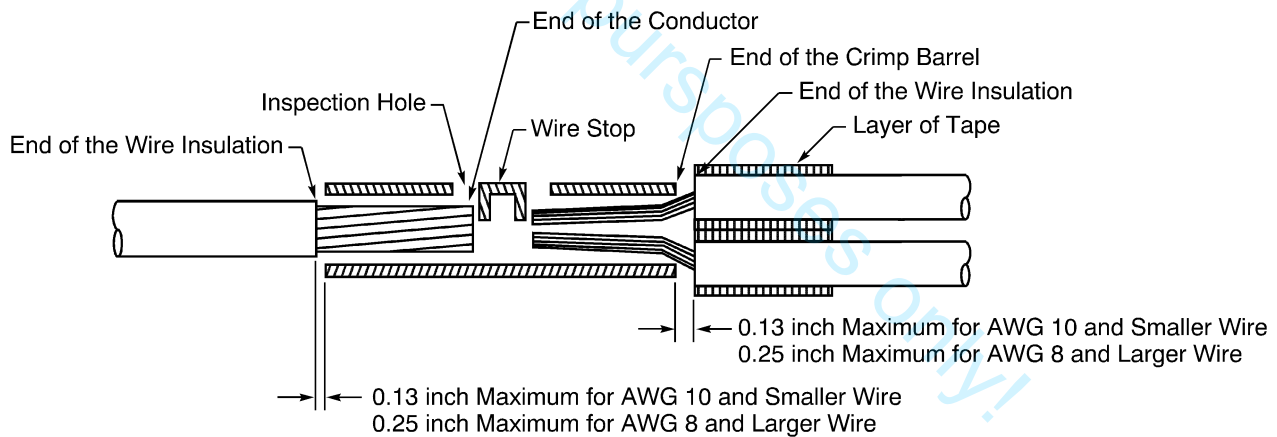
ASSEMBLY OF SPLICES



- (c) Hold the splice in position with light pressure.
- (d) Put the wire or wires in the splice. Refer to Figure 51.

Make sure that:

- The end of the conductor can be seen in the inspection hole
- The end of the conductor does not make an overlap with the wire stop
- The insulation of the wire is not in the crimp barrel
- For AWG 10 and smaller wire, the end of the wire insulation is a maximum of 0.13 inch from the end of the crimp barrel
- For AWG 8 and larger wire, the end of the wire insulation is a maximum of 0.25 inch from the end of the crimp barrel.



POSITION OF THE WIRES IN THE BUTT SPLICE

Figure 51

- (e) Crimp the splice.
- (8) Do Step (7) again to assemble the other end side of the butt splice.
- (9) Put three layers of the insulation tape on the splice assembly.
 - (a) Tightly wind the first layer of tape on the splice assembly.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Make sure that the layer:

- Starts 0.5 inch minimum farther than the end of the wire insulation on the side of the splice with one wire
- Stops at the rear end of the layers of tape on the two wires on the other end of the splice assembly
- The layer of tape makes a 50 percent overlap.

- (b) Tightly wind the second layer of tape on the splice assembly in the opposite direction of the first layer.

Make sure that the layer:

- Starts 1 inch minimum farther than the end of the first layer
- Stops 1 inch minimum farther than the end of the first layer at the other end of the splice assembly
- Makes a minimum 50 percent overlap.

- (c) Tightly wind the third layer of tape on the splice assembly in the opposite direction of the second layer.

Make sure that the layer:

- Starts where the second layer stops
- Stops where the second layer starts
- Makes a 50 percent overlap.

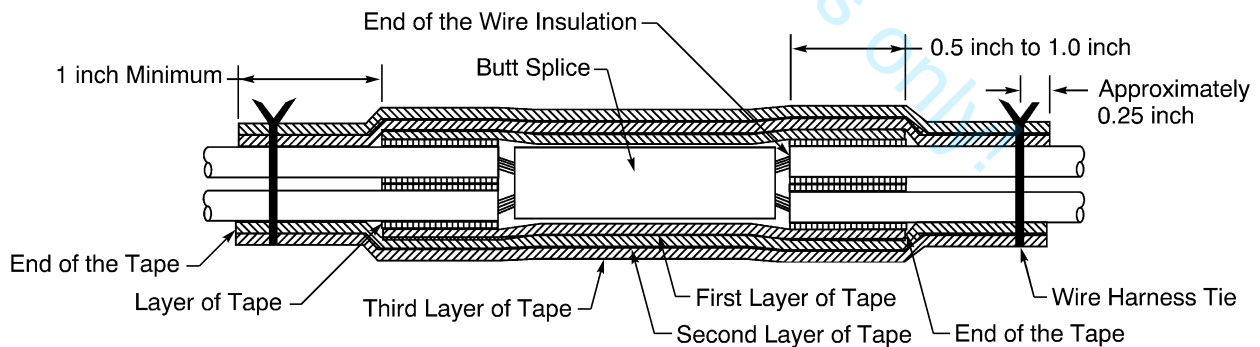
- (10) Assemble a lacing tape wire harness tie on each end of the splice assembly approximately 0.25 inch from the end of the tape. Refer to Subject 20-10-11.

Make sure that the Temperature Grade of the lacing tape is Temperature Grade B or higher.

E. Two Wires to Two Wires - Tape, Ties

For the conditions that are applicable for:

- The repair of a wire or a cable with a splice, refer to Subject 20-10-13
- The selection of the correct sealed splice configuration, refer to Paragraph 1.C.



CONFIGURATION OF THE SPLICE ASSEMBLY

Figure 52

Refer to Figure 52.

- (1) Make a selection of a butt splice from Table 12 or Table 14.

Make sure that the splice has the smallest CAU range that can accept the total CAU of the conductor.

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STANDARD WIRING PRACTICES MANUAL

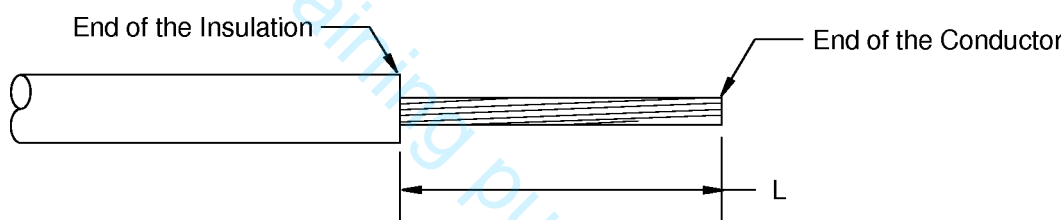
ASSEMBLY OF SPLICES

Refer to Paragraph 1.D. for the procedure to calculate the CAU of the conductor.

- (2) Find the crimp barrel size of the splice from Table 12 or Table 14.
- (3) Make a selection of a crimp tool from:
 - Table 41 for BACT12C() splices
 - Table 42 for NAS1387-() splices
 - Table 43 for BACS52K() splices
 - Table 43 for Raychem D-609-0() splices.
- (4) Make a selection of a Temperature Grade B or higher insulation tape from Table 50.
Make sure that the tape has a width of 0.5 inch minimum to 1.0 inch maximum.
- (5) Remove the necessary length of insulation from the end of each wire.

Refer to:

- Figure 53
- Table 69 for the insulation removal length
- Subject 20-00-15 for the insulation removal procedures.



INSULATION REMOVAL LENGTH

Figure 53

Table 69
INSULATION REMOVAL LENGTH

Splice Part Number	Insulation Removal Length L (inch)	
	Target	Tolerance
BACT12C4	0.53	± 0.03
BACT12C6	0.53	± 0.03
BACT12C8	0.47	± 0.03
BACT12C12	0.34	± 0.03
BACT12C21	0.65	± 0.03
BACT12C101	0.72	± 0.03
D-609-06	0.28	± 0.03
D-609-07	0.28	± 0.03
D-609-08	0.28	± 0.03
NAS1387-4	0.28	± 0.03
NAS1387-5	0.28	± 0.03

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Table 69 (continued)

Splice Part Number	Insulation Removal Length L (inch)	
	Target	Tolerance
NAS1387-6	0.28	± 0.03

(6) Wind a layer of the insulation tape on each wire.

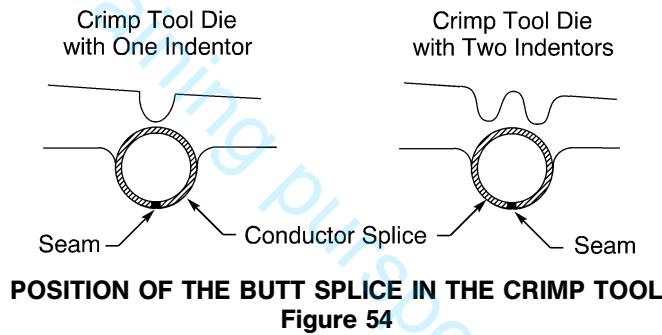
Make sure that:

- The edge of the tape is aligned with the end of the wire insulation
- The tape goes around the circumference of the wire a minimum of two times
- The tape makes a 100 percent overlap.

(7) Assemble one end of the butt splice.

(a) Put the splice in the crimp tool.

(b) If the splice has a seam, align the seam opposite the indenter. Refer to Figure 54.



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

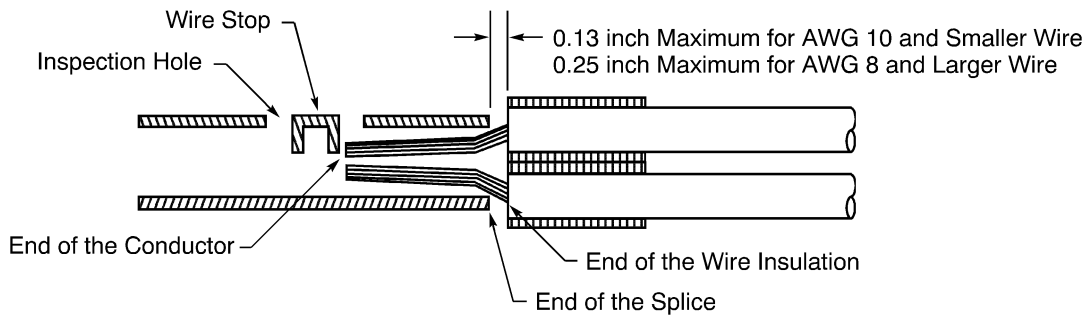
(d) Put the wire or wires in the splice. Refer to Figure 55.

Make sure that:

- The end of the conductor can be seen in the inspection hole
- The end of the conductor does not make an overlap with the wire stop
- The insulation of the wire is not in the crimp barrel
- For AWG 10 and smaller wire, the end of the wire insulation is a maximum of 0.13 inch from the end of the crimp barrel
- For AWG 8 and larger wire, the end of the wire insulation is a maximum of 0.25 inch from the end of the crimp barrel.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES



POSITION OF THE WIRES IN THE BUTT SPLICE

Figure 55

- (e) Crimp the splice.
- (8) Do Step (7) again to assemble the other end side of the butt splice.
- (9) Put three layers of insulation tape on the splice assembly.
 - (a) Tightly wind the first layer of tape on the splice assembly.

Make sure that the layer:

 - Starts at the rear end of the layers of tape on the two wires on one end of the splice assembly
 - Stops at the rear end of the layers of tape on the two wires on the other end of the splice assembly
 - Makes a 50 percent overlap.
 - (b) Tightly wind the second layer of tape on the splice assembly in the opposite direction of the first layer.

Make sure that the layer:

 - Starts 1 inch minimum farther than where the first layer stops
 - Stops 1 inch minimum farther than where the first layer starts
 - Makes a 50 percent overlap.
 - (c) Tightly wind the third layer of tape on the splice assembly in the opposite direction of the second layer.

Make sure that the layer:

 - Starts where the second layer stops
 - Stops where the second layer starts
 - Makes a 50 percent overlap.
- (10) Assemble a lacing tape wire harness tie on each end of the splice assembly approximately 0.25 inch from the end of the tape. Refer to Subject 20-10-11.

Make sure that the Temperature Grade of the lacing tape is Temperature Grade B or higher.

F. One or Two Wires to One or Two Wires - Splice Kit

For the conditions that are applicable for:

- The repair of a wire or a cable with a splice, refer to Subject 20-10-13
 - The selection of the correct sealed splice configuration, refer to Paragraph 1.C.
- (1) Make a selection of a sealed splice kit with 1 hole in the wire seal from Table 19.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Make sure that:

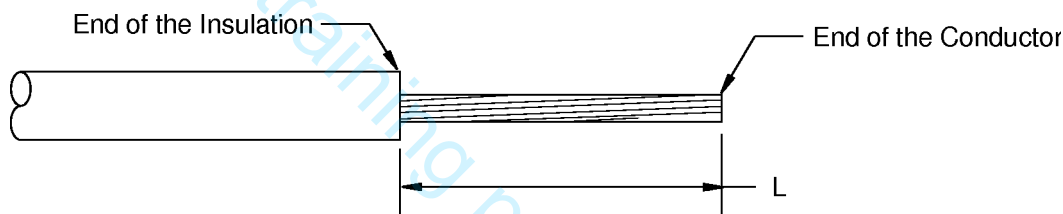
- The sleeve can make a seal on the number of wires in one end of the splice
- The splice kit has the smallest CAU range that can accept the total CAU of the conductor.

Refer to Paragraph 1.D. for the procedure to calculate the CAU of the conductor.

- (2) Find the part number of the butt splice in the splice kit from Table 20.
- (3) Find the crimp barrel size of the splice from Table 20.
- (4) Make a selection of a crimp tool from Table 43.
- (5) Put the sleeve on the one or two wires of one end of the splice assembly.
- (6) Remove the necessary length of insulation from the end of each wire.

Refer to:

- Figure 56
- Table 70 for the insulation removal length
- Subject 20-00-15 for the insulation removal procedures.



INSULATION REMOVAL LENGTH

Figure 56

Table 70

INSULATION REMOVAL LENGTH

Butt Splice Part Number	Insulation Removal Length L (inch)	
	Target	Tolerance
D-609-06	0.28	± 0.03
D-609-07	0.28	± 0.03
D-609-08	0.28	± 0.03

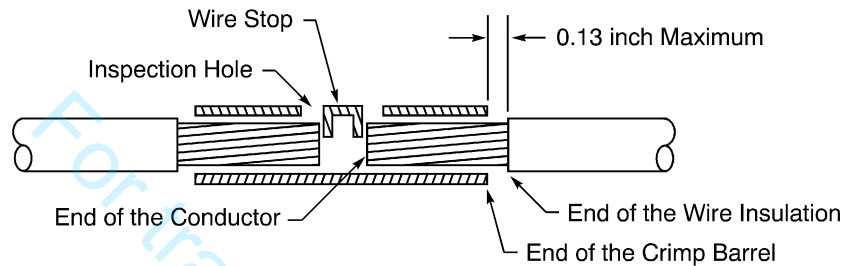
- (7) Assemble one end of the butt splice.
 - (a) Put the splice in the crimp tool.
 - (b) Hold the splice in position with light pressure.
 - (c) Put all of the wires for one end of the splice in the crimp barrel. Refer to Figure 57 and Figure 58.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

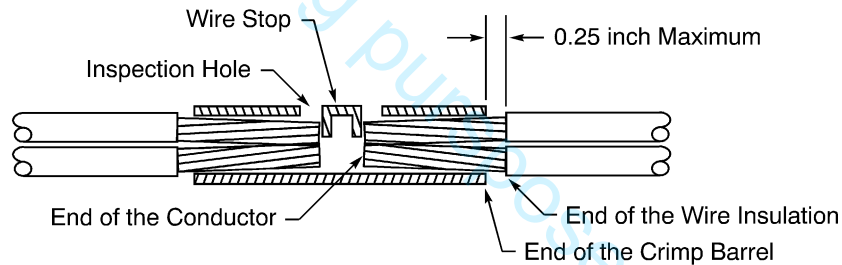
Make sure that:

- The end of each conductor can be seen in the inspection hole
- The end of each conductor does not make an overlap with the wire stop
- The insulation of each wire is not in the crimp barrel
- For one wire, the end of the wire insulation is a maximum of 0.13 inch from the end of the crimp barrel
- For two wires, the end of the wire insulation is a maximum of 0.25 inch from the end of the crimp barrel.



POSITION OF ONE WIRE IN THE BUTT SPLICE

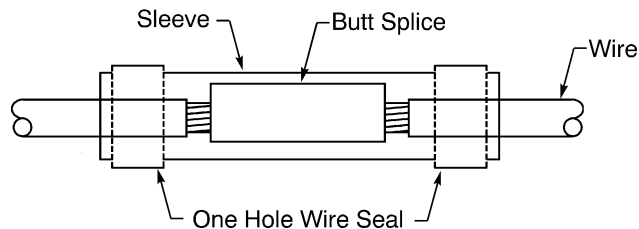
Figure 57



POSITION OF TWO WIRES IN THE BUTT SPLICE

Figure 58

- (d) Crimp the splice.
- (8) Do Step (7) again to assemble the other end of the butt splice.
- (9) Align the center of the sleeve with the center of the butt splice. Refer to Figure 59 and Figure 60.

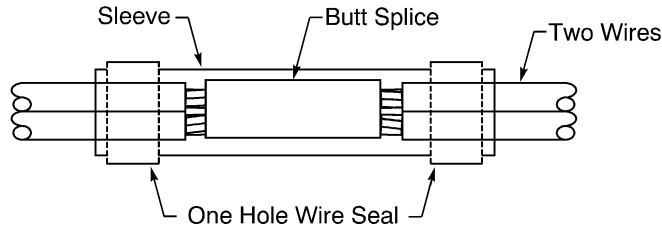


POSITION OF THE SLEEVE ON ONE WIRE

Figure 59

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES



POSITION OF THE SLEEVE ON TWO WIRES

Figure 60

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

Make sure that the seal material that comes out of the ends of the sleeve does not have rough edges.

G. One or Two Wires to One or Two Wires - Sleeve

For the conditions that are applicable for:

- The repair of a wire or a cable with a splice, refer to Subject 20-10-13
- The selection of the correct sealed splice configuration, refer to Paragraph 1.C.

- (1) Make a selection of a butt splice from Table 12 or Table 14.

Make sure that the splice has the smallest CAU range that can accept the total CAU of the conductor.

Refer to Paragraph 1.D. for the procedure to calculate the CAU of the conductor.

- (2) Find the crimp barrel size of the splice from Table 12 or Table 14.

- (3) Make a selection of a crimp tool from:

- Table 41 for BACT12C() splices
- Table 42 for NAS1387-() splices
- Table 43 for BACS52K() splices
- Table 43 for Raychem D-609-0() splices.

- (4) Make a selection of a sleeve with 1 hole in the wire seal from Table 18.

Make sure that:

- The sleeve can make a seal on the number of wires in one end of the splice
- The sleeve has the smallest diameter that can be moved easily on the wires, if the sleeve is a DWP-125 sleeve.

- (5) If the sleeve is a DWP-125 sleeve, cut the sleeve to the necessary length.

Make sure that the sleeve extends a minimum of 0.8 inch farther than each end of the splice.

- (6) Put the sleeve on all the wires of one end of the splice assembly.

- (7) Remove the necessary length of insulation from the end of each wire.

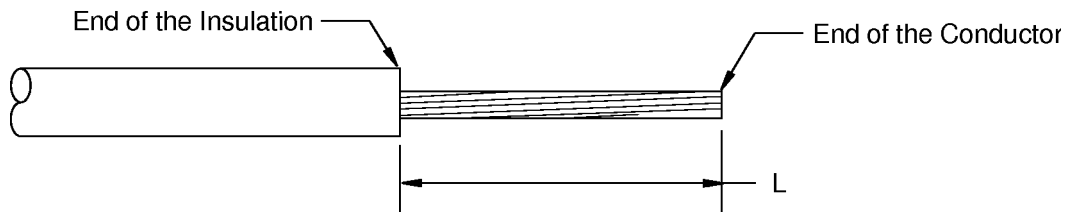
Refer to:

- Figure 61
- Table 71 for the insulation removal length
- Subject 20-00-15 for the insulation removal procedures.

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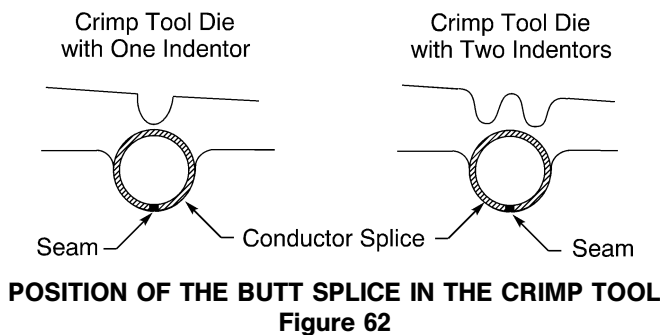
INSULATION REMOVAL LENGTH

Figure 61

Table 71
INSULATION REMOVAL LENGTH

Splice Part Number	Insulation Removal Length L (inch)	
	Target	Tolerance
BACT12C101	0.72	± 0.03
BACT12C12	0.34	± 0.03
BACT12C21	0.65	± 0.03
BACT12C4	0.53	± 0.03
BACT12C6	0.53	± 0.03
BACT12C8	0.47	± 0.03
D-609-06	0.28	± 0.03
D-609-07	0.28	± 0.03
D-609-08	0.28	± 0.03
NAS1387-4	0.28	± 0.03
NAS1387-5	0.28	± 0.03
NAS1387-6	0.28	± 0.03

- (8) Assemble one end of the butt splice.
- (a) Put the splice in the crimp tool.
- (b) If the splice has a seam, align the seam opposite the indenter. Refer to Figure 62.



POSITION OF THE BUTT SPLICE IN THE CRIMP TOOL
Figure 62

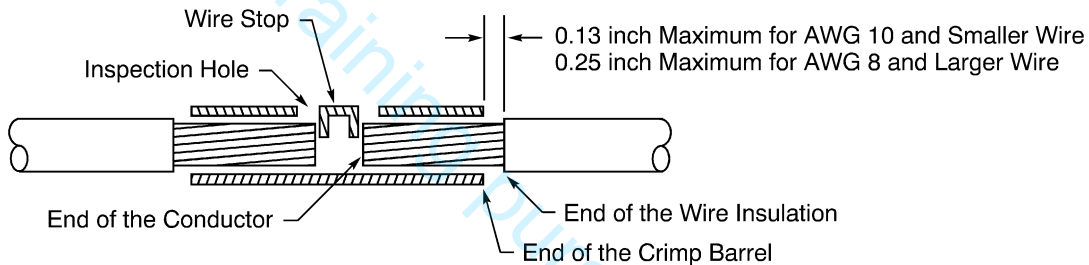
STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

- (c) Hold the splice in position with light pressure.
- (d) Put the wire or wires for one end of the splice in the crimp barrel. Refer to Figure 63 and Figure 64.

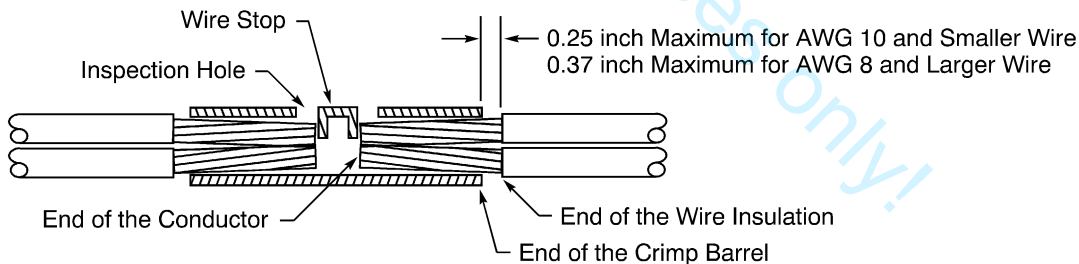
Make sure that:

- The end of each conductor can be seen in the inspection hole
- The end of each conductor does not make an overlap with the wire stop
- The insulation of each wire is not in the crimp barrel
- For one AWG 10 or smaller wire, the end of the wire insulation is a maximum of 0.13 inch from the end of the crimp barrel
- For one AWG 8 or larger wire, the end of the wire insulation is a maximum of 0.25 inch from the end of the crimp barrel
- For two wires, the end of the insulation of each AWG 10 or smaller wire is a maximum of 0.25 inch from the end of the crimp barrel
- For two wires, the end of the insulation of each AWG 8 or larger wire is a maximum of 0.37 inch from the end of the crimp barrel.



POSITION OF ONE WIRE IN THE BUTT SPLICE

Figure 63



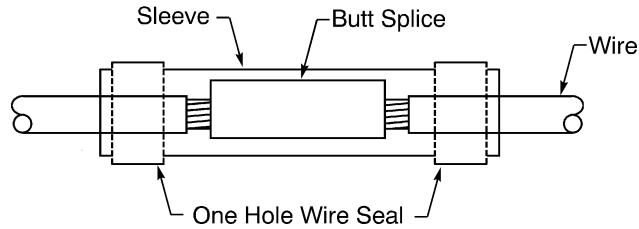
POSITION OF TWO WIRES IN THE BUTT SPLICE

Figure 64

- (e) Crimp the splice.
- (9) Do Step (8) again to assemble the other end of the butt splice.
- (10) Align the center of the sleeve with the center of the butt splice. Refer to Figure 65 and Figure 66.

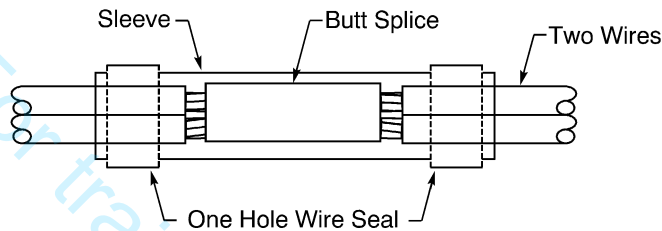
STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES



POSITION OF THE SLEEVE ON ONE WIRE

Figure 65



POSITION OF THE SLEEVE ON TWO WIRES

Figure 66

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

Make sure that the seal material that comes out of the ends of the sleeve does not have rough edges.

H. One to Five Wires to One to Five Wires - Splice Kit

For the conditions that are applicable for:

- The repair of a wire or a cable with a splice, refer to Subject 20-10-13
- The selection of the correct sealed splice configuration, refer to Paragraph 1.C.

- (1) Make a selection of a sealed splice kit with 3 holes in the wire seal from Table 19.

Make sure that the splice kit has the smallest CAU range that can accept the total CAU of the conductor.

Refer to Paragraph 1.D. for the procedure to calculate the CAU of the conductor.

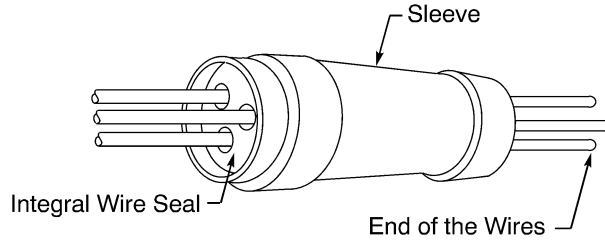
- (2) Find the part number of the butt splice in the splice kit from Table 20.
- (3) Find the crimp barrel size of the splice from Table 20.
- (4) Make a selection of a crimp tool from Table 43.
- (5) Put the sleeve on all the wires of one end of the splice assembly. Refer to Figure 5 and Figure 67.

Make sure that:

- The end of the sleeve with the integral wire seal goes on the wires first
- No more than two wires are in one hole of the wire seal.

STANDARD WIRING PRACTICES MANUAL

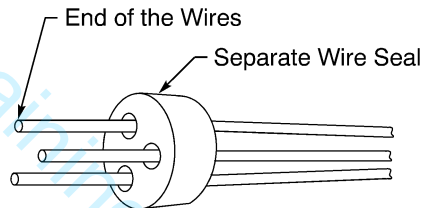
ASSEMBLY OF SPLICES



SLEEVE ON THE WIRES
Figure 67

- (6) Put the separate 3 hole wire seal on all the wires of the other end of the splice assembly. Refer to Figure 5 and Figure 68.

Make sure that no more than two wires are in one hole of the wire seal.

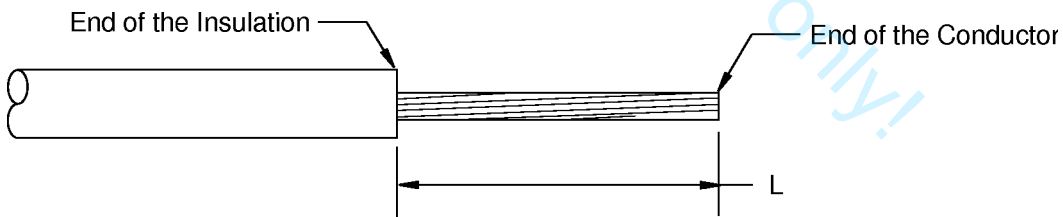


SEPARATE WIRE SEAL ON THE WIRES
Figure 68

- (7) Remove the necessary length of insulation from the end of each wire.

Refer to:

- Figure 69
- Table 72 for the insulation removal length
- Subject 20-00-15 for the insulation removal procedures.



INSULATION REMOVAL LENGTH
Figure 69

Table 72
INSULATION REMOVAL LENGTH

Butt Splice Part Number	Insulation Removal Length L (inch)	
	Target	Tolerance
D-609-07	0.28	± 0.03

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

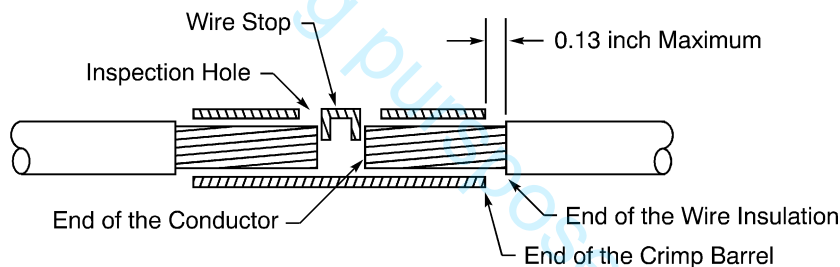
Table 72 (continued)

Butt Splice Part Number	Insulation Removal Length L (inch)	
	Target	Tolerance
D-609-08	0.28	± 0.03

- (8) Assemble one end of the butt splice.
- Put the splice in the crimp tool.
 - Hold the splice in position with light pressure.
 - Put all of the wires for one end of the splice in the crimp barrel. Refer to Figure 70 and Figure 71.

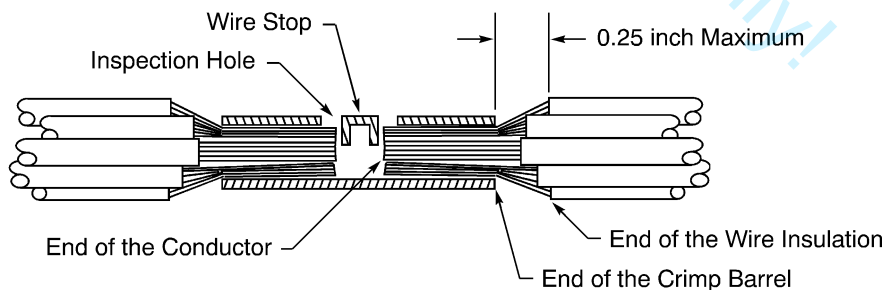
Make sure that:

- The end of each conductor can be seen in the inspection hole
- The end of each conductor does not make an overlap with the wire stop
- The insulation of each wire is not in the crimp barrel
- For one wire, the end of the wire insulation is a maximum of 0.13 inch from the end of the crimp barrel
- For more than one wire, the end of the wire insulation is a maximum of 0.25 inch from the end of the crimp barrel.



POSITION OF ONE WIRE IN THE BUTT SPLICE

Figure 70



POSITION OF MORE THAN ONE WIRE IN THE BUTT SPLICE

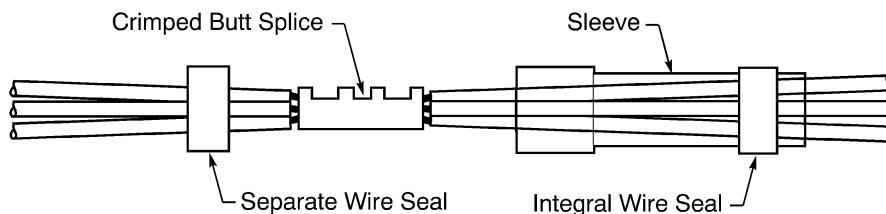
Figure 71

- Crimp the splice.
- (9) Do Step (8) again to assemble the other end of the butt splice. Refer to Figure 72.

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STANDARD WIRING PRACTICES MANUAL

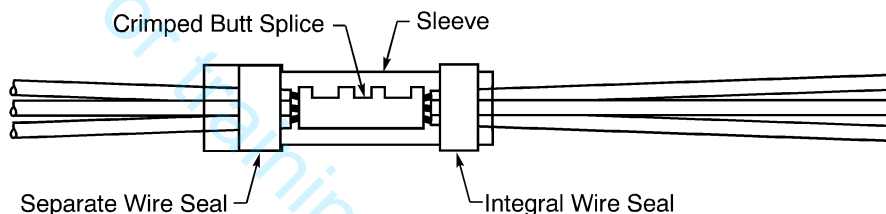
ASSEMBLY OF SPLICES



CRIMPED SPLICE ASSEMBLY

Figure 72

- (10) Align the center of the sleeve with the center of the butt splice.
- (11) Push the separate 3 hole wire seal fully into the sleeve until it is as near the splice as possible. Refer to Figure 73.



POSITION OF THE SLEEVE AND THE WIRE SEAL

Figure 73

- (12) Shrink the sleeve into position. Refer to Subject 20-10-14.
Make sure that the seal material that comes out of the ends of the sleeve does not have rough edges.

I. One to Five Wires to One to Five Wires - Sleeve

For the conditions that are applicable for:

- The repair of a wire or a cable with a splice, refer to Subject 20-10-13
- The selection of the correct sealed splice configuration, refer to Paragraph 1.C.

- (1) Make a selection of a butt splice from Table 12 or Table 14.
Make sure that the splice has the smallest CAU range that can accept the total CAU of the conductor.
Refer to Paragraph 1.D. for the procedure to calculate the CAU of the conductor.
- (2) Find the crimp barrel size of the splice from Table 12 or Table 14.
- (3) Make a selection of a crimp tool from:
 - Table 41 for BACT12C() splices
 - Table 42 for NAS1387-() splices
 - Table 43 for BACS52K() splices
 - Table 43 for Raychem D-609-0() splices.
- (4) Make a selection of a sleeve with 3 to 5 holes in the wire seal from Table 18.
Make sure that the selection is for:
 - The applicable splice
 - The maximum number of wires in each end of the splice assembly.
- (5) Put the sleeve on all the wires of one end of the splice assembly. Refer to Figure 3 and Figure 74.

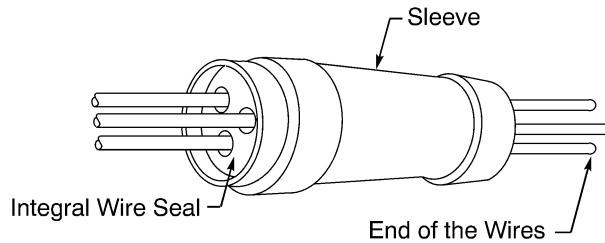
20-30-12

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Make sure that:

- The end of the sleeve with the integral wire seal goes on the wires first
- No more than two wires are in one hole of the wire seal.

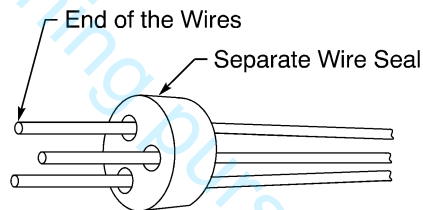


SLEEVE ON THE WIRES

Figure 74

- (6) Put the separate wire seal with 3 to 5 holes on all the wires of the other end of the splice assembly. Refer to Figure 3 and Figure 75.

Make sure that no more than two wires are in one hole of the wire seal.



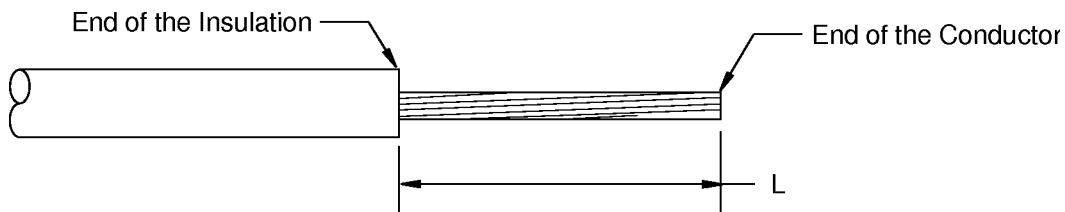
SEPARATE WIRE SEAL ON THE WIRES

Figure 75

- (7) Remove the necessary length of insulation from the end of each wire.

Refer to:

- Figure 76
- Table 73 for the insulation removal length
- Subject 20-00-15 for the insulation removal procedures.



INSULATION REMOVAL LENGTH

Figure 76

20-30-12

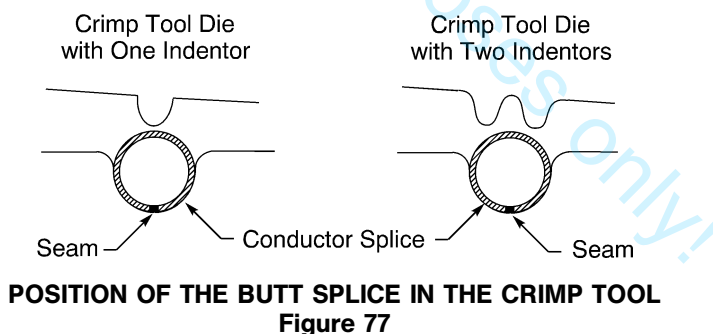
STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Table 73
INSULATION REMOVAL LENGTH

Splice Part Number	Insulation Removal Length L (inch)	
	Target	Tolerance
BACT12C4	0.53	± 0.03
BACT12C6	0.53	± 0.03
BACT12C8	0.47	± 0.03
BACT12C12	0.34	± 0.03
BACT12C21	0.65	± 0.03
BACT12C101	0.72	± 0.03
D-609-06	0.28	± 0.03
D-609-07	0.28	± 0.03
D-609-08	0.28	± 0.03
NAS1387-4	0.28	± 0.03
NAS1387-5	0.28	± 0.03
NAS1387-6	0.28	± 0.03

- (8) Assemble one end of the butt splice.
- Put the splice in the crimp tool.
 - If the splice has a seam, align the seam opposite the indenter. Refer to Figure 77.



- Hold the splice in position with light pressure.
- Put all of the wires for one end of the splice in the crimp barrel. Refer to Figure 78 and Figure 79.

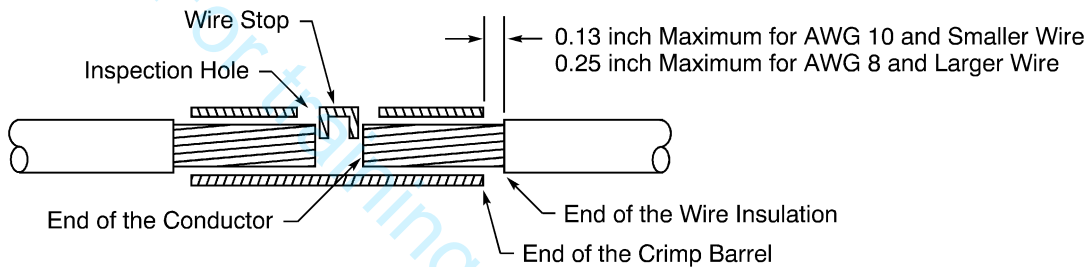
20-30-12

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

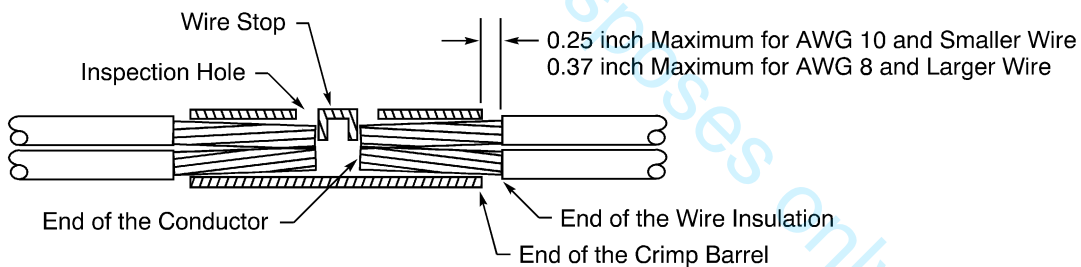
Make sure that:

- The end of each conductor can be seen in the inspection hole
- The end of each conductor does not make an overlap with the wire stop
- The insulation of each wire is not in the crimp barrel
- For one AWG 10 or smaller wire, the end of the wire insulation is a maximum of 0.13 inch from the end of the crimp barrel
- For one AWG 8 or larger wire, the end of the wire insulation is a maximum of 0.25 inch from the end of the crimp barrel
- For two wires, the end of the insulation of each AWG 10 or smaller wire is a maximum of 0.25 inch from the end of the crimp barrel
- For two wires, the end of the insulation of each AWG 8 or larger wire is a maximum of 0.37 inch from the end of the crimp barrel.



POSITION OF ONE WIRE IN THE BUTT SPLICE

Figure 78



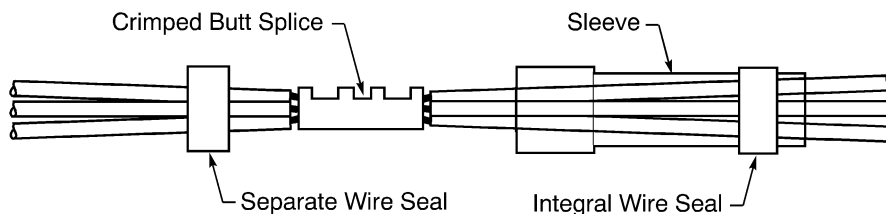
POSITION OF MORE THAN ONE WIRE IN THE BUTT SPLICE

Figure 79

- (e) Crimp the splice.
- (9) Do Step (8) again to assemble the other end of the butt splice.

STANDARD WIRING PRACTICES MANUAL

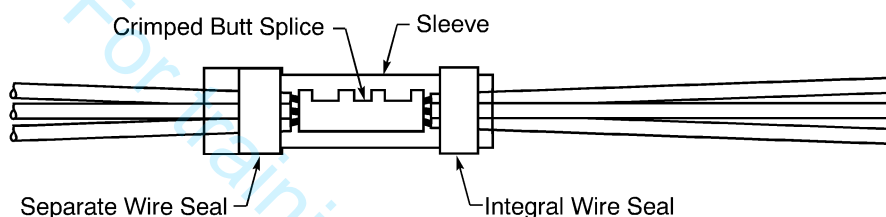
ASSEMBLY OF SPLICES



CRIMPED SPLICE

Figure 80

- (10) Align the center of the sleeve with the center of the butt splice.
- (11) Push the wire seal with 3 to 5 holes fully into the sleeve until it is as near the splice as possible.



POSITION OF THE SLEEVE AND THE WIRE SEAL

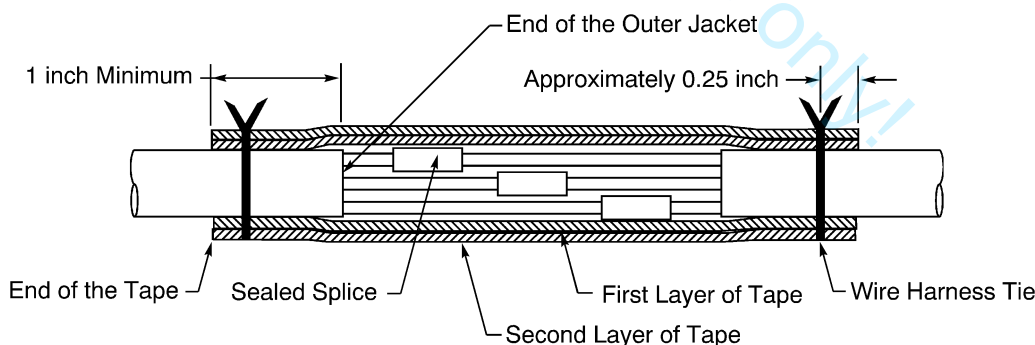
Figure 81

- (12) Shrink the sleeve into position. Refer to Subject 20-10-14.
Make sure that the seal material that comes out of the ends of the sleeve does not have rough edges.

J. One Cable to One Cable - Tape, Ties

For the conditions that are applicable for:

- The repair of a wire or a cable with a splice, refer to Subject 20-10-13
- The selection of the correct sealed splice configuration, refer to Paragraph 1.C.



CONFIGURATION OF THE CABLE SPLICE ASSEMBLY

Figure 82

Refer to Figure 82.

- (1) Prepare the cable.

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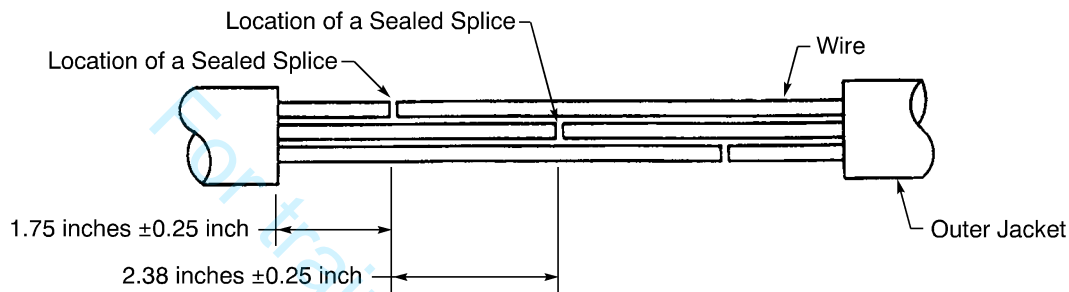
ASSEMBLY OF SPLICES

Refer to:

- Figure 83
- Subject 20-00-15 for the outer jacket removal procedures.

Make sure that:

- The distance from the end of the outer jacket to the center of the nearest sealed splice is 1.75 inches \pm 0.25 inch
- The distance from the center of a sealed splice on one wire to the center of the nearest sealed splice on a different wire is 2.38 inches \pm 0.25 inch.



CABLE PREPARATION
Figure 83

- (2) Make a selection of a Temperature Grade B or higher insulation tape from Table 50.
- (3) Assemble the sealed splices on the wires in the cable. Refer to Paragraph 7.B.
- (4) Put two layers of the insulation tape on the splice assembly.
 - (a) Tightly wind the first layer of tape on the splice assembly.

Make sure that the layer:

 - Starts 1 inch minimum farther than the end of the outer jacket
 - Stops 1 inch minimum farther than the end of the outer jacket at the other end of the splice assembly
 - Makes a minimum 50 percent overlap.
 - (b) Tightly wind the second layer of tape on the splice assembly in the opposite direction of the first layer.

Make sure that the layer:

 - Starts where the first layer stops
 - Stops where the first layer starts
 - Makes a 50 percent overlap.
- (5) Assemble a lacing tape wire harness tie on each end of the splice assembly approximately 0.25 inch from the end of the tape. Refer to Subject 20-10-11.

Make sure that the Temperature Grade of the lacing tape is Temperature Grade B or higher.

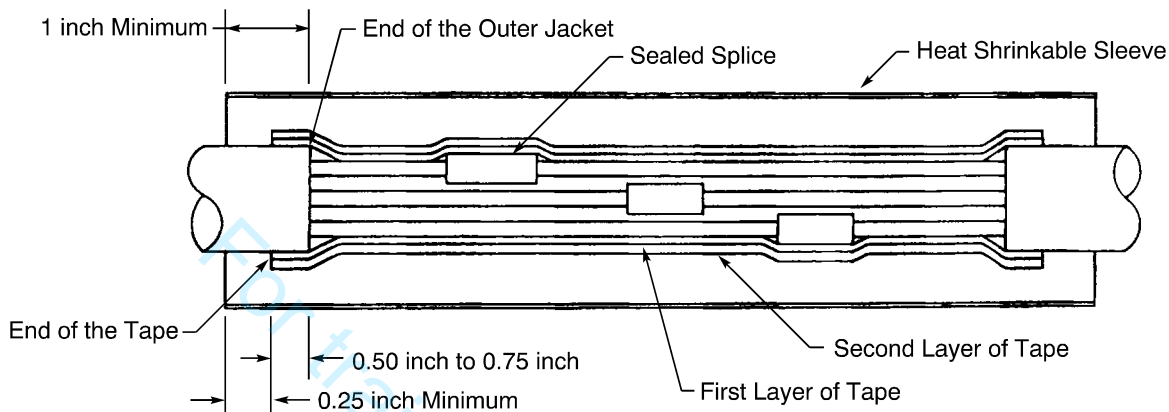
STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

K. One Cable to One Cable - Tape, Sleeve

For the conditions that are applicable for:

- The repair of a wire or a cable with a splice, refer to Subject 20-10-13
- The selection of the correct sealed splice configuration, refer to Paragraph 1.C.



CONFIGURATION OF THE CABLE SPLICE ASSEMBLY

Figure 84

Refer to Figure 84.

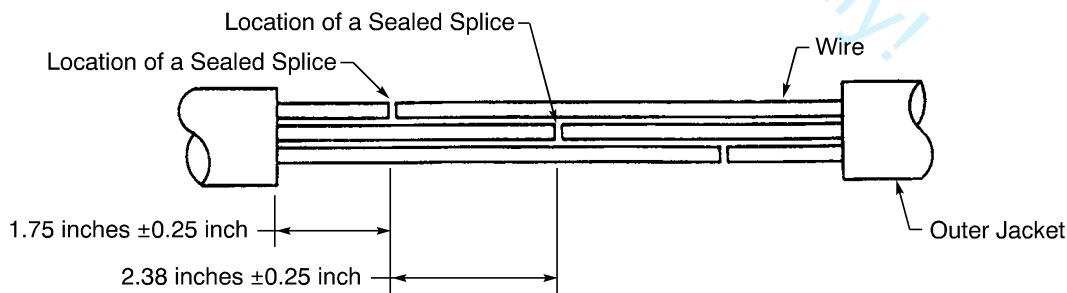
(1) Prepare the cable.

Refer to:

- Figure 85
- Subject 20-00-15 for the outer jacket removal procedures.

Make sure that:

- The distance from the end of the outer jacket to the center of the nearest sealed splice is 1.75 inches \pm 0.25 inch
- The distance from the center of a sealed splice on one wire to the center of the nearest sealed splice on another wire is 2.38 inches \pm 0.25 inch.



CABLE PREPARATION

Figure 85

- (2) Make a selection of a Temperature Grade B or higher insulation tape from Table 50.
- (3) Make a selection of a Temperature Grade B heat shrinkable sleeve from Table 49.

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Make sure that the sleeve has the smallest diameter that can move easily on the cable splice assembly.

NOTE: For alternative heat shrinkable sleeves, refer to Subject 20-00-11.

- (4) Cut the necessary length of the sleeve.

Make sure that the sleeve can make a minimum overlap of 1 inch on each end of the outer jacket.

- (5) Put the sleeve on the cable of one end of the splice assembly.

- (6) Calculate the CAU of the conductors. Refer to Paragraph 1.D.

- (7) Assemble the sealed splices on the wires in the cable.

Refer to Table 64 for an applicable sealed splice configuration on wire.

- (8) Put two layers of the insulation tape on the splice assembly.

- (a) Tightly wind the first layer of tape on the splice assembly.

Make sure that the layer:

- Makes an overlap between 0.50 inch and 0.75 inch on each end of the outer jacket
- Makes a 50 percent overlap.

- (b) Tightly wind the second layer of tape on the splice assembly in the opposite direction of the first layer.

Make sure that the layer:

- Starts where the first layer stops
- Stops where the first layer starts
- Makes a 50 percent overlap.

- (9) Align the center of the sleeve with the center of the splice assembly.

Make sure that on each end of the splice assembly, the distance from the end of the layer of tape to the end of the sleeve is 0.25 inch minimum.

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

8. SEALED SPlice CONFIGURATIONS FOR UNSHIELDED WIRES AND UNSHIELDED CABLES FOR HIGH TEMPERATURE

A. Splice Assembly Configurations

For the conditions that are applicable for:

- The repair of a wire or a cable with a splice, refer to Subject 20-10-13
- The selection of the correct sealed splice configuration, refer to Paragraph 1.C.

To calculate the CAU of the conductor, refer to Table 4.

Table 74
SEALED SPlice ASSEMBLY CONFIGURATIONS FOR HIGH TEMPERATURE

One End of Splice Assembly	Other End of Splice Assembly	CAU Range		Applicable Condition	Splice Assembly	
		Minimum	Maximum		Configuration	Procedure
One Wire	One Wire	5	138	Fuel Vapor	Tape, Ties	Paragraph 8.B.
				No Fuel Vapor	Tape, Sleeve	Paragraph 8.C.
					Tape, Ties	Paragraph 8.B.

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ASSEMBLY OF SPLICES

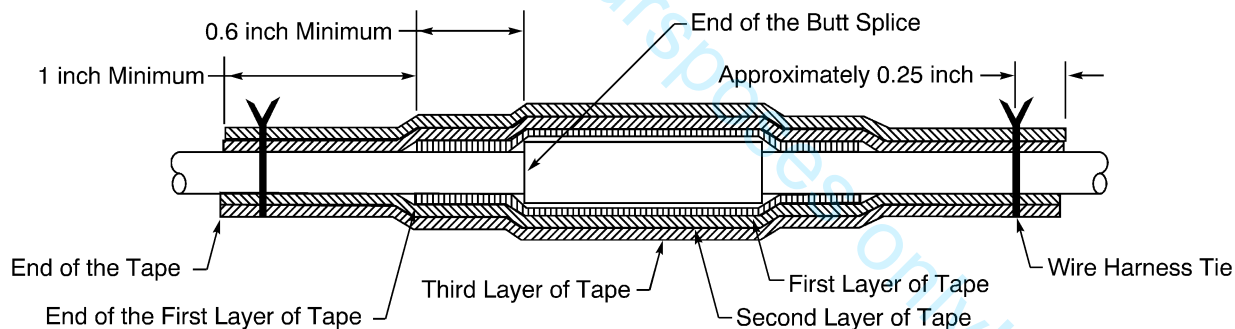
Table 74 (continued)

One End of Splice Assembly	Other End of Splice Assembly	CAU Range		Applicable Condition	Splice Assembly	
		Minimum	Maximum		Configuration	Procedure
One Wire	Two Wires	5	138	Fuel Vapor	Tape, Ties	Paragraph 8.D.
				No Fuel Vapor	Tape, Sleeve	Paragraph 8.E.
					Tape, Ties	Paragraph 8.D.
Two Wires	Two Wires	5	138	Fuel Vapor	Tape, Ties	Paragraph 8.F.
				No Fuel Vapor	Tape, Sleeve	Paragraph 8.G.
					Tape, Ties	Paragraph 8.F.
One Cable	One Cable	5	138	Fuel Vapor	Tape, Ties	Paragraph 8.H.
				No Fuel Vapor	Tape, Sleeve	Paragraph 8.I.
					Tape, Ties	Paragraph 8.H.

B. One Wire to One Wire - Tape, Ties

For the conditions that are applicable for:

- The repair of a wire or a cable with a splice, refer to Subject 20-10-13
- The selection of the correct sealed splice configuration, refer to Paragraph 1.C.



CONFIGURATION OF THE SPLICE ASSEMBLY

Figure 86

Refer to Figure 86.

- (1) Find the CAU of the conductor.

Refer to Paragraph 1.D. for the procedure to calculate the CAU of the conductor.

- (2) If the CAU of the conductor is less than the minimum CAU for the butt splice, increase the CAU of the conductor.

Refer to:

- Table 15 for the minimum CAU of the butt splice
- Paragraph 2. for the applicable conditions and procedures for the increase of the CAU.

- (3) Make a selection of a butt splice from Table 15.

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Make sure that the splice has the smallest CAU range that can accept the total CAU of the conductor.

- (4) Find the crimp barrel size of the splice from Table 15.
- (5) Make a selection of a crimp tool from Table 44.
- (6) Make a selection of a Temperature Grade D insulation tape from Table 50.
- (7) Remove the necessary length of insulation from the end of the wires.

Refer to:

- Figure 87
- Table 75 for the insulation removal length for a wire that can go into the insulation grip
- Table 76 for the insulation removal length for a wire that cannot go into the insulation grip
- Subject 20-00-15 for the insulation removal procedures.

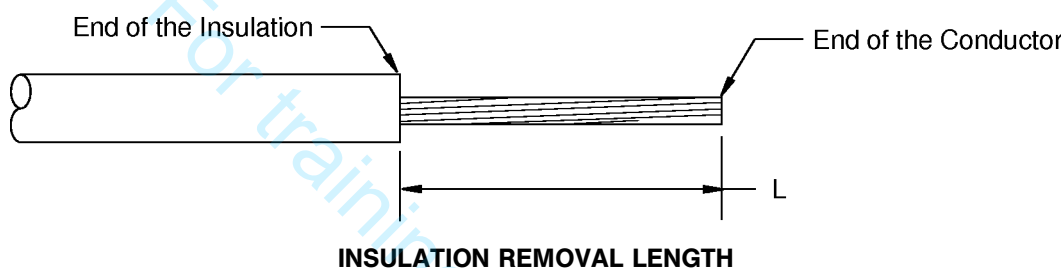


Figure 87

Table 75

INSULATION REMOVAL LENGTH FOR A WIRE THAT CAN GO INTO THE INSULATION GRIP

Splice Part Number	Insulation Removal Length L (inch)	
	Target	Tolerance
BACT12C11	0.37	± 0.02
BACT12C15	0.23	± 0.02
BACT12C20	0.23	± 0.02

Table 76

INSULATION REMOVAL LENGTH FOR A WIRE THAT CANNOT GO INTO THE INSULATION GRIP

Splice Part Number	Insulation Removal Length L (inch)	
	Target	Tolerance
BACT12C11	0.46	± 0.02
BACT12C15	0.30	± 0.02
BACT12C20	0.30	± 0.02

- (8) Assemble one end of the butt splice.
 - (a) Put the splice in the crimp tool.
 - (b) Hold the splice in position with light pressure.

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

(c) Put the wire in the splice.

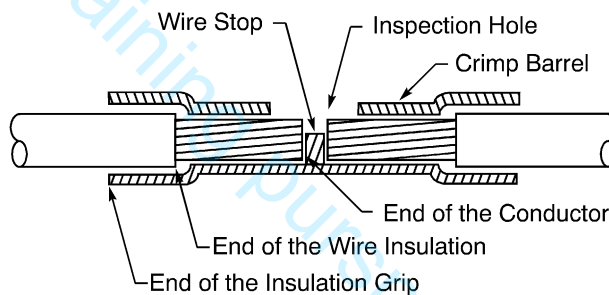
Refer to:

- Figure 88 for the position of the wire in the splice with the wire insulation in the insulation grip
- Figure 89 for the position of the wire in the splice with the wire insulation out of the insulation grip.

Make sure that:

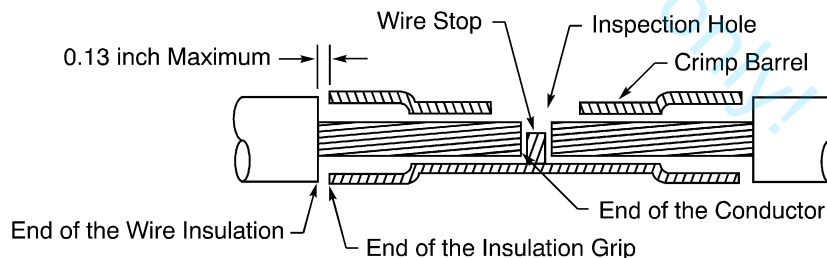
- The end of the conductor can be seen in the inspection hole
- The end of the conductor does not make an overlap with the wire stop
- If the wire insulation can go into the insulation grip, the end of the wire insulation is in the insulation grip
- If the wire insulation cannot go into the insulation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

NOTE: The insulation removal length can be changed to make these conditions satisfactory.



POSITION OF THE WIRE IN THE BUTT SPLICE WITH THE WIRE INSULATION IN THE INSULATION GRIP

Figure 88



POSITION OF THE WIRE IN THE BUTT SPLICE WITH THE WIRE INSULATION OUT OF THE INSULATION GRIP

Figure 89

(d) Crimp the splice.

(9) Do Step (8) again to assemble the other end of the butt splice.

(10) Put three layers of the insulation tape on the splice assembly.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

- (a) Tightly wind the first layer of tape on the splice assembly.

NOTE: An alternative to the first layer of tape is two layers of Temperature Grade D insulation film strip from Table 52.

Make sure that:

- The layer of tape or each layer of film strip starts 0.6 inch minimum farther than the end of the splice
- The layer of tape or each layer of film strip stops 0.6 inch minimum farther than the end of the splice at the other end of the splice assembly
- The layer of tape or each layer of film strip makes a 50 percent overlap
- The second layer of film strip is wound in the opposite direction of the first layer.

- (b) Tightly wind the second layer of tape on the splice assembly in the opposite direction of the first layer.

Make sure that the layer of tape:

- Starts 1 inch minimum farther than the end of the first layer of tape
- Stops 1 inch minimum farther than the end of the first layer of tape at the other end of the splice assembly
- Makes a minimum 50 percent overlap.

- (c) Tightly wind the third layer of tape on the splice assembly in the opposite direction of the second layer.

Make sure that the layer of tape:

- Starts where the second layer of tape stops
- Stops where the second layer of tape starts
- Makes a 50 percent overlap.

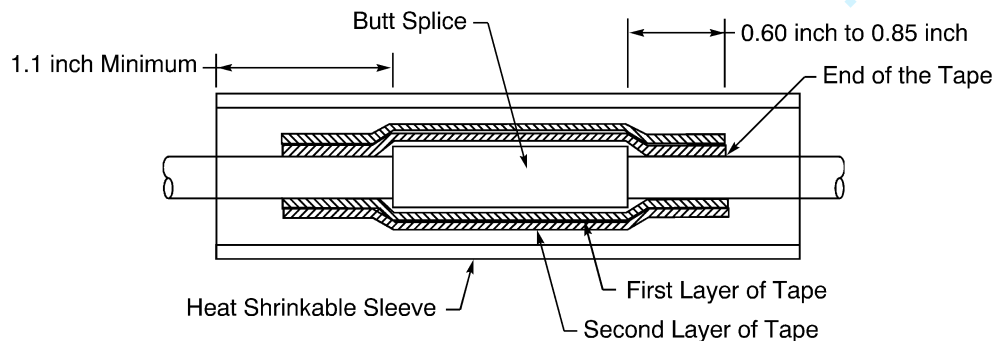
- (11) Assemble a lacing tape wire harness tie on each end of the splice assembly approximately 0.25 inch from the end of the tape. Refer to Subject 20-10-11.

Make sure that the Temperature Grade of the lacing tape is Temperature Grade D.

C. One Wire to One Wire - Tape, Sleeve

For the conditions that are applicable for:

- The repair of a wire or a cable with a splice, refer to Subject 20-10-13
- The selection of the correct sealed splice configuration, refer to Paragraph 1.C.



CONFIGURATION OF THE SPLICE ASSEMBLY

Figure 90

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ASSEMBLY OF SPLICES

Refer to Figure 90.

- (1) Find the CAU of the conductor.

Refer to Paragraph 1.D. for the procedure to calculate the CAU of the conductor.

- (2) If the CAU of the conductor is less than the minimum CAU for the butt splice, increase the CAU of the conductor.

Refer to:

- Table 15 for the minimum CAU of the butt splice
- Paragraph 2. for the applicable conditions and procedures for the increase of the CAU.

- (3) Make a selection of a butt splice from Table 15.

Make sure that the splice has the smallest CAU range that can accept the total CAU of the conductor.

- (4) Find the crimp barrel size of the splice from Table 15.

- (5) Make a selection of a crimp tool from Table 44.

- (6) Make a selection of a Temperature Grade D insulation tape from Table 50.

- (7) Make a selection of a Temperature Grade D heat shrinkable sleeve from Table 49.

Make sure that the sleeve has the smallest diameter that can be put on the splice assembly.

NOTE: For alternative heat shrinkable sleeves, refer to Subject 20-00-11.

- (8) Cut the necessary length of the sleeve.

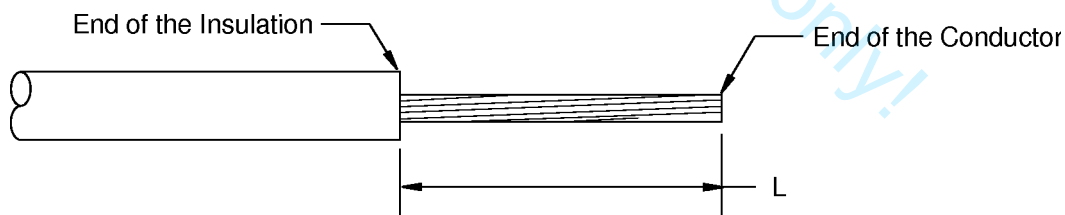
Make sure that the sleeve extends a minimum of 1.1 inches farther than each end of the splice.

- (9) Put the sleeve on the wire of one end of the splice assembly.

- (10) Remove the necessary length of insulation from the end of the wires.

Refer to:

- Figure 91
- Table 77 for the insulation removal length for a wire that can go into the insulation grip
- Table 78 for the insulation removal length for a wire that cannot go into the insulation grip
- Subject 20-00-15 for the insulation removal procedures.



INSULATION REMOVAL LENGTH

Figure 91

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Table 77
INSULATION REMOVAL LENGTH FOR A WIRE THAT CAN GO INTO THE INSULATION GRIP

Splice Part Number	Insulation Removal Length L (inch)	
	Target	Tolerance
BACT12C11	0.37	± 0.02
BACT12C15	0.23	± 0.02
BACT12C20	0.23	± 0.02

Table 78
INSULATION REMOVAL LENGTH FOR A WIRE THAT CANNOT GO INTO THE INSULATION GRIP

Splice Part Number	Insulation Removal Length L (inch)	
	Target	Tolerance
BACT12C11	0.46	± 0.02
BACT12C15	0.30	± 0.02
BACT12C20	0.30	± 0.02

- (11) Assemble one end of the butt splice.
- Put the splice in the crimp tool.
 - Hold the splice in position with light pressure.
 - Put the wire in the splice.

Refer to:

- Figure 92 for the position of the wire in the splice with the wire insulation in the insulation grip
- Figure 93 for the position of the wire in the splice with the wire insulation out of the insulation grip.

Make sure that:

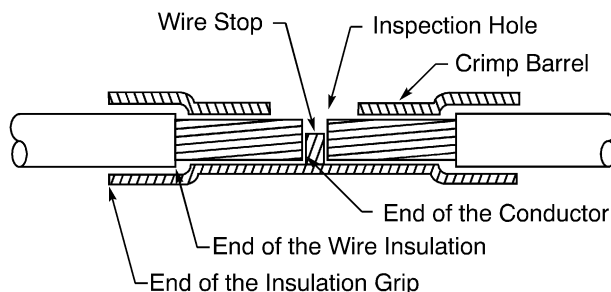
- The end of the conductor can be seen in the inspection hole
- The end of the conductor does not make an overlap with the wire stop
- If the wire insulation can go into the insulation grip, the end of the wire insulation is in the insulation grip
- The end of the wire insulation is a maximum of 0.13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

NOTE: The insulation removal length can be changed to make these conditions satisfactory.

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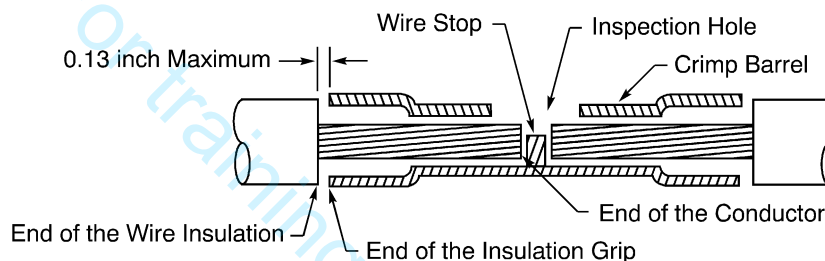
STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES



POSITION OF THE WIRE IN THE BUTT SPLICE WITH THE WIRE INSULATION IN THE INSULATION GRIP

Figure 92



POSITION OF THE WIRE IN THE BUTT SPLICE WITH THE WIRE INSULATION OUT OF THE INSULATION GRIP

Figure 93

- (d) Crimp the splice.
- (12) Do Step (11) again to assemble the other end of the butt splice.
- (13) Put two layers of insulation tape on the splice assembly.
 - (a) Tightly wind the first layer of tape on the splice assembly.

Make sure that the layer:

 - Starts 0.6 inch minimum to 0.85 inch maximum farther than the end of the splice
 - Stops 0.6 inch minimum to 0.85 inch maximum farther than the other end of the splice
 - Makes a 50 percent overlap.
 - (b) Tightly wind the second layer of tape on the splice assembly in the opposite direction of the first layer.

Make sure that the layer:

 - Starts where the first layer stops
 - Stops where the first layer starts
 - Makes a 50 percent overlap.
- (14) Align the center of the sleeve with the center of the butt splice.
- (15) Shrink the sleeve into position. Refer to Subject 20-10-14.

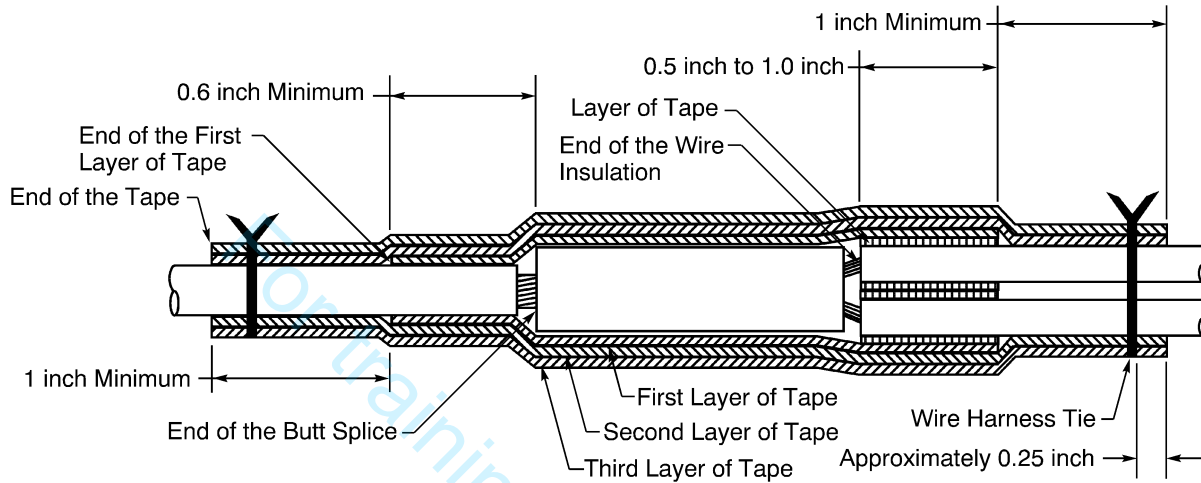
STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

D. One Wire to Two Wires - Tape, Ties

For the conditions that are applicable for:

- The repair of a wire or a cable with a splice, refer to Subject 20-10-13
- The selection of the correct sealed splice configuration, refer to Paragraph 1.C.



CONFIGURATION OF THE SPLICE ASSEMBLY

Figure 94

Refer to Figure 94.

- (1) Find the CAU of the conductor.

Refer to Paragraph 1.D. for the procedure to calculate the CAU of the conductor.

- (2) If the CAU of the conductor is less than the minimum CAU for the butt splice, increase the CAU of the conductor.

Refer to:

- Table 15 for the minimum CAU of the butt splice
- Paragraph 2. for the applicable conditions and procedures for the increase of the CAU.

- (3) Make a selection of a butt splice from Table 15.

Make sure that the splice has the smallest CAU range that can accept the total CAU of the conductor.

- (4) Find the crimp barrel size of the splice from Table 15.

- (5) Make a selection of a crimp tool from Table 44.

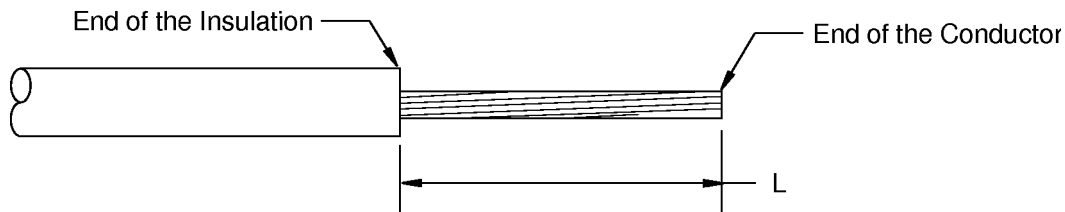
- (6) Make a selection of a Temperature Grade D insulation tape from Table 50.

Make sure that the tape has a width of 0.5 inch minimum to 1.0 inch maximum.

- (7) Prepare each wire for the side of the splice assembly with two wires.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

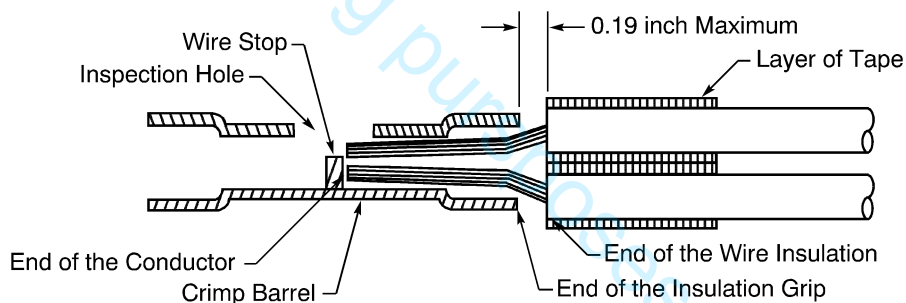


INSULATION REMOVAL LENGTH

Figure 95

**Table 79
INSULATION REMOVAL LENGTH**

Splice Part Number	Insulation Removal Length L (inch)	
	Target	Tolerance
BACT12C11	0.46	± 0.02
BACT12C15	0.30	± 0.02
BACT12C20	0.30	± 0.02



POSITION OF THE WIRES IN THE BUTT SPLICE

Figure 96

- (a) Remove the necessary length of insulation from the end of each wire.

Refer to:

- Figure 95
- Table 79 for the insulation removal length
- Subject 20-00-15 for the insulation removal procedures.

- (b) Put the wires in the splice. Refer to Figure 96.

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Make sure that:

- The end of each conductor can be seen in the inspection hole
 - The end of each conductor does not make an overlap with the wire stop
 - The end of each wire insulation is a maximum of 0.19 inch from the end of the insulation grip.
- (c) If it is necessary, remove more insulation from the end of the wire to make the wire fit correctly in the splice.
- (d) Wind a layer of the insulation tape on each wire. Refer to Figure 96.

Make sure that:

- The edge of the tape is aligned with the end of the wire insulation
 - The tape goes around the circumference of the wire a minimum of two times
 - The tape makes a 100 percent overlap.
- (8) Remove the necessary length of insulation from the end of the wire for the side of the splice assembly with one wire.

Refer to:

- Figure 95
- Table 80 for the insulation removal length for a wire that can go into the insulation grip
- Table 81 for the insulation removal length for a wire that cannot go into the insulation grip
- Subject 20-00-15 for the insulation removal procedures.

Table 80
INSULATION REMOVAL LENGTH FOR A WIRE THAT CAN GO INTO THE INSULATION GRIP

Splice Part Number	Insulation Removal Length L (inch)	
	Target	Tolerance
BACT12C11	0.37	± 0.02
BACT12C15	0.23	± 0.02
BACT12C20	0.23	± 0.02

Table 81
INSULATION REMOVAL LENGTH FOR A WIRE THAT CANNOT GO INTO THE INSULATION GRIP

Splice Part Number	Insulation Removal Length L (inch)	
	Target	Tolerance
BACT12C11	0.46	± 0.02
BACT12C15	0.30	± 0.02
BACT12C20	0.30	± 0.02

- (9) Assemble the end of the butt splice with two wires.
- (a) Put the splice in the crimp tool.
 - (b) Hold the splice in position with light pressure.
 - (c) Put the wires in the splice. Refer to Figure 96.

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Make sure that the wires are in the correct position.

- (d) Crimp the splice.
- (10) Assemble the end of the butt splice with one wire.
 - (a) Put the splice in the crimp tool.
 - (b) Hold the splice in position with light pressure.
 - (c) Put the wire in the splice.

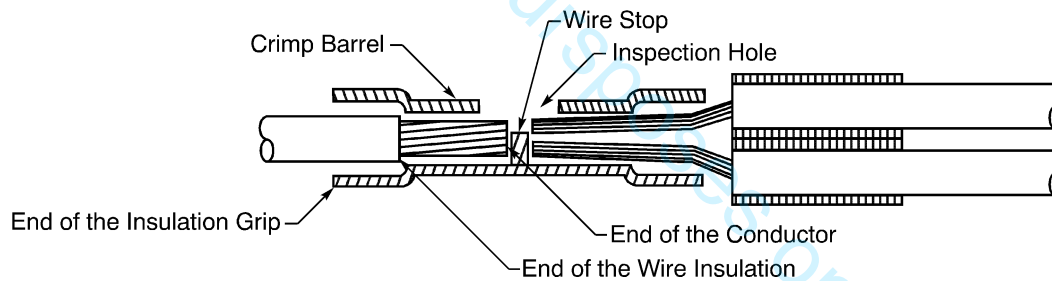
Refer to:

- Figure 97 for the position of the wire in the splice with the wire insulation in the insulation grip
- Figure 98 for the position of the wire in the splice with the wire insulation out of the insulation grip.

Make sure that:

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

NOTE: The insulation removal length can be changed to make these conditions satisfactory.

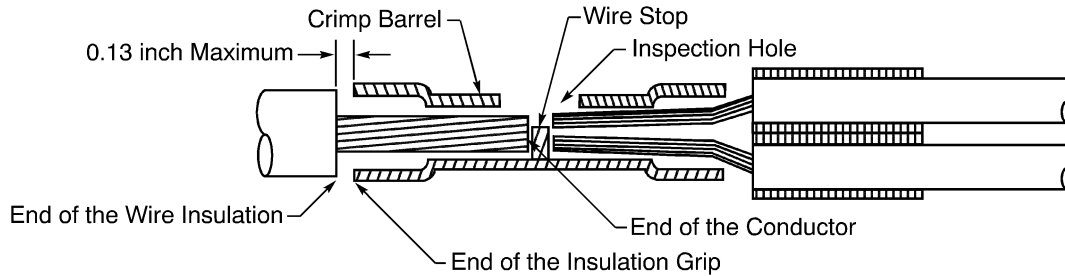


POSITION OF THE WIRE IN THE BUTT SPLICE WITH THE WIRE INSULATION IN THE INSULATION GRIP

Figure 97

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES



POSITION OF THE WIRE IN THE BUTT SPLICE WITH THE WIRE INSULATION OUT OF THE INSULATION GRIP

Figure 98

- (d) Crimp the splice.
- (11) Put three layers of insulation tape on the splice assembly.
 - (a) Tightly wind the first layer of tape on the splice assembly.

Make sure that the layer:

 - Starts 0.6 inch minimum farther than the end of the splice on the side with one wire
 - Stops at the rear end of the layers of tape on the two wires on the other end of the splice assembly
 - Makes a 50 percent overlap.
 - (b) Tightly wind the second layer of tape on the splice assembly in the opposite direction of the first layer.

Make sure that the layer:

 - Starts 1 inch minimum farther than where the first layer stops on the side with two wires
 - Stops 1 inch minimum farther than where the first layer starts on the side with one wire
 - Makes a 50 percent overlap.
 - (c) Tightly wind the third layer of tape on the splice assembly in the opposite direction of the second layer.

Make sure that the layer:

 - Starts where the second layer stops
 - Stops where the second layer starts
 - Makes a 50 percent overlap.
- (12) Assemble a lacing tape wire harness tie on each end of the splice assembly approximately 0.25 inch from the end of the tape. Refer to Subject 20-10-11.

Make sure that the Temperature Grade of the lacing tape is Temperature Grade D.

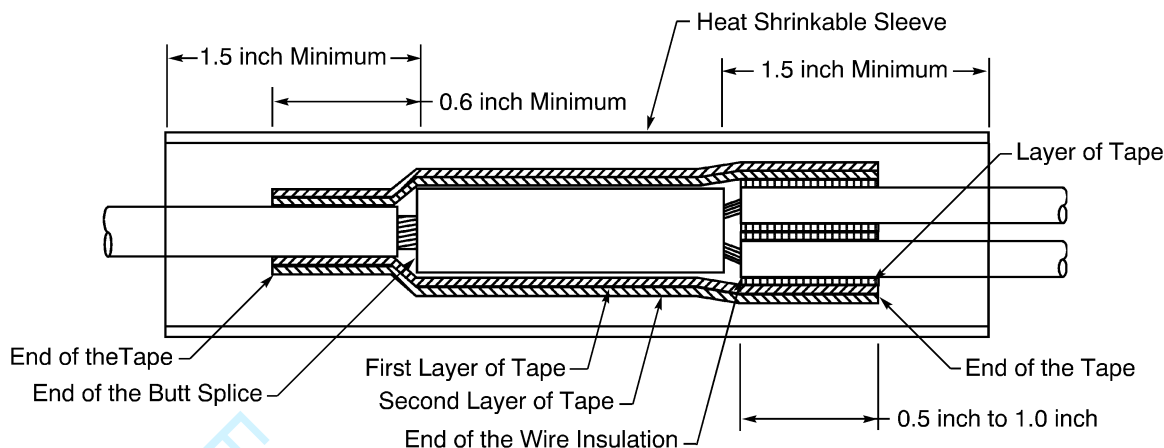
E. One Wire to Two Wires - Tape, Sleeve

For the conditions that are applicable for:

- The repair of a wire or a cable with a splice, refer to Subject 20-10-13
- The selection of the correct sealed splice configuration, refer to Paragraph 1.C.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES



CONFIGURATION OF THE SPLICE ASSEMBLY

Figure 99

Refer to Figure 99.

- (1) Find the CAU of the conductor.

Refer to Paragraph 1.D. for the procedure to calculate the CAU of the conductor.

- (2) If the CAU of the conductor is less than the minimum CAU for the butt splice, increase the CAU of the conductor.

Refer to:

- Table 15 for the minimum CAU of the butt splice
- Paragraph 2. for the applicable conditions and procedures for the increase of the CAU.

- (3) Make a selection of a butt splice from Table 15.

Make sure that the splice has the smallest CAU range that can accept the total CAU of the conductor.

- (4) Find the crimp barrel size of the splice from Table 15.

- (5) Make a selection of a crimp tool from Table 44.

- (6) Make a selection of a Temperature Grade D insulation tape from Table 50.

Make sure that the tape has a width of 0.5 inch minimum to 1.0 inch maximum.

- (7) Make a selection of a Temperature Grade D heat shrinkable sleeve from Table 49.

Make sure that the sleeve has the smallest diameter that can be put on the splice assembly.

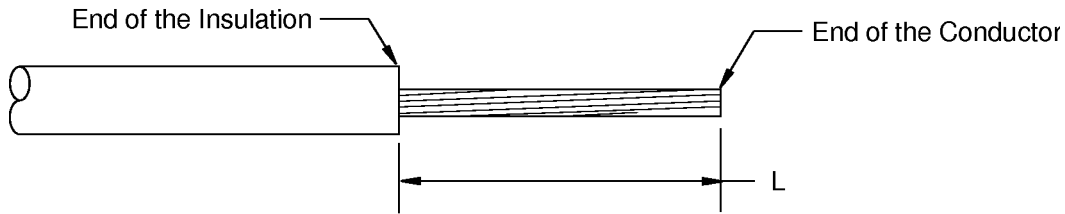
NOTE: For alternative heat shrinkable sleeves, refer to Subject 20-00-11.

- (8) Cut the necessary length of the sleeve.

Make sure that the sleeve extends a minimum of 1.5 inches farther than each end of the splice.

- (9) Put the sleeve on the wires of one end of the splice assembly.

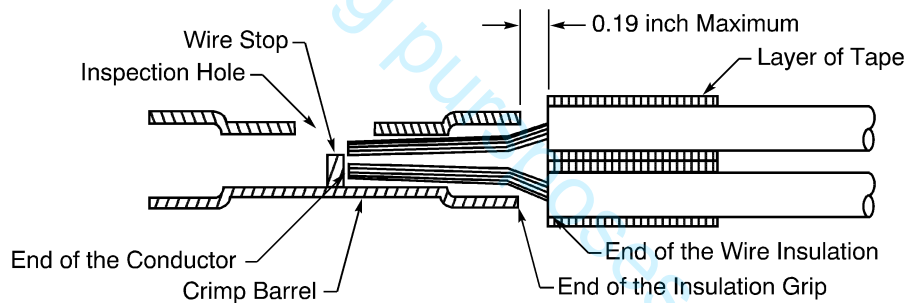
- (10) Prepare each wire for the side of the splice assembly with two wires.

STANDARD WIRING PRACTICES MANUAL
ASSEMBLY OF SPLICES


INSULATION REMOVAL LENGTH
Figure 100

Table 82
INSULATION REMOVAL LENGTH

Splice Part Number	Insulation Removal Length L (inch)	
	Target	Tolerance
BACT12C11	0.46	± 0.02
BACT12C15	0.30	± 0.02
BACT12C20	0.30	± 0.02



POSITION OF THE WIRES IN THE BUTT SPLICE
Figure 101

- (a) Remove the necessary length of insulation from the end of each wire.

Refer to:

- Figure 100
- Table 82 for the insulation removal length
- Subject 20-00-15 for the insulation removal procedures.

- (b) Put the wires in the splice. Refer to Figure 101.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Make sure that:

- The end of each conductor can be seen in the inspection hole
 - The end of each conductor does not make an overlap with the wire stop
 - The end of each wire insulation is a maximum of 0.19 inch from the end of the insulation grip.
- (c) If it is necessary, remove more insulation from the end of the wire to make the wire fit correctly in the splice.
- (d) Wind a layer of the insulation tape on each wire. Refer to Figure 101.

Make sure that:

- The edge of the tape is aligned with the end of the wire insulation
 - The tape goes around the circumference of the wire a minimum of two times
 - The tape makes a 100 percent overlap.
- (11) Remove the necessary length of insulation from the end of the wire for the side of the splice assembly with one wire.

Refer to:

- Figure 100
- Table 83 for the insulation removal length for a wire that can go into the insulation grip
- Table 84 for the insulation removal length for a wire that cannot go into the insulation grip
- Subject 20-00-15 for the insulation removal procedures.

Table 83
INSULATION REMOVAL LENGTH FOR A WIRE THAT CAN GO INTO THE INSULATION GRIP

Splice Part Number	Insulation Removal Length L (inch)	
	Target	Tolerance
BACT12C11	0.37	± 0.02
BACT12C15	0.23	± 0.02
BACT12C20	0.23	± 0.02

Table 84
INSULATION REMOVAL LENGTH FOR A WIRE THAT CANNOT GO INTO THE INSULATION GRIP

Splice Part Number	Insulation Removal Length L (inch)	
	Target	Tolerance
BACT12C11	0.46	± 0.02
BACT12C15	0.30	± 0.02
BACT12C20	0.30	± 0.02

- (12) Assemble the end of the butt splice with two wires.
- (a) Put the splice in the crimp tool.
 - (b) Hold the splice in position with light pressure.
 - (c) Put the wires in the splice. Refer to Figure 101.

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Make sure that the wires are in the correct position.

- (d) Crimp the splice.
- (13) Assemble the end of the butt splice with one wire.
 - (a) Put the splice in the crimp tool.
 - (b) Hold the splice in position with light pressure.
 - (c) Put the wire in the splice.

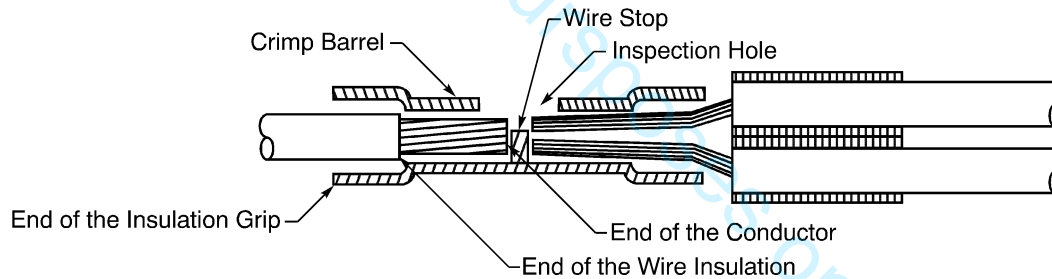
Refer to:

- Figure 102 for the position of the wire in the splice with the wire insulation in the insulation grip
- Figure 103 for the position of the wire in the splice with the wire insulation out of the insulation grip.

Make sure that:

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

NOTE: The insulation removal length can be changed to make these conditions satisfactory.

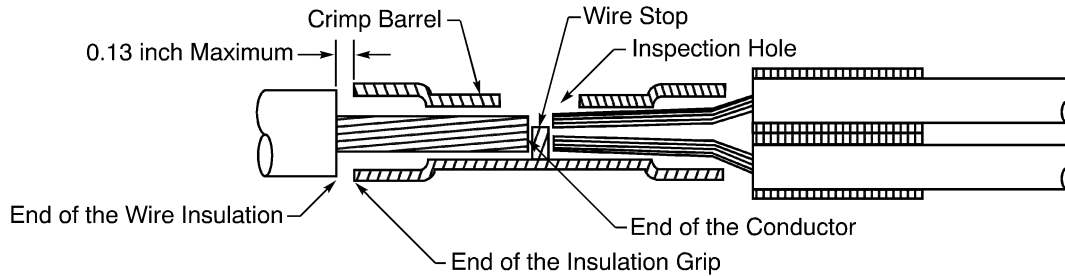


POSITION OF THE WIRE IN THE BUTT SPLICE WITH THE WIRE INSULATION IN THE INSULATION GRIP

Figure 102

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES



POSITION OF THE WIRE IN THE BUTT SPLICE WITH THE WIRE INSULATION OUT OF THE INSULATION GRIP

Figure 103

- (d) Crimp the splice.
- (14) Put two layers of insulation tape on the splice assembly.
 - (a) Tightly wind the first layer of tape on the splice assembly.

Make sure that the layer:

 - Starts 0.6 inch minimum farther than the end of the splice on the side with one wire
 - Stops at the rear end of the layers of tape on the two wires on the other end of the splice assembly
 - Makes a 50 percent overlap.
 - (b) Tightly wind the second layer of tape on the splice assembly in the opposite direction of the first layer.

Make sure that the layer:

 - Starts where the first layer stops
 - Stops where the first layer starts
 - Makes a 50 percent overlap.
- (15) Align the center of the sleeve with the center of the butt splice.
- (16) Shrink the sleeve into position. Refer to Subject 20-10-14.

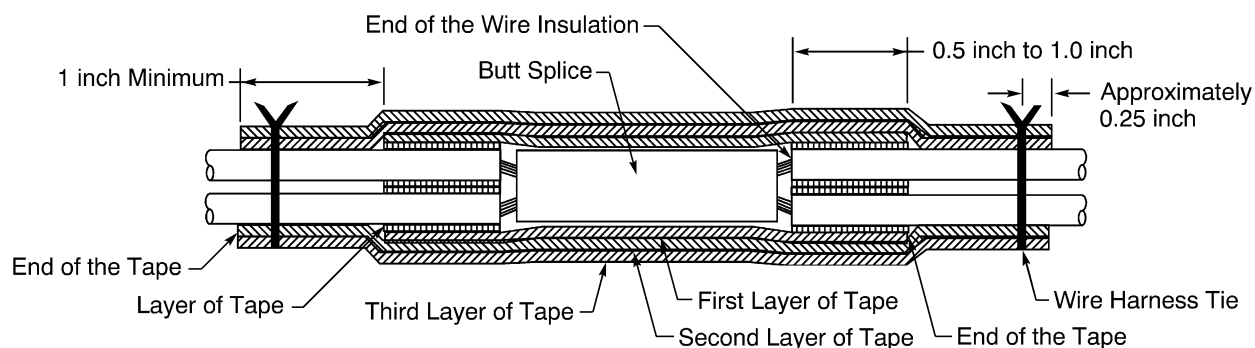
F. Two Wires to Two Wires - Tape, Ties

For the conditions that are applicable for:

- The repair of a wire or a cable with a splice, refer to Subject 20-10-13
- The selection of the correct sealed splice configuration, refer to Paragraph 1.C.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES



CONFIGURATION OF THE SPLICE ASSEMBLY

Figure 104

Refer to Figure 104.

- (1) Make a selection of a butt splice from Table 15.

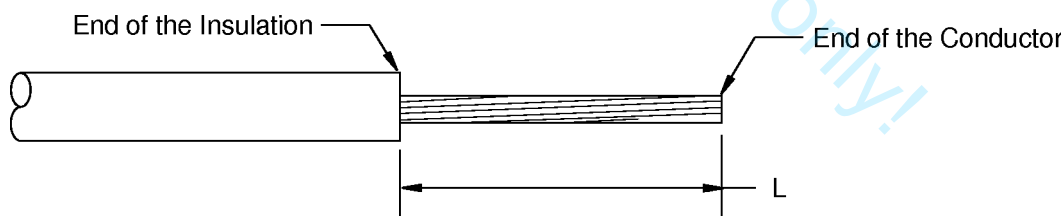
Make sure that the splice has the smallest CAU range that can accept the total CAU of the conductors.

Refer to Paragraph 1.D. for the procedure to calculate the CAU of the conductor.

- (2) Find the crimp barrel size of the splice from Table 15.
- (3) Make a selection of a crimp tool from Table 44.
- (4) Make a selection of a Temperature Grade D insulation tape from Table 50.
Make sure that the tape has a width of 0.5 inch minimum to 1.0 inch maximum.
- (5) Remove the necessary length of insulation from the end of each wire.

Refer to:

- Figure 105
- Table 85 for the insulation removal length
- Subject 20-00-15 for the insulation removal procedures.



INSULATION REMOVAL LENGTH

Figure 105

Table 85
INSULATION REMOVAL LENGTH

Splice Part Number	Insulation Removal Length L (inch)	
	Target	Tolerance
BACT12C11	0.46	± 0.02

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

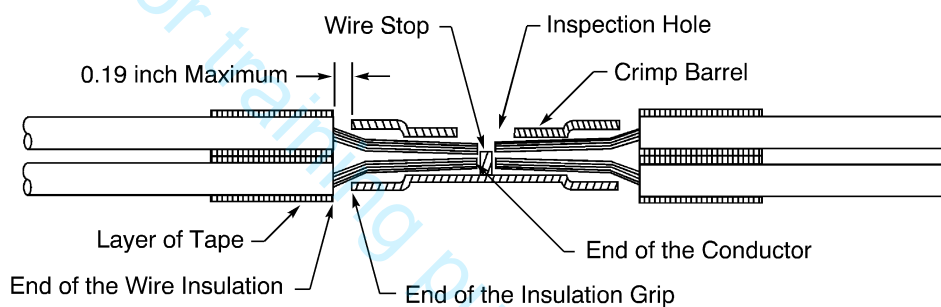
Table 85 (continued)

Splice Part Number	Insulation Removal Length L (inch)	
	Target	Tolerance
BACT12C15	0.30	± 0.02
BACT12C20	0.30	± 0.02

- (6) Put the wires in the splice. Refer to Figure 106.

Make sure that:

- The end of each conductor can be seen in the inspection hole
- The end of each conductor does not make an overlap with the wire stop
- The end of each wire insulation is a maximum of 0.19 inch from the end of the insulation grip.



POSITION OF THE WIRES IN THE BUTT SPLICE

Figure 106

- (7) If it is necessary, remove more insulation from the end of the wire to make the wire fit correctly in the splice.

- (8) Wind a layer of the insulation tape on each wire. Refer to Figure 106.

Make sure that:

- The edge of the tape is aligned with the end of the wire insulation
- The tape goes around the circumference of the wire a minimum of two times
- The tape makes a 100 percent overlap.

- (9) Assemble one end of the butt splice.

- Put the splice in the crimp tool.
- Hold the splice in position with light pressure.
- Put the wires in the splice. Refer to Figure 106.

Make sure that the wires are in the correct position.

- Crimp the splice.

- (10) Do Step (9) again to assemble the other end of the butt splice.

- (11) Put three layers of insulation tape on the splice assembly.

- Tightly wind the first layer of tape on the splice assembly.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Make sure that the layer:

- Starts at the rear end of the layers of tape on the two wires on one end of the splice assembly
- Stops at the rear end of the layers of tape on the two wires on the other end of the splice assembly
- Makes a 50 percent overlap.

- (b) Tightly wind the second layer of tape on the splice assembly in the opposite direction of the first layer.

Make sure that the layer:

- Starts 1 inch minimum farther than where the first layer stops
- Stops 1 inch minimum farther than where the first layer starts
- Makes a 50 percent overlap.

- (c) Tightly wind the third layer of tape on the splice assembly in the opposite direction of the second layer.

Make sure that the layer:

- Starts where the second layer stops
- Stops where the second layer starts
- Makes a 50 percent overlap.

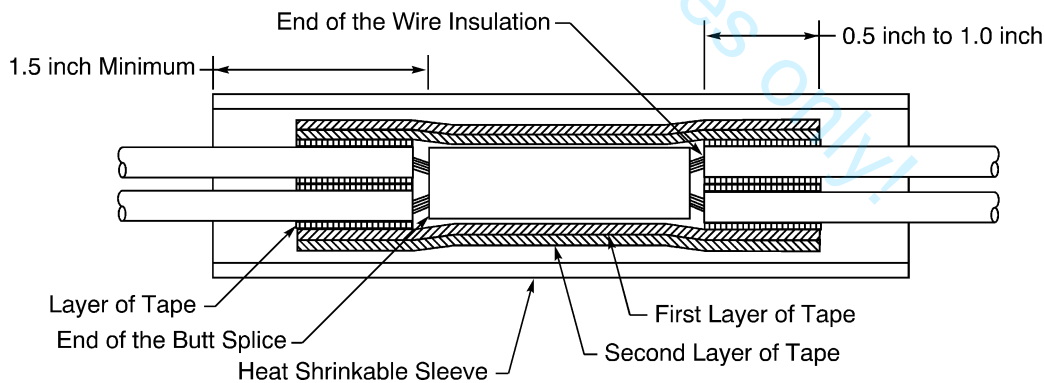
- (12) Assemble a lacing tape wire harness tie on each end of the splice assembly approximately 0.25 inch from the end of the tape. Refer to Subject 20-10-11.

Make sure that the Temperature Grade of the lacing tape is Temperature Grade D.

G. Two Wires to Two Wires - Tape, Sleeve

For the conditions that are applicable for:

- The repair of a wire or a cable with a splice, refer to Subject 20-10-13
- The selection of the correct sealed splice configuration, refer to Paragraph 1.C.



CONFIGURATION OF THE SPLICE ASSEMBLY

Figure 107

Refer to Figure 107.

- (1) Make a selection of a butt splice from Table 15.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Make sure that the splice has the smallest CAU range that can accept the total CAU of the conductors. Refer to Paragraph 1.D. for the procedure to calculate the CAU of the conductor.

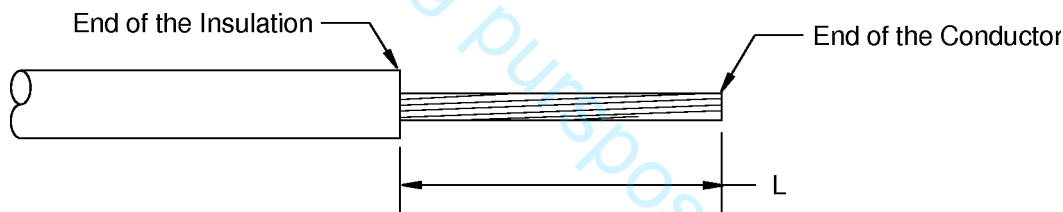
- (2) Find the crimp barrel size of the splice from Table 15.
- (3) Make a selection of a crimp tool from Table 44.
- (4) Make a selection of a Temperature Grade D insulation tape from Table 50.
Make sure that the tape has a width of 0.5 inch minimum to 1.0 inch maximum.
- (5) Make a selection of a Temperature Grade D heat shrinkable sleeve from Table 49.
Make sure that the sleeve has the smallest diameter that can be put on the splice assembly.

NOTE: For alternative heat shrinkable sleeves, refer to Subject 20-00-11.

- (6) Cut the necessary length of the sleeve.
Make sure that the sleeve extends a minimum of 1.5 inches farther than each end of the splice.
- (7) Put the sleeve on the wires of one end of the splice assembly.
- (8) Remove the necessary length of insulation from the end of each wire.

Refer to:

- Figure 108
- Table 86 for the insulation removal length
- Subject 20-00-15 for the insulation removal procedures.



INSULATION REMOVAL LENGTH
Figure 108

Table 86
INSULATION REMOVAL LENGTH

Splice Part Number	Insulation Removal Length L (inch)	
	Target	Tolerance
BACT12C11	0.46	± 0.02
BACT12C15	0.30	± 0.02
BACT12C20	0.30	± 0.02

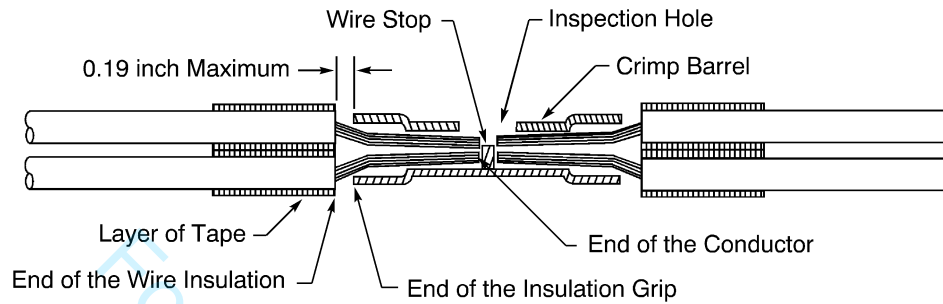
- (9) Put the wires in the splice. Refer to Figure 109.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Make sure that:

- The end of each conductor can be seen in the inspection hole
- The end of each conductor does not make an overlap with the wire stop
- The end of each wire insulation is a maximum of 0.19 inch from the end of the insulation grip.



POSITION OF THE WIRES IN THE BUTT SPLICE

Figure 109

(10) If it is necessary, remove more insulation from the end of the wire to make the wire fit correctly in the splice.

(11) Wind a layer of the insulation tape on each wire. Refer to Figure 109.

Make sure that:

- The edge of the tape is aligned with the end of the wire insulation
- The tape goes around the circumference of the wire a minimum of two times
- The tape makes a 100 percent overlap.

(12) Assemble one end of the butt splice.

- Put the splice in the crimp tool.
- Hold the splice in position with light pressure.
- Put the wires in the splice. Refer to Figure 109.

Make sure that the wires are in the correct position.

(d) Crimp the splice.

(13) Do Step (12) again to assemble the other end of the butt splice.

(14) Put two layers of insulation tape on the splice assembly.

(a) Tightly wind the first layer of tape on the splice assembly.

Make sure that the layer:

- Starts at the rear end of the layers of tape on the two wires on one end of the splice assembly
- Stops at the rear end of the layers of tape on the two wires on the other end of the splice assembly
- Makes a 50 percent overlap.

(b) Tightly wind the second layer of tape on the splice assembly in the opposite direction of the first layer.

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Make sure that the layer:

- Starts where the first layer stops
- Stops where the first layer starts
- Makes a 50 percent overlap.

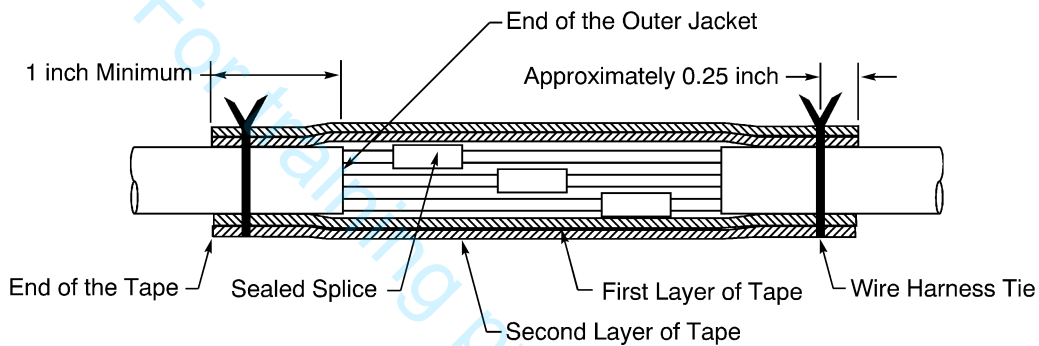
(15) Align the center of the sleeve with the center of the butt splice.

(16) Shrink the sleeve in position. Refer to Subject 20-10-14.

H. One Cable to One Cable - Tape, Ties

For the conditions that are applicable for:

- The repair of a wire or a cable with a splice, refer to Subject 20-10-13
- The selection of the correct sealed splice configuration, refer to Paragraph 1.C.



CONFIGURATION OF THE CABLE SPLICE ASSEMBLY

Figure 110

Refer to Figure 110.

(1) Prepare the cable.

Refer to:

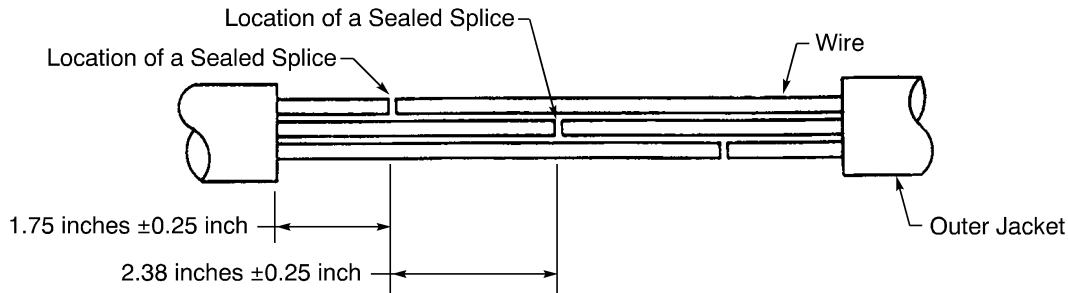
- Figure 111
- Subject 20-00-15 for the outer jacket removal procedures.

Make sure that:

- The distance from the end of the outer jacket to the center of the nearest sealed splice is 1.75 inches \pm 0.25 inch
- The distance from the center of a sealed splice on one wire to the center of the nearest sealed splice on another wire is 2.38 inches \pm 0.25 inch.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES



CABLE PREPARATION

Figure 111

- (2) Make a selection of a Temperature Grade D insulation tape from Table 50.
- (3) Assemble the sealed splices on the wires in the cable. Refer to Paragraph 8.B.
- (4) Put two layers of the insulation tape on the splice assembly.
 - (a) Tightly wind the first layer of tape on the splice assembly.
Make sure that the layer:
 - Starts 1 inch minimum farther than the end of the outer jacket
 - Stops 1 inch minimum farther than the end of the outer jacket at the other end of the splice assembly
 - Makes a minimum 50 percent overlap.
 - (b) Tightly wind the second layer of tape on the splice assembly in the opposite direction of the first layer.
Make sure that the layer:
 - Starts where the first layer stops
 - Stops where the first layer starts
 - Makes a 50 percent overlap.
- (5) Assemble a lacing tape wire harness tie on each end of the splice assembly approximately 0.25 inch from the end of the tape. Refer to Subject 20-10-11.

Make sure that the Temperature Grade of the lacing tape is Temperature Grade D.

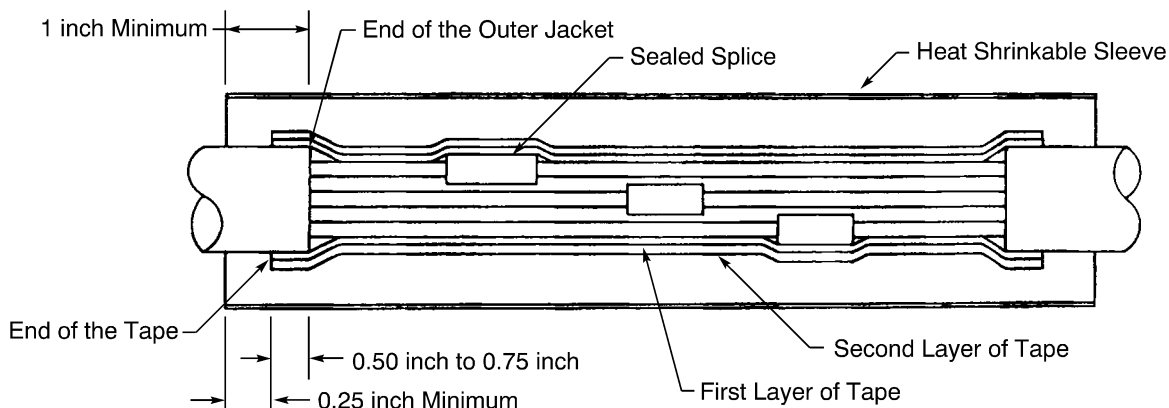
I. One Cable to One Cable - Tape, Sleeve

For the conditions that are applicable for:

- The repair of a wire or a cable with a splice, refer to Subject 20-10-13
- The selection of the correct sealed splice configuration, refer to Paragraph 1.C.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES



CONFIGURATION OF THE CABLE SPLICE ASSEMBLY

Figure 112

Refer to Figure 112.

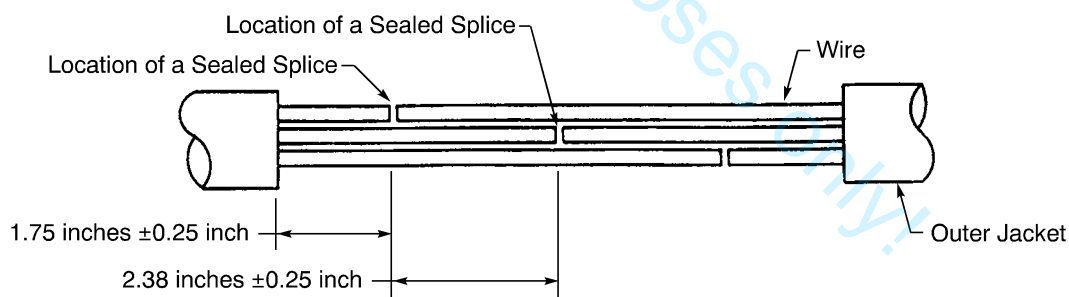
(1) Prepare the cable.

Refer to:

- Figure 113
- Subject 20-00-15 for the outer jacket removal procedures.

Make sure that:

- The distance from the end of the outer jacket to the center of the nearest sealed splice is 1.75 inches \pm 0.25 inch
- The distance from the center of a sealed splice on one wire to the center of the nearest sealed splice on another wire is 2.38 inches \pm 0.25 inch.



CABLE PREPARATION

Figure 113

(2) Make a selection of a Temperature Grade D insulation tape from Table 50.

(3) Make a selection of a Temperature Grade D heat shrinkable sleeve from Table 49.

Make sure that the sleeve has the smallest diameter that can be put on the cable splice assembly.

NOTE: For alternative heat shrinkable sleeves, refer to Subject 20-00-11.

(4) Cut the necessary length of the sleeve.

Make sure that the sleeve has a minimum overlap of 1 inch on each end of the outer jacket.

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STANDARD WIRING PRACTICES MANUAL**ASSEMBLY OF SPLICES**

- (5) Put the sleeve on the cable of one end of the splice assembly.
- (6) Assemble the sealed splices on the wires in the cable.
Refer to Table 74 for an applicable sealed splice configuration on wire.
- (7) Put two layers of insulation tape on the splice assembly.
 - (a) Tightly wind the first layer of tape on the splice assembly.
Make sure that the layer:
 - Makes an overlap of 0.50 inch minimum to 0.75 inch maximum on each end of the outer jacket
 - Makes a 50 percent overlap.
 - (b) Tightly wind the second layer of tape on the splice assembly in the opposite direction of the first layer.
Make sure that the layer:
 - Starts where the first layer stops
 - Stops where the first layer starts
 - Makes a 50 percent overlap.
- (8) Align the center of the sleeve with the center of the splice assembly.
Make sure that on each end of the splice assembly, the distance from the end of the layer of tape to the end of the sleeve is 0.25 inch minimum.
- (9) Shrink the sleeve in position. Refer to Subject 20-10-14.

9. CONDUCTOR SPLICE CONFIGURATIONS FOR SHIELDED WIRES AND SHIELDED CABLES**A. Splice Assembly Configurations**

The splice assembly configurations in Table 87 are for the conductor splice of a sealed splice assembly for shielded wire and shielded cable.

To calculate the CAU of the conductor, refer to Table 4.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Table 87
CONDUCTOR SPLICE ASSEMBLY CONFIGURATIONS

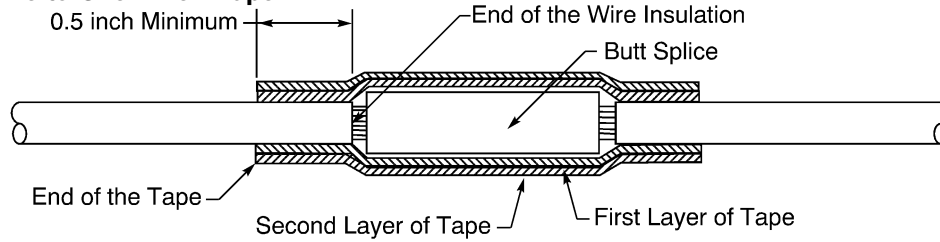
Maximum Temperature Grade	One End of Splice Assembly	Other End of Splice Assembly	CAU Range		Applicable Condition	Splice Assembly	
			Minimum	Maximum		Components	Procedure
B	One Wire	One Wire	3	457	Fuel Vapor	Tape	Paragraph 9.B.
					No Fuel Vapor	Tape	Paragraph 9.B.
	One Wire	Two Wires	3	457	Fuel Vapor	Tape	Paragraph 9.C.
					No Fuel Vapor	Tape	Paragraph 9.C.
	One or Two Wires	One or Two Wires	3	67	No Fuel Vapor	Splice Kit	Paragraph 7.F.
			3	457	No Fuel Vapor	Sleeve	Paragraph 7.G.
	One to Five Wires	One to Five Wires	3	457	No Fuel Vapor	Sleeve	Paragraph 7.I.
			19	67	No Fuel Vapor	Splice Kit	Paragraph 7.H.
	Two Wires	Two Wires	3	457	Fuel Vapor	Tape	Paragraph 9.D.
					No Fuel Vapor	Tape	Paragraph 9.D.
D	One Wire	One Wire	5	138	Fuel Vapor	Tape	Paragraph 9.E.
					No Fuel Vapor	Tape	Paragraph 9.E.
	One Wire	Two Wires	5	138	Fuel Vapor	Tape	Paragraph 9.F.
					No Fuel Vapor	Tape	Paragraph 9.F.
	Two Wires	Two Wires	5	138	Fuel Vapor	Tape	Paragraph 9.G.
					No Fuel Vapor	Tape	Paragraph 9.G.

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

B. One Wire to One Wire - Tape



CONFIGURATION OF THE SPLICE ASSEMBLY

Figure 114

Refer to Figure 114.

- (1) Make a selection of a butt splice from Table 12 or Table 14.

Make sure that the splice has the smallest CAU range that can accept the total CAU of the conductor.

Refer to Paragraph 1.D. for the procedure to calculate the CAU of the conductor.

- (2) Find the crimp barrel size of the splice from Table 12 or Table 14.

- (3) Make a selection of a crimp tool from:

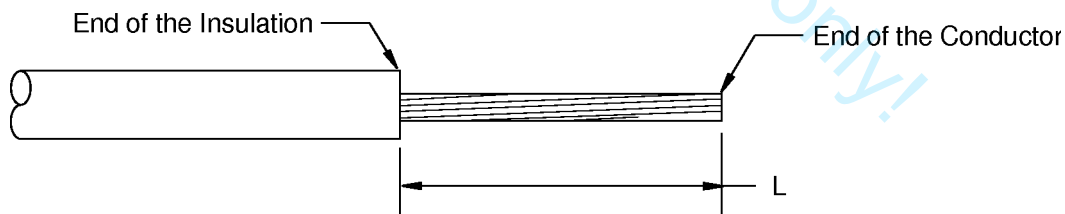
- Table 41 for BACT12C() splices
- Table 42 for NAS1387-() splices
- Table 43 for BACS52K() splices
- Table 43 for Raychem D-609-0() splices.

- (4) Make a selection of a Temperature Grade B or higher insulation tape from Table 50.

- (5) Remove the necessary length of insulation from the end of each wire.

Refer to:

- Figure 115
- Table 88 for the insulation removal length
- Subject 20-00-15 for the insulation removal procedures.



INSULATION REMOVAL LENGTH

Figure 115

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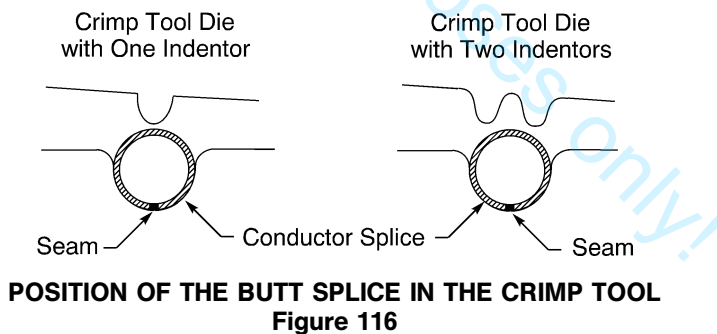
STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Table 88
INSULATION REMOVAL LENGTH

Splice Part Number	Insulation Removal Length L (inch)	
	Target	Tolerance
BACT12C101	0.72	± 0.03
BACT12C12	0.34	± 0.03
BACT12C21	0.65	± 0.03
BACT12C4	0.53	± 0.03
BACT12C6	0.53	± 0.03
BACT12C8	0.47	± 0.03
D-609-06	0.28	± 0.03
D-609-07	0.28	± 0.03
D-609-08	0.28	± 0.03
NAS1387-4	0.28	± 0.03
NAS1387-5	0.28	± 0.03
NAS1387-6	0.28	± 0.03

- (6) Assemble one end of the butt splice.
 - (a) Put the splice in the crimp tool.
 - (b) If the splice has a seam, align the seam opposite the indenter. Refer to Figure 116.



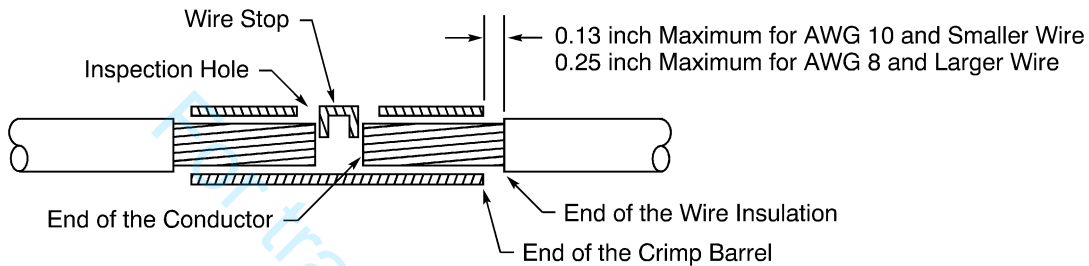
- (c) Hold the splice in position with light pressure.
- (d) Put the wire in the splice. Refer to Figure 117.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Make sure that:

- The end of the conductor can be seen in the inspection hole
- The end of the conductor does not make an overlap with the wire stop
- The insulation of the wire is not in the crimp barrel
- For an AWG 10 and smaller wire, the end of the wire insulation is a maximum of 0.13 inch from the end of the crimp barrel
- For an AWG 8 and larger wire, the end of the wire insulation is a maximum of 0.25 inch from the end of the crimp barrel.



POSITION OF THE WIRE IN THE BUTT SPLICE

Figure 117

- (e) Crimp the splice.
- (7) Do Step (6) again to assemble the other end of the butt splice.
- (8) Put two layers of the insulation tape on the splice assembly.
 - (a) Tightly wind the first layer of tape on the splice assembly.

Make sure that the layer:

 - Starts 0.5 inch minimum farther than the end of the wire insulation
 - Stops 0.5 inch minimum farther than the end of the wire insulation at the other end of the splice assembly
 - Makes a 50 percent overlap.
 - (b) Tightly wind the second layer of tape on the splice assembly in the opposite direction of the first layer.

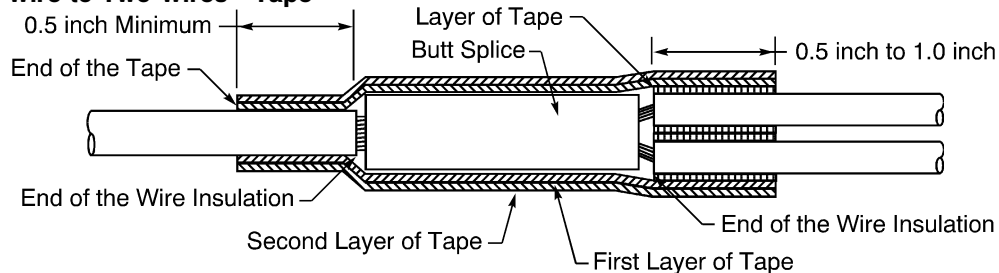
Make sure that the layer:

 - Starts where the first layer stops
 - Stops where the first layer starts
 - Makes a minimum 50 percent overlap.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

C. One Wire to Two Wires - Tape



CONFIGURATION OF THE SPLICE ASSEMBLY

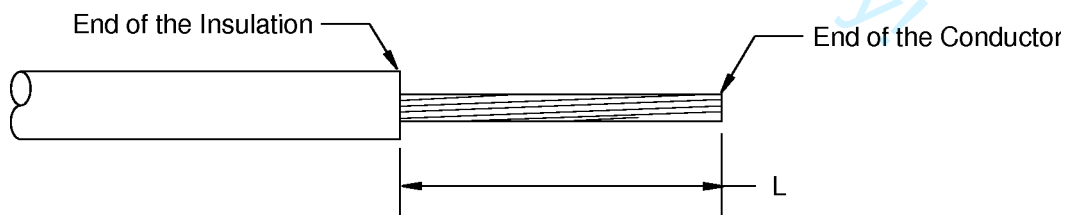
Figure 118

Refer to Figure 118.

- (1) Make a selection of a butt splice from Table 12 or Table 14.
Make sure that the splice has the smallest CAU range that can accept the total CAU of the conductor.
Refer to Paragraph 1.D. for the procedure to calculate the CAU of the conductor.
- (2) Find the crimp barrel size of the splice from Table 12 or Table 14.
- (3) Make a selection of a crimp tool from:
 - Table 41 for BACT12C() splices
 - Table 42 for NAS1387-() splices
 - Table 43 for BACS52K() splices
 - Table 43 for Raychem D-609-0() splices.
- (4) Make a selection of a Temperature Grade B or higher insulation tape from Table 50.
Make sure that the tape has a width of 0.5 inch minimum to 1.0 inch maximum.
- (5) Remove the necessary length of insulation from the end of each wire.

Refer to:

- Figure 119
- Table 89 for the insulation removal length
- Subject 20-00-15 for the insulation removal procedures.



INSULATION REMOVAL LENGTH

Figure 119

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Table 89
INSULATION REMOVAL LENGTH

Splice Part Number	Insulation Removal Length L (inch)	
	Target	Tolerance
BACT12C101	0.72	± 0.03
BACT12C12	0.34	± 0.03
BACT12C21	0.65	± 0.03
BACT12C4	0.53	± 0.03
BACT12C6	0.53	± 0.03
BACT12C8	0.47	± 0.03
D-609-06	0.28	± 0.03
D-609-07	0.28	± 0.03
D-609-08	0.28	± 0.03
NAS1387-4	0.28	± 0.03
NAS1387-5	0.28	± 0.03
NAS1387-6	0.28	± 0.03

- (6) Wind a layer of the insulation tape on each of the two wires for the side of the splice with two wires.

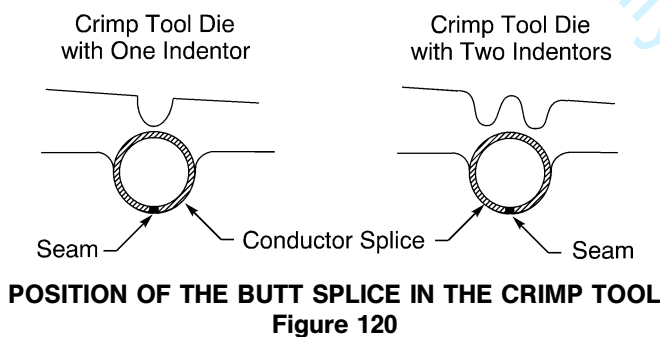
Make sure that:

- The edge of the tape is aligned with the end of the wire insulation
- The tape goes around the circumference of the wire a minimum of two times
- The tape makes a 100 percent overlap.

- (7) Assemble one end of the butt splice.

- (a) Put the splice in the crimp tool.

- (b) If the splice has a seam, align the seam opposite the indenter. Refer to Figure 120.



- (c) Hold the splice in position with light pressure.

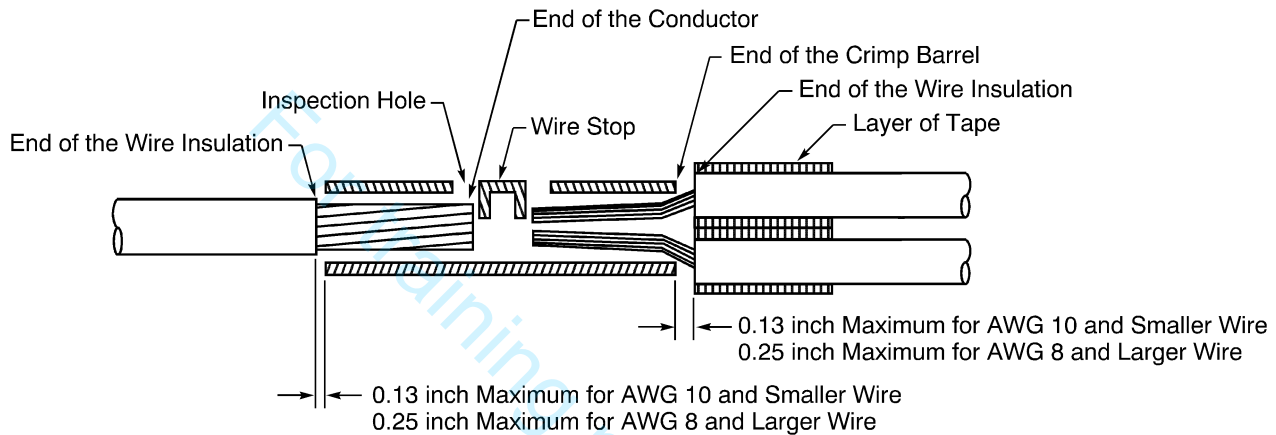
- (d) Put the wire or wires in the splice. Refer to Figure 121.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Make sure that:

- The end of the conductor can be seen in the inspection hole
- The end of the conductor does not make an overlap with the wire stop
- The insulation of the wire is not in the crimp barrel
- For AWG 10 and smaller wire, the end of the wire insulation is a maximum of 0.13 inch from the end of the crimp barrel
- For AWG 8 and larger wire, the end of the wire insulation is a maximum of 0.25 inch from the end of the crimp barrel.



POSITION OF THE WIRES IN THE BUTT SPLICE

Figure 121

- (e) Crimp the splice.
- (8) Do Step (7) again to assemble the other end side of the butt splice.
- (9) Put two layers of the insulation tape on the splice assembly.

- (a) Tightly wind the first layer of tape on the splice assembly.

Make sure that the layer:

- Starts 0.5 inch minimum farther than the end of the wire insulation on the side of the splice with one wire
- Stops at the rear end of the layers of tape on the two wires on the other end of the splice assembly
- Makes a 50 percent overlap.

- (b) Tightly wind the second layer of tape on the splice assembly in the opposite direction of the first layer.

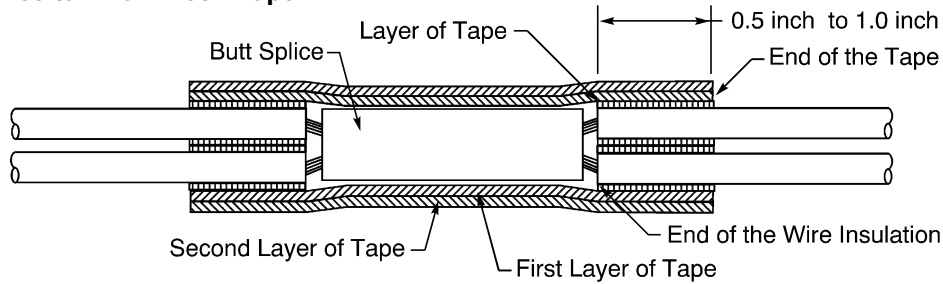
Make sure that the layer:

- Starts where the first layer stops
- Stops where the first layer starts
- Makes a minimum 50 percent overlap.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

D. Two Wires to Two Wires - Tape



CONFIGURATION OF THE SPLICE ASSEMBLY

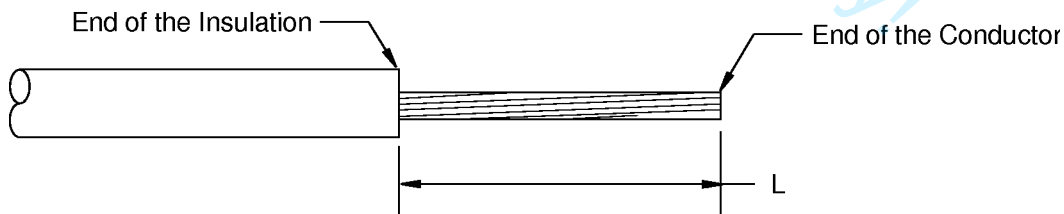
Figure 122

Refer to Figure 122.

- (1) Make a selection of a butt splice from Table 12 or Table 14.
Make sure that the splice has the smallest CAU range that can accept the total CAU of the conductor.
Refer to Paragraph 1.D. for the procedure to calculate the CAU of the conductor.
- (2) Find the crimp barrel size of the splice from Table 12 or Table 14.
- (3) Make a selection of a crimp tool from:
 - Table 41 for BACT12C() splices
 - Table 42 for NAS1387-() splices
 - Table 43 for BACS52K() splices
 - Table 43 for Raychem D-609-0() splices.
- (4) Make a selection of a Temperature Grade B or higher insulation tape from Table 50.
Make sure that the tape has a width of 0.5 inch minimum to 1.0 inch maximum.
- (5) Remove the necessary length of insulation from the end of each wire.

Refer to:

- Figure 123
- Table 90 for the insulation removal length
- Subject 20-00-15 for the insulation removal procedures.



INSULATION REMOVAL LENGTH

Figure 123

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Table 90
INSULATION REMOVAL LENGTH

Splice Part Number	Insulation Removal Length L (inch)	
	Target	Tolerance
BACT12C101	0.72	± 0.03
BACT12C12	0.34	± 0.03
BACT12C21	0.65	± 0.03
BACT12C4	0.53	± 0.03
BACT12C6	0.53	± 0.03
BACT12C8	0.47	± 0.03
D-609-06	0.28	± 0.03
D-609-07	0.28	± 0.03
D-609-08	0.28	± 0.03
NAS1387-4	0.28	± 0.03
NAS1387-5	0.28	± 0.03
NAS1387-6	0.28	± 0.03

- (6) Wind a layer of the insulation tape on each wire.

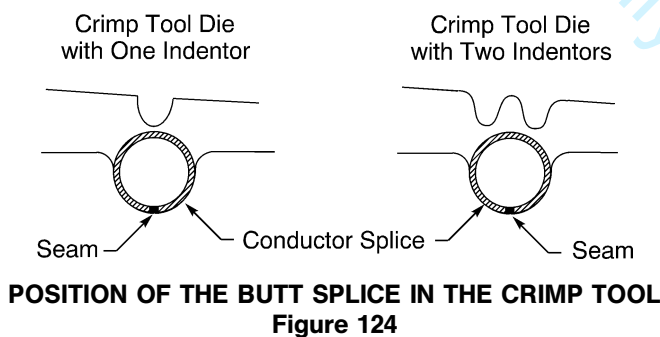
Make sure that:

- The edge of the tape is aligned with the end of the wire insulation
- The tape goes around the circumference of the wire a minimum of two times
- The tape makes a 100 percent overlap.

- (7) Assemble one end of the butt splice.

- (a) Put the splice in the crimp tool.

- (b) If the splice has a seam, align the seam opposite the indenter. Refer to Figure 124.



- (c) Hold the splice in position with light pressure.

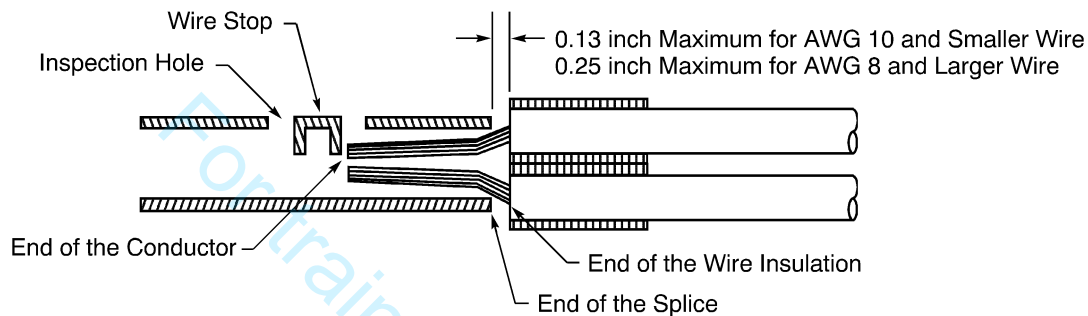
- (d) Put the wire or wires in the splice. Refer to Figure 125.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Make sure that:

- The end of the conductor can be seen in the inspection hole
- The end of the conductor does not make an overlap with the wire stop
- The insulation of the wire is not in the crimp barrel
- For AWG 10 and smaller wire, the end of the wire insulation is a maximum of 0.13 inch from the end of the crimp barrel
- For AWG 8 and larger wire, the end of the wire insulation is a maximum of 0.25 inch from the end of the crimp barrel.



POSITION OF THE WIRES IN THE BUTT SPLICE

Figure 125

- (e) Crimp the splice.
- (8) Do Step (7) again to assemble the other end side of the butt splice.
- (9) Put two layers of insulation tape on the splice assembly.

- (a) Tightly wind the first layer of tape on the splice assembly.

Make sure that the layer:

- Starts at the rear end of the layers of tape on the two wires on one end of the splice assembly
- Stops at the rear end of the layers of tape on the two wires on the other end of the splice assembly
- Makes a 50 percent overlap.

- (b) Tightly wind the second layer of tape on the splice assembly in the opposite direction of the first layer.

Make sure that the layer:

- Starts where the first layer stops
- Stops where the first layer starts
- Makes a 50 percent overlap.

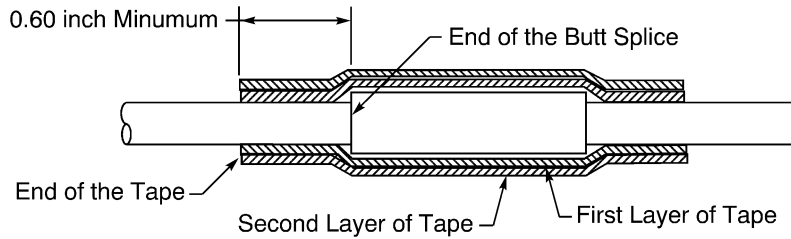
E. One Wire to One Wire for High Temperature - Tape

For the conditions that are applicable for:

- The repair of a wire or a cable with a splice, refer to Subject 20-10-13
- The selection of the correct sealed splice configuration, refer to Paragraph 1.C.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES



CONFIGURATION OF THE SPLICE ASSEMBLY

Figure 126

Refer to Figure 126.

- (1) Find the CAU of the conductor.

Refer to Paragraph 1.D. for the procedure to calculate the CAU of the conductor.

- (2) If the CAU of the conductor is less than the minimim CAU for the butt splice, increase the CAU of the conductor.

Refer to:

- Table 15 for the minimum CAU of the butt splice
- Paragraph 2. for the applicable conditions and procedures for the increase of the CAU.

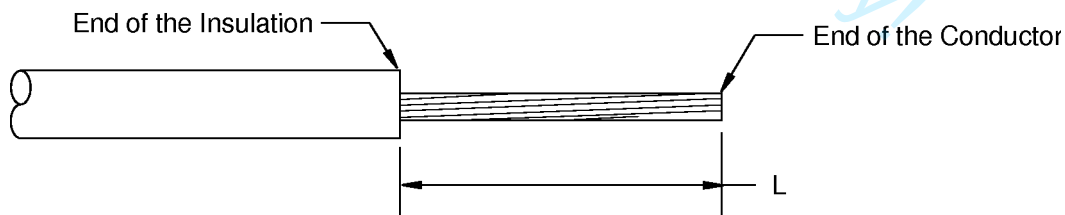
- (3) Make a selection of a butt splice from Table 15.

Make sure that the splice has the smallest CAU range that can accept the total CAU of the conductor.

- (4) Find the crimp barrel size of the splice from Table 15.
- (5) Make a selection of a crimp tool from Table 44.
- (6) Make a selection of a Temperature Grade D insulation tape from Table 50.
- (7) Remove the necessary length of insulation from the end of the wires.

Refer to:

- Figure 127
- Table 91 for the insulation removal length for a wire that can go into the insulation grip
- Table 92 for the insulation removal length for a wire that cannot go into the insulation grip
- Subject 20-00-15 for the insulation removal procedures.



INSULATION REMOVAL LENGTH

Figure 127

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Table 91
INSULATION REMOVAL LENGTH FOR A WIRE THAT CAN GO INTO THE INSULATION GRIP

Splice Part Number	Insulation Removal Length L (inch)	
	Target	Tolerance
BACT12C11	0.37	± 0.02
BACT12C15	0.23	± 0.02
BACT12C20	0.23	± 0.02

Table 92
INSULATION REMOVAL LENGTH FOR A WIRE THAT CANNOT GO INTO THE INSULATION GRIP

Splice Part Number	Insulation Removal Length L (inch)	
	Target	Tolerance
BACT12C11	0.46	± 0.02
BACT12C15	0.30	± 0.02
BACT12C20	0.30	± 0.02

- (8) Assemble one end of the butt splice.
- Put the splice in the crimp tool.
 - Hold the splice in position with light pressure.
 - Put the wire in the splice.

Refer to:

- Figure 128 for the position of the wire in the splice with the wire insulation in the insulation grip
- Figure 129 for the position of the wire in the splice with the wire insulation out of the insulation grip.

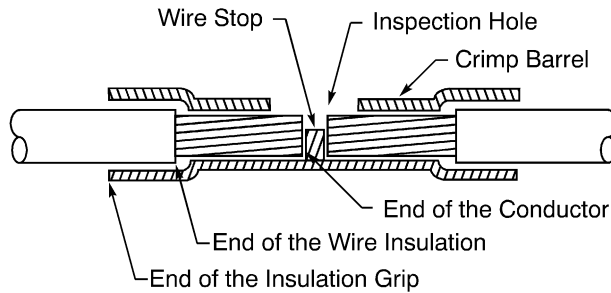
Make sure that:

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

NOTE: The insulation removal length can be changed to make these conditions satisfactory.

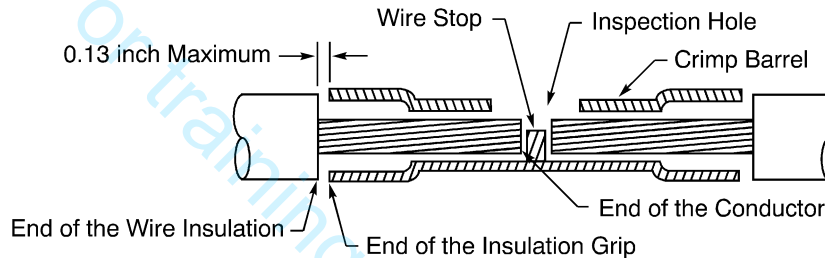
STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES



POSITION OF THE WIRE IN THE BUTT SPLICE WITH THE WIRE INSULATION IN THE INSULATION GRIP

Figure 128



POSITION OF THE WIRE IN THE BUTT SPLICE WITH THE WIRE INSULATION OUT OF THE INSULATION GRIP

Figure 129

- (d) Crimp the splice.
- (9) Do Step (8) again to assemble the other end of the butt splice.
- (10) Put two layers of the insulation tape on the splice assembly.
 - (a) Tightly wind the first layer of tape on the splice assembly.

Make sure that the layer:

 - Starts 0.6 inch minimum farther than the end of the splice
 - Stops 0.6 inch minimum farther than the end of the splice at the other end of the splice assembly
 - Makes a 50 percent overlap.
 - (b) Tightly wind the second layer of tape on the splice assembly in the opposite direction of the first layer.

Make sure that the layer:

 - Starts where the first layer stops
 - Stops where the first layer starts
 - Makes a minimum 50 percent overlap.

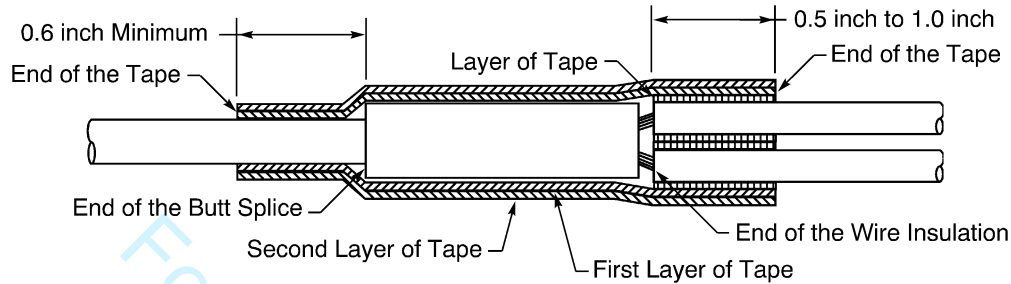
STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

F. One Wire to Two Wires for High Temperature - Tape

For the conditions that are applicable for:

- The repair of a wire or a cable with a splice, refer to Subject 20-10-13
- The selection of the correct sealed splice configuration, refer to Paragraph 1.C.



CONFIGURATION OF THE SPLICE ASSEMBLY

Figure 130

Refer to Figure 130.

- (1) Find the CAU of the conductor.

Refer to Paragraph 1.D. for the procedure to calculate the CAU of the conductor.

- (2) If the CAU of the conductor is less than the minimum CAU for the butt splice, increase the CAU of the conductor.

Refer to:

- Table 15 for the minimum CAU of the butt splice
- Paragraph 2. for the applicable conditions and procedures for the increase of the CAU.

- (3) Make a selection of a butt splice from Table 15.

Make sure that the splice has the smallest CAU range that can accept the total CAU of the conductor.

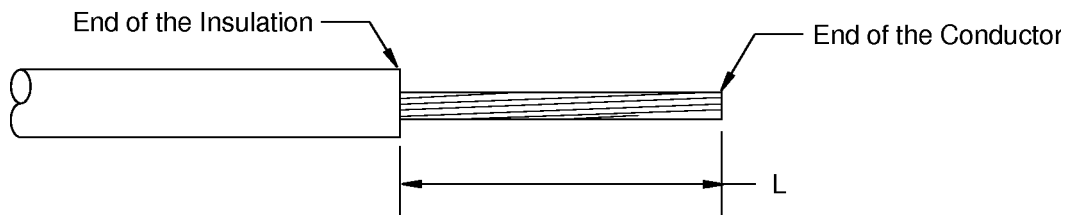
- (4) Find the crimp barrel size of the splice from Table 15.

- (5) Make a selection of a crimp tool from Table 44.

- (6) Make a selection of a Temperature Grade D insulation tape from Table 50.

Make sure that the tape has a width of 0.5 inch minimum to 1.0 inch maximum.

- (7) Prepare each wire for the side of the splice assembly with two wires.



INSULATION REMOVAL LENGTH

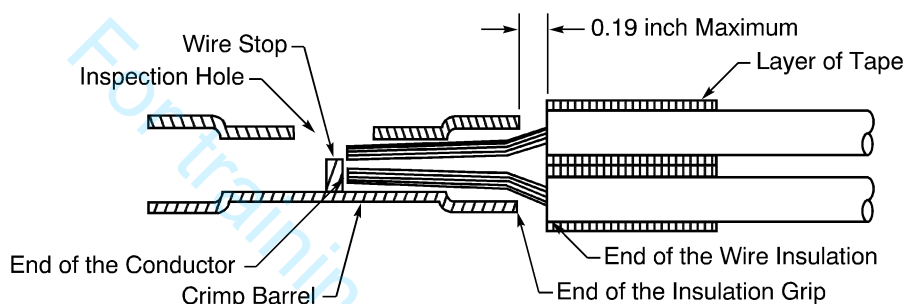
Figure 131

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Table 93
INSULATION REMOVAL LENGTH

Splice Part Number	Insulation Removal Length L (inch)	
	Target	Tolerance
BACT12C11	0.46	± 0.02
BACT12C15	0.30	± 0.02
BACT12C20	0.30	± 0.02



POSITION OF THE WIRES IN THE BUTT SPLICE

Figure 132

- (a) Remove the necessary length of insulation from the end of each wire.
Refer to:
 - Figure 131
 - Table 93 for the insulation removal length
 - Subject 20-00-15 for the insulation removal procedures.
- (b) Put the wires in the splice. Refer to Figure 132.
Make sure that:
 - The end of each conductor can be seen in the inspection hole
 - The end of each conductor does not make an overlap with the wire stop
 - The end of each wire insulation is a maximum of 0.19 inch from the end of the insulation grip.
- (c) If it is necessary, remove more insulation from the end of the wire.
- (d) Wind a layer of the insulation tape on each wire. Refer to Figure 132.
Make sure that:
 - The edge of the tape is aligned with the end of the wire insulation
 - The tape goes around the circumference of the wire a minimum of two times
 - The tape makes a 100 percent overlap.
- (8) Remove the necessary length of insulation from the end of the wire for the side of the splice assembly with one wire.

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ASSEMBLY OF SPLICES

Refer to:

- Figure 131
- Table 94 for the insulation removal length for a wire that can go into the insulation grip
- Table 95 for the insulation removal length for a wire that cannot go into the insulation grip
- Subject 20-00-15 for the insulation removal procedures.

Table 94

INSULATION REMOVAL LENGTH FOR A WIRE THAT CAN GO INTO THE INSULATION GRIP

Splice Part Number	Insulation Removal Length L (inch)	
	Target	Tolerance
BACT12C11	0.37	± 0.02
BACT12C15	0.23	± 0.02
BACT12C20	0.23	± 0.02

Table 95

INSULATION REMOVAL LENGTH FOR A WIRE THAT CANNOT GO INTO THE INSULATION GRIP

Splice Part Number	Insulation Removal Length L (inch)	
	Target	Tolerance
BACT12C11	0.46	± 0.02
BACT12C15	0.30	± 0.02
BACT12C20	0.30	± 0.02

- (9) Assemble the end of the butt splice with two wires.
 - (a) Put the splice in the crimp tool.
 - (b) Hold the splice in position with light pressure.
 - (c) Put the wires in the splice. Refer to Figure 132.
Make sure that the wires are in the correct position.
 - (d) Crimp the splice.
- (10) Assemble the end of the butt splice with one wire.
 - (a) Put the splice in the crimp tool.
 - (b) Hold the splice in position with light pressure.
 - (c) Put the wire in the splice.

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ASSEMBLY OF SPLICES

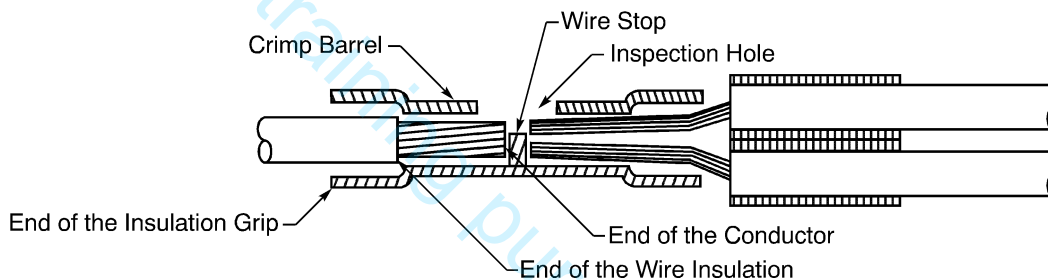
Refer to:

- Figure 133 for the position of the wire in the splice with the wire insulation in the insulation grip
- Figure 134 for the position of the wire in the splice with the wire insulation out of the insulation grip.

Make sure that:

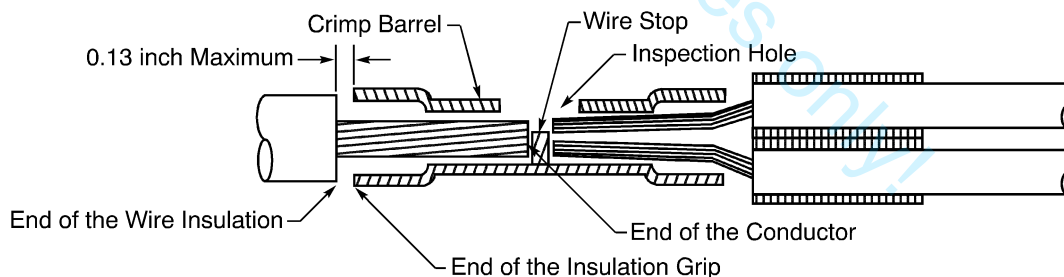
- The end of the conductor can be seen in the inspection hole
- The end of the conductor does not make an overlap with the wire stop
- If the wire insulation can go into the insulation grip, the end of the wire insulation is in the insulation grip
- If the wire insulation cannot go into the insulation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

NOTE: The insulation removal length can be changed to make these conditions satisfactory.



POSITION OF THE WIRE IN THE BUTT SPLICE WITH THE WIRE INSULATION IN THE INSULATION GRIP

Figure 133



POSITION OF THE WIRE IN THE BUTT SPLICE WITH THE WIRE INSULATION OUT OF THE INSULATION GRIP

Figure 134

- (d) Crimp the splice.
- (11) Put two layers of insulation tape on the splice assembly.
 - (a) Tightly wind the first layer of tape on the splice assembly.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Make sure that the layer:

- Starts 0.6 inch minimum farther than the end of the splice on the side with one wire
- Stops at the rear end of the layers of tape on the two wires on the other end of the splice assembly
- Makes a 50 percent overlap.

- (b) Tightly wind the second layer of tape on the splice assembly in the opposite direction of the first layer.

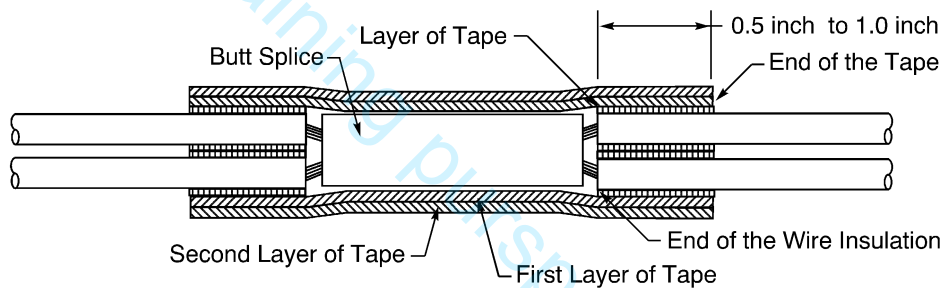
Make sure that the layer:

- Starts where the first layer stops
- Stops where the first layer starts
- Makes a minimum 50 percent overlap.

G. Two Wires to Two Wires for High Temperature - Tape

For the conditions that are applicable for:

- The repair of a wire or a cable with a splice, refer to Subject 20-10-13
- The selection of the correct sealed splice configuration, refer to Paragraph 1.C.



CONFIGURATION OF THE SPLICE ASSEMBLY

Figure 135

Refer to Figure 135.

- (1) Make a selection of a butt splice from Table 15.

Make sure that the splice has the smallest CAU range that can accept the total CAU of the conductors. Refer to Paragraph 1.D. for the procedure to calculate the CAU of the conductor.

- (2) Find the crimp barrel size of the splice from Table 15.

- (3) Make a selection of a crimp tool from Table 44.

- (4) Make a selection of a Temperature Grade D insulation tape from Table 50.

Make sure that the tape has a width of 0.5 inch minimum to 1.0 inch maximum.

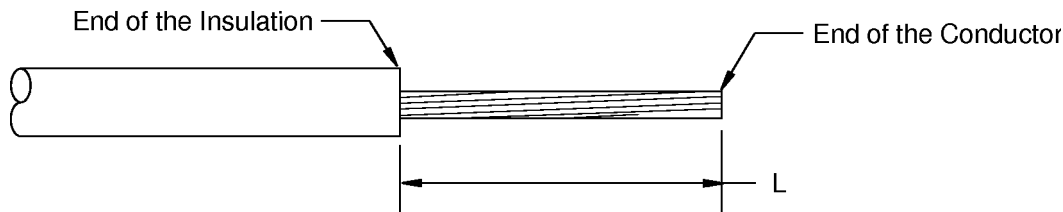
- (5) Remove the necessary length of insulation from the end of each wire.

Refer to:

- Figure 136
- Table 96 for the insulation removal length
- Subject 20-00-15 for the insulation removal procedures.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES



INSULATION REMOVAL LENGTH

Figure 136

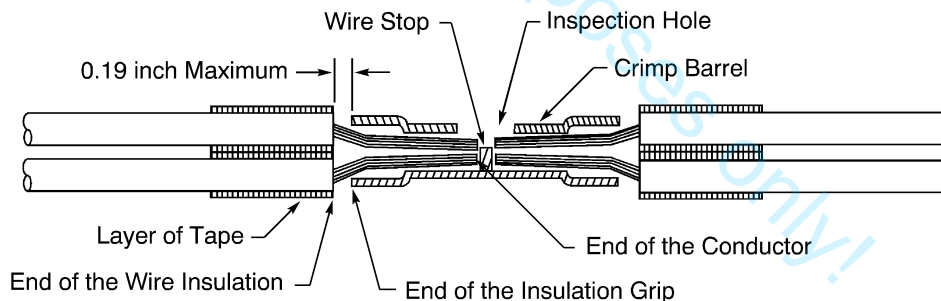
**Table 96
INSULATION REMOVAL LENGTH**

Splice Part Number	Insulation Removal Length L (inch)	
	Target	Tolerance
BACT12C11	0.46	± 0.02
BACT12C15	0.30	± 0.02
BACT12C20	0.30	± 0.02

(6) Put the wires in the splice. Refer to Figure 137.

Make sure that:

- The end of each conductor can be seen in the inspection hole
- The end of each conductor does not make an overlap with the wire stop
- The end of each wire insulation is a maximum of 0.19 inch from the end of the insulation grip.



POSITION OF THE WIRES IN THE BUTT SPLICE

Figure 137

(7) If it is necessary, remove more insulation from the end of the wire.

(8) Wind a layer of the insulation tape on each wire. Refer to Figure 137.

Make sure that:

- The edge of the tape is aligned with the end of the wire insulation
- The tape goes around the circumference of the wire a minimum of two times
- The tape makes a 100 percent overlap.

(9) Assemble one end of the butt splice.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

- (a) Put the splice in the crimp tool.
 - (b) Hold the splice in position with light pressure.
 - (c) Put the wires in the splice. Refer to Figure 137.
Make sure that the wires are in the correct position.
 - (d) Crimp the splice.
- (10) Do Step (9) again to assemble the other end of the butt splice.
- (11) Put two layers of insulation tape on the splice assembly.
- (a) Tightly wind the first layer of tape on the splice assembly.
Make sure that the layer:
 - Starts at the rear end of the layers of tape on the two wires on one end of the splice assembly
 - Stops at the rear end of the layers of tape on the two wires on the other end of the splice assembly
 - Makes a 50 percent overlap.
 - (b) Tightly wind the second layer of tape on the splice assembly in the opposite direction of the first layer.
Make sure that the layer:
 - Starts where the first layer stops
 - Stops where the first layer starts
 - Makes a minimum 50 percent overlap.

10. SEALED SPlice CONFIGURATIONS WITH MECHANICAL FERRULES FOR SHIELDED WIRE AND SHIELDED CABLE

A. Splice Assembly Configurations

For the conditions that are applicable for:

- The repair of a wire or a cable with a splice, refer to Subject 20-10-13
- The selection of the correct sealed splice configuration, refer to Paragraph 1.C.

Table 97
SPLICE ASSEMBLY CONFIGURATIONS

One End of Splice Assembly	Other End of Splice Assembly	Quantity of Conductor Splices	Applicable Condition	Splice Assembly	
				Configuration	Procedure
One Shielded Wire	One Shielded Wire	1	Fuel Vapor	Tape, Ties	Paragraph 10.B.
			No Fuel Vapor	Tape, Sleeve	Paragraph 10.C.
				Tape, Ties	Paragraph 10.B.
Shielded Wire	Two Shielded Wires	1	Fuel Vapor	Tape, Ties	Paragraph 10.D.
			No Fuel Vapor	Tape, Sleeve	Paragraph 10.E.
				Tape, Ties	Paragraph 10.D.

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ASSEMBLY OF SPLICES

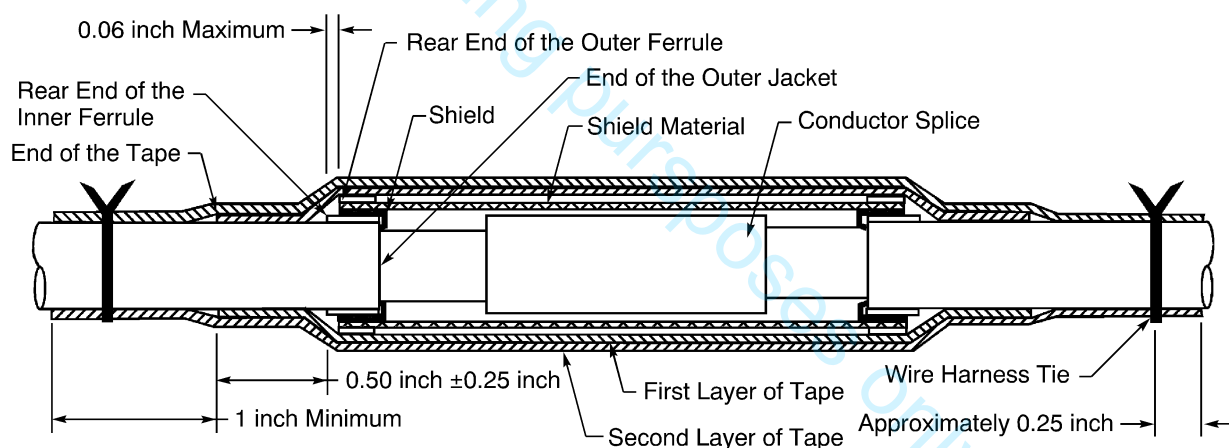
Table 97 (continued)

One End of Splice Assembly	Other End of Splice Assembly	Quantity of Conductor Splices	Applicable Condition	Splice Assembly	
				Configuration	Procedure
Two Shielded Wires	Two Shielded Wires	1	Fuel Vapor	Tape, Ties	Paragraph 10.F.
			No Fuel Vapor	Tape, Sleeve	Paragraph 10.G.
				Tape, Ties	Paragraph 10.F.
One Shielded Cable	One Shielded Cable	-	Fuel Vapor	Tape, Ties	Paragraph 10.H.
			No Fuel Vapor	Tape, Sleeve	Paragraph 10.I.
				Tape, Ties	Paragraph 10.H.

B. One Shielded Wire to One Shielded Wire - Tape, Ties

For the conditions that are applicable for:

- The repair of a wire or a cable with a splice, refer to Subject 20-10-13
- The selection of the correct sealed splice configuration, refer to Paragraph 1.C.



CONFIGURATION OF THE SPLICE ASSEMBLY

Figure 138

Refer to Figure 138.

- (1) Make a selection of a Temperature Grade B shield material from Table 55.

Make sure that the shield material has the smallest diameter that can go on the folded back shield of the wire.

NOTE: For alternative shield materials, refer to Subject 20-00-11.

- (2) Make a selection of two sets of Temperature Grade B or higher inner ferrules and outer ferrules.

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ASSEMBLY OF SPLICES

Refer to:

- Figure 6 for the ferrule size
- Table 31 for the Temperature Grade
- Table 32 for the ferrule part numbers.

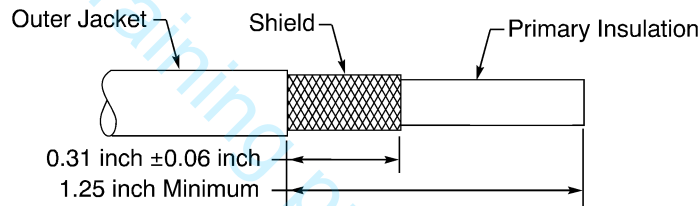
Make sure that:

- The inner ferrule is the smallest ferrule that can move freely on the outer jacket
- The outer ferrule is the smallest ferrule that can move freely on the shield, the shield material, and the inner ferrule.

- (3) Make a selection of a ferrule crimp tool from Table 45.
- (4) Make a selection of a Temperature Grade B or higher insulation tape from Table 50.
- (5) Prepare each end of the shielded wire.

Refer to:

- Figure 139
- Subject 20-00-15 for the outer jacket removal procedures.



SHIELDED WIRE PREPARATION

Figure 139

- (a) Remove a 1.25 inch minimum length of the outer jacket from the end of the wire.
 - (b) Remove the necessary length of the shield from the end of the wire.
Make sure that the remaining shield is 0.31 inch ± 0.06 inch.
- (6) Cut the necessary length of the shield material.
Make sure that the ends of the shield material extend farther than the rear end of the ferrules on each end of the shield splice.
 - (7) Put these components on the end of one wire:
 - The outer ferrule
 - The inner ferrule.
 - (8) Put these components on the end of the other wire:
 - The outer ferrule
 - The inner ferrule
 - The shield material.
- NOTE:** If it is necessary, the strands at the end of the shield material can be moved apart to make it easier to put the shield material on the wire.
- (9) Make a selection of an applicable Temperature Grade B conductor splice configuration for one wire to one wire. Refer to Paragraph 9.A.
 - (10) Assemble the conductor splice. Refer to the applicable procedure given in Paragraph 9.A.

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STANDARD WIRING PRACTICES MANUAL**ASSEMBLY OF SPLICES**

- (11) Assemble the end of the shield splice opposite the end with the shield material.
- (a) Move the outer ferrule on the shield material.
 - (b) Move the strands of the shield apart and make them straight.
 - (c) Align the forward end of the inner ferrule with the end of the outer jacket.
 - (d) Fold the strands of the shield back on the inner ferrule to make the strands of the shield symmetrical around the circumference of the ferrule.
 - (e) Align the end of the shield material with the end of the strands of the shield that are folded back.
 - (f) Align the rear end of the outer ferrule with the rear end of the inner ferrule.
- Make sure that:
- The outer ferrule goes around the shield material
 - The rear end of the outer ferrule does not extend farther than the rear end of the inner ferrule
 - The rear end of the outer ferrule is a maximum of 0.06 inch from the rear end of the inner ferrule.
- (g) Crimp the ferrules.
- (12) Do Step (11) again to assemble the other end of the shield splice.
- Make sure that the shield material is pulled tight before the ferrules are crimped.
- (13) Remove the shield and the shield material that extend farther than the rear end of the inner ferrule on each end of the shield splice.
- (14) Tightly wind a layer of the tape on the splice assembly.
- Make sure that the layer of tape:
- Starts 0.50 inch \pm 0.25 inch farther than the rear end of the ferrule at one end of the splice
 - Stops 0.50 inch \pm 0.25 inch farther than the rear end of the ferrule at the other end of the splice
 - Makes a 50 percent overlap.
- (15) Tightly wind a second layer of the tape on the splice assembly.
- Make sure that the layer of tape:
- Starts 1 inch minimum farther than where the first layer of tape stops
 - Stops 1 inch minimum farther than where the first layer of tape starts
 - Makes a 50 percent overlap.
- (16) Assemble a lacing tape wire harness tie on each end of the splice assembly approximately 0.25 inch from the end of the tape. Refer to Subject 20-10-11.
- Make sure that the Temperature Grade of the lacing tape is Temperature Grade B or higher.

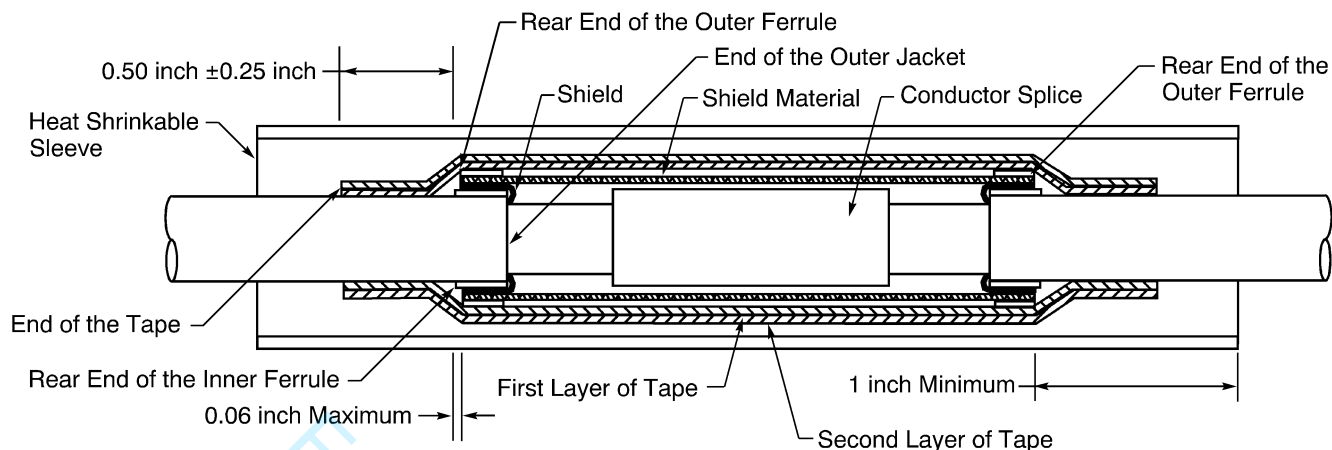
C. One Shielded Wire to One Shielded Wire - Tape, Sleeve

For the conditions that are applicable for:

- The repair of a wire or a cable with a splice, refer to Subject 20-10-13
- The selection of the correct sealed splice configuration, refer to Paragraph 1.C.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES



CONFIGURATION OF THE SPLICE ASSEMBLY

Figure 140

Refer to Figure 140.

- (1) Make a selection of a Temperature Grade B shield material from Table 55.

Make sure that the shield material has the smallest diameter that can go on the folded back shield of the wire.

NOTE: For alternative shield materials, refer to Subject 20-00-11.

- (2) Make a selection of two sets of Temperature Grade B or higher inner ferrules and outer ferrules.

Refer to:

- Figure 6 for the ferrule size
- Table 31 for the Temperature Grade
- Table 32 for the ferrule part numbers.

Make sure that:

- The inner ferrule is the smallest ferrule that can move freely on the outer jacket
- The outer ferrule is the smallest ferrule that can move freely on the shield, the shield material, and the inner ferrule.

- (3) Make a selection of a ferrule crimp tool from Table 45.
- (4) Make a selection of a Temperature Grade B or higher insulation tape from Table 50.
- (5) Make a selection of a Temperature Grade B or higher heat shrinkable sleeve from Table 49.

NOTE: For alternative heat shrinkable sleeves, refer to Subject 20-00-11.

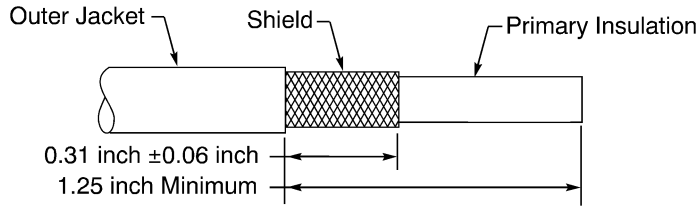
- (6) Prepare each end of the shielded wire.

Refer to:

- Figure 141
- Subject 20-00-15 for the outer jacket removal procedures.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES



SHIELDED WIRE PREPARATION

Figure 141

- (a) Remove a 1.25 inch minimum length of the outer jacket from the end of the wire.
 - (b) Remove the necessary length of the shield from the end of the wire.
Make sure that the remaining shield is 0.31 inch \pm 0.06 inch.
 - (7) Cut the necessary length of the sleeve.
Make sure that the sleeve extends a minimum of 1 inch farther than the rear end of the ferrules on each end of the shield splice.
 - (8) Cut the necessary length of the shield material.
Make sure that the ends of the shield material extend farther than the rear end of the ferrules on each end of the shield splice.
 - (9) Put these components on the end of one wire:
 - The sleeve
 - The outer ferrule
 - The inner ferrule.
 - (10) Put these components on the end of the other wire:
 - The outer ferrule
 - The inner ferrule
 - The shield material.
- NOTE:** If it is necessary, the strands at the end of the shield material can be moved apart to make it easier to put the shield material on the wire.
- (11) Make a selection of an applicable Temperature Grade B conductor splice configuration for one wire to one wire. Refer to Paragraph 9.A.
 - (12) Assemble the conductor splice. Refer to the applicable procedure given in Paragraph 9.A.
 - (13) Assemble the end of the shield splice opposite the end with the shield material.
 - (a) Move the outer ferrule on the shield material.
 - (b) Move the strands of the shield apart and make them straight.
 - (c) Align the forward end of the inner ferrule with the end of the outer jacket.
 - (d) Fold the strands of the shield back on the inner ferrule to make the strands of the shield symmetrical around the circumference of the ferrule.
 - (e) Align the end of the shield material with the end of the strands of the shield that are folded back.
 - (f) Align the rear end of the outer ferrule with the rear end of the inner ferrule.

STANDARD WIRING PRACTICES MANUAL**ASSEMBLY OF SPLICES**

Make sure that:

- The outer ferrule goes around the shield material
- The rear end of the outer ferrule does not extend farther than the rear end of the inner ferrule
- The rear end of the outer ferrule is a maximum of 0.06 inch from the rear end of the inner ferrule.

(g) Crimp the ferrules.

(14) Do Step (13) again to assemble the other end of the shield splice.

Make sure that the shield material is pulled tight before the ferrules are crimped.

(15) Remove the shield and the shield material that extend farther than the rear end of the inner ferrule on each end of the shield splice.

(16) Tightly wind a layer of the tape on the splice assembly.

Make sure that the layer of tape:

- Starts 0.50 inch \pm 0.25 inch farther than the rear end of the ferrule at one end of the splice
- Stops 0.50 inch \pm 0.25 inch farther than the rear end of the ferrule at the other end of the splice
- Makes a 50 percent overlap.

(17) Tightly wind a second layer of the tape on the splice assembly.

Make sure that the layer of tape:

- Starts where the first layer of tape stops
- Stops where the first layer of tape starts
- Makes a 50 percent overlap.

(18) Align the center of the sleeve with the center of the splice assembly.

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

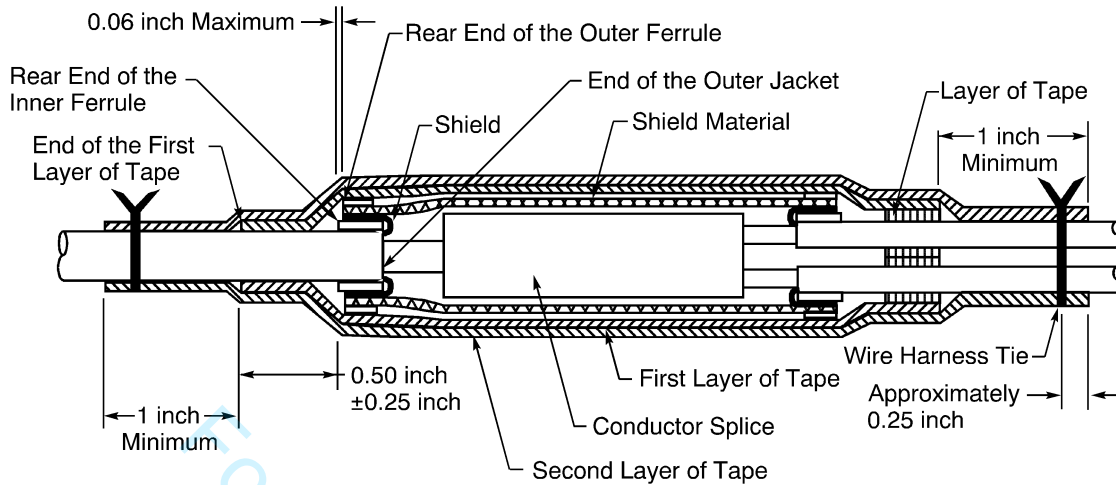
D. One Shielded Wire to Two Shielded Wires - Tape, Ties

For the conditions that are applicable for:

- The repair of a wire or a cable with a splice, refer to Subject 20-10-13
- The selection of the correct sealed splice configuration, refer to Paragraph 1.C.

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CONFIGURATION OF THE SPLICE ASSEMBLY

Figure 142

Refer to Figure 142.

- (1) Make a selection of a Temperature Grade B shield material from Table 55.

Make sure that the shield material has the smallest diameter that can go on the folded back shields of the two wires.

NOTE: For alternative shield materials, refer to Subject 20-00-11.

- (2) Make a selection of two sets of Temperature Grade B or higher inner ferrules and outer ferrules.

Refer to:

- Figure 6 for the ferrule size
- Table 31 for the Temperature Grade
- Table 32 for the ferrule part numbers.

Make sure that:

- The inner ferrule is the smallest ferrule that can move freely on the outer jackets
- The outer ferrule is the smallest ferrule that can move freely on the shields, the shield material, and the inner ferrule.

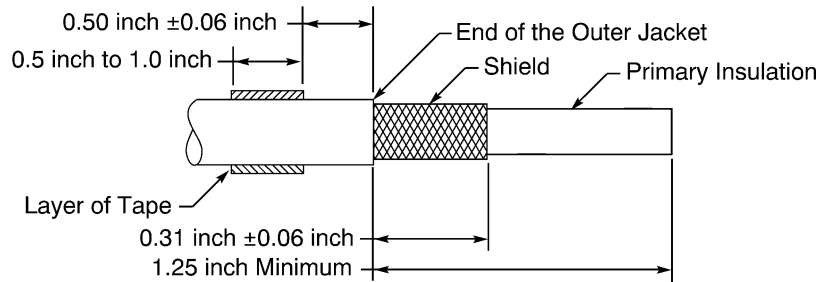
- (3) Make a selection of a ferrule crimp tool from Table 45.
- (4) Make a selection of a Temperature Grade B or higher insulation tape from Table 50.
Make sure that the tape has a width of 0.5 inch minimum to 1.0 inch maximum.
- (5) Prepare each shielded wire for the side of the splice assembly with two shielded wires.

Refer to:

- Figure 143
- Subject 20-00-15 for the outer jacket removal procedures.

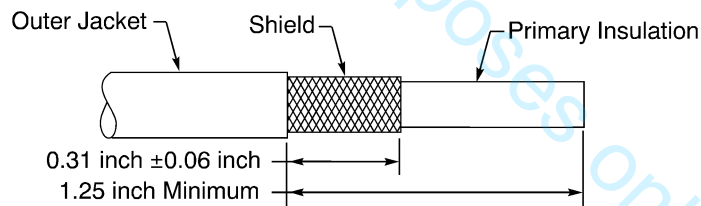
STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES



SHIELDED WIRE PREPARATION
Figure 143

- (a) Remove a 1.25 inch minimum length of the outer jacket from the end of the wire.
 - (b) Remove the necessary length of the shield from the end of the wire.
Make sure that the remaining shield is 0.31 inch \pm 0.06 inch.
 - (c) Wind a layer of the insulation tape on the outer jacket of each wire 0.50 inch \pm 0.06 inch farther than the end of the outer jackets.
Make sure that:
 - The tape goes around the circumference of the wire a minimum of two times
 - The tape makes a 100 percent overlap.
- (6) Prepare the end of the shielded wire for the side of the splice assembly with one shielded wire.
- Refer to:
- Figure 144
 - Subject 20-00-15 for the outer jacket and insulation removal procedures.



SHIELDED WIRE PREPARATION
Figure 144

- (a) Remove a 1.25 inch minimum length of the outer jacket from the end of the wire.
 - (b) Remove the necessary length of the shield from the end of the wire.
Make sure that the remaining shield is 0.31 inch \pm 0.06 inch.
- (7) Cut the necessary length of the shield material.
- Make sure that the ends of the shield material extend farther than the rear end of the ferrules on each end of the shield splice.

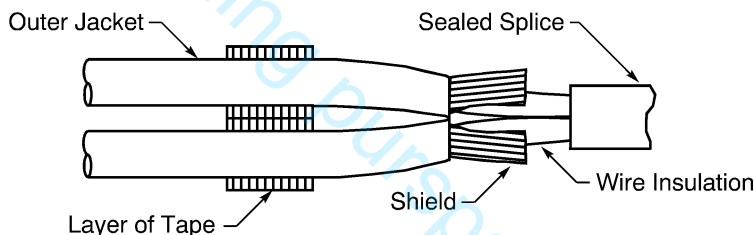
STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

- (8) Put these components on the side of the splice assembly with one shielded wire:
 - The outer ferrule
 - The inner ferrule.
- (9) Put these components on the side of the splice assembly with two shielded wires:
 - The outer ferrule
 - The inner ferrule
 - The shield material.

NOTE: If it is necessary, the strands at the end of the shield material can be moved apart to make it easier to put the shield material on the wire.

- (10) Make a selection of an applicable Temperature Grade B conductor splice configuration for one wire to two wires. Refer to Paragraph 9.A.
- (11) Assemble the conductor splice. Refer to the applicable procedure given in Paragraph 9.A.
- (12) Assemble the side of the shield splice with two shielded wires.
 - (a) Move the outer ferrule on the shield material.
 - (b) Move the strands of the shields apart and make them straight.
 - (c) Move the strands of each shield away from the adjacent wire. Refer to Figure 145.



POSITION OF THE SHIELDS

Figure 145

- (d) Align the forward end of the inner ferrule with each end of the outer jackets.
- (e) Fold the strands of the shields back on the inner ferrule to make the strands of the shield symmetrical around the circumference of the ferrule.
- (f) Align the end of the shield material with the end of the strands of the shields that are folded back.
- (g) Align the rear end of the outer ferrule with the rear end of the inner ferrule.

Make sure that:

 - The outer ferrule goes around the shield material
 - The rear end of the outer ferrule does not extend farther than the rear end of the inner ferrule
 - The rear end of the outer ferrule is a maximum of 0.06 inch from the rear end of the inner ferrule.
- (h) Crimp the ferrules.
- (13) Assemble the side of the shield splice with one shielded wire.
 - (a) Move the outer ferrule on the shield material.

STANDARD WIRING PRACTICES MANUAL**ASSEMBLY OF SPLICES**

- (b) Move the strands of the shields apart and make them straight.
 - (c) Align the forward end of the inner ferrule with each end of the outer jackets.
 - (d) Fold the strands of the shields back on the inner ferrule to make the strands of the shield symmetrical around the circumference of the ferrule.
 - (e) Align the end of the shield material with the end of the strands of the shields that are folded back.

Make sure that the shield material is pulled tight before the ferrules are crimped.
 - (f) Align the rear end of the outer ferrule with the rear end of the inner ferrule.

Make sure that:

 - The outer ferrule goes around the shield material
 - The rear end of the outer ferrule does not extend farther than the rear end of the inner ferrule
 - The rear end of the outer ferrule is a maximum of 0.06 inch from the rear end of the inner ferrule.
 - (g) Crimp the ferrules.
- (14) Remove the shield and the shield material that extend farther than the rear end of the inner ferrule on each end of the shield splice.
- (15) Tightly wind a layer of the tape on the splice assembly.

Make sure that the layer of tape:

 - Starts at the rear end of the layer of tape on the outer jacket on the side with two shielded wires
 - Stops 0.50 inch \pm 0.25 inch farther than the rear end of the ferrule on the side with one shielded wire
 - Makes a 50 percent overlap.
- (16) Tightly wind a second layer of the tape on the splice assembly.

Make sure that the layer of tape:

 - Starts 1 inch minimum farther than where the first layer of tape stops
 - Stops 1 inch minimum farther than where the first layer of tape starts
 - Makes a 50 percent overlap.
- (17) Assemble a lacing tape wire harness tie on each end of the splice assembly approximately 0.25 inch from the end of the tape. Refer to Subject 20-10-11.

Make sure that the Temperature Grade of the lacing tape is Temperature Grade B or higher.

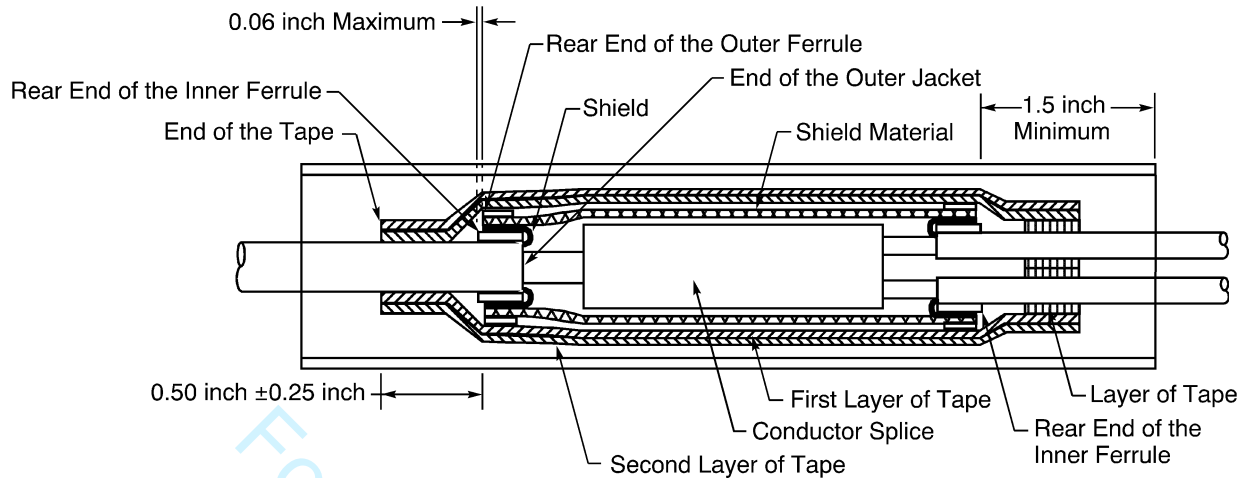
E. One Shielded Wire to Two Shielded Wires - Tape, Sleeve

For the conditions that are applicable for:

- The repair of a wire or a cable with a splice, refer to Subject 20-10-13
- The selection of the correct sealed splice configuration, refer to Paragraph 1.C.

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ASSEMBLY OF SPLICES



CONFIGURATION OF THE SPLICE ASSEMBLY

Figure 146

Refer to Figure 146.

- (1) Make a selection of a Temperature Grade B shield material from Table 55.

Make sure that the shield material has the smallest diameter that can go on the folded back shields of the two wires.

NOTE: For alternative shield materials, refer to Subject 20-00-11.

- (2) Make a selection of two sets of Temperature Grade B or higher inner ferrules and outer ferrules.

Refer to:

- Figure 6 for the ferrule size
- Table 31 for the Temperature Grade
- Table 32 for the ferrule part numbers.

Make sure that:

- The inner ferrule is the smallest ferrule that can move freely on the outer jackets
- The outer ferrule is the smallest ferrule that can move freely on the shields, the shield material, and the inner ferrule.

- (3) Make a selection of a ferrule crimp tool from Table 45.
- (4) Make a selection of a Temperature Grade B or higher insulation tape from Table 50.
Make sure that the tape has a width of 0.5 inch minimum to 1.0 inch maximum.
- (5) Make a selection of a Temperature Grade B or higher heat shrinkable sleeve from Table 49.

NOTE: For alternative heat shrinkable sleeves, refer to Subject 20-00-11.

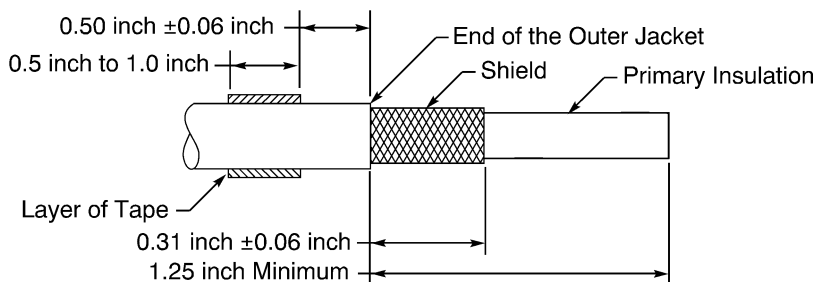
- (6) Prepare each shielded wire for the side of the splice assembly with two shielded wires.

Refer to:

- Figure 147
- Subject 20-00-15 for the outer jacket removal procedures.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES



SHIELDED WIRE PREPARATION

Figure 147

- (a) Remove a 1.25 inch minimum length of the outer jacket from the end of the wire.
- (b) Remove the necessary length of the shield from the end of the wire.
Make sure that the remaining shield is 0.31 inch ± 0.06 inch.
- (c) Wind a layer of the insulation tape on the outer jacket of each wire 0.50 inch ± 0.06 inch farther than the end of the outer jackets.

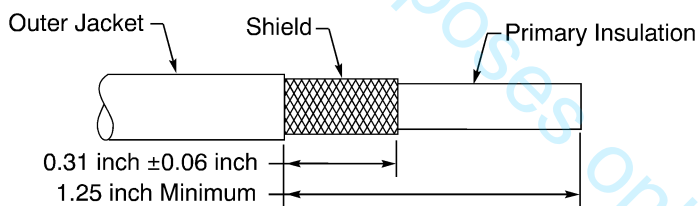
Make sure that:

- The tape goes around the circumference of the wire a minimum of two times
- The tape makes a 100 percent overlap.

- (7) Prepare the end of the shielded wire for the side of the splice assembly with one shielded wire.

Refer to:

- Figure 148
- Subject 20-00-15 for the outer jacket and insulation removal procedures.



SHIELDED WIRE PREPARATION

Figure 148

- (a) Remove a 1.25 inch minimum length of the outer jacket from the end of the wire.
- (b) Remove the necessary length of the shield from the end of the wire.
Make sure that the remaining shield is 0.31 inch ± 0.06 inch.
- (8) Cut the necessary length of the shield material.
Make sure that the ends of the shield material extend farther than the rear end of the ferrules on each end of the shield splice.
- (9) Cut the necessary length of the sleeve.
Make sure that the sleeve extends a minimum of 1.5 inch farther than the rear end of the ferrules on each end of the shield splice.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

(10) Put these components on the side of the splice assembly with one shielded wire:

- The sleeve
- The outer ferrule
- The inner ferrule.

(11) Put these components on the side of the splice assembly with two shielded wires:

- The outer ferrule
- The inner ferrule
- The shield material.

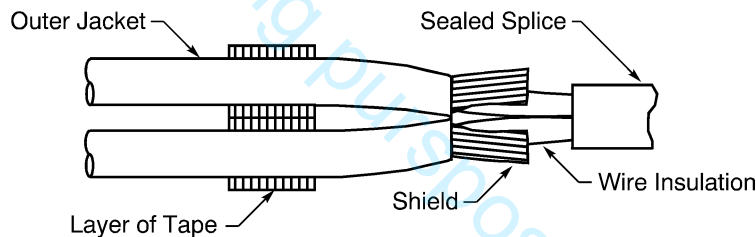
NOTE: If it is necessary, the strands at the end of the shield material can be moved apart to make it easier to put the shield material on the wire.

(12) Make a selection of an applicable Temperature Grade B conductor splice configuration for one wire to two wires. Refer to Paragraph 9.A.

(13) Assemble the conductor splice. Refer to the applicable procedure given in Paragraph 9.A.

(14) Assemble the side of the shield splice with two shielded wires.

- (a) Move the outer ferrule on the shield material.
- (b) Move the strands of the shields apart and make them straight.
- (c) Move the strands of each shield away from the adjacent wire. Refer to Figure 149.



POSITION OF THE SHIELDS
Figure 149

(d) Align the forward end of the inner ferrule with each end of the outer jackets.

(e) Fold the strands of the shields back on the inner ferrule to make the strands of the shield symmetrical around the circumference of the ferrule.

(f) Align the end of the shield material with the end of the strands of the shields that are folded back.

(g) Align the rear end of the outer ferrule with the rear end of the inner ferrule.

Make sure that:

- The outer ferrule goes around the shield material
- The rear end of the outer ferrule does not extend farther than the rear end of the inner ferrule
- The rear end of the outer ferrule is a maximum of 0.06 inch from the rear end of the inner ferrule.

(h) Crimp the ferrules.

(15) Assemble the side of the shield splice with one shielded wire.

- (a) Move the outer ferrule on the shield material.

STANDARD WIRING PRACTICES MANUAL**ASSEMBLY OF SPLICES**

- (b) Move the strands of the shields apart and make them straight.
 - (c) Align the forward end of the inner ferrule with each end of the outer jackets.
 - (d) Fold the strands of the shields back on the inner ferrule to make the strands of the shield symmetrical around the circumference of the ferrule.
 - (e) Align the end of the shield material with the end of the strands of the shields that are folded back.

Make sure that the shield material is pulled tight before the ferrules are crimped.
 - (f) Align the rear end of the outer ferrule with the rear end of the inner ferrule.

Make sure that:

 - The outer ferrule goes around the shield material
 - The rear end of the outer ferrule does not extend farther than the rear end of the inner ferrule
 - The rear end of the outer ferrule is a maximum of 0.06 inch from the rear end of the inner ferrule.
 - (g) Crimp the ferrules.
- (16) Remove the shield and the shield material that extend farther than the rear end of the inner ferrule on each end of the shield splice.
- (17) Tightly wind a layer of the tape on the splice assembly.

Make sure that the layer of tape:

 - Starts at the rear end of the layer of tape on the outer jacket on the side with two shielded wires
 - Stops 0.50 inch \pm 0.25 inch farther than the rear end of the ferrule on the side with one shielded wire
 - Makes a 50 percent overlap.
- (18) Tightly wind a second layer of the tape on the splice assembly.

Make sure that the layer of tape:

 - Starts 1 inch minimum farther than where the first layer of tape stops
 - Stops 1 inch minimum farther than where the first layer of tape starts
 - Makes a 50 percent overlap.
- (19) Align the center of the sleeve with the center of the splice assembly.
- (20) Shrink the sleeve into position. Refer to Subject 20-10-14.

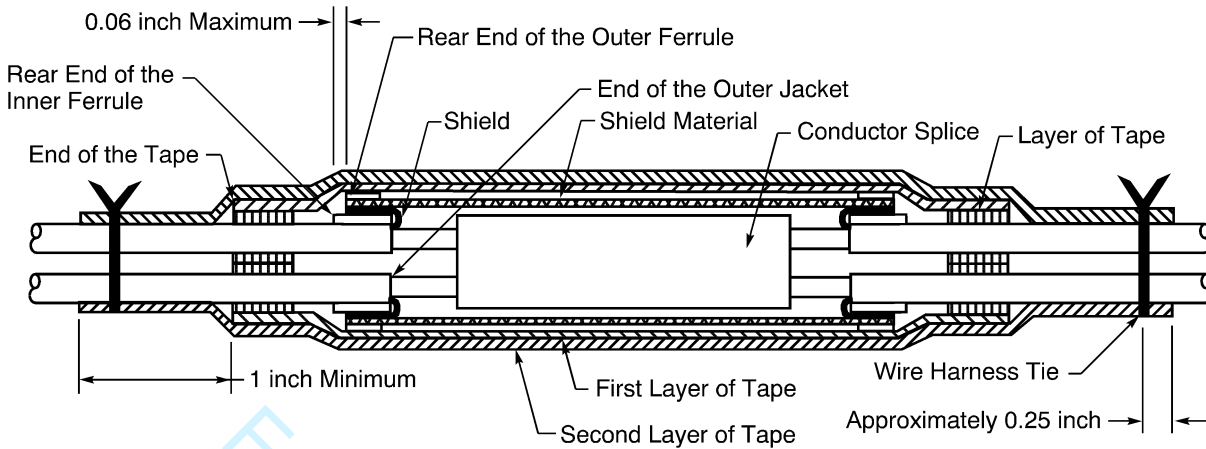
F. Two Shielded Wires to Two Shielded Wires - Tape, Ties

For the conditions that are applicable for:

- The repair of a wire or a cable with a splice, refer to Subject 20-10-13
- The selection of the correct sealed splice configuration, refer to Paragraph 1.C.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES



CONFIGURATION OF THE SPLICE ASSEMBLY

Figure 150

Refer to Figure 150.

- (1) Make a selection of a Temperature Grade B shield material from Table 55.

Make sure that the shield material has the smallest diameter that can go on the folded back shields of the two wires.

NOTE: For alternative shield materials, refer to Subject 20-00-11.

- (2) Make a selection of two sets of Temperature Grade B or higher inner ferrules and outer ferrules.

Refer to:

- Figure 6 for the ferrule size
- Table 31 for the Temperature Grade
- Table 32 for the ferrule part numbers.

Make sure that:

- The inner ferrule is the smallest ferrule that can move freely on the two outer jackets
- The outer ferrule is the smallest ferrule that can move freely on the shields, the shield material, and the inner ferrule.

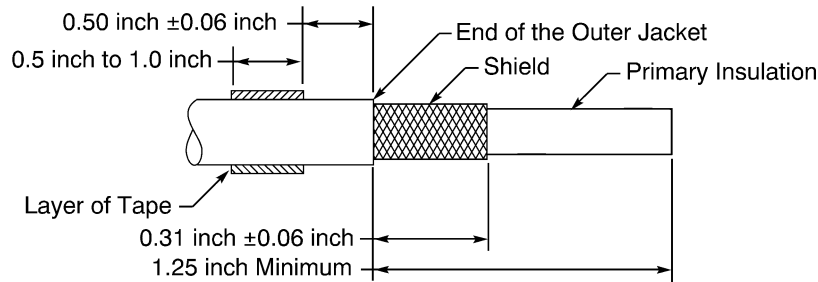
- (3) Make a selection of a ferrule crimp tool from Table 45.
- (4) Make a selection of a Temperature Grade B or higher insulation tape from Table 50.
Make sure that the tape has a width of 0.5 inch minimum to 1.0 inch maximum.
- (5) Prepare each end of the shielded wires.

Refer to:

- Figure 151
- Subject 20-00-15 for the outer jacket removal procedures.

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ASSEMBLY OF SPLICES



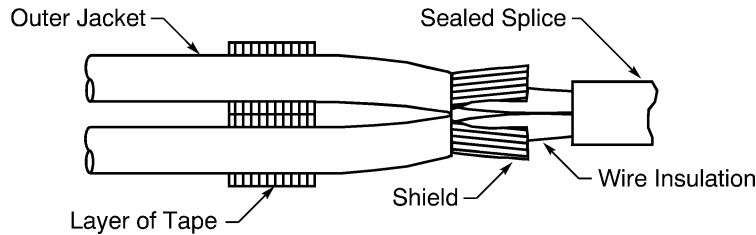
SHIELDED WIRE PREPARATION

Figure 151

- (a) Remove a 1.25 inch minimum length of the outer jacket from the end of the wire.
 - (b) Remove the necessary length of the shield from the end of the wire.
Make sure that the remaining shield is 0.31 inch ± 0.06 inch.
 - (c) Wind a layer of the insulation tape on the outer jacket of each wire 0.50 inch ± 0.06 inch farther than the end of the outer jackets.
Make sure that:
 - The tape goes around the circumference of the wire a minimum of two times
 - The tape makes a 100 percent overlap.
 - (6) Cut the necessary length of the shield material.
Make sure that the ends of the shield material extend farther than the rear end of the ferrules on each end of the shield splice.
 - (7) Put these components on the end of one pair of shielded wires:
 - The outer ferrule
 - The inner ferrule.
 - (8) Put these components on the end of the other pair of shielded wires:
 - The outer ferrule
 - The inner ferrule
 - The shield material.
- NOTE:** If it is necessary, the strands at the end of the shield material can be moved apart to make it easier to put the shield material on the wire.
- (9) Make a selection of an applicable Temperature Grade B conductor splice configuration for two wires to two wires. Refer to Paragraph 9.A.
 - (10) Assemble the conductor splice. Refer to the applicable procedure given in Paragraph 9.A.
 - (11) Assemble the end of the shield splice opposite the end with the shield material.
 - (a) Move the outer ferrule on the shield material.
 - (b) Move the strands of the shields apart and make them straight.
 - (c) Move the strands of each shield away from the adjacent wire. Refer to Figure 152.

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ASSEMBLY OF SPLICES



POSITION OF THE SHIELDS

Figure 152

- (d) Align the forward end of the inner ferrule with each end of the outer jackets.
- (e) Fold the strands of the shields back on the inner ferrule to make the strands of the shield symmetrical around the circumference of the ferrule.
- (f) Align the end of the shield material with the end of the strands of the shields that are folded back.
- (g) Align the rear end of the outer ferrule with the rear end of the inner ferrule.
Make sure that:
 - The outer ferrule goes around the shield material
 - The rear end of the outer ferrule does not extend farther than the rear end of the inner ferrule
 - The rear end of the outer ferrule is a maximum of 0.06 inch from the rear end of the inner ferrule.
- (h) Crimp the ferrules.
- (12) Do Step (11) again to assemble the other end of the shield splice.
Make sure that the shield material is pulled tightly before the ferrules are crimped.
- (13) Remove the shield and the shield material that extend farther than the rear end of the inner ferrule on each end of the shield splice.
- (14) Tightly wind a layer of the tape on the splice assembly.
Make sure that the layer of tape:
 - Starts at the rear end of the layer of tape on the outer jacket
 - Stops at the rear end of the layer of tape on the outer jacket at the other end of the splice
 - Makes a 50 percent overlap.
- (15) Tightly wind a second layer of the tape on the splice assembly.
Make sure that the layer of tape:
 - Starts 1 inch minimum farther than where the first layer of tape stops
 - Stops 1 inch minimum farther than where the first layer of tape starts
 - Makes a 50 percent overlap.
- (16) Assemble a lacing tape wire harness tie on each end of the splice assembly approximately 0.25 inch from the end of the tape. Refer to Subject 20-10-11.
Make sure that the Temperature Grade of the lacing tape is Temperature Grade B or higher.

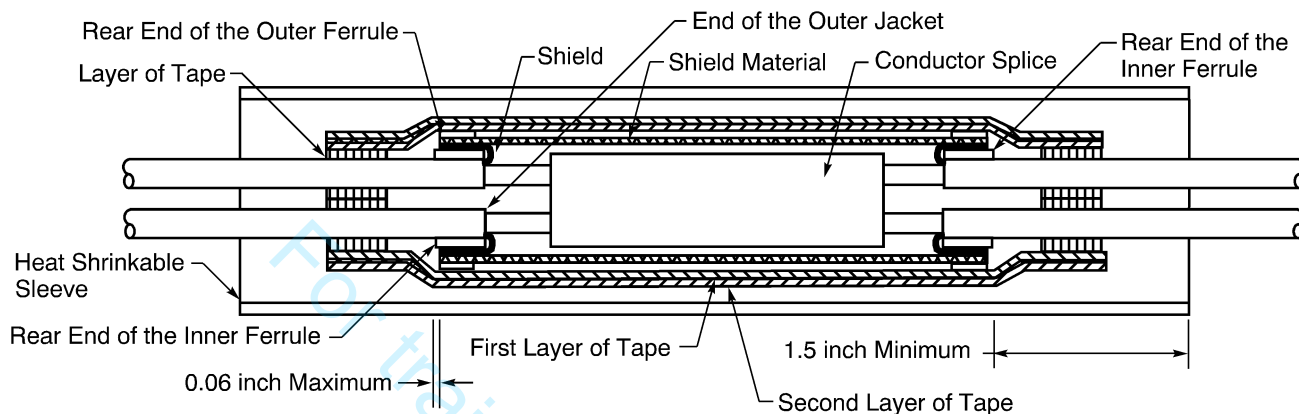
STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

G. Two Shielded Wires to Two Shielded Wires - Tape, Sleeve

For the conditions that are applicable for:

- The repair of a wire or a cable with a splice, refer to Subject 20-10-13
- The selection of the correct sealed splice configuration, refer to Paragraph 1.C.



CONFIGURATION OF THE SPLICE ASSEMBLY
Figure 153

Refer to Figure 153.

- (1) Make a selection of a Temperature Grade B shield material from Table 55.

Make sure that the shield material has the smallest diameter that can go on the folded back shields of the two wires.

NOTE: For alternative shield materials, refer to Subject 20-00-11.

- (2) Make a selection of two sets of Temperature Grade B or higher inner ferrules and outer ferrules.

Refer to:

- Figure 6 for the ferrule size
- Table 31 for the Temperature Grade
- Table 32 for the ferrule part numbers.

Make sure that:

- The inner ferrule is the smallest ferrule that can move freely on the two outer jackets
- The outer ferrule is the smallest ferrule that can move freely on the shields, the shield material, and the inner ferrule.

- (3) Make a selection of a ferrule crimp tool from Table 45.
- (4) Make a selection of a Temperature Grade B or higher insulation tape from Table 50.
Make sure that the tape has a width of 0.5 inch minimum to 1.0 inch maximum.
- (5) Make a selection of a Temperature Grade B or higher heat shrinkable sleeve from Table 49.

NOTE: For alternative heat shrinkable sleeves, refer to Subject 20-00-11.

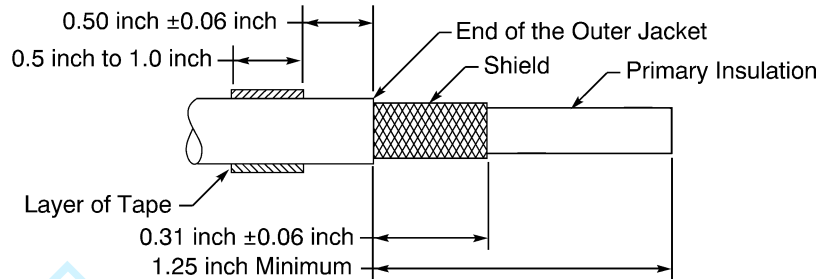
- (6) Prepare each end of the shielded wires.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Refer to:

- Figure 154
- Subject 20-00-15 for the outer jacket removal procedures.



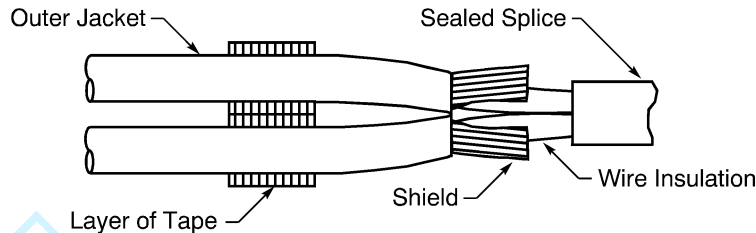
SHIELDED WIRE PREPARATION
Figure 154

- Remove a 1.25 inch minimum length of the outer jacket from the end of the wire.
 - Remove the necessary length of the shield from the end of the wire.
Make sure that the remaining shield is 0.31 inch \pm 0.06 inch.
 - Wind a layer of the insulation tape on the outer jacket of each wire 0.50 inch \pm 0.06 inch farther than the end of the outer jackets.
Make sure that:
 - The tape goes around the circumference of the wire a minimum of two times
 - The tape makes a 100 percent overlap.
- Cut the necessary length of the sleeve.
Make sure that the sleeve extends a minimum of 1.5 inches farther than the rear end of the ferrules on each end of the shield splice.
 - Cut the necessary length of the shield material.
Make sure that the ends of the shield material extend farther than the rear end of the ferrules on each end of the shield splice.
 - Put these components on the end of one pair of shielded wires:
 - The sleeve
 - The outer ferrule
 - The inner ferrule.
 - Put these components on the end of the other pair of shielded wires:
 - The outer ferrule
 - The inner ferrule
 - The shield material.
- NOTE:** If it is necessary, the strands at the end of the shield material can be moved apart to make it easier to put the shield material on the wire.
- Make a selection of an applicable Temperature Grade B conductor splice configuration for two wires to two wires. Refer to Paragraph 9.A.
 - Assemble the conductor splice. Refer to the applicable procedure given in Paragraph 9.A.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

- (13) Assemble the end of the shield splice opposite the end with the shield material.
 - (a) Move the outer ferrule on the shield material.
 - (b) Move the strands of the shields apart and make them straight.
 - (c) Move the strands of each shield away from the adjacent wire. Refer to Figure 155.



POSITION OF THE SHIELDS
Figure 155

- (d) Align the forward end of the inner ferrule with each end of the outer jackets.
 - (e) Fold the strands of the shields back on the inner ferrule to make the strands of the shield symmetrical around the circumference of the ferrule.
 - (f) Align the end of the shield material with the end of the strands of the shields that are folded back.
 - (g) Align the rear end of the outer ferrule with the rear end of the inner ferrule.
Make sure that:
 - The outer ferrule goes around the shield material
 - The rear end of the outer ferrule does not extend farther than the rear end of the inner ferrule
 - The rear end of the outer ferrule is a maximum of 0.06 inch from the rear end of the inner ferrule.
 - (h) Crimp the ferrules.
- (14) Do Step (13) again to assemble the other end of the shield splice.
Make sure that the shield material is pulled tightly before the ferrules are crimped.
 - (15) Remove the shield and the shield material that extend farther than the rear end of the inner ferrule on each end of the shield splice.
 - (16) Tightly wind a layer of the tape on the splice assembly.
Make sure that the layer of tape:
 - Starts at the rear end of the layer of tape on the outer jacket
 - Stops at the rear end of the layer of tape on the outer jacket at the other end of the splice
 - Makes a 50 percent overlap.
 - (17) Tightly wind a second layer of the tape on the splice assembly.
Make sure that the layer of tape:
 - Starts where the first layer of tape stops
 - Stops where the first layer of tape starts
 - Makes a 50 percent overlap.
 - (18) Align the center of the sleeve with the center of the splice assembly.

20-30-12

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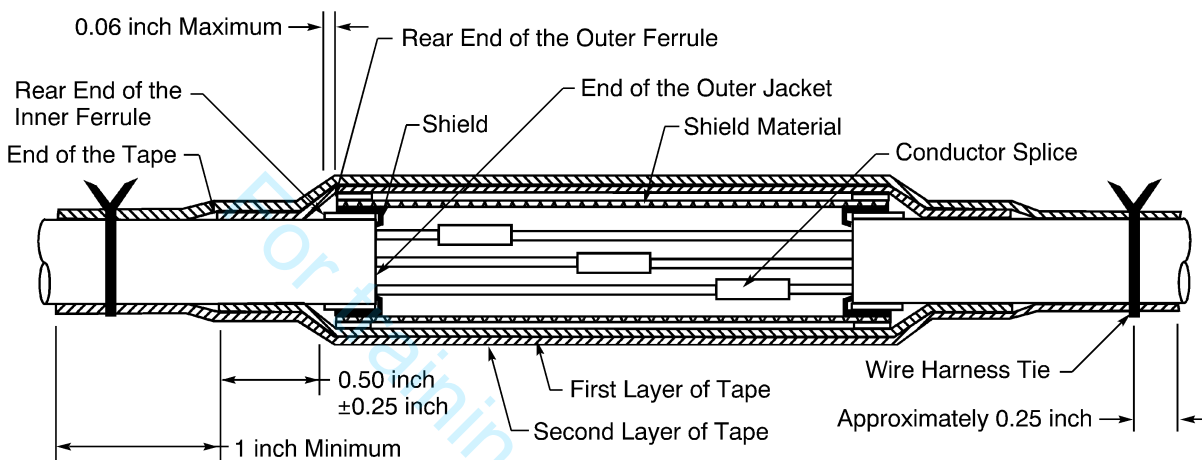
ASSEMBLY OF SPLICES

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

H. One Shielded Cable to One Shielded Cable - Tape, Ties

For the conditions that are applicable for:

- The repair of a wire or a cable with a splice, refer to Subject 20-10-13
- The selection of the correct sealed splice configuration, refer to Paragraph 1.C.



CONFIGURATION OF THE SPLICE ASSEMBLY

Figure 156

Refer to Figure 156.

- (1) Make a selection of a Temperature Grade B shield material from Table 55.

Make sure that the shield material has the smallest diameter that can go on the folded back shield of the cable.

NOTE: For alternative shield materials, refer to Subject 20-00-11.

- (2) Make a selection of two sets of Temperature Grade B or higher inner ferrules and outer ferrules.

Refer to:

- Figure 6 for the ferrule size
- Table 31 for the Temperature Grade
- Table 32 for the ferrule part numbers.

Make sure that:

- The inner ferrule is the smallest ferrule that can move freely on the outer jacket
- The outer ferrule is the smallest ferrule that can move freely on the shield, the shield material, and the inner ferrule.

- (3) Make a selection of a ferrule crimp tool from Table 45.
- (4) Make a selection of a Temperature Grade B or higher insulation tape from Table 50.
- (5) Prepare the shielded cable.

STANDARD WIRING PRACTICES MANUAL

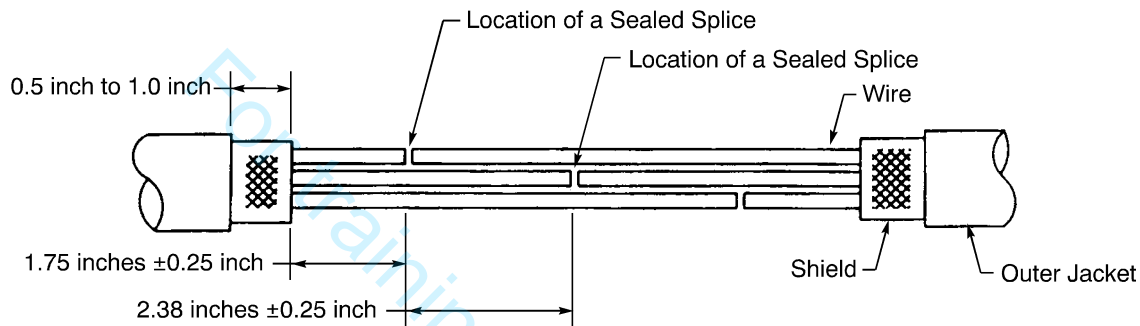
ASSEMBLY OF SPLICES

Refer to:

- Figure 157
- Subject 20-00-15 for the outer jacket removal procedures.

Make sure that:

- The distance from the end of the outer jacket to the end of the shield is 0.5 inch to 1.0 inch
- The distance from the end of the shield to the center of the nearest sealed splice is 1.75 inches ± 0.25 inch
- The distance from the center of a sealed splice on one wire to the center of the nearest sealed splice on another wire is 2.38 inches ± 0.25 inch.



PREPARATION OF THE SHIELDED CABLE

Figure 157

- (6) Cut the necessary length of the shield material.

Make sure that the ends of the shield material extend farther than the rear end of the ferrules on each end of the shield splice.

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

- The outer ferrule
- The inner ferrule.

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

- The outer ferrule
- The inner ferrule
- The shield material.

NOTE: If it is necessary, the strands at the end of the shield material can be moved apart to make it easier to put the shield material on the cable.

- (9) Make a selection of an applicable Temperature Grade B conductor splice configuration for one wire to one wire. Refer to Paragraph 9.A.
- (10) Assemble each conductor splice. Refer to the applicable procedure given in Paragraph 9.A.
- (11) Assemble the end of the shield splice opposite the end with the shield material.
 - (a) Move the outer ferrule on the shield material.
 - (b) Move the strands of the shield apart and make them straight.
 - (c) Align the forward end of the inner ferrule with the end of the outer jacket.

STANDARD WIRING PRACTICES MANUAL**ASSEMBLY OF SPLICES**

- (d) Fold the strands of the shield back on the inner ferrule to make the strands of the shield symmetrical around the circumference of the ferrule.
- (e) Align the end of the shield material with the end of the strands of the shield that are folded back.
- (f) Align the rear end of the outer ferrule with the rear end of the inner ferrule.
Make sure that:
 - The outer ferrule goes around the shield material
 - The rear end of the outer ferrule does not extend farther than the rear end of the inner ferrule
 - The rear end of the outer ferrule is a maximum of 0.06 inch from the rear end of the inner ferrule.
- (g) Crimp the ferrules.
- (12) Do Step (11) again to assemble the other end of the shield splice.
Make sure that the shield material is pulled tightly before the ferrules are crimped.
- (13) Remove the shield and the shield material that extend farther than the rear end of the inner ferrule on each end of the shield splice.
- (14) Tightly wind a layer of the tape on the splice assembly that:
 - Starts 0.50 inch \pm 0.25 inch farther than the rear end of the ferrule at one end of the splice
 - Stops 0.50 inch \pm 0.25 inch farther than the rear end of the ferrule at the other end of the splice
 - Makes a 50 percent overlap.
- (15) Tightly wind a second layer of the tape on the splice assembly that:
 - Starts 1 inch minimum farther than where the first layer of tape stops
 - Stops 1 inch minimum farther than where the first layer of tape starts
 - Makes a 50 percent overlap.
- (16) Assemble a lacing tape wire harness tie on each end of the splice assembly approximately 0.25 inch from the end of the tape. Refer to Subject 20-10-11.
Make sure that the Temperature Grade of the lacing tape is Temperature Grade B or higher.

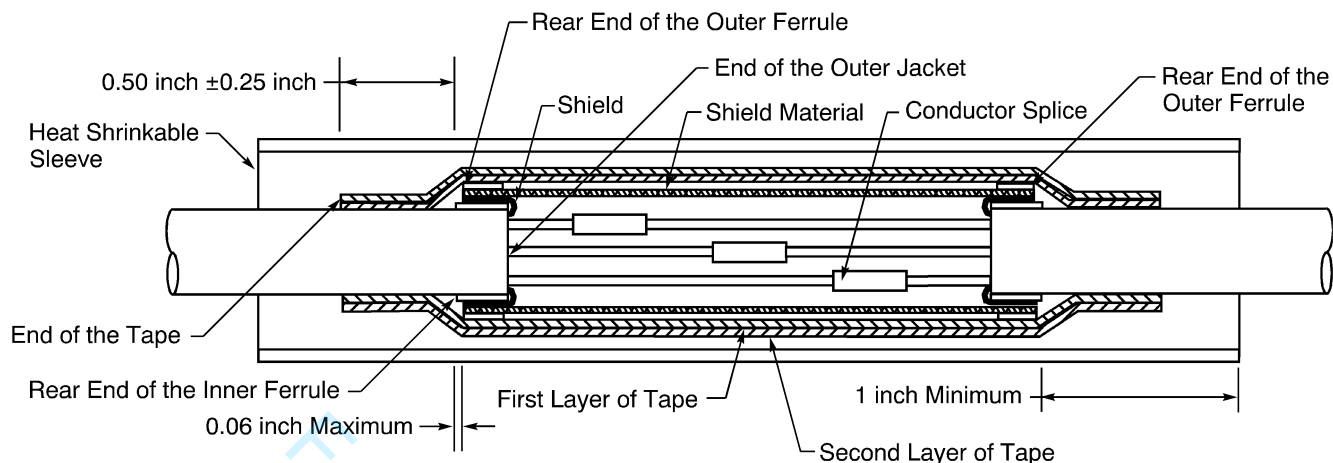
I. One Shielded Cable to One Shielded Cable - Tape, Sleeve

For the conditions that are applicable for:

- The repair of a wire or a cable with a splice, refer to Subject 20-10-13
- The selection of the correct sealed splice configuration, refer to Paragraph 1.C.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES



CONFIGURATION OF THE SPLICE ASSEMBLY

Figure 158

Refer to Figure 158.

- (1) Make a selection of a Temperature Grade B shield material from Table 55.

Make sure that the shield material has the smallest diameter that can go on the folded back shield of the cable.

NOTE: For alternative shield materials, refer to Subject 20-00-11.

- (2) Make a selection of two sets of Temperature Grade B or higher inner ferrules and outer ferrules.

Refer to:

- Figure 6 for the ferrule size
- Table 31 for the Temperature Grade
- Table 32 for the ferrule part numbers.

Make sure that:

- The inner ferrule is the smallest ferrule that can move freely on the outer jacket
- The outer ferrule is the smallest ferrule that can move freely on the shield, the shield material, and the inner ferrule.

- (3) Make a selection of a ferrule crimp tool from Table 45.
- (4) Make a selection of a Temperature Grade B or higher insulation tape from Table 50.
- (5) Make a selection of a Temperature Grade B or higher heat shrinkable sleeve from Table 49.

NOTE: For alternative heat shrinkable sleeves, refer to Subject 20-00-11.

- (6) Prepare the shielded cable.

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STANDARD WIRING PRACTICES MANUAL

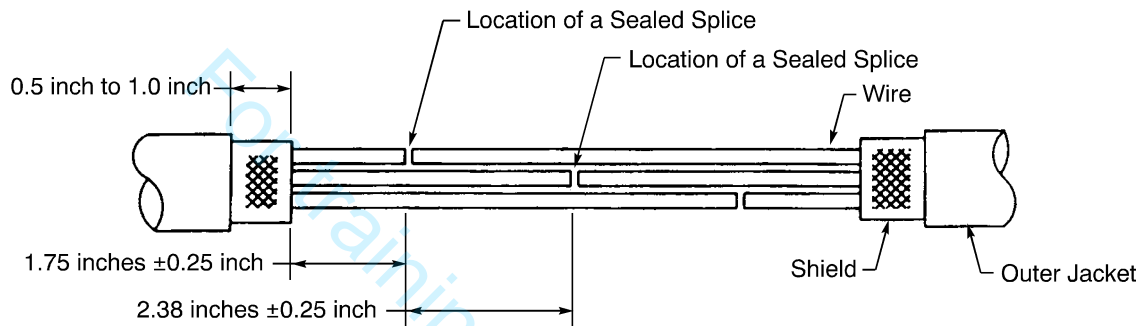
ASSEMBLY OF SPLICES

Refer to:

- Figure 159
- Subject 20-00-15 for the outer jacket removal procedures.

Make sure that:

- The distance from the end of the outer jacket to the end of the shield is 0.5 inch to 1.0 inch
- The distance from the end of the shield to the center of the nearest sealed splice is 1.75 inches ± 0.25 inch
- The distance from the center of a sealed splice on one wire to the center of the nearest sealed splice on another wire is 2.38 inches ± 0.25 inch.



PREPARATION OF THE SHIELDED CABLE

Figure 159

- (7) Cut the necessary length of the sleeve.

Make sure that the sleeve extends a minimum of 1 inch farther than the rear end of the ferrules on each end of the shield splice.

- (8) Cut the necessary length of the shield material.

Make sure that the ends of the shield material extend farther than the rear end of the ferrules on each end of the shield splice.

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

- The sleeve
- The outer ferrule
- The inner ferrule.

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

- The outer ferrule
- The inner ferrule
- The shield material.

NOTE: If it is necessary, the strands at the end of the shield material can be moved apart to make it easier to put the shield material on the cable.

- (11) Make a selection of an applicable Temperature Grade B conductor splice configuration for one wire to one wire. Refer to Paragraph 9.A.
- (12) Assemble each conductor splice. Refer to the applicable procedure given in Paragraph 9.A.
- (13) Assemble the end of the shield splice opposite the end with the shield material.
- (a) Move the outer ferrule on the shield material.

20-30-12

STANDARD WIRING PRACTICES MANUAL**ASSEMBLY OF SPLICES**

- (b) Move the strands of the shield apart and make them straight.
- (c) Align the forward end of the inner ferrule with the end of the outer jacket.
- (d) Fold the strands of the shield back on the inner ferrule to make the strands of the shield symmetrical around the circumference of the ferrule.
- (e) Align the end of the shield material with the end of the strands of the shield that are folded back.
- (f) Align the rear end of the outer ferrule with the rear end of the inner ferrule.

Make sure that:

- The outer ferrule goes around the shield material
- The rear end of the outer ferrule does not extend farther than the rear end of the inner ferrule
- The rear end of the outer ferrule is a maximum of 0.06 inch from the rear end of the inner ferrule.

- (g) Crimp the ferrules.

- (14) Do Step (13) again to assemble the other end of the shield splice.

Make sure that the shield material is pulled tightly before the ferrules are crimped.

- (15) Remove the shield and the shield material that extend farther than the rear end of the inner ferrule on each end of the shield splice.

- (16) Tightly wind a layer of the tape on the splice assembly that:

- Starts 0.50 inch \pm 0.25 inch farther than the rear end of the ferrule at one end of the splice
- Stops 0.50 inch \pm 0.25 inch farther than the rear end of the ferrule at the other end of the splice
- Makes a 50 percent overlap.

- (17) Tightly wind a second layer of the tape on the splice assembly that:

- Starts where the first layer of tape stops
- Stops where the first layer of tape starts
- Makes a 50 percent overlap.

- (18) Align the center of the sleeve with the center of the splice assembly.

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

11. SEALED SPlice CONFIGURATIONS WITH MECHANICAL FERRULES FOR SHIELDED WIRE AND SHIELDED CABLE FOR HIGH TEMPERATURE

A. Splice Assembly Configurations

For the conditions that are applicable for:

- The repair of a wire or a cable with a splice, refer to Subject 20-10-13
- The selection of the correct sealed splice configuration, refer to Paragraph 1.C.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

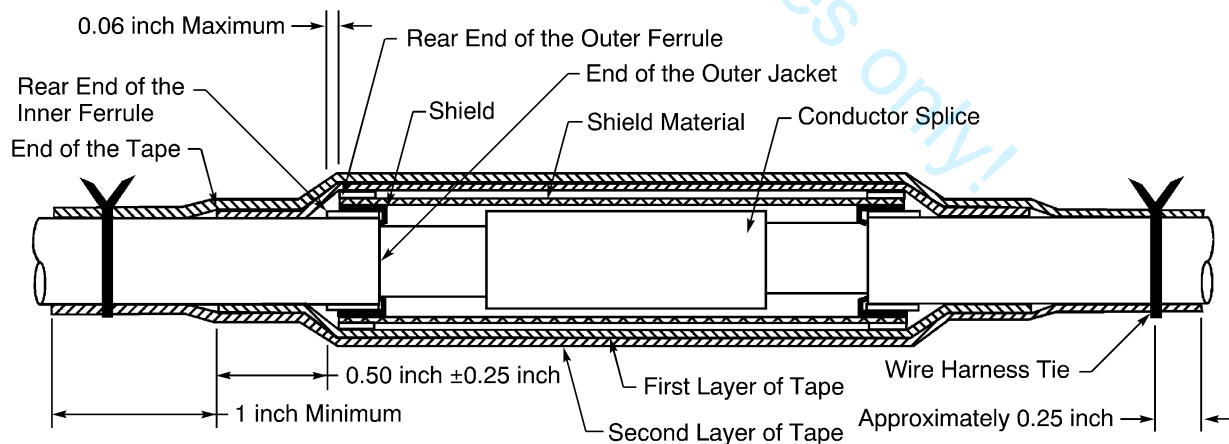
Table 98
SPLICE ASSEMBLY CONFIGURATIONS

One End of Splice Assembly	Other End of Splice Assembly	Quantity of Conductor Splices	Applicable Condition	Splice Assembly	
				Configuration	Procedure
One Shielded Wire	One Shielded Wire	1	Fuel Vapor	Tape, Ties	Paragraph 11.B.
			No Fuel Vapor	Tape, Sleeve	Paragraph 11.C.
				Tape, Ties	Paragraph 11.B.
Shielded Wire	Two Shielded Wires	1	Fuel Vapor	Tape, Ties	Paragraph 11.D.
			No Fuel Vapor	Tape, Sleeve	Paragraph 11.E.
				Tape, Ties	Paragraph 11.D.
Two Shielded Wires	Two Shielded Wires	1	Fuel Vapor	Tape, Ties	Paragraph 11.F.
			No Fuel Vapor	Tape, Sleeve	Paragraph 11.G.
				Tape, Ties	Paragraph 11.F.
One Shielded Cable	One Shielded Cable	-	Fuel Vapor	Tape, Ties	Paragraph 11.H.
			No Fuel Vapor	Tape, Sleeve	Paragraph 11.I.
				Tape, Ties	Paragraph 11.H.

B. One Shielded Wire to One Shielded Wire - Tape, Ties

For the conditions that are applicable for:

- The repair of a wire or a cable with a splice, refer to Subject 20-10-13
- The selection of the correct sealed splice configuration, refer to Paragraph 1.C.



CONFIGURATION OF THE SPLICE ASSEMBLY

Figure 160

Refer to Figure 160.

20-30-12

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

- (1) Make a selection of a Temperature Grade D shield material from Table 55.

Make sure that the shield material has the smallest diameter that can go on the folded back shield of the wire.

NOTE: For alternative shield materials, refer to Subject 20-00-11.

- (2) Make a selection of two sets of Temperature Grade D inner ferrules and outer ferrules.

Refer to:

- Figure 6 for the ferrule size
- Table 31 for the Temperature Grade
- Table 32 for the ferrule part numbers.

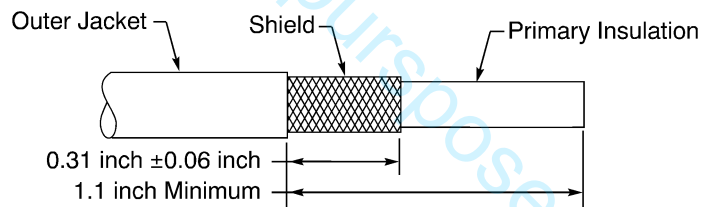
Make sure that:

- The inner ferrule is the smallest ferrule that can move freely on the outer jacket
- The outer ferrule is the smallest ferrule that can move freely on the shield, the shield material, and the inner ferrule.

- (3) Make a selection of a ferrule crimp tool from Table 45.
- (4) Make a selection of a Temperature Grade D insulation tape from Table 50.
- (5) Prepare each end of the shielded wire.

Refer to:

- Figure 161
- Subject 20-00-15 for the outer jacket removal procedures.



SHIELDED WIRE PREPARATION

Figure 161

- (a) Remove 1.1 inch minimum length of outer jacket from the end of the wire.
- (b) Remove the necessary length of the shield from the end of the wire.
Make sure the remaining shield is 0.31 inch \pm 0.06 inch.
- (6) Cut the necessary length of the shield material.

Make sure that the end of the shield material extends farther than the rear end of the inner ferrule on each end of the shield splice.

STANDARD WIRING PRACTICES MANUAL**ASSEMBLY OF SPLICES**

- (7) Put these components on the end of one wire:
- The outer ferrule
 - The inner ferrule.
- (8) Put these components on the other end of the shielded wire:
- The outer ferrule
 - The inner ferrule
 - The shield material.

NOTE: If it is necessary, the strands at the end of the shield material can be moved apart to make it easier to put the shield material on the wire.

- (9) Make a selection of an applicable Temperature Grade D conductor splice configuration for one wire to one wire. Refer to Paragraph 9.A.
- (10) Assemble the conductor splice. Refer to the applicable procedure given in Paragraph 9.A.
- (11) Assemble the end of the shield splice opposite the end with the shield material.
- (a) Move the outer ferrule on the shield material.
- (b) Move the strands of the shield apart and make them straight.
- (c) Align the forward end of the inner ferrule with the end of the outer jacket.
- (d) Fold the strands of the shield back on the inner ferrule to make the strands of the shield symmetrical around the circumference of the ferrule.
- (e) Align the end of the shield material with the end of the strands of the shield that are folded back.
- (f) Align the rear end of the outer ferrule with the rear end of the inner ferrule.
- Make sure that:
- The outer ferrule goes around the shield material
 - The rear end of the outer ferrule does not extend farther than the rear end of the inner ferrule
 - The rear end of the outer ferrule is a maximum of 0.06 inch from the rear end of the inner ferrule.
- (g) Crimp the ferrules.
- (12) Do Step (11) again to assemble the other end of the shield splice.
- Make sure that the shield material is pulled tight before the ferrules are crimped.
- (13) Remove the shield and the shield material that extend farther than the rear end of the inner ferrule on each end of the shield splice.

- (14) Tightly wind a layer of the tape on the splice assembly.
- Make sure that the layer of tape:
- Starts 0.50 inch \pm 0.25 inch farther than the rear end of the inner ferrule at one end of the splice
 - Stops 0.50 inch \pm 0.25 inch farther than the rear end of the inner ferrule at the other end of the splice
 - Makes a 50 percent overlap.
- (15) Tightly wind a second layer of the tape on the splice assembly.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Make sure that the layer of tape:

- Starts 1 inch minimum farther than where the first layer of tape stops
- Stops 1 inch minimum farther than where the first layer of tape starts
- Makes a 50 percent overlap.

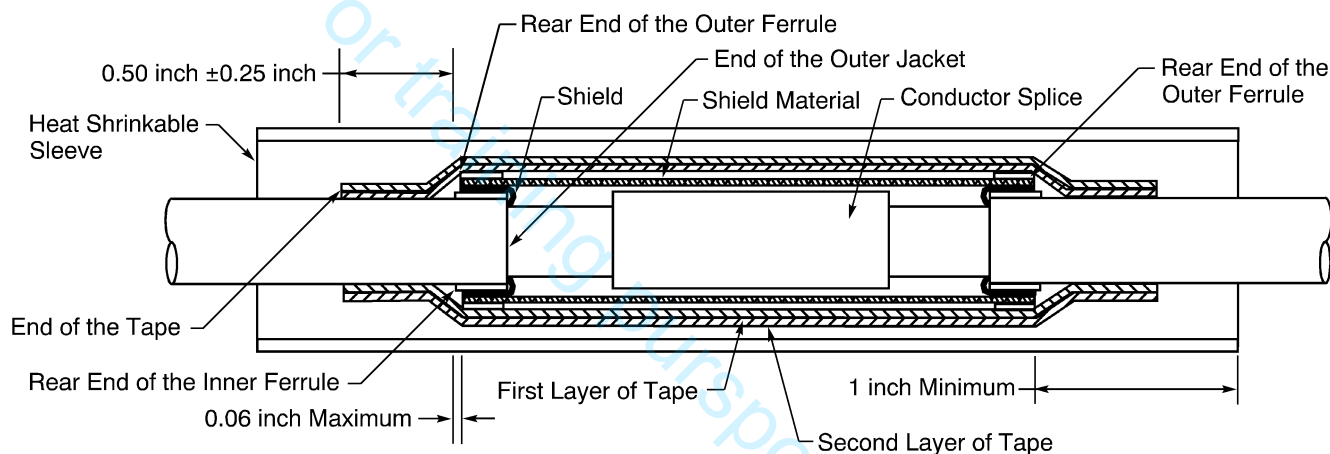
- (16) Assemble a lacing tape wire harness tie on each end of the splice assembly approximately 0.25 inch from the end of the tape. Refer to Subject 20-10-11.

Make sure that the Temperature Grade of the lacing tape is Temperature Grade D.

C. One Shielded Wire to One Shielded Wire - Tape, Sleeve

For the conditions that are applicable for:

- The repair of a wire or a cable with a splice, refer to Subject 20-10-13
- The selection of the correct sealed splice configuration, refer to Paragraph 1.C.



CONFIGURATION OF THE SPLICE ASSEMBLY

Figure 162

Refer to Figure 162.

- (1) Make a selection of a Temperature Grade D shield material from Table 55.

Make sure that the shield material has the smallest diameter that can go on the folded back shield of the wire.

NOTE: For alternative shield materials, refer to Subject 20-00-11.

- (2) Make a selection of two sets of Temperature Grade D inner ferrules and outer ferrules.

Refer to:

- Figure 6 for the ferrule size
- Table 31 for the Temperature Grade
- Table 32 for the ferrule part numbers.

Make sure that:

- The inner ferrule is the smallest ferrule that can move freely on the outer jacket
- The outer ferrule is the smallest ferrule that can move freely on the shield, the shield material, and the inner ferrule.

- (3) Make a selection of a ferrule crimp tool from Table 45.

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

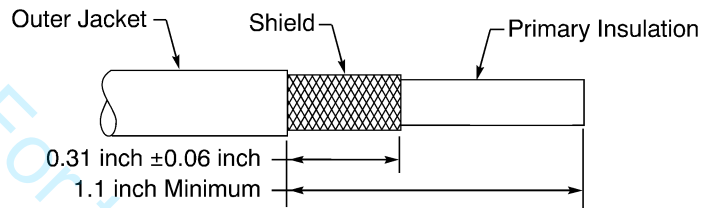
- (4) Make a selection of a Temperature Grade D insulation tape from Table 50.
- (5) Make a selection of a Temperature Grade D heat shrinkable sleeve from Table 49.

NOTE: For alternative heat shrinkable sleeves, refer to Subject 20-00-11.

- (6) Prepare each end of the shielded wire.

Refer to:

- Figure 163
- Subject 20-00-15 for the outer jacket removal procedures.



SHIELDED WIRE PREPARATION

Figure 163

- (a) Remove 1.1 inch minimum length of outer jacket from the end of the wire.
- (b) Remove the necessary length of the shield from the end of the wire.
Make sure the remaining shield is 0.31 inch \pm 0.06 inch.
- (7) Cut the necessary length of the sleeve.
Make sure that the sleeve extends a minimum of 1 inch farther than the rear end of the inner ferrule on each end of the shield splice.
- (8) Cut the necessary length of the shield material.
Make sure that the end of the shield material extends farther than the rear end of the inner ferrule on each end of the shield splice.
- (9) Put these components on the end of one wire:
 - The sleeve
 - The outer ferrule
 - The inner ferrule.
- (10) Put these components on the other end of the shielded wire:
 - The outer ferrule
 - The inner ferrule
 - The shield material.

NOTE: If it is necessary, the strands at the end of the shield material can be moved apart to make it easier to put the shield material on the wire.

- (11) Make a selection of an applicable Temperature Grade D conductor splice configuration for one wire to one wire. Refer to Paragraph 9.A.
- (12) Assemble the conductor splice. Refer to the applicable procedure given in Paragraph 9.A.
- (13) Assemble the end of the shield splice opposite the end with the shield material.
 - (a) Move the outer ferrule on the shield material.

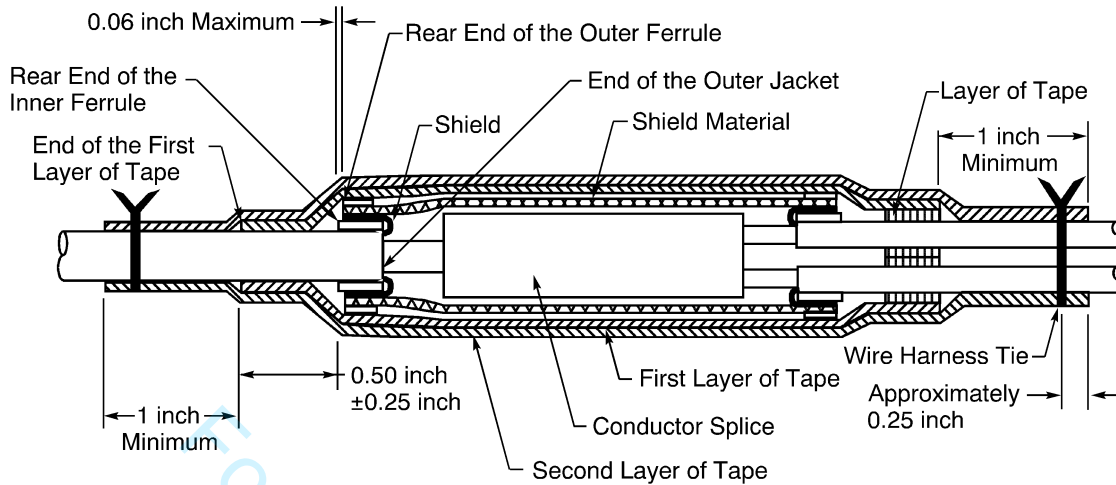
STANDARD WIRING PRACTICES MANUAL**ASSEMBLY OF SPLICES**

- (b) Move the strands of the shield apart and make them straight.
 - (c) Align the forward end of the inner ferrule with the end of the outer jacket.
 - (d) Fold the strands of the shield back on the inner ferrule to make the strands of the shield symmetrical around the circumference of the ferrule.
 - (e) Align the end of the shield material with the end of the strands of the shield that are folded back.
 - (f) Align the rear end of the outer ferrule with the rear end of the inner ferrule.
Make sure that:
 - The outer ferrule goes around the shield material
 - The rear end of the outer ferrule does not extend farther than the rear end of the inner ferrule
 - The rear end of the outer ferrule is a maximum of 0.06 inch from the rear end of the inner ferrule.
 - (g) Crimp the ferrules.
- (14) Do Step (13) again to assemble the other end of the shield splice.
Make sure that the shield material is pulled tight before the ferrules are crimped.
- (15) Remove the shield and the shield material that extend farther than the rear end of the inner ferrule on each end of the shield splice.
- (16) Tightly wind a layer of the tape on the splice assembly.
Make sure that the layer of tape:
 - Starts 0.50 inch \pm 0.25 inch farther than the rear end of the inner ferrule at one end of the splice
 - Stops 0.50 inch \pm 0.25 inch farther than the rear end of the inner ferrule at the other end of the splice
 - Makes a 50 percent overlap.
- (17) Tightly wind a second layer of the tape on the splice assembly.
Make sure that the layer of tape:
 - Starts where the first layer of tape stops
 - Stops where the first layer of tape starts
 - Makes a 50 percent overlap.
- (18) Align the center of the sleeve with the center of the splice assembly.
- (19) Shrink the sleeve into position. Refer to Subject 20-10-14.

D. One Shielded Wire to Two Shielded Wires - Tape, Ties

For the conditions that are applicable for:

- The repair of a wire or a cable with a splice, refer to Subject 20-10-13
- The selection of the correct sealed splice configuration, refer to Paragraph 1.C.

STANDARD WIRING PRACTICES MANUAL
ASSEMBLY OF SPLICES

FINAL CONFIGURATION OF THE SPLICE ASSEMBLY
Figure 164

Refer to Figure 164.

- (1) Make a selection of a Temperature Grade D shield material from Table 55.

Make sure that the shield material has the smallest diameter that can go on the folded back shields of the wires.

NOTE: For alternative shield materials, refer to Subject 20-00-11.

- (2) Make a selection of two sets of Temperature Grade D inner ferrules and outer ferrules.

Refer to:

- Figure 6 for the ferrule size
- Table 31 for the Temperature Grade
- Table 32 for the ferrule part numbers.

Make sure that:

- The inner ferrule is the smallest ferrule that can move freely on the outer jacket
- The outer ferrule is the smallest ferrule that can move freely on the shield, the shield material, and the inner ferrule.

- (3) Make a selection of a ferrule crimp tool from Table 45.
- (4) Make a selection of a Temperature Grade D insulation tape from Table 50.

Make sure that the tape has a width of 0.5 inch minimum to 1.0 inch maximum.

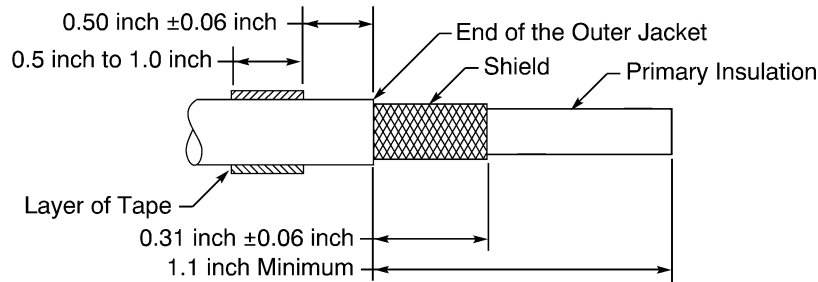
- (5) Prepare each shielded wire for the side of the splice assembly with two shielded wires.

Refer to:

- Figure 165
- Subject 20-00-15 for the outer jacket removal procedures.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES



SHIELDED WIRE PREPARATION
Figure 165

- (a) Remove 1.1 inch minimum length of outer jacket from the end of the wire.
- (b) Remove the necessary length of the shield from the end of the wire.
Make sure the remaining shield is 0.31 inch ± 0.06 inch.
- (c) Wind a layer of the insulation tape on the outer jacket of each wire 0.50 inch ± 0.06 inch farther than the end of the outer jackets.

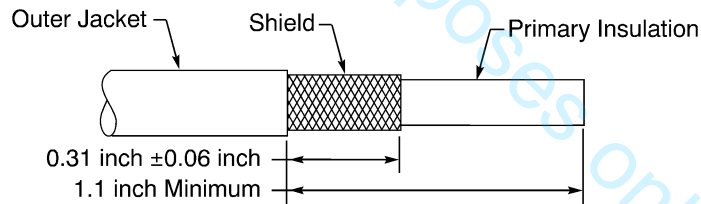
Make sure that:

- The tape goes around the circumference of the wire a minimum of two times
- The tape makes a 100 percent overlap.

- (6) Prepare the shielded wire for the side of the splice assembly with one shielded wire.

Refer to:

- Figure 166
- Subject 20-00-15 for the outer jacket removal procedures.



SHIELDED WIRE PREPARATION
Figure 166

- (a) Remove 1.1 inch minimum length of outer jacket from the end of the wire.
- (b) Remove the necessary length of the shield from the end of the wire.
Make sure the remaining shield is 0.31 inch ± 0.06 inch.
- (7) Cut the necessary length of the shield material.
Make sure that the end of the shield material extends farther than the rear end of the inner ferrule on each end of the shield splice.

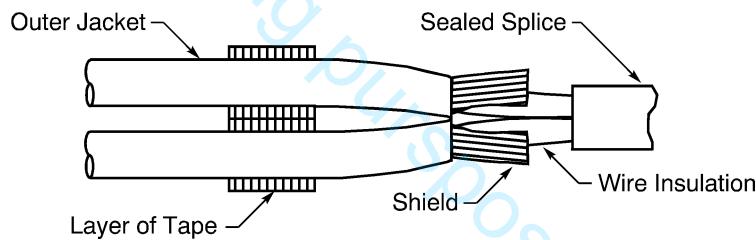
STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

- (8) Put these components on the side of the splice assembly with one shielded wire:
 - The outer ferrule
 - The inner ferrule.
- (9) Put these components on the side of the splice assembly with two shielded wires:
 - The outer ferrule
 - The inner ferrule
 - The shield material.

NOTE: If it is necessary, the strands at the end of the shield material can be moved apart to make it easier to put the shield material on the wires.

- (10) Make a selection of an applicable Temperature Grade D conductor splice configuration for one wire to two wires. Refer to Paragraph 9.A.
- (11) Assemble the conductor splice. Refer to the applicable procedure given in Paragraph 9.A.
- (12) Assemble the sealed splice of the wires. Refer to Paragraph 8.D.
- (13) Assemble the end of the shield splice with two shielded wires.
 - (a) Move the outer ferrule on the shield material.
 - (b) Move the strands of the shield apart and make them straight.
 - (c) Move the strands of each shield away from the adjacent wire. Refer to Figure 167.



POSITION OF THE SHIELDS
Figure 167

- (d) Align the forward end of the inner ferrule with the end of the outer jackets.
- (e) Fold the strands of the shield back on the inner ferrule to make the strands of the shield symmetrical around the circumference of the ferrule.
- (f) Align the end of the shield material with the end of the strands of the shields that are folded back.
- (g) Align the rear end of the outer ferrule with the rear end of the inner ferrule.
Make sure that:
 - The outer ferrule goes around the shield material
 - The rear end of the outer ferrule does not extend farther than the rear end of the inner ferrule
 - The rear end of the outer ferrule is a maximum of 0.06 inch from the rear end of the inner ferrule.
- (h) Crimp the ferrules.
- (14) Assemble the end of the shield splice with one shielded wire.

STANDARD WIRING PRACTICES MANUAL**ASSEMBLY OF SPLICES**

- (a) Move the outer ferrule on the shield material.
 - (b) Move the strands of the shield apart and make them straight.
 - (c) Align the forward end of the inner ferrule with the end of the outer jackets.
 - (d) Fold the strands of the shield back on the inner ferrule to make the strands of the shield symmetrical around the circumference of the ferrule.
 - (e) Align the end of the shield material with the end of the strands of the shields that are folded back.

Make sure that the shield material is pulled tight before the ferrules are crimped.
 - (f) Align the rear end of the outer ferrule with the rear end of the inner ferrule.

Make sure that:

 - The outer ferrule goes around the shield material
 - The rear end of the outer ferrule does not extend farther than the rear end of the inner ferrule
 - The rear end of the outer ferrule is a maximum of 0.06 inch from the rear end of the inner ferrule.
 - (g) Crimp the ferrules.
- (15) Remove the shield and the shield material that extend farther than the rear end of the inner ferrule on each end of the shield splice.
- (16) Tightly wind a layer of the tape on the splice assembly.

Make sure that the layer of tape:

 - Starts at the rear end of the layer of tape on the outer jacket on the side with two shielded wires
 - Stops 0.50 inch \pm 0.25 inch farther than the rear end of the inner ferrule on the side with one shielded wire
 - Makes a 50 percent overlap.
- (17) Tightly wind a second layer of the tape on the splice assembly.

Make sure that the layer of tape:

 - Starts 1 inch minimum farther than where the first layer of tape stops
 - Stops 1 inch minimum farther than where the first layer of tape starts
 - Makes a 50 percent overlap.
- (18) Assemble a lacing tape wire harness tie on each end of the splice assembly approximately 0.25 inch from the end of the tape. Refer to Subject 20-10-11.

Make sure that the Temperature Grade of the lacing tape is Temperature Grade D.

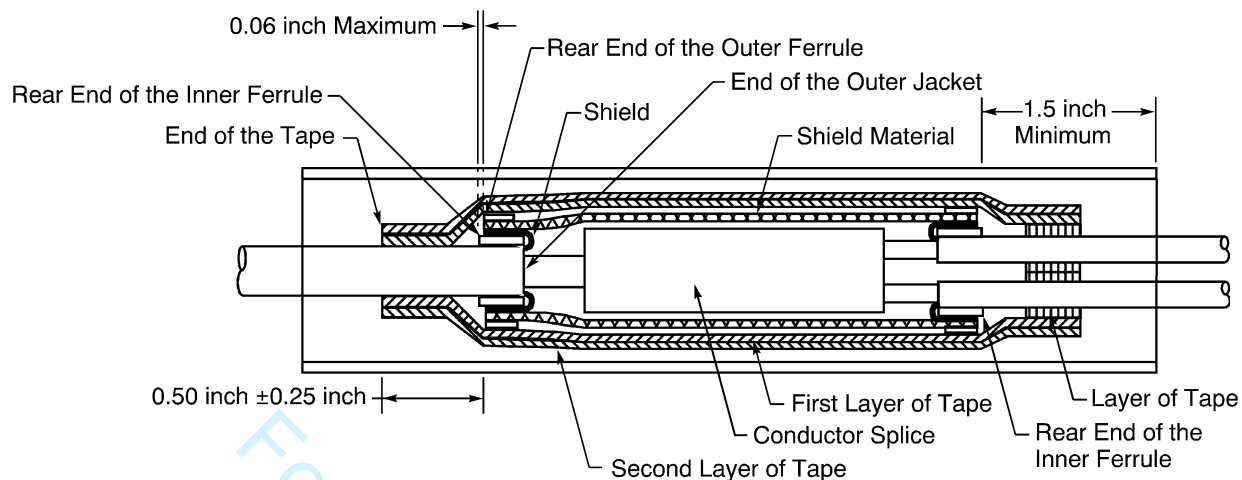
E. One Shielded Wire to Two Shielded Wires - Tape, Sleeve

For the conditions that are applicable for:

- The repair of a wire or a cable with a splice, refer to Subject 20-10-13
- The selection of the correct sealed splice configuration, refer to Paragraph 1.C.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES



FINAL CONFIGURATION OF THE SPLICE ASSEMBLY

Figure 168

Refer to Figure 168.

- (1) Make a selection of a Temperature Grade D shield material from Table 55.

Make sure that the shield material has the smallest diameter that can go on the folded back shields of the wires.

NOTE: For alternative shield materials, refer to Subject 20-00-11.

- (2) Make a selection of two sets of Temperature Grade D inner ferrules and outer ferrules.

Refer to:

- Figure 6 for the ferrule size
- Table 31 for the Temperature Grade
- Table 32 for the ferrule part numbers.

Make sure that:

- The inner ferrule is the smallest ferrule that can move freely on the outer jacket
- The outer ferrule is the smallest ferrule that can move freely on the shield, the shield material, and the inner ferrule.

- (3) Make a selection of a ferrule crimp tool from Table 45.
- (4) Make a selection of a Temperature Grade D insulation tape from Table 50.
Make sure that the tape has a width of 0.5 inch minimum to 1.0 inch maximum.
- (5) Make a selection of a Temperature Grade D heat shrinkable sleeve from Table 49.

NOTE: For alternative heat shrinkable sleeves, refer to Subject 20-00-11.

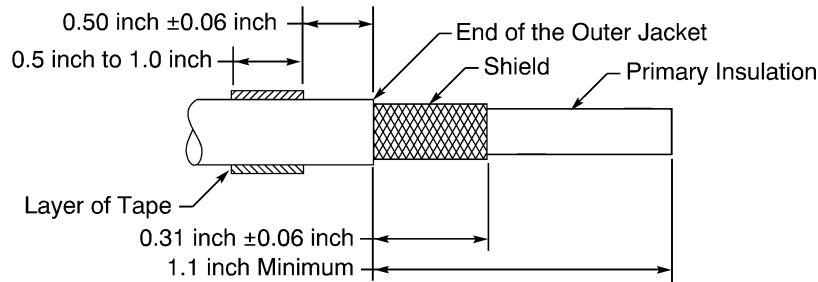
- (6) Prepare each shielded wire for the side of the splice assembly with two shielded wires.

Refer to:

- Figure 169
- Subject 20-00-15 for the outer jacket removal procedures.

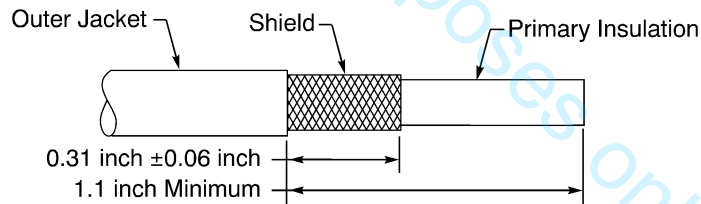
STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES



SHIELDED WIRE PREPARATION
Figure 169

- (a) Remove 1.1 inch minimum length of outer jacket from the end of the wire.
 - (b) Remove the necessary length of the shield from the end of the wire.
Make sure the remaining shield is 0.31 inch ± 0.06 inch.
 - (c) Wind a layer of the insulation tape on the outer jacket of each wire 0.50 inch ± 0.06 inch farther than the end of the outer jackets.
Make sure that:
 - The tape goes around the circumference of the wire a minimum of two times
 - The tape makes a 100 percent overlap.
- (7) Prepare the shielded wire for the side of the splice assembly with one shielded wire.
- Refer to:
- Figure 170
 - Subject 20-00-15 for the outer jacket removal procedures.



SHIELDED WIRE PREPARATION
Figure 170

- (a) Remove 1.1 inch minimum length of outer jacket from the end of the wire.
 - (b) Remove the necessary length of the shield from the end of the wire.
Make sure the remaining shield is 0.31 inch ± 0.06 inch.
- (8) Cut the necessary length of the sleeve.
Make sure that the sleeve extends a minimum of 1.5 inch farther than the rear end of the inner ferrule on each end of the shield splice.
- (9) Cut the necessary length of the shield material.
Make sure that the end of the shield material extends farther than the rear end of the inner ferrule on each end of the shield splice.

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ASSEMBLY OF SPLICES

(10) Put these components on the side of the splice assembly with one shielded wire:

- The sleeve
- The outer ferrule
- The inner ferrule.

(11) Put these components on the side of the splice assembly with two shielded wires:

- The outer ferrule
- The inner ferrule
- The shield material.

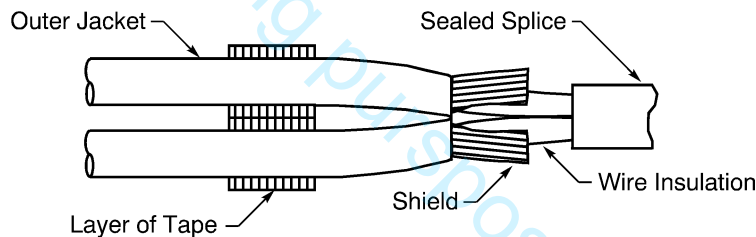
NOTE: If it is necessary, the strands at the end of the shield material can be moved apart to make it easier to put the shield material on the wires.

(12) Make a selection of an applicable Temperature Grade D conductor splice configuration for one wire to two wires. Refer to Paragraph 9.A.

(13) Assemble the conductor splice. Refer to the applicable procedure given in Paragraph 9.A.

(14) Assemble the end of the shield splice with two shielded wires.

- (a) Move the outer ferrule on the shield material.
- (b) Move the strands of the shield apart and make them straight.
- (c) Move the strands of each shield away from the adjacent wire. Refer to Figure 171.



POSITION OF THE SHIELDS
Figure 171

(d) Align the forward end of the inner ferrule with the end of the outer jackets.

(e) Fold the strands of the shield back on the inner ferrule to make the strands of the shield symmetrical around the circumference of the ferrule.

(f) Align the end of the shield material with the end of the strands of the shields that are folded back.

(g) Align the rear end of the outer ferrule with the rear end of the inner ferrule.

Make sure that:

- The outer ferrule goes around the shield material
- The rear end of the outer ferrule does not extend farther than the rear end of the inner ferrule
- The rear end of the outer ferrule is a maximum of 0.06 inch from the rear end of the inner ferrule.

(h) Crimp the ferrules.

(15) Assemble the end of the shield splice with one shielded wire.

- (a) Move the outer ferrule on the shield material.

STANDARD WIRING PRACTICES MANUAL**ASSEMBLY OF SPLICES**

- (b) Move the strands of the shield apart and make them straight.
 - (c) Align the forward end of the inner ferrule with the end of the outer jackets.
 - (d) Fold the strands of the shield back on the inner ferrule to make the strands of the shield symmetrical around the circumference of the ferrule.
 - (e) Align the end of the shield material with the end of the strands of the shields that are folded back.

Make sure that the shield material is pulled tight before the ferrules are crimped.
 - (f) Align the rear end of the outer ferrule with the rear end of the inner ferrule.

Make sure that:

 - The outer ferrule goes around the shield material
 - The rear end of the outer ferrule does not extend farther than the rear end of the inner ferrule
 - The rear end of the outer ferrule is a maximum of 0.06 inch from the rear end of the inner ferrule.
 - (g) Crimp the ferrules.
- (16) Remove the shield and the shield material that extend farther than the rear end of the inner ferrule on each end of the shield splice.
- (17) Tightly wind a layer of the tape on the splice assembly.

Make sure that the layer of tape:

 - Starts at the rear end of the layer of tape on the outer jacket on the side with two shielded wires
 - Stops 0.50 inch \pm 0.25 inch farther than the rear end of the inner ferrule on the side with one shielded wire
 - Makes a 50 percent overlap.
- (18) Tightly wind a second layer of the tape on the splice assembly.

Make sure that the layer of tape:

 - Starts where the first layer of tape stops
 - Stops where the first layer of tape starts
 - Makes a 50 percent overlap.
- (19) Align the center of the sleeve with the center of the splice assembly.
- (20) Shrink the sleeve into position. Refer to Subject 20-10-14.

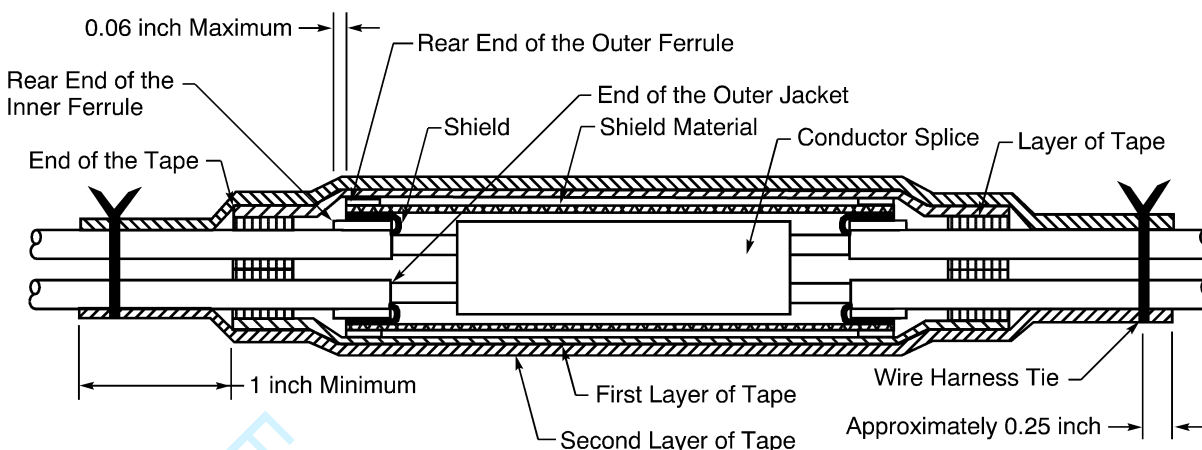
F. Two Shielded Wires to Two Shielded Wires - Tape, Ties

For the conditions that are applicable for:

- The repair of a wire or a cable with a splice, refer to Subject 20-10-13
- The selection of the correct sealed splice configuration, refer to Paragraph 1.C.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES



FINAL CONFIGURATION OF THE SPLICE ASSEMBLY

Figure 172

Refer to Figure 172.

- (1) Make a selection of a Temperature Grade D shield material from Table 55.

Make sure that the shield material has the smallest diameter that can go on the folded back shields of the two wires.

NOTE: For alternative shield materials, refer to Subject 20-00-11.

- (2) Make a selection of two sets of Temperature Grade D inner ferrules and outer ferrules.

Refer to:

- Figure 6 for the ferrule size
- Table 31 for the Temperature Grade
- Table 32 for the ferrule part numbers.

Make sure that:

- The inner ferrule is the smallest ferrule that can move freely on the outer jacket
- The outer ferrule is the smallest ferrule that can move freely on the shield, the shield material, and the inner ferrule.

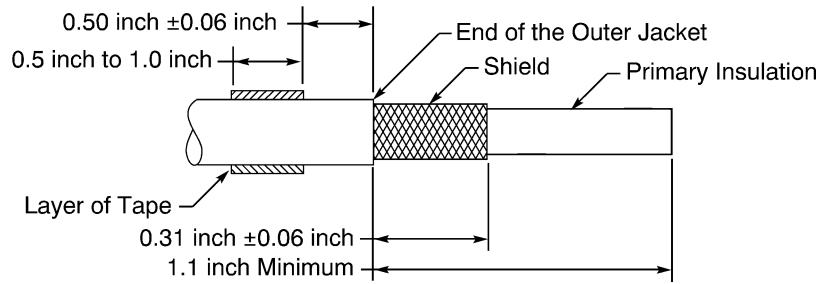
- (3) Make a selection of a ferrule crimp tool from Table 45.
- (4) Make a selection of a Temperature Grade D insulation tape from Table 50.
Make sure that the tape has a width of 0.5 inch minimum to 1.0 inch maximum.
- (5) Prepare each end of the shielded wires.

Refer to:

- Figure 173
- Subject 20-00-15 for the outer jacket removal procedures.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES



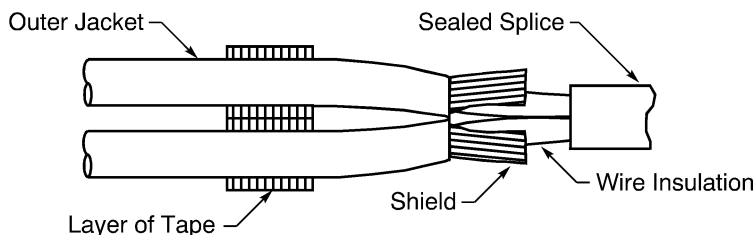
SHIELDED WIRE PREPARATION

Figure 173

- (a) Remove 1.1 inch minimum length of outer jacket from the end of the wire.
 - (b) Remove the necessary length of the shield from the end of the wire.
Make sure the remaining shield is 0.31 inch ± 0.06 inch.
 - (c) Wind a layer of the insulation tape on the outer jacket of each wire 0.50 inch ± 0.06 inch farther than the end of the outer jackets.
Make sure that:
 - The tape goes around the circumference of the wire a minimum of two times
 - The tape makes a 100 percent overlap.
 - (6) Cut the necessary length of the shield material.
Make sure that the end of the shield material extends farther than the rear end of the inner ferrule on each end of the shield splice.
 - (7) Put these components on one pair of the shielded wires:
 - The outer ferrule
 - The inner ferrule.
 - (8) Put these components on the end of the other pair of shielded wires:
 - The outer ferrule
 - The inner ferrule
 - The shield material.
- NOTE:** If it is necessary, the strands at the end of the shield material can be moved apart to make it easier to put the shield material on the wires.
- (9) Make a selection of an applicable Temperature Grade D conductor splice configuration for two wires to two wires. Refer to Paragraph 9.A.
 - (10) Assemble the conductor splice. Refer to the applicable procedure given in Paragraph 9.A.
 - (11) Assemble the end of the shield splice opposite the end with the shield material.
 - (a) Move the outer ferrule on the shield material.
 - (b) Move the strands of the shield apart and make them straight.
 - (c) Move the strands of each shield away from the adjacent wire. Refer to Figure 174.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES



POSITION OF THE SHIELDS

Figure 174

- (d) Align the forward end of the inner ferrule with the end of the outer jackets.
 - (e) Fold the strands of the shield back on the inner ferrule to make the strands of the shield symmetrical around the circumference of the ferrule.
 - (f) Align the end of the shield material with the end of the strands of the shields that are folded back.
 - (g) Align the rear end of the outer ferrule with the rear end of the inner ferrule.

Make sure that:

 - The outer ferrule goes around the shield material
 - The rear end of the outer ferrule does not extend farther than the rear end of the inner ferrule
 - The rear end of the outer ferrule is a maximum of 0.06 inch from the rear end of the inner ferrule.
 - (h) Crimp the ferrules.
- (12) Do Step (11) again to assemble the other end of the shield splice.
- Make sure that the shield material is pulled tight before the ferrules are crimped.
- (13) Remove the shield and the shield material that extend farther than the rear end of the inner ferrule on each end of the shield splice.
- (14) Tightly wind a layer of the tape on the splice assembly.
- Make sure that the layer of tape:
- Starts at the rear end of the layer of tape on the outer jacket.
 - Stops at the rear end of the layer of tape on the outer jacket at the other end of the splice
 - Makes a 50 percent overlap.
- (15) Tightly wind a second layer of the tape on the splice assembly.
- Make sure that the layer of tape:
- Starts 1 inch minimum farther than where the first layer of tape stops
 - Stops 1 inch minimum farther than where the first layer of tape starts
 - Makes a 50 percent overlap.
- (16) Assemble a lacing tape wire harness tie on each end of the splice assembly approximately 0.25 inch from the end of the tape. Refer to Subject 20-10-11.
- Make sure that the Temperature Grade of the lacing tape is Temperature Grade D.

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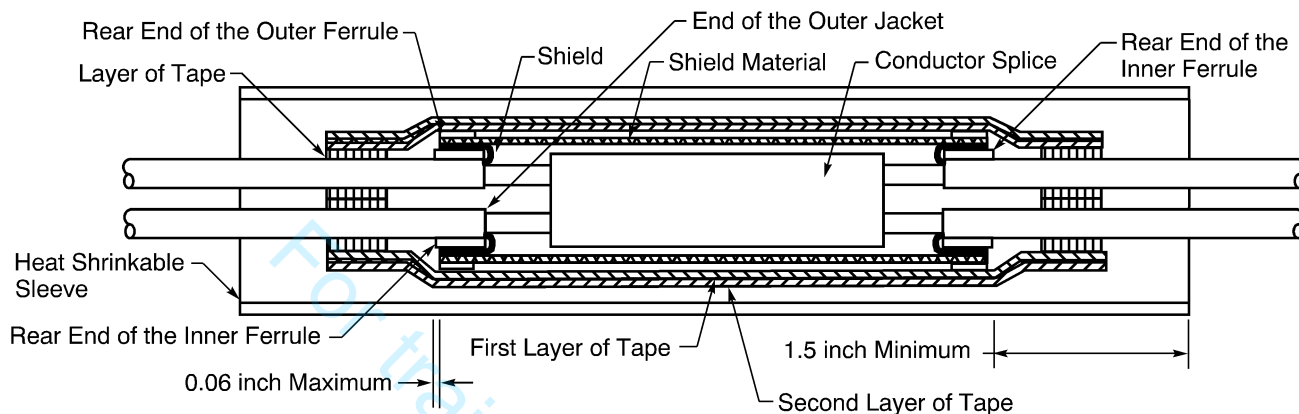
STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

G. Two Shielded Wires to Two Shielded Wires - Tape, Sleeve

For the conditions that are applicable for:

- The repair of a wire or a cable with a splice, refer to Subject 20-10-13
- The selection of the correct sealed splice configuration, refer to Paragraph 1.C.



FINAL CONFIGURATION OF THE SPLICE ASSEMBLY
Figure 175

Refer to Figure 175.

- (1) Make a selection of a Temperature Grade D shield material from Table 55.

Make sure that the shield material has the smallest diameter that can go on the folded back shields of the two wires.

NOTE: For alternative shield materials, refer to Subject 20-00-11.

- (2) Make a selection of two sets of Temperature Grade D inner ferrules and outer ferrules.

Refer to:

- Figure 6 for the ferrule size
- Table 31 for the Temperature Grade
- Table 32 for the ferrule part numbers.

Make sure that:

- The inner ferrule is the smallest ferrule that can move freely on the outer jacket
- The outer ferrule is the smallest ferrule that can move freely on the shield, the shield material, and the inner ferrule.

- (3) Make a selection of a ferrule crimp tool from Table 45.
- (4) Make a selection of a Temperature Grade D insulation tape from Table 50.
Make sure that the tape has a width of 0.5 inch minimum to 1.0 inch maximum.
- (5) Make a selection of a Temperature Grade D heat shrinkable sleeve from Table 49.

NOTE: For alternative heat shrinkable sleeves, refer to Subject 20-00-11.

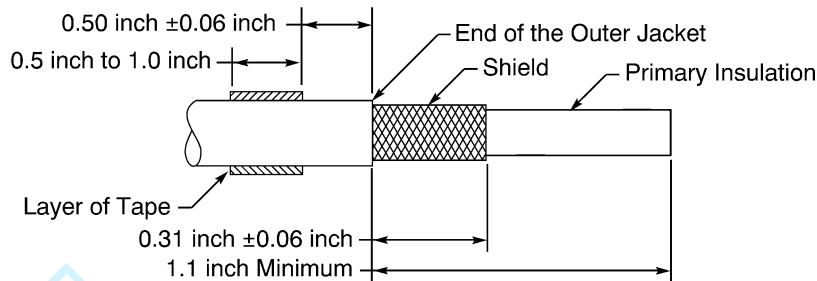
- (6) Prepare each end of the shielded wires.

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ASSEMBLY OF SPLICES

Refer to:

- Figure 176
- Subject 20-00-15 for the outer jacket removal procedures.



SHIELDED WIRE PREPARATION
Figure 176

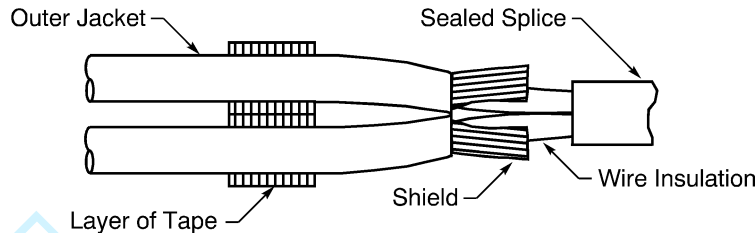
- Remove 1.1 inch minimum length of outer jacket from the end of the wire.
 - Remove the necessary length of the shield from the end of the wire.
Make sure the remaining shield is 0.31 inch \pm 0.06 inch.
 - Wind a layer of the insulation tape on the outer jacket of each wire 0.50 inch \pm 0.06 inch farther than the end of the outer jackets.
- Make sure that:
- The tape goes around the circumference of the wire a minimum of two times
 - The tape makes a 100 percent overlap.
- Cut the necessary length of the sleeve.
Make sure that the sleeve extends a minimum of 1.5 inch farther than the rear end of the inner ferrule on each end of the shield splice.
 - Cut the necessary length of the shield material.
Make sure that the end of the shield material extends farther than the rear end of the inner ferrule on each end of the shield splice.
 - Put these components on one pair of the shielded wires:
 - The sleeve
 - The outer ferrule
 - The inner ferrule.
 - Put these components on the end of the other pair of shielded wires:
 - The outer ferrule
 - The inner ferrule
 - The shield material.
- NOTE:** If it is necessary, the strands at the end of the shield material can be moved apart to make it easier to put the shield material on the wires.
- Make a selection of an applicable Temperature Grade D conductor splice configuration for two wires to two wires. Refer to Paragraph 9.A.
 - Assemble the conductor splice. Refer to the applicable procedure given in Paragraph 9.A.

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

- (13) Assemble the end of the shield splice opposite the end with the shield material.
 - (a) Move the outer ferrule on the shield material.
 - (b) Move the strands of the shield apart and make them straight.
 - (c) Move the strands of each shield away from the adjacent wire. Refer to Figure 177.



POSITION OF THE SHIELDS
Figure 177

- (d) Align the forward end of the inner ferrule with the end of the outer jackets.
 - (e) Fold the strands of the shield back over the inner ferrule to make the strands of the shield symmetrical around the circumference of the ferrule.
 - (f) Align the end of the shield material with the end of the strands of the shields that are folded back.
 - (g) Align the rear end of the outer ferrule with the rear end of the inner ferrule.
Make sure that:
 - The outer ferrule goes around the shield material
 - The rear end of the outer ferrule does not extend farther than the rear end of the inner ferrule
 - The rear end of the outer ferrule is a maximum of 0.06 inch from the rear end of the inner ferrule.
 - (h) Crimp the ferrules.
- (14) Do Step (13) again to assemble the other end of the shield splice.
Make sure that the shield material is pulled tight before the ferrules are crimped.
 - (15) Remove the shield and the shield material that extend farther than the rear end of the inner ferrule on each end of the shield splice.
 - (16) Tightly wind a layer of the tape on the splice assembly.
Make sure that the layer of tape:
 - Starts at the rear end of the layer of tape on the outer jacket.
 - Stops at the rear end of the layer of tape on the outer jacket at the other end of the splice
 - Makes a 50 percent overlap.
 - (17) Tightly wind a second layer of the tape on the splice assembly.
Make sure that the layer of tape:
 - Starts where the first layer of tape stops
 - Stops where the first layer of tape starts
 - Makes a 50 percent overlap.
 - (18) Align the center of the sleeve with the center of the splice assembly.

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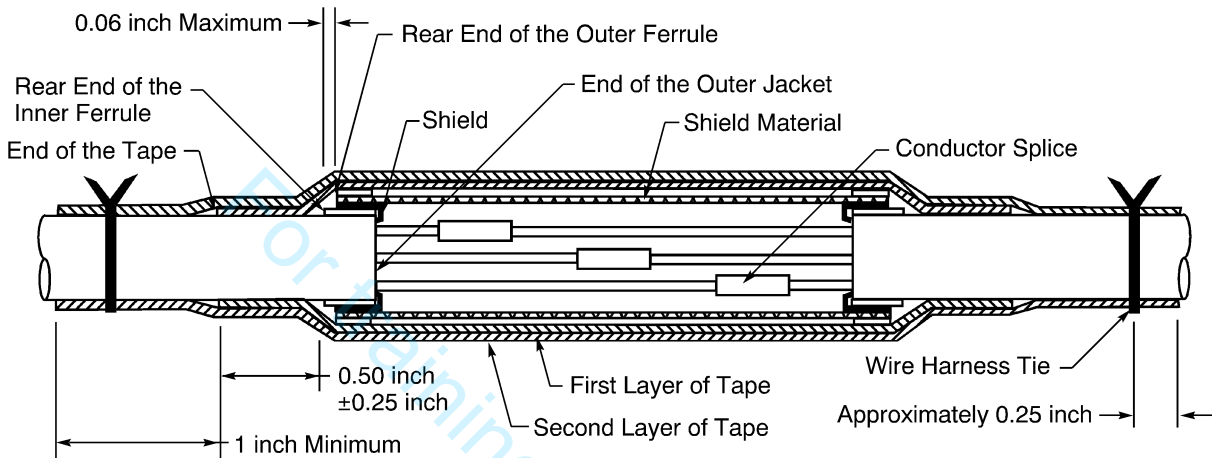
ASSEMBLY OF SPLICES

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

H. One Shielded Cable to One Shielded Cable - Tape, Ties

For the conditions that are applicable for:

- The repair of a wire or a cable with a splice, refer to Subject 20-10-13
- The selection of the correct sealed splice configuration, refer to Paragraph 1.C.



CONFIGURATION OF THE SPLICE ASSEMBLY

Figure 178

Refer to Figure 178.

- (1) Make a selection of a Temperature Grade D shield material from Table 55.

Make sure that the shield material has the smallest diameter that can go on the folded back shield of the cable.

NOTE: For alternative shield materials, refer to Subject 20-00-11.

- (2) Make a selection of two sets of Temperature Grade D inner ferrules and outer ferrules.

Refer to:

- Figure 6 for the ferrule size
- Table 31 for the Temperature Grade
- Table 32 for the ferrule part numbers.

Make sure that:

- The inner ferrule is the smallest ferrule that can move freely on the outer jacket
- The outer ferrule is the smallest ferrule that can move freely on the shield, the shield material, and the inner ferrule.

- (3) Make a selection of a ferrule crimp tool from Table 45.
- (4) Make a selection of a Temperature Grade D insulation tape from Table 50.
- (5) Prepare the shielded cable.

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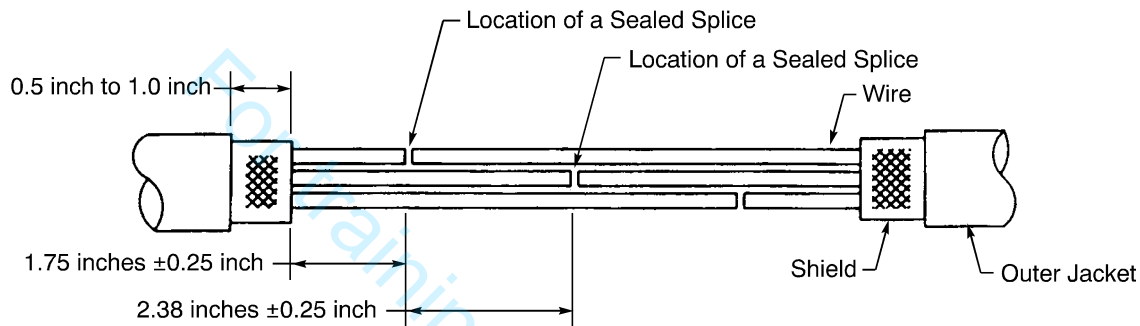
ASSEMBLY OF SPLICES

Refer to:

- Figure 179
- Subject 20-00-15 for the outer jacket removal procedures.

Make sure that:

- The distance from the end of the outer jacket to the end of the shield is 0.5 inch to 1.0 inch
- The distance from the end of the shield to the center of the nearest sealed splice is 1.75 inches ± 0.25 inch
- The distance from the center of a sealed splice on one wire to the center of the nearest sealed splice on another wire is 2.38 inches ± 0.25 inch.



PREPARATION OF THE SHIELDED CABLE

Figure 179

- (6) Cut the necessary length of the shield material.
Make sure that the end of the shield material extends farther than the rear end of the inner ferrule on each end of the shield splice.
- (7) Put these components on the end of one cable:
 - The outer ferrule
 - The inner ferrule.
- (8) Put these components on the end of the other cable:
 - The outer ferrule
 - The inner ferrule
 - The shield material.

NOTE: If it is necessary, the strands at the end of the shield material can be moved apart to make it easier to put the shield material on the cable.

- (9) Make a selection of an applicable Temperature Grade D conductor splice configuration for one wire to one wire. Refer to Paragraph 9.A.
- (10) Assemble the conductor splices. Refer to the applicable procedure given in Paragraph 9.A.
- (11) Assemble the end of the shield splice opposite the end with the shield material.
 - (a) Move the outer ferrule on the shield material.
 - (b) Move the strands of the shield apart and make them straight.
 - (c) Align the forward end of the inner ferrule with the end of the outer jacket.

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- (d) Fold the strands of the shield back on the inner ferrule to make the strands of the shield symmetrical around the circumference of the ferrule.
- (e) Align the end of the shield material with the end of the strands of the shield that are folded back.
- (f) Align the rear end of the outer ferrule with the rear end of the inner ferrule.
Make sure that:
 - The outer ferrule goes around the shield material
 - The rear end of the outer ferrule does not extend farther than the rear end of the inner ferrule
 - The rear end of the outer ferrule is a maximum of 0.06 inch from the rear end of the inner ferrule.
- (g) Crimp the ferrules.
- (12) Do Step (11) again to assemble the other end of the shield splice.
Make sure that the shield material is pulled tightly before the ferrules are crimped.
- (13) Remove the shield and the shield material that extend farther than the rear end of the inner ferrule on each end of the shield splice.
- (14) Tightly wind a layer of the tape on the splice assembly.
Make sure that the layer of tape:
 - Starts 0.50 inch \pm 0.25 inch farther than the rear end of the inner ferrule at one end of the splice
 - Stops 0.50 inch \pm 0.25 inch farther than the rear end of the inner ferrule at the other end of the splice
 - Makes a 50 percent overlap.
- (15) Tightly wind a second layer of the tape on the splice assembly.
Make sure that the layer of tape:
 - Starts 1 inch minimum farther than where the first layer of tape stops
 - Stops 1 inch minimum farther than where the first layer of tape starts
 - Makes a 50 percent overlap.
- (16) Assemble a lacing tape wire harness tie on each end of the splice assembly approximately 0.25 inch from the end of the tape. Refer to Subject 20-10-11.
Make sure that the Temperature Grade of the lacing tape is Temperature Grade D.

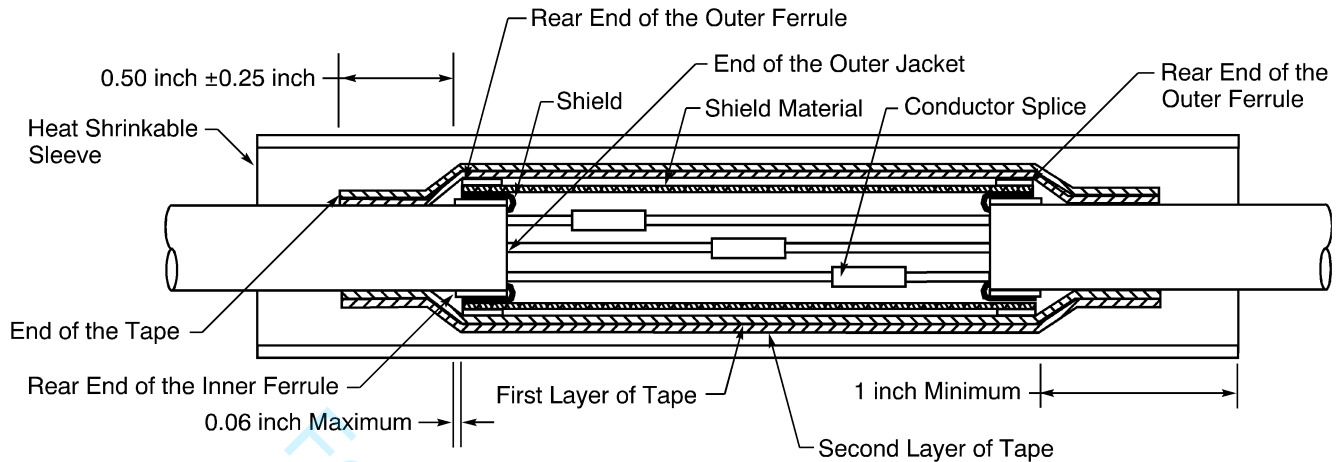
I. One Shielded Cable to One Shielded Cable - Tape, Sleeve

For the conditions that are applicable for:

- The repair of a wire or a cable with a splice, refer to Subject 20-10-13
- The selection of the correct sealed splice configuration, refer to Paragraph 1.C.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES



CONFIGURATION OF THE SPLICE ASSEMBLY

Figure 180

Refer to Figure 180.

- (1) Make a selection of a Temperature Grade D shield material from Table 55.

Make sure that the shield material has the smallest diameter that can go on the folded back shield of the cable.

NOTE: For alternative shield materials, refer to Subject 20-00-11.

- (2) Make a selection of two sets of Temperature Grade D inner ferrules and outer ferrules.

Refer to:

- Figure 6 for the ferrule size
- Table 31 for the Temperature Grade
- Table 32 for the ferrule part numbers.

Make sure that:

- The inner ferrule is the smallest ferrule that can move freely on the outer jacket
- The outer ferrule is the smallest ferrule that can move freely on the shield, the shield material, and the inner ferrule.

- (3) Make a selection of a ferrule crimp tool from Table 45.
- (4) Make a selection of a Temperature Grade D insulation tape from Table 50.
- (5) Make a selection of a Temperature Grade D heat shrinkable sleeve from Table 49.

NOTE: For alternative heat shrinkable sleeves, refer to Subject 20-00-11.

- (6) Prepare the shielded cable.

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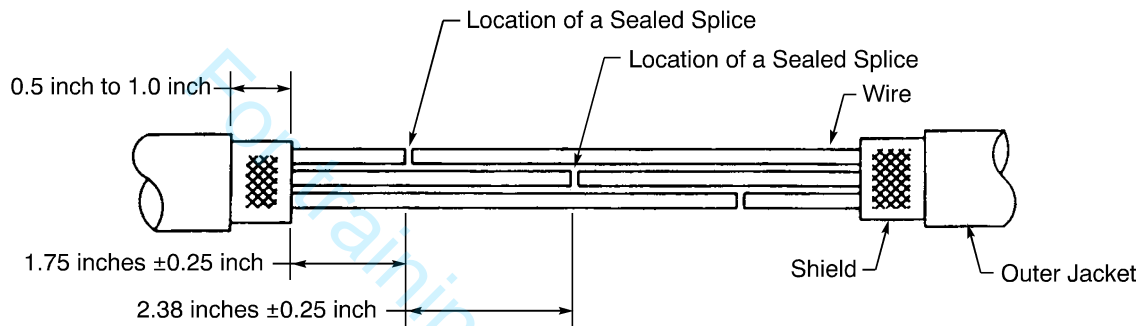
ASSEMBLY OF SPLICES

Refer to:

- Figure 181
- Subject 20-00-15 for the outer jacket removal procedures.

Make sure that:

- The distance from the end of the outer jacket to the end of the shield is 0.5 inch to 1.0 inch
- The distance from the end of the shield to the center of the nearest sealed splice is 1.75 inches ± 0.25 inch
- The distance from the center of a sealed splice on one wire to the center of the nearest sealed splice on another wire is 2.38 inches ± 0.25 inch.



PREPARATION OF THE SHIELDED CABLE

Figure 181

- (7) Cut the necessary length of the sleeve.

Make sure that the sleeve extends a minimum of 1 inch farther than the rear end of the inner ferrule on each end of the shield splice.

- (8) Cut the necessary length of the shield material.

Make sure that the end of the shield material extends farther than the rear end of the inner ferrule on each end of the shield splice.

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

- The sleeve
- The outer ferrule
- The inner ferrule.

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

- The outer ferrule
- The inner ferrule
- The shield material.

NOTE: If it is necessary, the strands at the end of the shield material can be moved apart to make it easier to put the shield material on the cable.

- (11) Make a selection of an applicable Temperature Grade D conductor splice configuration for one wire to one wire. Refer to Paragraph 9.A.
- (12) Assemble the conductor splices. Refer to the applicable procedure given in Paragraph 9.A.
- (13) Assemble the end of the shield splice opposite the end with the shield material.
- (a) Move the outer ferrule on the shield material.

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STANDARD WIRING PRACTICES MANUAL**ASSEMBLY OF SPLICES**

- (b) Move the strands of the shield apart and make them straight.
 - (c) Align the forward end of the inner ferrule with the end of the outer jacket.
 - (d) Fold the strands of the shield back on the inner ferrule to make the strands of the shield symmetrical around the circumference of the ferrule.
 - (e) Align the end of the shield material with the end of the strands of the shield that are folded back.
 - (f) Align the rear end of the outer ferrule with the rear end of the inner ferrule.
Make sure that:
 - The outer ferrule goes around the shield material
 - The rear end of the outer ferrule does not extend farther than the rear end of the inner ferrule
 - The rear end of the outer ferrule is a maximum of 0.06 inch from the rear end of the inner ferrule.
 - (g) Crimp the ferrules.
- (14) Do Step (13) again to assemble the other end of the shield splice.
Make sure that the shield material is pulled tightly before the ferrules are crimped.
- (15) Remove the shield and the shield material that extend farther than the rear end of the inner ferrule on each end of the shield splice.
- (16) Tightly wind a layer of the tape on the splice assembly.
Make sure that the layer of tape:
 - Starts 0.50 inch \pm 0.25 inch farther than the rear end of the inner ferrule at one end of the splice
 - Stops 0.50 inch \pm 0.25 inch farther than the rear end of the inner ferrule at the other end of the splice
 - Makes a 50 percent overlap.
- (17) Tightly wind a second layer of the tape on the splice assembly.
Make sure that the layer of tape:
 - Starts where the first layer of tape stops
 - Stops where the first layer of tape starts
 - Makes a 50 percent overlap.
- (18) Align the center of the sleeve with the center of the splice assembly.
- (19) Shrink the sleeve into position. Refer to Subject 20-10-14.

12. SEALED SPlice CONFIGURATIONS WITH SHIELD-KONS FOR SHIELDED WIRE AND SHIELDED CABLE**A. Splice Assembly Configurations**

For the conditions that are applicable for:

- The repair of a wire or a cable with a splice, refer to Subject 20-10-13
- The selection of the correct sealed splice configuration, refer to Paragraph 1.C.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

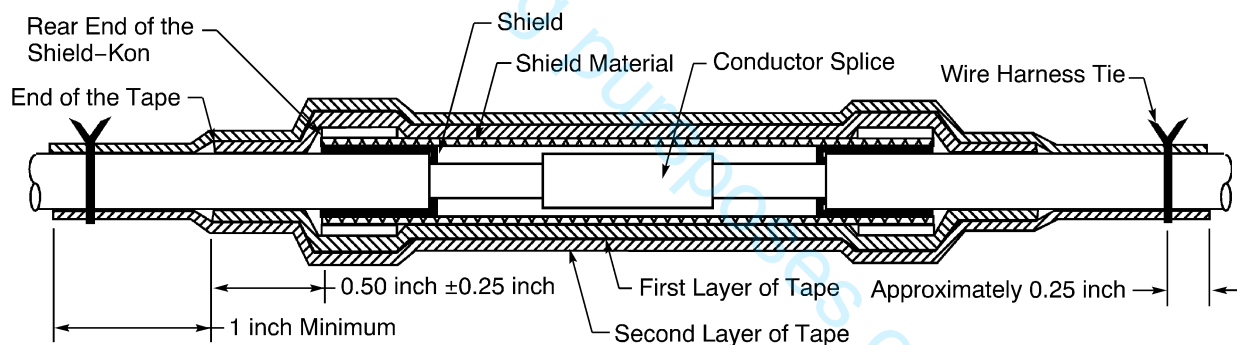
Table 99
SPLICE ASSEMBLY CONFIGURATIONS

One End of Splice Assembly	Other End of Splice Assembly	Quantity of Conductor Splices	Applicable Condition	Splice Assembly	
				Configuration	Procedure
One Shielded Wire	One Shielded Wire	1	Fuel Vapor	Tape, Ties	Paragraph 12.B.
			No Fuel Vapor	Tape, Sleeves	Paragraph 12.C.
				Tape, Ties	Paragraph 12.B.
One Shielded Cable	One Shielded Cable	-	Fuel Vapor	Tape, Ties	Paragraph 12.D.
			No Fuel Vapor	Tape, Sleeves	Paragraph 12.E.
				Tape, Ties	Paragraph 12.D.

B. One Shielded Wire to One Shielded Wire - Tape, Ties

For the conditions that are applicable for:

- The repair of a wire or a cable with a splice, refer to Subject 20-10-13
- The selection of the correct sealed splice configuration, refer to Paragraph 1.C.



CONFIGURATION OF THE SPLICE ASSEMBLY
Figure 182

Refer to Figure 182.

- (1) Make a selection of a Temperature Grade B shield material from Table 55.

Make sure that the shield material has the smallest diameter that can go on the folded back shield of the wire.

NOTE: For alternative shield materials, refer to Subject 20-00-11.

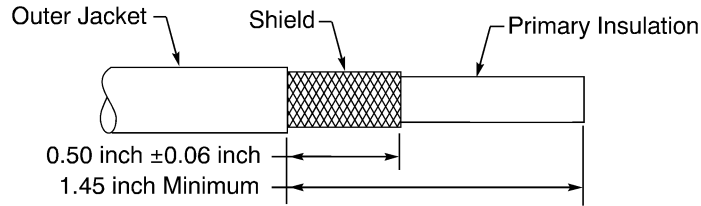
- (2) Make a selection of a Temperature Grade B or higher insulation tape from Table 50.
- (3) Prepare each end of the shielded wire.

Refer to:

- Figure 183
- Subject 20-00-15 for the outer jacket removal procedures.

STANDARD WIRING PRACTICES MANUAL

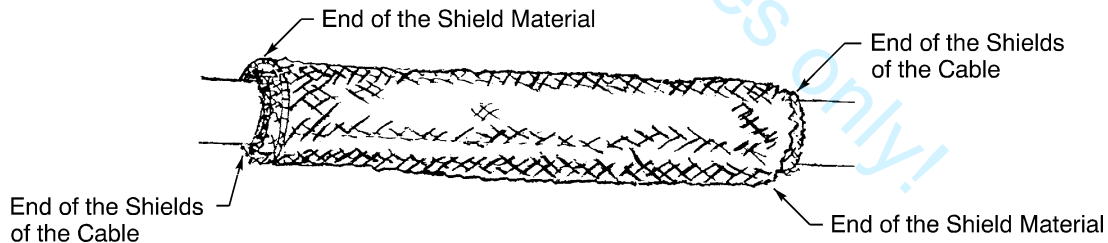
ASSEMBLY OF SPLICES



SHIELDED WIRE PREPARATION

Figure 183

- (a) Remove 1.45 inch minimum length of outer jacket from the end of the wire.
- (b) Remove the necessary length of the shield from the end of the wire.
Make sure the remaining shield is 0.50 inch \pm 0.06 inch.
- (4) Fold the end of the shield against the outer jacket.
- (5) Put a temporary layer of tape around the end of each shield to make sure that the shields do not move.
- (6) Cut the necessary length of the shield material.
Make sure that the ends of the shield material extend farther than the rear end of the Shield-Kons on each end of the shield splice.
- (7) Put the shield material on the end of the other wire.
NOTE: If it is necessary, the strands at the end of the shield material can be moved apart to make it easier to put the shield material on the wire.
- (8) Make a selection of an applicable Temperature Grade B conductor splice configuration for one wire to one wire. Refer to Paragraph 9.A.
- (9) Assemble the conductor splice. Refer to the applicable procedure given in Paragraph 9.A.
- (10) Align one end of the shield material with the end of the folded back shield. Refer to Figure 184.



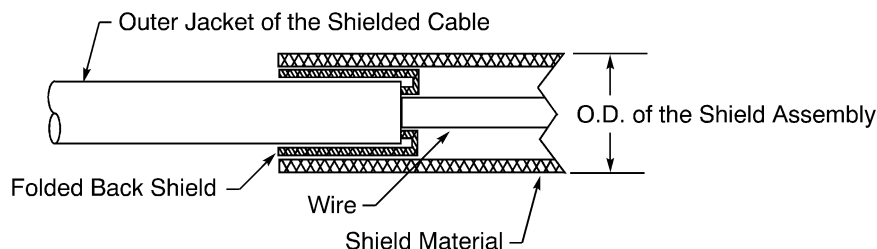
POSITION OF THE SHIELD MATERIAL ON THE WIRE

Figure 184

- (11) Measure the outer diameter of the shield assembly. Refer to Figure 185.

STANDARD WIRING PRACTICES MANUAL

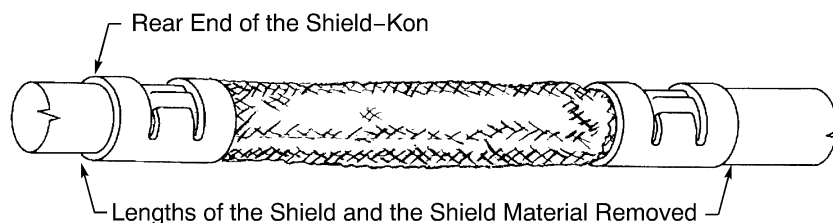
ASSEMBLY OF SPLICES



MEASUREMENT OF THE SHIELD ASSEMBLY OUTER DIAMETER

Figure 185

- (12) Make a selection of the correct size of two Temperature Grade B or higher Shield-Kons from Table 34.
- (13) Assemble the splice of the shield:
 - (a) Make a selection of a Shield-Kon crimp tool from Table 46.
 - (b) Remove the temporary layer of tape around the end of each shield.
 - (c) Align one end of the shield material with the end of the shield. Refer to Figure 184.
 - (d) 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.
 - (e) Put the crimp tool and the Shield-Kon on the shield material.
Make sure that the rear end of the Shield-Kon is aligned with the ends of the shield and the shield material.
 - (f) Crimp the Shield-Kon.
 - (g) 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.
 - (h) Make the shield material smooth and tight.
 - (i) Put the crimp tool and the Shield-Kon on the other end of the shield material.
Make sure that the rear end of the Shield-Kon is aligned with the ends of the shield and the shield material.
 - (j) Crimp the Shield-Kon.
 - (k) Remove the shield and the shield material that extend farther than the rear end of the Shield-Kon on each end of the shield splice. Refer to Figure 186.



SHIELD SPLICE ASSEMBLY

Figure 186

- (14) Tightly wind a layer of the tape on the splice assembly.

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Make sure that the layer of tape:

- Starts 0.50 inch \pm 0.25 inch farther than the rear end of the Shield-Kon at one end of the splice
- Stops 0.50 inch \pm 0.25 inch farther than the rear end of the Shield-Kon at the other end of the splice
- Makes a 50 percent overlap.

(15) Tightly wind a second layer of the tape on the splice assembly.

Make sure that the layer of tape:

- Starts 1 inch minimum farther than where the first layer of tape stops
- Stops 1 inch minimum farther than where the first layer of tape starts
- Makes a 50 percent overlap.

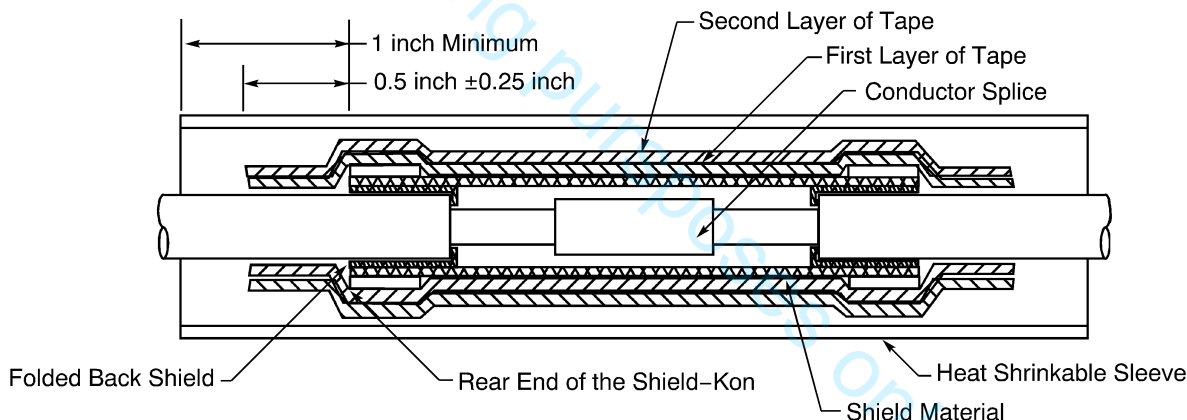
(16) Assemble a lacing tape wire harness tie on each end of the splice assembly approximately 0.25 inch from the end of the tape. Refer to Subject 20-10-11.

Make sure that the Temperature Grade of the lacing tape is Temperature Grade B or higher.

C. One Shielded Wire to One Shielded Wire - Tape, Sleeve

For the conditions that are applicable for:

- The repair of a wire or a cable with a splice, refer to Subject 20-10-13
- The selection of the correct sealed splice configuration, refer to Paragraph 1.C.



CONFIGURATION OF THE SPLICE ASSEMBLY
Figure 187

Refer to Figure 187.

(1) Make a selection of a Temperature Grade B shield material from Table 55.

Make sure that the shield material has the smallest diameter that can go on the folded back shield of the wire.

NOTE: For alternative shield materials, refer to Subject 20-00-11.

(2) Make a selection of a Temperature Grade B or higher insulation tape from Table 50.

(3) Make a selection of a Temperature Grade B or higher heat shrinkable sleeve from Table 49.

NOTE: For alternative heat shrinkable sleeves, refer to Subject 20-00-11.

(4) Prepare each end of the shielded wire.

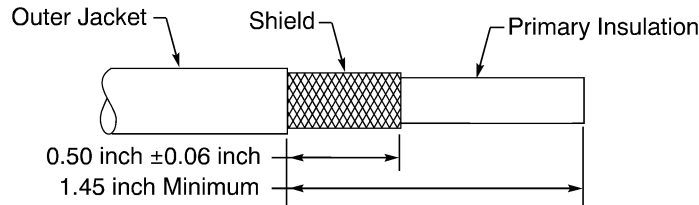
20-30-12

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Refer to:

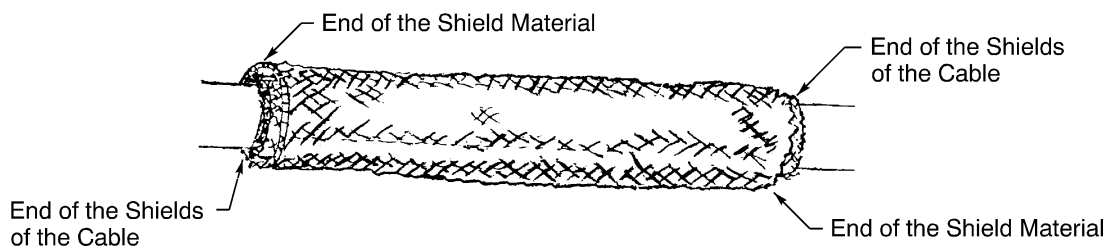
- Figure 188
- Subject 20-00-15 for the outer jacket removal procedures.



SHIELDED WIRE PREPARATION

Figure 188

- Remove 1.45 inch minimum length of outer jacket from the end of the wire.
 - Remove the necessary length of the shield from the end of the wire.
Make sure the remaining shield is 0.50 inch \pm 0.06 inch.
- Fold the end of the shield against the outer jacket.
 - Put a temporary layer of tape around the end of each shield to make sure that the shields do not move.
 - Cut the necessary length of the sleeve.
Make sure that the sleeve extends a minimum of 1 inch farther than the rear end of the Shield-Kons on each end of the shield splice.
 - Cut the necessary length of the shield material.
Make sure that the ends of the shield material extend farther than the rear end of the Shield-Kons on each end of the shield splice.
 - Put the sleeve on one end of the wire.
 - Put the shield material on the end of the other wire.
- NOTE:** If it is necessary, the strands at the end of the shield material can be moved apart to make it easier to put the shield material on the wire.
- Make a selection of an applicable Temperature Grade B conductor splice configuration for one wire to one wire. Refer to Paragraph 9.A.
 - Assemble the conductor splice. Refer to the applicable procedure given in Paragraph 9.A.
 - Align one end of the shield material with the end of the folded back shield. Refer to Figure 189.



POSITION OF THE SHIELD MATERIAL ON THE WIRE

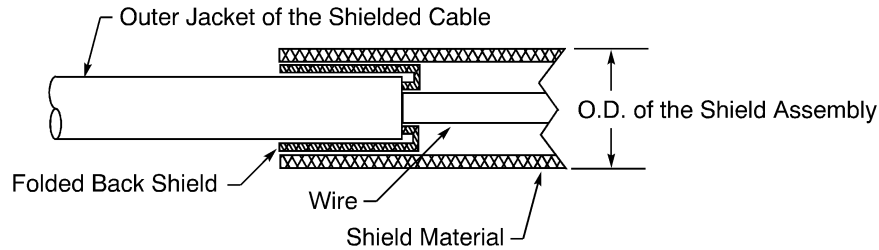
Figure 189

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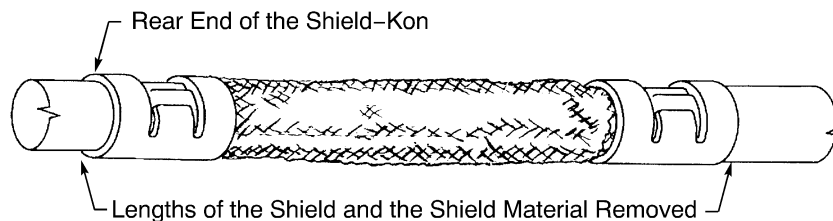
ASSEMBLY OF SPLICES

- (14) Measure the outer diameter of the shield assembly. Refer to Figure 190.



MEASUREMENT OF THE SHIELD ASSEMBLY OUTER DIAMETER
Figure 190

- (15) Make a selection of the correct size of two Temperature Grade B or higher Shield-Kons from Table 34.
- (16) Assemble the splice of the shield:
- Make a selection of a Shield-Kon crimp tool from Table 46.
 - Remove the temporary layer of tape around the end of each shield.
 - Align one end of the shield material with the end of the shield. Refer to Figure 189.
 - 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.
 - Put the crimp tool and the Shield-Kon on the shield material.
Make sure that the rear end of the Shield-Kon is aligned with the ends of the shield and the shield material.
 - Crimp the Shield-Kon.
 - 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.
 - Make the shield material smooth and tight.
 - Put the crimp tool and the Shield-Kon on the other end of the shield material.
Make sure that the rear end of the Shield-Kon is aligned with the ends of the shield and the shield material.
 - Crimp the Shield-Kon.
 - Remove the shield and the shield material that extend farther than the rear end of the Shield-Kon on each end of the shield splice. Refer to Figure 191.



SHIELD SPLICE ASSEMBLY
Figure 191

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

(17) Tightly wind a layer of the tape on the splice assembly.

Make sure that the layer of tape:

- Starts 0.50 inch \pm 0.25 inch farther than the rear end of the Shield-Kon at one end of the splice
- Stops 0.50 inch \pm 0.25 inch farther than the rear end of the Shield-Kon at the other end of the splice
- Makes a 50 percent overlap.

(18) Tightly wind a second layer of the tape on the splice assembly.

Make sure that the layer of tape:

- Starts where the first layer of tape stops
- Stops where the first layer of tape starts
- Makes a 50 percent overlap.

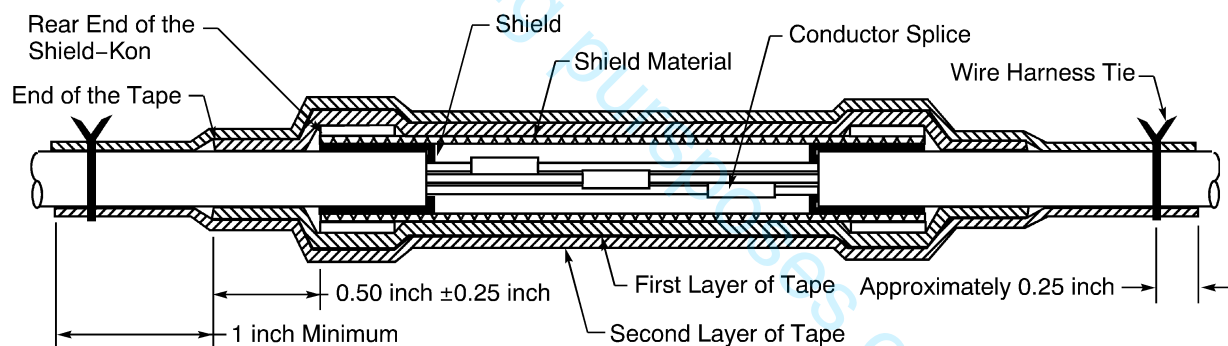
(19) Align the center of the sleeve with the center of the splice assembly.

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

D. One Shielded Cable to One Shielded Cable - Tape, Ties

For the conditions that are applicable for:

- The repair of a wire or a cable with a splice, refer to Subject 20-10-13
- The selection of the correct sealed splice configuration, refer to Paragraph 1.C.



CONFIGURATION OF THE SPLICE ASSEMBLY

Figure 192

Refer to Figure 192.

(1) Make a selection of a Temperature Grade B shield material from Table 55.

Make sure that the shield material has the smallest diameter that can go on the folded back shield of the cable.

NOTE: For alternative shield materials, refer to Subject 20-00-11.

(2) Make a selection of a Temperature Grade B or higher insulation tape from Table 50.

(3) Prepare the shielded cable.

STANDARD WIRING PRACTICES MANUAL

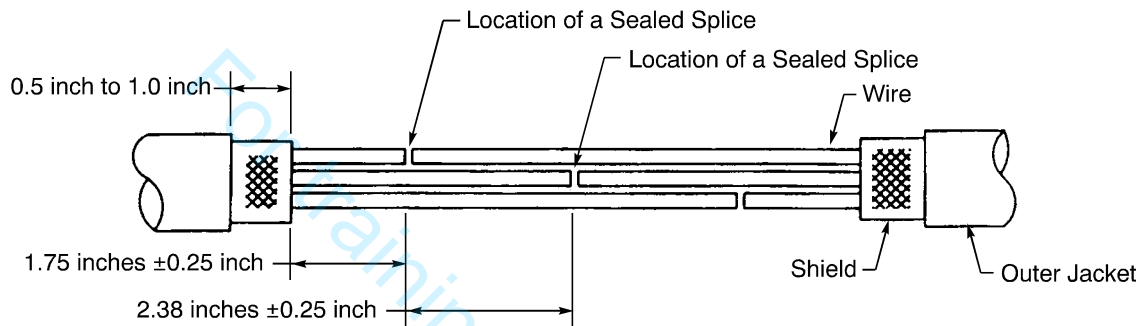
ASSEMBLY OF SPLICES

Refer to:

- Figure 193
- Subject 20-00-15 for the outer jacket removal procedures.

Make sure that:

- The distance from the end of the outer jacket to the end of the shield is 0.5 inch to 1.0 inch
- The distance from the end of the shield to the center of the nearest sealed splice is 1.75 inches ± 0.25 inch
- The distance from the center of a sealed splice on one wire to the center of the nearest sealed splice on another wire is 2.38 inches ± 0.25 inch.



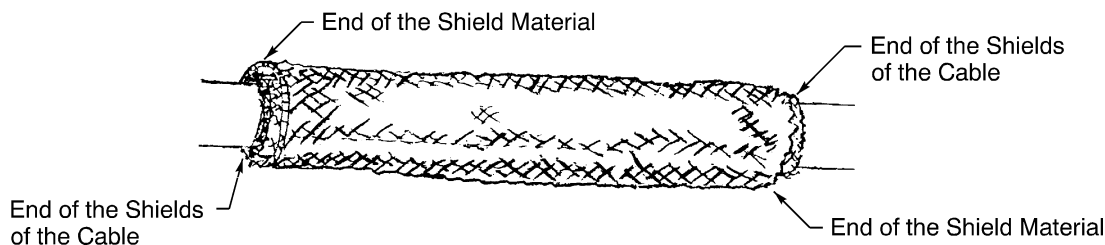
PREPARATION OF THE SHIELDED CABLE

Figure 193

- (4) Fold the end of the shield against the outer jacket.
- (5) Put a temporary layer of tape around the end of each shield to make sure that the shields do not move.
- (6) Cut the necessary length of the shield material.
Make sure that the ends of the shield material extend farther than the rear end of the Shield-Kons on each end of the shield splice.
- (7) Put the shield material on the end of the other cable.
NOTE: If it is necessary, the strands at the end of the shield material can be moved apart to make it easier to put the shield material on the cable.
- (8) Make a selection of an applicable Temperature Grade B conductor splice configuration for one wire to one wire. Refer to Paragraph 9.A.
- (9) Assemble the conductor splice. Refer to the applicable procedure given in Paragraph 9.A.
- (10) Align one end of the shield material with the end of the folded back shield. Refer to Figure 194.

STANDARD WIRING PRACTICES MANUAL

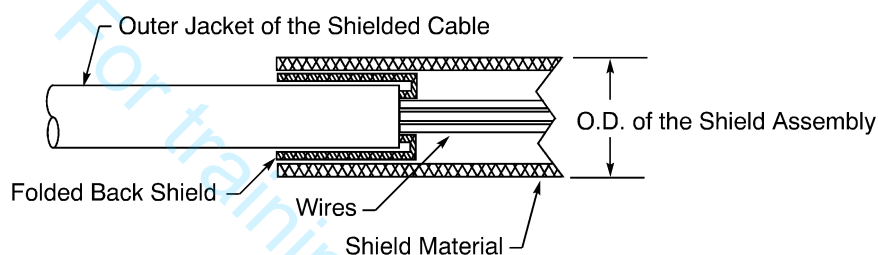
ASSEMBLY OF SPLICES



POSITION OF THE SHIELD MATERIAL ON THE CABLE

Figure 194

- (11) Measure the outer diameter of the shield assembly. Refer to Figure 195.



MEASUREMENT OF THE SHIELD ASSEMBLY OUTER DIAMETER

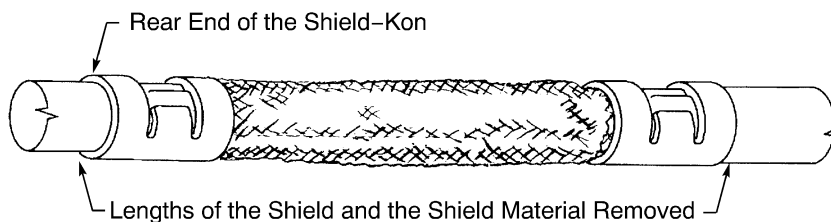
Figure 195

- (12) Make a selection of the correct size of two Temperature Grade B or higher Shield-Kons from Table 34.
- (13) Assemble the splice of the shield:
- Make a selection of a Shield-Kon crimp tool from Table 46.
 - Remove the temporary layer of tape around the end of each shield.
 - Align one end of the shield material with the end of the shield. Refer to Figure 194.
 - 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.
 - Put the crimp tool and the Shield-Kon on the shield material.
Make sure that the rear end of the Shield-Kon is aligned with the ends of the shield and the shield material.
 - Crimp the Shield-Kon.
 - 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.
 - Make the shield material smooth and tight.
 - Put the crimp tool and the Shield-Kon on the other end of the shield material.
Make sure that the rear end of the Shield-Kon is aligned with the ends of the shield and the shield material.
 - Crimp the Shield-Kon.
 - Remove the shield and the shield material that extend farther than the rear end of the Shield-Kon on each end of the shield splice. Refer to Figure 196.

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES



SHIELD SPLICE ASSEMBLY

Figure 196

- (14) Tightly wind a layer of the tape on the splice assembly.

Make sure that the layer of tape:

- Starts 0.50 inch \pm 0.25 inch farther than the rear end of the Shield-Kon at one end of the splice
- Stops 0.50 inch \pm 0.25 inch farther than the rear end of the Shield-Kon at the other end of the splice
- Makes a 50 percent overlap.

- (15) Tightly wind a second layer of the tape on the splice assembly.

Make sure that the layer of tape:

- Starts 1 inch minimum farther than where the first layer of tape stops
- Stops 1 inch minimum farther than where the first layer of tape starts
- Makes a 50 percent overlap.

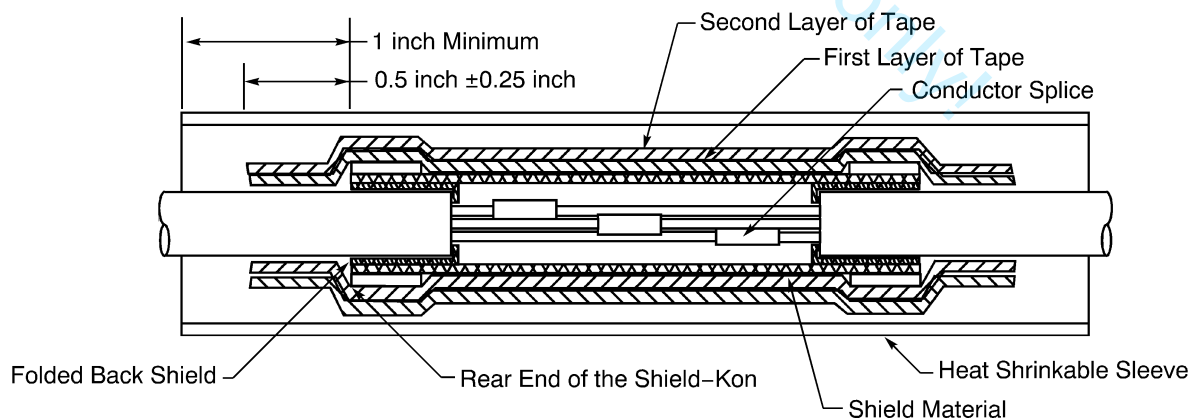
- (16) Assemble a lacing tape wire harness tie on each end of the splice assembly approximately 0.25 inch from the end of the tape. Refer to Subject 20-10-11.

Make sure that the Temperature Grade of the lacing tape is Temperature Grade B or higher.

E. One Shielded Cable to One Shielded Cable - Tape, Sleeve

For the conditions that are applicable for:

- The repair of a wire or a cable with a splice, refer to Subject 20-10-13
- The selection of the correct sealed splice configuration, refer to Paragraph 1.C.



CONFIGURATION OF THE SPLICE ASSEMBLY

Figure 197

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Refer to Figure 197.

- (1) Make a selection of a Temperature Grade B shield material from Table 55.

Make sure that the shield material has the smallest diameter that can go on the folded back shield of the cable.

NOTE: For alternative shield materials, refer to Subject 20-00-11.

- (2) Make a selection of a Temperature Grade B or higher insulation tape from Table 50.
- (3) Make a selection of a Temperature Grade B or higher heat shrinkable sleeve from Table 49.

NOTE: For alternative heat shrinkable sleeves, refer to Subject 20-00-11.

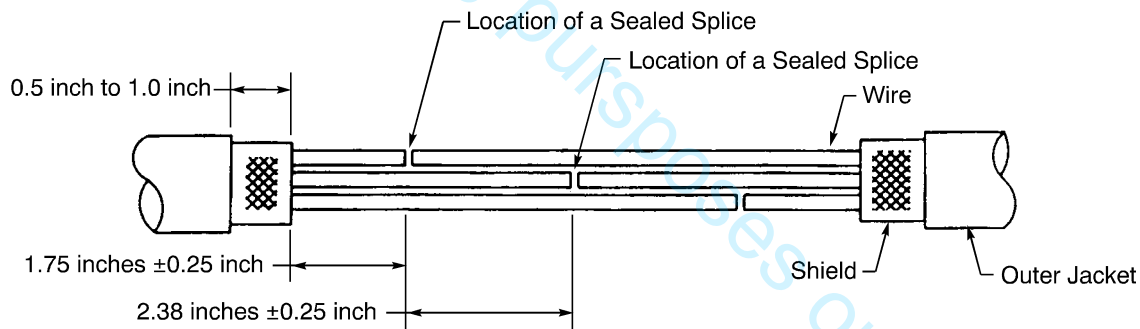
- (4) Prepare the shielded cable.

Refer to:

- Figure 198
- Subject 20-00-15 for the outer jacket removal procedures.

Make sure that:

- The distance from the end of the outer jacket to the end of the shield is 0.5 inch to 1.0 inch
- The distance from the end of the shield to the center of the nearest sealed splice is 1.75 inches \pm 0.25 inch
- The distance from the center of a sealed splice on one wire to the center of the nearest sealed splice on another wire is 2.38 inches \pm 0.25 inch.



PREPARATION OF THE SHIELDED CABLE

Figure 198

- (5) Fold the end of the shield against the outer jacket.
- (6) Put a temporary layer of tape around the end of each shield to make sure that the shields do not move.
- (7) Cut the necessary length of the sleeve.
Make sure that the sleeve extends a minimum of 1 inch farther than the rear end of the Shield-Kons on each end of the shield splice.
- (8) Cut the necessary length of the shield material.
Make sure that the ends of the shield material extend farther than the rear end of the Shield-Kons on each end of the shield splice.
- (9) Put the sleeve on one end of the cable.

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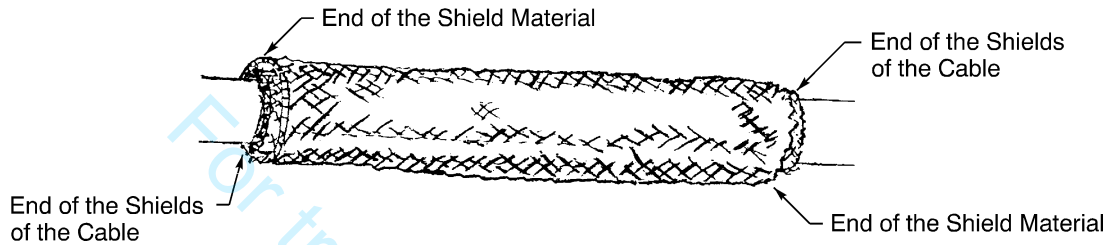
STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

- (10) Put the shield material on the end of the other cable.

NOTE: If it is necessary, the strands at the end of the shield material can be moved apart to make it easier to put the shield material on the cable.

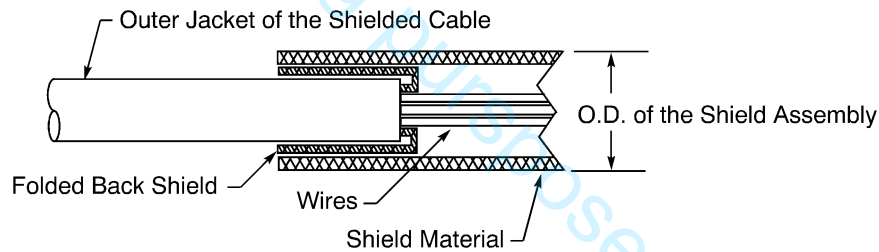
- (11) Make a selection of an applicable Temperature Grade B conductor splice configuration for one wire to one wire. Refer to Paragraph 9.A.
- (12) Assemble the conductor splice. Refer to the applicable procedure given in Paragraph 9.A.
- (13) Align one end of the shield material with the end of the folded back shield. Refer to Figure 199.



POSITION OF THE SHIELD MATERIAL ON THE CABLE

Figure 199

- (14) Measure the outer diameter of the shield assembly. Refer to Figure 200.



MEASUREMENT OF THE SHIELD ASSEMBLY OUTER DIAMETER

Figure 200

- (15) Make a selection of the correct size of two Temperature Grade B or higher Shield-Kons from Table 34.
- (16) Assemble the splice of the shield:
- Make a selection of a Shield-Kon crimp tool from Table 46.
 - Remove the temporary layer of tape around the end of each shield.
 - Align one end of the shield material with the end of the shield. Refer to Figure 199.
 - 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.
 - Put the crimp tool and the Shield-Kon on the shield material.
Make sure that the rear end of the Shield-Kon is aligned with the ends of the shield and the shield material.
 - Crimp the Shield-Kon.
 - Put the other Shield-Kon into the die of the crimp tool.

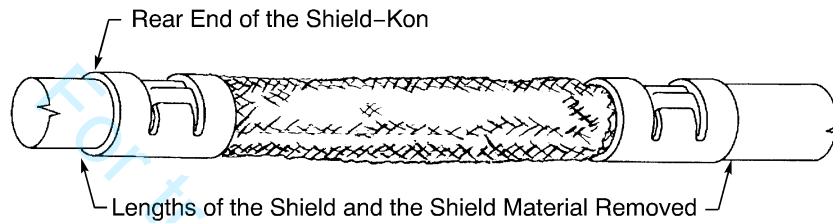
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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

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

- (h) Make the shield material smooth and tight.
- (i) Put the crimp tool and the Shield-Kon on the other end of the shield material.
Make sure that the rear end of the Shield-Kon is aligned with the ends of the shield and the shield material.
- (j) Crimp the Shield-Kon.
- (k) Remove the shield and the shield material that extend farther than the rear end of the Shield-Kon on each end of the shield splice. Refer to Figure 201.



SHIELD SPLICE ASSEMBLY
Figure 201

- (17) Tightly wind a layer of the tape on the splice assembly.
Make sure that the layer of tape:
 - Starts 0.50 inch \pm 0.25 inch farther than the rear end of the Shield-Kon at one end of the splice
 - Stops 0.50 inch \pm 0.25 inch farther than the rear end of the Shield-Kon at the other end of the splice
 - Makes a 50 percent overlap.
- (18) Tightly wind a second layer of the tape on the splice assembly.
Make sure that the layer of tape:
 - Starts where the first layer of tape stops
 - Stops where the first layer of tape starts
 - Makes a 50 percent overlap.
- (19) Align the center of the sleeve with the center of the splice assembly.
- (20) Shrink the sleeve into position. Refer to Subject 20-10-14.

13. SEALED SPLICE CONFIGURATIONS WITH SHIELD TERMINATION RINGS AND SHIELD TERMINATOR BANDS FOR SHIELDED WIRE AND SHIELDED CABLE FOR HIGH TEMPERATURE

A. Splice Assembly Configurations

NOTE: Temperature grade D Shield-Kons are no longer manufactured. The procedures in paragraphs 13.B., 13.C., 13.D., and 13.E. replace Shield-Kon assembly procedures for high temperature shielded splice applications.

For the conditions that are applicable for:

- The repair of a wire or a cable with a splice, refer to Subject 20-10-13
- The selection of the correct sealed splice configuration, refer to Paragraph 1.C..

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STANDARD WIRING PRACTICES MANUAL
ASSEMBLY OF SPLICES

Table 100
SPLICE ASSEMBLY CONFIGURATIONS

One End of Splice Assembly	Other End of Splice Assembly	Applicable Condition	Splice Assembly	
			Configuration	Procedure
One Shielded Wire	One Shielded Wire	Fuel Vapor	Tape, Ties	Paragraph 13.B.
		No Fuel Vapor	Tape, Sleeves	Paragraph 13.C.
			Tape, Ties	Paragraph 13.B.
One Shielded Cable	One Shielded Cable	Fuel Vapor	Tape, Ties	Paragraph 13.D.
		No Fuel Vapor	Tape, Sleeves	Paragraph 13.E.
			Tape, Ties	Paragraph 13.D.

B. One Shielded Wire to One Shielded Wire - Shield Termination Rings, Shield Terminator Bands, Tape, Ties

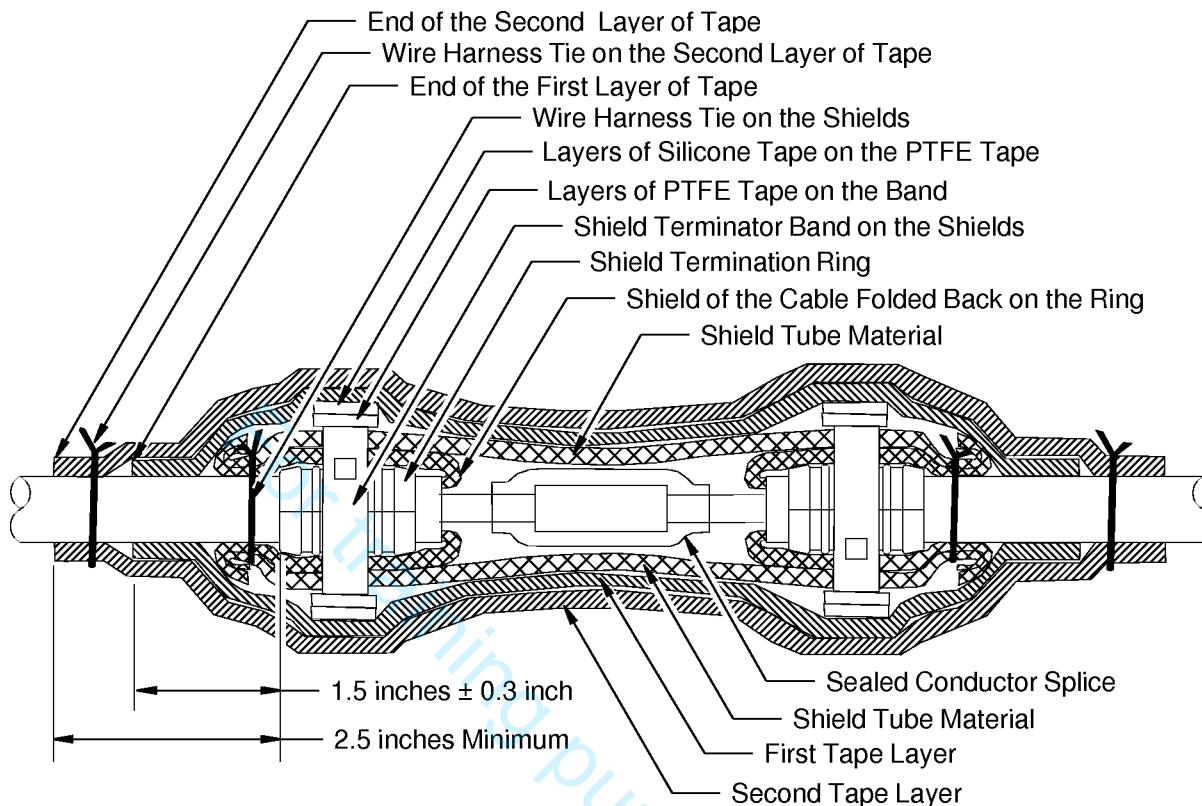
For the conditions that are applicable for:

- The repair of a wire or a cable with a splice, refer to Subject 20-10-13
- The selection of the correct sealed splice configuration, refer to Paragraph 1.C.

20-30-12

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES



CONFIGURATION OF THE SPLICE ASSEMBLY

Figure 202

Refer to Figure 202:

- (1) Make a selection of two M85049/93-() shield termination rings. Refer to Subject 20-00-11.

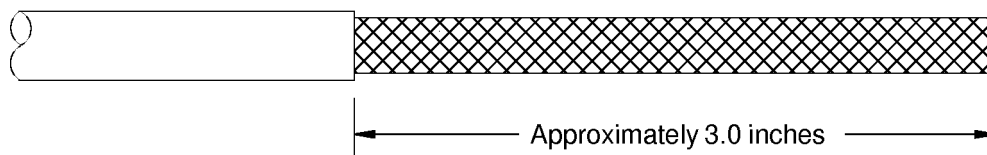
Make sure that:

- The shield termination rings have the smallest diameter that can go on the outer jacket of the wire
- Both shield termination rings are the same size.

- (2) Remove approximately 3 inches of the outer jacket from the end of the wire on each side of the repair location.

Refer to:

- Figure 203
- Subject 20-00-15 for the outer jacket removal procedures.



SHIELDED WIRE PREPARATION

Figure 203

20-30-12

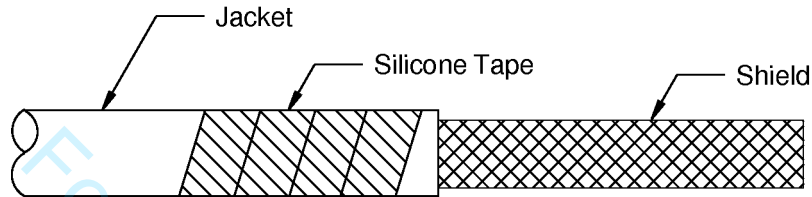
STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

- (3) Wrap a minimum of one layer of Temperature Grade D Type I silicone tape on each side of the repair location on the each cable jacket near the end of the jacket where the shield termination ring will be located.

Refer to Figure 205 and Figure 204.

NOTE: Additional wraps of silicone tape may be necessary on the jacket to give a proper fit for the shield termination ring.

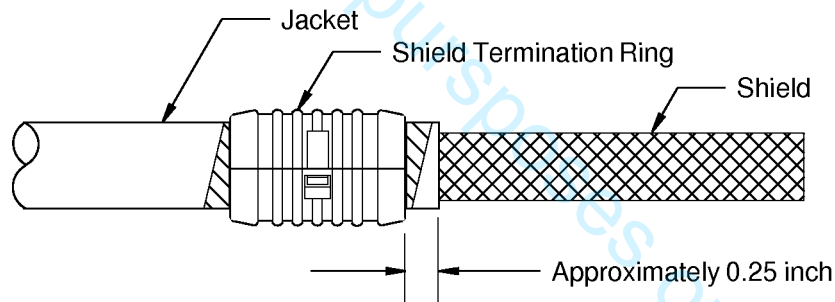


POSITION OF THE SILICONE TAPE ON THE JACKET OF THE SHIELDED WIRE

Figure 204

- (4) Put a shield termination ring on the jacket of the wire on each side of the repair location. Refer to Figure 204.

Make sure that the distance from the end of the jacket to the forward edge of the shield terminator band is approximately 0.25 inch.



POSITION OF THE SHIELD TERMINATION RING ON THE SHIELDED WIRE

Figure 205

- (5) Fold the end of the shield back on each shield termination ring. Refer to Figure 206.

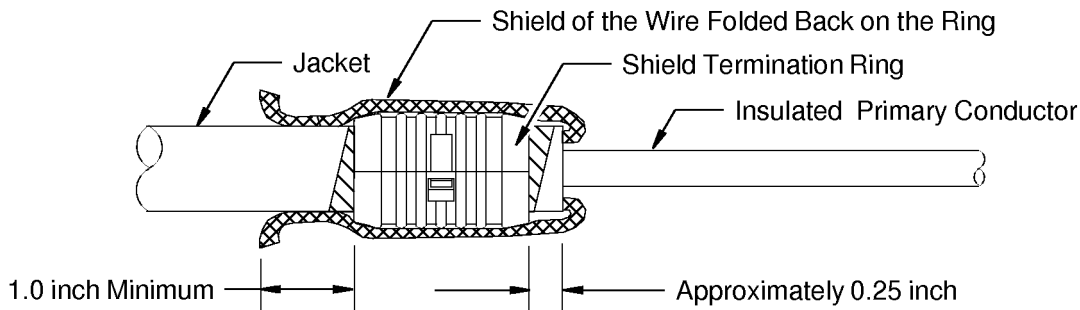
Make sure that the ends of the shield material extend approximately one inch farther than the rear end of each shield termination ring.

If it is necessary:

- The strands at the end of the shield material can be moved apart to make it easier to put the shield material on the shield termination ring.
- An additional length of the jacket can be removed to give more shield length.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES



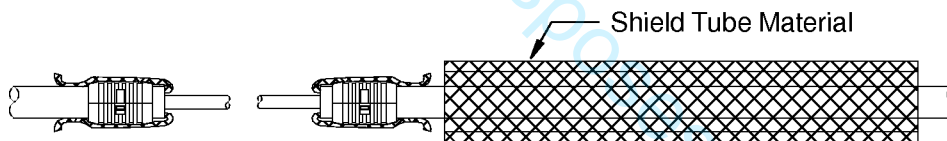
SHIELD OF THE CABLE FOLDED BACK ON A SHIELD TERMINATION RING

Figure 206

- (6) Put a temporary layer of tape around the end of each shield to make sure that the shield does not move.
- (7) If it is not specified, make a selection of a Temperature Grade D shield material from Table 55. Make sure that the shield material has the smallest diameter that can go on the folded back shield on the shield termination ring.

NOTE: For alternative shield materials, refer to Subject 20-00-11.

- (8) Cut the necessary length of the shield tube material. Make sure that the ends of the shield material extend a minimum of one inch farther than the rear end of each shield termination ring.
- (9) Put the shield tube on the end of the other wire. Refer to Figure 207.



TEMPORARY POSITION OF THE SHIELD TUBE MATERIAL ON THE WIRE

Figure 207

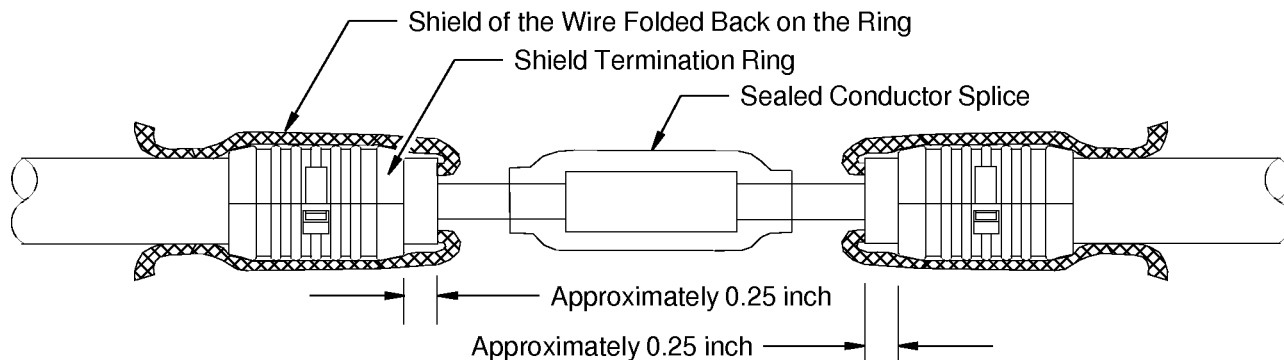
- (10) If it is not specified, make a selection of an applicable Temperature Grade D sealed conductor splice for one wire to one wire. Refer to Paragraph 9.A.
- (11) Assemble the sealed conductor splice.

Refer to:

- The applicable procedure given in Paragraph 9.A.
- Figure 208.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES



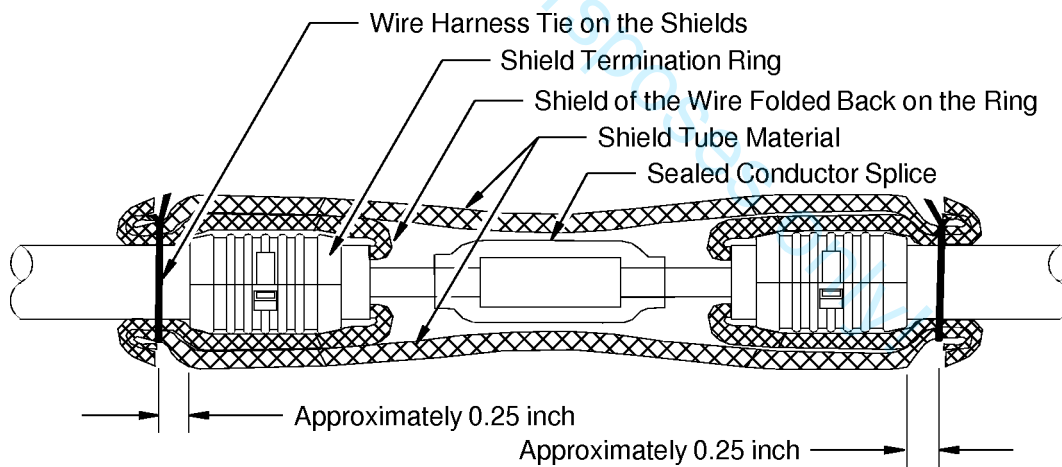
POSITION OF THE CONDUCTOR SPLICE

Figure 208

- (12) Push the shield tube material onto the splice assembly.
- (13) Remove the temporary layer of tape around the end of each shield.
- (14) Align the ends of the shield tube material and the ends of the folded back shields. Refer to Figure 209.
- (15) Assemble a lacing tape wire harness tie on the shields approximately 0.25 inch from the rear end of each shield termination ring.

Refer to:

- Figure 209
- Subject 20-10-11 for the procedure to assemble a lacing tape wire harness tie.



POSITION OF THE SHIELD TUBE MATERIAL ON THE SPLICE ASSEMBLY

Figure 209

- (16) Make a selection of a shield terminator band for each shield termination ring. Refer to Subject 20-00-11.

Assemble a shield terminator band on the shields on each shield termination ring.

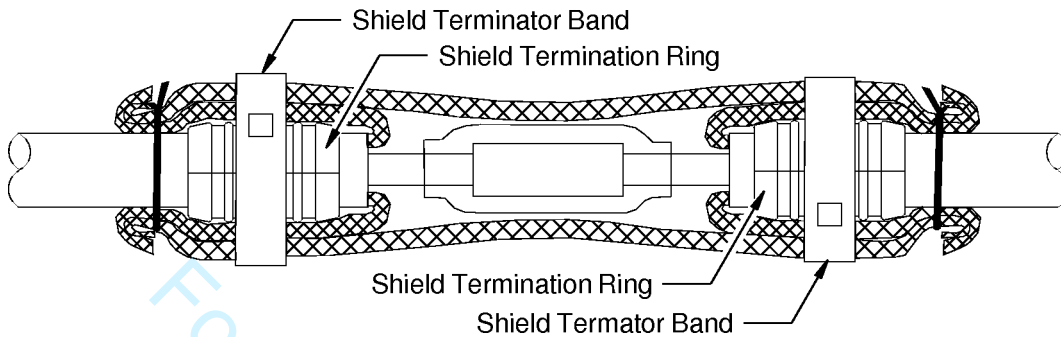
20-30-12

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Refer to:

- Figure 210
- Refer to Subject 20-25-14 for the procedure to install the band.

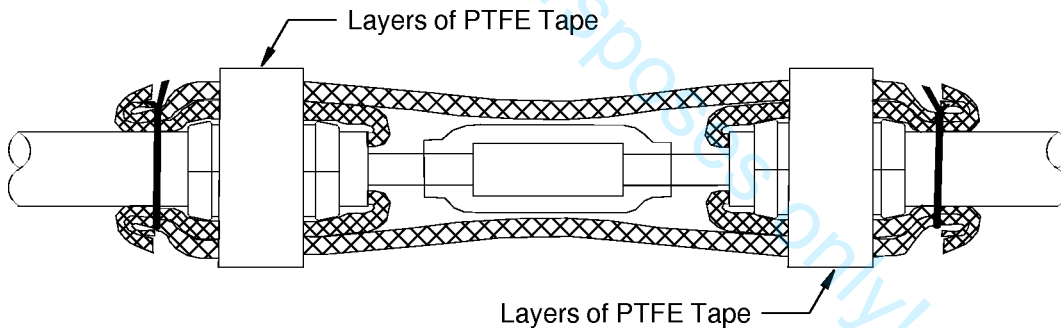


POSITION OF THE SHIELD TERMINATOR BANDS ON THE SHIELDS
Figure 210

- (17) Wind 2 to 3 layers of PTFE tape on each shield terminator band.
Make sure that the tape makes a one hundred percent overlap.

Refer to:

- Figure 211
- Subject 20-00-11 for the PTFE tape.



POSITION OF THE PTFE TAPE ON THE SHIELD TERMINATOR BANDS
Figure 211

- (18) Wind 2 to 3 layers of 1 inch wide Temperature Grade D Type I silicone tape on top of the PTFE tape.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Make sure that:

- The tape makes a one hundred percent overlap
- The surface of the band cannot be seen.

Refer to:

- Figure 211
- Figure 202
- Subject 20-00-11 for the silicone tape.

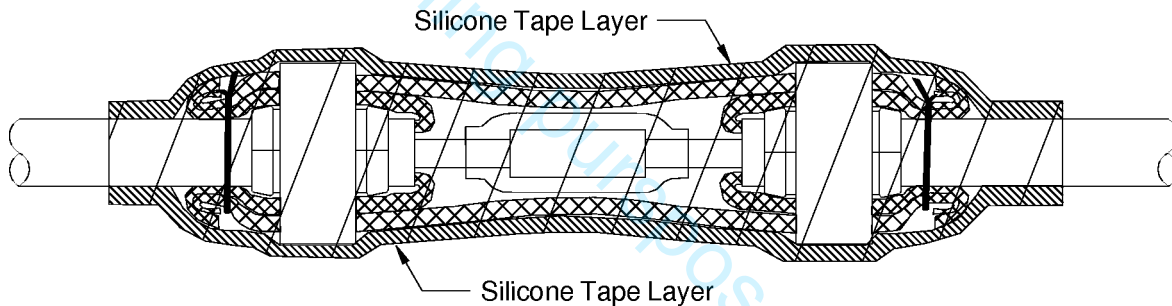
(19) Tightly wind a layer of Temperature Grade D Type II silicone tape on the splice assembly.

Refer to:

- Figure 212
- Subject 20-00-11 for the tape.

Make sure that the layer of tape:

- Starts 1 inch minimum farther than the rear end of the shields on one end of the splice
- Stops 1 inch minimum farther than the rear end of the shields on the other end of the splice
- The tape makes approximately a 50 percent overlap with itself
- The tape makes approximately a 100 percent overlap at the ends.



THE FIRST LAYER OF SILICONE TAPE ON THE SPLICE ASSEMBLY
Figure 212

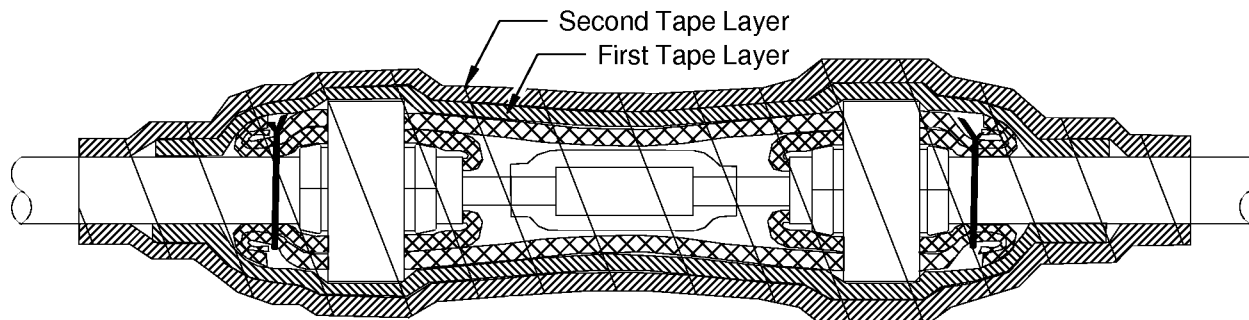
(20) Tightly wind a second layer of Temperature Grade D Type II silicone tape on the splice assembly.
Refer to Figure 213.

Make sure that the layer of tape:

- Starts 1 inch minimum farther than where the first layer of tape stops
- Stops 1 inch minimum farther than where the first layer of tape starts
- The tape makes approximately a 50 percent overlap with itself
- The tape makes approximately a 100 percent overlap at the ends.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

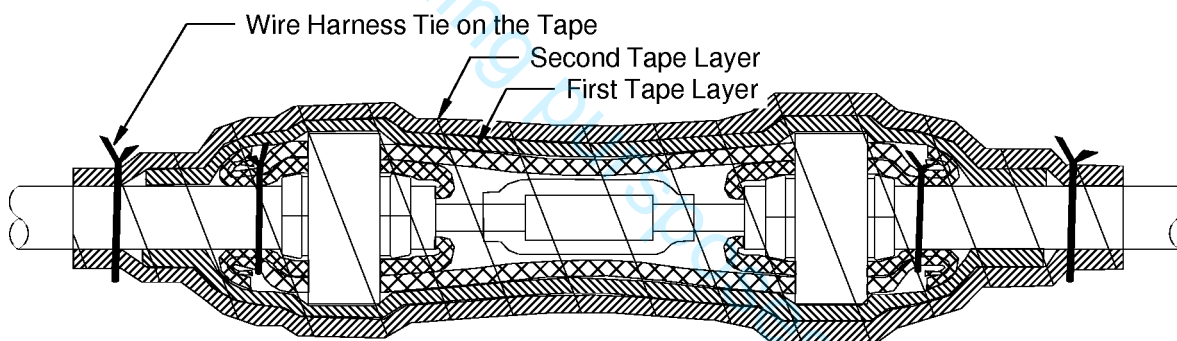


THE SECOND LAYER OF SILICONE TAPE ON THE SPLICE ASSEMBLY
Figure 213

- (21) Assemble a lacing tape wire harness tie on each end of the splice assembly approximately 0.5 inch to 0.7 inch from the end of the tape.

Refer to:

- Figure 214.
- Subject 20-10-11 for the procedure to assemble a lacing tape wire harness tie.



POSITION OF THE WIRE HARNESS TIES ON THE SPLICE ASSEMBLY
Figure 214

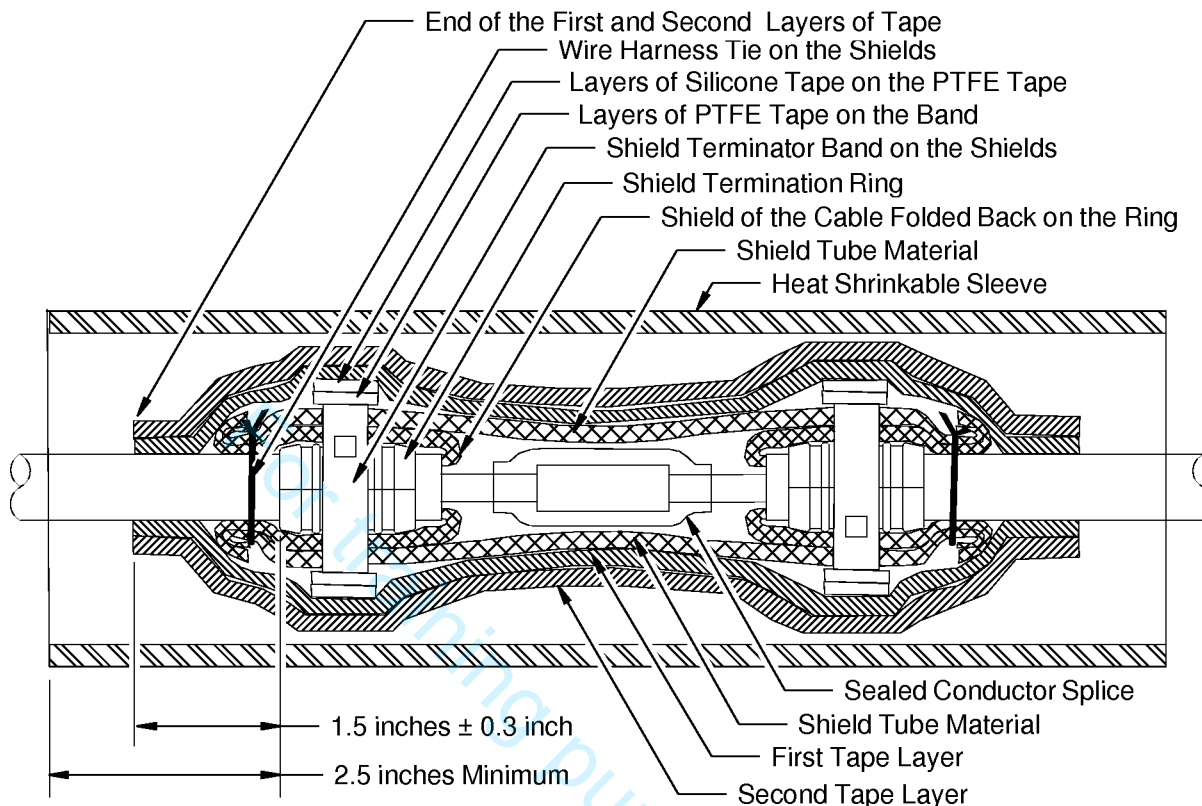
C. One Shielded Wire to One Shielded Wire - Shield Termination Rings, Shield Terminator Bands, Tape, Sleeve

For the conditions that are applicable for:

- The repair of a wire or a cable with a splice, refer to Subject 20-10-13
- The selection of the correct sealed splice configuration, refer to Paragraph 1.C.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES



CONFIGURATION OF THE SPLICE ASSEMBLY

Figure 215

Refer to Figure 215:

- (1) Make a selection of two M85049/93-() shield termination rings. Refer to Subject 20-00-11.

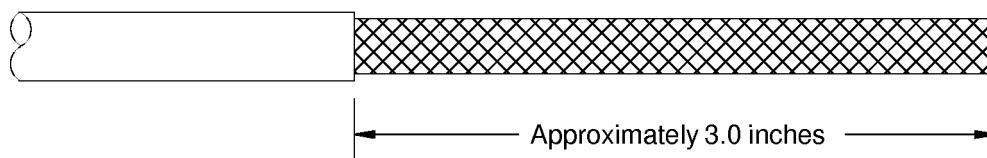
Make sure that:

- The shield termination rings have the smallest diameter that can go on the outer jacket of the wire
- Both shield termination rings are the same size.

- (2) Remove approximately 3 inches of the outer jacket from the end of the wire on each side of the repair location.

Refer to:

- Figure 216
- Subject 20-00-15 for the outer jacket removal procedures.



SHIELDED WIRE PREPARATION

Figure 216

20-30-12

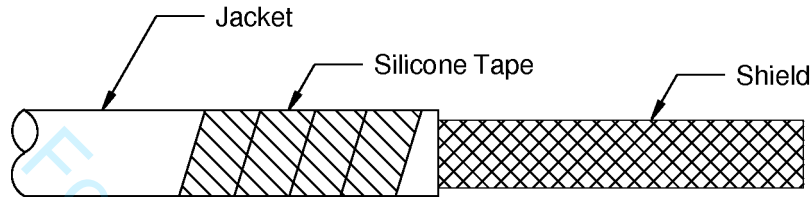
STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

- (3) Wrap a minimum of one layer of Temperature Grade D Type I silicone tape on each side of the repair location on the each cable jacket near the end of the jacket where the shield termination ring will be located.

Refer to Figure 218 and Figure 217.

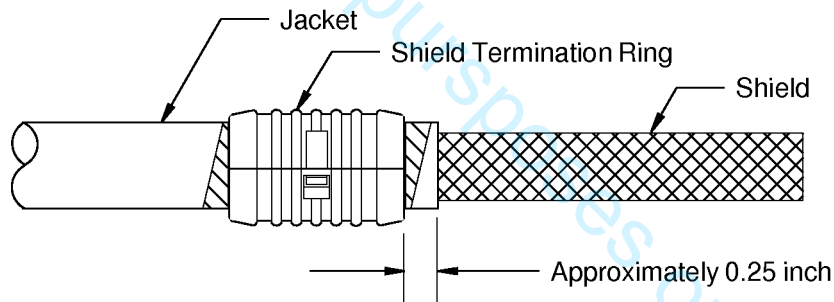
NOTE: Additional wraps of silicone tape may be necessary on the cable jacket to give a proper fit for the shield termination ring.



POSITION OF THE SILICONE TAPE ON THE JACKET OF THE SHIELDED WIRE
Figure 217

- (4) Put a shield termination ring on the jacket of the wire on each side of the repair location. Refer to Figure 217.

Make sure that the distance from the end of the jacket to the forward edge of the shield terminator band is approximately 0.25 inch.



POSITION OF THE SHIELD TERMINATION RING ON THE WIRE
Figure 218

- (5) Fold the end of the shield of the wire back on each shield termination ring. Refer to Figure 219.

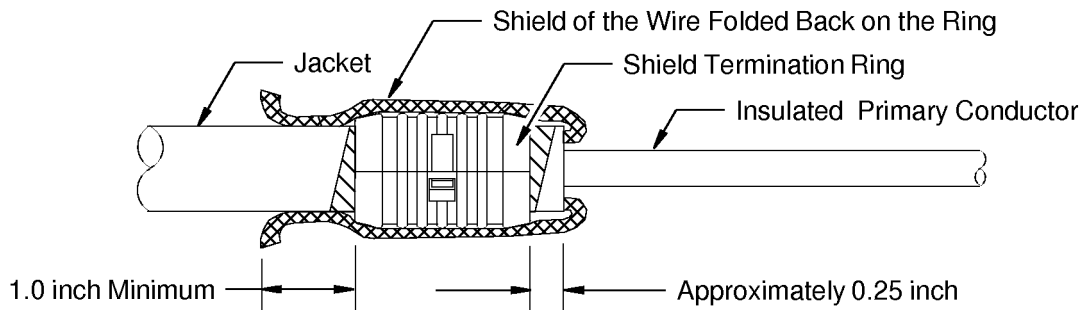
Make sure that the ends of the shield material extend approximately one inch farther than the rear end of each shield termination ring.

If it is necessary:

- The strands at the end of the shield material can be moved apart to make it easier to put the shield material on the shield termination ring.
- An additional length of the jacket can be removed to give more shield length.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES



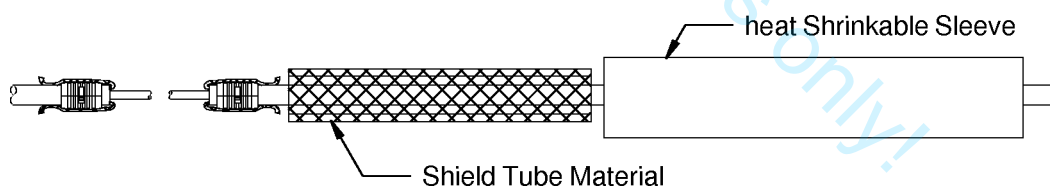
SHIELD OF THE WIRE FOLDED BACK ON A SHIELD TERMINATION RING

Figure 219

- (6) Put a temporary layer of tape around the end of each shield to make sure that the shield does not move.
- (7) If it is not specified, make a selection of a Temperature Grade D shield material from Table 55. Make sure that the shield material has the smallest diameter that can go on the folded back shield on the shield termination ring.

NOTE: For alternative shield materials, refer to Subject 20-00-11.

- (8) Make a selection of a Temperature Grade D heat shrinkable sleeve from Table 49. Make sure that The heat shrinkable sleeve has the smallest diameter that can go on the completed splice assembly.
- (9) Cut the necessary length of the shield tube material. Make sure that the ends of the shield material extend a minimum of one inch farther than the rear end of each shield termination ring.
- (10) Put the heat shrinkable sleeve and the shield tube material on the end of the other wire. Refer to Figure 220.



TEMPORARY POSITION OF THE SHIELD TUBE MATERIAL AND THE HEAT SHRINKABLE SLEEVE ON THE WIRE

Figure 220

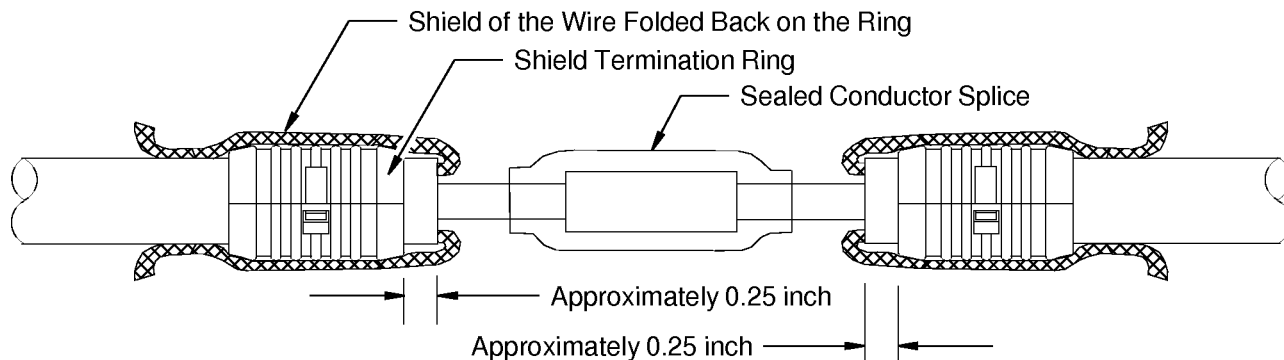
- (11) If it is not specified, make a selection of an applicable Temperature Grade D sealed conductor splice for one wire to one wire. Refer to Paragraph 9.A.
- (12) Assemble the sealed conductor splice.

Refer to:

- The applicable procedure given in Paragraph 9.A.
- Figure 221.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES



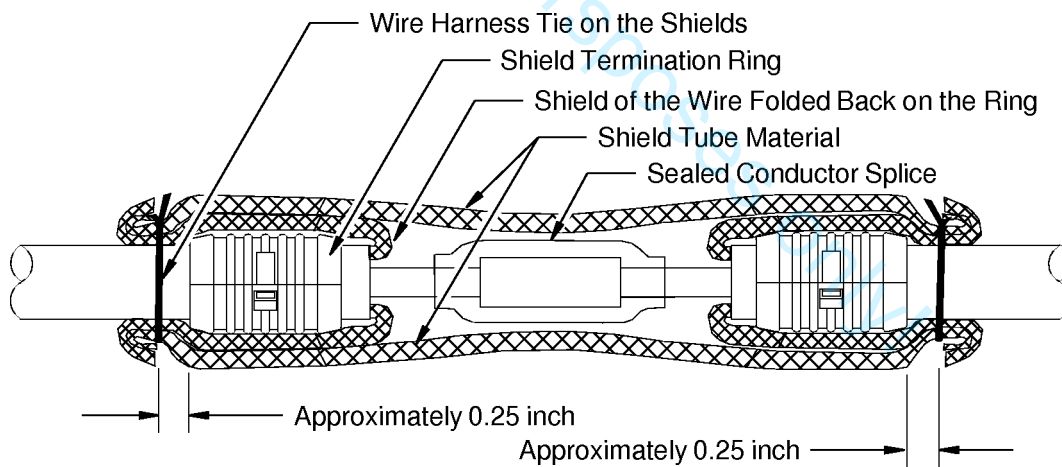
POSITION OF THE CONDUCTOR SPLICE

Figure 221

- (13) Push the shield tube material onto the splice assembly.
- (14) Remove the temporary layer of tape around the end of each shield.
- (15) Align the ends of the shield tube material and the ends of the folded back shields. Refer to Figure 222.
- (16) Assemble a lacing tape wire harness tie on the shields approximately 0.25 inch from the rear end of each shield termination ring.

Refer to:

- Figure 222
- Subject 20-10-11 for the procedure to assemble a lacing tape wire harness tie.



POSITION OF THE SHIELD TUBE MATERIAL ON THE SPLICE ASSEMBLY

Figure 222

- (17) Make a selection of a shield terminator band for each shield termination ring. Refer to Subject 20-00-11.

Assemble a shield terminator band on the shields on each shield termination ring.

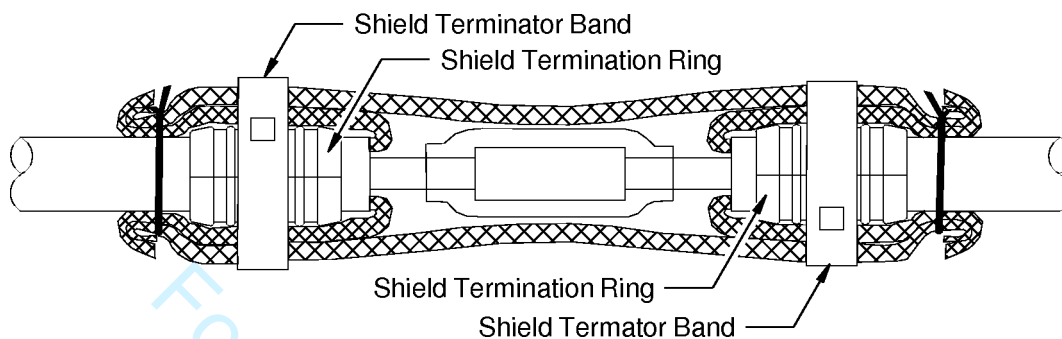
20-30-12

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Refer to:

- Figure 223
- Refer to Subject 20-25-14 for the procedure to install the band.

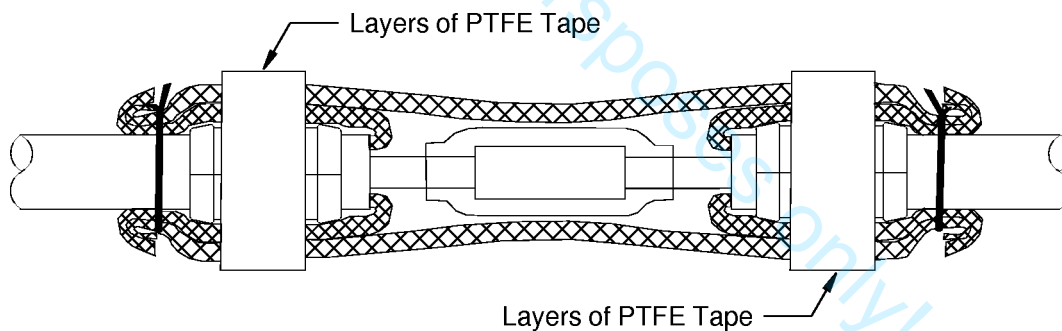


POSITION OF THE SHIELD TERMINATOR BANDS ON THE SHIELDS
Figure 223

- (18) Wind 2 to 3 layers of PTFE tape on each shield terminator band.
Make sure that the tape makes a one hundred percent overlap.

Refer to:

- Figure 224
- Subject 20-00-11 for the PTFE tape.



POSITION OF THE PTFE TAPE ON THE SHIELD TERMINATOR BANDS
Figure 224

- (19) Wind 2 to 3 layers of 1 inch wide Temperature Grade D Type I silicone tape on top of the PTFE tape.

20-30-12

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Make sure that:

- The tape makes a one hundred percent overlap
- The surface of the band cannot be seen.

Refer to:

- Figure 224
- Figure 215
- Subject 20-00-11 for the silicone tape.

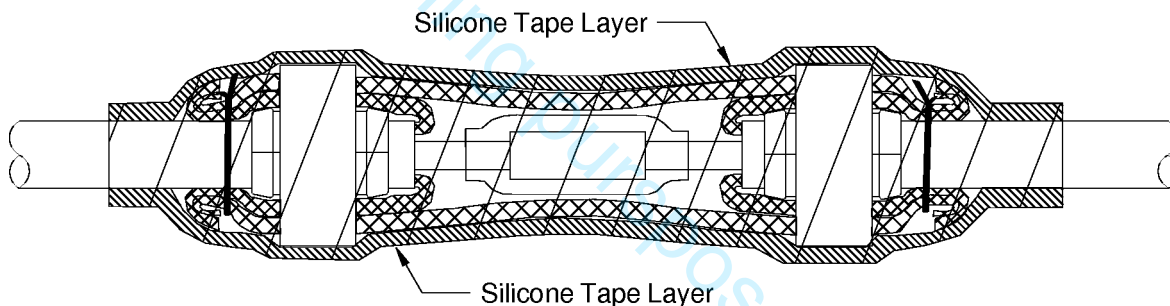
(20) Tightly wind a layer of Temperature Grade D Type II silicone tape on the splice assembly.

Refer to:

- Refer to Figure 225
- Subject 20-00-11 for the tape.

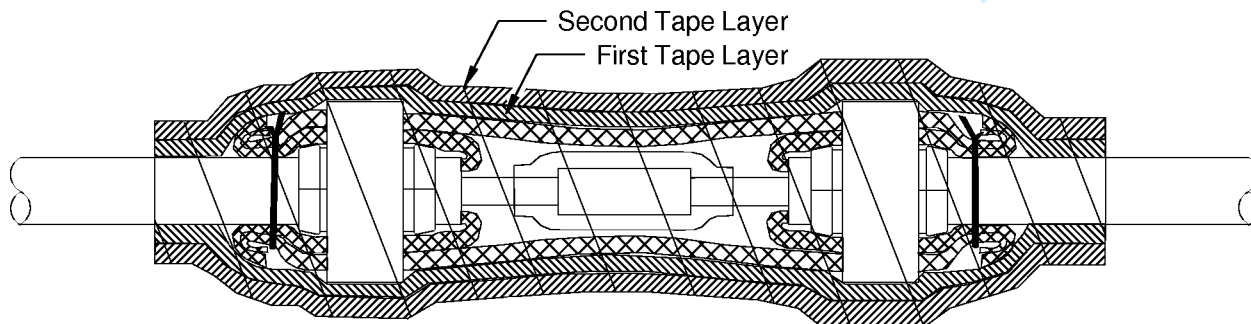
Make sure that the layer of tape:

- Starts 1 inch minimum farther than the rear end of the shields on one end of the splice
- Stops 1 inch minimum farther than the rear end of the shields on the other end of the splice
- The tape makes approximately a 50 percent overlap with itself
- The tape makes approximately a 100 percent overlap at the ends.



THE FIRST LAYER OF SILICONE TAPE ON THE SPLICE ASSEMBLY
Figure 225

(21) Tightly wind a second layer of Temperature Grade D Type II silicone tape on the splice assembly.
Refer to Figure 226.



THE SECOND LAYER OF SILICONE TAPE ON THE SPLICE ASSEMBLY
Figure 226

20-30-12

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

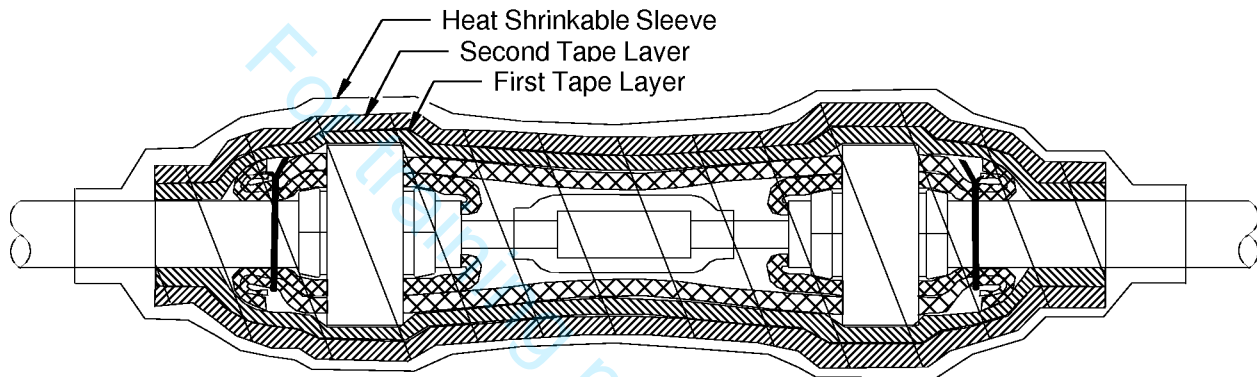
Make sure that the layer of tape:

- Starts where the first layer of tape stops
- Stops where the first layer of tape starts
- The tape makes approximately a 50 percent overlap with itself
- The tape makes approximately a 100 percent overlap at the ends.

(22) Shrink the heat shrinkable sleeve into position on the splice assembly.

Refer to:

- Figure 227
- Subject 20-10-14 for the procedure to shrink the sleeve.



POSITION OF THE HEAT SHRINKABLE SLEEVE ON THE SPLICE ASSEMBLY
Figure 227

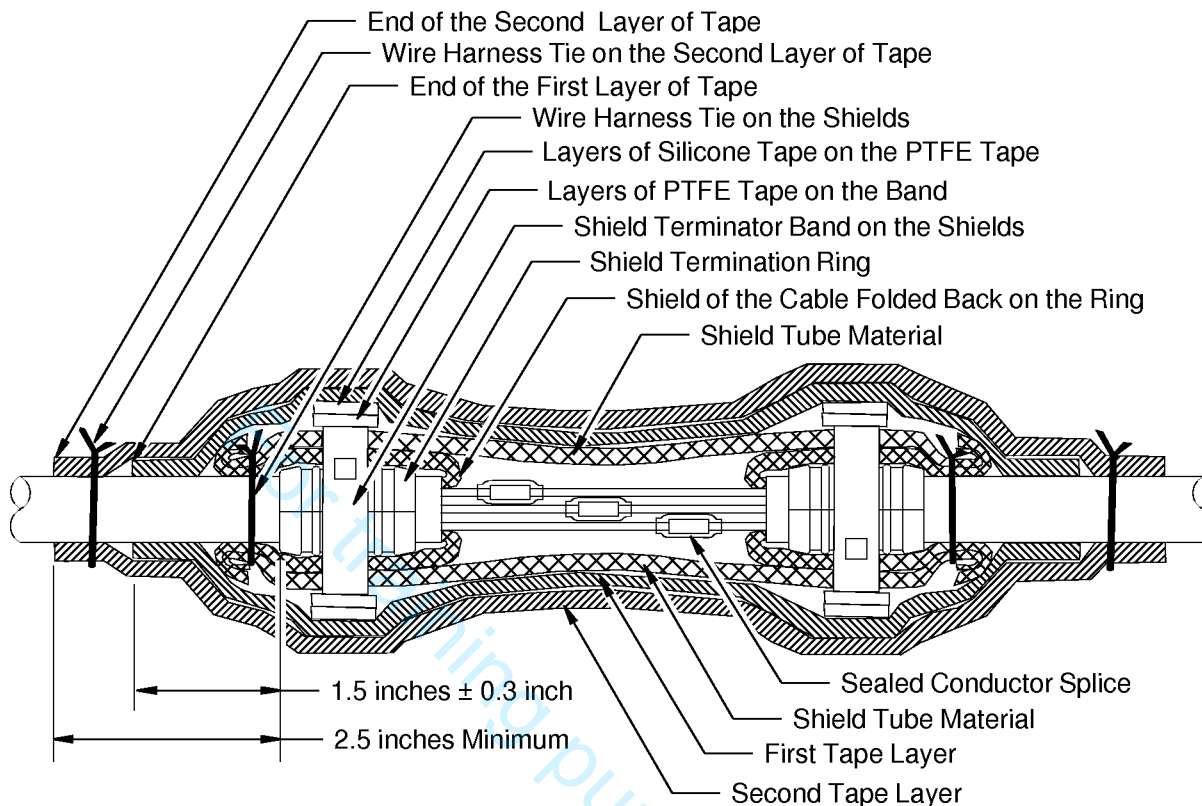
D. One Shielded Cable to One Shielded Cable - Shield Termination Rings, Shield Terminator Bands, Tape, Ties

For the conditions that are applicable for:

- The repair of a wire or a cable with a splice, refer to Subject 20-10-13
- The selection of the correct sealed splice configuration, refer to Paragraph 1.C.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES



CONFIGURATION OF THE SPLICE ASSEMBLY

Figure 228

Refer to Figure 228.

- (1) Make a selection of two M85049/93-() shield termination rings. Refer to Subject 20-00-11.

Make sure that:

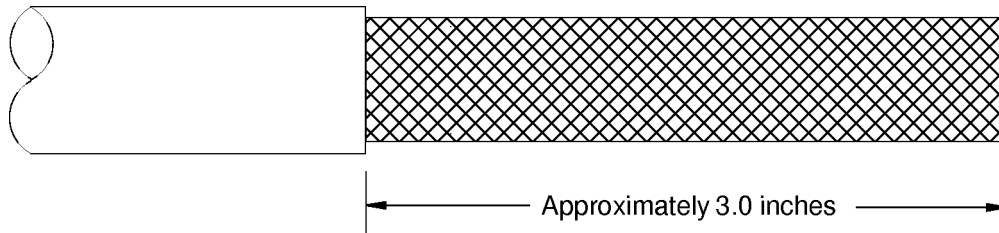
- The shield termination rings have the smallest diameter that can go on the outer jacket of the cable
- Both shield termination rings are the same size.

- (2) Remove approximately 3 inches of the outer jacket from the end of the cable on each side of the repair location.

Refer to:

- Figure 229
- Subject 20-00-15 for the outer jacket removal procedures.

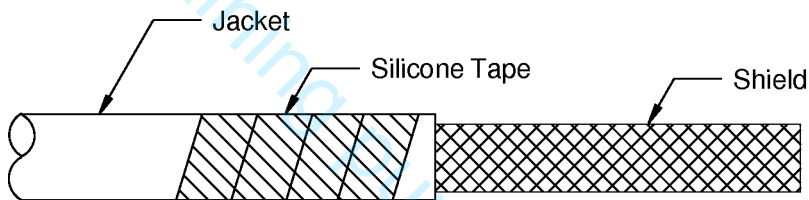
20-30-12

STANDARD WIRING PRACTICES MANUAL
ASSEMBLY OF SPLICES

SHIELDED CABLE PREPARATION
Figure 229

- (3) Wrap a minimum of one layer of Temperature Grade D Type I silicone tape on each side of the repair location on the each cable jacket near the end of the jacket where the shield termination ring will be located.

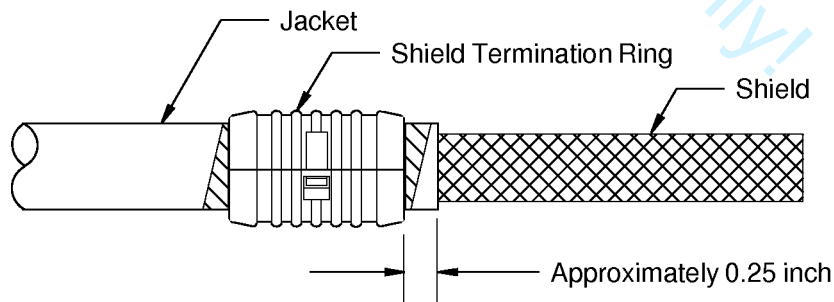
Refer to Figure 231 and Figure 230.

NOTE: Additional wraps of silicone tape may be necessary on the cable jacket to give a proper fit for the shield termination ring.


POSITION OF THE SILICONE TAPE ON THE CABLE JACKET
Figure 230

- (4) Put a shield termination ring on the jacket of the cable on each side of the repair location. Refer to Figure 230.

Make sure that the distance from the end of the jacket to the forward edge of the shield terminator band is approximately 0.25 inch.


POSITION OF THE SHIELD TERMINATION RING ON THE CABLE
Figure 231

- (5) Fold the end of the shield back on each shield termination ring. Refer to Figure 232.

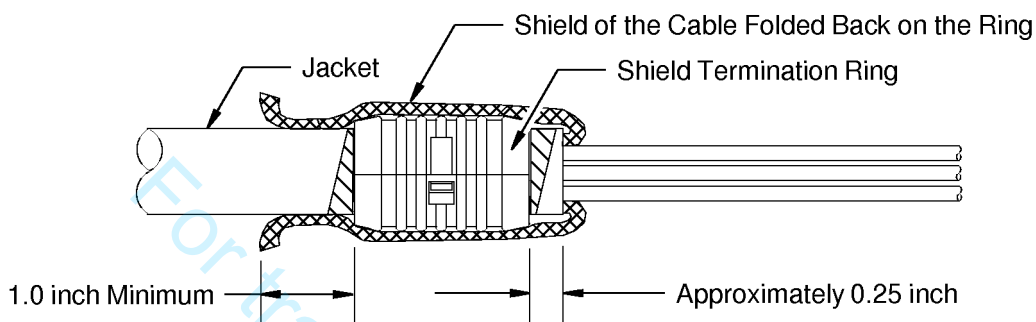
STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Make sure that the ends of the shield material extend approximately one inch farther than the rear end of each shield termination ring.

If it is necessary:

- The strands at the end of the shield material can be moved apart to make it easier to put the shield material on the shield termination ring.
- An additional length of the jacket can be removed to give more shield length.



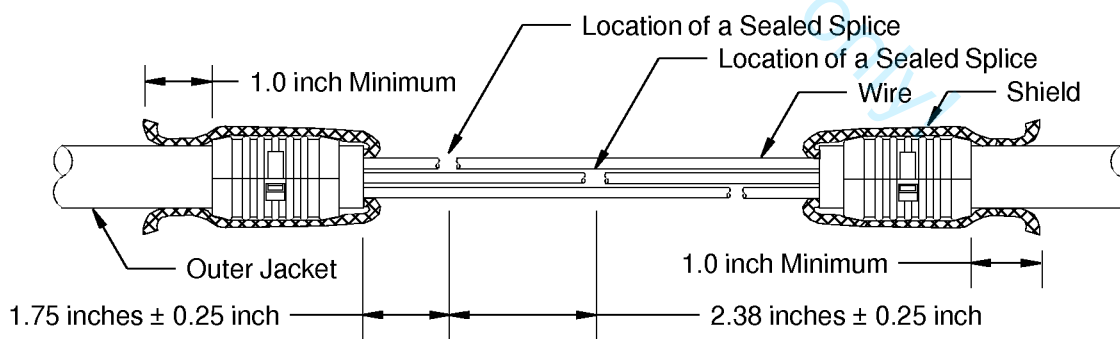
SHIELD OF THE CABLE FOLDED BACK ON A SHIELD TERMINATION RING

Figure 232

- (6) Put a temporary layer of tape around the end of each shield to make sure that the shield does not move.
- (7) Prepare the lengths of the wires of the cable for each of the sealed wire splices. If the locations of the sealed splices are not specified, refer to Figure 233.

If the locations of the sealed splices are not specified, make sure that:

- The distance from the end of the jacket to the center of the nearest sealed splice is 1.75 inches ± 0.25 inch
- The distance from the center of a sealed splice on one wire to the center of the nearest sealed splice on another wire is 2.38 inches ± 0.25 inch.



PREPARATION OF THE SHIELDED CABLE

Figure 233

- (8) If it is not specified, make a selection of a Temperature Grade D shield material from Table 55.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

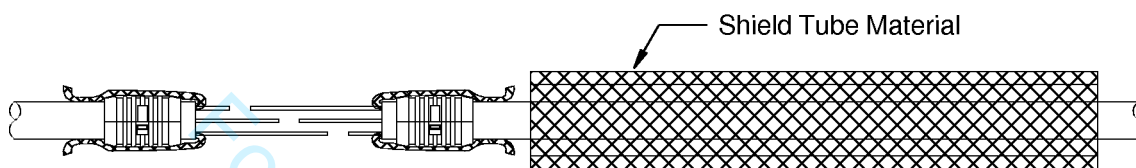
Make sure that the shield material has the smallest diameter that can go on the folded back shield on the shield termination ring.

NOTE: For alternative shield materials, refer to Subject 20-00-11.

- (9) Cut the necessary length of the shield tube material.

Make sure that the ends of the shield material extend a minimum of one inch farther than the rear end of each shield termination ring.

- (10) Put the shield tube on the end of the other cable. Refer to Figure 234.



TEMPORARY POSITION OF THE SHIELD TUBE MATERIAL ON THE CABLE

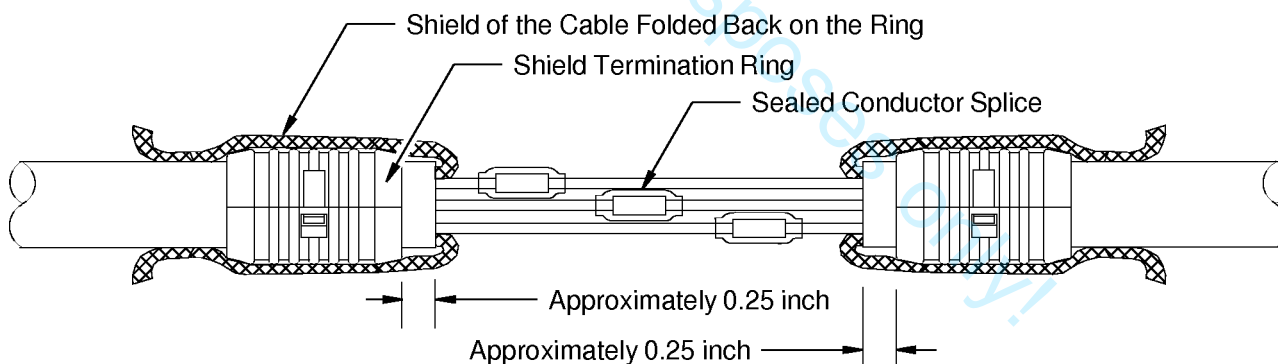
Figure 234

- (11) If it is not specified, make a selection of an applicable Temperature Grade D conductor splice for one wire to one wire. Refer to Paragraph 9.A.

- (12) Assemble the necessary sealed conductor splices.

Refer to:

- The applicable procedure given in Paragraph 9.A.
- Figure 235.



POSITIONS OF THE CONDUCTOR SPLICES

Figure 235

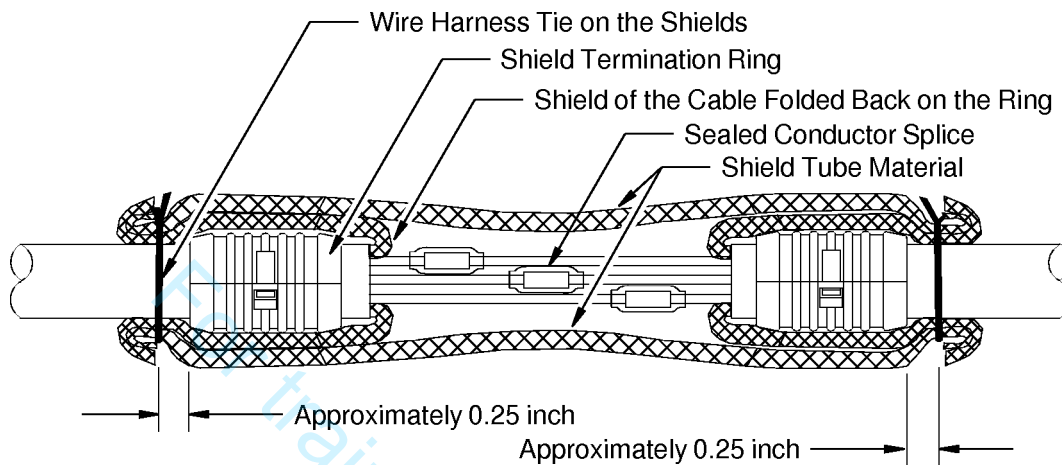
- (13) Push the shield tube material onto the splice assembly.
- (14) Remove the temporary layer of tape around the end of each shield.
- (15) Align the ends of the shield tube material and the ends of the folded back shields. Refer to Figure 236.
- (16) Assemble a lacing tape wire harness tie on the shields approximately 0.25 inch from the rear end of each shield termination ring.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Refer to:

- Figure 236
- Subject 20-10-11 for the procedure to assemble a lacing tape wire harness tie.



POSITION OF THE SHIELD TUBE MATERIAL ON THE SPLICE ASSEMBLY

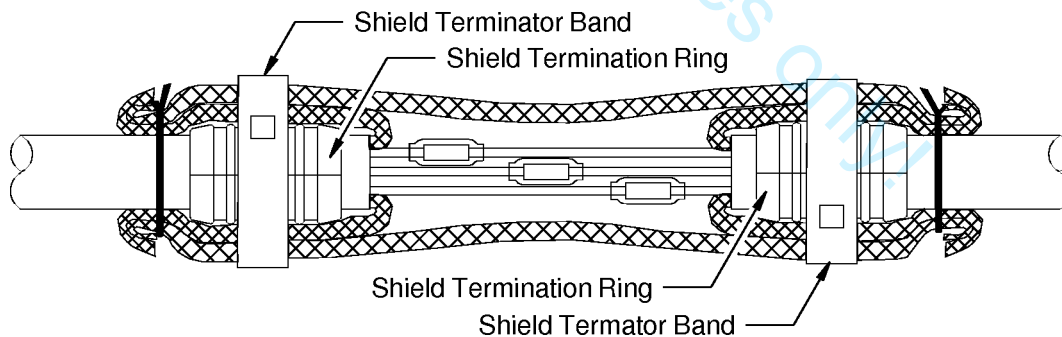
Figure 236

- (17) Make a selection of a shield terminator band for each shield termination ring. Refer to Subject 20-00-11.

Assemble a shield terminator band on the shields on each shield termination ring.

Refer to:

- Figure 237
- Refer to Subject 20-25-14 for the procedure to install the band.



POSITION OF THE SHIELD TERMINATION BANDS ON THE SHIELDS

Figure 237

- (18) Wind 2 to 3 layers of PTFE tape on each shield terminator band.

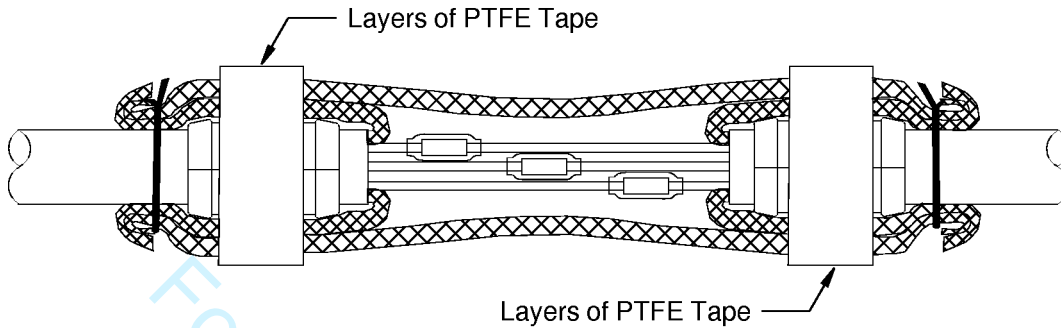
Make sure that the tape makes a one hundred percent overlap.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Refer to:

- Figure 238
- Subject 20-00-11 for the PTFE tape.



POSITION OF THE PTFE TAPE ON THE SHIELD TERMINATION BANDS

Figure 238

- (19) Wind 2 to 3 layers of 1 inch wide Temperature Grade D Type I silicone tape on top of the PTFE tape.

Make sure that:

- The tape makes a one hundred percent overlap
- The surface of the band cannot be seen.

Refer to:

- Figure 238
- Figure 228
- Subject 20-00-11 for the silicone tape.

- (20) Tightly wind a layer of Temperature Grade D Type II silicone tape on the splice assembly.

Refer to:

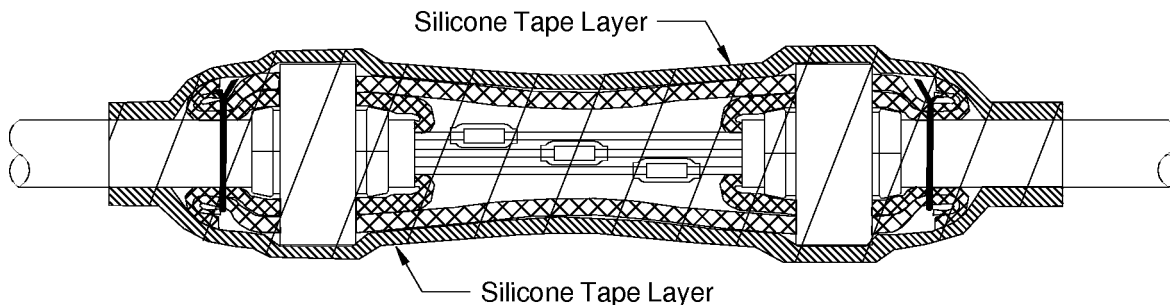
- Refer to Figure 239
- Subject 20-00-11 for the tape.

Make sure that the layer of tape:

- Starts 1 inch minimum farther than the rear end of the shields on one end of the splice
- Stops 1 inch minimum farther than the rear end of the shields on the other end of the splice
- The tape makes approximately a 50 percent overlap with itself
- The tape makes approximately a 100 percent overlap at the ends.

STANDARD WIRING PRACTICES MANUAL

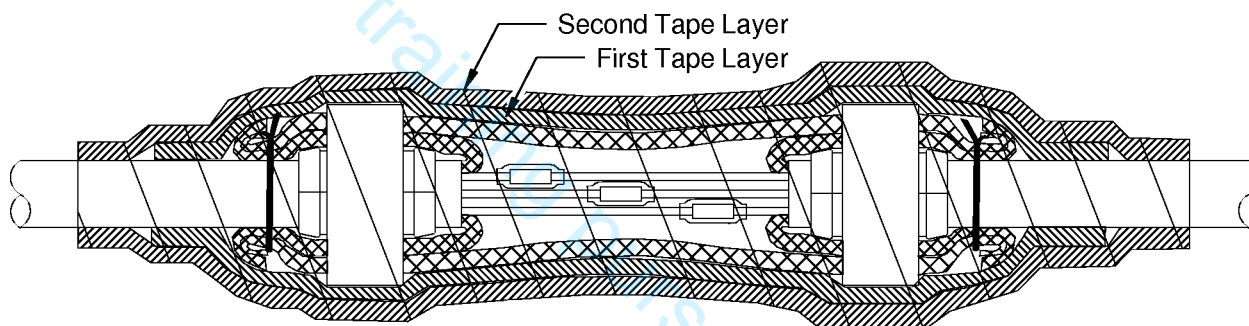
ASSEMBLY OF SPLICES



THE FIRST LAYER OF SILICONE TAPE ON THE SPLICE ASSEMBLY

Figure 239

- (21) Tightly wind a second layer of Temperature Grade D Type II silicone tape on the splice assembly. Refer to Figure 240.



THE SECOND LAYER OF SILICONE TAPE ON THE SPLICE ASSEMBLY

Figure 240

Make sure that the layer of tape:

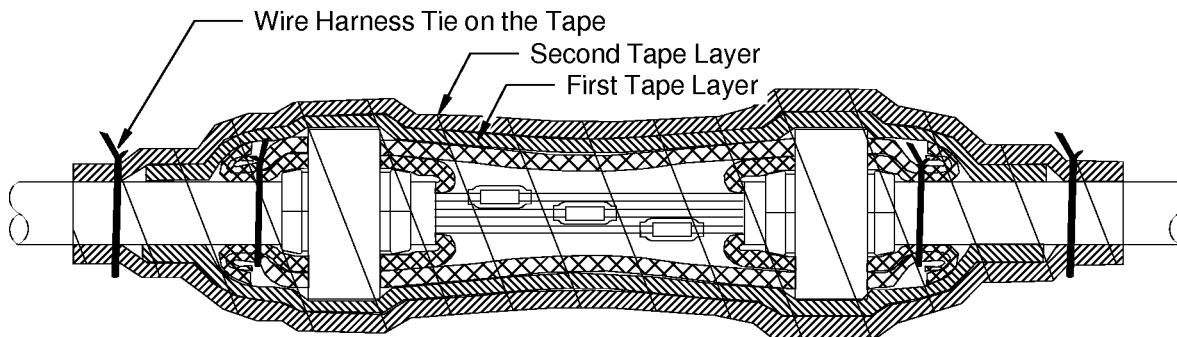
- Starts 1 inch minimum farther than where the first layer of tape stops
 - Stops 1 inch minimum farther than where the first layer of tape starts
 - The tape makes approximately a 50 percent overlap with itself
 - The tape makes approximately a 100 percent overlap at the ends.
- (22) Assemble a lacing tape wire harness tie on each end of the splice assembly approximately 0.5 inch to 0.7 inch from the end of the tape.

Refer to:

- Figure 241.
- Subject 20-10-11 for the procedure to assemble a lacing tape wire harness tie.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES



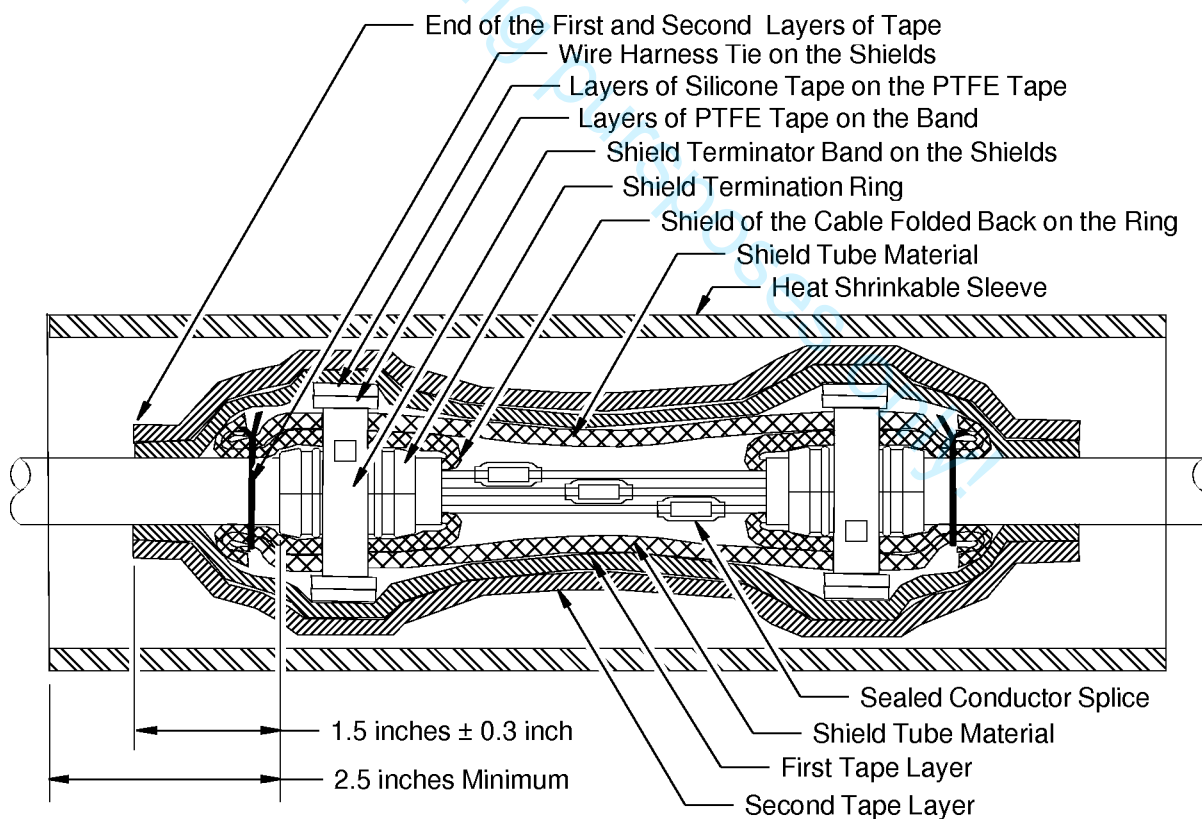
POSITION OF THE WIRE HARNESS TIES ON THE SPLICE ASSEMBLY

Figure 241

E. One Shielded Cable to One Shielded Cable - Shield Termination Rings, Shield Terminator Bands, Tape, Sleeve

For the conditions that are applicable for:

- The repair of a wire or a cable with a splice, refer to Subject 20-10-13
- The selection of the correct sealed splice configuration, refer to Paragraph 1.C.



CONFIGURATION OF THE SPLICE ASSEMBLY

Figure 242

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Refer to Figure 242.

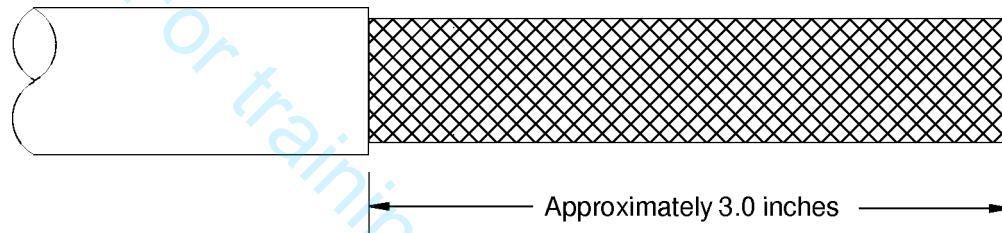
- (1) Make a selection of two M85049/93-() shield termination rings. Refer to Subject 20-00-11.

Make sure that:

- The shield termination rings have the smallest diameter that can go on the outer jacket of the cable
 - Both shield termination rings are the same size.
- (2) Remove approximately 3 inches of the outer jacket from the end of the cable on each side of the repair location.

Refer to:

- Figure 243
- Subject 20-00-15 for the outer jacket removal procedures.



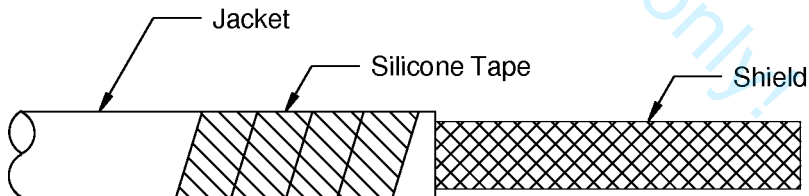
SHIELDED CABLE PREPARATION

Figure 243

- (3) Wrap a minimum of one layer of Temperature Grade D Type I silicone tape on each side of the repair location on the each cable jacket near the end of the jacket where the shield termination ring will be located.

Refer to Figure 245 and Figure 244.

NOTE: Additional wraps of silicone tape may be necessary on the cable jacket to give a proper fit for the shield termination ring.



POSITION OF THE SILICONE TAPE ON THE CABLE JACKET

Figure 244

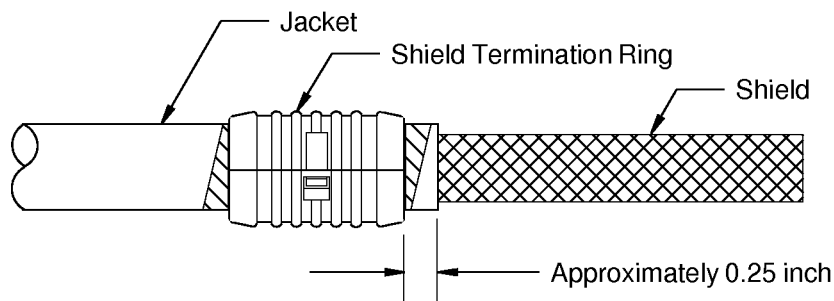
- (4) Put a shield termination ring on the jacket of the cable on each side of the repair location. Refer to Figure 244.

Make sure that the distance from the end of the jacket to the forward edge of the shield terminator band is approximately 0.25 inch.

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES



POSITION OF THE SHIELD TERMINATION RING ON THE CABLE

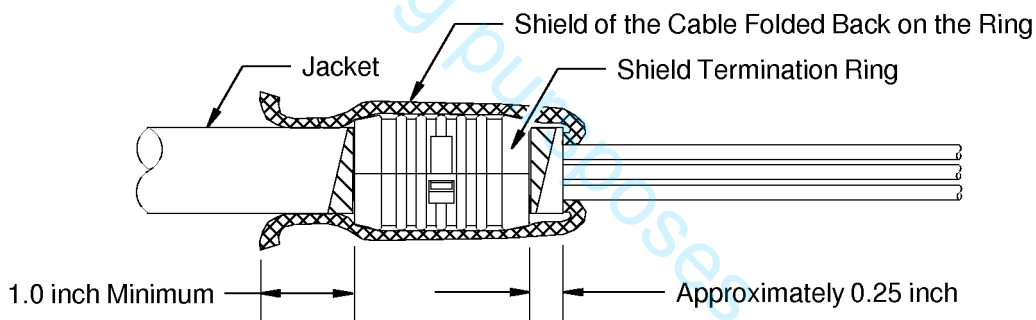
Figure 245

- (5) Fold the end of the shield back on each shield termination ring. Refer to Figure 246.

Make sure that the ends of the shield material extend approximately one inch farther than the rear end of each shield termination ring.

If it is necessary:

- The strands at the end of the shield material can be moved apart to make it easier to put the shield material on the shield termination ring.
- An additional length of the jacket can be removed to give more shield length.



SHIELD OF THE CABLE FOLDED BACK ON A SHIELD TERMINATION RING

Figure 246

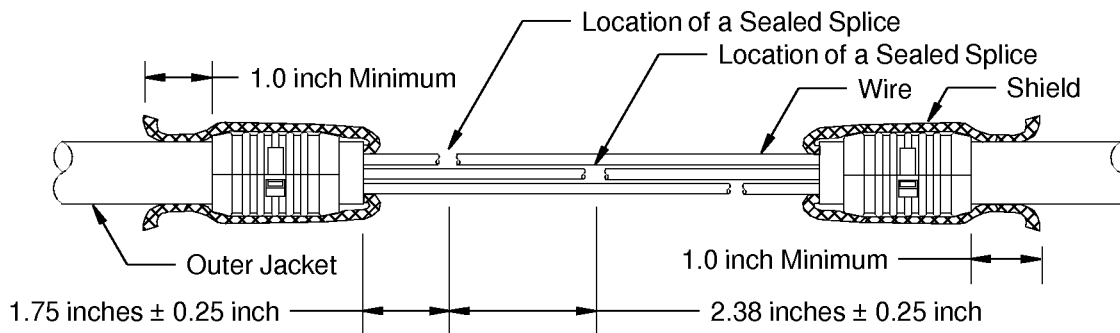
- (6) Put a temporary layer of tape around the end of each shield to make sure that the shield does not move.
- (7) Prepare the lengths of the wires of the cable for each of the sealed wire splices. If the locations of the sealed splices are not specified, refer to Figure 247.

If the locations of the sealed splices are not specified, make sure that:

- The distance from the end of the jacket to the center of the nearest sealed splice is 1.75 inches ± 0.25 inch
- The distance from the center of a sealed splice on one wire to the center of the nearest sealed splice on another wire is 2.38 inches ± 0.25 inch.

STANDARD WIRING PRACTICES MANUAL

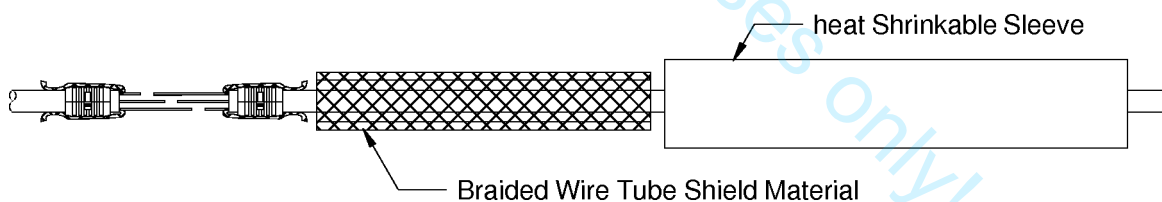
ASSEMBLY OF SPLICES



PREPARATION OF THE SHIELDED CABLE

Figure 247

- (8) If it is not specified, make a selection of a Temperature Grade D shield material from Table 55.
Make sure that the shield material has the smallest diameter that can go on the folded back shield on the shield termination ring.
- NOTE:** For alternative shield materials, refer to Subject 20-00-11.
- (9) Make a selection of a Temperature Grade D heat shrinkable sleeve from Table 49
Make sure that the heat shrinkable sleeve has the smallest diameter that can go on the completed splice assembly.
- (10) Cut the necessary length of the shield tube material.
Make sure that the ends of the shield material extend a minimum of one inch farther than the rear end of each shield termination ring.
- (11) Put the heat shrinkable sleeve and the shield tube material on the end of the other cable. Refer to Figure 248.



TEMPORARY POSITIONS OF THE SHIELD TUBE MATERIAL AND THE HEAT SHRINKABLE SLEEVE ON THE CABLE

Figure 248

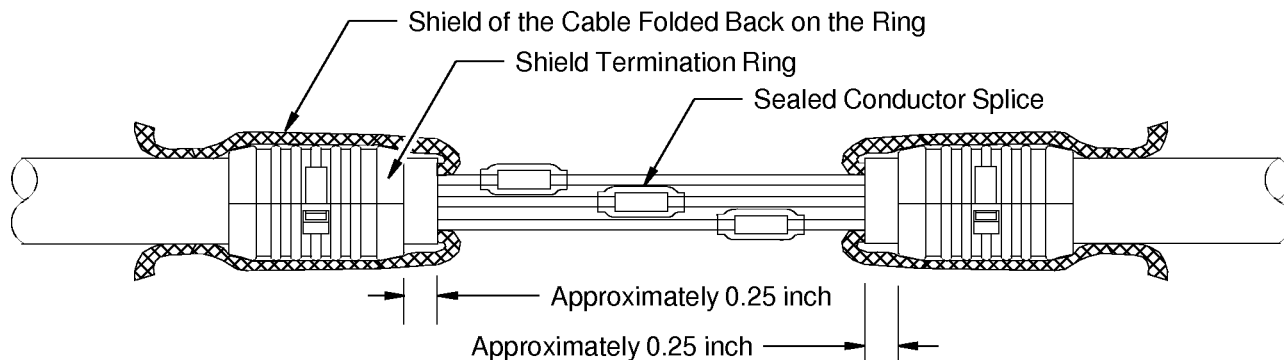
- (12) If it is not specified, make a selection of an applicable Temperature Grade D conductor splice for one wire to one wire. Refer to Paragraph 9.A..
- (13) Assemble the necessary sealed conductor splices.

Refer to:

- The applicable procedure given in Paragraph 9.A.
- Figure 249.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES



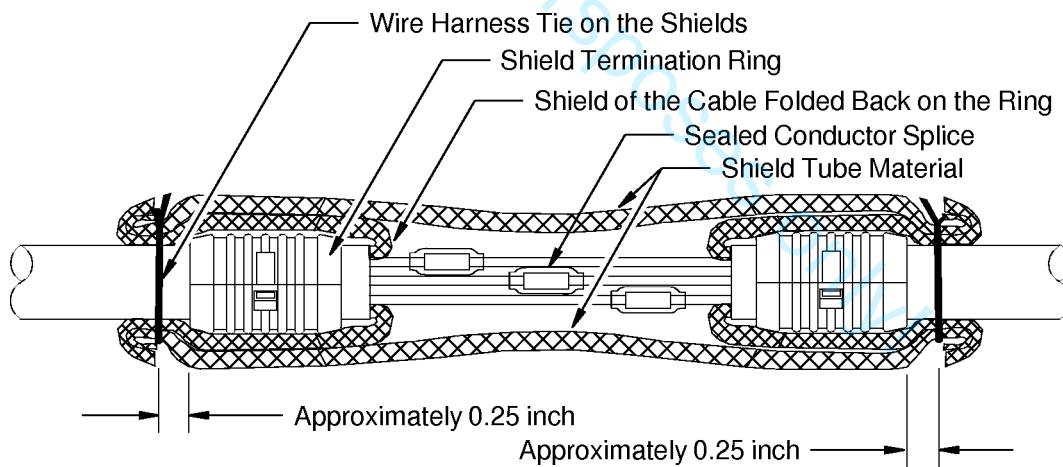
POSITIONS OF THE CONDUCTOR SPLICES

Figure 249

- (14) Push the shield tube material onto the splice assembly.
- (15) Remove the temporary layer of tape around the end of each shield.
- (16) Align the ends of the shield tube material and the ends of the folded back shields. Refer to Figure 250.
- (17) Assemble a lacing tape wire harness tie on the shields approximately 0.25 inch from the rear end of each shield termination ring.

Refer to:

- Figure 250
- Subject 20-10-11 for the procedure to assemble a lacing tape wire harness tie.



POSITION OF THE SHIELD TUBE MATERIAL ON THE SPLICE ASSEMBLY

Figure 250

- (18) Make a selection of a shield terminator band for each shield termination ring. Refer to Subject 20-00-11.

Assemble a shield terminator band on the shields on each shield termination ring.

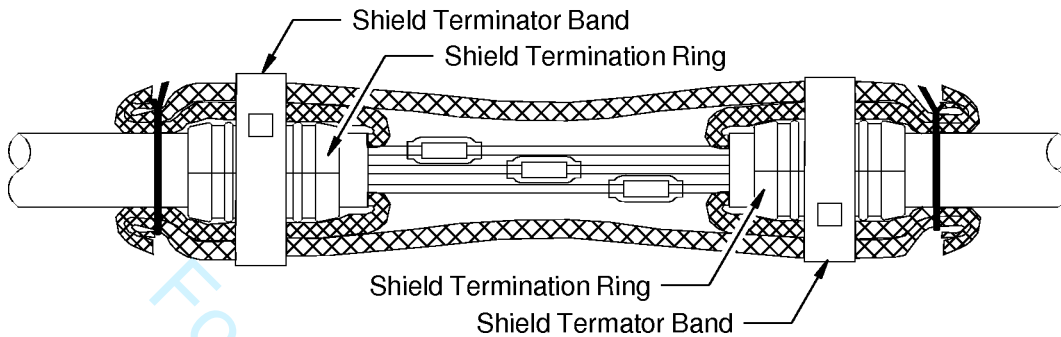
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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Refer to:

- Figure 251
- Refer to Subject 20-25-14 for the procedure to install the band.

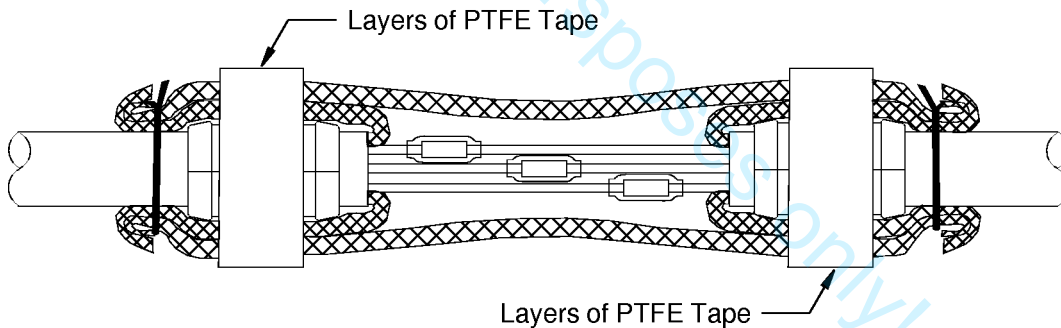


POSITION OF THE SHIELD TERMINATOR BANDS ON THE SHIELDS
Figure 251

- (19) Wind 2 to 3 layers of PTFE tape on each shield terminator band. Make sure that the tape makes a one hundred percent overlap.

Refer to:

- Figure 252
- Subject 20-00-11 for the PTFE tape.



POSITION OF THE PTFE TAPE ON THE SHIELD TERMINATOR BANDS
Figure 252

- (20) Wind 2 to 3 layers of 1 inch wide Temperature Grade D Type I silicone tape on top of the PTFE tape on the bands.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Make sure that:

- The tape makes a one hundred percent overlap
- The surface of the band cannot be seen.

Refer to:

- Figure 252
- Figure 242
- Subject 20-00-11 for the silicone tape.

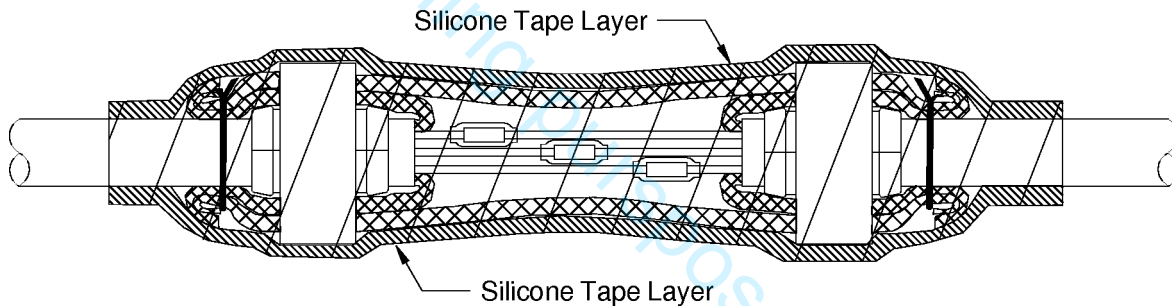
(21) Tightly wind a layer of Temperature Grade D Type II silicone tape on the splice assembly.

Refer to:

- Refer to Figure 253
- Subject 20-00-11 for the tape.

Make sure that the layer of tape:

- Starts 1 inch minimum farther than the rear end of the shields on one end of the splice
- Stops 1 inch minimum farther than the rear end of the shields on the other end of the splice
- The tape makes approximately a 50 percent overlap with itself
- The tape makes approximately a 100 percent overlap at the ends.

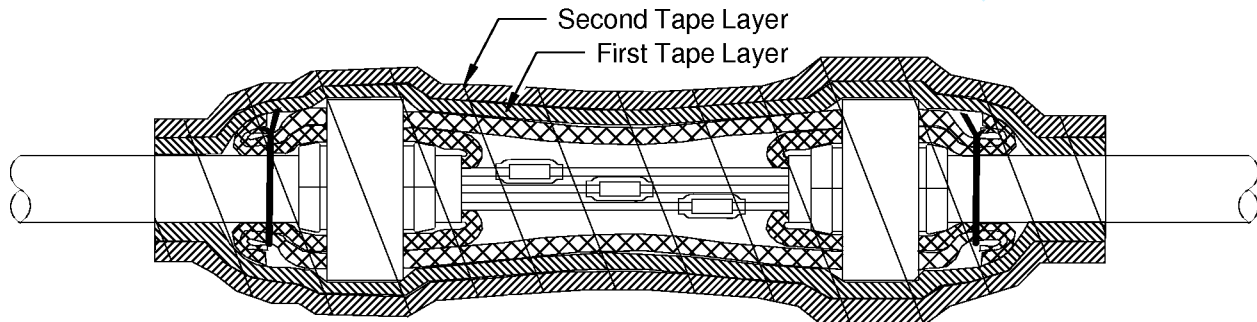


THE FIRST LAYER OF SILICONE TAPE ON THE SPLICE ASSEMBLY

Figure 253

(22) Tightly wind a second layer of Temperature Grade D Type II silicone tape on the splice assembly.

Refer to Figure 254.



THE SECOND LAYER OF SILICONE TAPE ON THE SPLICE ASSEMBLY

Figure 254

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

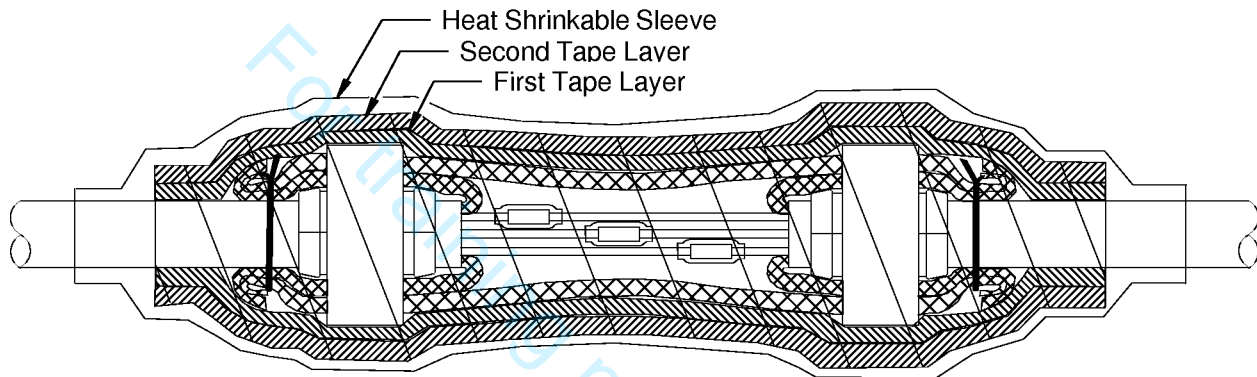
Make sure that the layer of tape:

- Starts where the first layer of tape stops
- Stops where the first layer of tape starts
- The tape makes approximately a 50 percent overlap with itself
- The tape makes approximately a 100 percent overlap at the ends.

(23) Shrink the heat shrinkable sleeve into position on the splice assembly.

Refer to:

- Figure 255
- Subject 20-10-14 for the procedure to shrink the sleeve.



POSITION OF THE HEAT SHRINKABLE SLEEVE ON THE SPLICE ASSEMBLY

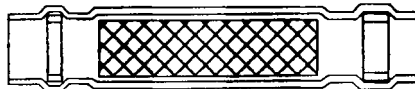
Figure 255

14. SEALED SPLICE CONFIGURATIONS WITH SOLDER SHIELD SPLICE KITS FOR SHIELDED WIRE AND SHIELDED CABLE

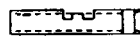
A. Splice Assembly Configurations

For the conditions that are applicable for:

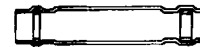
- The repair of a wire or a cable with a splice, refer to Subject 20-10-13
- The selection of the correct sealed splice configuration, refer to Paragraph 1.C.



Solder Shield Splice Sleeve



Butt Splice



Seal Sleeve

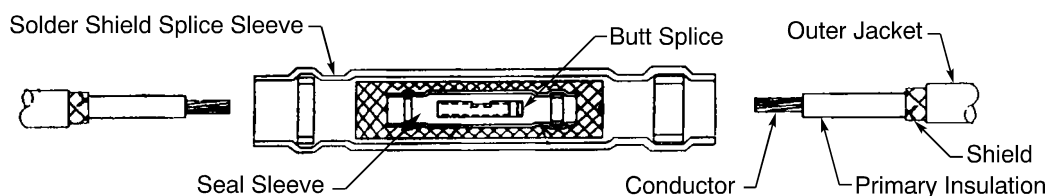
COMPONENTS OF THE RAYCHEM SOLDER SHIELD SPLICE KIT

Figure 256

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES



ASSEMBLY CONFIGURATION OF THE SOLDER SHIELD SPLICE

Figure 257

Table 101
SPLICE ASSEMBLY CONFIGURATIONS

One End of Splice Assembly	Other End of Splice Assembly	Quantity of Conductor Splices	Paragraph
One Shielded Wire	One Shielded Wire	1	Paragraph 14.B.
	One Shielded Wire and One Wire	1	Paragraph 14.D.
Three Shielded Wires	Three Shielded Wires	1	Paragraph 14.E.
	One Class 3 Shielded Cable	3	Paragraph 14.L.
Four Shielded Wires	Four Shielded Wires	1	Paragraph 14.F.
One Shielded Wire and One Wire	One Shielded Wire	1	Paragraph 14.D.
One Class 2 Shielded Cable	One Class 2 Shielded Cable	2	Paragraph 14.G.
	One Class 2 Shielded Cable and One Wire	2	Paragraph 14.H.
Two Class 2 Shielded Cables	Two Class 2 Shielded Cables	2	Paragraph 14.I.
	Three Class 2 Shielded Cables	2	Paragraph 14.J.
Three Class 2 Shielded Cables	Two Class 2 Shielded Cables	2	Paragraph 14.J.
	Three Class 2 Shielded Cables	2	Paragraph 14.K.
One Class 2 Shielded Cable and One Wire	One Class 2 Shielded Cable	2	Paragraph 14.H.
One Class 3 Shielded Cable	Three Shielded Wires	3	Paragraph 14.L.
	One Class 3 Shielded Cable	3	Paragraph 14.M.
	Two Class 3 Shielded Cables	3	Paragraph 14.N.
	Three Class 3 Shielded Cables	3	Paragraph 14.O.
Two Class 3 Shielded Cables	One Class 3 Shielded Cable	3	Paragraph 14.N.
	Two Class 3 Shielded Cables	3	Paragraph 14.P.
	Three Class 3 Shielded Cables	3	Paragraph 14.Q.
Three Class 3 Shielded Cables	One Class 3 Shielded Cable	3	Paragraph 14.O.
	Two Class 3 Shielded Cables	3	Paragraph 14.Q.
One Class 4 Shielded Cable	One Class 4 Shielded Cable	4	Paragraph 14.R.

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STANDARD WIRING PRACTICES MANUAL**ASSEMBLY OF SPLICES**

- (1) Find the paragraph for the splice assembly configuration in Table 101.

Make sure the paragraph is applicable for:

- The configuration of the wiring
- The quantity of conductor splices.

- (2) Make a selection of a splice kit. Refer to the applicable paragraph for the splice assembly configuration.

NOTE: The specified splice kit can have more splices and sleeves than are necessary. Discard the unwanted parts.

- (a) Measure these dimensions of the wire or cable on each side of the splice:

- The jacket O.D.
- The shield O.D.

- (b) Calculate the total CAU of the conductors for each end of each conductor splice. Refer to Paragraph 1.D.

- (c) If the jackets do not have the correct O.D. for the splice kit, make a selection of an alternative splice configuration. Refer to Paragraph 1.C.

- (d) If the shields do not have the correct O.D. for the splice kit, the shield O.D. can be increased as specified in Step (9).

- (e) If the CAU of the conductors are not the correct size for the splice kit, the conductors can be increased.

Refer to:

- Paragraph 2.B. to assemble the conductor splice with a conductor that is folded back
- Paragraph 2.C. to assemble the conductor splice with a filler wire.

NOTE: As an alternative, make a selection of a different splice configuration. Refer to Paragraph 1.C.

- (3) Find the part number of the butt splice in the splice kit. Refer to Table 23.

- (4) Find the crimp barrel size of the butt splice.

Refer to:

- Table 12 for NAS1387-() splices
- Table 14 for D-609-() splices.

- (5) Make a selection of a crimp tool.

Refer to:

- Table 42 for crimp tools for NAS1387-() splices
- Table 43 for crimp tools for Raychem D-609-() splices.

- (6) Make a selection of a standard temperature hot air gun from Table 47.

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

- (8) 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 the applicable paragraph for the splice assembly configuration.

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

- (9) If it is necessary to increase the O.D. of the shield:

CAUTION: THIS PROCEDURE IS APPLICABLE ONLY FOR CABLES THAT HAVE ROUND CONDUCTOR STRANDS IN THE SHIELD. IF THE CABLE HAS A SHIELD WITH FLAT, RECTANGULAR CONDUCTOR STRANDS, DAMAGE TO THE SHIELD CAN OCCUR.

- (a) Remove the necessary length of the outer jacket.
Make sure that the distance from the end of the jacket to the end of the conductor is D2.
 - (b) Remove the necessary length of the shield.
Make sure that the distance from the end of the shield to the end of the outer jacket is D3 minus D2.
 - (c) Fold the shield back on the outer jacket of the cable.
- (10) 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 toward 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 position. Refer to Subject 20-10-14.
- (11) 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.
- (12) 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 toward one end of the sleeve until the solder ring melts and flows.
- (13) Do Step (12) again for the other end of the sleeve.

B. One Shielded Wire to One Shielded Wire

If the splice is for one shielded 10 AWG wire to one shielded 16 AWG wire used on a pass thru bulkhead, refer to Paragraph 14.C..

Table 102
SPLICE KITS FOR ONE SHIELDED WIRE TO ONE SHIELDED WIRE

Jacket Maximum O.D.	Shield Minimum O.D.	Conductor CAU Range		Solder Shield Splice Kit	
		Minimum	Maximum	Part Number	Supplier
0.12	0.06	3	15	D-150-0168	Tyco/Raychem
0.15	0.08	8	27	D-150-0169	Tyco/Raychem
0.18	0.10	19	67	D-150-0170	Tyco/Raychem

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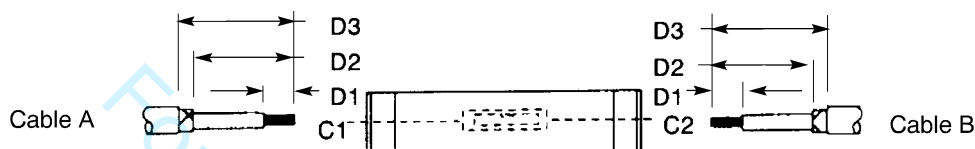
ASSEMBLY OF SPLICES

Table 102 (continued)

Jacket Maximum O.D.	Shield Minimum O.D.	Conductor CAU Range		Solder Shield Splice Kit	
		Minimum	Maximum	Part Number	Supplier
0.22	0.14	43	138	D-150-0272	Tyco/Raychem

For an AWG 16 conductor in the splice of the D-150-0272 splice kit, these conditions are applicable:

- A filler wire must be used
- The shield must be folded back.



ONE SHIELDED WIRE TO ONE SHIELDED WIRE

Figure 258

Table 103
CABLE TRIM DIMENSIONS

Cable	Conductor	Trim Dimension (inch)		
		Dimension	Target	Tolerance
A	C1	D1	0.28	± 0.02
		D2	0.70	± 0.02
		D3	1.08	± 0.02
B	C1	D1	0.28	± 0.02
		D2	0.70	± 0.02
		D3	1.08	± 0.02

C. One 10 AWG Shielded Wire to One 16 AWG Shielded Wire Used on Pass Thru Bulkheads

Table 104
NECESSARY MATERIALS

Part Number	Description	Quantity or Length Required	Supplier
D-150-0272	Splice Kit	1	Raychem
BACS13CT3N	Solder sleeve	2	Boeing
BAC3108-2C	Shield overbraid	2.5 inches ± 0.1 inch	Boeing
M23053/5-108-4	1/2 inch diameter heat shrinkable sleeve	4.0 inches ± 0.1 inch	An available source

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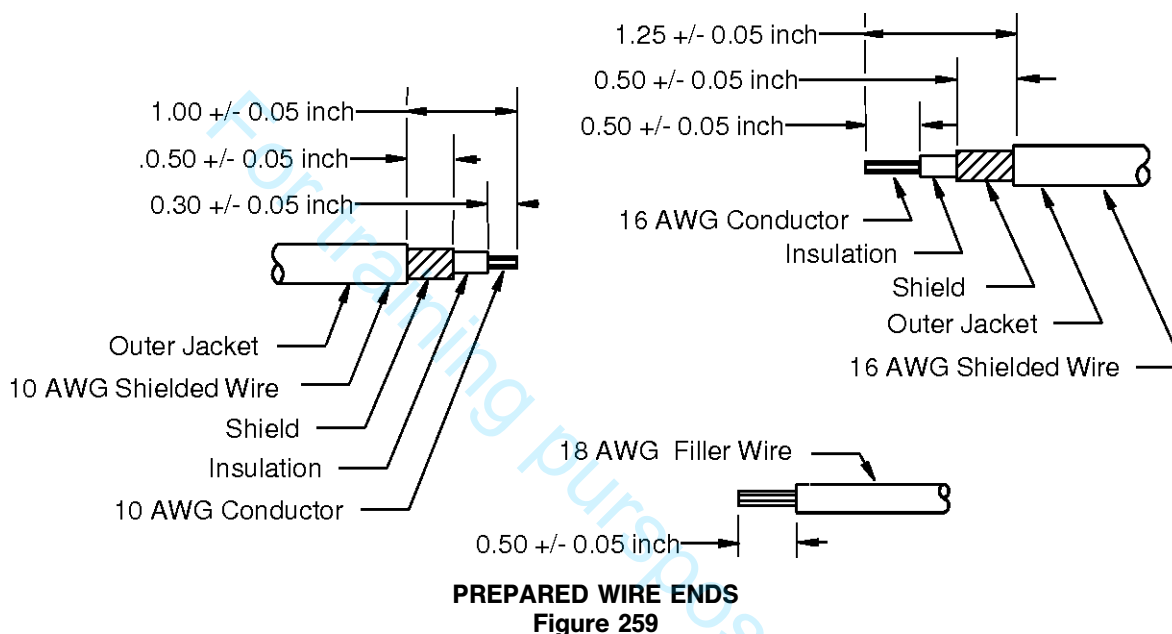
ASSEMBLY OF SPLICES

Table 104 (continued)

Part Number	Description	Quantity or Length Required	Supplier
M23053/12-102-C	1/4 inch diameter heat shrinkable sleeve	2.0 inches \pm 0.1 inch	An available source

- (1) Prepare the end of each wire Refer to Figure 259.

Make sure that the 18 AWG filler wire is the same wire type as the 16 AWG wire.



- (2) Make a selection of a splice kit from Table 104.

NOTE: In this procedure, the D-150-0675 large overall solder shield in the D-150-0272 splice kit is not used.

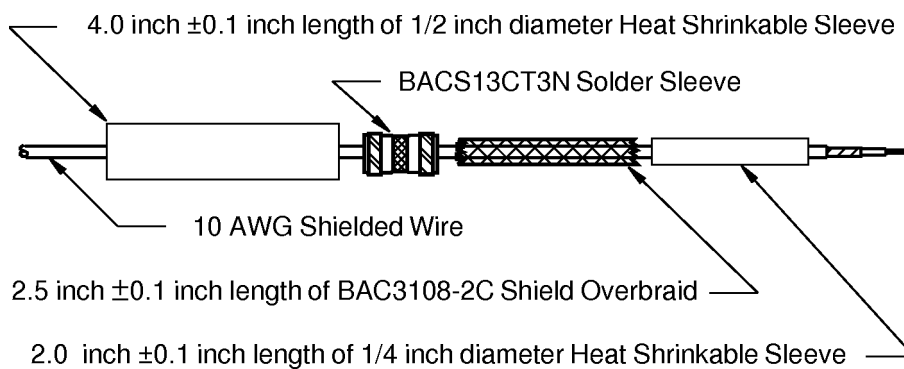
- (3) Put these components on the 10 AWG wire in this order:

- A 4.0 inch \pm 0.1 inch length of 1/2 inch diameter M23053/5-108-4 heat shrinkable sleeve
- A BACS13CT3N solder sleeve
- A 2.5 inch \pm 0.1 inch length of BAC3108-2C shield overbraid
- A 2.0 inch \pm 0.1 inch length of 1/4 inch diameter M23053/12-102-C heat shrinkable sleeve.

Refer to Figure 260.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES



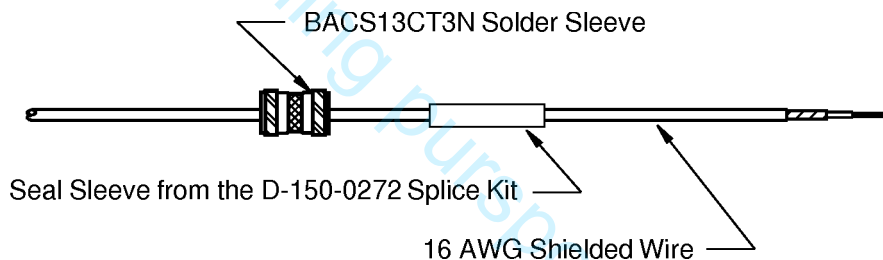
COMPONENTS ON THE 10 AWG SHIELDED WIRE

Figure 260

(4) Put these components on the 16 AWG wire in this order:

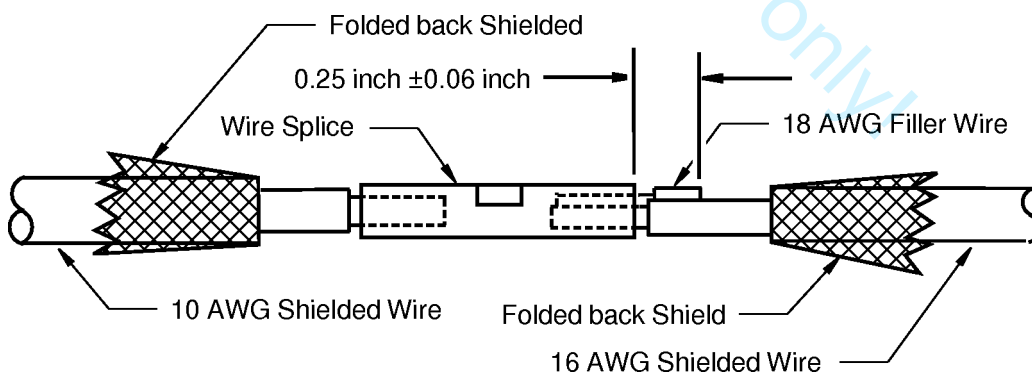
- A BACS13CT3N solder sleeve
- A seal sleeve from the D-150-0272 splice kit.

Refer to Figure 261.



COMPONENTS ON THE 16 AWG SHIELDED WIRE

Figure 261



POSITION OF THE CONDUCTORS IN THE SPLICE

Figure 262

Refer to Figure 262:

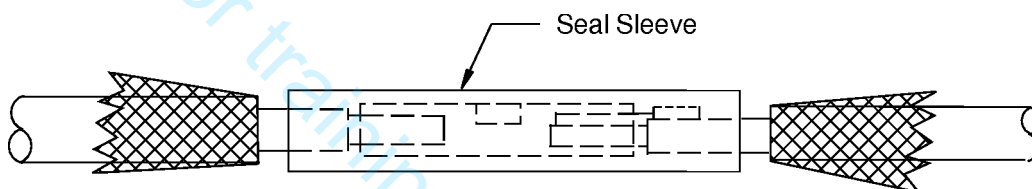
(5) Fold back 0.5 inch \pm 0.06 inch of the shield on the 10 AWG wire.

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

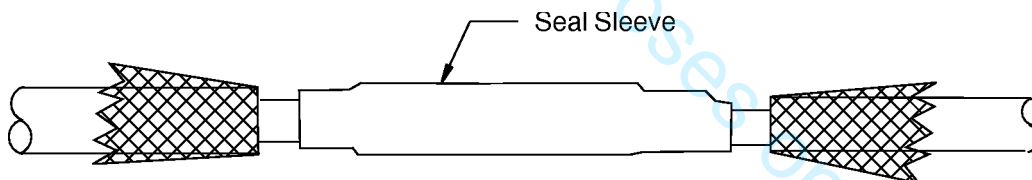
- (6) Fold back 0.5 inch \pm 0.06 inch of the shield on the 16 AWG wire.
- (7) Put the conductor of the 10 AWG wire in the crimp barrel of one end of the NAS1387-6 wire splice from the D-150-0272 splice kit.
- (8) Make a selection of a crimp tool from Table 42 for a size 12-10 crimp barrel for the NAS1387-6 splice.
- (9) Crimp the end of the splice that has the 10 AWG wire.
- (10) Put the conductor of the 16 AWG wire and the conductor of the 18 AWG filler wire in the crimp barrel of the other end of the splice.
- (11) Crimp the end of the splice that has the 16 AWG conductor and the 18 AWG filler wire conductor.
- (12) Remove the unwanted length of the 18 AWG filler wire. Refer to Figure 262.
Make sure that the distance from the end of the filler wire to the end of the crimp barrel of the splice is 0.25 inch \pm 0.06 inch.
- (13) Put the seal sleeve from the 16 AWG wire on the splice and on the filler wire. Refer to Figure 263.



INITIAL POSITION OF THE SEAL SLEEVE ON THE SPLICE

Figure 263

- (14) Shrink the seal sleeve into its position. Refer to Figure 264.
Make sure that the seal sleeve is on the splice and on the end of the filler wire.



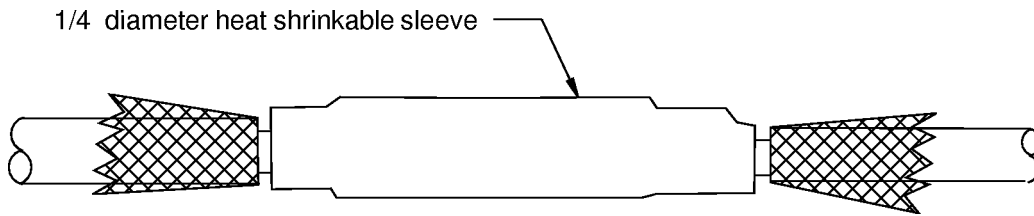
POSITION OF THE SEAL SLEEVE

Figure 264

- (15) Put the 2 inch length of 1/4 inch diameter heat shrinkable sleeve from the 10 AWG wire on the seal sleeve.
- (16) Shrink the 1/4 inch diameter sleeve into its position. Refer to Figure 265.
Make sure that:
 - The sleeve is on the seal sleeve
 - The center of the sleeve is located at the center of the seal sleeve
 - The ends of the sleeve are not on the folded back shields of the wires.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES



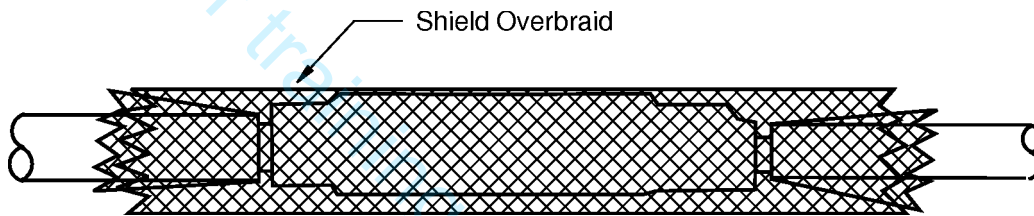
POSITION OF THE SMALLER HEAT SHRINKABLE SLEEVE

Figure 265

- (17) Put the shield overbraid on the sleeve. Refer to Figure 266.

Make sure that on both sides of the splice assembly, the shield overbraid makes an overlap on:

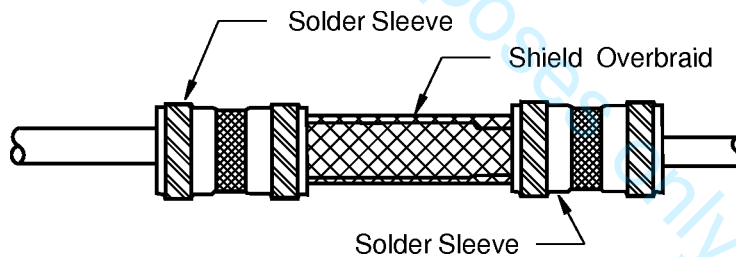
- The folded back shields
- The edges of the outer cable jacket.



INITIAL POSITION OF THE SHIELD OVERBRAID

Figure 266

- (18) Put the two BACS13CT3N solder sleeves on the shield overbraid. Refer to Figure 267 and Figure 268.



POSITION OF THE SOLDER SLEEVES

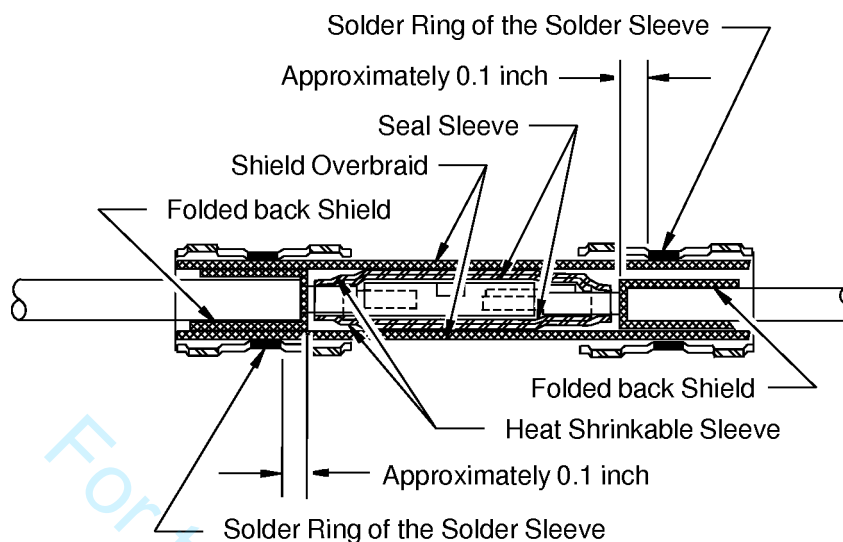
Figure 267

Make sure that for the solder ring in each solder sleeve:

- The solder ring is on the shield overbraid and on the folded back shield of the cable
- The distance from the edge of the solder ring to the end of the shield overbraid is approximately 0.1 inch.

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ASSEMBLY OF SPLICES



POSITION OF THE SOLDER RINGS OF THE SOLDER SLEEVES AND THE SHIELDS
Figure 268

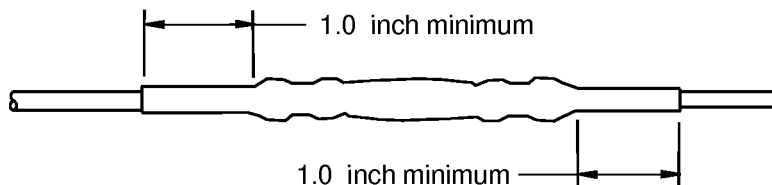
- (19) Apply heat to each solder sleeve until the solder flows into the shield overbraid and into the folded back shield of each shielded wire. Refer to Figure 269.



POSITION OF THE SOLDER SLEEVES AND THE SHIELD OVERBRAID
Figure 269

- (20) If it is necessary, remove the unwanted length of the shields that extend farther than the far ends of the solder sleeves.
- (21) Put the 4 inch length of 1/2 inch diameter heat shrinkable sleeve on the splice assembly.
- (22) Shrink the sleeve into its position. Refer to Figure 270.

Make sure that the sleeve and approximately 1.0 inch of the cable jacket on each side of the splice assembly make an overlap.



POSITION OF THE LARGER HEAT SHRINKABLE SLEEVE
Figure 270

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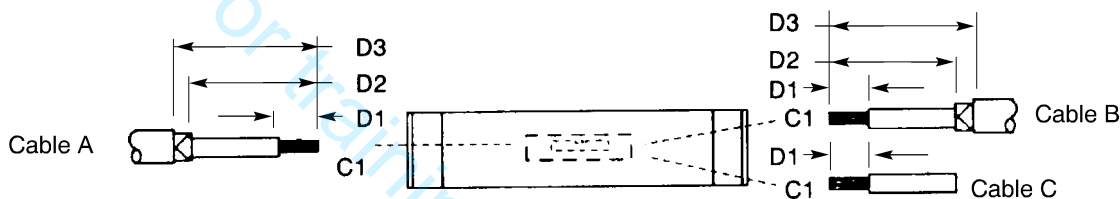
ASSEMBLY OF SPLICES

D. One Shielded Wire to One Shielded Wire and One Unshielded Wire

Table 105

SPLICE KITS FOR ONE SHIELDED WIRE TO ONE SHIELDED WIRE

Jacket Maximum O.D.	Shield Minimum O.D.	Conductor CAU Range		Solder Shield Splice Kit	
		Minimum	Maximum	Part Number	Supplier
0.12	0.06	3	15	D-150-0168	Tyco/Raychem
0.15	0.08	8	27	D-150-0169	Tyco/Raychem
0.18	0.10	19	67	D-150-0170	Tyco/Raychem
0.22	0.14	43	138	D-150-0272	Tyco/Raychem



ONE SHIELDED WIRE TO ONE SHIELDED WIRE AND ONE WIRE

Figure 271

Table 106

CABLE TRIM DIMENSIONS

Cable	Conductor	Trim Dimension (inch)		
		Dimension	Target	Tolerance
A	C1	D1	0.28	± 0.02
		D2	0.70	
		D3	1.08	
B	C1	D1	0.28	± 0.02
		D2	0.70	
		D3	1.08	
C	C1	D1	0.28	± 0.02

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

E. Three Shielded Wires to Three Shielded Wires

Table 107

SPLICE KITS FOR THREE SHIELDED WIRES TO THREE SHIELDED WIRES

Jacket Maximum O.D.	Shield Minimum O.D.	Conductor CAU Range		Solder Shield Splice Kit	
		Minimum	Maximum	Part Number	Supplier
0.18	0.10	19	67	D-150-0285	Tyco/Raychem

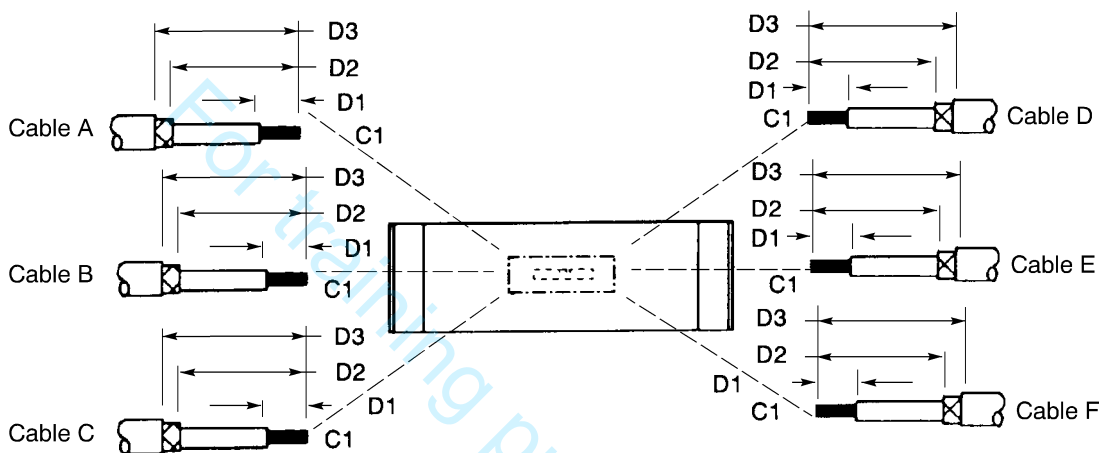

THREE SHIELDED WIRES TO THREE SHIELDED WIRES

Figure 272

Table 108

CABLE TRIM DIMENSIONS

Cable	Conductor	Trim Dimension (inch)		
		Dimension	Target	Tolerance
A	C1	D1	0.28	± 0.02
		D2	0.70	
		D3	1.08	
B	C1	D1	0.28	± 0.02
		D2	0.70	
		D3	1.08	
C	C1	D1	0.28	± 0.02
		D2	0.70	
		D3	1.08	

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Table 108 (continued)

Cable	Conductor	Trim Dimension (inch)		
		Dimension	Target	Tolerance
D	C1	D1	0.28	± 0.02
		D2	0.70	
		D3	1.08	
E	C1	D1	0.28	± 0.02
		D2	0.70	
		D3	1.08	
F	C1	D1	0.28	± 0.02
		D2	0.70	
		D3	1.08	

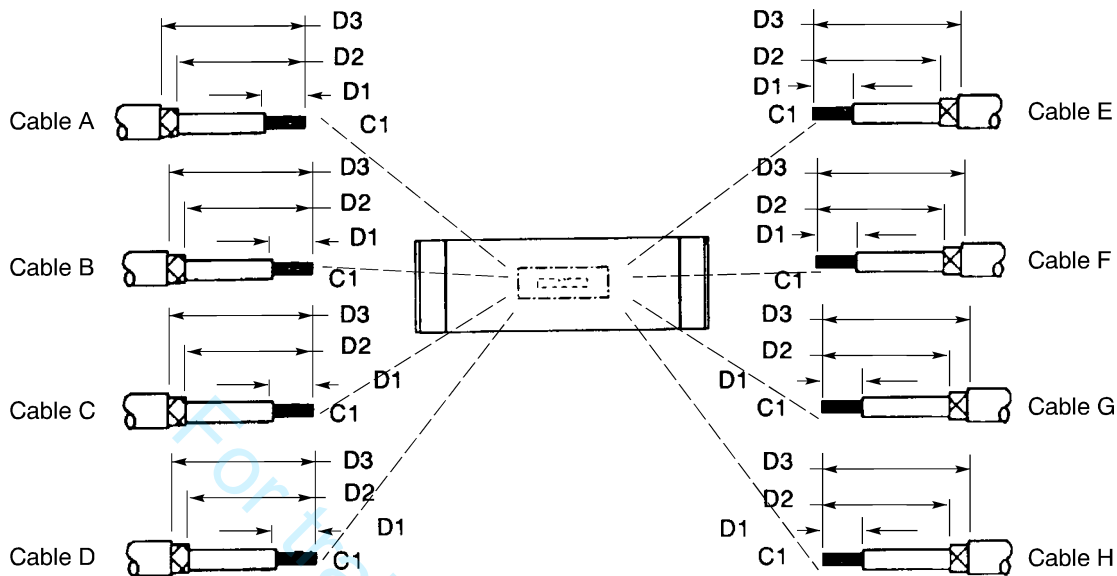
F. Four Shielded Wires to Four Shielded Wires

Table 109

SPLICE KITS FOR FOUR SHIELDED WIRES TO FOUR SHIELDED WIRES

Jacket Maximum O.D.	Shield Minimum O.D.	Conductor CAU Range		Solder Shield Splice Kit	
		Minimum	Maximum	Part Number	Supplier
0.18	0.10	19	67	D-150-0285	Tyco/Raychem

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STANDARD WIRING PRACTICES MANUAL
ASSEMBLY OF SPLICES

FOUR SHIELDED WIRES TO FOUR SHIELDED WIRES
Figure 273
**Table 110
CABLE TRIM DIMENSIONS**

Cable	Conductor	Trim Dimension (inch)		
		Dimension	Target	Tolerance
A	C1	D1	0.28	± 0.02
		D2	0.70	
		D3	1.08	
B	C1	D1	0.28	± 0.02
		D2	0.70	
		D3	1.08	
C	C1	D1	0.28	± 0.02
		D2	0.70	
		D3	1.08	
D	C1	D1	0.28	± 0.02
		D2	0.70	
		D3	1.08	
E	C1	D1	0.28	± 0.02
		D2	0.70	
		D3	1.08	

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Table 110 (continued)

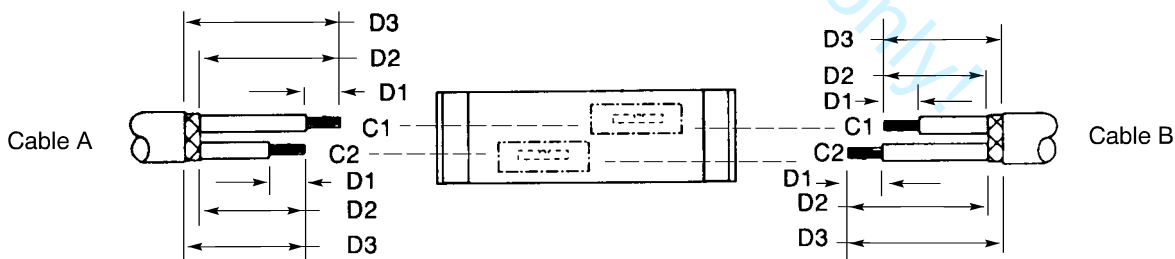
Cable	Conductor	Trim Dimension (inch)		
		Dimension	Target	Tolerance
F	C1	D1	0.28	± 0.02
		D2	0.70	
		D3	1.08	
G	C1	D1	0.28	± 0.02
		D2	0.70	
		D3	1.08	
H	C1	D1	0.28	± 0.02
		D2	0.70	
		D3	1.08	

G. One Class 2 Shielded Cable to One Class 2 Shielded Cable

Table 111

SPLICE KITS FOR ONE CLASS 2 SHIELDED CABLE TO ONE CLASS 2 SHIELDED CABLE

Jacket Maximum O.D.	Shield Minimum O.D.	Conductor CAU Range		Solder Shield Splice Kit	
		Minimum	Maximum	Part Number	Supplier
0.15	0.08	3	15	D-150-0174	Tyco/Raychem
0.18	0.10	8	27	D-150-0175	Tyco/Raychem
0.34	0.19	19	67	D-150-0177	Tyco/Raychem



ONE CLASS 2 SHIELDED CABLE TO ONE CLASS 2 SHIELDED CABLE
Figure 274

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Table 112
CABLE TRIM 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	

H. One Class 2 Shielded Cable to One Class 2 Shielded Cable and One Unshielded Wire

Table 113

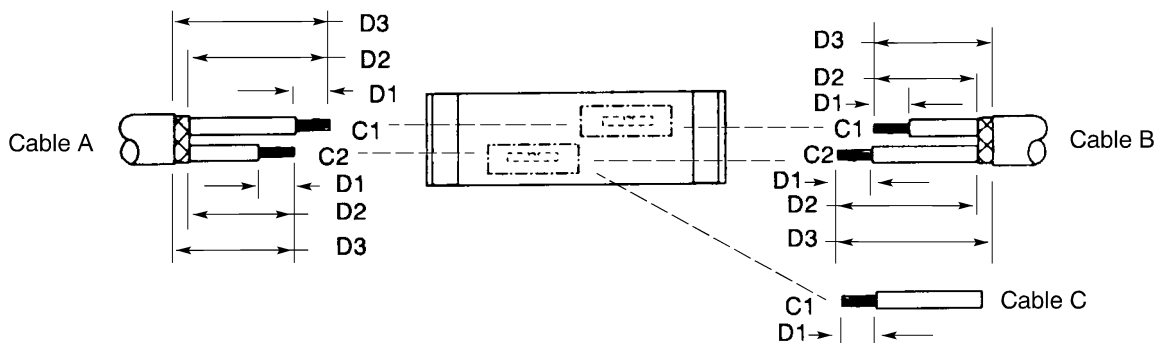
SPLICE KITS FOR ONE CLASS 2 SHIELDED CABLE TO ONE CLASS 2 SHIELDED CABLE AND ONE CLASS 1 WIRE

Jacket Maximum O.D.	Shield Minimum O.D.	Conductor CAU Range		Solder Shield Splice Kit	
		Minimum	Maximum	Part Number	Supplier
0.15	0.08	3	15	D-150-0174	Tyco/Raychem
0.18	0.10	8	27	D-150-0175	Tyco/Raychem
0.34	0.19	19	67	D-150-0177	Tyco/Raychem

NOTE: The CAU of the shield of Cable B must be increased.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES



ONE CLASS 2 SHIELDED CABLE TO ONE CLASS 2 SHIELDED CABLE AND ONE CLASS 1 WIRE

Figure 275

Table 114
CABLE TRIM 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	
C	C1	D1	0.28	± 0.02

I. Two Class 2 Shielded Cables to Two Class 2 Shielded Cables

Table 115

SPLICE KITS FOR TWO CLASS 2 SHIELDED CABLES TO TWO CLASS 2 SHIELDED CABLES

Jacket Maximum O.D.	Shield Minimum O.D.	Conductor CAU Range		Solder Shield Splice Kit	
		Minimum	Maximum	Part Number	Supplier
0.18	0.10	8	27	D-150-0175	Tyco/Raychem

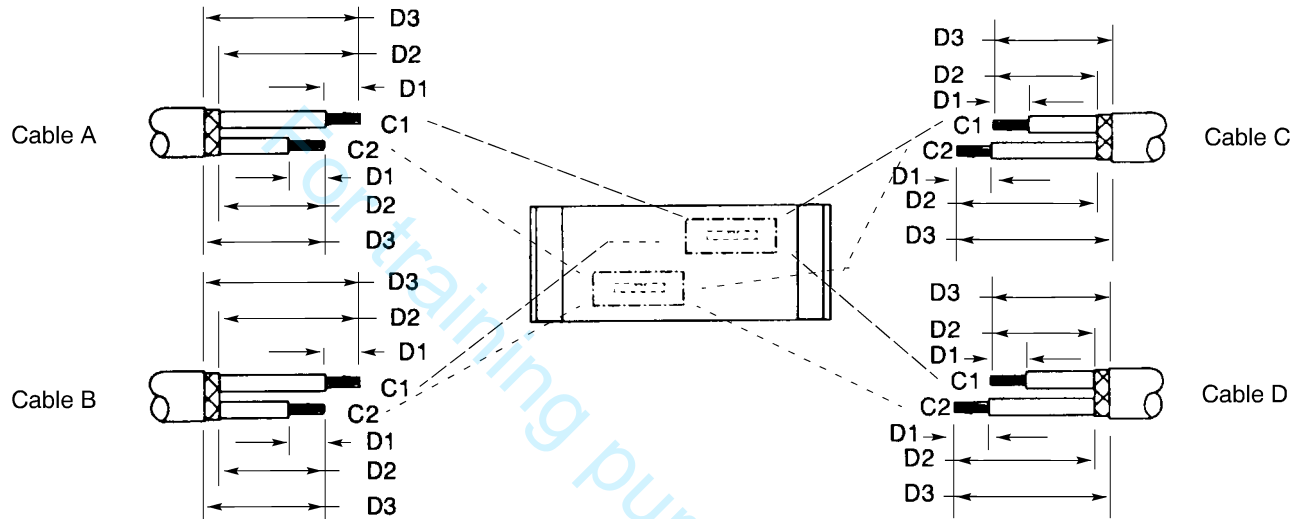
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ASSEMBLY OF SPLICES

Table 115 (continued)

Jacket Maximum O.D.	Shield Minimum O.D.	Conductor CAU Range		Solder Shield Splice Kit	
		Minimum	Maximum	Part Number	Supplier
0.22	0.14	19	67	D-150-0176	Tyco/Raychem
0.34	0.19	43	138	D-150-0273	Tyco/Raychem



TWO CLASS 2 SHIELDED CABLES TO TWO CLASS 2 SHIELDED CABLES

Figure 276

Table 116
CABLE TRIM 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	

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Table 116 (continued)

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

J. Two Class 2 Shielded Cables to Three Class 2 Shielded Cables

Table 117

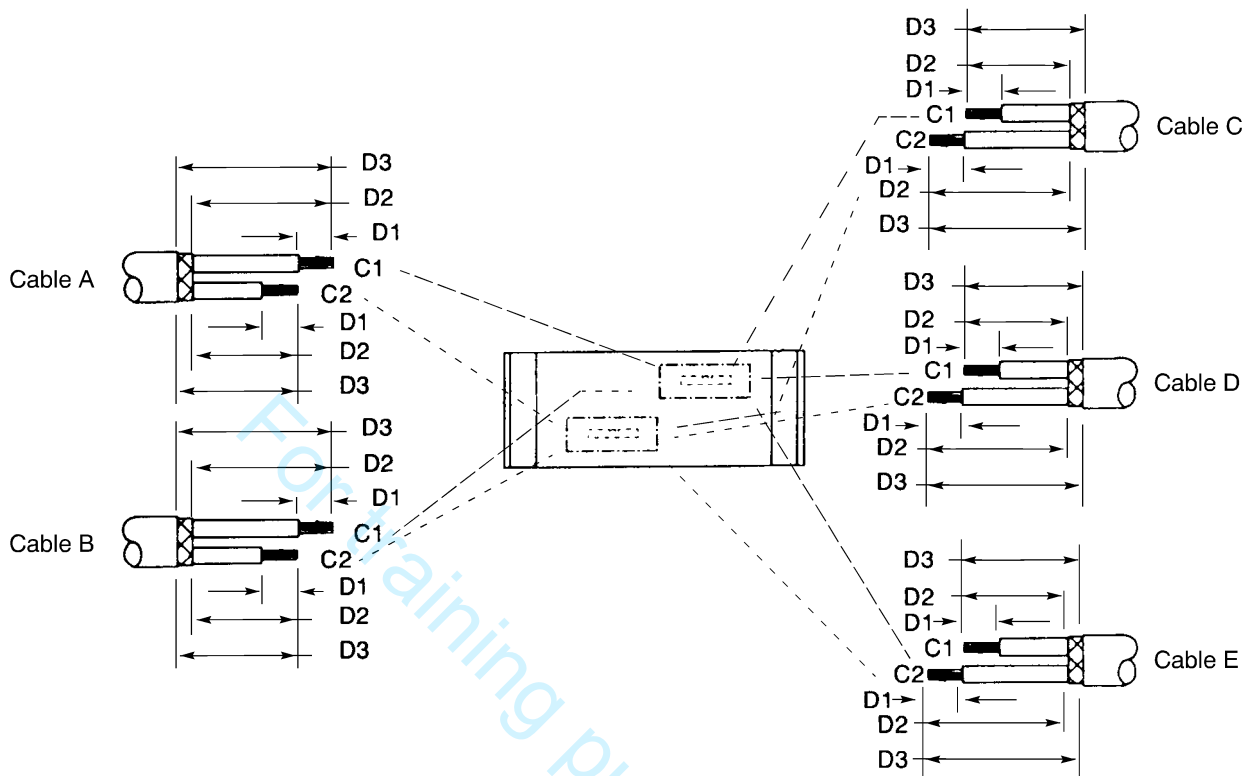
SPLICE KITS FOR TWO CLASS 2 SHIELDED CABLES TO THREE CLASS 2 SHIELDED CABLES

Jacket Maximum O.D.	Shield Minimum O.D.	Conductor CAU Range		Solder Shield Splice Kit	
		Minimum	Maximum	Part Number	Supplier
0.18	0.10	8	27	D-150-0175	Tyco/Raychem
0.22	0.14	19	67	D-150-0176	Tyco/Raychem
0.34	0.19	43	138	D-150-0273	Tyco/Raychem

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES



TWO CLASS 2 SHIELDED CABLES TO THREE CLASS 2 SHIELDED CABLES

Figure 277

**Table 118
CABLE TRIM 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	

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Table 118 (continued)

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

K. Three Class 2 Shielded Cables to Three Class 2 Shielded Cables

Table 119

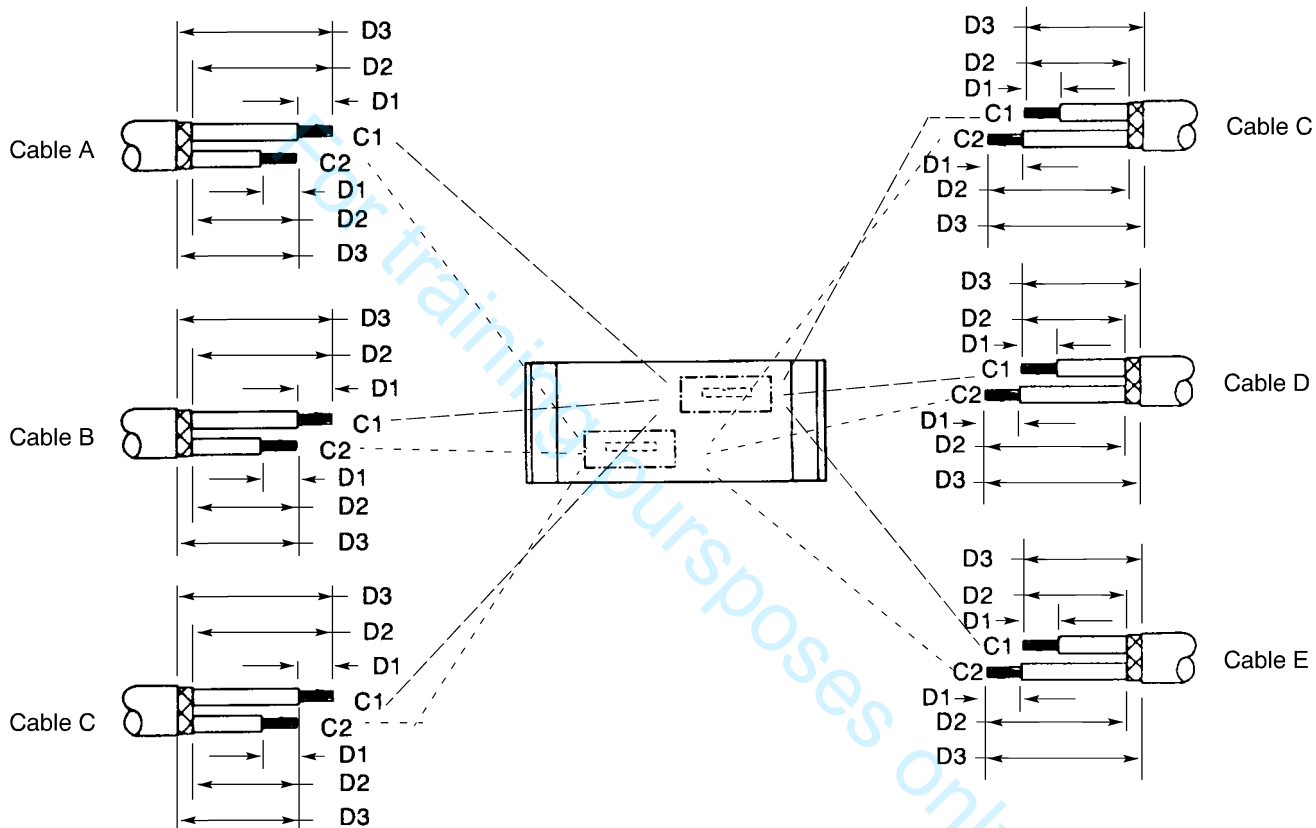
SPLICE KITS FOR THREE CLASS 2 SHIELDED CABLES TO THREE CLASS 2 SHIELDED CABLES

Jacket Maximum O.D.	Shield Minimum O.D.	Conductor CAU Range		Solder Shield Splice Kit	
		Minimum	Maximum	Part Number	Supplier
0.18	0.10	8	27	D-150-0175	Tyco/Raychem

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STANDARD WIRING PRACTICES MANUAL
ASSEMBLY OF SPLICES
Table 119 (continued)

Jacket Maximum O.D.	Shield Minimum O.D.	Conductor CAU Range		Solder Shield Splice Kit	
		Minimum	Maximum	Part Number	Supplier
0.22	0.14	19	67	D-150-0176	Tyco/Raychem
0.34	0.19	43	138	D-150-0273	Tyco/Raychem


THREE CLASS 2 SHIELDED CABLES TO THREE CLASS 2 SHIELDED CABLES
Figure 278
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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Table 120
CABLE TRIM 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	1.92	
		D3	2.20	
	C2	D1	0.28	± 0.02
		D2	0.77	
		D3	1.05	
C	C1	D1	0.28	± 0.02
		D2	1.92	
		D3	2.20	
	C2	D1	0.28	± 0.02
		D2	0.77	
		D3	1.05	
D	C1	D1	0.28	± 0.02
		D2	0.77	
		D3	1.05	
	C2	D1	0.28	± 0.02
		D2	1.92	
		D3	2.20	
E	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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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Table 120 (continued)

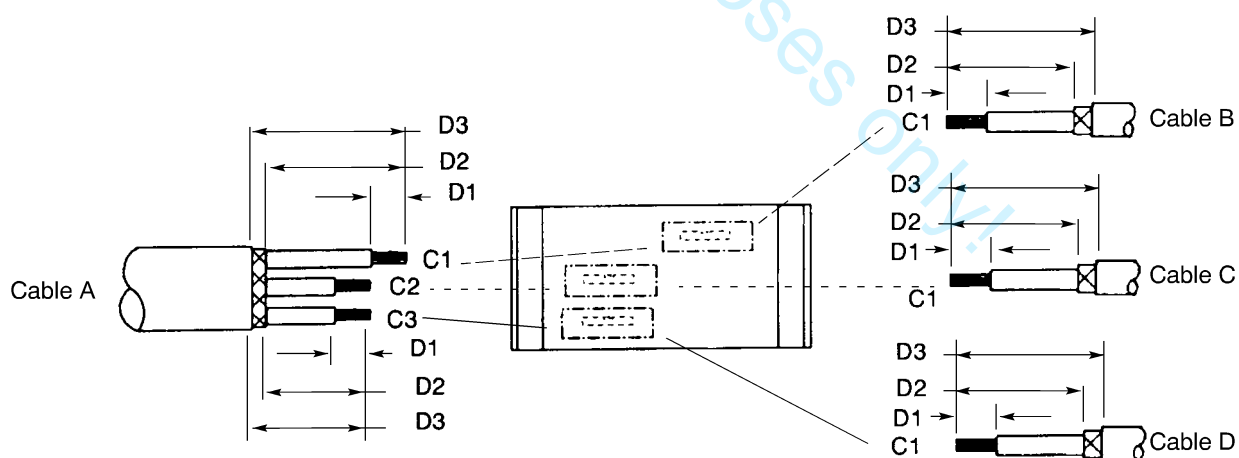
Cable	Conductor	Trim Dimension (inch)		
		Dimension	Target	Tolerance
F	C1	D1	0.28	± 0.02
		D2	0.77	
		D3	1.05	
	C2	D1	0.28	± 0.02
		D2	1.92	
		D3	2.20	

L. One Class 3 Shielded Cable to Three Shielded Wires

Table 121

SPLICE KITS FOR ONE CLASS 3 SHIELDED CABLE TO THREE SHIELDED WIRES

Jacket Maximum O.D.	Shield Minimum O.D.	Conductor CAU Range		Solder Shield Splice Kit	
		Minimum	Maximum	Part Number	Supplier
0.18	0.10	3	15	D-150-0179	Tyco/Raychem
0.22	0.14	8	27	D-150-0180	Tyco/Raychem
0.34	0.19	19	67	D-150-0181	Tyco/Raychem



ONE CLASS 3 SHIELDED CABLE TO THREE SHIELDED WIRES

Figure 279

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Table 122
CABLE TRIM 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	
	C3	D1	0.28	± 0.02
		D2	0.77	
		D3	1.05	
B	C1	D1	0.28	± 0.02
		D2	0.77	
		D3	1.05	
C	C1	D1	0.28	± 0.02
		D2	1.92	
		D3	2.20	
D	C1	D1	0.28	± 0.02
		D2	1.92	
		D3	2.20	

M. One Class 3 Shielded Cable to One Class 3 Shielded Cable

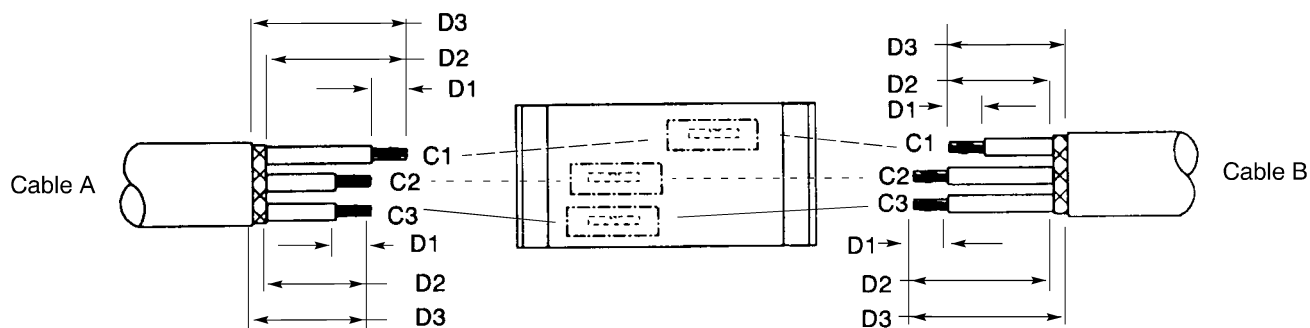
Table 123
SPLICE KITS FOR ONE CLASS 3 SHIELDED CABLE TO ONE CLASS 3 SHIELDED CABLE

Jacket Maximum O.D.	Shield Minimum O.D.	Conductor CAU Range		Solder Shield Splice Kit	
		Minimum	Maximum	Part Number	Supplier
0.18	0.10	3	15	D-150-0179	Tyco/Raychem
0.22	0.14	8	27	D-150-0180	Tyco/Raychem
0.34	0.19	19	67	D-150-0181	Tyco/Raychem

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES



ONE CLASS 3 SHIELDED CABLE TO ONE CLASS 3 SHIELDED CABLE

Figure 280

Table 124
CABLE TRIM 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	
	C3	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	
	C3	D1	0.28	± 0.02
		D2	1.92	
		D3	2.20	

STANDARD WIRING PRACTICES MANUAL

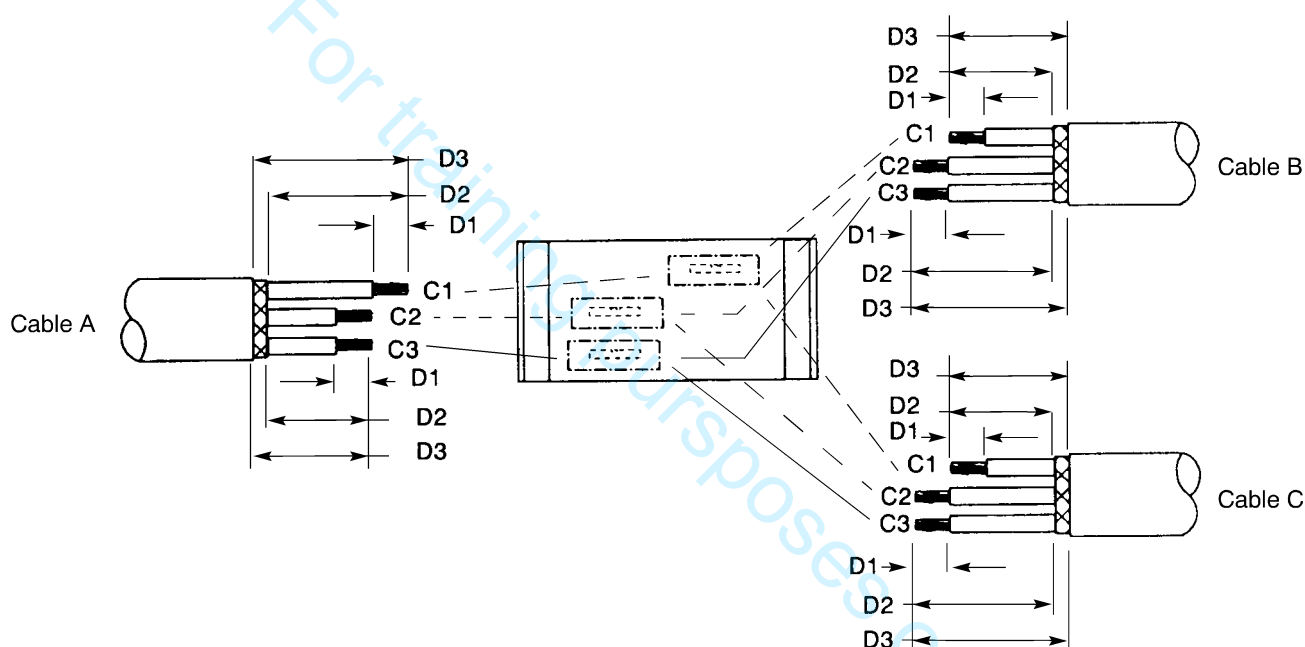
ASSEMBLY OF SPLICES

N. One Class 3 Shielded Cable to Two Class 3 Shielded Cables

Table 125

SPLICE KITS FOR ONE CLASS 3 SHIELDED CABLE TO TWO CLASS 3 SHIELDED CABLES

Jacket Maximum O.D.	Shield Minimum O.D.	Conductor CAU Range		Solder Shield Splice Kit	
		Minimum	Maximum	Part Number	Supplier
0.18	0.10	3	15	D-150-0179	Tyco/Raychem
0.22	0.14	8	27	D-150-0180	Tyco/Raychem
0.34	0.19	19	67	D-150-0181	Tyco/Raychem



ONE CLASS 3 SHIELDED CABLE TO TWO CLASS 3 SHIELDED CABLES

Figure 281

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Table 126
CABLE TRIM 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	
	C3	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	
	C3	D1	0.28	± 0.02
		D2	1.92	
		D3	2.20	
C	C1	D1	0.28	± 0.02
		D2	0.77	
		D3	1.05	
	C2	D1	0.28	± 0.02
		D2	1.92	
		D3	2.20	
	C3	D1	0.28	± 0.02
		D2	1.92	
		D3	2.20	

STANDARD WIRING PRACTICES MANUAL

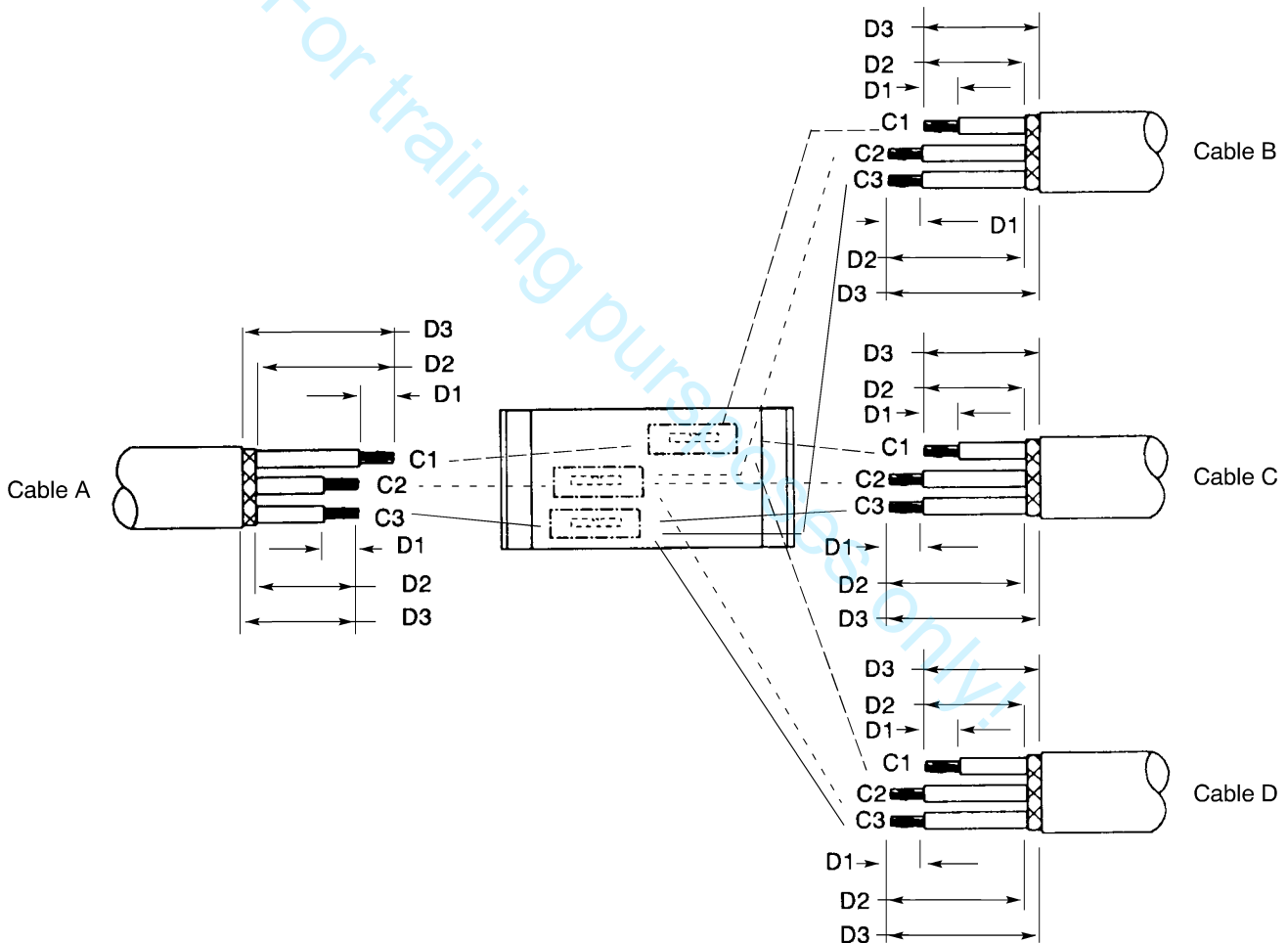
ASSEMBLY OF SPLICES

O. One Class 3 Shielded Cable to Three Class 3 Shielded Cables

Table 127

SPLICE KITS FOR ONE CLASS 3 SHIELDED CABLE TO THREE CLASS 3 JACKETED CABLES

Jacket Maximum O.D.	Shield Minimum O.D.	Conductor CAU Range		Solder Shield Splice Kit	
		Minimum	Maximum	Part Number	Supplier
0.18	0.10	3	15	D-150-0179	Tyco/Raychem
0.22	0.14	8	27	D-150-0180	Tyco/Raychem
0.34	0.19	19	67	D-150-0181	Tyco/Raychem



ONE CLASS 3 SHIELDED CABLE TO THREE CLASS 3 SHIELDED CABLES

Figure 282

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Table 128
CABLE TRIM 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	
	C3	D1	0.28	± 0.02
		D2	0.77	
		D3	1.05	
B	C1	D1	0.28	± 0.02
		D2	1.92	
		D3	2.20	
	C2	D1	0.28	± 0.02
		D2	0.77	
		D3	1.05	
	C3	D1	0.28	± 0.02
		D2	0.77	
		D3	1.05	
C	C1	D1	0.28	± 0.02
		D2	0.77	
		D3	1.05	
	C2	D1	0.28	± 0.02
		D2	1.92	
		D3	2.20	
	C3	D1	0.28	± 0.02
		D2	1.92	
		D3	2.20	

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ASSEMBLY OF SPLICES

Table 128 (continued)

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

P. Two Class 3 Shielded Cables to Two Class 3 Shielded Cables

Table 129

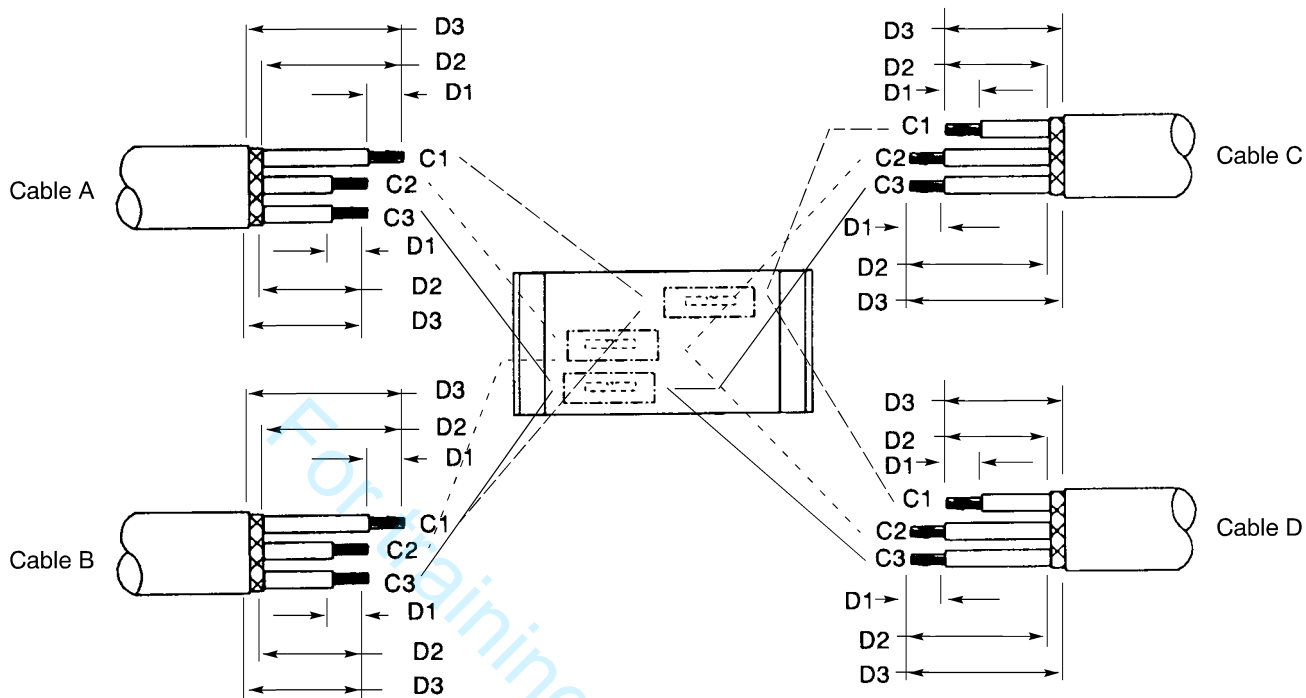
SPLICE KITS FOR TWO CLASS 3 SHIELDED CABLES TO TWO CLASS 3 SHIELDED CABLES

Jacket Maximum O.D.	Shield Minimum O.D.	Conductor CAU Range		Solder Shield Splice Kit	
		Minimum	Maximum	Part Number	Supplier
0.18	0.10	3	15	D-150-0179	Tyco/Raychem
0.22	0.14	8	27	D-150-0180	Tyco/Raychem
0.34	0.19	19	67	D-150-0181	Tyco/Raychem

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ASSEMBLY OF SPLICES



TWO CLASS 3 SHIELDED CABLES TO TWO CLASS 3 SHIELDED CABLES

Figure 283

**Table 130
CABLE TRIM 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	
	C3	D1	0.28	± 0.02
		D2	0.77	
		D3	1.05	

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Table 130 (continued)

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

STANDARD WIRING PRACTICES MANUAL

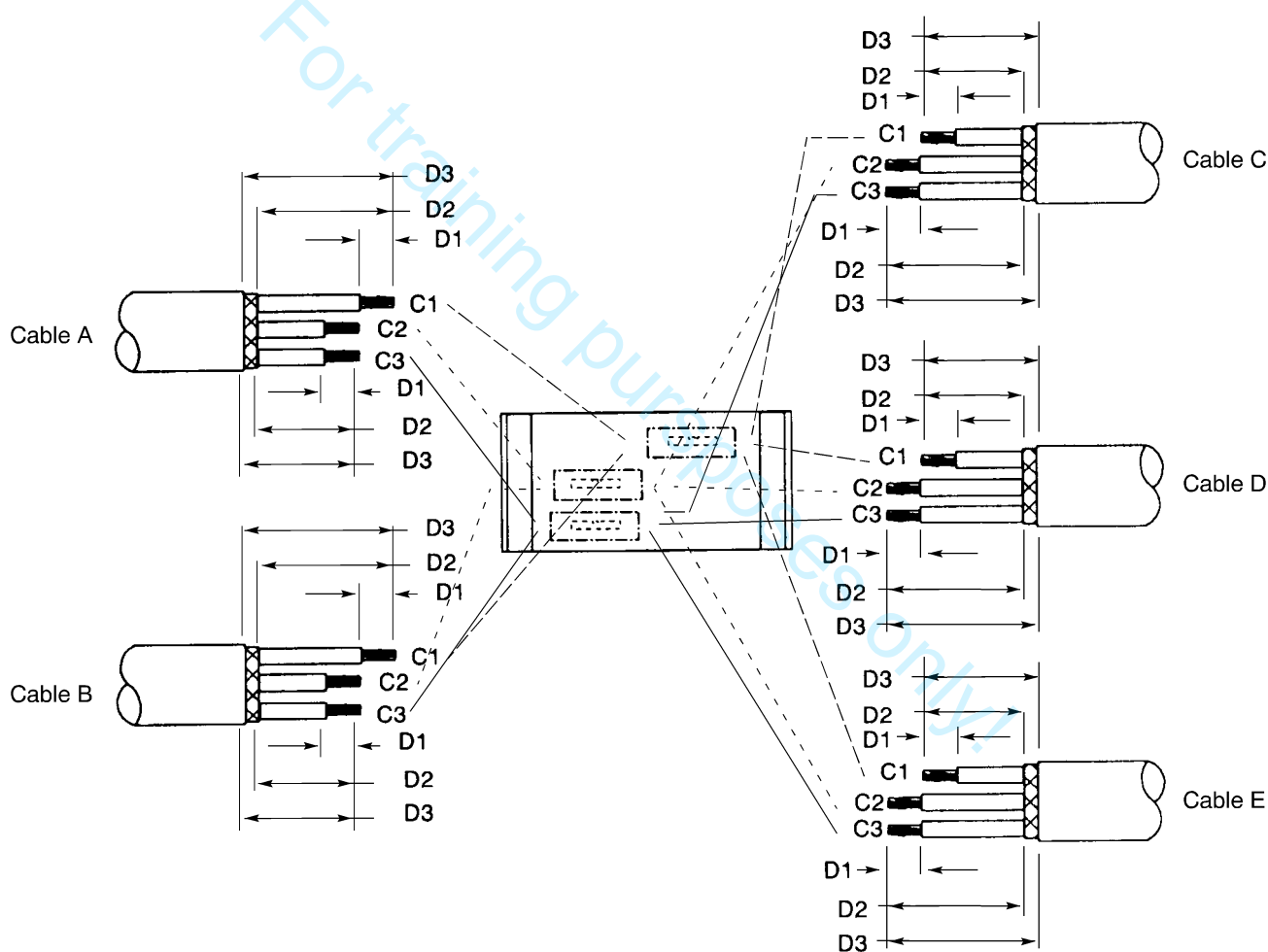
ASSEMBLY OF SPLICES

Q. Two Class 3 Shielded Cables to Three Class 3 Shielded Cables

Table 131

SPLICE KITS FOR TWO CLASS 3 SHIELDED CABLES TO THREE CLASS 3 SHIELDED CABLES

Jacket Maximum O.D.	Shield Minimum O.D.	Conductor CAU Range		Solder Shield Splice Kit	
		Minimum	Maximum	Part Number	Supplier
0.18	0.10	3	15	D-150-0179	Tyco/Raychem
0.22	0.14	8	27	D-150-0180	Tyco/Raychem
0.34	0.19	19	67	D-150-0181	Tyco/Raychem



TWO CLASS 3 SHIELDED CABLES TO THREE CLASS 3 SHIELDED CABLES

Figure 284

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Table 132
CABLE TRIM 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	
	C3	D1	0.28	± 0.02
		D2	0.77	
		D3	1.05	
B	C1	D1	0.28	± 0.02
		D2	1.92	
		D3	2.20	
	C2	D1	0.28	± 0.02
		D2	0.77	
		D3	1.05	
	C3	D1	0.28	± 0.02
		D2	0.77	
		D3	1.05	
C	C1	D1	0.28	± 0.02
		D2	0.77	
		D3	1.05	
	C2	D1	0.28	± 0.02
		D2	1.92	
		D3	2.20	
	C3	D1	0.28	± 0.02
		D2	1.92	
		D3	2.20	

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Table 132 (continued)

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

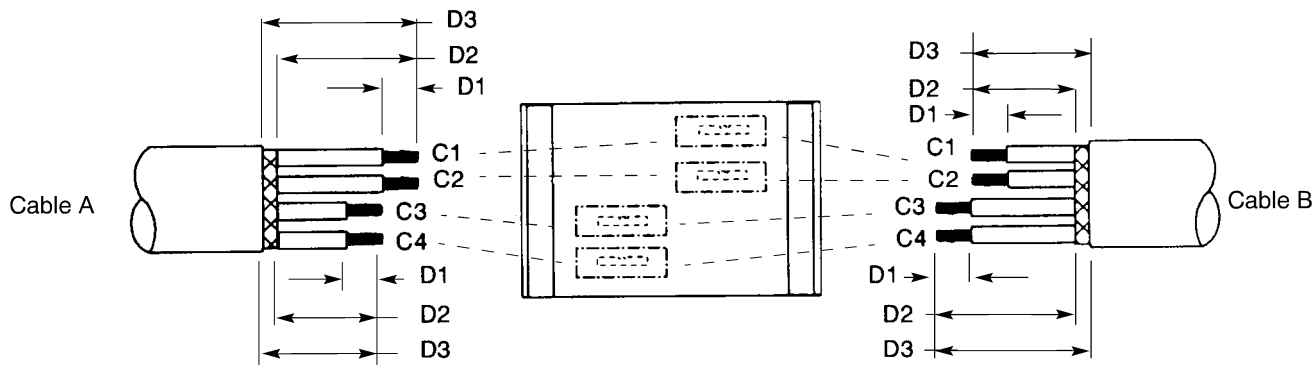
R. One Class 4 Shielded Cable to One Class 4 Shielded Cable

Table 133

SPLICE KITS FOR ONE CLASS 4 SHIELDED CABLE TO ONE CLASS 4 SHIELDED CABLE

Jacket Maximum O.D.	Shield Minimum O.D.	Conductor CAU Range		Solder Shield Splice Kit	
		Minimum	Maximum	Part Number	Supplier
0.18	0.10	3	15	D-150-0179	Tyco/Raychem

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ASSEMBLY OF SPLICES

ONE CLASS 4 SHIELDED CABLE TO ONE CLASS 4 SHIELDED CABLE
Figure 285
**Table 134
CABLE TRIM 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	

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Table 134 (continued)

Cable	Conductor	Trim Dimension (inch)		
		Dimension	Target	Tolerance
B	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	

15. SEALED SPlice CONFIGURATIONS WITH SOLDER SLEEVE SHIELD SPLICES FOR SHIELDED WIRE AND SHIELDED CABLE

A. Splice Assembly Configurations

For the conditions that are applicable for:

- The repair of a wire or a cable with a splice, refer to Subject 20-10-13
- The selection of the correct sealed splice configuration, refer to Paragraph 1.C.

Table 135
SPlice ASSEMBLY CONFIGURATIONS

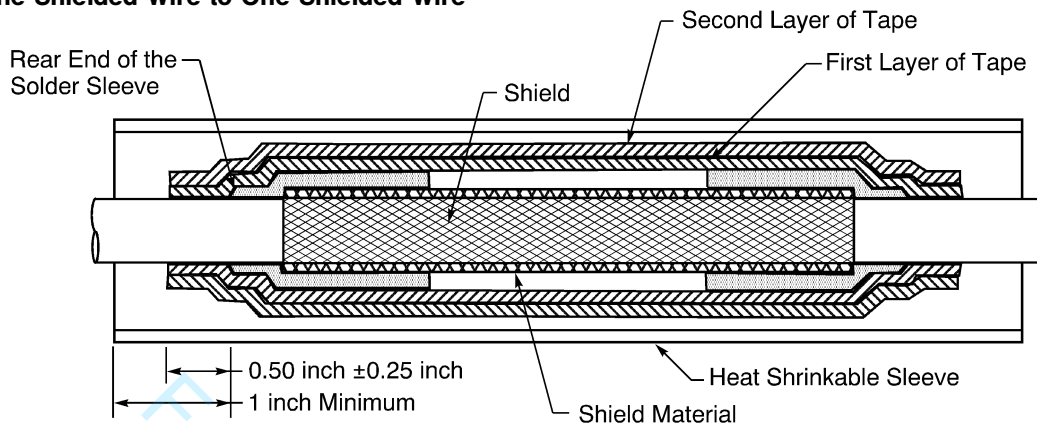
One End of Splice Assembly	Other End of Splice Assembly	Quantity of Conductor Splices	Applicable Condition	Splice Assembly	
				Configuration	Procedure
One Shielded Wire	One Shielded Wire	1	No Fuel Vapor	Tape, Sleeve	Paragraph 15.B.

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

B. One Shielded Wire to One Shielded Wire



SPLICE OF THE SHIELD
Figure 286

Refer to Figure 286.

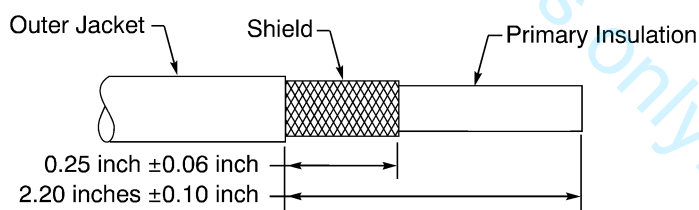
- (1) Make a selection of a Temperature Grade B shield material from Table 55.
Make sure that the shield material has the smallest diameter that can go on the wire.

NOTE: For alternative shield materials, refer to Subject 20-00-11.

- (2) Make a selection of a Temperature Grade B or higher insulation tape from Table 50.
- (3) Make a selection of two solder sleeves from Table 53.
- (4) Prepare the wire.

Refer to:

- Figure 287
- Subject 20-00-15 for the outer jacket removal procedures.



WIRE PREPARATION
Figure 287

- (a) Remove 2.20 inches ± 0.10 inch of the outer jacket from the end of each wire.
- (b) Remove the necessary length of shield from the wire that makes the distance from the end of the shield to the end of the jacket equal to 0.25 inch ± 0.06 inch.
- (5) Cut the necessary length of the shield material.
Make sure that length is sufficient to extend from the end of the outer jacket on one wire to the end of the outer jacket on the other wire.
- (6) Cut the necessary length of the heat shrinkable sleeve.

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Make sure that length is sufficient to extend a minimum of 1 inch farther than the rear end of the solder sleeve on each wire after the solder sleeves are installed.

- (7) Clean the jacket with isopropyl alcohol.

Make sure:

- To clean the area from each end of the jacket to a minimum of 3 inches to the rear
- That the cleaned area is dry.

- (8) Put the heat shrinkable sleeve on one end of the wire.

- (9) Put a solder sleeve on each end of the wire.

- (10) Put the shield material on one end of the wire.

- (11) Make a selection of an applicable Temperature Grade B conductor splice configuration for one wire to one wire. Refer to Paragraph 9.A.

- (12) Assemble the conductor splice. Refer to the applicable procedure given in Paragraph 9.A.

- (13) Align the ends of the shield material with the ends of the cable jacket.

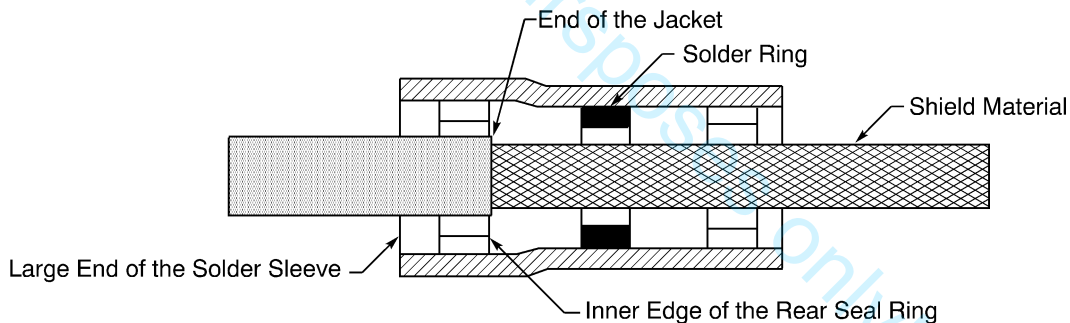
- (14) If it is necessary, trim the length of the shield material to make a fit between the ends of the jacket.

- (15) Assemble one end of the shield splice.

- (a) Move the solder sleeve on the jacket and the shield material. Refer to Figure 288.

Make sure that:

- The end of the shield material is a maximum of 0.1 inch from the end of the jacket
- The inner edge of the rear seal ring is aligned with the end of the jacket
- The seal ring does not make an overlap with the shield.



POSITION OF THE SOLDER SLEEVE ON THE SHIELD MATERIAL

Figure 288

- (b) Shrink the solder sleeve into its position.

Make sure that:

- The solder sleeve stays in the correct position
- A minimum of 75 percent of the indicator ring on top of the solder ring is melted.

- (16) Do Step (15) again to assemble the other end of the shield splice.

Make sure that the shield material is pulled tight before the splice is assembled.

- (17) Tightly wind a layer of the tape on the splice assembly.

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ASSEMBLY OF SPLICES

Make sure that the layer of tape:

- Starts 0.50 inch \pm 0.25 inch farther than the rear end of the solder sleeve at one end of the splice
- Stops 0.50 inch \pm 0.25 inch farther than the rear end of the solder sleeve at the other end of the splice
- Makes a 50 percent overlap.

(18) Tightly wind a second layer of the tape on the splice assembly.

Make sure that the layer of tape:

- Starts 1 inch minimum farther than where the first layer of tape stops
- Stops 1 inch minimum farther than where the first layer of tape starts
- Makes a 50 percent overlap.

(19) Align the center of the heat shrinkable sleeve with the center of the splice assembly.

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

16. SEALED SPLICE CONFIGURATIONS WITH SOLDER SLEEVE SPLICE KITS FOR SHIELDED WIRE AND SHIELDED CABLE FOR HIGH TEMPERATURE

A. Splice Assembly Configurations

For the conditions that are applicable for:

- The repair of a wire or a cable with a splice, refer to Subject 20-10-13
- The selection of the correct sealed splice configuration, refer to Paragraph 1.C.

CAUTION: THESE SPLICE ASSEMBLY CONFIGURATIONS CONTAIN SOLDER SLEEVES THAT ARE APPLICABLE FOR WIRE AND CABLE WITH NICKEL PLATED SHIELDS. ASSEMBLY OF THE SPLICE ON WIRE AND CABLE WITHOUT NICKEL PLATED SHIELDS CAN CAUSE UNSATISFACTORY PERFORMANCE AND RELIABILITY OF THE SPLICE. REFER TO SUBJECT 20-00-13 FOR THE CONFIGURATION OF THE WIRE OR CABLE.

Table 136
WIRE AND CABLE CONFIGURATIONS

One End of Splice Assembly	Other End of Splice Assembly	Quantity of Conductor Splices	Splice Kit Part Number
One Shielded Wire	One Shielded Wire	1	D-150-0250
	Two Shielded Wires	1	D-150-0251
Two Shielded Wires	One Shielded Wire	1	D-150-0251
One Class 2 Shielded Cable	One Class 2 Shielded Cable	2	D-150-0252
	Two Class 2 Shielded Cables	2	D-150-0253
Two Class 2 Shielded Cables	One Class 2 Shielded Cable	2	D-150-0253

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ASSEMBLY OF SPLICES

Table 137
DIMENSIONS OF THE SPLICE KITS

Splice Kit Part Number	One End of Splice Assembly		Other End of Splice Assembly		Conductor CAU Range		Conductor Splice Crimp Barrel Size
	Jacket Maximum O.D. (inch)	Shield Minimum O.D. (inch)	Jacket Maximum O.D. (inch)	Shield Minimum O.D. (inch)	Minimum	Maximum	
D-150-0250	0.18	0.10	0.18	0.10	8	27	20-16
D-150-0251	0.18	0.10	0.28	0.16	19	67	16-12
D-150-0252	0.28	0.16	0.28	0.16	8	27	20-16
D-150-0253	0.28	0.16	0.35	0.20	19	67	16-12

Table 138
SPLICE ASSEMBLY CONFIGURATION PROCEDURES

Splice Kit Part Number	Procedure
D-150-0250	Paragraph 16.B.
D-150-0251	Paragraph 16.C.
D-150-0252	Paragraph 16.D.
D-150-0253	Paragraph 16.E.

- (1) Make a selection of the applicable splice kit for the wire or cable configuration from Table 136.
- (2) Measure these dimensions of the wire or cable on each side of the splice:
 - The jacket O.D.
 - The shield O.D.
- (3) Compare these dimensions with the applicable dimensions of the splice kit in Table 137:
 - The jacket O.D.
 - The shield O.D.
- (4) If the O.D. of the jackets or the shields are not the correct dimension for the splice kit, make a selection of an alternative splice configuration. Refer to Paragraph 1.C.
- (5) Calculate the total CAU of the conductors for each end of each conductor splice. Refer to Paragraph 1.D.
- (6) Compare the total conductor CAU with the applicable conductor CAU of the splice kit in Table 137.
- (7) If the CAU of the conductors are not the correct size for the splice kit, the conductors can be increased.

Refer to:

- Paragraph 2.B. to assemble the conductor splice with a conductor that is folded back
- Paragraph 2.C. to assemble the conductor splice with a filler wire.

NOTE: As an alternative, make a selection of a different splice configuration. Refer to Paragraph 1.C.

- (8) Make a selection of a crimp tool from Table 43.

Refer to Table 137 for the crimp barrel size of the conductor splice.

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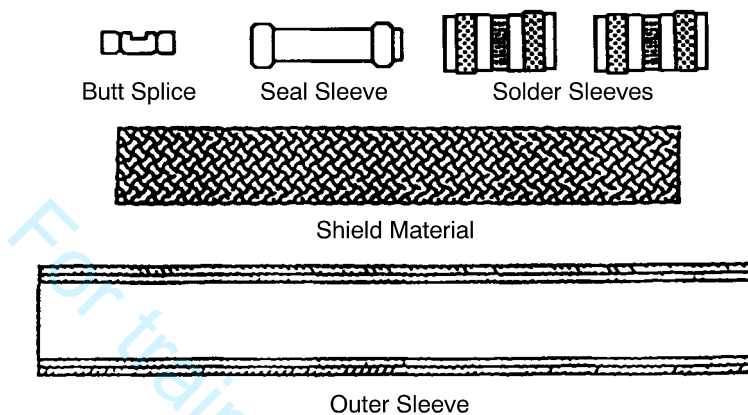
STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

- (9) Make a selection of a high temperature type, hot air gun from Table 47.
- (10) Assemble the splice. Refer to Table 138 for the procedure.

B. One Shielded Wire to One Shielded Wire

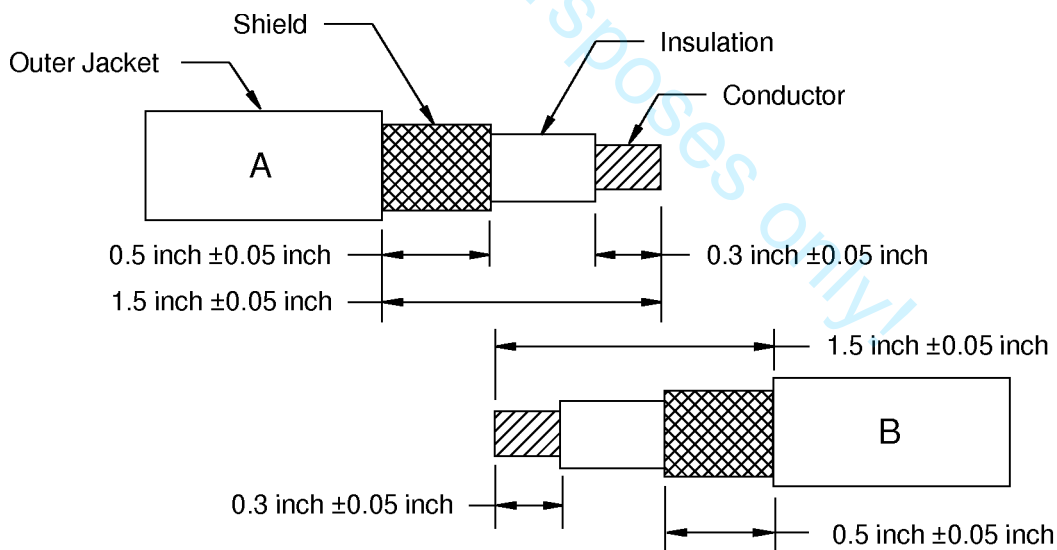
Refer to Paragraph 16.A. first to start this procedure.



COMPONENTS OF THE RAYCHEM D-150-0250 SOLDER SLEEVE SPLICE KIT
Figure 289

Refer to Figure 289.

- (1) Prepare the end of each cable. Refer to Figure 290.



CABLE PREPARATION
Figure 290

- (a) Remove 1.50 inches ± 0.05 inch of the outer jacket from the end of the cable.
- (b) Remove the necessary length of the shield so that the distance from the end of the shield to the end of the outer jacket is 0.50 inch ± 0.05 inch.

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STANDARD WIRING PRACTICES MANUAL**ASSEMBLY OF SPLICES**

- (c) Remove the necessary length of the insulation so that the distance from the end of the insulation to the end of the conductor is 0.30 inch \pm 0.05 inch.
- (2) Remove a short length of each end of the shield tube so that the diameter of the tube can be increased.
- (3) In this order, put these components on Cable A:
 - The outer sleeve
 - A solder sleeve
 - The shield tube.
- (4) In this order, put these components on Cable B:
 - A solder sleeve
 - The seal sleeve.
- (5) Assemble the Cable A end of the splice:
 - (a) Put the conductor in the splice so that the end of the conductor is aligned with the center of the splice.
 - (b) Crimp the splice.
- (6) Do Step (5) again for the Cable B end of the splice.
- (7) Align the center of the seal sleeve with the center of the splice.
- (8) Apply heat to shrink the seal sleeve into position.
- (9) Push the shield tube to Cable B so that the forward end of the tube is against the end of the cable jacket of Cable B.
- (10) Attach the end of the shield tube to the shield of Cable B:
 - (a) Twist the end of the shield tube down so that the end of the tube is tight against the shield of the cable.
 - (b) Push the solder sleeve toward the end of the cable until the rear edge of the solder ring is 0.10 inch from the end of the cable jacket.
 - (c) Apply heat to the center of the solder sleeve until the solder melts and flows into the shield tube and the shield of the cable.
- (11) Attach the remaining free end of the shield tube to the shield of the Cable A:
 - (a) Pull the shield tube across the splice so that it is tight.
 - (b) Remove the length of the shield tube that makes an overlap with the end of the outer jacket of the Cable A.
 - (c) Do Step (10) again.
- (12) Align the center of the outer sleeve with the center of the seal sleeve.

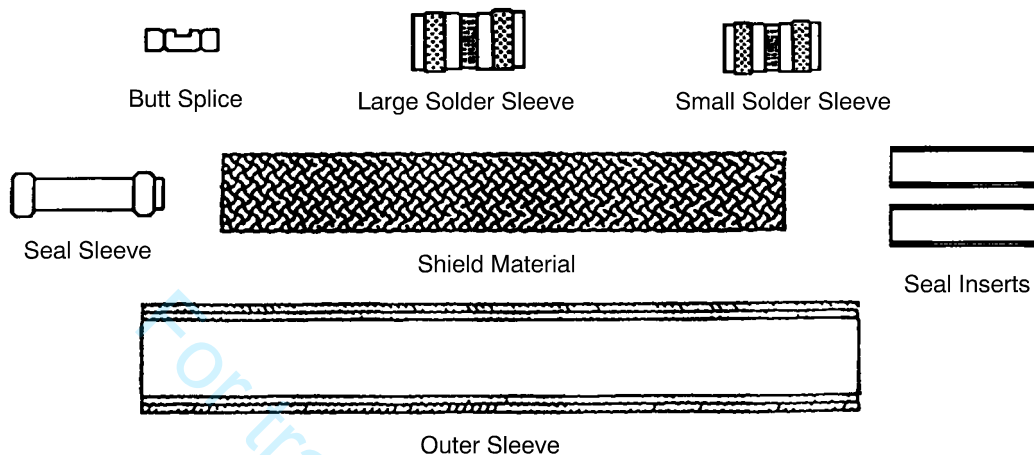
NOTE: On each end of the splice assembly, the outer sleeve should make approximately a 1.0 inch overlap with the cable jacket.
- (13) To shrink the outer sleeve into position:
 - (a) Apply heat from the center of the sleeve toward one end of the sleeve until the longitudinal line cannot be seen.
 - (b) Apply heat from the center of the sleeve toward the other end of the sleeve until the longitudinal line cannot be seen.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

C. One Shielded Wire to Two Shielded Wires

Refer to Paragraph 16.A. first to start this procedure.

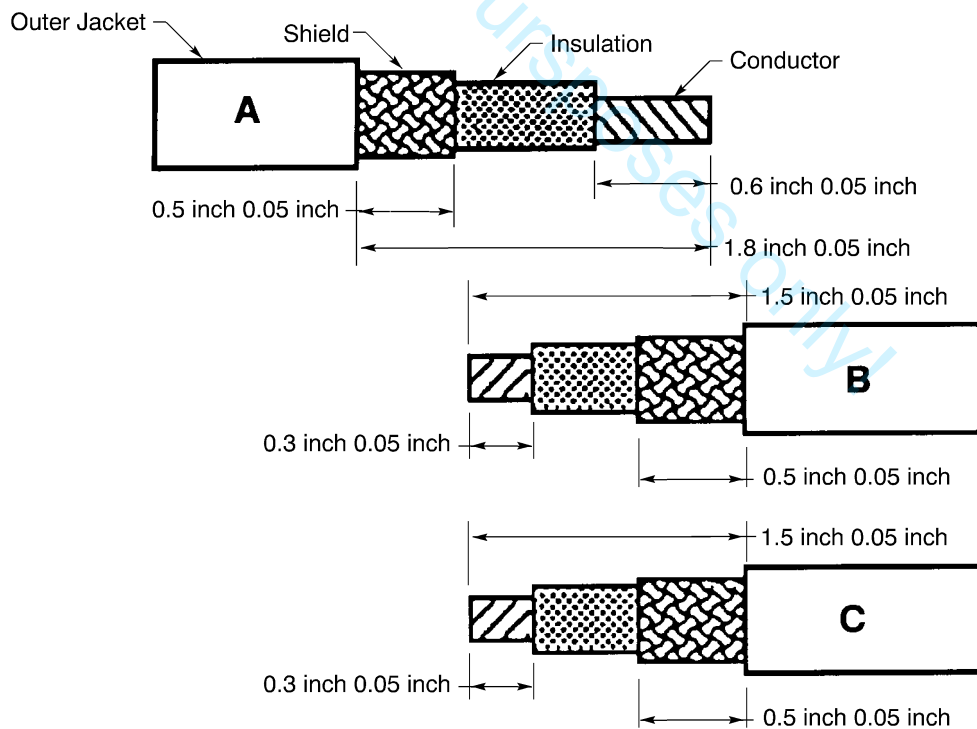


COMPONENTS OF THE RAYCHEM D-150-0251 SOLDER SLEEVE SPLICE KIT

Figure 291

Refer to Figure 291.

- (1) Prepare the end of each cable. Refer to Figure 292.



CABLE PREPARATION

Figure 292

STANDARD WIRING PRACTICES MANUAL**ASSEMBLY OF SPLICES**

- (a) Remove the necessary length of the outer jacket so that the distance from the end of the outer jacket to the end of the conductor is:
 - 1.80 inches ± 0.05 inch for Cable A
 - 1.50 inches ± 0.05 inch for Cable B and Cable C.
- (b) Remove the necessary length of the shield so that the distance from the end of the shield to the end of the outer jacket is 0.50 inch ± 0.05 inch for each cable.
- (c) Remove the necessary length of the insulation so that the distance from the end of the insulation to the end of the conductor is:
 - 0.60 inch ± 0.05 inch for Cable A
 - 0.30 inch ± 0.05 inch for Cable B and Cable C.
- (2) Remove a short length of each end of the shield tube so that the diameter of the tube can be increased.
- (3) In this order, put these components on cable A:
 - The outer sleeve
 - A seal insert
 - The large solder sleeve so that the end of the sleeve with the larger diameter is pointed toward the end of the wire
 - The small solder sleeve so that the end of the sleeve with the larger diameter is pointed toward the end of the wire
 - The shield tube
 - The seal sleeve.
- (4) Put a seal insert on Cable B or Cable C.
- (5) Assemble the Cable A end of the splice:
 - (a) Fold the conductor of Cable A back on itself so that the end of the conductor is aligned with the end of the insulation.
 - (b) Push the conductor into one end of the splice so that the end of the conductor is aligned with the center of the splice.
 - (c) Crimp the splice.
- (6) Assemble the other end of the splice:
 - (a) At the same time, push the conductors of Cable B and Cable C into the other end of the splice so that the end of the conductors is aligned with the center of the splice.
 - (b) Crimp the splice.
- (7) Align the center of the seal sleeve with the center of the splice.
- (8) Shrink the seal sleeve into position.
- (9) Push the shield tube toward Cable B and Cable C so that the rear end of the tube is against the end of the cable jacket of Cable A.
- (10) Attach the end of the shield tube to the shield of Cable A:
 - (a) Twist the end of the shield tube down so that the end of the tube is tight against the shield of the cable.
 - (b) Push the small solder sleeve toward the end of the cable until the rear edge of the solder ring is 0.10 inch from the end of the cable jacket.
 - (c) Apply heat to the center of the solder sleeve until the solder melts and flows into the shield tube and the shield of the cable.

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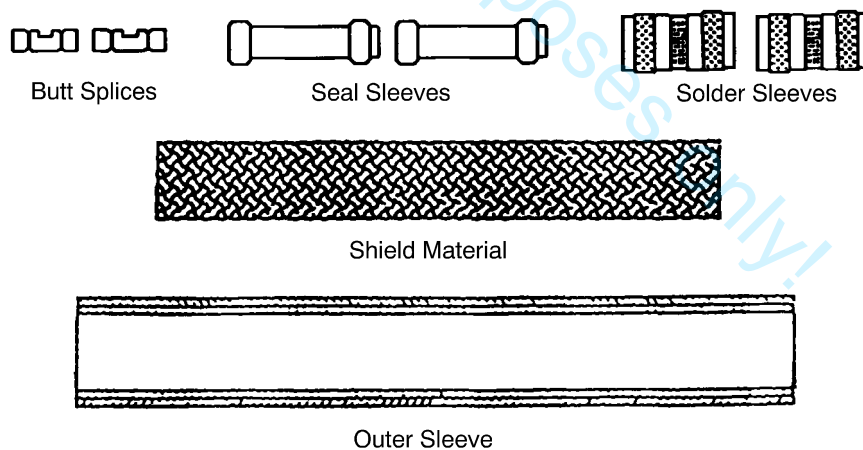
ASSEMBLY OF SPLICES

- (11) Attach the remaining free end of the shield tube to the shields of the Cable B and Cable C:
 - (a) Pull the shield tube across the splice so that it is tight.
 - (b) Remove the length of the shield tube that makes an overlap with the end of the outer jackets of the Cable B and Cable C.
 - (c) Twist the end of the shield tube down so that the end of the tube is tight against the shields of the cables.
 - (d) Push the large solder sleeve toward Cable B and Cable C until the rear edge of the solder ring is 0.10 inch from the end of the cable jacket.
 - (e) Apply heat to the center of the solder sleeve until the solder melts and flows into the shield tube and the shield of the cable.
- (12) Push each seal insert toward the splice until the forward end is against each solder sleeve on each side of the splice.
- (13) Align the center of the outer sleeve with the center of the seal sleeve.

NOTE: On each end of the splice assembly, the outer sleeve should make approximately a 1.0 inch overlap with the seal insert.
- (14) To shrink the outer sleeve into position:
 - (a) Apply heat from the center of the sleeve toward one end of the sleeve until the longitudinal line cannot be seen.
 - (b) Apply heat from the center of the sleeve toward the other end of the sleeve until the longitudinal line cannot be seen.

D. One Class 2 Shielded Cable to One Class 2 Shielded Cable

Refer to Paragraph 16.A. first to start this procedure.



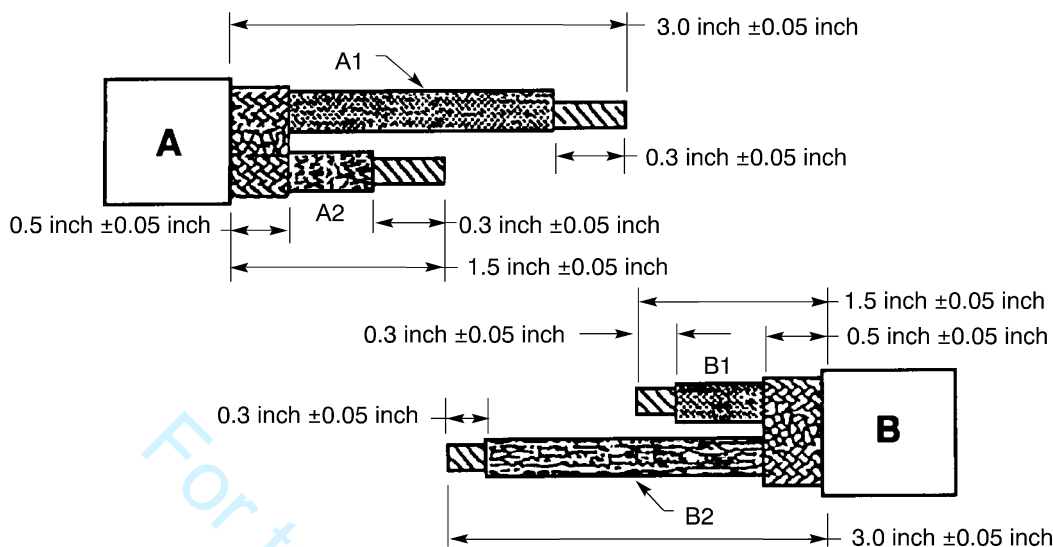
COMPONENTS OF THE RAYCHEM D-150-0252 SOLDER SLEEVE SPLICE KIT
Figure 293

Refer to Figure 293.

- (1) Prepare the end of each cable. Refer to Figure 294.

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ASSEMBLY OF SPLICES



CABLE PREPARATION
Figure 294

- (a) Remove the necessary length of the outer jacket from each cable so that the distance from the end of the outer jacket to the end of the cable is 3.00 inches ± 0.05 inch.
- (b) Remove the necessary length of the shield from each cable so that the distance from the end of the shield to the end of the outer jacket is 0.50 inch ± 0.05 inch.
- (c) Cut the wires so that the distance from the end of the wire to the end of the outer jacket is 1.50 inches ± 0.05 inch:
 - Wire A2 of Cable A
 - Wire B1 of Cable B.
- (d) Remove the necessary length of insulation from each wire so that the distance from the end of the insulation to the end of the conductor is 0.30 inch ± 0.05 inch.
- (2) Remove a short length of each end of the shield tube so that the diameter of the tube can be increased.
- (3) In this order, put these components on cable A:
 - The outer sleeve
 - Two solder sleeves so that the end of each sleeve with the larger diameter points toward the end of the wire
 - The shield tube.
- (4) Put a seal sleeve on:
 - Wire A1 of Cable A
 - Wire B2 of Cable B.
- (5) Assemble the Cable A side of the splice configuration:
 - (a) Put the conductor of Wire A1 in one of the splices so that the end of the conductor is aligned with the center of the splice.
 - (b) Crimp the splice.

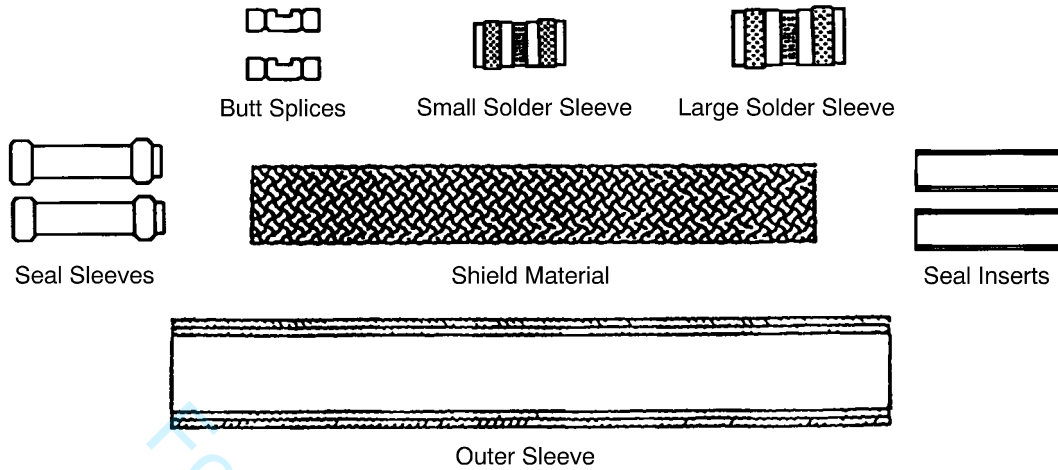
STANDARD WIRING PRACTICES MANUAL**ASSEMBLY OF SPLICES**

- (c) Put the conductor of Wire A2 in the other splice so that the end of the conductor is aligned with the center of the splice.
- (d) Crimp the splice.
- (6) Assemble the Cable B side of the splice configuration:
 - (a) Put the conductor of Wire B1 in the open end of the splice that has Wire A1 of Cable A so that the end of the conductor is aligned with the center of the splice.
 - (b) Crimp the splice.
 - (c) Put the conductor of Wire B2 in the open end of the splice that has Wire A2 of Cable A so that the end of the conductor is aligned with the center of the splice.
 - (d) Crimp the splice.
- (7) Align the center of each seal sleeve with the center of each splice.
- (8) Shrink each sleeve into position.
- (9) Push the shield tube toward Cable B until the forward end of the tube is against the end of the cable jacket of Cable B.
- (10) Attach the end of the shield tube to the shield of Cable B:
 - (a) Twist the end of the shield tube down so that the end of the tube is tight against the shield of the cable.
 - (b) Push one of the solder sleeves toward Cable B until the rear edge of the solder ring is 0.10 inch from the end of the outer jacket of the cable.
 - (c) Apply heat to the center of the solder sleeve until the solder melts and flows into the shield tube and the shield of the cable.
- (11) Attach the remaining free end of the shield tube to the shield of the Cable A:
 - (a) Pull the shield tube across the splice so that it is tight.
 - (b) Remove the length of the shield tube that makes an overlap with the end of the outer jacket of the Cable A.
 - (c) Do Step (10) again.
- (12) Align the center of the outer sleeve with the center of the seal sleeves.

NOTE: On each end of the splice assembly, the outer sleeve should make approximately a 1.0 inch overlap with the cable jacket.
- (13) To shrink the outer sleeve into position:
 - (a) Apply heat from the center of the sleeve toward one end of the sleeve until the longitudinal line cannot be seen.
 - (b) Apply heat from the center of the sleeve toward the other end of the sleeve until the longitudinal line cannot be seen.

E. One Class 2 Shielded Cable to Two Class 2 Shielded Cables

Refer to Paragraph 16.A. first to start this procedure.

STANDARD WIRING PRACTICES MANUAL
ASSEMBLY OF SPLICES


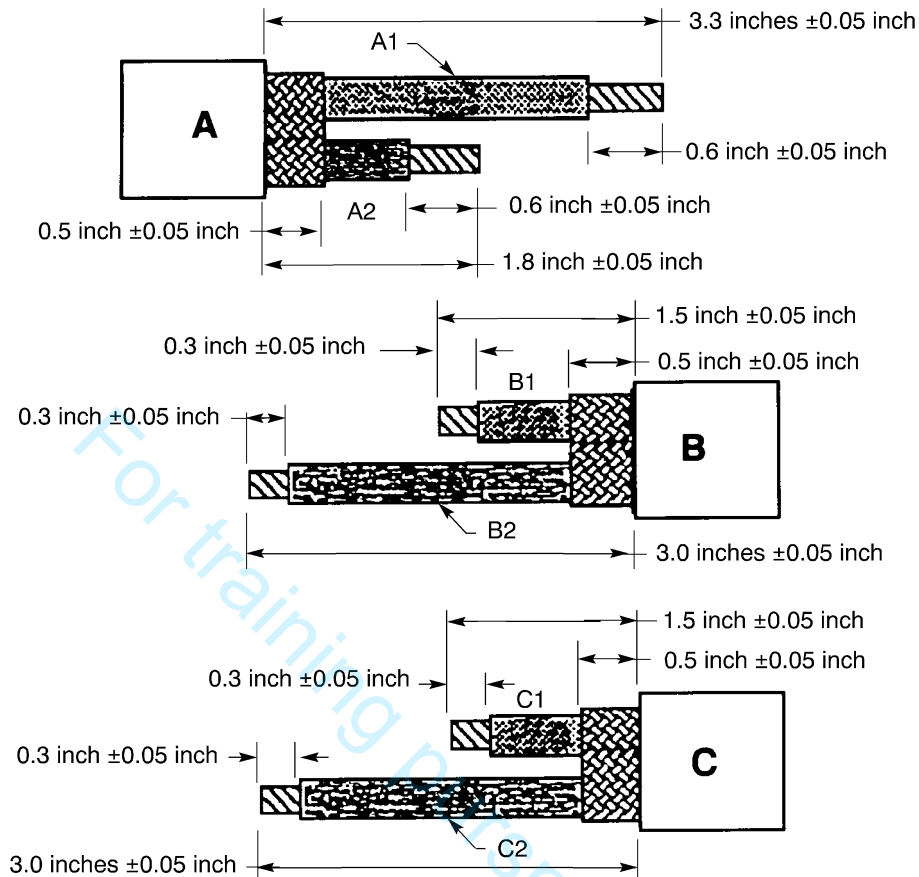
COMPONENTS OF THE RAYCHEM D-150-0253 SOLDER SLEEVE SPLICE KIT
Figure 295

Refer to Figure 295.

(1) Prepare the end of each cable. Refer to Figure 296.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES



CABLE PREPARATION

Figure 296

- Remove the necessary length of the outer jacket so that the distance from the end of the outer jacket to the end of the cable is:
 - 3.30 inches ± 0.05 inch for Cable A
 - 3.00 inches ± 0.05 inch for Cable B
 - 3.00 inches ± 0.05 inch for Cable C.
- Remove the necessary length of the shield from each cable so that the distance from the end of the shield to the end of the outer jacket is 0.5 inch ± 0.05 inch.

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STANDARD WIRING PRACTICES MANUAL**ASSEMBLY OF SPLICES**

- (c) Cut the wires so that the distance from the end of the wire to the end of the outer jacket is:
 - 1.80 inches ± 0.05 inch for Wire A2 of Cable A
 - 1.50 inches ± 0.05 inch for Wire B1 of Cable B
 - 1.50 inches ± 0.05 inch for Wire C1 of Cable C.
- (d) Remove the necessary length of the insulation from each wire so that the distance from the end of the insulation to the end of the conductor is:
 - 0.60 inch ± 0.05 inch for Wire A1 and Wire A2 of Cable A
 - 0.30 inch ± 0.05 inch for Wire B1 and Wire B2 of Cable B
 - 0.30 inch ± 0.05 inch for Wire C1 and Wire C2 of Cable C.
- (2) Remove a short length of each end of the shield tube so that the diameter of the tube can be increased.
- (3) If it is necessary, remove a length from each end of the shield tube.
- (4) In this order, put these components on Cable A:
 - A seal insert
 - The small solder sleeve so that the end of the sleeve with the larger diameter is pointed toward the end of the wire
 - The large solder sleeve so that the end of the sleeve with the larger diameter is pointed toward the end of the wire
 - The shield tube.
- (5) Put one seal insert on each of these cables:
 - Cable B
 - Cable C.
- (6) Put a seal sleeve on each of these wires:
 - Wire A1 of Cable A
 - Wire A2 of Cable A.
- (7) Assemble the Cable A side of the splice configuration:
 - (a) Fold the conductor of Wire A1 back on itself so that the end of the conductor is aligned with the end of the insulation.
 - (b) Put the conductor of Wire A1 in one of the splices so that the end of the conductor is aligned with the center of the splice.
 - (c) Crimp the splice.
 - (d) Fold the conductor of Wire A2 back on itself so that the end of the conductor is aligned with the end of the insulation.
 - (e) Put the conductor of Wire A2 in the other splice so that the end of the conductor is aligned with the center of the splice.
 - (f) Crimp the splice.
- (8) Assemble the Cable B and Cable C side of the splice configuration:
 - (a) Put the conductor of Wire B1 and Wire C1 in the open end of the splice that has Wire A1 of Cable A so that the end of the conductor is aligned with the center of the splice.
 - (b) Crimp the splice.
 - (c) Put the conductor of Wire B2 and Wire C2 in the open end of the splice that has Wire A2 of Cable A so that the end of the conductor is aligned with the center of the splice.

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STANDARD WIRING PRACTICES MANUAL**ASSEMBLY OF SPLICES**

- (d) Crimp the splice.
- (9) Align the center of one seal sleeve with the center of the splice on that wire.
- (10) Shrink the sleeve into position.
- (11) Align the center of the other seal sleeve with the center of the splice on that wire.
- (12) Shrink the sleeve into position.
- (13) Push the shield tube toward Cable B and Cable C until the forward end of the tube is against the end of the cable jacket of Cable B.
- (14) Attach the end of the shield tube to the shields of Cable B and Cable C:
 - (a) Twist the end of the shield tube down so that the end of the tube is tight against the shields of both cables.
 - (b) Push the large solder sleeve toward Cable B and Cable C until the forward edge of the solder ring is 0.10 inch from the end of the outer jackets of both cables.
 - (c) Apply heat to the center of the solder sleeve until the solder melts and flows into the shield tube and the shields of both cables.
- (15) Attach the remaining free end of the shield tube to the shield of the Cable A:
 - (a) Pull the shield tube across the splice so that it is tight.
 - (b) Remove the length of the shield tube that makes an overlap with the end of the outer jacket of the Cable A.
 - (c) Push the small solder sleeve toward the end of the cable until the rear edge of the solder ring is 0.10 inch from the end of the outer jacket of the cable.
 - (d) Apply heat to the center of the solder sleeve until the solder melts and flows into the shield tube and the shield of the cable.
- (16) Push each seal insert toward the splice until the forward end is against each solder sleeve on each side of the splice.
- (17) Align the center of the outer sleeve with the center of the seal sleeves.

NOTE: On each end of the splice assembly, the outer sleeve should make approximately a 1.0 inch overlap with the cable jacket.
- (18) To shrink the outer sleeve into position:
 - (a) Apply heat from the center of the sleeve toward one end of the sleeve until the longitudinal line cannot be seen.
 - (b) Apply heat from the center of the sleeve toward the other end of the sleeve until the longitudinal line cannot be seen.

17. AMPHENOL 48 SERIES WIRE SPLICE CONNECTOR**A. Part Numbers**

The Amphenol 48 Series Wire Splice Connector is a single wire connector with a removable pin or socket contact.

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ASSEMBLY OF SPLICES

Table 139
PLUG WIRE SPLICE

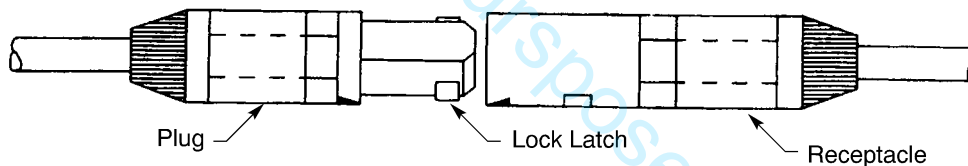
Plug Wire Splice			Contact		
Part Number		Color	Part Number		Size
Boeing	Amphenol		Pin	Socket	
10-804341	48-7190	Blue	BACC47CN2	BACC47CP2	16
10-804341-1	48-7190-1	Red	BACC47CN2	BACC47CP2	16

Table 140
RECEPTACLE WIRE SPLICE

Receptacle Wire Splice			Contact		
Part Number		Color	Part Number		Size
Boeing	Amphenol		Pin	Socket	
10-804342	48-7191	Blue	BACC47CN2	BACC47CP2	16
10-804342-1	48-7191-1	Red	BACC47CN2	BACC47CP2	16

NOTE: Refer to Subject 20-61-11 for the suppliers of BACC47CP and BACC47CN contacts.

B. Separation of the Splice Connector



SPLICE SEPARATION
Figure 297

- (1) Hold both ends of the splice at the same time.
- (2) Turn one end of the splice approximately 1/4 turn.
- (3) Pull each end until the plug is disconnected from the receptacle.

C. Contact Removal

- (1) Make a selection of a size 16 contact removal tool. Refer to Subject 20-61-11.
- (2) Remove the contact. Refer to Subject 20-61-11.

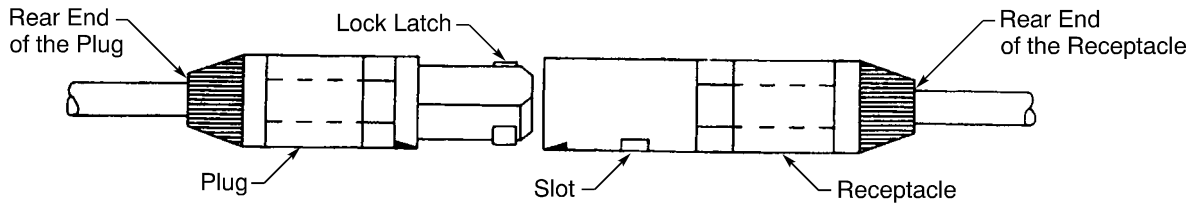
NOTE: The contact is removed from the front face of the splice connector.

D. Assembly of the Splice Connector

For the applicable conditions for the assembly of a splice, refer to Paragraph 1.A.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES



SPLICE ASSEMBLY
Figure 298

Refer to Figure 298.

- (1) Make a selection of a splice plug and a splice receptacle from Table 27.
- (2) Make a selection of the contacts for the plug and receptacle from Table 29.
- (3) Make a selection of a contact crimp tool. Refer to Subject 20-61-11.
- (4) Make a selection of a size 16 contact insertion tool. Refer to Subject 20-61-11.
- (5) Remove 0.28 inch \pm 0.03 inch of insulation from the each end of the wire.
- (6) Assemble the receptacle side of the splice:
 - (a) Put the wire in the crimp barrel of the socket contact.

Make sure that:

 - All of the strands of the conductor are in the crimp barrel
 - The conductor can be seen in the inspection hole
 - The distance from the end of the insulation to the end of the crimp barrel is not more than 0.03 inch.
 - (b) Crimp the contact.
 - (c) At the rear of the receptacle, axially align the contact and the tool with the contact cavity.
 - (d) Push the tool into the contact cavity until it stops.
 - (e) Remove the tool from the contact cavity.
 - (f) Lightly pull the wire to make sure that the contact is locked in its position.

CAUTION: DO NOT PULL THE WIRE WITH A STRONG OR SUDDEN FORCE. THE FORCE CAN CAUSE DAMAGE TO THE SPLICE OR THE CONTACT.
- (7) Do Step (6) again for the plug side of the splice with a pin contact.
- (8) Push the plug straight into the receptacle until it stops.
- (9) Twist each half of the splice in opposite directions until the lock latches in the plug are fully engaged with the slots in the receptacle.

STANDARD WIRING PRACTICES MANUAL
ASSEMBLY OF SPLICES
18. APPROVED TOOL SUPPLIERS
A. Splice Crimp Tools

Table 141
CRIMP TOOL SUPPLIERS

Crimp Tool Part Number	Supplier
11738	Thomas & Betts
1-1804834-1	Tyco/AMP
1213804-3	Tyco/AMP
13597	Thomas & Betts
13600	Thomas & Betts
13642M	Thomas & Betts
45216	Tyco/AMP
45218	Tyco/AMP
45219	Tyco/AMP
45219-2	Tyco/AMP
45221	Tyco/AMP
46110	Tyco/AMP
46447	Tyco/AMP
46673	Tyco/AMP
46988	Tyco/AMP
47321	Tyco/AMP
47322	Tyco/AMP
47386	Tyco/AMP
47387	Tyco/AMP
47452	Tyco/AMP
47807-1	Tyco/AMP
47808-6	Tyco/AMP
47820	Tyco/AMP
47821	Tyco/AMP
47822	Tyco/AMP
47823	Tyco/AMP
47824	Tyco/AMP
49900	Tyco/AMP
49935	Tyco/AMP
58422-1	Tyco/AMP

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ASSEMBLY OF SPLICES

Table 141 (continued)

Crimp Tool Part Number	Supplier
59239	Tyco/AMP
59239-()	Tyco/AMP
59250	Tyco/AMP
59275	Tyco/AMP
59294	Tyco/AMP
59461	Tyco/AMP
59973-1	Tyco/AMP
59974-1	Tyco/AMP
69004	Tyco/AMP
69020	Tyco/AMP
69061	Tyco/AMP
69066	Tyco/AMP
69069	Tyco/AMP
69091	Tyco/AMP
69100	Tyco/AMP
69120-()	Tyco/AMP
69692	Tyco/AMP
69692-1	Tyco/AMP
69365-()	Tyco/AMP
69693-1	Tyco/AMP
AD-1377	Raychem
BDHD1	Daniels
DV25L	FCI/Burndy
DV2L	FCI/Burndy
DV4L	FCI/Burndy
DV6L	FCI/Burndy
DV8L-1	FCI/Burndy
M22520/5-01	QPL
M8ND	FCI/Burndy
MR8-5	FCI/Burndy
N10HT	FCI/Burndy
N8CT	FCI/Burndy
PMTB-232	Daniels

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ASSEMBLY OF SPLICES

Table 141 (continued)

Crimp Tool Part Number	Supplier
ST2354-1	Boeing
ST2354-6	Boeing
ST2354B-2	Boeing
ST956C	Boeing
ST956D	Boeing
WT130	Thomas & Betts
WT1300	Thomas & Betts
Y10MRF-5	FCI/Burndy
Y29B	FCI/Burndy
Y29BH	FCI/Burndy
Y29PL	FCI/Burndy
Y29PR	FCI/Burndy
Y641	Daniels
Y8ND	FCI/Burndy
Y6NP	FCI/Burndy
Y641	Daniels

B. Ferrule Crimp Tools

Table 142
CRIMP TOOL SUPPLIERS

Crimp Tool Part Number	Supplier
44-000	Balmar
44-136	Balmar
44-137	Balmar
44-138	Balmar
44-139	Balmar
44-140	Balmar
44-141	Balmar
44-142	Balmar
44-143	Balmar
44-144	Balmar
44-145	Balmar

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF SPLICES

Table 142 (continued)

Crimp Tool Part Number	Supplier
44-148	Balmar
44-149	Balmar
44-178	Balmar
4400	Thomas & Betts
4401	Thomas & Betts
4402	Thomas & Betts
4403	Thomas & Betts
4406	Thomas & Betts
4408	Thomas & Betts
4409	Thomas & Betts
4410	Thomas & Betts
4411	Thomas & Betts
4412	Thomas & Betts
4414	Thomas & Betts
4415	Thomas & Betts
4416	Thomas & Betts
4417	Thomas & Betts
4419	Thomas & Betts
5450	Thomas & Betts
5451	Thomas & Betts
5452	Thomas & Betts
5454	Thomas & Betts
5456	Thomas & Betts
5457	Thomas & Betts
612648	Buchanan
612661	Buchanan
612663	Buchanan
612675	Buchanan
612734	Buchanan
612739	Buchanan
612742	Buchanan
612746	Buchanan
612748	Buchanan

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ASSEMBLY OF SPLICES

Table 142 (continued)

Crimp Tool Part Number	Supplier
612763	Buchanan
612766	Buchanan
612776	Buchanan
612778	Buchanan
612807	Buchanan
612893	Buchanan
612899	Buchanan
612909	Buchanan
612969	Buchanan
612971	Buchanan
612973	Buchanan
612977	Buchanan
612981	Buchanan
612989	Buchanan
612992	Buchanan
613003	Buchanan
613005	Buchanan
613009	Buchanan
613011	Buchanan
613013	Buchanan
613214	Buchanan
613810	Buchanan
613812	Buchanan
613844	Buchanan
613846	Buchanan
613847	Buchanan
613848	Buchanan
613849	Buchanan
613850	Buchanan
613851	Buchanan
620175	Buchanan
620299	Buchanan
620300	Buchanan

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ASSEMBLY OF SPLICES
Table 142 (continued)

Crimp Tool Part Number	Supplier
620301	Buchanan
620304	Buchanan
620305	Buchanan
620306	Buchanan
620307	Buchanan
620308	Buchanan
620309	Buchanan
620310	Buchanan
620311	Buchanan
620314	Buchanan
620316	Buchanan
620467	Buchanan
HX-4	Daniels
M22520/5-01	QPL
M22520/5-19	QPL
M22520/5-21	QPL
M22520/5-23	QPL
M22520/5-33	QPL
M22520/5-35	QPL
M22520/5-37	QPL
M22520/5-39	QPL
M22520/5-41	QPL
M22520/5-43	QPL
M22520/5-45	QPL
M22520/5-47	QPL
M22520/5-53	QPL
M22520/5-61	QPL
ST2966M	Boeing
ST965-1	Boeing
ST965-12	Boeing
ST965-19	Boeing
ST965-2	Boeing
ST965-23	Boeing

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ASSEMBLY OF SPLICES

Table 142 (continued)

Crimp Tool Part Number	Supplier
ST965-29	Boeing
ST965-3	Boeing
ST965-4	Boeing
ST965-5	Boeing
ST965-6	Boeing
ST965-9	Boeing
ST965A-0	Boeing
ST965A-1	Boeing
ST965A-10	Boeing
ST965A-11	Boeing
ST965A-12	Boeing
ST965A-14	Boeing
ST965A-15	Boeing
ST965A-16	Boeing
ST965A-17	Boeing
ST965A-19	Boeing
ST965A-2	Boeing
ST965A-3	Boeing
ST965A-6	Boeing
ST965A-8	Boeing
ST965A-9	Boeing
ST965B	Boeing
ST965B-0	Boeing
ST965B-1	Boeing
ST965B-10	Boeing
ST965B-11	Boeing
ST965B-12	Boeing
ST965B-14	Boeing
ST965B-15	Boeing
ST965B-16	Boeing
ST965B-17	Boeing
ST965B-19	Boeing
ST965B-2	Boeing

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ASSEMBLY OF SPLICES

Table 142 (continued)

Crimp Tool Part Number	Supplier
ST965B-3	Boeing
ST965B-6	Boeing
ST965B-8	Boeing
ST965B-9	Boeing
WT200	Thomas & Betts
WT200-12	Thomas & Betts
WT201	Thomas & Betts
WT201-03-10	Thomas & Betts
WT202	Thomas & Betts
WT202-06-08	Thomas & Betts
WT203	Thomas & Betts
WT206	Thomas & Betts
WT208	Thomas & Betts
WT209	Thomas & Betts
WT210	Thomas & Betts
WT211	Thomas & Betts
WT211-14	Thomas & Betts
WT212	Thomas & Betts
WT214	Thomas & Betts
WT215	Thomas & Betts
WT215-16	Thomas & Betts
WT215-20	Thomas & Betts
WT216	Thomas & Betts
WT217	Thomas & Betts
WT217-18	Thomas & Betts
WT218	Thomas & Betts
WT219	Thomas & Betts
WT220	Thomas & Betts
WT221	Thomas & Betts
WT221-22	Thomas & Betts
WT222	Thomas & Betts
WT223	Thomas & Betts
WT229	Thomas & Betts

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STANDARD WIRING PRACTICES MANUAL**ASSEMBLY OF SPLICES****Table 142 (continued)**

Crimp Tool Part Number	Supplier
WT400	Thomas & Betts
WT401	Thomas & Betts
WT402	Thomas & Betts
WT403	Thomas & Betts
WT406	Thomas & Betts
WT408	Thomas & Betts
WT409	Thomas & Betts
WT410	Thomas & Betts
WT411	Thomas & Betts
WT412	Thomas & Betts
WT414	Thomas & Betts
WT415	Thomas & Betts
WT416	Thomas & Betts
WT417	Thomas & Betts
WT419	Thomas & Betts
WT440	Thomas & Betts
WT540	Thomas & Betts
Y136	Daniels
Y137	Daniels
Y138	Daniels
Y139	Daniels
Y140	Daniels
Y141	Daniels
Y142	Daniels
Y143	Daniels
Y144	Daniels
Y145	Daniels
Y148	Daniels
Y149	Daniels
Y178	Daniels

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ASSEMBLY OF SPLICES

C. Shield-Kon Crimp Tools

Table 143
CRIMP TOOL SUPPLIERS

Crimp Tool Part Number	Supplier
101A	Thomas & Betts
101B	Thomas & Betts
201C	Thomas & Betts
201D	Thomas & Betts
201E	Thomas & Betts
201F	Thomas & Betts
301H	Thomas & Betts
301G	Thomas & Betts
301J	Thomas & Betts
301H	Thomas & Betts
401K	Thomas & Betts
401L	Thomas & Betts
401M	Thomas & Betts
401N	Thomas & Betts
501P	Thomas & Betts
601Q	Thomas & Betts
13300	Thomas & Betts
M22520/5-01	QPL
HX4	Daniels
WT740	Thomas & Betts

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ASSEMBLY AND REPAIR OF THE AMP AND BACS52N COPALUM SPLICES

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY AND REPAIR OF THE AMP AND BACS52N COPALUM SPLICES

This Subject gives the procedures:

- To assemble a copalum splice with stranded aluminum and stranded copper wire
- To repair the insulation of a copalum splice
- To replace a copalum splice.

1. GENERAL DATA

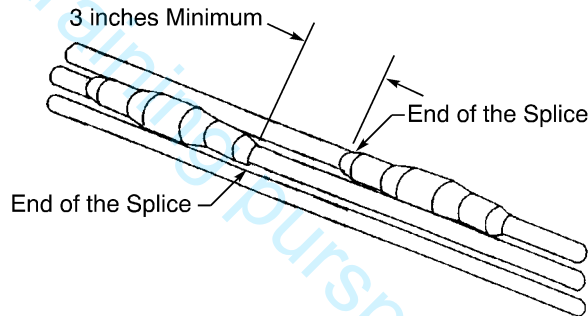
A. General Conditions

For the conditions that are applicable for the repair of wiring, refer to Subject 20-10-13.

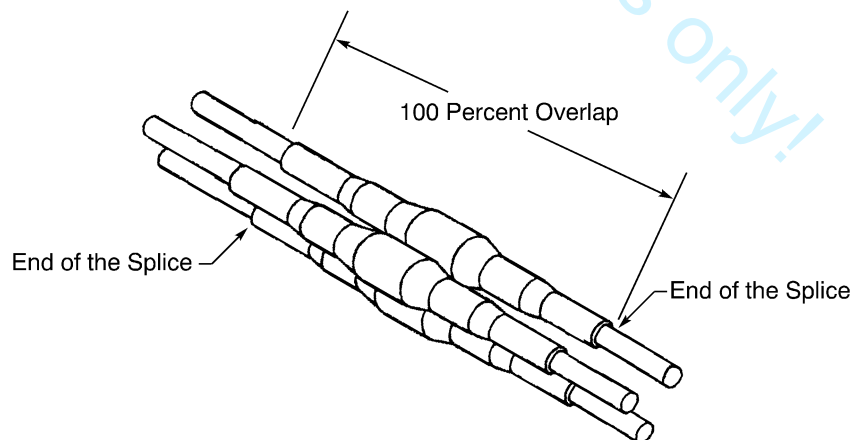
B. Configuration of Splices on Adjacent Power Feeder Wires

These conditions are applicable:

- If more than one splice in a power feeder harness is necessary, the recommended configuration is to install splices intervals along the longitudinal axis of the wire harness; refer to Figure 1
- If it is not possible to install the splices at intervals, the splices can make 100 percent overlap; refer to Figure 2.



CONFIGURATION OF SPLICES AT INTERVALS
Figure 1



CONFIGURATION OF SPLICES WITH A 100 PERCENT OVERLAP
Figure 2

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY AND REPAIR OF THE AMP AND BACS52N COPALUM SPLICES

Refer to Subject 20-10-11 for the necessary conditions that are applicable for:

- The installation of a power feeder wire harness
- The installation of a power feeder wire harness with splices on adjacent wires.

2. SELECTION OF SPLICES

A. Selection of Standard Butt Splices

Standard butt splices can be used to attach:

- An aluminum wire to a aluminum wire
- A copper wire to a copper wire
- A copper wire to an aluminum wire.

Table 1
PERMITTED WIRE COMBINATIONS FOR THE STANDARD BUTT SPLICES

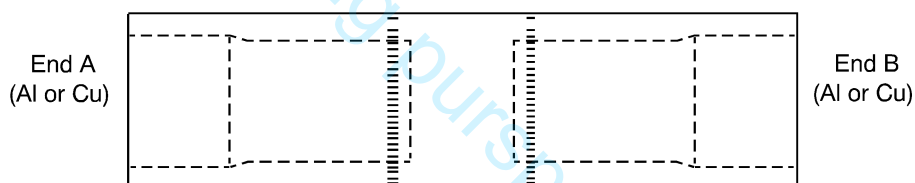
Standard Butt Splice	Wire Combination					
	First Wire		Second Wire		O.D. of the Wire Insulation (inch)	
	Size (AWG)	Type	Size (AWG)	Type	Minimum	Maximum
277156-1	10	Cu	10	Cu	0.182	0.200
	8	Al	10	Cu	0.182	0.200
			8	Al	0.182	0.200
277157-1	8	Cu	8	Cu	0.225	0.250
	6	Al	10	Cu	0.225	0.250
			8	Cu	0.225	0.250
			6	Al	0.225	0.250
277158-1	6	Cu	6	Cu	0.276	0.305
	4	Al	6	Cu	0.276	0.305
			4	Al	0.276	0.305
277159-1	4	Cu	4	Cu	0.340	0.380
	2	Cu	4	Cu	0.340	0.380
	2	Al	2	Al	0.340	0.380
			4	Cu	0.340	0.380
277160-1	2	Cu	2	Cu	0.425	0.470
	1	Al	2	Cu	0.425	0.470
	1/0	Al	2	Cu	0.425	0.470
			1/0	Al	0.425	0.470

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY AND REPAIR OF THE AMP AND BACS52N COPALUM SPLICES

Table 1 (continued)

Standard Butt Splice	Wire Combination					
	First Wire		Second Wire		O.D. of the Wire Insulation (inch)	
	Size (AWG)	Type	Size (AWG)	Type	Minimum	Maximum
277161-1	1/0	Cu	1/0	Cu	0.500	0.550
	2/0	Al	2/0	Cu	0.500	0.550
			1/0	Cu	0.500	0.550
			2/0	Al	0.500	0.550
			1/0	Al	0.500	0.550
277162-1	2/0	Cu	2/0	Cu	0.520	0.645
	3/0	Cu	2/0	Cu	0.520	0.645
	3/0	Al	2/0	Cu	0.520	0.645
			3/0	Al	0.520	0.645


CONFIGURATION OF A STANDARD BUTT SPLICE
Figure 3

NOTE: The size of the wire barrel of standard butt splices is the same at each end.

Refer to Figure 3.

- (1) Find the size of each wire that must have a splice. Refer to the WDM.
- (2) Find the conductor material type of each wire that must have a splice. Refer to the WDM and Subject 20-00-13.
- (3) Make a selection of a splice from Table 1, with the first wire to be installed in either end of the splice and the second wire to be installed in the other end of the splice.

B. Selection of Transitional Butt Splices

Transitional butt splices can be used to attach:

- An aluminum wire to a copper wire
- A larger copper wire to a smaller copper wire.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY AND REPAIR OF THE AMP AND BACS52N COPALUM SPLICES

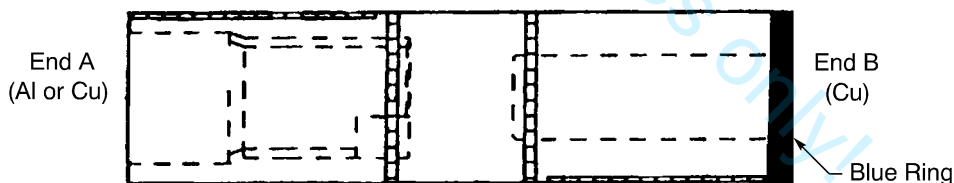
Table 2
PERMITTED WIRE COMBINATIONS FOR THE TRANSITIONAL BUTT SPLICES

Transitional Splice	First Wire				Second Wire			
	Size (AWG)	Type	O.D. of the Wire Insulation (inch)		Size (AWG)	Type	O.D. of the Wire Insulation (inch)	
			Minimum	Maximum			Minimum	Maximum
277163-1	2	Cu	0.425	0.470	4	Cu	0.276	0.305
	1/0	Al	0.425	0.470	4	Cu	0.276	0.305
277164-1	6	Cu	0.276	0.305	8	Cu	0.210	0.255
	4	Al	0.276	0.305	8	Cu	0.210	0.255
277165-1	6	Cu	0.276	0.305	4	Cu	0.276	0.305
	4	Al	0.276	0.305	4	Cu	0.276	0.305
277168-1	2/0	Cu	0.520	0.645	1/0	Cu	0.430	0.495
	3/0	Al	0.520	0.645	1/0	Cu	0.430	0.495

NOTE: 277165-1 is no longer manufactured. Refer to Table 3 for alternative part numbers for the combination of wire sizes shown in Table 2.

Table 3
ALTERNATIVE TRANSITIONAL SPLICE PART NUMBERS FOR AWG 6 CU TO AWG 4 AL

Specified Splice		Alternative Splice	
Part Number	Supplier	Part Number	Supplier
277165-1	Tyco/Amp	277158-1	Tyco/Amp



CONFIGURATION OF A TRANSITIONAL BUTT SPLICE

Figure 4

Refer to Figure 4.

- (1) Find the size of each wire that must have a splice. Refer to the WDM.
- (2) Find the conductor material type of each wire that must have a splice. Refer to the WDM and Subject 20-00-13.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY AND REPAIR OF THE AMP AND BACS52N COPALUM SPLICES

- (3) Make a selection of a splice from Table 2, with the first wire to be installed in End A and the second wire to be installed in End B.

NOTE: Transitional butt splices are designed to be assembled as follows:

- If one wire is aluminum and the other wire is copper, the end of the splice with the blue ring, End B, is for the copper wire
- If each wire is copper, the end of the splice with the larger wire barrel is for the larger copper wire.

3. PART NUMBERS AND DESCRIPTION

A. Copalum Splice Part Numbers

Table 4
AMP COPALUM SPLICE PART NUMBERS

Splice	Mark on Splice	Type	Supplier
277156-1	AMP 8 AL - 10 CU	Standard Butt	AMP/Tyco
277157-1	AMP 6 AL - 8 CU	Standard Butt	AMP/Tyco
277158-1	AMP 4 AL - 6 CU	Standard Butt	AMP/Tyco
277159-1	AMP 2 AL - 4 CU	Standard Butt	AMP/Tyco
277160-1	AMP 1/0 AL - 2 CU	Standard Butt	AMP/Tyco
277161-1	AMP 2/0 AL - 1/0 CU	Standard Butt	AMP/Tyco
277162-1	AMP 3/0 AL - 2/0 CU	Standard Butt	AMP/Tyco
277163-1	AMP 1/0 AL - 4 CU	Transitional Butt	AMP/Tyco
277164-1	AMP 4 AL - 8 CU	Transitional Butt	AMP/Tyco
277165-1	AMP 4 AL - 4 CU	Transitional Butt	AMP/Tyco
277168-1	AMP 3/0 AL - 1/0 CU	Transitional Butt	AMP/Tyco

Table 5
BACS52N SPLICE PART NUMBERS

Part Number	Part Marking	Type	Color Code	Supplier
BACS52N-1	8AL 10CU	Standard Butt	-	AMP/Tyco
BACS52N-1A78	8AL 13-78	Standard Butt	-	AMP/Tyco
BACS52N-2	6AL 8CU	Standard Butt	-	AMP/Tyco
BACS52N-2A78	6AL 13-78	Standard Butt	-	AMP/Tyco
BACS52N-3	4AL 6CU	Standard Butt	-	AMP/Tyco
BACS52N-3A78	4AL 13-78	Standard Butt	-	AMP/Tyco
BACS52N-4	2AL 4CU	Standard Butt	-	AMP/Tyco
BACS52N-48	4AL 8CU	Transitional Butt	Blue for Copper Wire End	AMP/Tyco
BACS52N-4A78	2AL 13-78	Standard Butt	-	AMP/Tyco

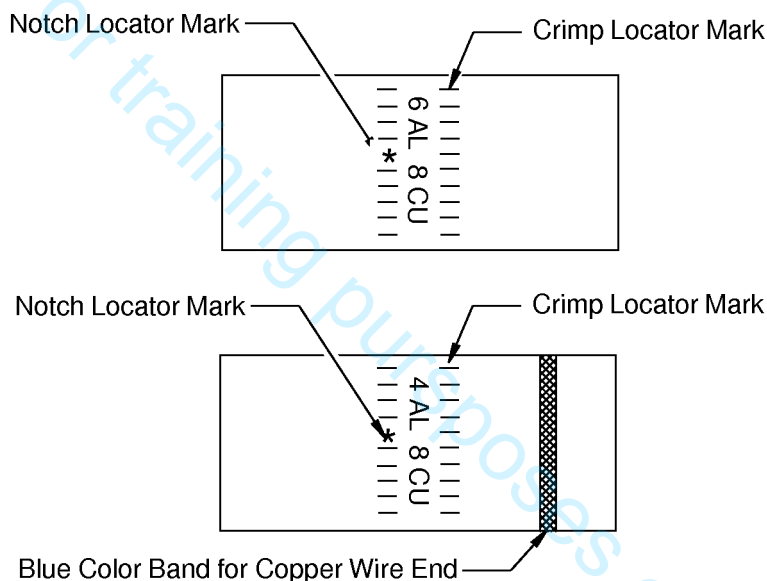
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ASSEMBLY AND REPAIR OF THE AMP AND BACS52N COPALUM SPLICES

Table 5 (continued)

Part Number	Part Marking	Type	Color Code	Supplier
BACS52N-5	1/0AL 2CU	Standard Butt	-	AMP/Tyco
BACS52N-5A78	1/0AL 13-78	Standard Butt	-	AMP/Tyco
BACS52N-6	2/0AL 1/0CU	Standard Butt	-	AMP/Tyco
BACS52N-6A78	2/0AL 13-78	Standard Butt	-	AMP/Tyco
BACS52N-7	3/0AL 2/0CU	Standard Butt	-	AMP/Tyco
BACS52N-7A78	3/0AL 13-78	Standard Butt	-	AMP/Tyco
BACS52N-8A78	4/0AL 13-78	Standard Butt	-	AMP/Tyco



BACS52N COPALUM SPLICES

Figure 5

Table 6
ALTERNATIVE COPALUM SPLICE PART NUMBERS

Specified Splice		Alternative Splice		
Part Number	Supplier	Part Number	Supplier	Notes
277050-1	AMP/Tyco	277168-1	AMP/Tyco	-
277027-1	AMP/Tyco	277162-1	AMP/Tyco	For all wire combinations but AWG 3/0 Aluminum wire to AWG 1/0 Copper wire
	AMP/Tyco	277168-1	AMP/Tyco	For AWG 3/0 Aluminum wire to AWG 1/0 Copper wire only
277082-1	AMP/Tyco	277164-1	AMP/Tyco	-

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY AND REPAIR OF THE AMP AND BACS52N COPALUM SPLICES

Table 6 (continued)

Specified Splice		Alternative Splice		
Part Number	Supplier	Part Number	Supplier	Notes
52522	AMP/Tyco	277156-1	AMP/Tyco	-
52523	AMP/Tyco	277157-1	AMP/Tyco	-
52524	AMP/Tyco	277158-1	AMP/Tyco	-
52525	AMP/Tyco	277159-1	AMP/Tyco	-
52526	AMP/Tyco	277160-1	AMP/Tyco	-
52527	AMP/Tyco	277161-1	AMP/Tyco	-
53527-1	AMP/Tyco	277165-1	AMP/Tyco	-
53528-1	AMP/Tyco	277163-1	AMP/Tyco	-

4. ASSEMBLY OF COPALUM SPLICES

A. Necessary Materials

Table 7
NECESSARY MATERIALS

Material	Temperature Grade	Part Number	Description	Supplier
Release Agent	-	MS-122AD	-	Miller-Stephenson Chemical
		MS-122DF	-	Miller-Stephenson Chemical
		MS-122N/CO2	-	Miller-Stephenson Chemical
		MS-122SD	-	Miller-Stephenson Chemical
		MS-122V	-	Miller-Stephenson Chemical
		MS-122XD	-	Miller-Stephenson Chemical
Solvent	-	TT-I-735, Grade A or Grade B	Isopropyl Alcohol	An available source
		TT-N-95, Type II	Aliphatic Naptha	An available source
		TT-T-266	Lacquer Thinner	An available source
Sleeve, Heat Shrinkable	C	AMS-DTL-23053/10	Silicone	QPL
		RT-1140	Silicone	Raychem
	D	AMS-DTL-23053/12, Class 2	TFE, Standard Wall Thickness	QPL
		AMS-DTL-23053/12, Class 3	TFE, Thin Wall Thickness	QPL

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY AND REPAIR OF THE AMP AND BACS52N COPALUM SPLICES

Table 7 (continued)

Material	Temperature Grade	Part Number	Description	Supplier
Tape, Insulation	D	Scotch 70	Silicone, Self-Bonding, 1 inch width	3M
		A-A-59163, Type 1	Silicone, Self-Bonding, 1 inch width	QPL
Tape, PTFE	D	P-421	PTFE, Silicone Adhesive, 1 inch width	Permacel
		SG26-03	PTFE, Silicone Adhesive, 1 inch width	Saint-Gobain Performance Plastics
Wiper	-	BMS15-5 Class A	-	A qualified source
	-	BMS15-5 Class B	-	A qualified source

Table 8
COLD SHRINK SLEEVES

AMP Splices	BACS52N Splices	Wire Size Combinations (AWG)	Cold Shrinkable Sleeve		
			Part Number	Quantity	Supplier
277157-1	BACS52N-2,-2A	6-8	8443-6.5	1	3M
277158-1	BACS52N,-3,-3A	4-6	8443-6.5	1	3M
277159-1	BACS52N-4,-4A	2-4	8443-6.5	1	3M
277160-1	BACS52N-5,-5A	1/0-2	8445-7.5	1	3M
277161-1	BACS52N-6,-6A	2/0-1/0	8447-8	1	3M
277162-1	BACS52N-7,-7A	3/0-2/0	8447-8	1	3M
277163-1	-	4-1/0	8445-7.5	1	3M
277164-1	BACS52N-48	4-8	8443-6.5	1	3M
277165-1	-	4-4	8443-6.5	1	3M
277168-1	-	3/0-1/0	8447-8	1	3M

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY AND REPAIR OF THE AMP AND BACS52N COPALUM SPLICES

B. Wire Preparation - AMP 277156-1 and AMP 277157-1 Splices with AWG 10 Wire

Table 9
INSULATION REMOVAL LENGTH

Splice	Removal Length (inch)	
	Target	Tolerance
277156-1	0.44	± 0.03
277157-1	0.50	± 0.03

- (1) Measure the O.D. of the wire insulation on each wire that must have a splice.
- (2) Make a selection of one of these splices:
 - A standard butt splice; refer to Paragraph 2.A.
 - A transitional butt splice; refer to Paragraph 2.B.

CAUTION: THE O.D. OF THE WIRE INSULATION IS VERY IMPORTANT. MAKE SURE THAT FOR THE SPECIFIED SPLICE IN TABLE 1 OR TABLE 2, THE O.D OF THE WIRE INSULATION IS NOT MORE THAN THE MAXIMUM O.D. SPECIFIED.

CAUTION: IF THE O.D. OF THE WIRE IS LESS THAN THE MINIMUM O.D SPECIFIED, THE O.D. OF THE INSULATION MUST BE INCREASED TO MAKE A SEAL IN THE SPLICE.

- (3) Make a selection of a heat shrinkable sleeve from Table 7.

NOTE: A satisfactory alternative is layers of self-bonding silicone tape that are applied after the splice is assembled. Refer to Paragraph 4.I.

- (4) Put a 1.5 inch length of 1/4 inch diameter sleeve on one wire.
- (5) Put a 1.5 inch length of 1/4 inch diameter sleeve on the other wire.
- (6) Put the 5 inch length of 1/2 inch diameter sleeve on a wire.
- (7) Remove the necessary length of the insulation from the end of each wire.

Refer to:

- Table 9
- Subject 20-00-15 for the insulation removal procedures.

Make sure that the end of each wire has not been crimped before.

- (8) If the O.D. of the wire insulation is less than the minimum O.D. specified in Table 1 or Table 2, increase the O.D. of the wire.

For the procedure to increase the O.D. of the wire insulation with:

- Layers of tape, refer to Paragraph 4.F.
- Heat shrinkable sleeves, refer to Paragraph 4.G.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY AND REPAIR OF THE AMP AND BACS52N COPALUM SPLICES

C. Wire Preparation - AMP 277156-1 Splices with AWG 8 Wire

Table 10
INSULATION REMOVAL LENGTH

Splice	Removal Length (inch)	
	Target	Tolerance
277156-1	0.44	± 0.03

- (1) Measure the O.D. of the wire insulation on each wire that must have a splice.
- (2) Make a selection of one of these splices:
 - A standard butt splice; refer to Paragraph 2.A.
 - A transitional butt splice; refer to Paragraph 2.B..

CAUTION: THE O.D. OF THE WIRE INSULATION IS VERY IMPORTANT. MAKE SURE THAT FOR THE SPECIFIED SPLICE IN TABLE 1 OR TABLE 2, THE O.D OF THE WIRE INSULATION IS NOT MORE THAN THE MAXIMUM O.D. SPECIFIED.

CAUTION: IF THE O.D. OF THE WIRE IS LESS THAN THE MINIMUM O.D SPECIFIED, THE O.D. OF THE INSULATION MUST BE INCREASED TO MAKE A SEAL IN THE SPLICE.

- (3) Remove the necessary length of the insulation from the end of each wire.

Refer to:

- Table 10
- Subject 20-00-15 for the insulation removal procedures.

Make sure that the end of each wire has not been crimped before.

- (4) If the O.D. of the wire insulation is less than the minimum O.D. specified in Table 1 or Table 2, increase the O.D. of the wire.

For the procedure to increase the O.D. of the wire insulation with:

- Layers of tape, refer to Paragraph 4.F.
- Heat shrinkable sleeves, refer to Paragraph 4.G..

D. Wire Preparation - Splices with other Wire Size Combinations

Table 11
INSULATION REMOVAL LENGTH

Splice	Removal Length (inch)	
	Target	Tolerance
277156-1	0.44	± 0.03
277157-1	0.50	± 0.03
277158-1	0.69	± 0.03
277159-1	0.75	± 0.03
277160-1	0.88	± 0.03
277161-1	1.00	± 0.03

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY AND REPAIR OF THE AMP AND BACS52N COPALUM SPLICES

Table 11 (continued)

Splice	Removal Length (inch)	
	Target	Tolerance
277162-1	1.00	± 0.03
277163-1	1.00	± 0.03
277164-1	0.69	± 0.03
277165-1	0.69	± 0.03
277168-1	1.00	± 0.03

(1) Measure the O.D. of the wire insulation on each wire that must have a splice.

(2) Make a selection of one of these splices:

- A standard butt splice; refer to Paragraph 2.A.
- A transitional butt splice; refer to Paragraph 2.B..

CAUTION: THE O.D. OF THE WIRE INSULATION IS VERY IMPORTANT. MAKE SURE THAT FOR THE SPECIFIED SPLICE IN TABLE 1 OR TABLE 2, THE O.D OF THE WIRE INSULATION IS NOT MORE THAN THE MAXIMUM O.D. SPECIFIED.

CAUTION: IF THE O.D. OF THE WIRE IS LESS THAN THE MINIMUM O.D SPECIFIED, THE O.D OF THE INSULATION MUST BE INCREASED TO MAKE A SEAL IN THE SPLICE.

(3) Make a selection of a cold shrink sleeve from Table 8.

NOTE: A satisfactory alternative is a minimum of two layers of self-bonding silicone tape that are applied after the splice is assembled. Refer to Paragraph 4.K..

(4) If a cold shrink sleeve is used, put the cold shrink sleeves on one end of the wire.

(5) Remove the necessary length of the insulation from the end of each wire.

Refer to:

- Table 11
- Subject 20-00-15 for the insulation removal procedures.

Make sure that the end of each wire has not been crimped before.

(6) If the O.D. of the wire insulation is less than the minimum O.D.specified in Table 1 or Table 2, increase the O.D. of the wire.

For the procedure to increase the O.D. of the wire insulation with:

- Layers of tape, refer to Paragraph 4.F.
- Heat shrinkable sleeves, refer to Paragraph 4.G..

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY AND REPAIR OF THE AMP AND BACS52N COPALUM SPLICES

E. Wire Preparation- BACS52N Splices

Table 12
O.D. OF THE WIRE INSULATION

Boeing Part Number	Wire Size AL (AWG)	Wire Size Cu (AWG)	O.D. of the Wire Insulation Range (inch)
BACS52N-1	8AL	10CU	.182-.200
BACS52N-1A78	8AL	10CU	.220-.248
BACS52N-2	6AL	8CU	.225-.250
BACS52N-2A78	6AL	8CU	.261-.291
BACS52N-3	4AL	6CU	.276-.305
BACS52N-3A78	4AL	6CU	.324-.356
BACS52N-4	2AL	4CU	.340-.380
BACS52N-48	4AL	-	.276-.305
	-	8CU	.210-.255
BACS52N-4A78	2AL	4CU	.381-.417
BACS52N-5	1/0AL	2CU	.425-.470
BACS52N-5A78	1/0AL	2CU	.465-.513
BACS52N-6	2/0AL	1/0CU	.500-.550
BACS52N-6A78	2/0AL	1/0CU	.520-.574
BACS52N-7	3/0AL	2/0CU	.520-.645
BACS52N-7A78	3/0AL	2/0CU	.571-.633
BACS52N-8A78	4/0AL	3/0CU	.615-.683

- (1) Measure the O.D. of the wire insulation on each wire that must have a splice.
- (2) Make a selection of one of these splices, refer to Table 12 for the O.D. of the wire insulation range each splice takes:
 - A standard butt splice; refer to Paragraph 2.A.
 - A transitional butt splice; refer to Paragraph 2.B..

CAUTION: THE O.D. OF THE WIRE INSULATION IS VERY IMPORTANT. MAKE SURE THAT FOR THE SPECIFIED SPLICE IN TABLE 12, THE O.D. OF THE WIRE INSULATION IS NOT MORE THAN MAXIMUM O.D. SPECIFIED.

CAUTION: IF THE O.D. OF THE WIRE IS LESS THAN THE MINIMUM O.D. SPECIFIED. THE O.D. OF THE INSULATION MUST BE INCREASED TO MAKE A SEAL IN THE SPLICE. REFER TO STEP (6).

- (3) Make a selection of cold shrink sleeve from table 8.

NOTE: A satisfactory alternative is a minimum of two layers of self-bonding silicone tape that are applied after the splice is assembled. Refer to Paragraph 4.K..

- (4) If a cold shrink sleeve is used, put the cold shrink sleeves on one end of the wire.

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- (5) Remove the necessary length of the insulation from the end of each wire.

Make sure that the end of each wire has not been crimped before.

Refer to:

- Table 13
- Subject 20-00-15.

- (6) If the O.D. of the wire insulation is less than the minimum O.D. specified in Table 12, increase the O.D. of the wire.

For the procedure to increase the O.D. of the wire insulation with:

- Layers of tape, refer to Paragraph 4.F.
- Heat shrinkable sleeves, refer to Paragraph 4.G..

Table 13
INSULATION REMOVAL LENGTH

Splice	Removal Length (inch)	
	Target	Tolerance
BACS52N-1	0.44	0.03
BACS52N-1A78	0.44	0.03
BACS52N-2	0.50	0.03
BACS52N-2A78	0.50	0.03
BACS52N-3	0.69	0.03
BACS52N-3A78	0.69	0.03
BACS52N-4	0.75	0.03
BACS52N-48	0.69	0.03
BACS52N-4A78	0.75	0.03
BACS52N-5	0.82	0.03
BACS52N-5A78	0.82	0.03
BACS52N-6	1.00	0.03
BACS52N-6A78	1.00	0.01
BACS52N-7	1.00	0.03
BACS52N-7A78	1.00	0.03
BACS52N-8	1.00	0.03
BACS52N-8A78	1.00	0.03

F. Increase of the O.D. of the Wire with Layers of Tape

This paragraph gives the procedure to increase the outer diameter of the wire insulation to make a seal in the crimp barrel of the splice if the outer diameter is less than the minimum diameter specified in Table 1 or Table 2.

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- (1) Make a selection of a solvent from Table 7.
 - (2) Make a selection of a TFE tape from Table 7.
 - (3) With a clean wiper and solvent, clean the wire insulation a minimum of 2.5 inches from the end of the wire.
 - (4) Dry the clean area with clean wiper.
 - (5) Wind the necessary number of layers of tape on the wire insulation to make the O.D. of the wire between the minimum and the maximum O.D. of the wire.
- Make sure that the layers of tape make a 100 percent overlap.

G. Increase of the O.D. of the Wire with Heat Shrinkable Sleeves

This paragraph gives the procedure to increase the outer diameter of the wire insulation to make a seal in the crimp barrel of the splice if the outer diameter is less than the minimum diameter specified in Table 1 or Table 2.

- (1) Make a selection of a solvent from Table 7.
- (2) Make a selection of a heat shrinkable sleeve from Table 7.
- (3) With a clean wiper and solvent, clean the wire insulation a minimum of 2.5 inches from the end of the wire.
- (4) Dry the clean area with clean wiper.
- (5) Put a 1.25 inch length of heat shrinkable sleeve on the wire.
- (6) Push the heat shrinkable sleeve to the end of the wire until the forward end of the heat shrinkable sleeve is aligned with the end of the wire insulation.
- (7) Shrink the sleeve into its position. Refer to Subject 20-10-14.
- (8) Measure the O.D. of the wire.
- (9) If the diameter is less than the minimum diameter for the splice, do Step (5) through Step (8) again.

H. Splice Assembly

Table 14
COPALUM SPLICE CRIMP TOOLS

Splice	Crimp Tool			
	Head		Die Set	
	Part Number	Supplier	Part Number	Supplier
277156-1	58422-1	AMP	68006	AMP
	69066	AMP	68006	AMP
	PPFC-1H	Daniels	68006	AMP
277157-1	1752787-1	AMP	68007	AMP
	58422-1	AMP	68007	AMP
	69066	AMP	68007	AMP
	PPFC-1H	Daniels	68007	AMP

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Table 14 (continued)

Splice	Crimp Tool			
	Head		Die Set	
	Part Number	Supplier	Part Number	Supplier
277158-1	1752787-1	AMP	68008	AMP
			68008-1	AMP
	58422-1	AMP	68008	AMP
			68008-1	AMP
	69066	AMP	68008	AMP
			68008-1	AMP
	PPFC-1H	Daniels	68008	AMP
			68008-1	AMP
277159-1	1752787-1	AMP	68009	AMP
	58422-1	AMP	68009	AMP
	69066	AMP	68009	AMP
	PPFC-1H	Daniels	68009	AMP
277160-1	1752787-1	AMP	68010	AMP
	58422-1	AMP	68010	AMP
	69066	AMP	68010	AMP
	PPFC-1H	Daniels	68010	AMP
277161-1	1752787-1	AMP	68011	AMP
	58422-1	AMP	68011-1	AMP
	69066	AMP	314964-1	AMP
	PPFC-1H	Daniels	68011-1	AMP
277162-1	1752787-1	AMP	59877-1	AMP
	58422-1	AMP	59877-1	AMP
277163-1	1752787-1	AMP	68010	AMP
	58422-1	AMP	68010	AMP
	69066	AMP	68010	AMP
	PPFC-1H	Daniels	68010	AMP
277164-1	1752787-1	AMP	68008-1	AMP
	58422-1	AMP	68008-1	AMP
	69066	AMP	68008-1	AMP
	PPFC-1H	Daniels	68008-1	AMP

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Table 14 (continued)

Splice	Crimp Tool			
	Head		Die Set	
	Part Number	Supplier	Part Number	Supplier
277165-1	1752787-1	AMP	68008	AMP
			68008-1	AMP
	58422-1	AMP	68008	AMP
			68008-1	AMP
	69066	AMP	68008	AMP
			68008-1	AMP
	PPFC-1H	Daniels	68008	AMP
			68008-1	AMP
277168-1	1752787-1	AMP	59877-1	AMP
	58422-1	AMP	59877-1	AMP

Table 15
BACS52N SPLICE CRIMP TOOLS

Splice	First Wire		Second Wire		Crimp Tool	
	Type	Size (AWG)	Type	Size (AWG)	Head	Die Set
BACS52N-1	Aluminum	8	Copper	10	58422-1	68006
					69066	68006
BACS52N-1A78	Aluminum	8	Copper	10	58422-1	68006
					69066	68006
BACS52N-2	Aluminum	6	Copper	8	58422-1	68007
					69066	68007
BACS52N-2A78	Aluminum	6	Copper	8	58422-1	68007
					69066	68007
BACS52N-3	Aluminum	4	Copper	6	58422-1	68008
					69066	68008
BACS52N-3A78	Aluminum	4	Copper	6	58422-1	68008
					69066	68008
					69066	68008
BACS52N-4	Aluminum	2	Copper	4	58422-1	68009
					69066	68009

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Table 15 (continued)

Splice	First Wire		Second Wire		Crimp Tool	
	Type	Size (AWG)	Type	Size (AWG)	Head	Die Set
BACS52N-48	Aluminum	4	Copper	8	58422-1	68008
					58422-1	68008-1
					69066	68008-1
BACS52N-4A78	Aluminum	2	Copper	4	58422-1	68009
					69066	68009
BACS52N-5	Aluminum	1/0	Copper	2	58422-1	68010
					69066	68010
BACS52N-5A78	Aluminum	1/0	Copper	2	58422-1	68010
					69066	68010
BACS52N-6	Aluminum	2/0	Copper	1/0	58422-1	68011-1
	Aluminum	2/0	Aluminum	1/0	58422-1	68011-1
	Aluminum	1/0	Copper	1/0	58422-1	68011-1
BACS52N-6A78	Aluminum	2/0	Copper	1/0	58422-1	68011-1
BACS52N-7	Aluminum	3/0	Copper	2/0	58422-1	59877-1
BACS52N-7A78	Aluminum	3/0	Copper	2/0	58422-1	59877-1
BACS52N-8	Aluminum	4/0	Copper	3/0	58422-1	314948-1
BACS52N-8A78	Aluminum	4/0	Copper	3/0	58422-1	314948-1

Table 16
CRIMP TOOL POWER PUMPS

Power Pump	Notes	Supplier
122271-1	-	AMP
69120-()	-	AMP
1804700-1	Can be used with AMP foot pedal 68284-1-3	AMP

Table 17
SATISFACTORY PRESSURES FOR THE OPERATION OF CRIMP HEADS

Crimp Head	Pressure (psi)	
	Minimum	Maximum
58422-1	8000	8400
69066	8000	8400
PPFC-1H	8500	9000

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Table 17 (continued)

Crimp Head	Pressure (psi)	
	Minimum	Maximum
1752787-1	9500	10000

- (1) Make a selection of an AMP splice crimp tool from Table 14 and BACS52N splice crimp tool from Table 15.

CAUTION: COPALUM SPLICES MUST BE CRIMPED WITH THE SPECIFIED TOOLS FOR THE SPLICE. IF THE SPECIFIED TOOLS ARE NOT USED, UNSATISFACTORY PERFORMANCE OF THE SPLICE CAN OCCUR.

- (2) Make a selection of a power pump from Table 16.

Make sure that the power pump pressure is satisfactory for the crimp tool head. Refer to Table 17.

WARNING: IF THE PRESSURE OF THE POWER PUMP IS MORE THAN THE MAXIMUM PRESSURE PERMITTED FOR THE CRIMP TOOL HEAD, AN INJURY TO PERSONNEL CAN OCCUR.

CAUTION: IF THE PRESSURE OF THE POWER PUMP IS MORE THAN THE MAXIMUM PRESSURE PERMITTED FOR THE CRIMP TOOL HEAD, DAMAGE TO THE CRIMP HEAD CAN OCCUR.

CAUTION: IF THE PRESSURE OF THE POWER PUMP IS LESS THAN THE MINIMUM PRESSURE PERMITTED FOR THE CRIMP TOOL HEAD, THE CRIMP IS NOT SATISFACTORY.

NOTE: A satisfactory alternative is a power pump that can make:

- A minimum pressure of 9500 PSI to a maximum pressure of 10000 PSI for the AMP 1752787-1 head
- A minimum pressure of 8000 PSI to a maximum pressure of 8400 PSI for the other AMP heads
- A minimum pressure of 8500 PSI to a maximum pressure of 9000 PSI for the Daniels heads.

- (3) Make a selection of a release agent from Table 7.

- (4) Examine the crimp tool equipment.

- Do a check of the operation of the crimp tool and power pump as specified by the manufacturers instructions.
- Release the hydraulic pressure from the crimp head.

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(c) Examine the crimp head for:

- Contamination
- Cracks
- Damage
- Worn parts
- Leaks

Make sure that:

- The crimp head is clean
- The crimp head and crimp dies do not have damage
- The crimp tool equipment does not have worn parts

CAUTION: CRIMP TOOLS THAT HAVE DAMAGE, ARE DIRTY, OR HAVE WORN PARTS MUST NOT BE USED. UNSATISFACTORY PERFORMANCE OF THE SPLICE CAN OCCUR.

(5) Examine the dies for the correct alignment in the crimp head.

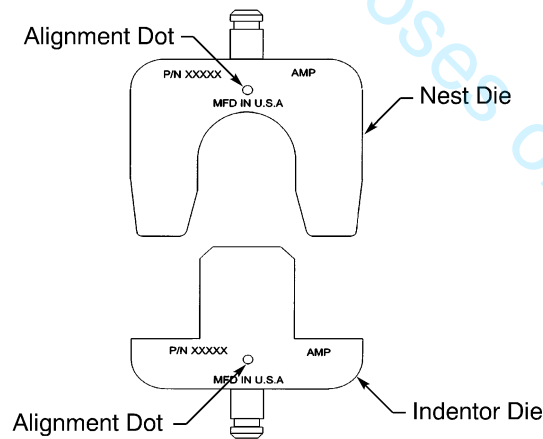
Make sure that the alignment dot on the nest die and the alignment dot on the indenter die are on the same side of the crimp head. Refer to Figure 6.

NOTE: For the normal setup of the tool, the nest side goes in the yoke, and the indenter die goes in the anvil.

NOTE: A satisfactory alternative is to reverse the dies from the normal setup to make the assembly of the splice easier in some confined areas.

WARNING: PERSONAL INJURY CAN OCCUR IF:

- THE DIES ARE NOT CORRECTLY INSTALLED IN THE CRIMP HEAD
- THE POWER UNIT PIN IS NOT AGAINST THE YOKE.



POSITION OF THE NEST DIE AND INDENTOR DIE
Figure 6

(6) Put a small quantity of release agent on the crimp area of the dies.

(7) Put the end of one of the wires in the crimp barrel of the splice. Refer to Figure 7.

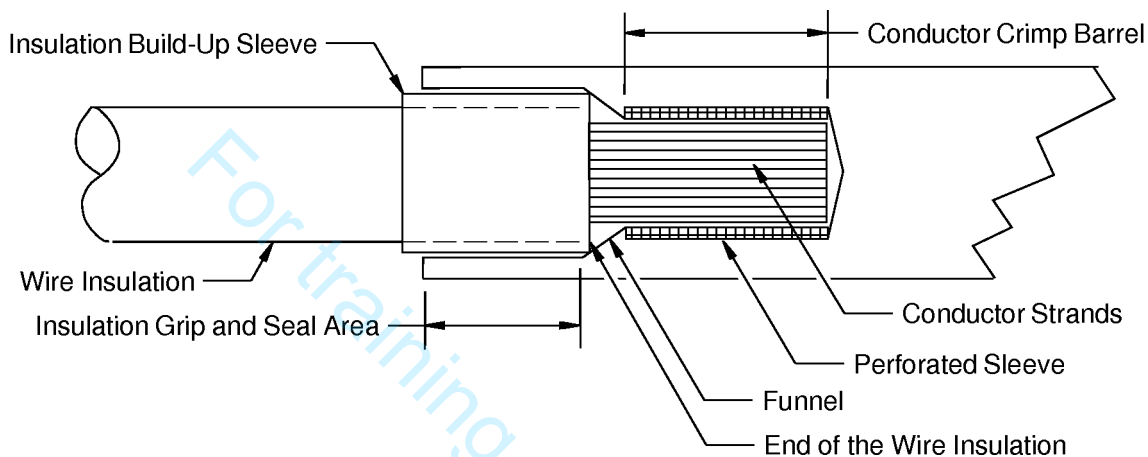
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Make sure that:

- If the end of the splice has a blue ring, the wire in that end of the splice is a copper wire
- All of the conductor strands are in the crimp barrel
- The end of the wire insulation is against the funnel.

CAUTION: DO NOT TURN THE WIRE DURING OR AFTER THE INSERTION OF THE WIRE INTO THE SPLICE.



POSITION OF THE WIRE IN THE CRIMP BARREL OF THE COPALUM SPLICE

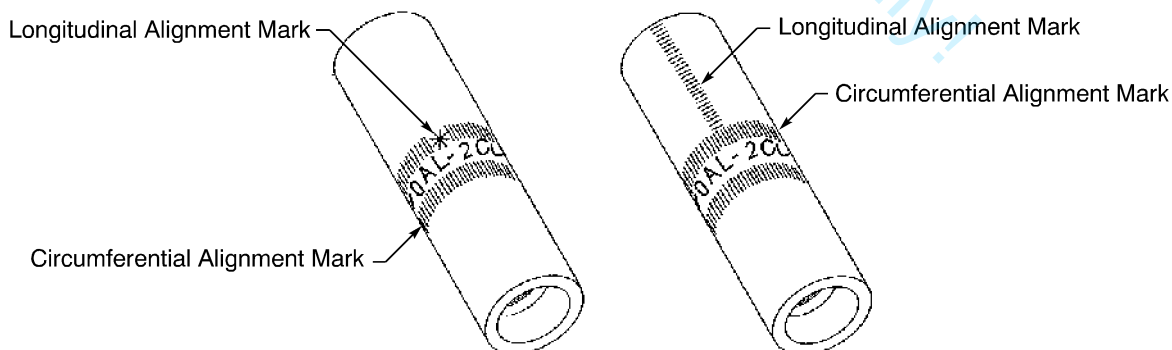
Figure 7

(8) Put the wire and the splice in the crimp tool dies.

(9) Align the splice in the die.

Refer to:

- Figure 8 for the location of the alignment marks on the splice
- Figure 9 for the front view of the position of the splice in the dies
- Figure 10 for the side view of the position of the splice in the dies.

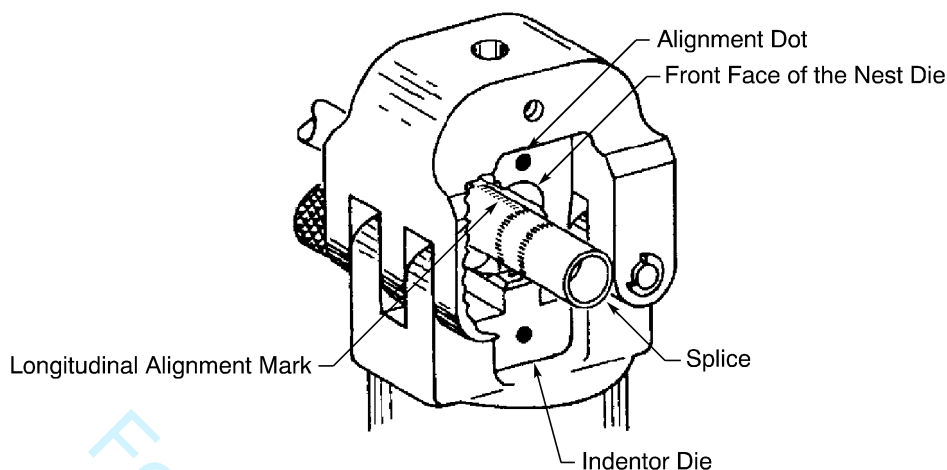


LOCATION OF THE ALIGNMENT MARKS ON THE SPLICE

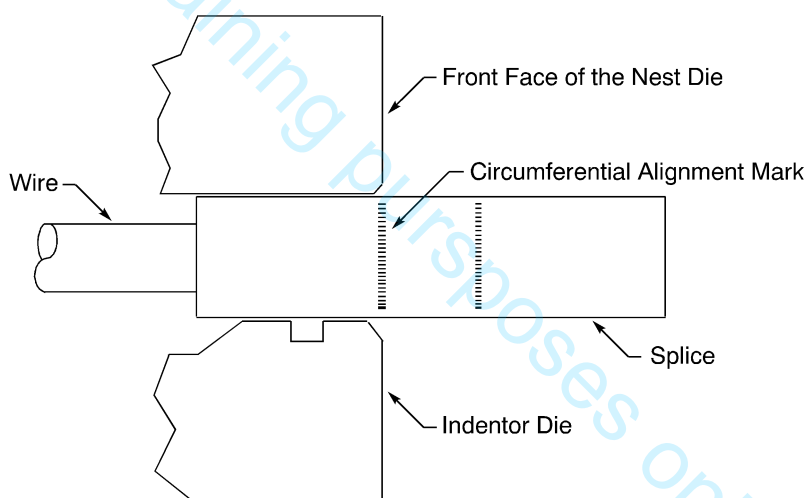
Figure 8

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ASSEMBLY AND REPAIR OF THE AMP AND BACS52N COPALUM SPLICES



POSITION OF THE SPLICE IN THE CRIMP TOOL - FRONT VIEW
Figure 9



POSITION OF THE SPLICE IN THE CRIMP TOOL - SIDE VIEW
Figure 10

- (a) Align the center of the circumferential splice crimp alignment mark with the edge of the nest die.
- (b) Align the longitudinal crimp alignment mark with the alignment dot on the nest die.
- (10) Crimp the splice.
Make sure that the alignment of the splice in the die does not change.

WARNING: KEEP HANDS AWAY FROM THE DIES WHEN THE CRIMP TOOL IS ACTIVATED. INJURY TO PERSONNEL CAN OCCUR.

- (11) Remove the splice from the crimp tool.
- (12) Remove all the flash and the sharp edges on the splice.
- (13) Examine the splice.

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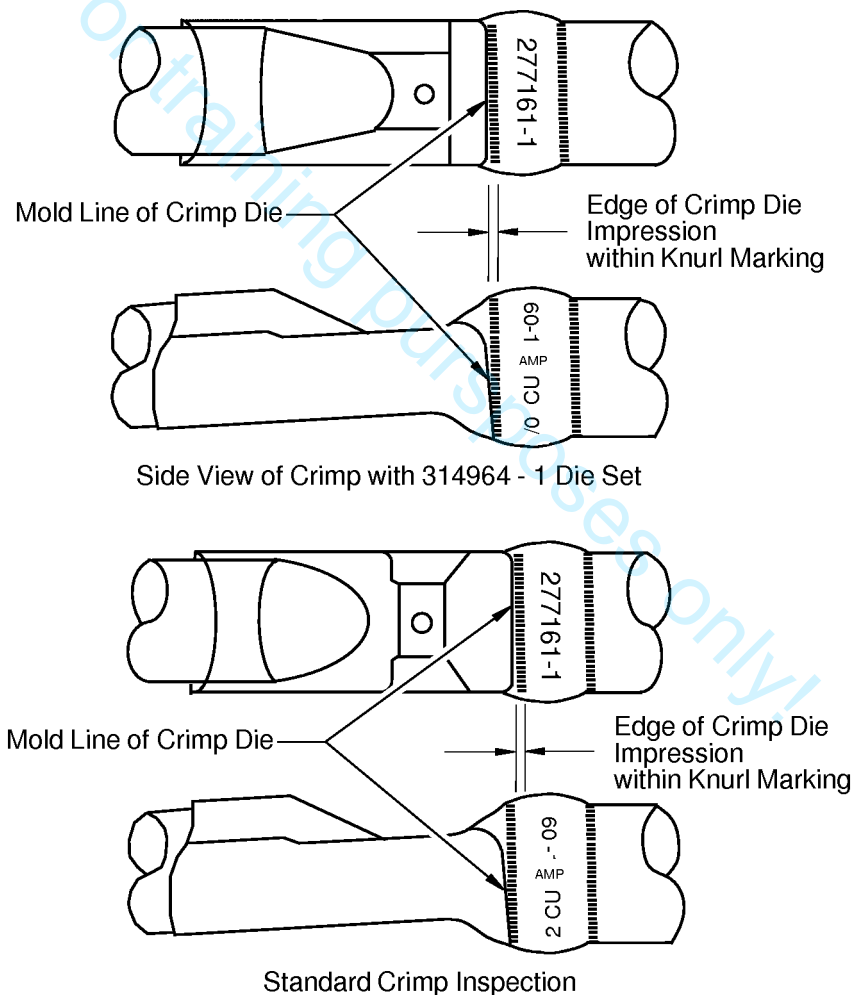
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ASSEMBLY AND REPAIR OF THE AMP AND BACS52N COPALUM SPLICES

Make sure that:

- The edge of the mold line from the die is between the ends of the circumferential alignment mark on the splice; refer to Figure 11
- The side of the splice with the longitudinal alignment mark is opposite the side of the splice with the certification mark
- The certification mark can be seen in the bottom and the center of the crimp dent; refer to Figure 12
- The certification mark is a clearly formed, cylindrical button; refer to Figure 13
- If the indenter die has a symmetrical pap in the certification mark, the certification mark on the splice has a circular, symmetrical pap at the center of mark; refer to Figure 12.

NOTE: It is usual for some base metal to be seen in the crimp area. This is not a cause to reject the splice.

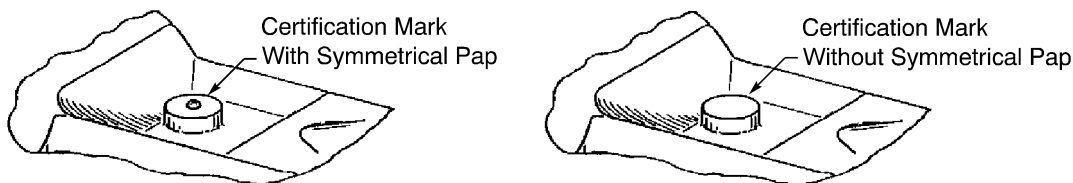


LOCATION OF THE CRIMP DIE IMPRESSIONS

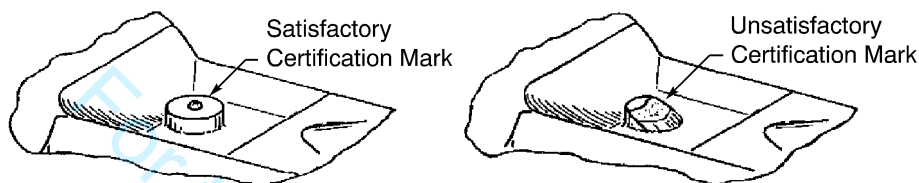
Figure 11

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CERTIFICATION MARK
Figure 12



SATISFACTORY AND UNSATISFACTORY CERTIFICATION MARKS
Figure 13

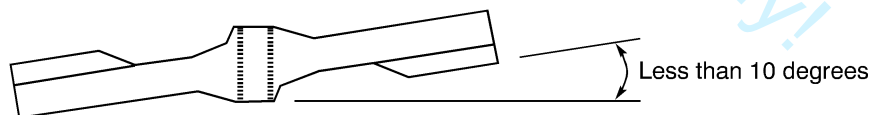
- (14) Turn the splice assembly approximately 180 degrees longitudinally.
- (15) Put the end of the other wire in the empty crimp barrel of the splice. Refer to Figure 7.

Make sure that:

- If the end of the splice has a blue ring, the wire in that end of the splice is a copper wire
- All of the conductor strands are in the crimp barrel
- The end of the wire insulation is against the insert funnel.

CAUTION: DO NOT TURN THE WIRE DURING OR AFTER THE INSERTION OF THE WIRE INTO THE SPLICE.

- (16) Do again Step (8) through Step (13) again for the other end of the splice.
 - (17) Examine the angle of the splice. Refer to Figure 14.
- Make sure the angle of the crimped end of the splice to the longitudinal axis is less than 10 degrees.



CONFIGURATION OF THE SPLICE
Figure 14

- (18) If the crimp area has flash that is caused by the crimp operation:

Table 18
NECESSARY TOOLS

Tool	Type	Supplier
File	Fine Tooth	An available source

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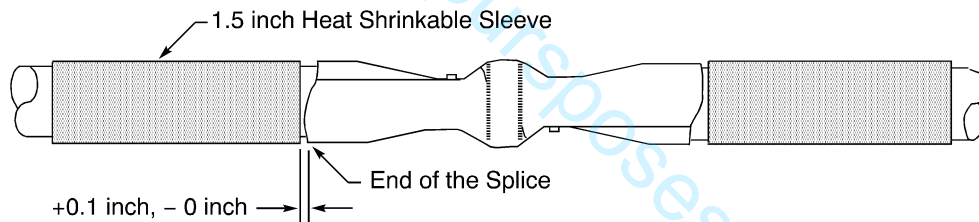
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ASSEMBLY AND REPAIR OF THE AMP AND BACS52N COPALUM SPLICES

- (a) Make a selection of a file from Table 18.
- (b) Remove the flash with file.
Make sure that the width of the filed area is not more than 0.125 inch.
NOTE: Exposed base material where flash is removed is an normal condition.
- (c) Remove the filings from the assembly.
- (19) If the crimp area has flaked plating that is caused by the crimp operation, remove the flaked plating.
NOTE: Exposed base material where flaked plating is removed is an normal condition.

I. Insulation of the Splice - AMP 277156-1 and AMP 277157-1 Splices with AWG 10 Wire

- (1) Make a selection of a solvent from Table 7.
- (2) With a clean wiper and solvent, clean the splice and a minimum of two inches of the wire from each end of the splice.
- (3) Dry the cleaned area with a clean wiper.
- (4) If heat shrinkable sleeves are used for splice insulation, install the sleeves.
 - (a) On one of the wires, push the 1/4 inch diameter sleeve to the splice until the forward end of the sleeve is against the end of the splice. Refer to Figure 15.
Make sure that:
 - The end of the sleeve is a maximum of 0.1 inch from the end of the splice
 - The sleeve does not make an overlap with the splice.

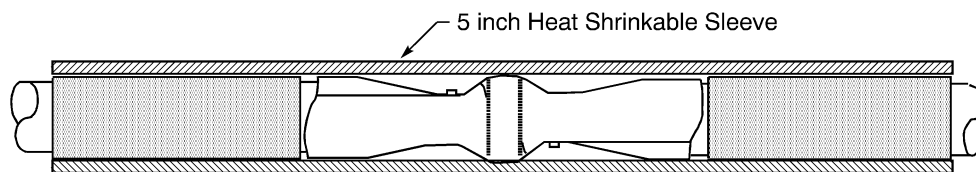


POSITION OF THE HEAT SHRINKABLE SLEEVE
Figure 15

- (b) Shrink the sleeve into its position. Refer to Subject 20-10-14.
- (c) On the other wire, push the 1/4 inch diameter sleeve to the splice until the forward end of the sleeve is against the end of the splice. Refer to Figure 15.
Make sure that the end of the sleeve is a maximum of 0.1 inch from the end of the splice.
- (d) Shrink the sleeve into its position. Refer to Subject 20-10-14.
- (e) Align the center of the 1/2 inch diameter sleeve with the center of the splice. Refer to Figure 16.

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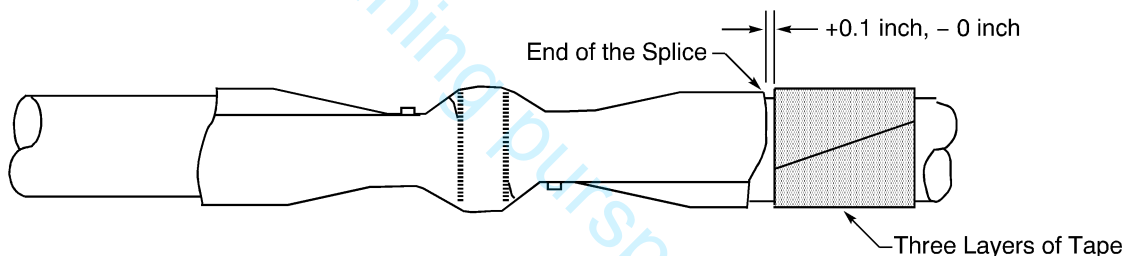
POSITION OF THE SLEEVES ON THE SPLICE ASSEMBLY

Figure 16

- (f) Shrink the sleeve into its position. Refer to Subject 20-10-14.
- (5) If layers of tape will be used for the splice insulation, install the layers of tape.
- (a) Make a selection of an insulation tape from Table 7.
- (b) Wind three layers of tape on the wire insulation at one end of the splice. Refer to Figure 17.

Make sure that:

- The end of the layer of tape is a maximum of 0.1 inch from the end of the splice
- The layers of tape do not make an overlap with the splice
- The layers of tape have 100 percent overlap.



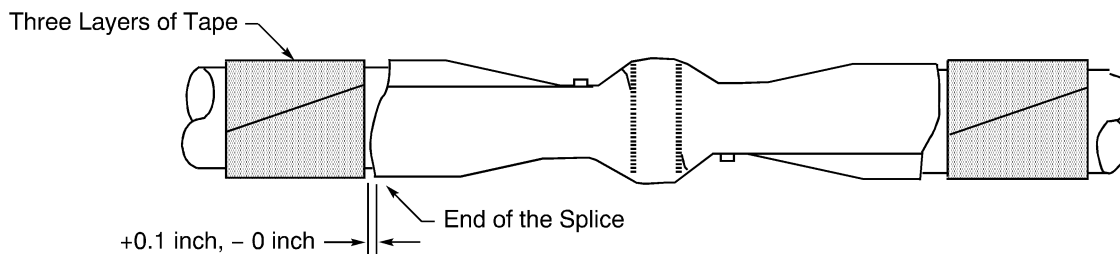
POSITION OF THE TAPE ON THE WIRE

Figure 17

- (c) Wind three layers of tape on the wire insulation at the other end of the splice. Refer to Figure 18.

Make sure that:

- The end of the layer of tape is a maximum of 0.1 inch from the end of the splice
- The layers of tape do not make an overlap with the splice
- The layers of tape have 100 percent overlap.



POSITION OF THE TAPE ON THE WIRE

Figure 18

- (d) Start the first layer of tape a minimum of 2 inches from the end of the splice.

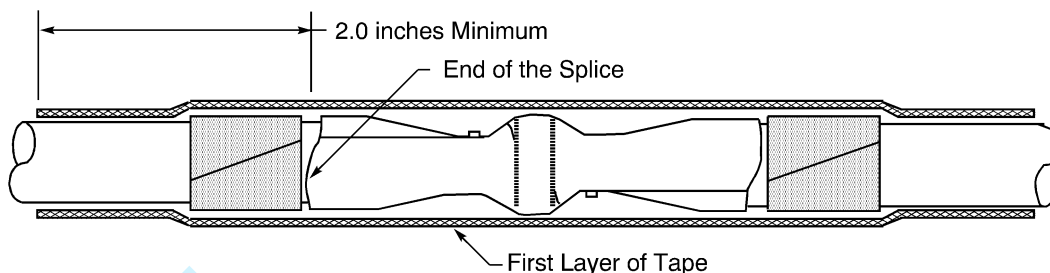
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- (e) Wind the tape on the splice and a minimum of 2 inches farther than the other end of the splice. Refer to Figure 19.

Make sure that each edge of the tape makes a 50 percent overlap with the tape below it.



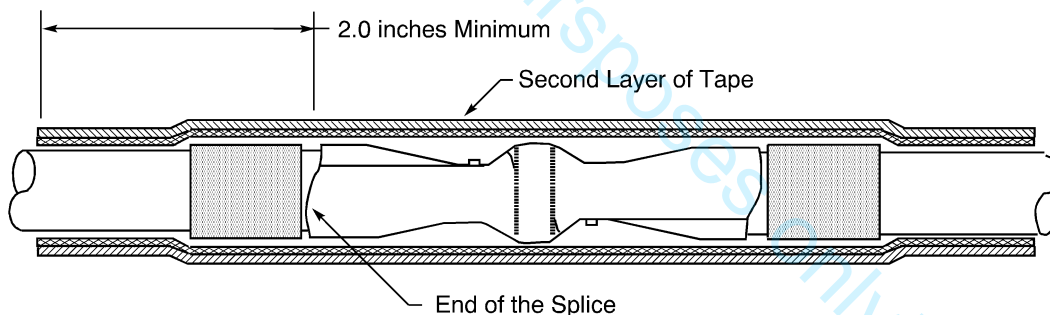
POSITION OF THE FIRST LAYER OF TAPE ON THE SPLICE ASSEMBLY

Figure 19

- (f) Start the second layer a tape where the first layer of tape ends.
- (g) Wind the tape on the first layer of tape in the direction of the start of the first layer of tape. Refer to Figure 20.

Make sure that:

- Each edge of the tape makes a 50 percent overlap with the tape below it
- The second layer of tape is wound in the opposite direction of the first layer of tape
- The second layer of tape stops where the first layer of tape starts.



POSITION OF THE FIRST LAYER OF TAPE ON THE SPLICE ASSEMBLY

Figure 20

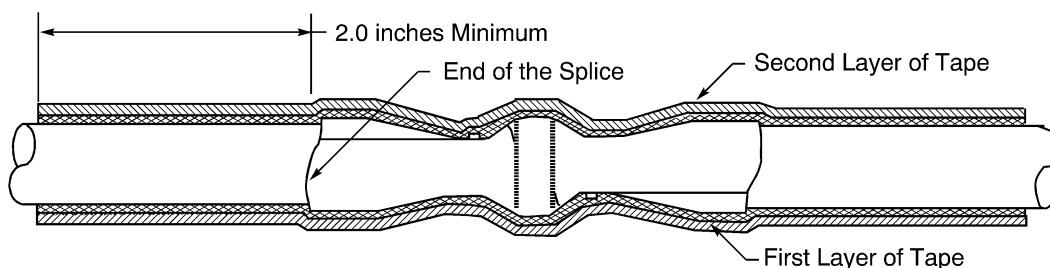
J. Insulation of the Splice - AMP 277156-1 Splices with AWG 8 Wire

- (1) Make a selection of an insulation tape from Table 7.
- (2) Make a selection of a solvent from Table 7.
- (3) With a clean wiper and solvent, clean the splice and a minimum of two inches of the wire from each end of the splice.
- (4) Dry the clean area with a clean wiper.
- (5) Wind two layers of tape on the splice. Refer to Figure 21.

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY AND REPAIR OF THE AMP AND BACS52N COPALUM SPLICES



CONFIGURATION OF THE SPLICE ASSEMBLY

Figure 21

- Start the first layer of tape a minimum of 2 inches from the end of the splice.
- Wind the tape on the splice and a minimum of 2 inches farther than the other end of the splice. Make sure that each edge of the tape makes a 50 percent overlap with the tape below it.
- Start the second layer of tape where the first layer of tape stops.
- Wind the tape on the first layer of tape in the direction of the start of the first layer of tape. Make sure that:
 - Each edge of the tape makes a 50 percent overlap with the tape below it
 - The second layer of tape is wound in the opposite direction of the first layer of tape
 - The second layer of tape stops where the first layer of tape starts.

K. Insulation of the Splice - BACS52N Splices and Splices with other Wire Size Combinations

Table 19

AMP SPLICES THAT MUST HAVE LAYERS OF BUILDUP TAPE

Splice	Wire Size (AWG)		Layers of Buildup Tape
	Splice End A	Splice End B	
277157-1	8	8	Three Layers
	8	6	Three Layers
	6	6	Three Layers
277158-1	6	6	Three Layers
	6	4	Three Layers
	4	4	-
277159-1	4	4	-
	4	2	Three Layers
	2	2	-
277160-1	2	2	-
	2	1/0	-
	1/0	1/0	-

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY AND REPAIR OF THE AMP AND BACS52N COPALUM SPLICES

Table 19 (continued)

Splice	Wire Size (AWG)		Layers of Buildup Tape
	Splice End A	Splice End B	
277161-1	1/0	1/0	-
	1/0	2/0	-
	2/0	2/0	-
277162-1	2/0	2/0	-
	2/0	3/0	-
	3/0	3/0	-
277163-1	4	1/0	Three Layers
277164-1	4	8	Three Layers
277165-1	4	4	-
277168-1	3/0	1/0	-

Table 20

BACS52N SPLICES THAT MUST HAVE LAYERS OF BUILDUP TAPE

Splice	Wire Size(AWG)		Layers of Tape
	First Splice End	Second Splice End	
BACS52N-1	8	10	3 layers minimum
BACS52N-1A78	8	10	3 layers minimum
BACS52N-2	6	8	3 layers minimum
BACS52N-2A78	6	8	3 layers minimum
BACS52N-3	4	6	3 layers minimum
BACS52N-3A78	4	6	3 layers minimum
BACS52N-48	4	8	3 layers minimum
BACS52N-4	2	4	3 layers minimum
BACS52N-4A78	2	4	3 layers minimum
BACS52N-5	1/0	2	0
BACS52N-5A78	1/0	2	0
BACS52N-6	2/0	1/0	0
	1/0	1/0	0
BACS52N-6A78	2/0	1/0	0
BACS52N-7	3/0	2/0	0
BACS52N-7A78	3/0	2/0	0
BACS52N-8	4/0	3/0	0

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ASSEMBLY AND REPAIR OF THE AMP AND BACS52N COPALUM SPLICES

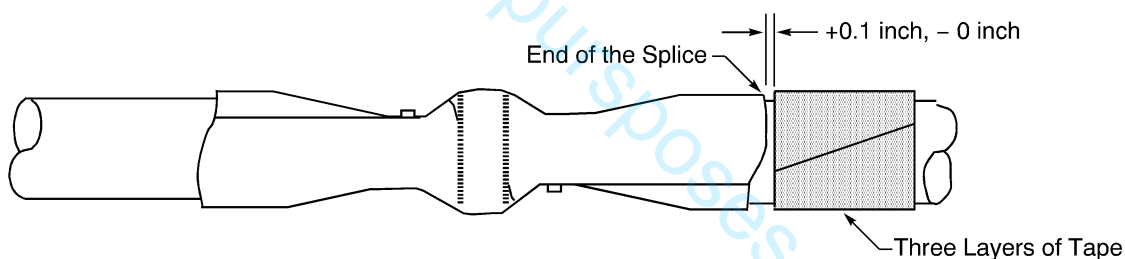
Table 20 (continued)

Splice	Wire Size(AWG)		Layers of Tape
	First Splice End	Second Splice End	
BACS52N-8A78	4/0	3/0	0

- (1) Make a selection of a solvent from Table 7.
- (2) With a clean wiper and solvent, clean the splice and a minimum of two inches of the wire from each end of the splice.
- (3) Dry the clean area with a clean wiper.
- (4) Find if layers of tape are necessary to fill the area between the cold shrink sleeve and the wire insulation. Refer to Table 19 for AMP splices and Table 20 for BACS52N splices.
- (5) If layers of buildup tape are necessary to fill the area between the cold shrink sleeve and the wire insulation, install a minimum of three layers of tape on the wire insulation.
 - (a) Make a selection of an insulation tape from Table 7.
 - (b) Wind three layers of tape on the wire insulation at one end of the splice. Refer to Figure 22.

Make sure that:

- The end of the layer of tape is a maximum of 0.1 inch from the end of the splice
- The layers of tape do not make an overlap with the splice
- The layers of tape have 100 percent overlap.


POSITION OF THE LAYERS OF TAPE ON THE WIRE
Figure 22

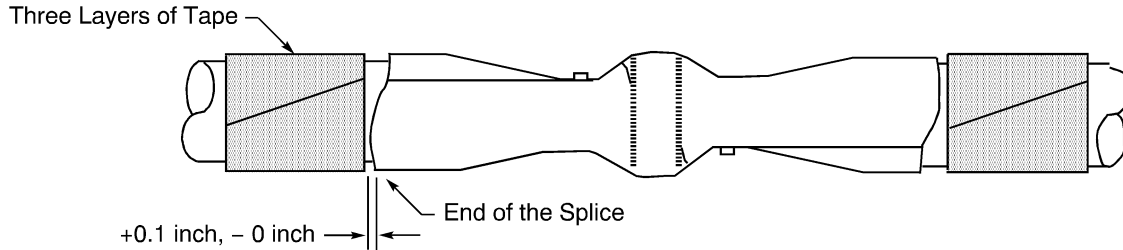
- (c) Wind three layers of tape on the wire insulation at the other end of the splice. Refer to Figure 23.

Make sure that:

- The end of the layer of tape is a maximum of 0.1 inch from the end of the splice
- The layers of tape do not make an overlap with the splice
- The layers of tape have 100 percent overlap.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY AND REPAIR OF THE AMP AND BACS52N COPALUM SPLICES

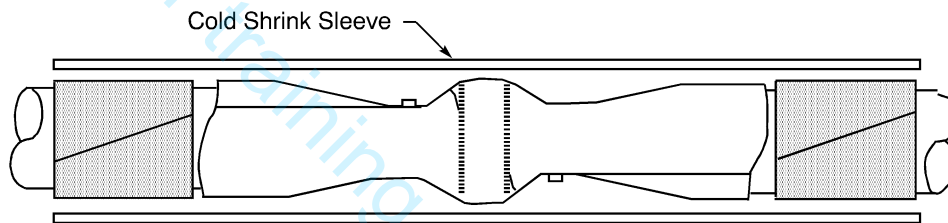


POSITION OF THE LAYERS OF TAPE ON THE WIRE

Figure 23

- (6) Install the cold shrink sleeve. Refer to Figure 24.

NOTE: If the specified cold shrink sleeve is not available, the a satisfactory alternative insulation is to install two layers of self-bonding silicone tape and wire harness ties. Refer to Step (7).



INSULATION OF THE SPLICE WITH A COLD SHRINKABLE SLEEVE

Figure 24

- Align the center of the sleeve with the center of the splice.
- Hold the sleeve in its position.
- Pull the core of the sleeve in the direction that is parallel to the longitudinal axis of the sleeve until the core is fully removed.
- Examine the cold shrink sleeve for a tight fit on the splice.
- If the cold shrink sleeve does not make a tight fit, assemble a wire harness tie approximately 0.5 inch from each end of the sleeve.

Refer to Subject 20-10-11 for the procedure to assemble a wire harness tie.

Make sure that the lacing tape is a Temperature Grade D material.

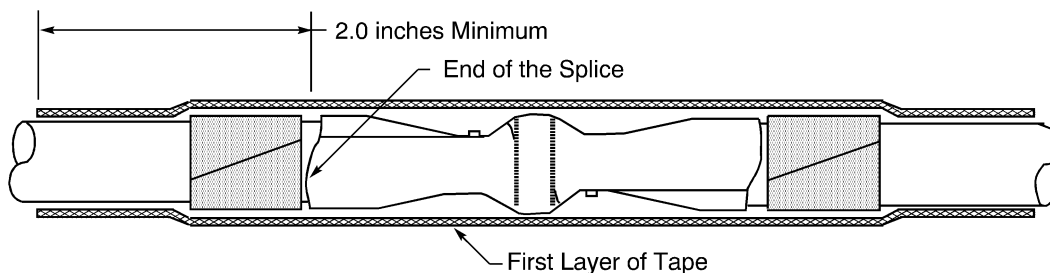
- (7) If a cold shrink sleeve is not available:

- Make a selection of a tape from Table 7.
- Start the first layer of tape a minimum of 2 inches from the end of the splice.
- Wind the tape on the splice and a minimum of 2 inches farther than the other end of the splice. Refer to Figure 25.

Make sure that each edge of the tape makes a 50 percent overlap with the tape below it.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY AND REPAIR OF THE AMP AND BACS52N COPALUM SPLICES



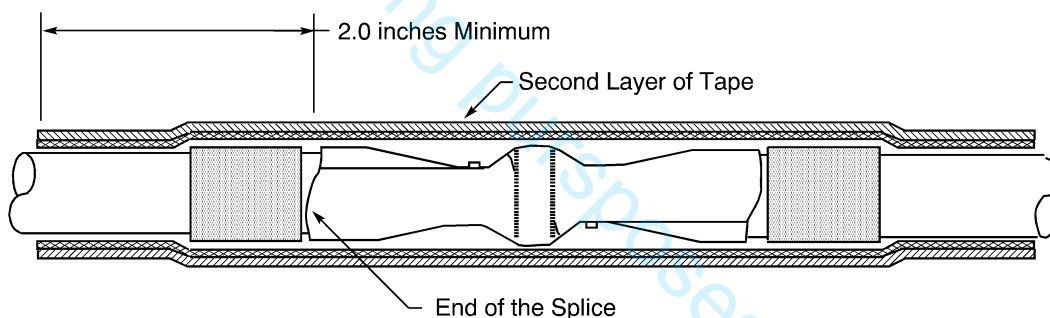
POSITION OF THE FIRST LAYER OF TAPE ON THE SPLICE ASSEMBLY

Figure 25

- (d) Start the second layer a tape where the first layer of tape ends.
- (e) Wind the tape on the first layer of tape in the direction of the start of the first layer of tape. Refer to Figure 26.

Make sure that:

- Each edge of the tape makes a 50 percent overlap with the tape below it
- The second layer of tape is wound in the opposite direction of the first layer of tape
- The second layer of tape stops where the first layer of tape starts.



POSITION OF THE FIRST LAYER OF TAPE ON THE SPLICE ASSEMBLY

Figure 26

5. REPAIR OF COPALUM SPLICES

A. Repair of the Insulation of a Splice Assembly

Table 21

NECESSARY MATERIALS

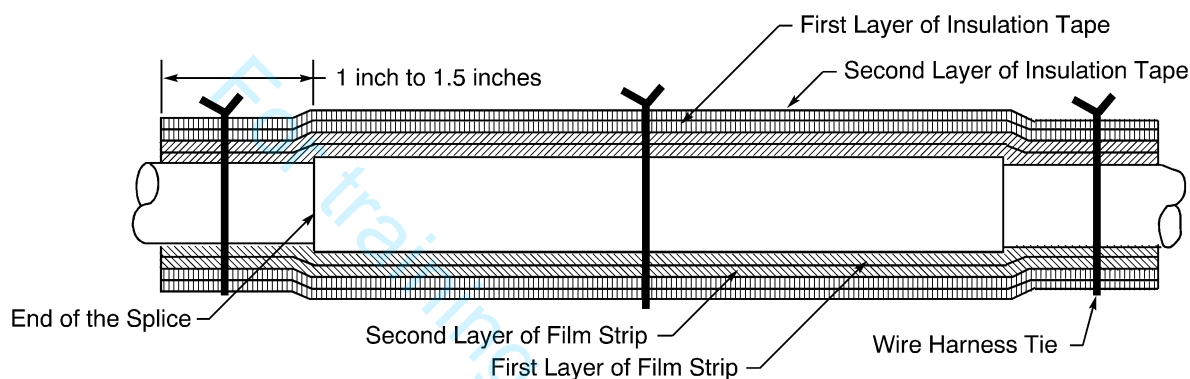
Material	Part Number or Specification	Description	Supplier
Film Strip	P-412	PTFE	Permacei
	Scotch 48	PTFE	3M
Solvent	TT-I-735	Isopropyl Alcohol	An available source
	TT-N-95	Aliphatic Naptha	An available source

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY AND REPAIR OF THE AMP AND BACS52N COPALUM SPLICES

Table 21 (continued)

Material	Part Number or Specification	Description	Supplier
Tape, Insulation	A-A-59474 Type 1	Self-Bonding Tape, Silicone	QPL
	P-421	Adhesive Tape, PTFE	Permaceel
	Scotch 61	Adhesive Tape, PTFE	3M
	Scotch 70	Self-Bonding Tape, Silicone	3M



CONFIGURATION OF A SPLICE INSULATION REPAIR

Figure 27

Refer to Figure 27.

- (1) Make a selection of a solvent from Table 21.
- (2) Make a selection of these materials from Table 21:
 - A film strip
 - An insulation tape.
- (3) With a clean wiper and solvent, clean the splice assembly and the wire a minimum of 2 inches farther than the end of the splice.
- (4) Dry the cleaned area with a clean wiper.
- (5) Wind two layers of film strip on the splice assembly.
 - (a) Start the first layer of tape one inch to 1.5 inches from the end of the splice.
 - (b) Wind the tape on the splice 1 to 1.5 inches farther than the other end of the splice.
Make sure that each edge of the tape makes a 50 percent overlap with the tape below it.
 - (c) Start the second layer of film strip where the first layer of film strip ends.
 - (d) Wind the tape on the first layer of tape in the direction of the start of the first layer of tape.

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY AND REPAIR OF THE AMP AND BACS52N COPALUM SPLICES

Make sure that:

- Each edge of the film strip makes a 50 percent overlap with the film strip below it
- The second layer of film strip is wound in the opposite direction of the first layer of film strip
- The second layer of film strip ends where the first layer of film strip starts.

(6) Wind two layers of insulation tape on the layers of film strip.

- Start the first layer of tape one inch to 1.5 inches from the end of the splice.
- Wind the tape on the splice 1 to 1.5 inches farther than the other end of the splice.

Make sure that each edge of the tape makes a 50 percent overlap with the tape below it.

- Start the second layer a tape where the first layer of tape ends.
- Wind the tape on the first layer of tape in the direction of the start of the first layer of tape.

Make sure that:

- Each edge of the tape makes a 50 percent overlap with the tape below it
- The second layer of tape is wound in the opposite direction of the first layer of tape
- The second layer of tape ends where the first layer of tape starts.

(7) Assemble three lacing tape wire harness ties on the layers of tape.

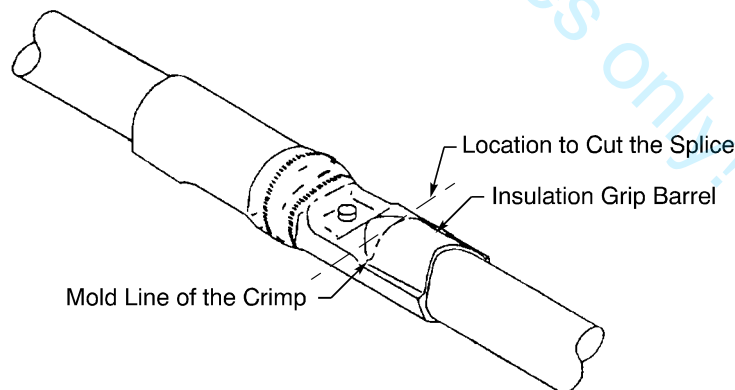
Refer to Subject 20-10-11 for the procedure to assemble a wire harness tie.

Make sure that:

- The lacing tape is Temperature Grade D material
- A wire harness tie is assembled at each end of the layers of tape
- A wire harness tie is assembled at the center of the layers of tape.

B. Splice Removal

- Remove the insulation sleeves or layers of insulation tape from the splice.
- Remove one end of the splice from the wire. Refer to Figure 28.



LOCATION TO CUT THE SPLICE
Figure 28

- Cut one end the splice with a saw at the mold line of the crimp next to the insulation grip barrel.
- Cut the remaining insulation grip barrel of the splice.

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY AND REPAIR OF THE AMP AND BACS52N COPALUM SPLICES

CAUTION: MAKE SURE TO PREVENT DAMAGE TO:

- THE INDIVIDUAL STRANDS OF THE CONDUCTOR
- THE REMAINING WIRE INSULATION.

- (c) Remove the barrel from the wire.
- (3) Do Step (2) again for the other end of the splice.

For training purposes only!

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF COPALUM AND ALUMINUM TERMINALS

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF COPALUM AND ALUMINUM TERMINALS

This Subject gives the procedures to assemble these terminals with aluminum or copper wire:

- AMP copalum terminals
- BACT12AW, BACT12AY, and BACT13K, L, T copalum terminals
- MS25435-() aluminum terminals
- Thomas & Betts aluminum terminals.

1. PART NUMBERS AND DESCRIPTION

A. AMP Copalum Terminal Part Numbers

Table 1
AMP COPALUM TERMINAL PART NUMBERS

Crimp Barrel		Stud Size	Tongue Configuration	Plating	Part Number	Supplier
Aluminum Wire Size (AWG)	Copper Wire Size (AWG)					
8	10	10	Standard	Tin	277147-1	Tyco/AMP
			Narrow	Tin	277147-5	Tyco/AMP
		1/4	Standard	Tin	277147-3	Tyco/AMP
		5/16	Standard	Tin	277147-4	Tyco/AMP
6	8	8	Standard	Tin	277148-5	Tyco/AMP
			Standard	Tin	277148-1	Tyco/AMP
		10	Narrow	Tin	277154-1	Tyco/AMP
			Standard	Tin	277148-2	Tyco/AMP
			Narrow	Tin	277148-7	Tyco/AMP
		1/4	Two Stud Holes	Tin	55832-1	Tyco/AMP
			Standard	Tin	277148-3	Tyco/AMP
			Standard	Tin	277148-4	Tyco/AMP
4	6	3/8	Two Stud Holes	Tin	55832-2	Tyco/AMP
			Standard	Tin	277149-5	Tyco/AMP
		10	Standard	Tin	277149-1	Tyco/AMP
			Standard	Tin	277149-2	Tyco/AMP
		1/4	Two Stud Holes	Tin	55833-1	Tyco/AMP
			Two Stud Holes	Silver	55834-1	Tyco/AMP
			Standard	Tin	277149-3	Tyco/AMP
		5/16	Standard	Tin	277149-4	Tyco/AMP
			Two Stud Holes	Tin	55833-2	Tyco/AMP
			Two Stud Holes	Silver	55834-2	Tyco/AMP

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF COPALUM AND ALUMINUM TERMINALS

Table 1 (continued)

Crimp Barrel		Stud Size	Tongue Configuration	Plating	Part Number	Supplier
Aluminum Wire Size (AWG)	Copper Wire Size (AWG)					
2	4	1/4	Standard	Tin	277150-1	Tyco/AMP
			Narrow	Tin	227155-1	Tyco/AMP
			Two Stud Holes	Tin	55835-1	Tyco/AMP
			Two Stud Holes	Silver	55836-1	Tyco/AMP
		5/16	Standard	Tin	277150-2	Tyco/AMP
		3/8	Standard	Tin	277150-3	Tyco/AMP
			Two Stud Holes	Tin	55835-2	Tyco/AMP
			Two Stud Holes	Silver	55836-2	Tyco/AMP
1/0	2	1/4	Short	Tin	277151-3	Tyco/AMP
			Long	Tin	277151-5	Tyco/AMP
		3/8	Short	Tin	277151-1	Tyco/AMP
			Long	Tin	277151-2	Tyco/AMP
			Two Stud Holes	Tin	55837-1	Tyco/AMP
			Two Stud Holes	Silver	55838-1	Tyco/AMP
		1/2	Short	Tin	277151-5	Tyco/AMP
			Long	Tin	277151-6	Tyco/AMP
			Modified 277151-5	Tin	280U0021	Boeing
2/0	1/0	5/16	Standard	Tin	277152-3	Tyco/AMP
		3/8	Short	Tin	277152-2	Tyco/AMP
			Long	Tin	277152-4	Tyco/AMP
			Two Stud Holes	Tin	55839-1	Tyco/AMP
			Long	Tin	55944-1	Tyco/AMP
			Flag	Tin	55982-1	Tyco/AMP
		1/2	Long	Tin	277152-5	Tyco/AMP
3/0	2/0	3/8	Standard	Tin	277153-1	Tyco/AMP
			Two Stud Holes	Tin	55840-1	Tyco/AMP
4/0	3/0	3/8	Standard	Tin	55995-1	Tyco/AMP

NOTE: For power feeders terminated at the engine generator, high-temp terminal lugs must be used. Refer to Subject 20-30-11 for BACT12M nickel plated high-temp terminal lugs.

STANDARD WIRING PRACTICES MANUAL

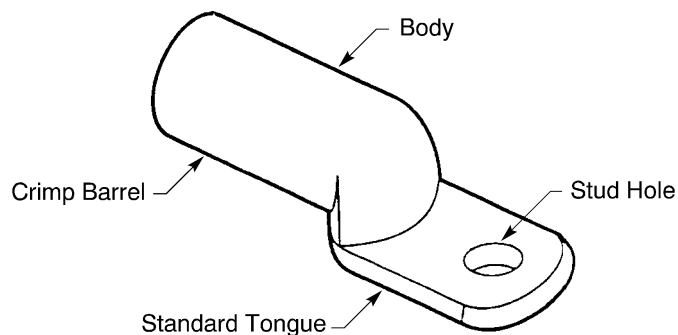
ASSEMBLY OF COPALUM AND ALUMINUM TERMINALS

Table 2
ALTERNATIVE COPALUM TERMINAL PART NUMBERS

Specified Terminal		Alternative Terminal	
Part Number	Supplier	Part Number	Supplier
1-52521-0	Tyco/AMP	277152-4	Tyco/AMP
1-52521-1	Tyco/AMP	277152-5	Tyco/AMP
277028-2	Tyco/AMP	277153-1	Tyco/AMP
52516	Tyco/AMP	277147-1	Tyco/AMP
52517	Tyco/AMP	277148-5	Tyco/AMP
52517-1	Tyco/AMP	277148-1	Tyco/AMP
52517-2	Tyco/AMP	277148-2	Tyco/AMP
52517-3	Tyco/AMP	277148-3	Tyco/AMP
52517-4	Tyco/AMP	277148-4	Tyco/AMP
52518	Tyco/AMP	277149-1	Tyco/AMP
52518-1	Tyco/AMP	277149-2	Tyco/AMP
52518-2	Tyco/AMP	277149-3	Tyco/AMP
52518-3	Tyco/AMP	277149-4	Tyco/AMP
52518-4	Tyco/AMP	277149-5	Tyco/AMP
52519	Tyco/AMP	277150-1	Tyco/AMP
52519-1	Tyco/AMP	277150-2	Tyco/AMP
52519-2	Tyco/AMP	277150-3	Tyco/AMP
52520	Tyco/AMP	277151-3	Tyco/AMP
52520-1	Tyco/AMP	277151-1	Tyco/AMP
52520-2	Tyco/AMP	277151-4	Tyco/AMP
52520-3	Tyco/AMP	277151-5	Tyco/AMP
52520-4	Tyco/AMP	277151-2	Tyco/AMP
52520-5	Tyco/AMP	277151-6	Tyco/AMP
52521-7	Tyco/AMP	277152-2	Tyco/AMP
52521-9	Tyco/AMP	277152-3	Tyco/AMP
52834-1	Tyco/AMP	277154-1	Tyco/AMP

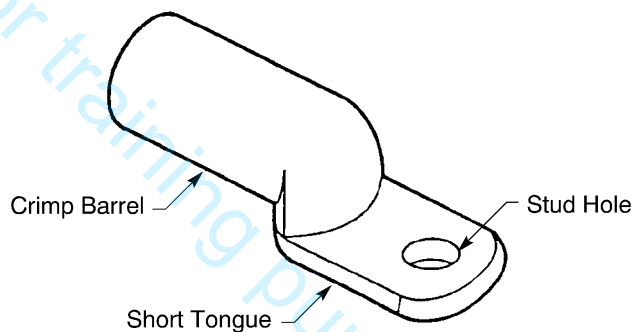
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ASSEMBLY OF COPALUM AND ALUMINUM TERMINALS



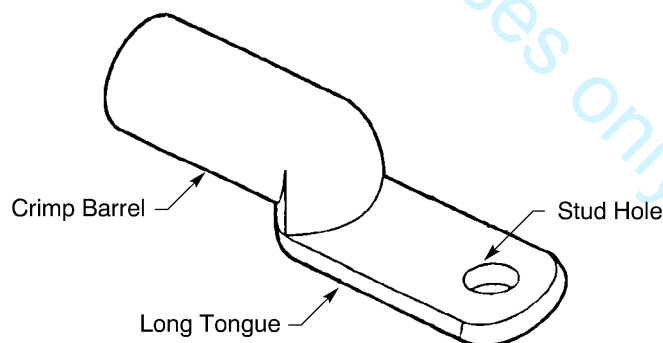
AMP COPALUM STANDARD TERMINAL

Figure 1



AMP COPALUM TERMINAL WITH A SHORT TONGUE

Figure 2

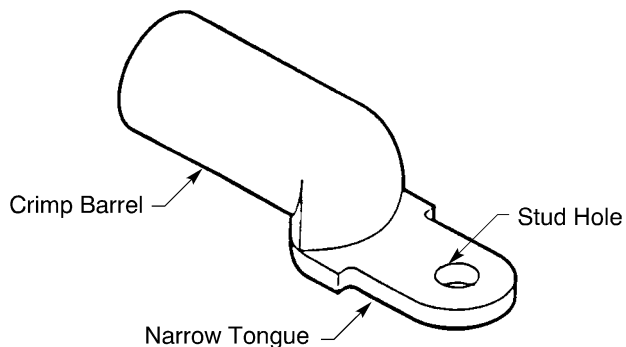


AMP COPALUM TERMINAL WITH A LONG TONGUE

Figure 3

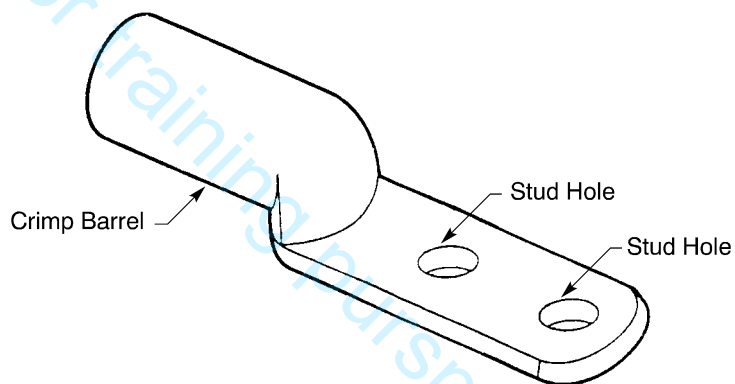
STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF COPALUM AND ALUMINUM TERMINALS



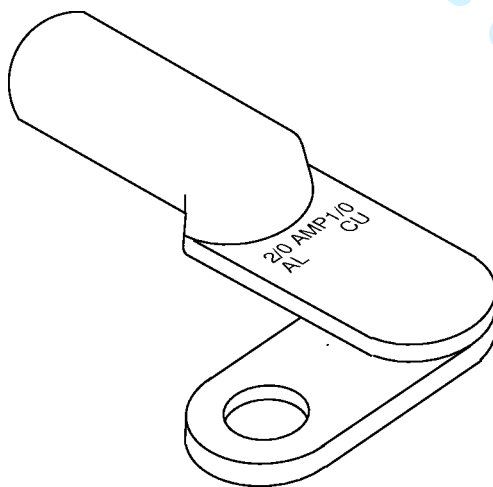
AMP COPALUM TERMINAL WITH A NARROW TONGUE

Figure 4



AMP COPALUM TERMINAL WITH TWO STUD HOLES

Figure 5



AMP COPALUM FLAG TERMINAL

Figure 6

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF COPALUM AND ALUMINUM TERMINALS

B. BACT12AW, BACT12AY, and BACT13K, BACT13L, BACT13T Copalum Terminal Part Numbers

Table 3
BACT() COPALUM TERMINAL LUG PART NUMBERS

Boeing Part Number	Configuration	Number of Stud Holes	Reference		Supplier
			Figure	Table	
BACT12AW	Dual Hole, 90 Degree, Bent Tongue	2	Figure 7	Table 4	Tyco/AMP
BACT12AY	Dual Hole, Ring Tongue, Flag	2	Figure 8	Table 4	Tyco/AMP
BACT13K	Ring Tongue	1	Figure 9	Table 5	Tyco/AMP
BACT13L	Dual Hole, Ring Tongue	2	Figure 10	Table 6	Tyco/AMP
BACT13T	Dual Hole, Ring Tongue, Breakaway	2	Figure 11	Table 7	Tyco/AMP

Table 4
BACT12AW AND BACT12AY TERMINAL LUG SPECIFICATIONS

Crimp Barrel		Stud Size (Both Holes) (inch)	Tongue Configuration	Terminal Lug Part Number
Aluminum Wire Size (AWG)	Copper Wire Size (AWG)			
1/0	2	3/8	Dual Hole, 90 Degree, Bent Tongue	BACT12AW-5C
			Dual Hole, Flag	BACT12AY-5C
2/0	1/0	3/8	Dual Hole, 90 Degree, Bent Tongue	BACT12AW-6C
			Dual Hole, Flag	BACT12AY-6C
4/0	3/0	3/8	Dual Hole, 90 Degree, Bent Tongue	BACT12AW-8C
			Dual Hole, Flag	BACT12AY-8C

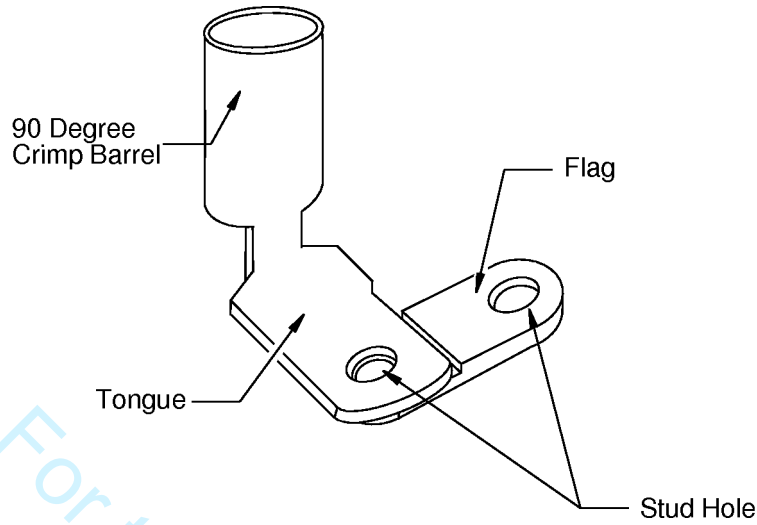
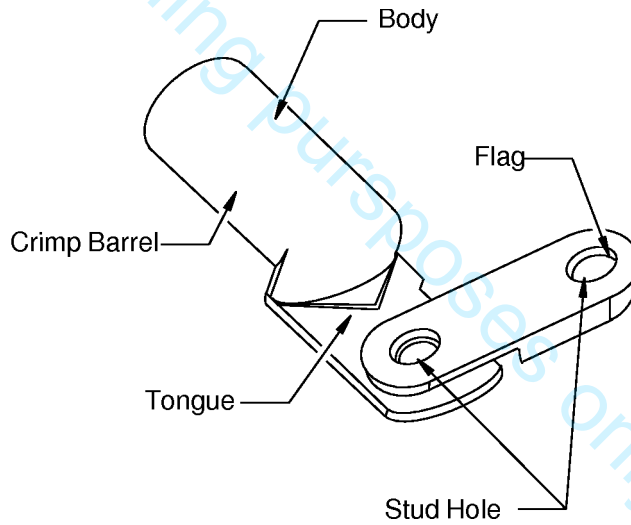
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ASSEMBLY OF COPALUM AND ALUMINUM TERMINALS

BACT12AW 90 DEGREE END COPALUM TERMINAL LUG
Figure 7

BACT12AY FLAG END COPALUM TERMINAL LUG
Figure 8

Table 5
BACT13K TERMINAL LUG SPECIFICATIONS

Crimp Barrel		Stud Size (Inch)	Terminal Lug Part Number
Aluminum Wire Size (AWG)	Copper Wire Size (AWG)		
8	10	3/8	BACT13K-1
			BACT13K-1A78

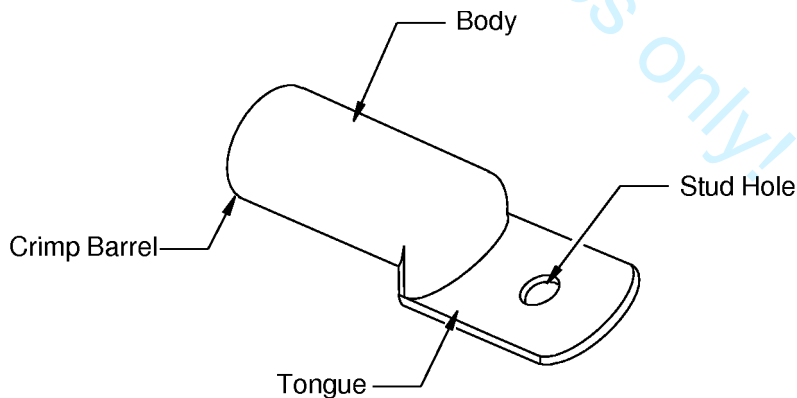
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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF COPALUM AND ALUMINUM TERMINALS

Table 5 (continued)

Crimp Barrel		Stud Size (Inch)	Terminal Lug Part Number
Aluminum Wire Size (AWG)	Copper Wire Size (AWG)		
6	8	3/8	BACT13K-2
		1/4	BACT13K-24
		3/8	BACT13K-2A78
4	6	3/8	BACT13K-3
		1/4	BACT13K-34
		3/8	BACT13K-3A78
2	4	3/8	BACT13K-4
		1/4	BACT13K-44
		3/8	BACT13K-4A78
1/0	2	3/8	BACT13K-5
			BACT13K-5A78
2/0	1/0	3/8	BACT13K-6
			BACT13K-6A78
3/0	2/0	3/8	BACT13K-7
			BACT13K-7A78
4/0	3/0	3/8	BACT13K-8
			BACT13K-8A78



BACT13K COPALUM TERMINAL LUG
Figure 9

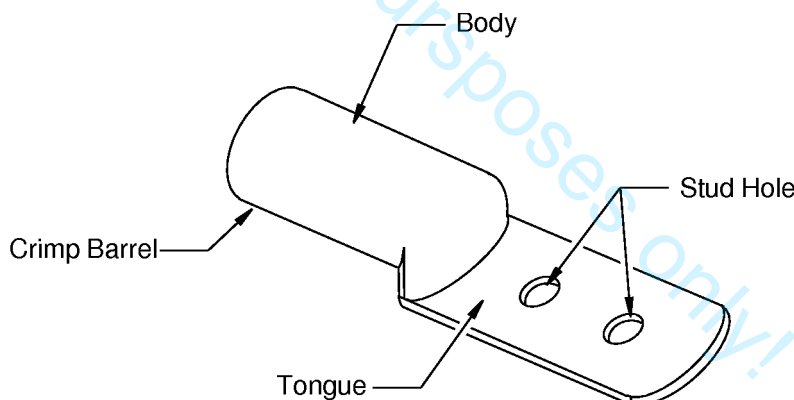
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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF COPALUM AND ALUMINUM TERMINALS

Table 6
BACT13L TERMINAL LUG SPECIFICATIONS

Crimp Barrel		Stud Size (Both Holes) (Inch)	Terminal Lug Part Number
Aluminum Wire Size (AWG)	Copper Wire Size (AWG)		
6	8	3/8	BACT13L-2
			BACT13L-2A78
			BACT13L-2A78
4	6	3/8	BACT13L-3
			BACT13L-3A78
2	4	3/8	BACT13L-4
1/0	2	3/8	BACT13L-5
			BACT13L-5A78
2/0	1/0	3/8	BACT13L-6
			BACT13L-6A78
3/0	2/0	3/8	BACT13L-7
			BACT13L-7A78



BACT13L COPALUM TERMINAL LUG
Figure 10

Table 7
BACT13T TERMINAL LUG SPECIFICATIONS

Crimp Barrel		Stud Size (Inch)	Terminal Lug
Aluminum Wire Size (AWG)	Copper Wire Size (AWG)		
1/0	2	3/8	BACT13L-5A78
2/0	1/0	3/8	BACT13L-6A78

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF COPALUM AND ALUMINUM TERMINALS

Table 7 (continued)

Crimp Barrel		Stud Size (Inch)	Terminal Lug
Aluminum Wire Size (AWG)	Copper Wire Size (AWG)		
3/0	2/0	3/8	BACT13L-7A78
4/0	3/0	3/8	BACT13L-8A78

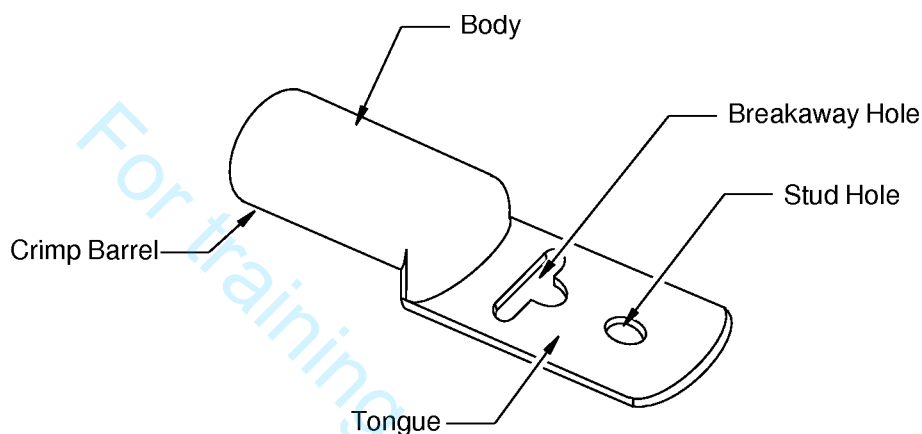

BACT13T COPALUM TERMINAL LUG

Figure 11

C. Aluminum Terminal Part Numbers

NOTE: To replace the MS25435-() and the Thomas & Betts aluminum terminals, the TYCO/AMP copalum terminals are recommended.

Table 8
ALUMINUM TERMINAL PART NUMBERS

Wire Size (AWG)	Stud Size	Aluminum Terminal		Replacement Terminal	
		Part Number	Supplier	Part Number	Supplier
6	5/16	MS25435-7	QPL	277148-3	TYCO/AMP
		65007	Thomas & Betts		
4	5/16	MS25435-11	QPL	277149-3	TYCO/AMP
		65011	Thomas & Betts		
1	3/8	60124	Thomas & Betts	277151-1	TYCO/AMP

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ASSEMBLY OF COPALUM AND ALUMINUM TERMINALS

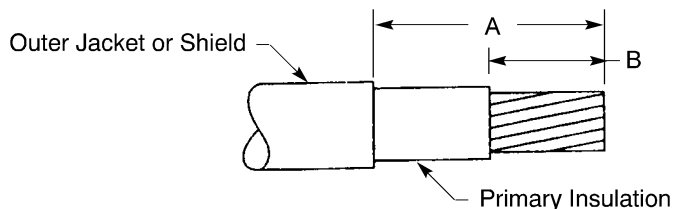
2. TERMINAL ASSEMBLY

A. Wire Preparation for AMP Copalum Terminals and Aluminum Terminals

Table 9
JACKET AND INSULATION REMOVAL LENGTH

Cooper Wire Size (AWG)	Aluminum Wire Size (AWG)	Removal Length		
		Dimension	Minimum (inch)	Maximum (inch)
10	8	A	0.94	1.06
		B	0.41	0.47
8	6	A	0.94	1.06
		B	0.47	0.53
6	4	A	0.94	1.06
		B	0.66	0.72
4	2	A	1.32	1.44
		B	0.72	0.78
2	1/0	A	1.32	1.44
		B	0.97	1.03
1/0	2/0	A	1.32	1.44
		B	0.97	1.03
2/0	3/0	A	1.32	1.44
		B	0.97	1.03
3/0	4/0	A	1.34	1.40
		B	0.97	1.03

- (1) Make a selection of insulation sleeve. Refer to Paragraph 2.F..
- (2) Prepare the wire. Refer to Table 9 and Figure 12.



WIRE PREPARATION
Figure 12

- (a) If the wire has an outer jacket or shield, remove the necessary length of the jacket or shield so that the distance from the end of the jacket or shield to the end of the wire is dimension A. Refer to Subject 20-00-15.

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF COPALUM AND ALUMINUM TERMINALS

- (b) Remove the necessary length of the primary insulation so that the distance from the end of the insulation to the end of the wire is dimension B. Refer to Subject 20-00-15.

B. Wire Preparation for BACT12AW and BACT12AY Copalum Terminals

Table 10

WIRE INSULATION REMOVAL LENGTH FOR BACT12AW and BACT12AY FOR TERMINAL LUGS

Terminal Lug		Wire Size (AWG)		Removal Length (inch)	
Part Number	Type	Aluminum	Copper	Target	Tolerance
BACT12AW-5C	90	1/0	2	0.82	± 0.01
BACT12AW-6C	90	2/0	1/0	1.00	± 0.01
BACT12AW-8C	90	4/0	3/0	1.00	± 0.01
BACT12AY-5C	Flag	1/0	2	0.82	± 0.01
BACT12AY-6C	Flag	2/0	1/0	1.00	± 0.01
BACT12AY-8C	Flag	4/0	3/0	1.00	± 0.01

Table 11

CRIMP TOOLS FOR BACT12AW AND BACT12AY TERMINAL LUGS

Terminal Lug	Wire Size (AWG)	Crimp Tool		
		Power Unit	Head	Die Set
BACT12AW-5C	1/0	69120	58422-1	68010-2
		69120	69066	68010-2
BACT12AW-6C	2/0	69120	58422-1	68011-1
BACT12AW-8C	4/0	69120	58422-1	314948-1
BACT12AY-5C	1/0	69120	58422-1	68010-2
		69120	69066	68010-2
BACT12AY-6C	2/0	69120	58422-1	68011-1
BACT12AY-8C	4/0	69120	58422-1	314948-1

- (1) Make a selection of insulation sleeve. Refer to Paragraph 2.F..
- (2) Remove the necessary length of the wire insulation.
Refer to:
 - Table 10
 - Subject 20-00-15 for the procedures to remove the insulation.
- (3) Make a selection of a power unit, crimp tool head, and die set from Table 11. Refer to Paragraph 2.H. for terminal assembly process.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF COPALUM AND ALUMINUM TERMINALS

C. Wire Preparation for BACT13K Copalum Terminals

Table 12
WIRE INSULATION REMOVAL LENGTH FOR BACT13K TERMINAL LUGS

Terminal Lug	Wire Size (AWG)		Removal Length (inch)	
	Aluminum	Copper	Target	Tolerance
BACT13K-1	8	10	0.44	± 0.01
BACT13K-1A78	8	10	0.44	± 0.01
BACT13K-2	6	8	0.50	± 0.01
BACT13K-24	6	8	0.50	± 0.01
BACT13K-2A78	6	8	0.50	± 0.01
BACT13K-3	4	6	0.69	± 0.01
BACT13K-34	4	6	0.69	± 0.01
BACT13K-3A78	4	6	0.69	± 0.01
BACT13K-4	2	4	0.75	± 0.01
BACT13K-44	2	4	0.75	± 0.01
BACT13K-4A78	2	4	0.75	± 0.01
BACT13K-5	1/0	2	0.82	± 0.01
BACT13K-5A78	1/0	2	0.82	± 0.01
BACT13K-6	2/0	1/0	1.0	± 0.01
BACT13K-6A78	2/0	1/0	1.0	± 0.01
BACT13K-7	3/0	2/0	1.0	± 0.01
BACT13K-7A78	3/0	2/0	1.0	± 0.01
BACT13K-8	4/0	3/0	1.0	± 0.01
BACT13K-8A78	4/0	3/0	1.0	± 0.01

Table 13
CRIMP TOOLS FOR BACT13K TERMINAL LUGS

Terminal Lug	Wire Size (AWG)		Crimp Tool		
	Aluminum	Copper	Power Unit	Head	Die Set
BACT13K-1	8	10	69120	58422-1	68006
				69066	68006
BACT13K-1A78	8	10	69120	58422-1	68006
				69066	68006

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF COPALUM AND ALUMINUM TERMINALS

Table 13 (continued)

Terminal Lug	Wire Size (AWG)		Crimp Tool		
	Aluminum	Copper	Power Unit	Head	Die Set
BACT13K-2	6	8	69120	58422-1	68007
				69066	68007
BACT13K-24	6	8	69120	58422-1	68007
				69066	68007
BACT13K-2A78	6	8	69120	58422-1	68007
				69066	68007
BACT13K-3	4	6	69120	58422-1	68008
				69066	68008
BACT13K-34	4	6	69120	58422-1	68008
				69066	68008
BACT13K-3A78	4	6	69120	58422-1	68008
				69066	68008
BACT13K-4	2	4	69120	58422-1	68009
				69066	68009
BACT13K-44	2	4	69120	58422-1	68009
				69066	68009
BACT13K-4A78	2	4	69120	58422-1	68009
				69066	68009
BACT13K-5	1/0	2	69120	58422-1	68010
				69066	68010
BACT13K-5A78	1/0	2	69120	58422-1	68010
				69066	68010
BACT13K-6	2/0	1/0	69120	58422-1	68011-1
BACT13K-6A78	2/0	1/0	69120	58422-1	68011-1
BACT13K-7	3/0	2/0	69120	58422-1	59877-1
BACT13K-7A78	3/0	2/0	69120	58422-1	59877-1
BACT13K-8	4/0	3/0	69120	58422-1	314948-1
BACT13K-8A78	4/0	3/0	69120	58422-1	314948-1

- (1) Make a selection of insulation sleeve. Refer to Paragraph 2.F..
- (2) Remove the necessary length of wire insulation.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF COPALUM AND ALUMINUM TERMINALS

Refer to:

- Table 12
- Subject 20-00-15 for the procedures to remove the insulation.

- (3) Make a selection of a power unit, crimp tool head, and die set from Table 11. Refer to Paragraph 2.H. for terminal assembly process.

D. Wire Preparation for BACT13L Copalum Terminals

Table 14
WIRE INSULATION REMOVAL LENGTH FOR BACT13L TERMINAL LUGS

Terminal Lug	Wire Size (AWG)		Removal Length (inch)	
	Aluminum	Copper	Target	Tolerance
BACT13L-2	6	8	0.50	± 0.01
BACT13L-24A78	6	8	0.50	± 0.01
BACT13L-2A78	6	8	0.50	± 0.01
BACT13L-3	4	6	0.69	± 0.01
BACT13L-3A78	4	6	0.69	± 0.01
BACT13L-4	2	4	0.75	± 0.01
BACT13L-5	1/0	2	0.82	± 0.01
BACT13L-5A78	1/0	2	0.82	± 0.01
BACT13L-6	2/0	1/0	1.00	± 0.01
BACT13L-6A78	2/0	1/0	1.00	± 0.01
BACT13L-7	3/0	2/0	1.00	± 0.01
BACT13L-7A78	3/0	2/0	1.00	± 0.01

Table 15
CRIMP TOOLS FOR BACT13L TERMINAL LUGS

Terminal Lug	Wire Size (AWG)		Crimp Tool		
	Aluminum	Copper	Power Unit	Head	Die Set
BACT13L-2	6	8	69120	58422-1	68007
				69066	68007
BACT13L-2A78	6	8	69120	58422-1	68007
				69066	68007
BACT13L-2A78	6	8	69120	58422-1	68007
				69066	68007
BACT13L-3	4	6	69120	58422-1	68008
				69066	68008

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF COPALUM AND ALUMINUM TERMINALS

Table 15 (continued)

Terminal Lug	Wire Size (AWG)		Crimp Tool		
	Aluminum	Copper	Power Unit	Head	Die Set
BACT13L-3A78	4	6	69120	58422-1	68008
				69066	68008
BACT13L-4	2	4	69120	58422-1	68009
				69066	68009
BACT13L-5	1/0	2	69120	58422-1	68010
				69066	68010
BACT13L-5A78	1/0	2	69120	58422-1	68010-2
				69066	68010-2
BACT13L-6	2/0	1/0	69120	58422-1	68011-1
BACT13L-6A78	2/0	1/0	69120	58422-1	68011-1
BACT13L-7	3/0	2/0	69120	58422-1	59877-1
BACT13L-7A78	3/0	2/0	69120	58422-1	59877-1

(1) Make a selection of insulation sleeve. Refer to Paragraph 2.F..

(2) Remove the necessary length of wire insulation.

Refer to:

- Table 14
- Subject 20-00-15 for the procedures to remove the insulation.

(3) Make a selection of a power unit, crimp tool head, and die set from Table 11. Refer to Paragraph 2.H. for terminal assembly process.

E. Wire Preparation for BACT13T Copalum Terminals

Table 16

WIRE INSULATION REMOVAL LENGTH FOR BACT13T TERMINAL LUGS

Terminal Lug	Wire Size (AWG)		Removal Length (inch)	
	Aluminum	Copper	Target	Tolerance
BACT13T-5A78	1/0	2	0.82	± 0.01
BACT13T-6A78	2/0	1/0	1.00	± 0.01
BACT13T-7A78	3/0	2/0	1.00	± 0.01
BACT13T-8A78	4/0	3/0	1.00	± 0.01

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ASSEMBLY OF COPALUM AND ALUMINUM TERMINALS

Table 17
CRIMP TOOLS FOR BACT13T TERMINAL LUGS

Terminal Lug	Wire Size (AWG)		Crimp Tool		
	Aluminum	Copper	Power Unit	Head	Die Set
BACT13T-5A78	1/0	2	69120	58422-1	68010-2
			69120	69066	68010-2
BACT13T-6A78	2/0	1/0	69120	58422-1	68011-1
BACT13T-7A78	3/0	2/0	69120	58422-1	59877-1
BACT13T-8A78	4/0	3/0	69120	58422-1	314948-1

- (1) Make a selection of insulation sleeve. Refer to Paragraph 2.F..
- (2) Remove the necessary length of wire insulation.
Refer to:
 - Table 16
 - Subject 20-00-15 for the procedures to remove the insulation.
- (3) Make a selection of a power unit, crimp tool head, and die set from Table 11. Refer to Paragraph 2.H. for terminal assembly process.

F. Selection of an Insulation Sleeve

Table 18
3M COLD SHRINKABLE SLEEVES

Wire Size (AWG)	Cold Shrinkable Sleeve		Special Instructions
	Part Number	Supplier	
6	8443-2.0	3M	3 layers of tape are necessary before the cold shrinkable sleeve is installed
4	8443-2.0	3M	-
2	8445-2.5	3M	-
2/0	8447-3.2	3M	-
3/0	8447-3.2	3M	-
4/0	8447-3.2	3M	-

Table 19
NECESSARY MATERIAL

Material	Part Number	Supplier
Heat Shrinkable Sleeve	DWP-125	Raychem
	MWSF	Remtek

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ASSEMBLY OF COPALUM AND ALUMINUM TERMINALS

- (1) Make a selection of one of these types of insulation sleeves:

- A heat shrinkable sleeve
- A cold shrinkable sleeve.

NOTE: A heat gun is necessary to install a heat shrinkable sleeve.

- (2) If the selection is a heat shrinkable sleeve:

- (a) Make a selection of heat shrinkable sleeve. Refer to Table 19.

- (b) Cut a length of the selected heat shrinkable sleeve that is equal to the length of the crimp area of the terminal plus 0.5 inch.

Make sure that the sleeve has the smallest diameter that can move over the terminal and the wire.

NOTE: Refer to Subject 20-00-11 for alternative heat shrinkable sleeve.

- (c) Put the sleeve on the wire. Refer to Paragraph 2.N. for the terminal lug assembly process.

- (3) If the selection is a cold shrinkable sleeve:

- (a) Make a selection of a cold shrinkable sleeve from Table 18.

NOTE: If the wire size is not given in Table 18, a heat shrinkable sleeve must be used. Refer to Step (2).

NOTE: The number after the dash in the part number is the length of the sleeve after the sleeve is installed.

- (b) Put the sleeve on the wire. Refer to Paragraph 2.N. for the terminal lug assembly process.

G. Assembly of AMP Copalum Terminals and Aluminum Terminals

Table 20
CRIMP TOOLS FOR AMP COPALUM TERMINALS

Crimp Barrel		Crimp Tool					
Aluminum Wire Size (AWG)	Copper Wire Size (AWG)	Basic Unit		Head		Die Set	
		Part Number	Supplier	Part Number	Supplier	Part Number	Supplier
8	10	1804700-1	AMP	1752787-1	AMP	68006	AMP
		122271-1	AMP	69066	AMP	68006	AMP
				58422-1	AMP	68006	AMP
		69120	AMP	69066	AMP	68006	AMP
				58422-1	AMP	68006	AMP
6	8	1804700-1	AMP	1752787-1	AMP	68007	AMP
		122271-1	AMP	69066	AMP	68007	AMP
				58422-1	AMP	68007	AMP
		69120	AMP	69066	AMP	68007	AMP
				58422-1	AMP	68007	AMP

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ASSEMBLY OF COPALUM AND ALUMINUM TERMINALS

Table 20 (continued)

Crimp Barrel		Crimp Tool					
Aluminum Wire Size (AWG)	Copper Wire Size (AWG)	Basic Unit		Head		Die Set	
		Part Number	Supplier	Part Number	Supplier	Part Number	Supplier
4	6	1804700-1	AMP	1752787-1	AMP	68008	AMP
						68008-1	AMP
		122271-1	AMP	69066	AMP	68008	AMP
				58422-1	AMP	68008	AMP
		69120	AMP	69066	AMP	68008	AMP
				58422-1	AMP	68008	AMP
2	4	1804700-1	AMP	1752787-1	AMP	68009	AMP
						68009	AMP
		122271-1	AMP	69066	AMP	68009	AMP
				58422-1	AMP	68009	AMP
		69120	AMP	69066	AMP	68009	AMP
				58422-1	AMP	68009	AMP
1/0	2	1804700-1	AMP	1752787-1	AMP	68010	AMP
						68010	AMP
		122271-1	AMP	69066	AMP	68010	AMP
				58422-1	AMP	68010	AMP
		69120	AMP	69066	AMP	68010	AMP
				58422-1	AMP	68010	AMP
2/0	1/0	1804700-1	AMP	1752787-1	AMP	68011-1	AMP
						68011-1	AMP
		69120	AMP	58422-1	AMP	314964-1	AMP
				69066	AMP	314964-1	AMP
3/0	2/0	1804700-1	AMP	1752787-1	AMP	59877-1	AMP
		69120	AMP	58422-1	AMP	59877-1	AMP
4/0	3/0	69120	AMP	58422-1	AMP	314948-1	AMP

- (1) Make a selection of a terminal from Table 1 through Table 8.
- (2) Make a selection of a crimp tool from Table 20. Refer to Paragraph 2.L. and Paragraph 2.M. for hydraulic crimp tool preparation.
- (3) Put the wire in the crimp barrel of the terminal. Refer to Figure 13.

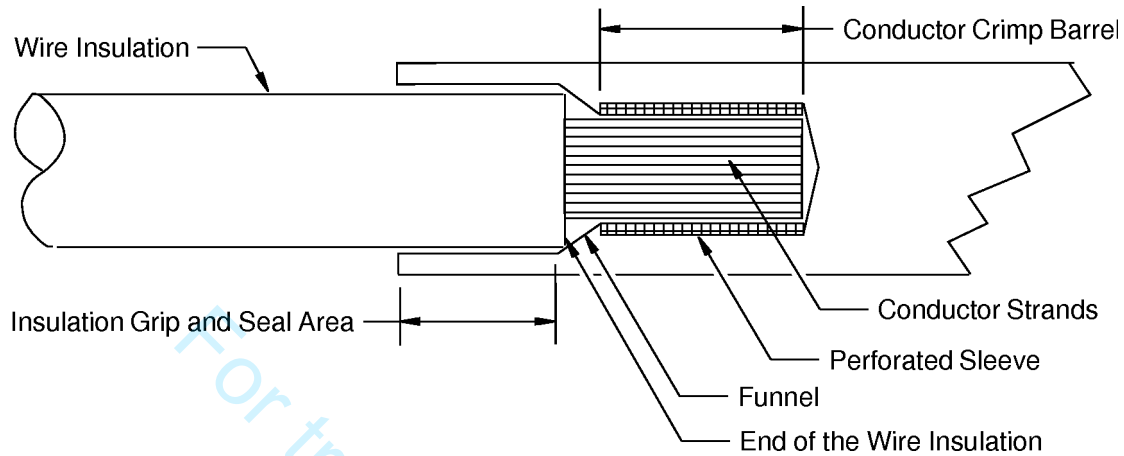
Make sure that:

- All of the conductor strands are in the crimp barrel
- The end of the wire insulation is against the funnel.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF COPALUM AND ALUMINUM TERMINALS

CAUTION: DO NOT TURN THE WIRE DURING OR AFTER THE INSERTION OF THE WIRE INTO THE TERMINAL.



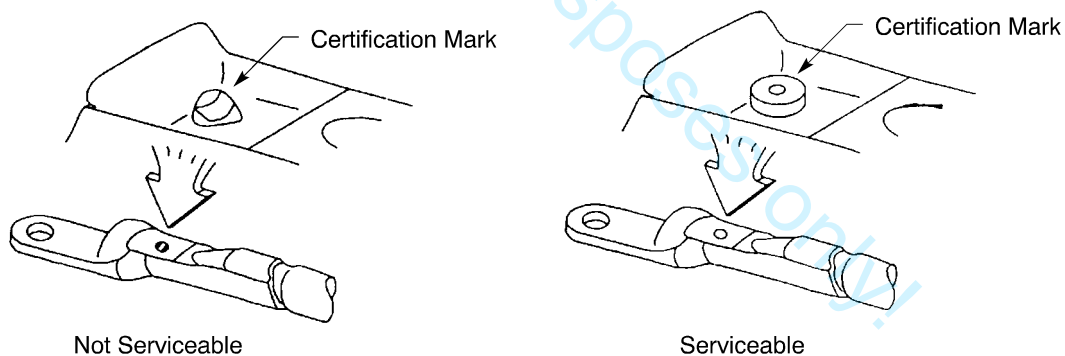
POSITION OF THE WIRE IN THE CRIMP BARREL OF THE COPALUM TERMINAL

Figure 13

- (4) Crimp the terminal. Refer to Figure 14 and Figure 15.

Make sure that the crimp certification mark:

- Is in the correct position
- Has the correct shape.

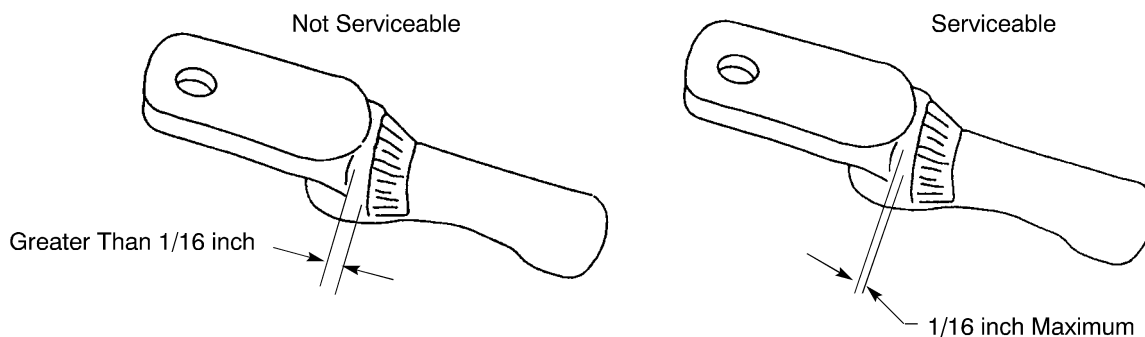


TOP VIEW OF THE CRIMP CERTIFICATION MARKS

Figure 14

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF COPALUM AND ALUMINUM TERMINALS



BOTTOM VIEW OF THE CRIMP CERTIFICATION MARKS

Figure 15

- (5) Remove any sharp edges from the terminal.

NOTE: The condition where the base metal of the terminal can be seen:

- Is not recommended
- Is permitted.

- (6) Install the insulation sleeve. Refer to Paragraph 2.N..

H. Assembly of BACT12AW, BACT12AY, BACT13K, BACT13L, and BACT13T Copalum Terminals

Table 21
NECESSARY MATERIALS

Material	Specification	Description	Supplier
Release Agent	MS-122DF	-	Miller Stephenson Chemical
	MS-122N/C02	-	Miller Stephenson Chemical
	MS-122V	-	Miller Stephenson Chemical
	MS-122XD	-	Miller Stephenson Chemical
Solvent	TT-I-735	Isopropyl Alcohol	An available source
Wiper	BMS15-5	-	QPL

Table 22
NECESSARY TOOL

Tool	Type	Supplier
File	Fine Tooth	An available source

- (1) Prepare the hydraulic crimp tool for operation.

Refer to:

- Paragraph 2.L.
- Paragraph 2.M..

- (2) Make a selection of a release agent from Table 21.

- (3) Examine the crimp tool dies.

STANDARD WIRING PRACTICES MANUAL**ASSEMBLY OF COPALUM AND ALUMINUM TERMINALS**

Make sure that:

- The smooth metal surfaces do not have damage
- The nest and indenter dies have not collected a quantity of the release agent or plating.

NOTE: The incorrect formation of the certification mark can occur if the indenter dies are not clean.

- (4) If the nest or indenter dies have collected a quantity of the release agent or plating:
 - (a) Make a selection of solvent from Table 21.
 - (b) Brush the dies with a soft bristle brush.
 - (c) Wipe the dies clean with a wiper and solvent.
- (5) Apply a small amount of release agent to the die set. Refer to Table 21.
- (6) Put the end of the wire in the crimp barrel of the terminal lug.

Make sure that:

- The tongue of a BACT13T terminal lug does not have a bend that is more than 0.15 inch from the longitudinal axis of the bottom surface of the tongue
- All of the strands of the conductor are in the crimp barrel.

CAUTION: IF THE TONGUE OF A BACT13T TERMINAL LUG HAS A BEND THAT IS MORE THAN 0.15 INCH FROM THE LONGITUDINAL AXIS OF THE BOTTOM SURFACE OF THE TONGUE, THE TERMINAL LUG IS DAMAGED AND MUST NOT BE USED.

CAUTION: IF THE TONGUE OF A BACT13T TERMINAL LUG HAS A BEND THAT IS MORE THAN 0.15 INCH FROM THE LONGITUDINAL AXIS OF THE BOTTOM SURFACE OF THE TONGUE, DO NOT TRY TO MAKE THE TONGUE STRAIGHT. THE TERMINAL LUG IS DAMAGED AND MUST NOT BE USED.

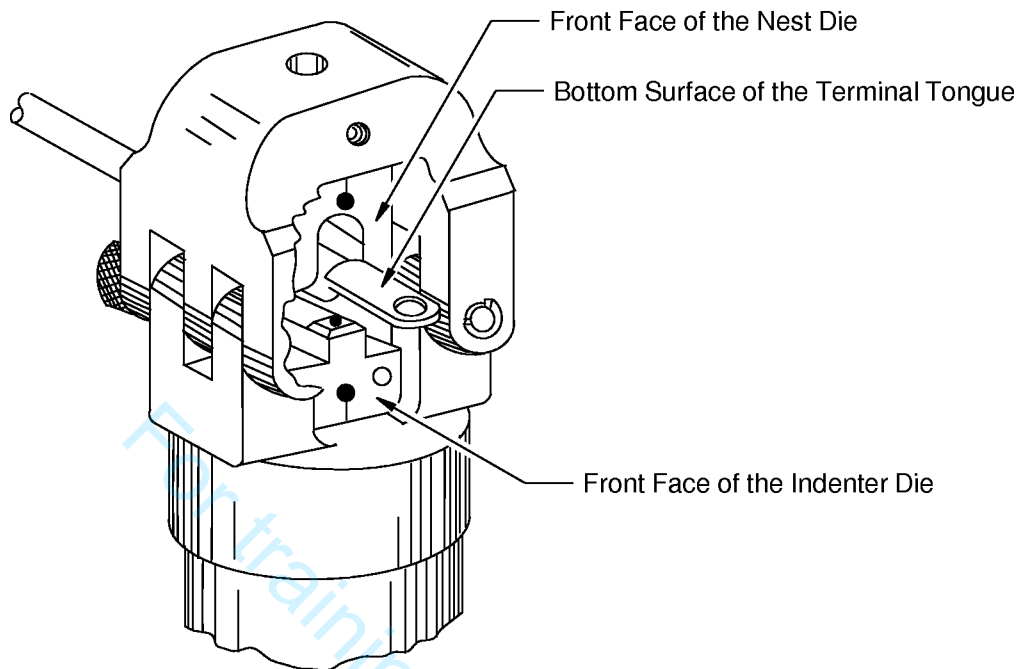
- (7) Put the terminal lug and wire assembly in the nest die. Refer to Figure 16 for the position of the terminal lug in the crimp tool and Figure 17 for the alignment of the terminal lug in the crimp dies.

Make sure that:

- The bottom surface of the of the terminal tongue is parallel with the flat surfaces of the nest die
- The rear edge of the tongue of the terminal lug is aligned with the front face of the dies.

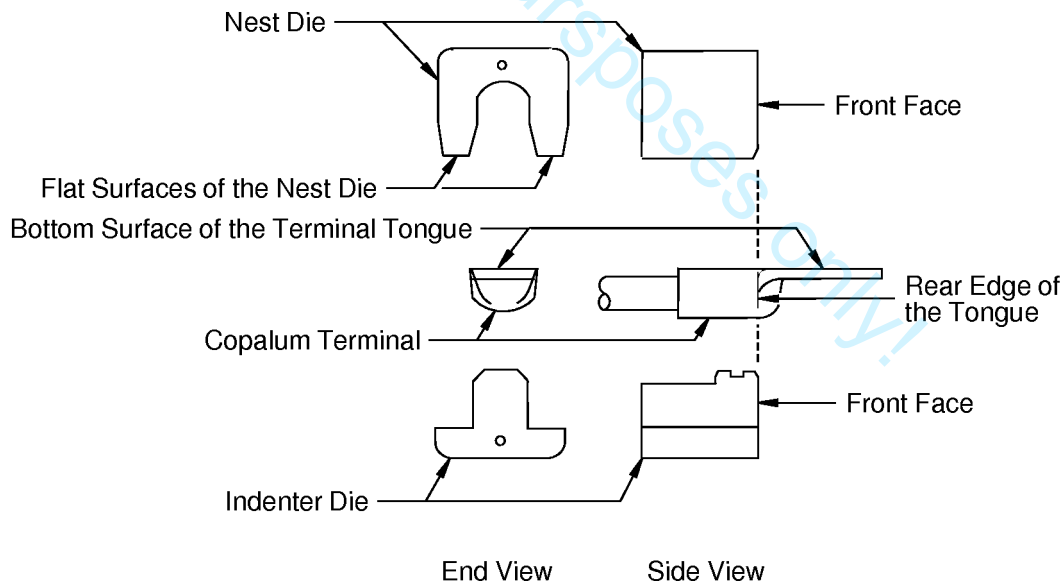
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ASSEMBLY OF COPALUM AND ALUMINUM TERMINALS



POSITION OF THE TERMINAL LUG IN THE CRIMP TOOL

Figure 16



ALIGNMENT OF THE TERMINAL LUG IN THE CRIMP DIES

Figure 17

- (8) Crimp the terminal lug.
- (9) Remove the terminal lug from the crimp tool.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF COPALUM AND ALUMINUM TERMINALS

- (a) Hold the terminal lug at the rear end of the tongue that is adjacent to the stationary die.

WARNING: DO NOT ACCIDENTLY PRESS THE FOOT PEDAL OR THE HANDLE CONTROL OF THE CRIMP TOOL. AN INJURY TO PERSONNEL CAN OCCUR.

CAUTION: DO NOT HOLD THE TERMINAL LUG AT THE HOLES IN THE TONGUE. DAMAGE TO THE TERMINAL LUG CAN OCCUR.

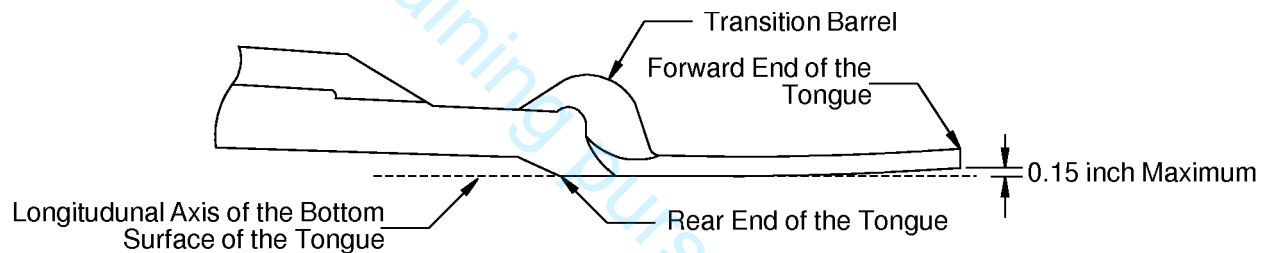
- (b) Carefully move the terminal lug back and forth until it is released from the stationary die.

CAUTION: DO NOT APPLY PRESSURE OR STRONG FORCE ON THE TONGUE OF THE TERMINAL LUG AT THE HOLES IN THE TONGUE. DAMAGE TO THE TERMINAL LUG CAN OCCUR.

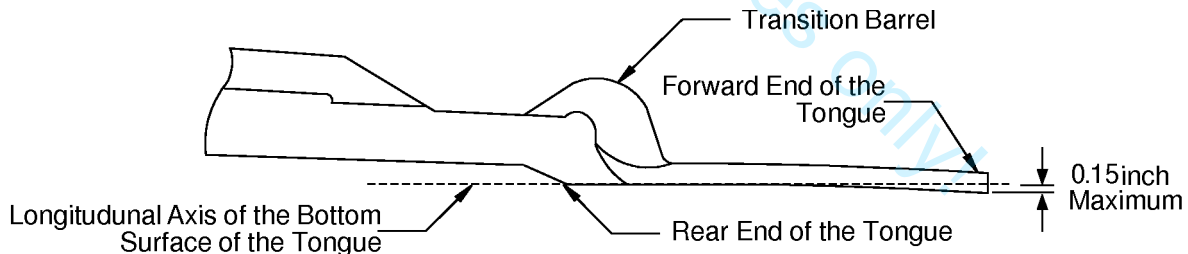
- (10) Examine the terminal lug assembly.

Make sure that:

- The terminal lug has no cracks
- The tongue of the terminal lug does not have a bend that is more than 0.15 inch from the longitudinal axis of the bottom surface of the tongue. Refer to Figure 18 and Figure 19.



TERMINAL LUG TONGUE-BENT UP
Figure 18



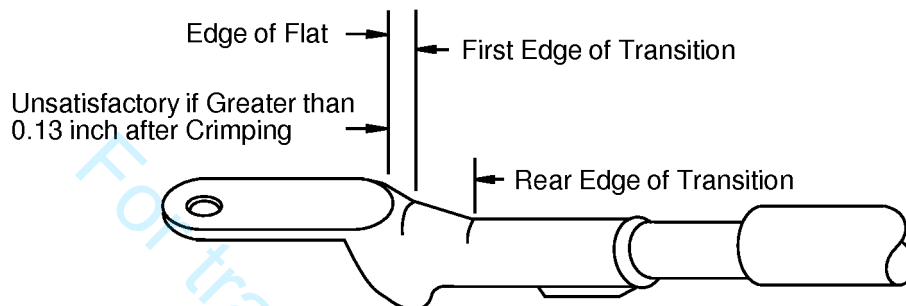
TERMINAL LUG TONGUE-BENT DOWN
Figure 19

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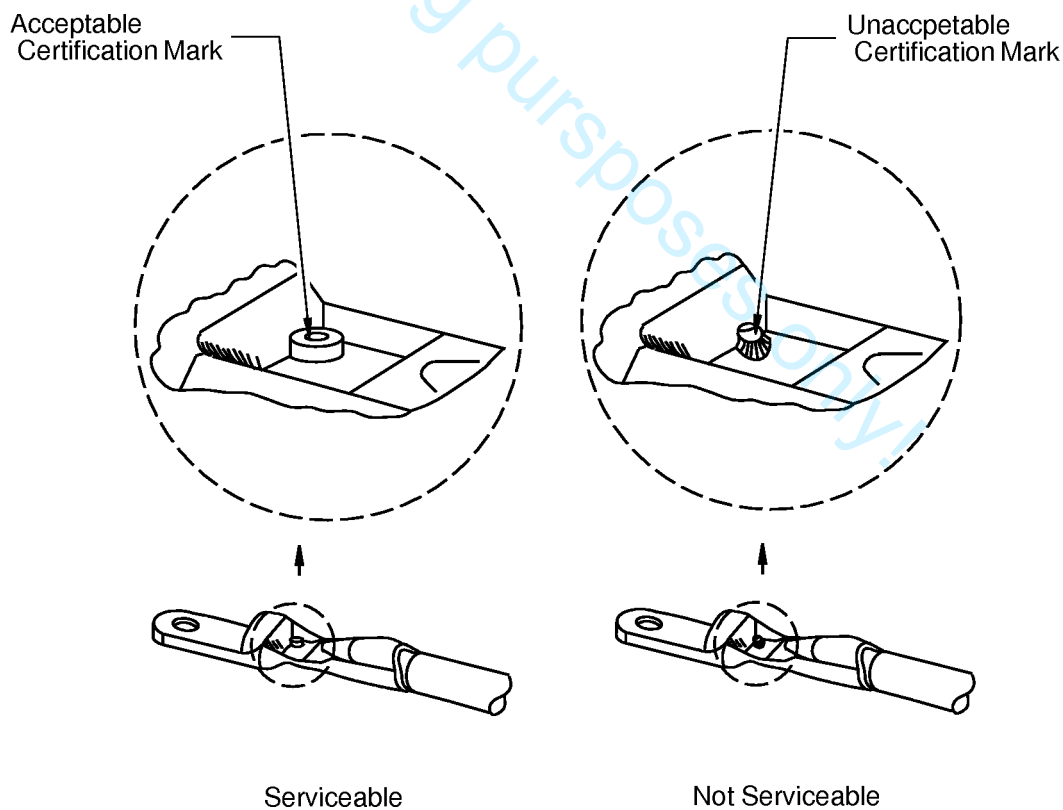
ASSEMBLY OF COPALUM AND ALUMINUM TERMINALS

- The forward edge of the crimp mark is not farther than 0.13 inch from the rear end of the tongue of the terminal lug. Refer to Figure 20.
- The certification mark is in the center of the bottom of the crimp impression; refer to Figure 21.
- The mark is formed correctly; refer to Figure 21.
- The angle of the crimped end is less than 15 degrees from the longitudinal axis of the terminal lug. Refer to Figure 22.



POSITION OF THE CRIMP AREA ON THE TERMINAL LUG

Figure 20



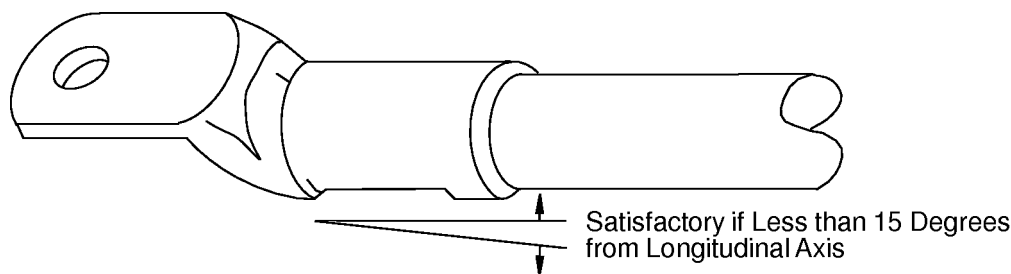
CERTIFICATION MARK ON A CRIMPED TERMINAL LUG

Figure 21

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF COPALUM AND ALUMINUM TERMINALS



STRAIGHTNESS OF THE TERMINAL LUG ASSEMBLY

Figure 22

NOTE: The assembly does not have a dot on the certification mark when it is crimped with Tyco 68006 and 68007 die sets. The dot on the symmetrical pap is not necessary for a size 4AL 13-78 terminal lug.

NOTE: It is normal to have:

- Flash or flaked plating where the nest and indenter dies go together during the crimp operation
- Exposed base material in the indenter area that is caused by the crimp operation. Refer to Figure 21.

CAUTION: IF THE TONGUE OF A BACT13T TERMINAL LUG HAS A BEND THAT IS MORE THAN 0.15 INCH FROM THE LONGITUDINAL AXIS OF THE BOTTOM SURFACE OF THE TONGUE, THE TERMINAL LUG IS DAMAGED AND MUST NOT BE USED.

- (11) If the crimp area has flash that is caused by the crimp operation:
 - (a) Make a selection of a file from Table 22.
 - (b) Remove the flash with file.
Make sure that the width of the filed area is not more than 0.124 inch.
 - (c) Remove the filings from the assembly.
- (12) If the crimp area has flaked plating that is caused by the crimp operation, remove the flaked plating.
- (13) Install the insulation sleeve. Refer to Paragraph 2.N..

I. Insulation of the Terminal Lug Assembly

This procedure is applicable If the initial installation had insulation on the terminal lug assembly, or if it is specified.

Table 23
ASSEMBLY COMPONENTS

Component	Type	Part Number
Tape	Silicone, Type I, 10 mil	A-A-59163-110010-1.000

- (1) Make a selection of these materials from Table 23.
- (2) Clean the terminal lug and a minimum of 2 inches of the wire insulation from the end of the crimp barrel of the terminal lug.
- (3) Dry the cleaned area with a wiper.

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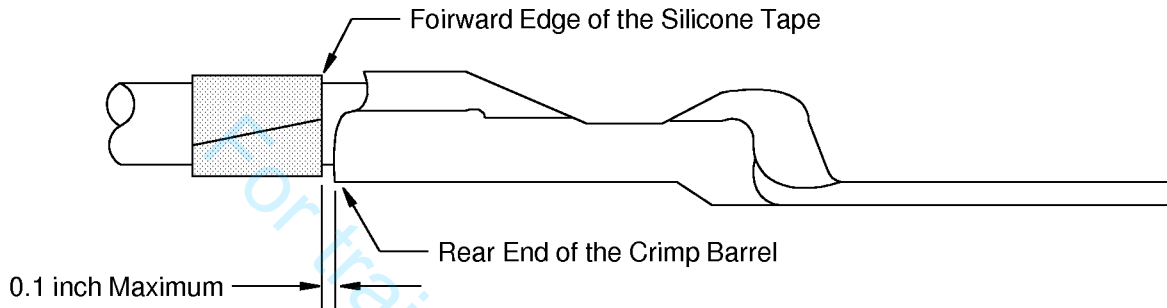
STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF COPALUM AND ALUMINUM TERMINALS

- (4) If a 1 inch wide Type I silicone tape is specified with the insulation sleeve, wind 3 layers of the tape on the wire at the rear end of the crimp barrel. Refer to Figure 23.

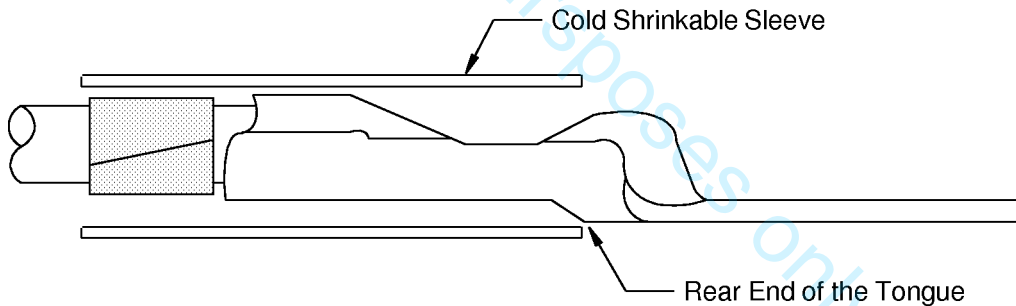
Make sure that:

- The layers of tape make a 100 percent overlap
- The tape does not make an overlap with the terminal lug
- The forward end of the tape does not extend farther than 0.1 inch from the rear end of the crimp barrel.



POSITION OF THE TAPE ON THE WIRE
Figure 23

- (5) If a cold shrinkable sleeve is specified for the insulation of the terminal lug assembly, install the sleeve. Refer to Figure 24.

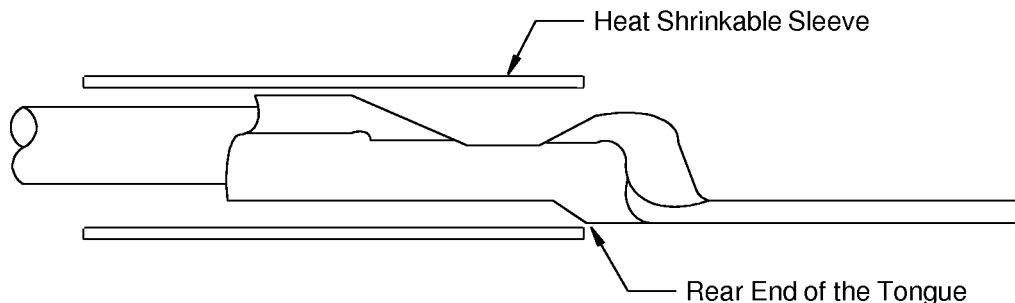


POSITION OF THE COLD SHRINKABLE SLEEVE ON THE TERMINAL LUG
Figure 24

- (6) If a heat shrinkable sleeve is specified for the insulation of the terminal lug assembly, install the sleeve. Refer to Figure 25

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF COPALUM AND ALUMINUM TERMINALS



POSITION OF THE HEAT SHRINKABLE SLEEVE ON THE TERMINAL LUG

Figure 25

- Push the sleeve forward until the forward end of the sleeve is aligned with the rear end of the tongue of the terminal lug.
- Shrink the sleeve into its position. Refer to Subject 20-10-14.
Make sure that the sleeve has a tight fit on the assembly.

J. Extension of the Terminal Lug Assembly Insulation - Standard Configuration

This procedure is applicable when one of these conditions occur:

- The 0.5 inch Type I 20 mil silicone tape is specified for a BACT13K-2, BACT13K-3, or BACT13K-4 terminal lug
- The 0.5 inch Type I 20 mil silicone tape and the standard extension of the insulation of the terminal lug assembly are specified for the terminal lug.

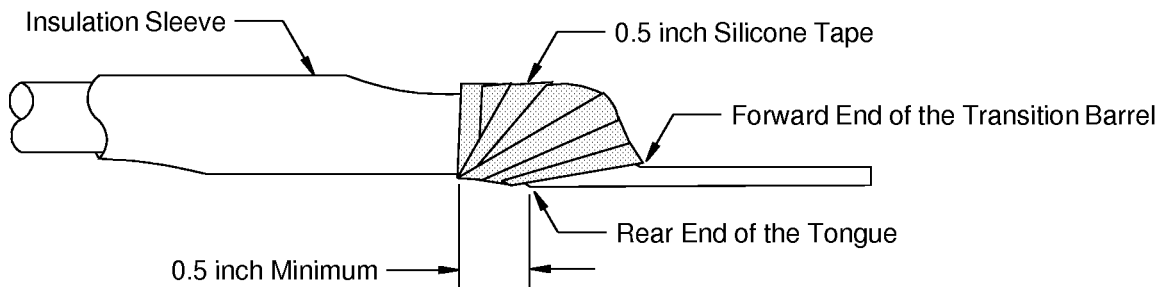
Table 24
ASSEMBLY COMPONENTS

Component	Type	Part Number
Tape	Silicone, Type I, 20 mil	A-A-59163-110020-0.500

- Put two layers of the specified tape on the transition barrel of the terminal lug. Refer to Figure 26, Make sure that:
 - The forward end of each layer is aligned with the forward end of the transition barrel
 - The rear end of each layer extends 0.5 inch minimum rearward from the rear end of the tongue of the terminal lug
 - Each layer makes a 50 percent overlap with itself
 - The second layer of tape is wound in the opposite direction of the first layer
 - The layers of tape do not make an overlap with the bottom surface of the tongue of the terminal lug.

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POSITION OF THE TAPE ON THE TRANSITION BARREL

Figure 26

- (2) Examine the extension of the terminal lug insulation.

Make sure that the tape does not make an overlap with the rear end of the bottom of the tongue of the terminal lug.

K. Extension of the Terminal Lug Assembly Insulation - Special Configuration

This procedure is applicable for BACT13K-7A78 terminal lugs when the 0.5 inch Type I 20 mil silicone tape and the special extension of the insulation of the terminal lug assembly are specified.

**Table 25
ASSEMBLY COMPONENTS**

Component	Type	Part Number
Tape	Silicone, Type I, 20 mil	A-A-59163-1I0020-0.500

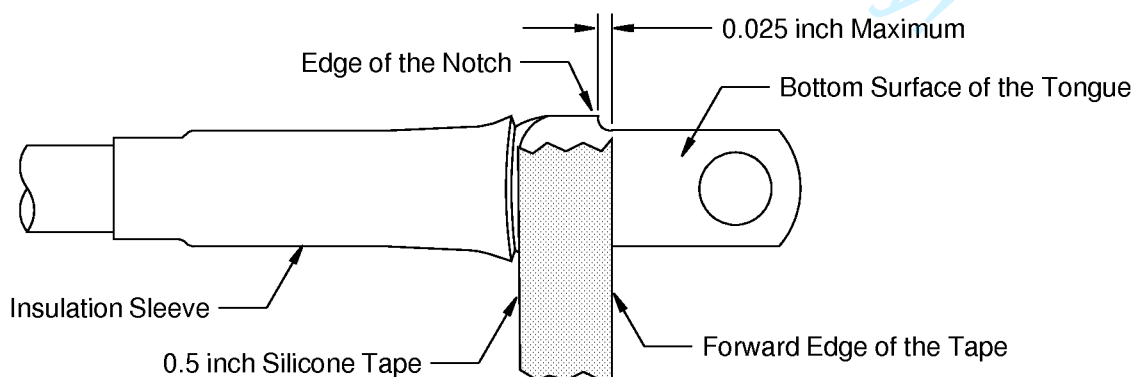
- (1) Put two layers of tape on the tongue of the terminal lug.

Refer to:

- Figure 27 for the position of the tape on the bottom surface of the tongue
- Figure 28 for the position of the tape on the top surface of the lug.

Make sure that:

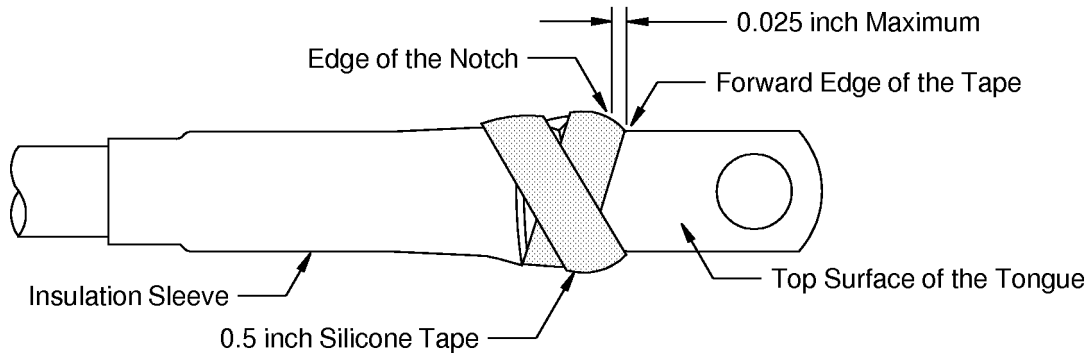
- The tape makes an overlap with the notch of the tongue of the terminal lug
- The tape does not extend farther that 0.025 inch forward from the edge of the notch.



POSITION OF THE TAPE ON THE BOTTOM SURFACE OF THE TONGUE

Figure 27

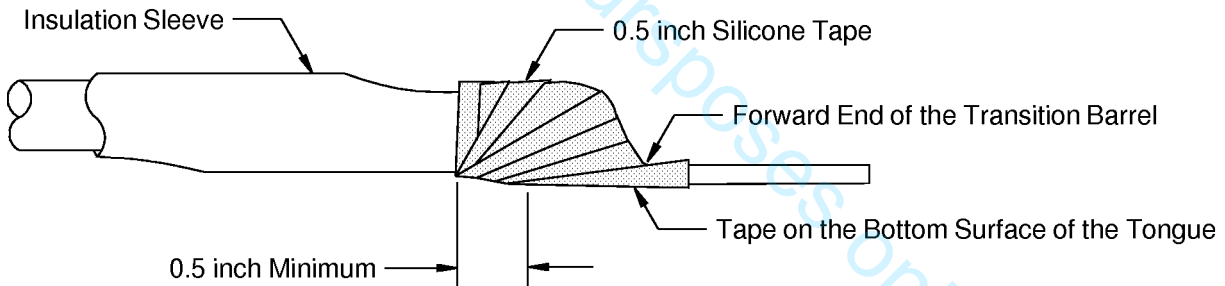
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ASSEMBLY OF COPALUM AND ALUMINUM TERMINALS

POSITION OF THE TAPE ON THE TOP SURFACE OF THE TONGUE
Figure 28

- (2) Put two layers of the tape on the transition barrel of the terminal lug. Refer to Figure 29.

Make sure that:

- The forward end of each layer is aligned with the forward end of the transition barrel
- The rear end of each layer extends 0.5 inch minimum rearward from the rear end of the tongue of the terminal lug
- Each layer makes a 50 percent overlap with itself
- The second layer of tape is wound in the opposite direction of the first layer.


POSITION OF THE TAPE ON THE TRANSITION BARREL
Figure 29

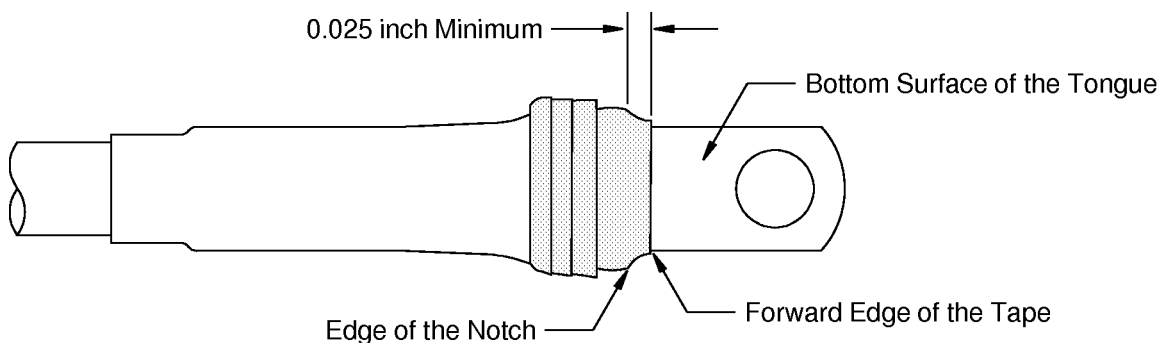
- (3) Examine the extension of the terminal lug insulation. Refer to Figure 30.

Make sure that:

- The tape makes an overlap with the notch of the tongue of the terminal lug
- The tape does not extend farther that 0.025 inch forward from the edge of the notch.

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ASSEMBLY OF COPALUM AND ALUMINUM TERMINALS



POSITION OF THE TAPE ON THE BOTTOM SURFACE OF THE TONGUE

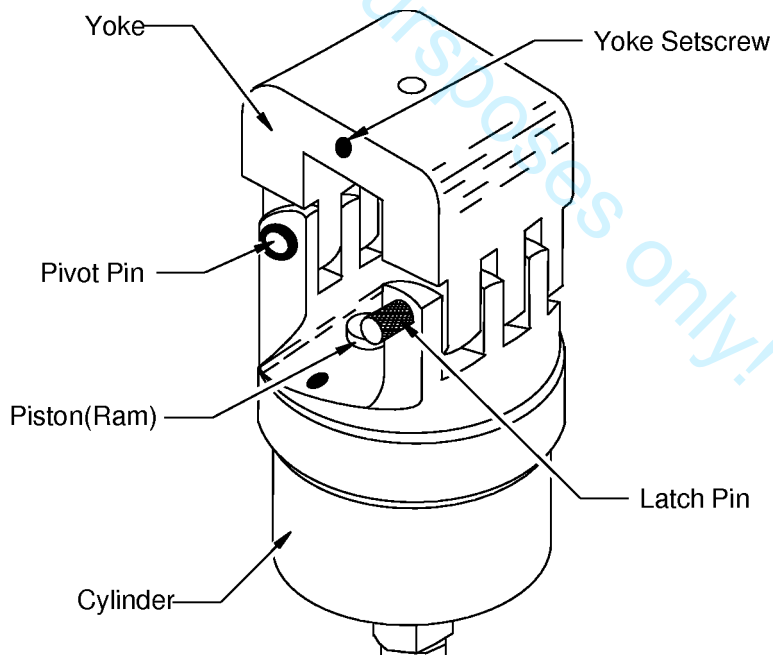
Figure 30

L. Preparation of the Tyco 58422-1 Hydraulic Crimp Tool

WARNING: DO NOT ACCIDENTLY PRESS THE FOOT PEDAL OR THE HANDLE CONTROL WHILE THE DIES ARE REMOVED OR INSTALLED. AN INJURY TO PERSONNEL CAN OCCUR.

WARNING: DO NOT INSTALL DIFFERENT DIES FROM DIFFERENT DIE SETS IN A CRIMP TOOL HEAD. AN INJURY TO PERSONNEL CAN OCCUR.

CAUTION: DO NOT INSTALL DIFFERENT DIES FROM DIFFERENT DIE SETS IN A CRIMP TOOL HEAD. DAMAGE TO THE EQUIPMENT CAN OCCUR.



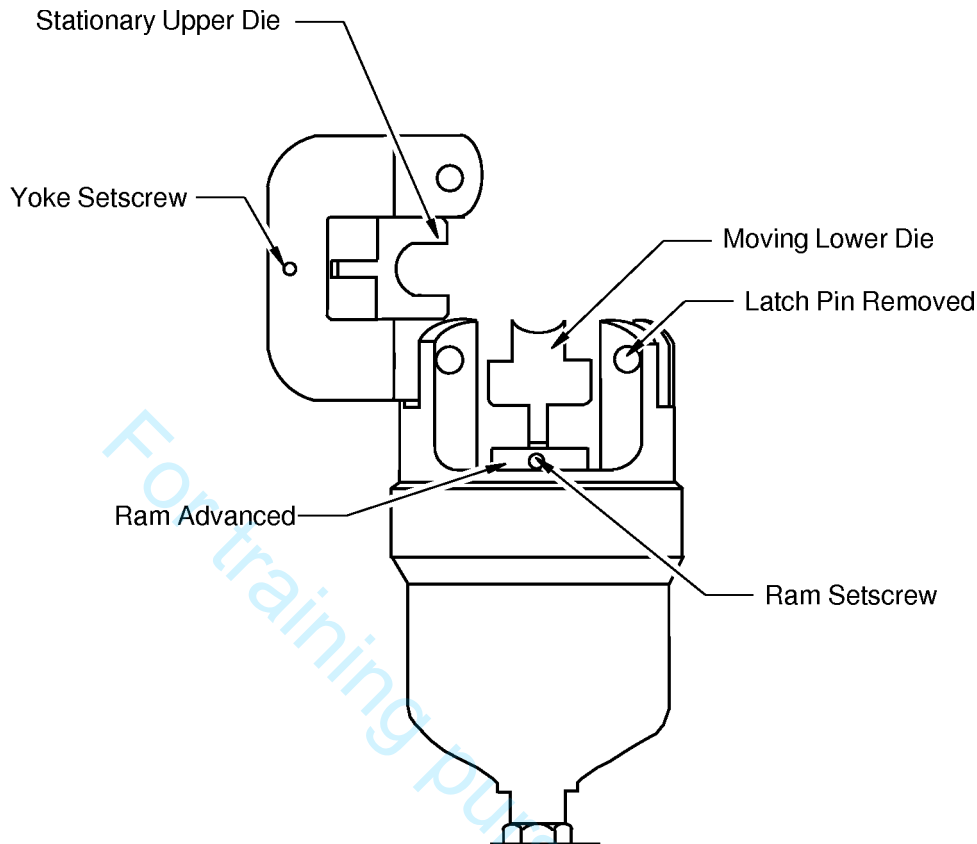
TYCO 58422-1 HYDRAULIC CRIMP TOOL

Figure 31

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF COPALUM AND ALUMINUM TERMINALS



INSTALLATION OF THE DIES IN THE TYCO 58422-1 HYDRAULIC CRIMP TOOL

Figure 32

- (1) Install the crimp head. Refer to Figure 31.
- (2) Remove the latch pin and open the yoke on the crimp head.
- (3) Loosen the yoke setscrew.
- (4) Put the stationary upper die into the well of the yoke. Refer to Figure 32.
Make sure that the alignment dot on the front face of the die is on the same side as the yoke setscrew.
- (5) Tighten the yoke setscrew.
- (6) Start the power unit to move the piston approximately 0.5 inch until the ram setscrew can be seen.
- (7) Loosen the ram setscrew.
- (8) Put the moving lower die in the ram well.
Make sure that:
 - The alignment dot on the front face of the die is on the same side as the ram setscrew.
 - The shanks on the moving and the stationary dies are offset from the same surface.
- (9) Tighten the ram setscrew.
- (10) Close the yoke and install the latch pin.
- (11) Slowly close the dies.

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ASSEMBLY OF COPALUM AND ALUMINUM TERMINALS

Make sure that the dies are correctly aligned.

(12) Complete the cycle to put the ram in the down position.

Make sure that:

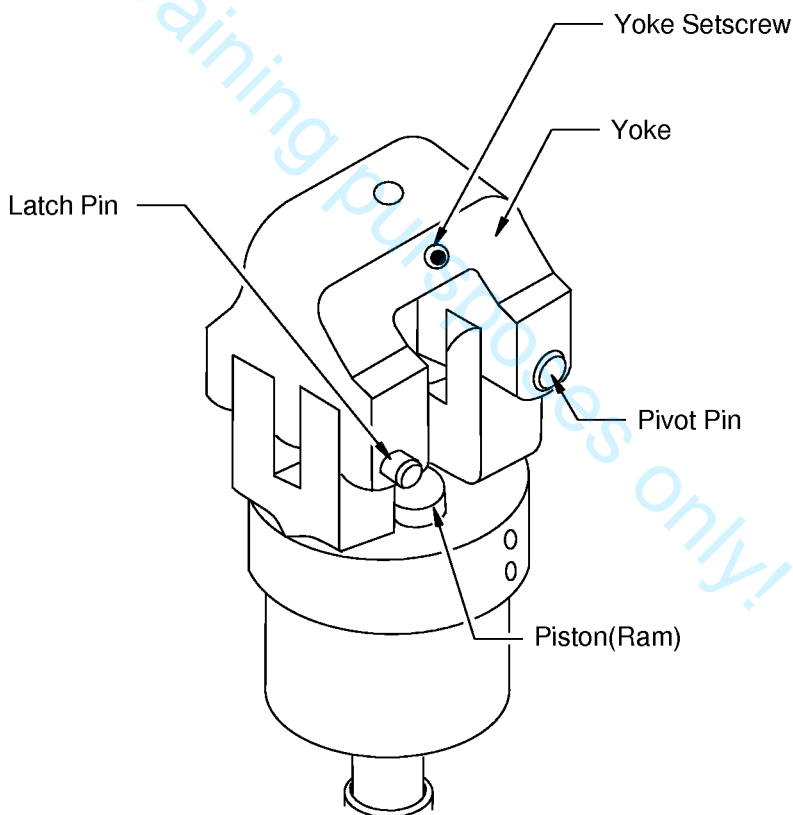
- The dies are installed with the alignment marks on the same side of the tool head
- The dies are attached correctly to the tool head
- The latch pin is fully installed in the tool head.

M. Preparation of the Tyco 69066 Hydraulic Crimp Tool

WARNING: DO NOT ACCIDENTLY PRESS THE FOOT PEDAL OR THE HANDLE CONTROL WHILE THE DIES ARE REMOVED OR INSTALLED. AN INJURY TO PERSONNEL CAN OCCUR.

WARNING: DO NOT INSTALL DIFFERENT DIES FROM DIFFERENT DIE SETS IN A CRIMP TOOL HEAD. AN INJURY TO PERSONNEL CAN OCCUR.

CAUTION: DO NOT INSTALL DIFFERENT DIES FROM DIFFERENT DIE SETS IN A CRIMP TOOL HEAD. DAMAGE TO THE EQUIPMENT CAN OCCUR.

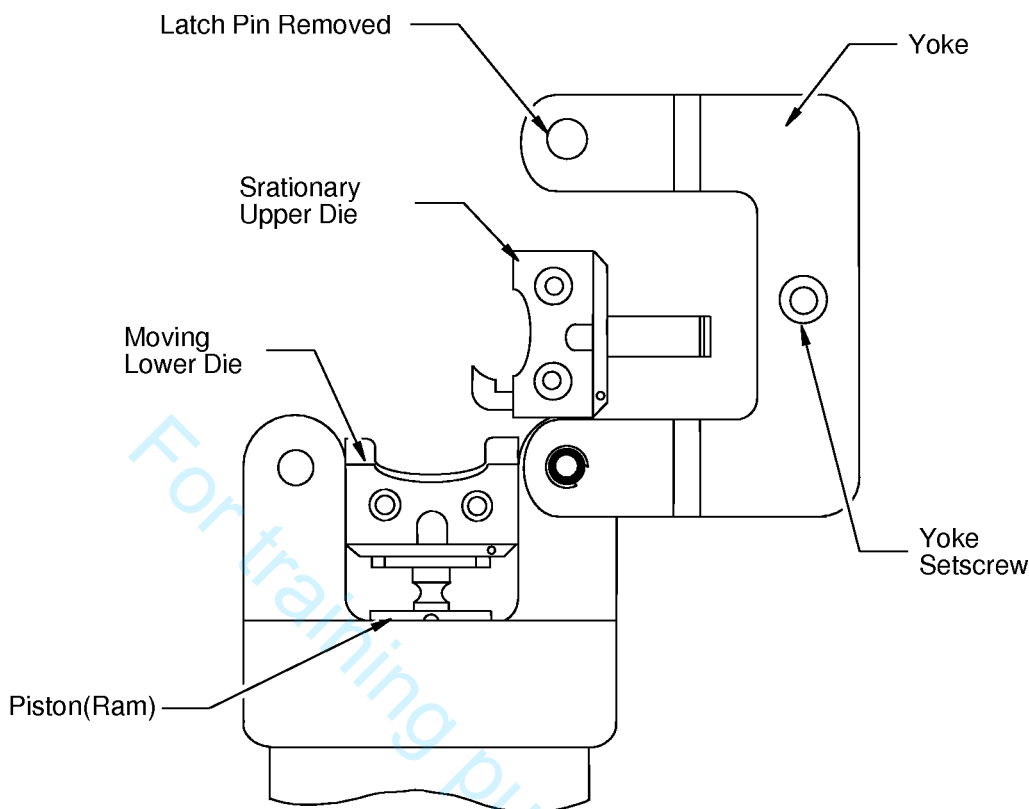


TYCO 69066 HYDRAULIC CRIMP TOOL HEAD

Figure 33

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF COPALUM AND ALUMINUM TERMINALS



INSTALLATION OF THE DIES IN THE TYCO 69066 HYDRAULIC CRIMP TOOL

Figure 34

- (1) Install the crimp head. Refer to Figure 33.
- (2) Remove the latch pin and open the yoke on the crimp head.
- (3) Loosen the yoke setscrew.
- (4) Put the stationary upper die into the well of the yoke. Refer to Figure 34.
Make sure that the alignment dot on the front face of the die is on the same side as the yoke setscrew.
- (5) Tighten the yoke setscrew.
- (6) Start the power unit to move the piston approximately 0.5 inch until the ram setscrew can be seen.
- (7) Loosen the ram setscrew.
- (8) Put the moving lower die in the ram well.
Make sure that:
 - The alignment dot on the front face of the die is on the same side as the ram setscrew.
 - The shanks on the moving and the stationary dies are offset from the same surface.
- (9) Tighten the ram setscrew.
- (10) Leave the yoke open until the piston (ram) returns to the rest position.
- (11) Close the yoke and install the latch pin.
- (12) Slowly close the dies.

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ASSEMBLY OF COPALUM AND ALUMINUM TERMINALS

Make sure that the dies are correctly aligned.

- (13) Complete the cycle to put the ram in the down position.

Make sure that:

- The dies are installed with the alignment marks on the same side of the tool head
- The dies are attached correctly to the tool head
- The latch pin is fully installed in the tool head.

NOTE: The alignment marks can be marked with an ink marker to make the assembly easier.

NOTE: For confined areas, the nest die can be put in the ram and the indenter die can be put in the yoke.

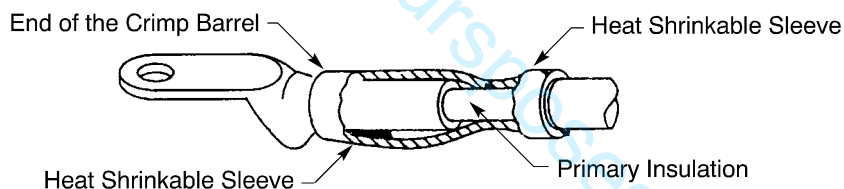
N. Insulation of the Terminal Lug Assembly

Table 26
NECESSARY MATERIALS

Material	Description	Part Number	Supplier
Tape, Insulation	1.0 inch wide	Scotch 70	3M
		A-A-59163	QPL

- (1) If the insulation is a heat shrinkable sleeve:

- (a) Push the sleeve over the end of the insulation so that the sleeve makes an overlap with the crimp barrel of the terminal. Refer to Figure 35.



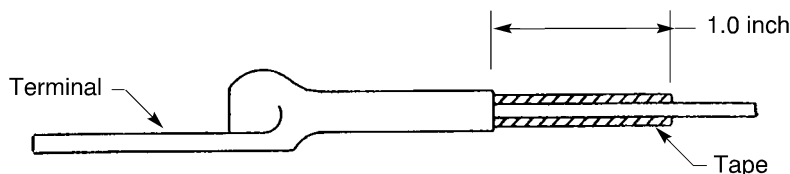
POSITION OF THE HEAT SHRINKABLE SLEEVE ON THE TERMINAL AND THE WIRE

Figure 35

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

- (2) If the insulation is a cold shrink sleeve:

- (a) For AWG 6 wire, make a selection of an insulating tape from Table 26.



POSITION OF THE LAYERS OF TAPE ON THE WIRE

Figure 36

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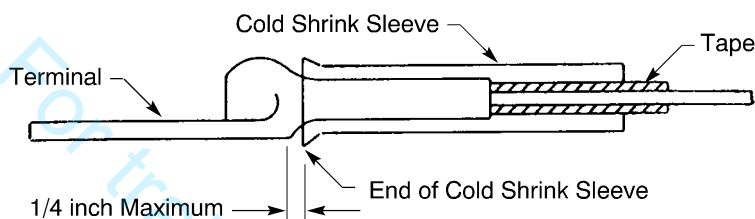
ASSEMBLY OF COPALUM AND ALUMINUM TERMINALS

- (b) Put 3 layers of insulating tape on the wire so that:
- One end of the tape is aligned with the rear end of the crimp barrel
 - The other end of the tape is 1 inch from the rear end of the crimp barrel.

Refer to Figure 36.

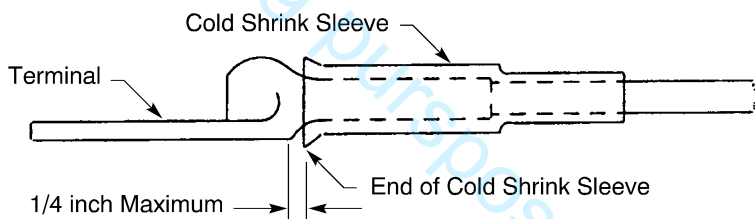
Make sure that:

- The tape is not tightened more than necessary
 - The contour of the wire is visible under the tape.
- (c) Push the cold shrink sleeve toward the terminal until the end of the sleeve is aligned with the end of the crimp barrel. Refer to Figure 37 and Figure 38.



POSITION OF THE COLD SHRINK SLEEVE AND THE TAPE ON THE TERMINAL ASSEMBLY

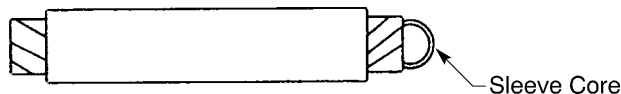
Figure 37



POSITION OF THE COLD SHRINK SLEEVE ON THE TERMINAL ASSEMBLY

Figure 38

- (d) Hold the sleeve in position.
- (e) Pull the sleeve core out from the rear end of the sleeve. Refer to Figure 39.



LOCATION OF THE SLEEVE CORE

Figure 39

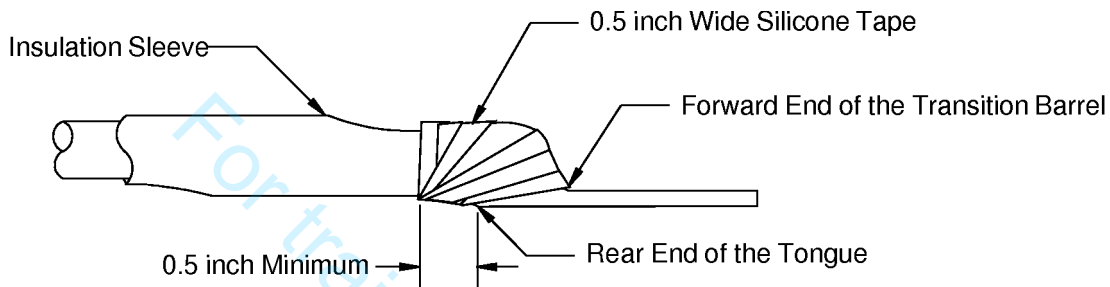
- (3) If a 0.5 inch wide Type I silicone tape is required, put two layers of the tape on the transition barrel of the terminal lug. Refer to Figure 40.

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ASSEMBLY OF COPALUM AND ALUMINUM TERMINALS

Make sure that:

- The forward end of each layer is aligned with the forward end of the transition barrel
- The rear end of each layer extends 0.5 inch minimum rearward from the rear end of the tongue of the terminal lug
- Each layer makes a 50 percent overlap with itself
- The second layer of tape is wound in the opposite direction of the first layer
- The layers of tape do not make an overlap with the bottom surface of the tongue of the terminal lug.



POSITION OF THE TAPE ON THE TRANSITION BARREL

Figure 40

3. APPROVED TOOL SUPPLIERS

A. Crimp Tools

Table 27
CRIMP TOOL SUPPLIERS

Crimp Tool	Supplier
122271-1	TYCO/AMP
1752787-1	TYCO/AMP
1804700-1	TYCO/AMP
58422-1	TYCO/AMP
59877-1	TYCO/AMP
68006	TYCO/AMP
68007	TYCO/AMP
68008	TYCO/AMP
68008-1	TYCO/AMP
68009	TYCO/AMP
68010	TYCO/AMP
68011-1	TYCO/AMP
69066	TYCO/AMP
69120	TYCO/AMP

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ASSEMBLY OF COPALUM AND ALUMINUM TERMINALS

Table 27 (continued)

Crimp Tool	Supplier
314948-1	TYCO/AMP

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ASSEMBLY OF AMP (TYCO) FASTON TERMINALS

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B. Terminal Housings	2
2. <u>FASTON TERMINAL ASSEMBLY</u>	2
A. Terminal Assembly	2
B. Terminal Insulation	8

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF AMP (TYCO) FASTON TERMINALS

1. PART NUMBERS AND DESCRIPTION

A. Terminals

Table 1
FASTON TERMINALS

Terminal	Tab Width (inch)	Supplier
2-520081-2	0.110	AMP
2-520194-2	0.190	AMP
2-520129-2	0.250	AMP
2-520337-2	0.187	AMP
3-520117-2	0.250	AMP
41729	0.250	AMP
42628-2	0.250	AMP
42640-2	0.250	AMP
42888-1	0.205	AMP
55318-3	0.11	AMP
55319-1	0.11	AMP
61048-1	0.110	AMP
61048-2	0.110	AMP
61873-1	0.250	AMP
640903-1	0.250	AMP
640909-1	0.205	AMP
641877-1	0.110	AMP
640927-1	0.110	AMP

Table 2
ALTERNATIVE FASTON TERMINALS

Specified Terminal		Alternative Terminal	
Part Number	Supplier	Part Number	Supplier
42628-2	AMP	640903-1	AMP
42888-1	AMP	640909-1	AMP
640903-1	AMP	42628-1	AMP
640909-1	AMP	42888-1	AMP

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF AMP (TYCO) FASTON TERMINALS

B. Terminal Housings

Table 3
FASTON TERMINAL HOUSINGS

Faston Terminal	Terminal Housing		PSU System
	Part Number	Supplier	
61873-1	1-480416-0	AMP	Passenger Information Signal Section
42640-2	1-480416-3	AMP	Speaker Terminal Blue Wire
42640-2	1-480416-4	AMP	Speaker Terminal Red Wire

2. FASTON TERMINAL ASSEMBLY

A. Terminal Assembly

Table 4
INSULATION REMOVAL LENGTH

Faston Terminal	Wire Size (AWG)	Removal Length L (inch)	
		Target	Tolerance
2-520081-2	22	17/64	± 1/32
	20	17/64	± 1/32
	18	17/64	± 1/32
2-520194-2	22	0.26	± 1/32
	20	0.26	± 1/32
	18	0.26	± 1/32
2-520129-2	22	9/32	± 1/32
	20	9/32	± 1/32
	18	9/32	± 1/32
2-520337-2	22	0.26	± 1/32
	20	0.26	± 1/32
	18	0.26	± 1/32
3-520117-2	18	0.27	± 1/32
		0.54 (Removal length for Double Back)	± 1/32
	16	0.27	± 1/32
	14	0.27	± 1/32
41729	16	1/4	± 1/32

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF AMP (TYCO) FASTON TERMINALS

Table 4 (continued)

Faston Terminal	Wire Size (AWG)	Removal Length L (inch)	
		Target	Tolerance
42628-2	24	1/2	± 1/32
	22	1/2	± 1/32
	20	1/4	± 1/32
	18	1/4	± 1/32
42640-2	24	1/4	± 1/32
	22	1/4	± 1/32
42888-1	24	1/2	± 1/32
	22	1/2	± 1/32
	20	1/4	± 1/32
	18	1/4	± 1/32
55318-3	16	1/4	± 1/32
55319-1	22	1/4	± 1/32
61048-1	22	3/16	± 1/32
	20	3/16	± 1/32
	18	3/16	± 1/32
61048-2	22	3/16	± 1/32
	20	3/16	± 1/32
	18	3/16	± 1/32
61873-1	16	1/4	± 1/32
640903-1	22	1/2	± 1/32
	20	1/4	± 1/32
	18	1/4	± 1/32
640909-1	22	1/2	± 1/32
	20	1/4	± 1/32
	18	1/4	± 1/32
641877-1	16	3/16	± 1/32
640927-1	16	1/4	± 1/32
	14	1/4	± 1/32

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF AMP (TYCO) FASTON TERMINALS

Table 5
FASTON TERMINAL CRIMP TOOLS

Terminal	Wire Size (AWG)	Crimp Tool					Special Instructions
		Basic Unit	Position	Die Set	Tool Cavity	Supplier	
2-520081-2	22	58078-3	-	90390-3	-	AMP	-
	20	58078-3	-	90390-3	-	AMP	-
	18	58078-3	-	90390-3	-	AMP	-
2-520194-2	22	58073-3	-	90390-3	One Dot, Red	AMP	-
	20	58073-3	-	90390-3	One Dot, Red	AMP	-
	18	58073-3	-	90390-3	One Dot, Red	AMP	-
2-520129-2	22	58078-3	-	90390-3	-	AMP	-
	20	58078-3	-	90390-3	-	AMP	-
	18	58078-3	-	90390-3	-	AMP	-
2-520337-2	22	58078-3	-	90390-3	One Dot, Red	AMP	-
	20	58078-3	-	90390-3	One Dot, Red	AMP	-
	18	58078-3	-	90390-3	One Dot, Red	AMP	-
3-520117-2	18	58078-3	-	90391-3	14	AMP	-
	16	58078-3	-	90391-3	16	AMP	-
	14	58078-3	-	90391-3	14	AMP	-
41729	16	90165-1	-	-	-	AMP	-

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF AMP (TYCO) FASTON TERMINALS

Table 5 (continued)

Terminal	Wire Size (AWG)	Crimp Tool					Special Instructions
		Basic Unit	Position	Die Set	Tool Cavity	Supplier	
42628-2	24	59250	-	-	-	AMP	Fold the Conductor Back
		59824-1	-	-	-	AMP	Fold the Conductor Back
	22	59250	-	-	-	AMP	Fold the Conductor Back
		59824-1	-	-	-	AMP	Fold the Conductor Back
	20	59250	-	-	-	AMP	-
		59824-1	-	-	-	AMP	-
	18	59250	-	-	-	AMP	-
		59824-1	-	-	-	AMP	-
42640-2	24	90116-1	1	-	-	AMP	-
		90166-1	-	-	-	AMP	-
	22	90116-1	1	-	-	AMP	-
		90166-1	-	-	-	AMP	-
42888-1	24	59250	-	-	-	AMP	Fold the Conductor Back
		59824-1	-	-	-	AMP	Fold the Conductor Back
	22	59250	-	-	-	AMP	Fold the Conductor Back
		59824-1	-	-	-	AMP	Fold the Conductor Back
	20	59250	-	-	-	AMP	-
		59824-1	-	-	-	AMP	-
	18	59250	-	-	-	AMP	-
		59824-1	-	-	-	AMP	-
55318-3	16	69875	-	59827-1	-	AMP	-
		59824-1	-	-	Blue	AMP	-

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF AMP (TYCO) FASTON TERMINALS

Table 5 (continued)

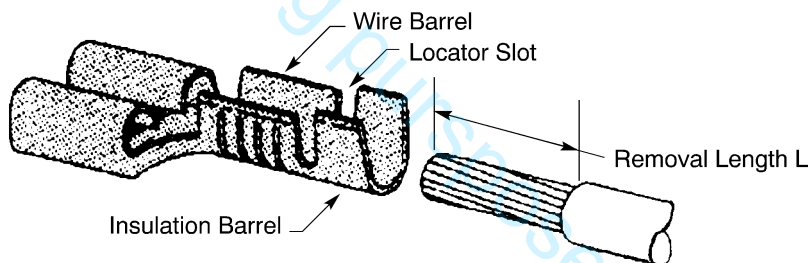
Terminal	Wire Size (AWG)	Crimp Tool					Special Instructions
		Basic Unit	Position	Die Set	Tool Cavity	Supplier	
55319-1	22	59275	-	-	Yellow	AMP	-
61048-1	22	59275	-	-	-	AMP	Increase the Wire Diameter
		90185-1	-	-	-	AMP	Increase the Wire Diameter
	20	59275	-	-	-	AMP	Increase the Wire Diameter
		90185-1	-	-	-	AMP	Increase the Wire Diameter
	18	59275	-	-	-	AMP	-
		90185-1	-	-	-	AMP	-
61048-2	22	59275	-	-	-	AMP	Increase the Wire Diameter
		90185-1	-	-	-	AMP	Increase the Wire Diameter
	20	59275	-	-	-	AMP	Increase the Wire Diameter
		90185-1	-	-	-	AMP	Increase the Wire Diameter
	18	59275	-	-	-	AMP	-
		90185-1	-	-	-	AMP	-
61873-1	16	90226-1	3	-	-	AMP	-
640903-1	22	59250	-	-	-	AMP	Fold the Conductor Back
		59824-1	-	-	-	AMP	Fold the Conductor Back
	20	59250	-	-	-	AMP	-
		59824-1	-	-	-	AMP	-
	18	59250	-	-	-	AMP	-
		59824-1	-	-	-	AMP	-

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF AMP (TYCO) FASTON TERMINALS

Table 5 (continued)

Terminal	Wire Size (AWG)	Crimp Tool					Special Instructions
		Basic Unit	Position	Die Set	Tool Cavity	Supplier	
640909-1	22	59250	-	-	-	AMP	Fold the Conductor Back
		59824-1	-	-	-	AMP	Fold the Conductor Back
	20	59250	-	-	-	AMP	-
		59824-1	-	-	-	AMP	-
	18	59250	-	-	-	AMP	-
		59824-1	-	-	-	AMP	-
641877-1	16	90009-9	3	-	-	AMP	-
640927-1	16	189721-1	-	679305-1	Blue	AMP	-
	14	189721-1	-	679305-1	Blue	AMP	-



USUAL FASTON TERMINAL

Figure 1

- (1) Remove the necessary length of insulation from the end of the wire. Refer to Table 4 and Figure 1.
- (2) If it is specified, fold the wire back. Refer to Table 5 and Figure 2.



CONDUCTOR FOLDED BACK

Figure 2

- (3) If it is specified, increase the diameter of the wire. Refer to Table 5 and Subject 20-30-22.
- (4) Make a selection of a crimp tool from Table 5.
- (5) Put the terminal in the crimp tool.
- (6) Lightly apply pressure to hold the terminal in the tool.

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF AMP (TYCO) FASTON TERMINALS

Make sure that the shape of these parts of the terminal are not changed:

- The insulation barrel
- The wire barrel.

(7) Put the wire in the terminal so that:

- The end of the wire is aligned with the forward end of the wire barrel
- The end of the insulation is aligned with the forward end of the insulation barrel.

Refer to Figure 1.

(8) Crimp the terminal.

(9) Install a terminal housing on these terminals:

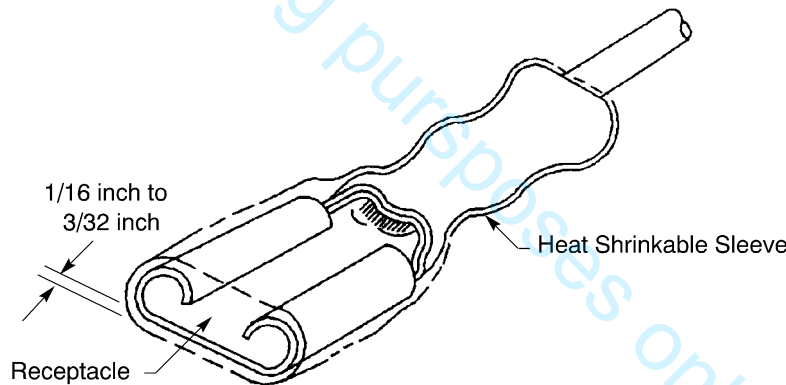
- The 42640-2 terminal for the Speaker Terminal wires
- The 61873-1 terminal for the Passenger Information Signal section of the PSU.

B. Terminal Insulation

(1) Install insulation on these terminals for the Passenger Address Speaker terminals:

- The 42628-2
- The 42888-1
- The 61048-1.

Refer to Figure 3.



POSITION OF THE HEAT SHRINKABLE SLEEVE ON THE TERMINAL

Figure 3

(a) Make a selection of a Grade B, Class 1 heat shrinkable sleeve from Subject 20-00-11.

(b) Put a 1.0 inch ± 0.06 inch length of the heat shrinkable sleeve on the terminal.

Make sure that the end of the sleeve extends 0.06 inch to 0.09 inch beyond the end of the terminal.

(c) Shrink the end of the sleeve that is on:

- The wire
- The insulation barrel of the terminal
- The wire barrel of the terminal.

Make sure that no heat is applied to the part of the sleeve that is on the terminal receptacle.

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF END CAPS

<u>Paragraph</u>	<u>Page</u>
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20-30-16 CONTENTS

STANDARD WIRING PRACTICES MANUAL
ASSEMBLY OF END CAPS
1. GENERAL DATA
A. General Conditions

Refer to Subject 20-10-11 for the conditions that are applicable for the insulation of the free end of a wire or cable.

2. PART NUMBER AND DESCRIPTION
A. End Cap Part Numbers

Table 1
END CAP PART NUMBERS

Part Number	Description	Supplier
324484	Crimp type, without insulation removal	AMP (Tyco)
324485	Crimp type, without insulation removal	AMP (Tyco)
324486	Crimp type, without insulation removal	AMP (Tyco)
324487	Crimp type, without insulation removal	AMP (Tyco)
328307	Crimp type, with insulation removal	AMP (Tyco)
328308	Crimp type, with insulation removal	AMP (Tyco)
328309	Crimp type, with insulation removal	AMP (Tyco)
328854	Crimp type, without insulation removal	AMP (Tyco)
328855	Crimp type, without insulation removal	AMP (Tyco)
328856	Crimp type, without insulation removal	AMP (Tyco)
328857	Crimp type, without insulation removal	AMP (Tyco)
328858	Crimp type, without insulation removal	AMP (Tyco)
328859	Crimp type, without insulation removal	AMP (Tyco)
328860	Crimp type, without insulation removal	AMP (Tyco)
328861	Crimp type, without insulation removal	AMP (Tyco)
329638	Crimp type, without insulation removal	AMP (Tyco)
BACT63D1	Heat Shrinkable	Boeing
BACT63D2	Heat Shrinkable	Boeing
BACT63D3	Heat Shrinkable	Boeing

Table 2
CRIMP TYPE END CAPS WITHOUT INSULATION REMOVAL

Wire O.D. (inch)		End Cap			
Minimum	Maximum	Temperature Grade	Class	Part Number	Color
0.036	0.043	D	1	328854	Red and Green

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF END CAPS

Table 2 (continued)

Wire O.D. (inch)		End Cap			
Minimum	Maximum	Temperature Grade	Class	Part Number	Color
0.044	0.051	D	1	328855	Blue and Green
0.048	0.075	A	2	324484	Transparent (White)
0.052	0.056	D	1	328856	Yellow and Green
0.056	0.064	D	1	328857	Brown and Green
0.065	0.074	D	1	328858	Violet and Green
0.075	0.087	D	1	328859	Black and Orange
0.080	0.115	A	2	324485	Red
0.088	0.110	D	1	328860	Gray and Orange
0.111	0.150	A	1	329638	Brown
0.120	0.145	A	2	324486	Blue
0.125	0.138	D	1	328861	Nickel and Nickel
0.150	0.210	A	2	324487	Yellow

Table 3

CRIMP TYPE END CAPS FOR A WIRE WITH INSULATION REMOVAL

Wire Size (AWG)		Maximum Wire O.D. (inch)	End Cap			
Minimum	Maximum		Temperature Grade	Class	Part Number	Color
22	18	0.124	A	2	328307	Red
16	14	0.149	A	2	328308	Blue
12	10	0.210	A	2	328309	Yellow

Table 4

HEAT SHRINKABLE END CAPS

Wire O.D. (inch)		End Cap			
Minimum	Maximum	Temperature Grade	Class	Boeing Standard	Color
0.030	0.063	B	2	BACT63D1	White
0.050	0.125	B	2	BACT63D2	Red
0.100	0.250	B	2	BACT63D3	Grey

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF END CAPS

Table 5
APPROVED SUPPLIERS OF BOEING STANDARD HEAT SHRINKABLE END CAPS

Heat Shrinkable End Cap	Supplier
BACT63D()	Raychem (Tyco)

B. Necessary Materials

Table 6
NECESSARY MATERIALS

Material	Part Number	Supplier
Sealant	BMS 5-63 Class B-4	Boeing
	DC-3145	Dow Corning

3. ASSEMBLY OF CRIMP TYPE END CAPS

A. Assembly of a Crimp Type End Cap without Insulation Removal

Table 7
END CAP CRIMP TOOLS

End Cap	Crimp Tool				
	Basic Unit			Die	
	Part Number	Color	Supplier	Part Number	Supplier
324484	46063	-	AMP	-	-
	59250	-	AMP	-	-
	DCT4-101	-	Daniels	58573-1	AMP
324485	46063	-	AMP	-	-
	59250	-	AMP	-	-
	DCT4-101	-	Daniels	58573-1	AMP
	MR8-49	-	Burndy	-	-
324486	46063	-	AMP	-	-
	DCT4-101	-	Daniels	58573-1	AMP
	MR8-49	-	Burndy	-	-
324487	46063	-	AMP	-	-
	DCT4-101	-	Daniels	58573-1	AMP
	MR8-49	-	Burndy	-	-
328854	69272-1	Green	AMP	-	-
	WA27XE-EP	Green	Daniels	-	-

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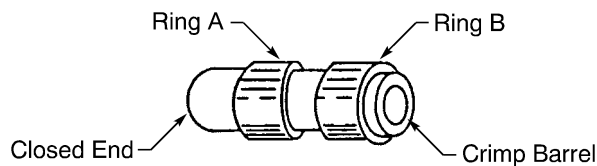
STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF END CAPS

Table 7 (continued)

End Cap	Crimp Tool				
	Basic Unit			Die	
	Part Number	Color	Supplier	Part Number	Supplier
328855	69272-1	Green	AMP	-	-
	WA27XE-EP	Green	Daniels	-	-
328856	69272-1	Green	AMP	-	-
	WA27XE-EP	Green	Daniels	-	-
328857	69272-1	Green	AMP	-	-
	WA27XE-EP	Green	Daniels	-	-
328858	69272-1	Green	AMP	-	-
	WA27XE-EP	Green	Daniels	-	-
328859	69272-1	Orange	AMP	-	-
	WA27XE-EP	Orange	Daniels	-	-
328860	69272-1	Orange	AMP	-	-
	WA27XE-EP	Orange	Daniels	-	-
328861	69272-1	White	AMP	-	-
	WA27XE-EP	White	Daniels	-	-
329638	69260-1	Brown	AMP	-	-

- (1) Make a selection of an end cap from Table 2.
- (2) Make a selection of a crimp tool from Table 7.
- (3) Make a selection of a sealant from Table 6.
- (4) If it is necessary, cut the wire to make the end perpendicular to the longitudinal axis of the wire.
Make sure that the end of the wire insulation is aligned with the end of the conductor.
- (5) Put a small quantity of sealant in the crimp barrel of the end cap. Refer to Figure 1.



LOCATION OF THE COLOR CODED RING ON THE END CAP
Figure 1

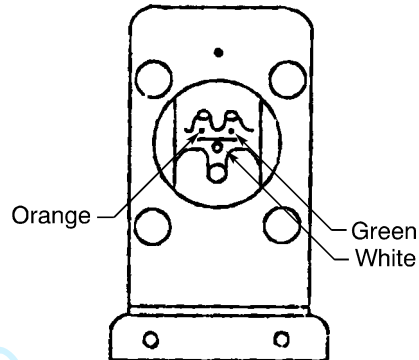
- (6) Put the end cap in the crimp tool.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF END CAPS

Make sure that:

- The closed end of the end cap is against the crimp tool locator
- The end cap is correctly aligned in the crimp tool dies
- If it is applicable, the color of Ring B of the end cap is the same as the color code of the crimp tool die; refer to Figure 1 and Figure 2.



COLOR CODE OF THE CRIMP TOOL DIES

Figure 2

- (7) Apply the minimum pressure necessary to close the handles of the crimp tool to hold the end cap in position.

CAUTION: DO NOT APPLY MORE THAN THE NECESSARY PRESSURE TO HOLD THE CAP IN POSITION. DAMAGE TO THE END CAP CAN OCCUR.

- (8) Put the end cap on the wire.
Make sure that the end of the wire is against the closed end of the end cap.
- (9) Crimp the end cap.
- (10) Remove the remaining sealant.
- (11) Hold the wire tight and lightly pull the end cap.
- (12) If the end cap does not stay on the end of the wire, do Step (5) through Step (11) again.

B. Assembly of a Crimp Type End Cap with Insulation Removal

Table 8
INSULATION REMOVAL LENGTH

Wire Size (AWG)	Removal Length (inch)	
	Minimum	Maximum
22	0.31	0.34
20	0.31	0.34
18	0.31	0.34
16	0.31	0.34
14	0.31	0.34

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF END CAPS

Table 8 (continued)

Wire Size (AWG)	Removal Length (inch)	
	Minimum	Maximum
12	0.34	0.37
10	0.34	0.37

Table 9
END CAP CRIMP TOOLS

End Cap	Crimp Tool	
	Part Number	Setting
328307	59250	4
328308	59250	4
328309	59239-4	3

- (1) Make a selection of an end cap from Table 3.
- (2) Make a selection of a crimp tool from Table 9.
- (3) Make a selection of a sealant from Table 6.
- (4) Remove the necessary length of the insulation from the end of the wire. Refer to Table 8 and Subject 20-00-15.
- (5) Put a small quantity of sealant in the crimp barrel of the end cap.
- (6) Put the end cap in the tool.
Make sure that the closed end of the end cap is against the locator.
- (7) Apply the minimum pressure necessary to close the handles of the crimp tool to hold the end cap in position.

CAUTION: DO NOT APPLY MORE THAN THE NECESSARY PRESSURE TO HOLD THE CAP IN POSITION. DAMAGE TO THE END CAP CAN OCCUR.

- (8) Put the end cap on the wire.
Make sure that the end of the wire is against the closed end of the end cap.
- (9) Crimp the end cap.
- (10) Remove the remaining sealant.
- (11) Hold the wire tight and lightly pull the end cap.
- (12) If the end cap does not stay on the end of the wire, do Step (5) through Step (11) again.

4. ASSEMBLY OF HEAT SHRINKABLE END CAPS

A. Assembly of a Heat Shrinkable End Cap with a Wire

- (1) Make a selection of a heat shrinkable end cap from Table 4.
Make sure that the cap is the smallest size that can move easily on the wire.
- (2) Put the end cap on the wire.

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF END CAPS

Make sure that the end of the wire is against the closed end of the end cap.

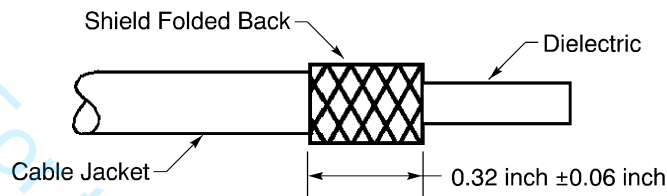
- (3) Shrink the end cap into position. Refer to Subject 20-10-14.

B. Assembly of a Heat Shrinkable End Cap with a Coax Cable

- (1) Make a selection of a heat shrinkable end cap from Table 4.

Make sure that the cap is the smallest size that can move easily on the cable.

- (2) If it is necessary, cut the cable to make the end perpendicular to the longitudinal axis of the cable.
- (3) Prepare the cable. Refer to Figure 3.



COAX CABLE PREPARATION

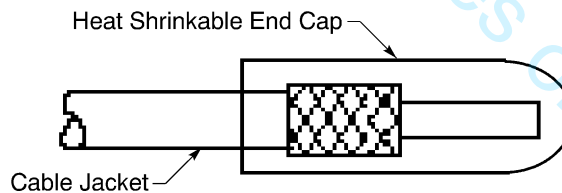
Figure 3

- (a) Remove 0.45 inch \pm 0.05 inch of the outer jacket.
- (b) Fold the shield back against the outer jacket.
- (c) Remove the necessary length of the shield to make the distance from the end of the shield to end of the outer jacket equal to 0.32 inch \pm 0.06 inch.

CAUTION: DO NOT CUT AGAINST THE OUTER JACKET WITH A KNIFE. DAMAGE TO THE JACKET CAN OCCUR.

- (4) Put the end cap on the cable. Refer to Figure 4.

Make sure that the end of the cable is against the closed end of the end cap.



POSITION OF THE HEAT SHRINKABLE END CAP ON THE COAX CABLE

Figure 4

- (5) Shrink the end cap in position. Refer to Subject 20-10-14.

STANDARD WIRING PRACTICES MANUAL**ASSEMBLY OF END CAPS****5. APPROVED TOOL SUPPLIERS****A. Crimp Tools**

Table 10
CRIMP TOOL SUPPLIERS

Crimp Tool	Supplier
46063	AMP
58573-1	AMP
59239-4	AMP
59250	AMP
69260-1	AMP
69272-1	AMP
DCT4-101	Daniels
MR8-49	Burndy
WA27XE-EP	Daniels

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STANDARD WIRING PRACTICES MANUAL

AMP PRINTED CIRCUIT BOARD TERMINAL RECEPTACLES

<u>Paragraph</u>	<u>Page</u>
1. <u>PART NUMBERS AND DESCRIPTION</u>	1
A. Printed Circuit Board Terminal Receptacle Part Numbers	1
2. <u>ASSEMBLY AND INSTALLATION OF THE TERMINAL RECEPTACLE</u>	1
A. Terminal Receptacle Assembly	1
B. Terminal Receptacle Installation	4

For training purposes only!

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STANDARD WIRING PRACTICES MANUAL

AMP PRINTED CIRCUIT BOARD TERMINAL RECEPTACLES

This Subject gives the procedure to:

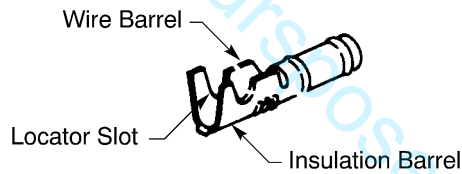
- Assemble the terminal receptacle
- Install the wired receptacle on the terminal pin.

1. PART NUMBERS AND DESCRIPTION

A. Printed Circuit Board Terminal Receptacle Part Numbers

Table 1
TERMINAL RECEPTACLE PART NUMBERS

Part Number	Wire Size (AWG)		Supplier
	Minimum	Maximum	
60789-2	24	20	AMP
60940-4	24	20	AMP
60790-1	28	26	AMP
60790-2	28	26	AMP
60888-4	26	22	AMP
60983-3	26	22	AMP
640024-1	24	18	AMP



AMP PRINTED CIRCUIT BOARD TERMINAL RECEPTACLE
Figure 1

2. ASSEMBLY AND INSTALLATION OF THE TERMINAL RECEPTACLE

A. Terminal Receptacle Assembly

Table 2
TERMINAL RECEPTACLE CRIMP TOOLS

Wire Size (AWG)	Receptacle	Crimp Tool			Special Instructions
		Basic Unit	Head	Supplier	
28	60790-1	90205-2	-	AMP (Tyco)	-
	60790-2	90205-2	-	AMP (Tyco)	-

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STANDARD WIRING PRACTICES MANUAL

AMP PRINTED CIRCUIT BOARD TERMINAL RECEPTACLES

Table 2 (continued)

Wire Size (AWG)	Receptacle	Crimp Tool			Special Instructions
		Basic Unit	Head	Supplier	
26	60790-1	90205-2	-	AMP (Tyco)	-
	60790-2	90205-2	-	AMP (Tyco)	-
	60888-4	90131-2	-	AMP (Tyco)	-
		90131-4	-	AMP (Tyco)	-
	60983-3	90131-2	-	AMP (Tyco)	-
		90131-4	-	AMP (Tyco)	-
24	60789-2	90204-4	-	AMP (Tyco)	-
		91507-1	-	AMP (Tyco)	-
		1213805-3	2031200-3	AMP (Tyco)	-
	60940-4	90204-1	-	AMP (Tyco)	-
		90204-4	-	AMP (Tyco)	-
		91507-1	-	AMP (Tyco)	-
	60888-4	90131-2	-	AMP (Tyco)	-
		90131-4	-	AMP (Tyco)	-
	60983-3	90131-2	-	AMP (Tyco)	-
		90131-4	-	AMP (Tyco)	-
	640024-1	90314-1	-	AMP (Tyco)	2 wires must be used
22	60789-2	90204-4	-	AMP (Tyco)	-
		91507-1	-	AMP (Tyco)	-
	60940-4	90204-1	-	AMP (Tyco)	-
		90204-4	-	AMP (Tyco)	-
		91507-1	-	AMP (Tyco)	-
	60888-4	90131-2	-	AMP (Tyco)	-
		90131-4	-	AMP (Tyco)	-
	60983-3	90131-2	-	AMP (Tyco)	-
		90131-4	-	AMP (Tyco)	-
	640024-1	90314-1	-	AMP (Tyco)	1 or 2 wires can be used

STANDARD WIRING PRACTICES MANUAL

AMP PRINTED CIRCUIT BOARD TERMINAL RECEPTACLES

Table 2 (continued)

Wire Size (AWG)	Receptacle	Crimp Tool			Special Instructions
		Basic Unit	Head	Supplier	
20	60789-2	90204-4	-	AMP (Tyco)	-
		91507-1	-	AMP (Tyco)	-
	60940-4	90204-1	-	AMP (Tyco)	-
		90204-4	-	AMP (Tyco)	-
		91507-1	-	AMP (Tyco)	-
	640024-1	90314-1	-	AMP (Tyco)	1 or 2 wires can be used
18	640024-1	90314-1	-	AMP (Tyco)	-

Table 3
ALTERNATIVE CRIMP TOOLS

Specified Crimp Tool		Alternative Crimp Tool	
Part Number	Supplier	Part Number	Supplier
90131-2	AMP (Tyco)	90131-4	AMP (Tyco)
90204-4	AMP (Tyco)	91507-1	AMP (Tyco)

- (1) Remove 5/32 inch \pm 1/32 inch of the insulation from the end of the wire.
- (2) Make a selection of a crimp tool from Table 2.
- (3) Fully open the handles of the crimp tool.
- (4) Put the insulation barrel of the receptacle into the front side of the crimp tool so that the locator slot of the receptacle is pointed toward the top of the tool.

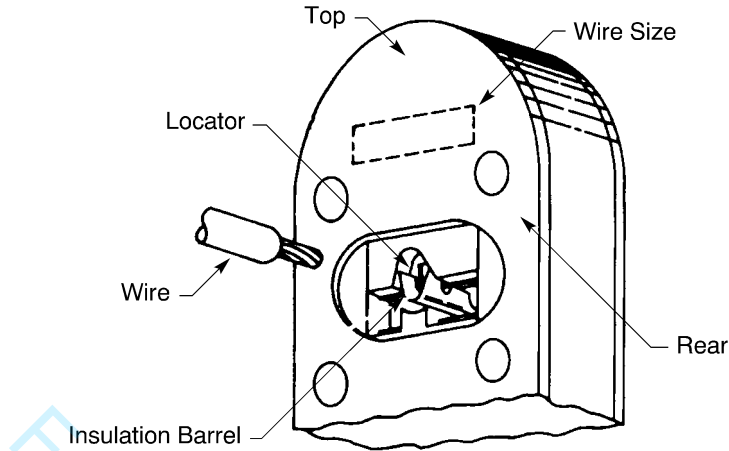
NOTE: The front side of the crimp tool is marked with the crimp tool part number.

Refer to Figure 1 and Figure 2.

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STANDARD WIRING PRACTICES MANUAL

AMP PRINTED CIRCUIT BOARD TERMINAL RECEPTACLES



POSITION OF THE RECEPTACLE IN THE CRIMP TOOL
Figure 2

- (5) To hold the receptacle in position, move the handles of the crimp tool together until one click is made.

CAUTION: DO NOT CHANGE THE SHAPE OF THE INSULATION BARREL OR WIRE BARREL OF THE RECEPTACLE. THE WIRE WILL NOT GO INTO THE RECEPTACLE CORRECTLY.

- (6) Put the wire into the receptacle so that the end of the insulation is against the insulation stop.
- (7) Close the handles tool of the until the ratchet releases.

B. Terminal Receptacle Installation

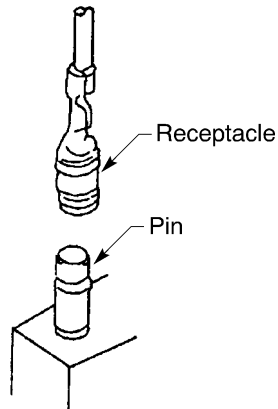
Table 4
TERMINAL RECEPTACLE INSERTION TOOLS

Insertion Tool	Supplier
452383-1	AMP

- (1) Make a selection of a Grade B, Class 1 heat shrinkable sleeve from Subject 20-00-11.
- (2) Put a 0.60 inch length of the heat shrinkable sleeve on the wire.
- (3) Make a selection of an insertion tool from Table 4.
- (4) Put the insertion tool on the wire between the heat shrinkable sleeve and the receptacle.
- (5) Move the insertion tool toward the end of the wire until it is against the rear end of the receptacle.
- (6) Push the receptacle onto the pin until the ring on the inside of the receptacle is in the groove on the pin. Refer to Figure 3.

CAUTION: THE INSERTION TOOL MUST STAY PARALLEL WITH THE PIN SO THAT DAMAGE TO THE PIN OR THE RECEPTACLE DOES NOT OCCUR.

20-30-17

STANDARD WIRING PRACTICES MANUAL**AMP PRINTED CIRCUIT BOARD TERMINAL RECEPTACLES****POSITION OF THE RECEPTACLE IN RELATION TO THE PIN****Figure 3**

- (7) Push the heat shrinkable sleeve forward so that the both ends of the sleeve make an overlap with both ends of the receptacle.
- (8) Shrink the sleeve into position. Refer to Subject 20-10-14.

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF BACS52R SHIELDED SPLICES

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20-30-19 CONTENTS

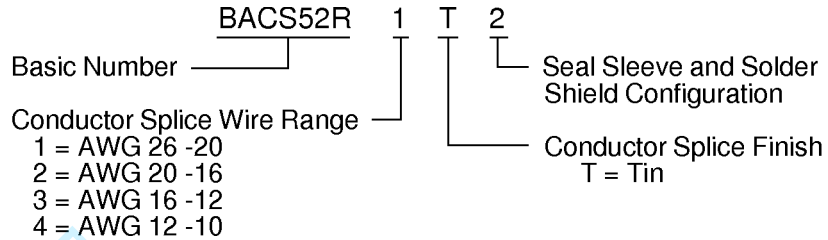
STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF BACS52R SHIELDED SPLICES

This Subject gives the procedures to assemble BACS52R Shielded Splices.

1. PART NUMBERS AND DESCRIPTION

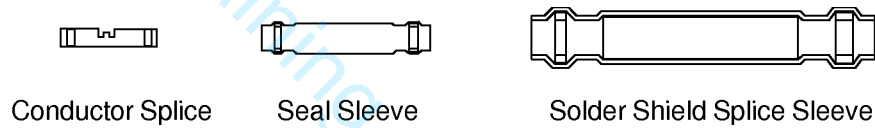
A. Splice Kit Part Numbers



BACS52R SHIELDED SPLICE PART NUMBER STRUCTURE

Figure 1

B. Splice Kit Component Part Numbers



SHIELDED SPLICE KIT COMPONENTS

Figure 2

Table 1

SPLICE KIT COMPONENT PART NUMBERS

Splice Kit	Component		
	Type	Part Number	Quantity
BACS52R1T1	Conductor Splice	BACS52K1	1
	Seal Sleeve	BACS13CM2	1
	Solder Shield Splice Sleeve	BACS13DF1	1
BACS52R1T2	Conductor Splice	BACS52K1	2
	Seal Sleeve	BACS13CM1	2
	Solder Shield Splice Sleeve	BACS13DF4	1
BACS52R1T3	Conductor Splice	BACS52K1	3
	Seal Sleeve	BACS13CM1	3
	Solder Shield Splice Sleeve	BACS13DF5	1
BACS52R1T4	Conductor Splice	BACS52K1	4
	Seal Sleeve	BACS13CM1	4
	Solder Shield Splice Sleeve	BACS13DF5	1

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF BACS52R SHIELDED SPLICES

Table 1 (continued)

Splice Kit	Component		
	Type	Part Number	Quantity
BACS52R1T5	Conductor Splice	BACS52K1	2
	Seal Sleeve	BACS13CM2	2
	Solder Shield Splice Sleeve	BACS13DF6	1
BACS52R1T6	Conductor Splice	BACS52K1	2
	Seal Sleeve	BACS13CM2	2
	Solder Shield Splice Sleeve	BACS13DF5	1
BACS52R2T1	Conductor Splice	BACS52K2	1
	Seal Sleeve	BACS13CM4	1
	Solder Shield Splice Sleeve	BACS13DF2	1
BACS52R2T2	Conductor Splice	BACS52K2	2
	Seal Sleeve	BACS13CM2	2
	Solder Shield Splice Sleeve	BACS13DF5	1
BACS52R2T3	Conductor Splice	BACS52K2	4
	Seal Sleeve	BACS13CM2	4
	Solder Shield Splice Sleeve	BACS13DF6	1
BACS52R2T4	Conductor Splice	BACS52K2	2
	Seal Sleeve	BACS13CM3	2
	Solder Shield Splice Sleeve	BACS13DF7	1
BACS52R2T5	Conductor Splice	BACS52K2	3
	Seal Sleeve	BACS13CM2	3
	Solder Shield Splice Sleeve	BACS13DF6	1
BACS52R3T1	Conductor Splice	BACS52K3	1
	Seal Sleeve	BACS13CM3	1
	Solder Shield Splice Sleeve	BACS13DF3	1
BACS52R3T2	Conductor Splice	BACS52K3	2
	Seal Sleeve	BACS13CM3	2
	Solder Shield Splice Sleeve	BACS13DF6	1
BACS52R3T3	Conductor Splice	BACS52K3	2
	Seal Sleeve	BACS13CM3	2
	Solder Shield Splice Sleeve	BACS13DF7	1

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF BACS52R SHIELDED SPLICES

Table 1 (continued)

Splice Kit	Component		
	Type	Part Number	Quantity
BACS52R3T4	Conductor Splice	BACS52K3	4
	Seal Sleeve	BACS13CM3	4
	Solder Shield Splice Sleeve	BACS13DF7	1
BACS52R3T5	Conductor Splice	BACS52K3	1
	Seal Sleeve	BACS13CM6	1
	Solder Shield Splice Sleeve	BACS13DF3	1
BACS52R3T6	Conductor Splice	BACS52K3	3
	Seal Sleeve	BACS13CM3	3
	Solder Shield Splice Sleeve	BACS13DF7	1
BACS52R4T1	Conductor Splice	NAS1387-6	1
	Seal Sleeve	BACS13CM6	1
	Solder Shield Splice Sleeve	BACS13DF8	1
BACS52R4T2	Conductor Splice	NAS1387-6	2
	Seal Sleeve	BACS13CM6	2
	Solder Shield Splice Sleeve	BACS13DF7	1

C. Conductor Splice Part Numbers

Table 2
CONDUCTOR SPLICE PART NUMBERS

Part Number	Crimp Barrel Size	Color Code
NAS1387-6	12-10	-
BACS52K1	26-20	Red
BACS52K2	20-16	Blue
BACS52K3	16-12	Yellow

D. Splice Assembly Wiring Build-Up Sleeves

Table 3
WIRING BUILD-UP SLEEVES

Splice Kit Part Number	Shield Splice End with Smaller Diameter		Shield Splice End with Larger Diameter	
	Wire Part Number	Build-Up Sleeve Part Number	Wire Part Number	Build-Up Sleeve Part Number
BACS52R1T2	BMS13-80T01C02G024	-	BMS13-80T01C02G024	M23053/5-106-4

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF BACS52R SHIELDED SPLICES

Table 3 (continued)

Splice Kit Part Number	Shield Splice End with Smaller Diameter		Shield Splice End with Larger Diameter	
	Wire Part Number	Build-Up Sleeve Part Number	Wire Part Number	Build-Up Sleeve Part Number
BACS52R1T2	BMS13-80T01C02G026	-	BMS13-80T01C02G026	M23053/5-105-4
BACS52R2T4	BMS13-80T02C02G022	M23053/5-106-4	BMS13-80T02C02G022 (Quantity 2)	-
BACS52R2T1	BMS13-48T38C01G020	-	BMS13-48T38C01G018	M23053/5-105-4 and M23053/5-106-4
BACS52R3T1	BMS13-48T12C01G016	M23053/5-106-4	BMS13-48T12C01G012	-

2. SPLICE ASSEMBLY

A. Selection of a Cable Preparation Procedure

Table 4

SPECIAL CABLE PREPARATION CONFIGURATIONS

Splice Kit	Wiring Configuration	
	One End of Conductor Splice	Other End of Conductor Splice
BACS52R2T1	1 Cable, 1 AWG 16, AWG 18 or AWG 20 Conductor	1 Cable, 1 AWG 22 or AWG 24 Conductor
	1 Cable, 1 AWG 22 Conductor 1 Cable, 1 AWG 24 Conductor	1 Cable, 1 AWG 22 Conductor
	2 Cables, 1 AWG 22 Conductor	1 Cable, 1 AWG 22 Conductor
	2 Cables, 1 AWG 24 Conductor	1 Cable, 1 AWG 24 Conductor
BACS52R2T2	1 Cable, 2 AWG 16, AWG 18 or AWG 20 Conductors	1 Cable, 2 AWG 22 or AWG 24 Conductors
	2 Cables, 2 AWG 22 Conductors	1 Cable, 2 AWG 22 Conductors
BACS52R2T4	1 Cable, 2 AWG 22 or AWG 24 Conductors	1 Cable, 2 AWG 22 or AWG 24 Conductors
	2 Cables, 2 AWG 22 or AWG 24 Conductors	1 Cable, 2 AWG 22 or AWG 24 Conductors
	2 Cables, 2 AWG 26 Conductors	2 Cables, 2 AWG 26 Conductors
BACS52R3T1	1 Cable, 1 AWG 12 or AWG 14 Conductor	1 Cable, 1 AWG 18 or AWG 20 Conductor
	2 Cables, 1 AWG 16, AWG 18 or AWG 20 Conductor	1 Cable, 1 AWG 18 or AWG 20 Conductor
BACS52R3T2	1 Cable, 2 AWG 12 Conductors	1 Cable, 2 AWG 20 Conductors
	1 Cable, 2 AWG 14 Conductors	1 Cable, 2 AWG 20 Conductors
BACS52R3T3	2 Cables, 2 AWG 18 Conductors	1 Cable, 2 AWG 18 Conductors

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF BACS52R SHIELDED SPLICES

Table 4 (continued)

Splice Kit	Wiring Configuration	
	One End of Conductor Splice	Other End of Conductor Splice
BACS52R4T1	1 Cable, 1 AWG 10 Conductor	1 Cable, 1 AWG 16 Conductor
	2 Cables, 1 AWG 14 Conductor	1 Cable, 1 AWG 14 conductor

- (1) If the splice kit and the wiring configuration at each end of the conductor splice are specified in Table 4, do the special cable preparation. Refer to Paragraph 2.C..
- (2) If the splice kit and the wiring configuration at each end of the conductor splice are not specified in Table 4, do the standard cable preparation. Refer to Paragraph 2.B..

B. Cable Preparation - Standard Configuration

For the conditions that are applicable for this procedure, refer to Paragraph 2.A..

Table 5
CABLE PREPARATION

Wiring Configuration		Reference
One End of Conductor Splice	Other End of Conductor Splice	
1 Cable, 1 Conductor	1 Cable, 1 Conductor	Figure 3
1 Cable, 1 Conductor	2 Cables, 1 Conductor each	Figure 4
1 Cable, 1 Conductor	3 Cables, 1 Conductor each	Figure 5
1 Cable, 2 Conductors	1 Cable, 2 Conductors	Figure 6
1 Cable, 2 Conductors	2 Cables, 2 Conductors each	Figure 7
1 Cable, 2 Conductors	1 Cable, 2 Conductors 1 Cable, 1 Conductor	Figure 8
1 Cable, 2 Conductors 1 Cable, 1 Conductor	1 Cable, 2 Conductors 1 Cable, 1 Conductor	Figure 9
1 Cable, 2 Conductors 2 Cables, 1 Conductor each	2 Cables, 1 Conductor each	Figure 10
1 Cable, 3 Conductors	1 Cable, 3 Conductors	Figure 6
1 Cable, 3 Conductors	2 Cables, 3 Conductors each	Figure 11
1 Cable, 4 Conductors	1 Cable, 4 Conductors	Figure 6
1 Cable, 4 Conductors	1 Cable, 4 Conductors 1 Cable, 1 Conductor	Figure 12
2 Cables, 2 Conductors each	2 Cables, 2 Conductors each	Figure 13

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF BACS52R SHIELDED SPLICES

Table 6
CABLE PREPARATION DIMENSIONS

Splice Kit Part Number	Dimension	Length (inch)	
		Target	Tolerance
BACS52R1T1	A	1.00	± 0.02
	B	0.38	± 0.02
	C	0.28	± 0.02
BACS52R1T2	A	2.10	± 0.02
	B	0.38	± 0.02
	C	0.28	± 0.02
BACS52R1T3	A	2.10	± 0.02
	B	0.38	± 0.02
	C	0.28	± 0.02
BACS52R1T4	A	2.10	± 0.02
	B	0.38	± 0.02
	C	0.28	± 0.02
BACS52R1T5	A	2.10	± 0.02
	B	0.38	± 0.02
	C	0.28	± 0.02
BACS52R1T6	A	2.10	± 0.02
	B	0.38	± 0.02
	C	0.28	± 0.02
BACS52R2T1	A	1.00	± 0.02
	B	0.38	± 0.02
	C	0.28	± 0.02
BACS52R2T2	A	2.10	± 0.02
	B	0.38	± 0.02
	C	0.28	± 0.02
BACS52R2T3	A	2.10	± 0.02
	B	0.38	± 0.02
	C	0.28	± 0.02
BACS52R2T4	A	2.10	± 0.02
	B	0.38	± 0.02
	C	0.28	± 0.02

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STANDARD WIRING PRACTICES MANUAL

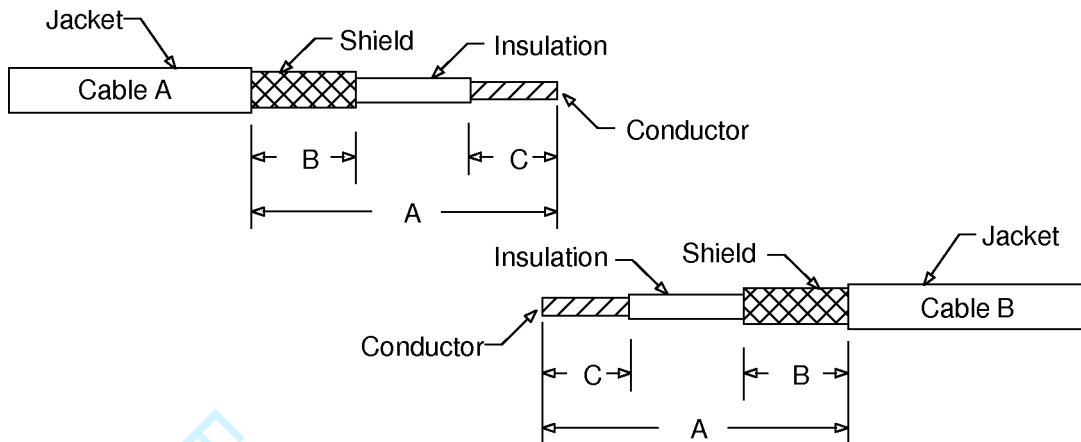
ASSEMBLY OF BACS52R SHIELDED SPLICES

Table 6 (continued)

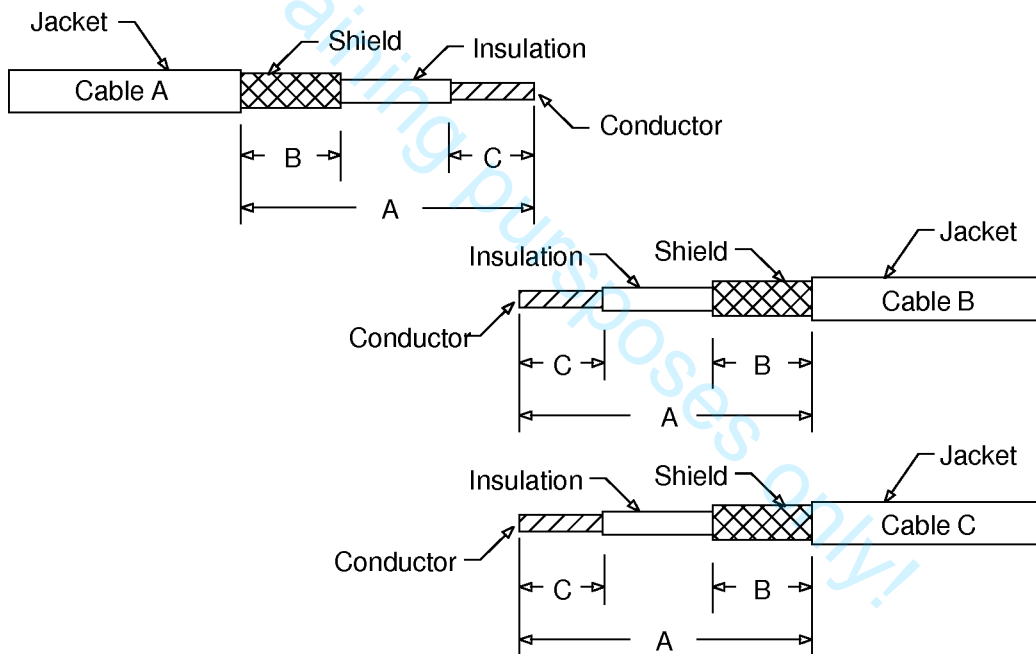
Splice Kit Part Number	Dimension	Length (inch)	
		Target	Tolerance
BACS52R2T5	A	2.10	± 0.02
	B	0.38	± 0.02
	C	0.28	± 0.02
BACS52R3T1	A	1.00	± 0.02
	B	0.38	± 0.02
	C	0.28	± 0.02
BACS52R3T2	A	2.10	± 0.02
	B	0.38	± 0.02
	C	0.28	± 0.02
BACS52R3T3	A	2.10	± 0.02
	B	0.38	± 0.02
	C	0.28	± 0.02
BACS52R3T4	A	2.10	± 0.02
	B	0.38	± 0.02
	C	0.28	± 0.02
BACS52R3T5	A	1.00	± 0.02
	B	0.38	± 0.02
	C	0.28	± 0.02
BACS52R3T6	A	2.10	± 0.02
	B	0.38	± 0.02
	C	0.28	± 0.02
BACS52R4T1	A	1.00	± 0.02
	B	0.38	± 0.02
	C	0.28	± 0.02
BACS52R4T2	A	2.10	± 0.02
	B	0.38	± 0.02
	C	0.28	± 0.02

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF BACS52R SHIELDED SPLICES



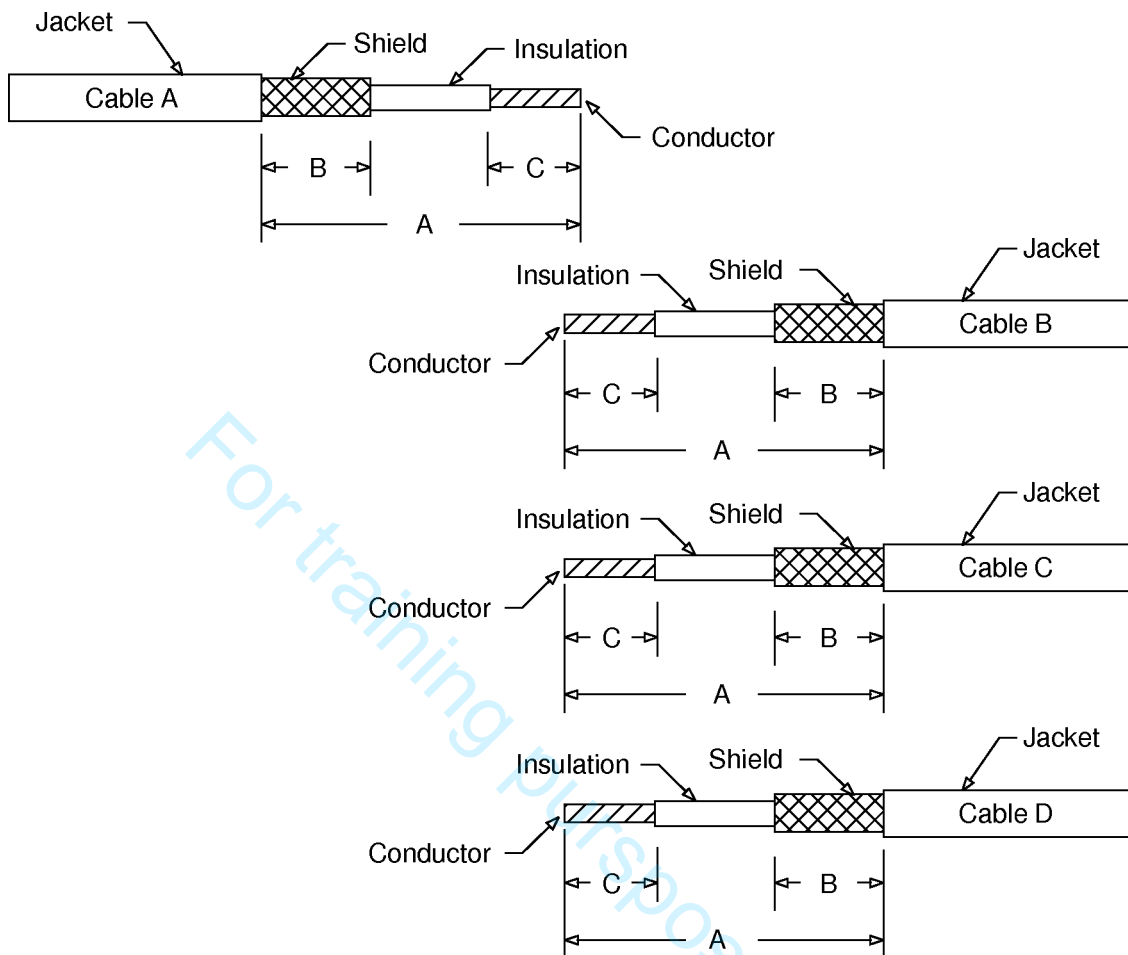
CABLE PREPARATION - 1 CABLE TO 1 CABLE, 1 CONDUCTOR
Figure 3



CABLE PREPARATION - 1 CABLE TO 2 CABLES, 1 CONDUCTOR
Figure 4

STANDARD WIRING PRACTICES MANUAL

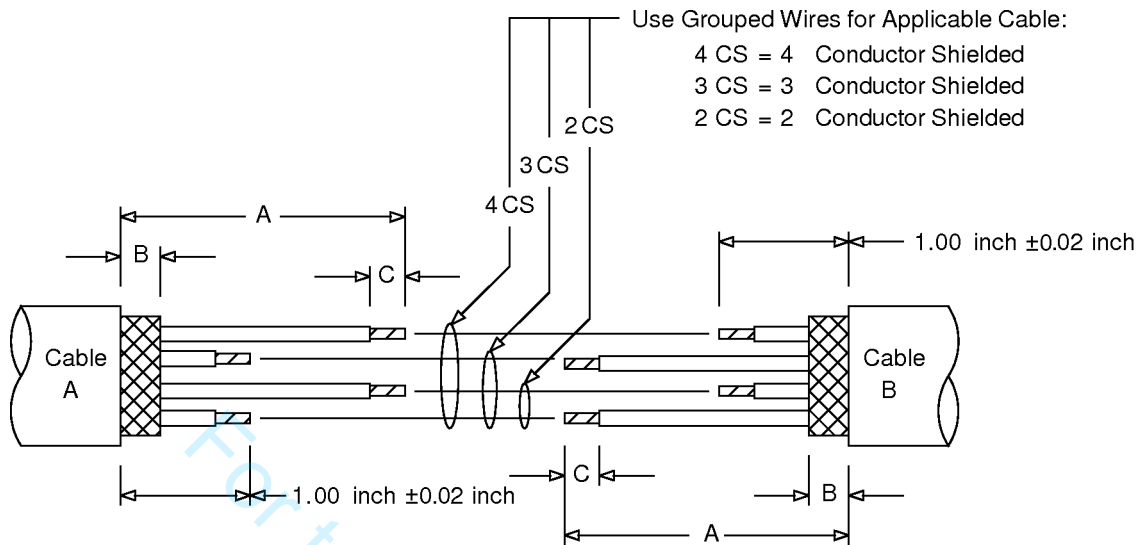
ASSEMBLY OF BACS52R SHIELDED SPLICES



CABLE PREPARATION - 1 CABLE TO 3 CABLES, 1 CONDUCTOR
Figure 5

STANDARD WIRING PRACTICES MANUAL

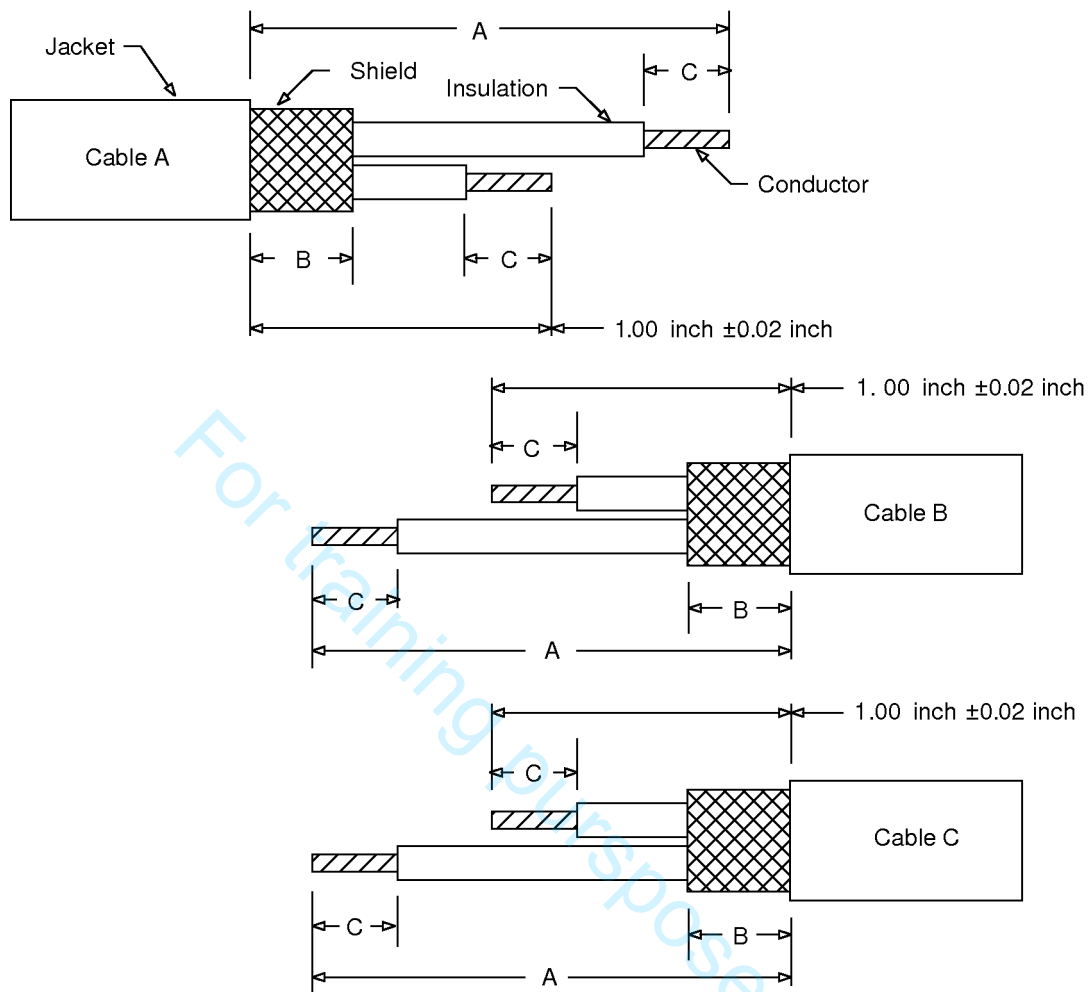
ASSEMBLY OF BACS52R SHIELDED SPLICES



CABLE PREPARATION - 1 CABLE TO 1 CABLE, 2, 3, OR 4 CONDUCTORS
Figure 6

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF BACS52R SHIELDED SPLICES

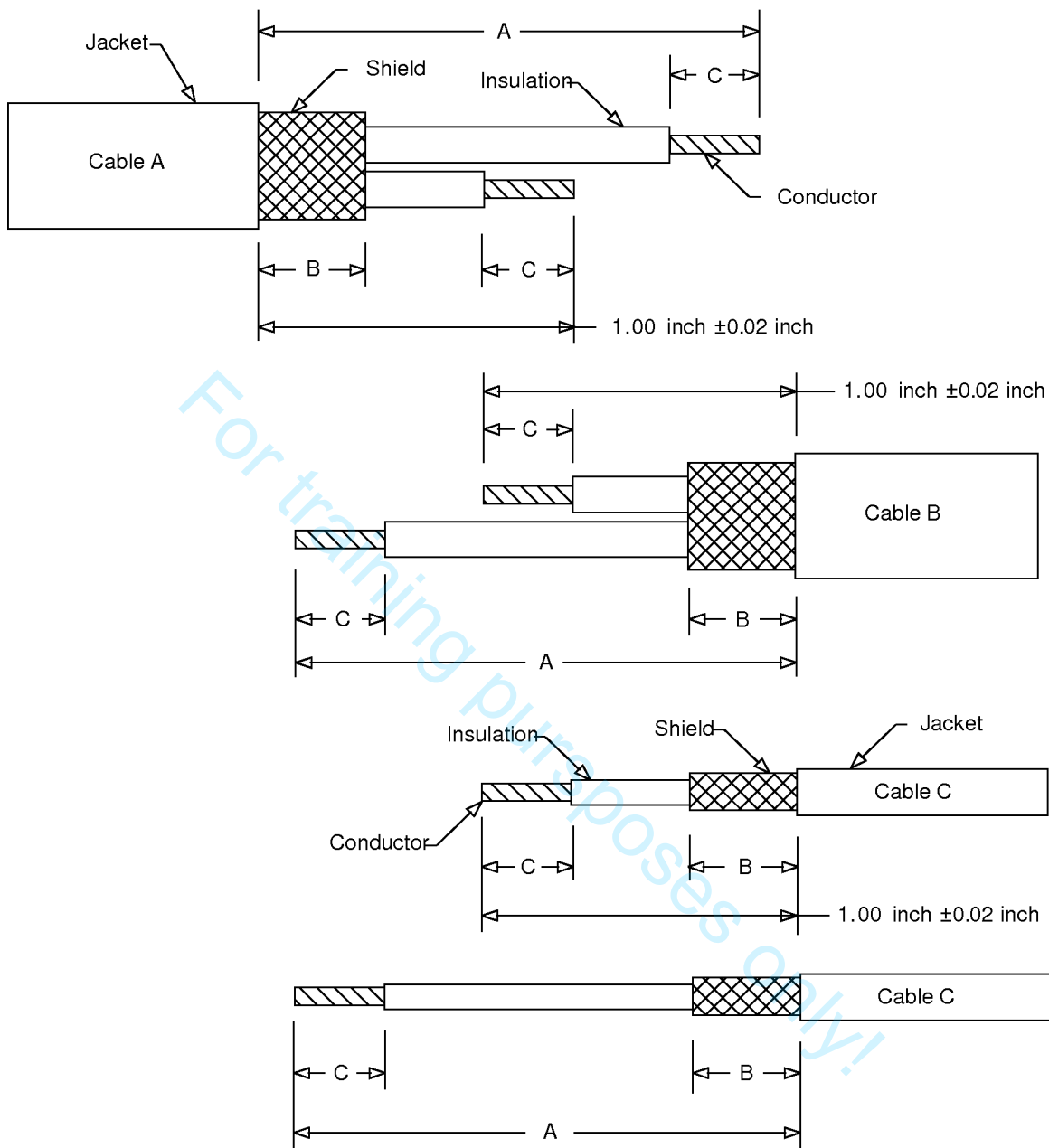


CABLE PREPARATION - 1 CABLE TO 2 CABLES, 2 CONDUCTORS

Figure 7

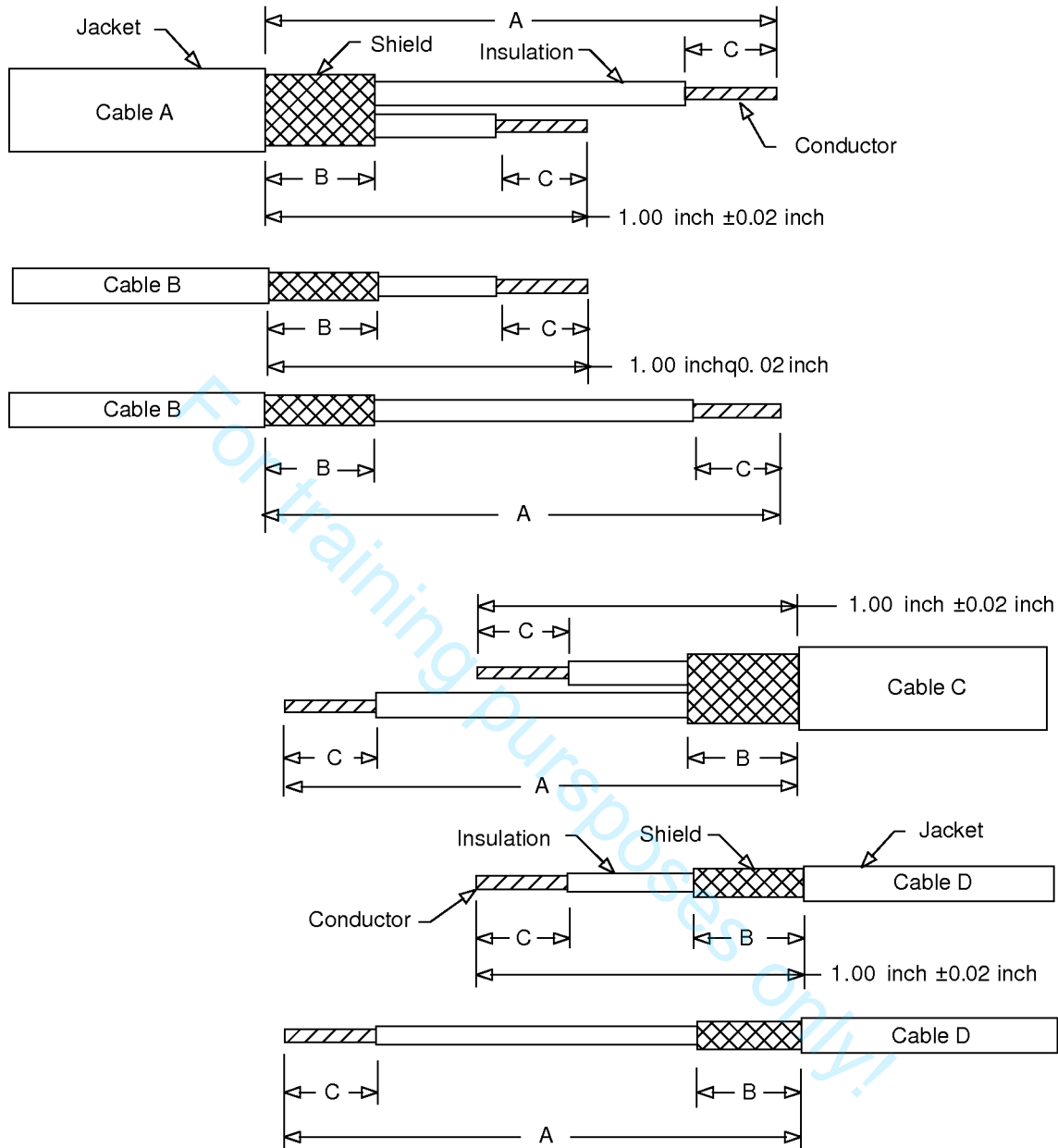
STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF BACS52R SHIELDED SPLICES



CABLE PREPARATION - 1 CABLE, 2 CONDUCTORS TO 1 CABLE, 2 CONDUCTORS AND 1 CABLE, 1 CONDUCTOR

Figure 8

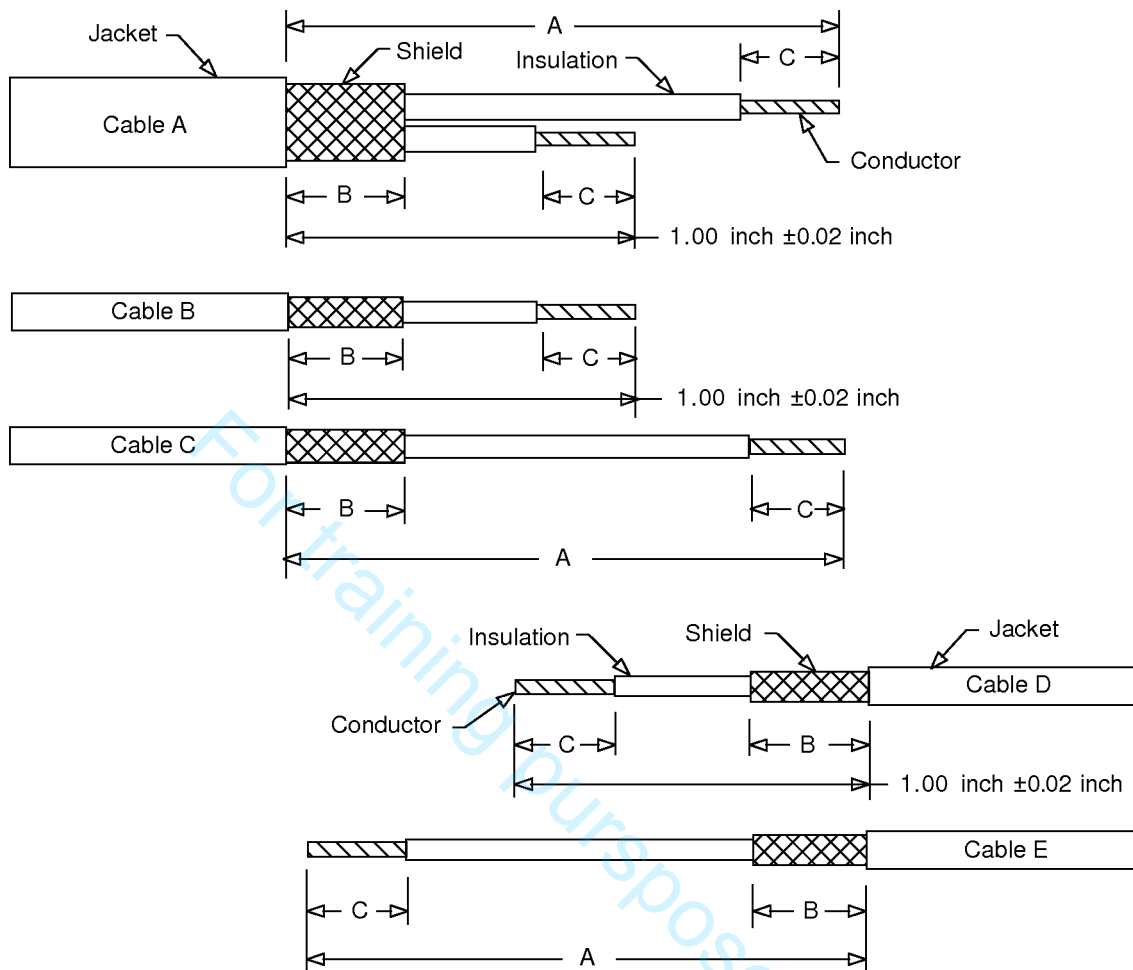
STANDARD WIRING PRACTICES MANUAL
ASSEMBLY OF BACS52R SHIELDED SPLICES


CABLE PREPARATION - 1 CABLE, 2 CONDUCTORS AND 1 CABLE, 1 CONDUCTOR TO 1 CABLE, 2 CONDUCTORS AND 1 CABLE, 1 CONDUCTOR

Figure 9

STANDARD WIRING PRACTICES MANUAL

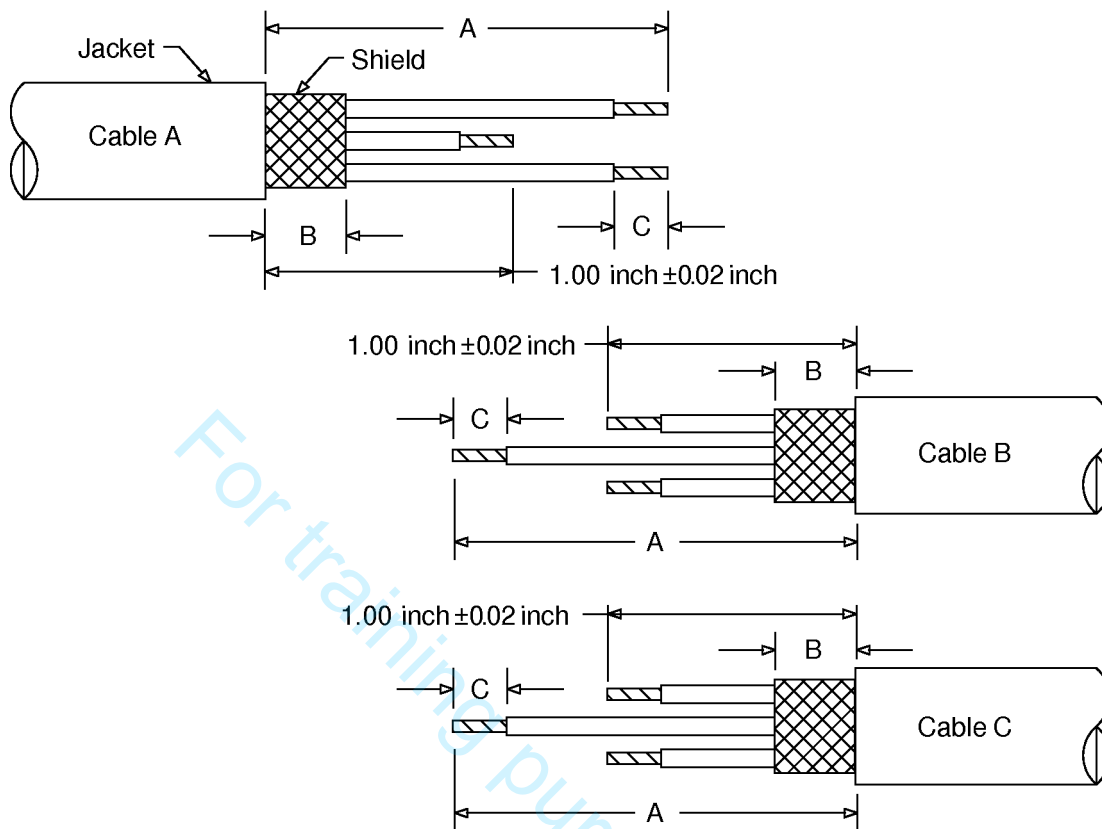
ASSEMBLY OF BACS52R SHIELDED SPLICES



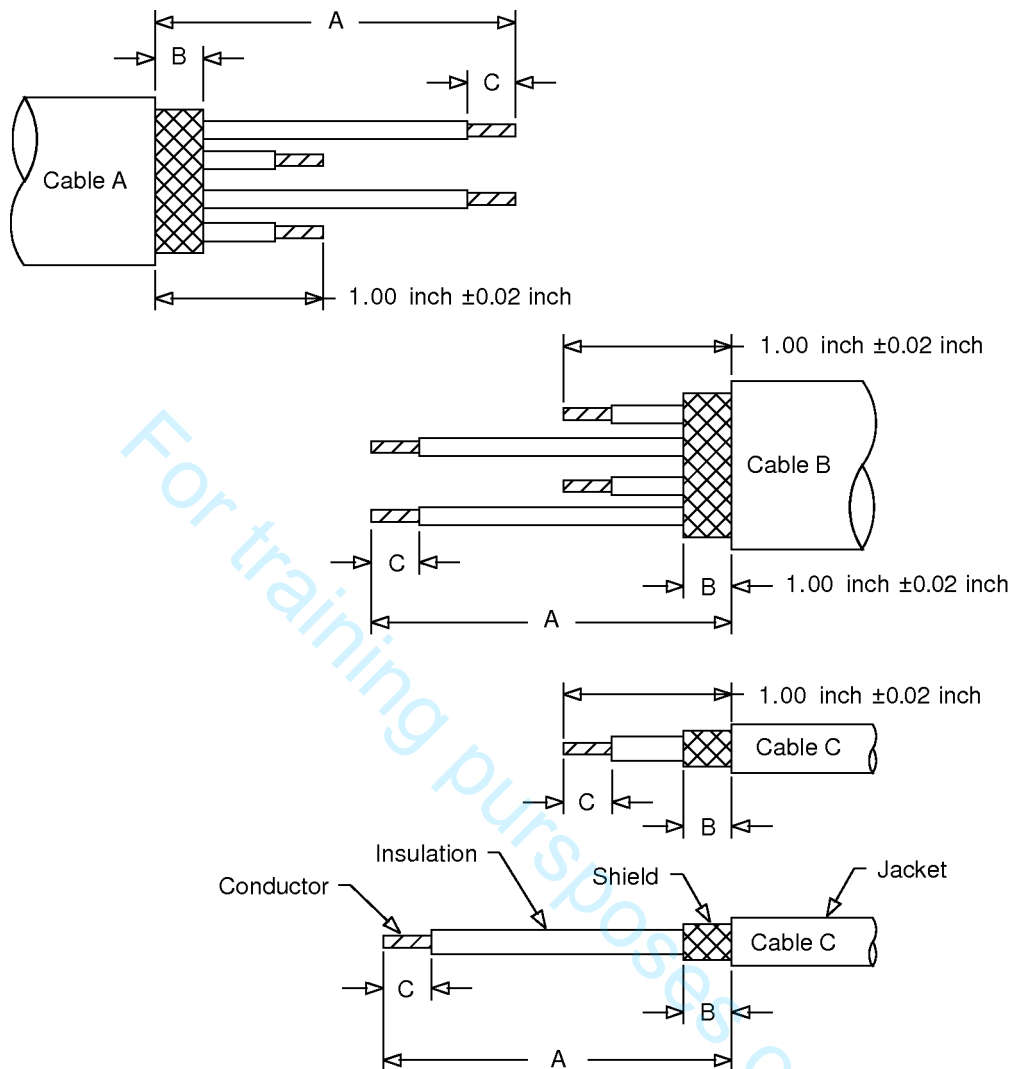
CABLE PREPARATION - 1 CABLE, 2 CONDUCTORS AND 2 CABLES, 1 CONDUCTOR TO 2 CABLES, 1 CONDUCTOR
Figure 10

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF BACS52R SHIELDED SPLICES



CABLE PREPARATION - 1 CABLE TO 2 CABLES, 3 CONDUCTORS
Figure 11

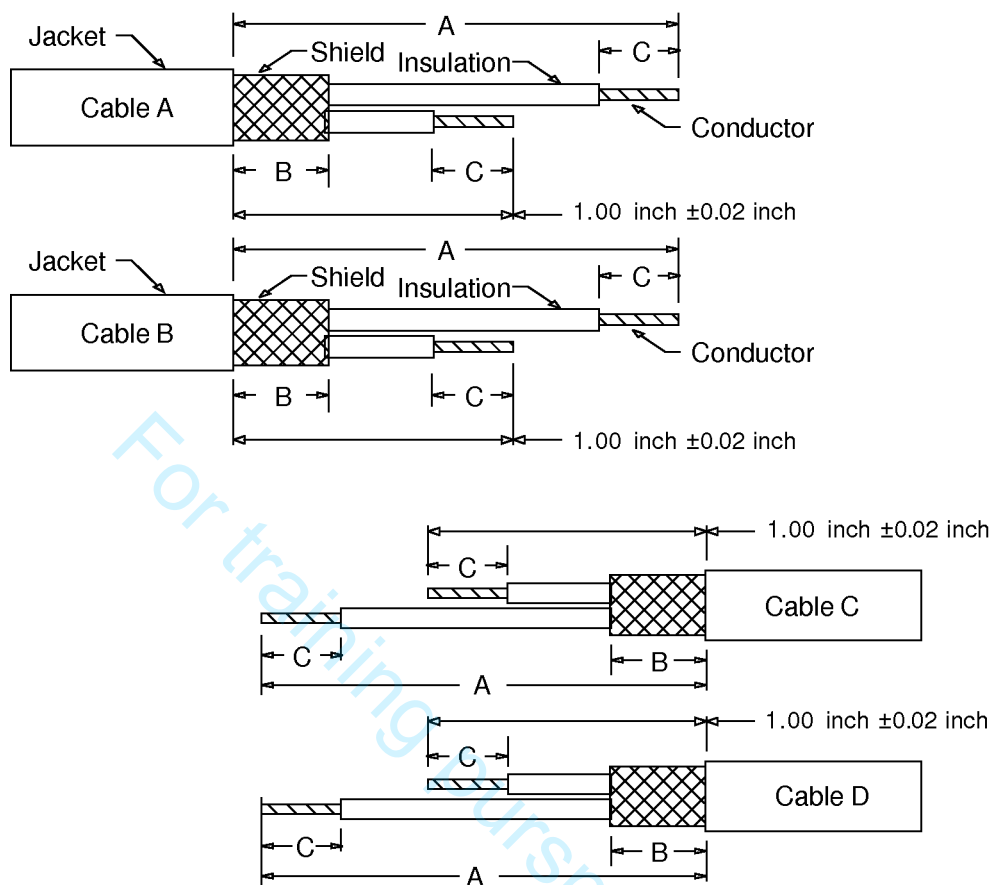
STANDARD WIRING PRACTICES MANUAL
ASSEMBLY OF BACS52R SHIELDED SPLICES


CABLE PREPARATION - 1 CABLE, 4 CONDUCTORS TO 1 CABLE, 4 CONDUCTORS AND 1 CABLE, 1 CONDUCTOR

Figure 12

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF BACS52R SHIELDED SPLICES



CABLE PREPARATION - 2 CABLES TO 2 CABLES, 2 CONDUCTORS

Figure 13

- (1) If one build-up sleeve is specified, put a 1.0 inch ± 0.1 inch length of the specified sleeve on the applicable wiring. Refer to Table 3.
- (2) If two build-up sleeves are specified, put the specified sleeves on the applicable wiring. Refer to Table 3.
 - (a) Put a 0.9 inch ± 0.1 inch length of the larger sleeve on the wiring.
 - (b) Put a 1.0 inch ± 0.1 inch length of the other sleeve on the wiring.
- (3) Prepare the end of each cable.

Refer to:

- Table 5 for the configuration of the wiring
 - Table 6 for the cable preparation dimensions.
- (a) Remove the necessary length of jacket from the cable that makes the distance from the end of the jacket to the end of the cable equal to dimension A.
Refer to Subject 20-00-15 for the procedure to remove the cable jacket.
 - (b) Remove the necessary length of shield that makes the distance from the end of the jacket to the end of the shield equal to dimension B.

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF BACS52R SHIELDED SPLICES

- (c) For each wire in the cable, remove the necessary length of insulation that makes the distance from the end of the insulation to the end of the equal to dimension C.

Refer to Subject 20-00-15 for the procedure to remove the insulation.

- (4) Put the solder shield sleeve on the cable or cables that are on the end of the splice assembly that has the smallest number of cables or the cable with the smallest diameter.

Make sure that the small end of the sleeve is put on first.

C. Cable Preparation - Special Configuration

For the conditions that are applicable for this procedure, refer to Paragraph 2.A..

Table 7
CABLE PREPARATION

Splice Kit Part Number	Cable Configuration	Dimension	Length (inch)		Special Instructions	Reference
			Target	Tolerance		
BACS52R2T1	2 Cables, 1 AWG 22 or AWG 24 Conductor	A	1.00	± 0.02	-	Figure 16
		B	0.38	± 0.02		
		C	0.28	± 0.02		
	1 Cable, 1 AWG 24 Conductor	A'	0.90	± 0.02	Fold the conductor back. Fold the shield back	
		B'	0.38	± 0.02		
		C'	0.56	± 0.02		
BACS52R2T1	2 Cables, 1 AWG 22 or AWG 24 Conductor	A	1.00	± 0.02	-	Figure 16
		B	0.38	± 0.02		
		C	0.28	± 0.02		
	1 Cable, 1 AWG 22 Conductor	A'	1.30	± 0.02	Fold the conductor back	
		B'	0.38	± 0.02		
		C'	0.56	± 0.02		
BACS52R2T1	1 Cable, 1 AWG 16, AWG 18, or AWG 20 Conductor	A	1.00	± 0.02	-	Figure 14
		B	0.38	± 0.02		
		C	0.28	± 0.02		
	1 Cable, 1 AWG 24 Conductor	A'	0.90	± 0.02	Fold the conductor back. Fold the shield back	
		B'	0.38	± 0.02		
		C'	0.56	± 0.02		

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF BACS52R SHIELDED SPLICES

Table 7 (continued)

Splice Kit Part Number	Cable Configuration	Dimension	Length (inch)		Special Instructions	Reference
			Target	Tolerance		
BACS52R2T1	1 Cable, 1 AWG 16, AWG 18, or AWG 20 Conductor	A	1.00	± 0.02	-	Figure 14
		B	0.38	± 0.02		
		C	0.28	± 0.02		
	1 Cable, 1 AWG 22 Conductor	A'	1.30	± 0.02	Fold the conductor back	
		B'	0.38	± 0.02		
		C'	0.56	± 0.02		
BACS52R2T1	1 Cable, 1 AWG 22 Conductor, 1 Cable, 1 AWG 24 Conductor	A	1.00	± 0.02	-	Figure 15
		B	0.38	± 0.02		
		C	0.28	± 0.02		
	1 Cable, 1 AWG 22 Conductor	A'	1.30	± 0.02	Fold the conductor back	
		B'	0.38	± 0.02		
		C'	0.56	± 0.02		
BACS52R2T2	2 Cables, 2 AWG 22 Conductors	A	2.10	± 0.02	-	Figure 19
		B	0.38	± 0.02		
		C	0.28	± 0.02		
	1 Cable, 2 AWG 22 Conductors	A'	2.38	± 0.02	Fold the conductor back	
		B'	0.38	± 0.02		
		C'	0.56	± 0.02		
BACS52R2T2	1 Cable, 2 AWG 16, AWG 18 or AWG 20 Conductors	A	2.10	± 0.02	Fold the conductors back	Figure 18
		B	0.38	± 0.02		
		C	0.28	± 0.02		
	1 Cable, 2 AWG 22 or AWG 24 Conductors	A'	2.38	± 0.02	Fold the conductor back	
		B'	0.38	± 0.02		
		C'	0.56	± 0.02		
BACS52R2T4	1 Cable, 2 AWG 22 or AWG 24 Conductors	A	2.38	± 0.02	Fold the conductors back	Figure 17
		B	0.38	± 0.02		
		C	0.56	± 0.02		
	1 Cable, 2 AWG 22 or AWG 24 Conductors	A'	2.38	± 0.02	Fold the conductors back	
		B'	0.38	± 0.02		
		C'	0.56	± 0.02		

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF BACS52R SHIELDED SPLICES

Table 7 (continued)

Splice Kit Part Number	Cable Configuration	Dimension	Length (inch)		Special Instructions	Reference
			Target	Tolerance		
BACS52R2T4	2 Cables, 2 AWG 22 or AWG 24 Conductors	A	2.10	± 0.02	-	Figure 19
		B	0.38	± 0.02		
		C	0.28	± 0.02		
	1 Cable, 2 AWG 22 or AWG 24 Conductors	A'	2.38	± 0.02	Fold the conductors back	
		B'	0.38	± 0.02		
		C'	0.56	± 0.02		
BACS52R2T4	2 Cables, 2 AWG 26 Conductors	A	2.38	± 0.02	Fold the conductors back	Figure 20
		B	0.38	± 0.02		
		C	0.56	± 0.02		
	2 Cables, 2 AWG 26 Conductors	A'	2.38	± 0.02	Fold the conductors back	
		B'	0.38	± 0.02		
		C'	0.56	± 0.02		
BACS52R3T1	1 Cable, 1 AWG 12 Conductor	A	1.00	± 0.02	-	Figure 14
		B	0.38	± 0.02		
		C	0.28	± 0.02		
	1 Cable, 1 AWG 18 or AWG 20 Conductor	A'	0.90	± 0.02	Fold the conductor back. Fold the shield back	
		B'	0.38	± 0.02		
		C'	0.56	± 0.02		
BACS52R3T1	2 Cables, 1 AWG 16, AWG 18, or AWG 20 Conductor	A	1.00	± 0.02	-	Figure 16
		B	0.38	± 0.02		
		C	0.28	± 0.02		
	1 Cable, 1 AWG 18 or AWG 20 Conductor	A'	0.90	± 0.02	Fold the conductor back. Fold the shield back	
		B'	0.38	± 0.02		
		C'	0.56	± 0.02		
BACS52R3T2	1 Cable, 2 AWG 12 Conductors	A	2.10	± 0.02	-	Figure 22
		B	0.38	± 0.02		
		C	0.28	± 0.02		
	1 Cable, 2 AWG 20 Conductors	A'	2.00	± 0.02	Fold the conductor back. Fold the shield back	
		B'	0.38	± 0.02		
		C'	0.56	± 0.02		

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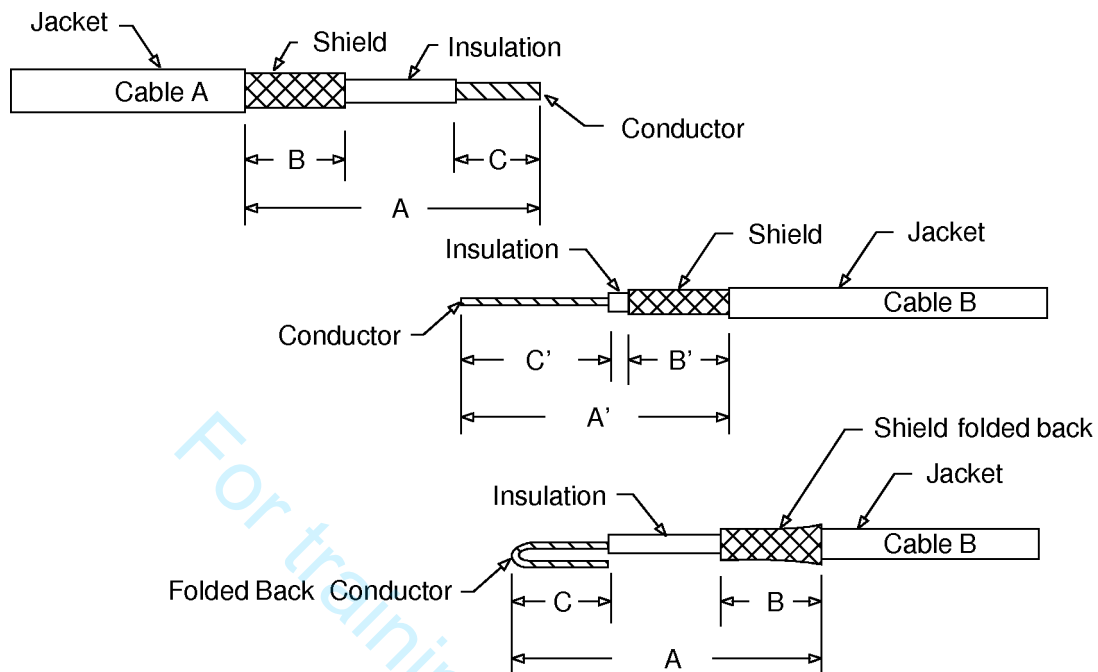
ASSEMBLY OF BACS52R SHIELDED SPLICES

Table 7 (continued)

Splice Kit Part Number	Cable Configuration	Dimension	Length (inch)		Special Instructions	Reference
			Target	Tolerance		
BACS52R3T2	1 Cable, 2 AWG 14 Conductors	A	2.10	± 0.02	-	Figure 22
		B	0.38	± 0.02		
		C	0.28	± 0.02		
	1 Cable, 2 AWG 20 Conductors	A'	2.00	± 0.02	Fold the conductor back. Fold the shield back	
		B'	0.38	± 0.02		
		C'	0.56	± 0.02		
BACS52R3T3	2 Cables 2 AWG 18 Conductors	A	2.10	± 0.02	-	Figure 18
		B	0.38	± 0.02		
		C	0.28	± 0.02		
	1 Cable 2 AWG 18 Conductors	A'	2.38	± 0.02	Fold the conductor back. Fold the shield back	
		B'	0.38	± 0.02		
		C'	0.56	± 0.02		
BACS52R4T1	2 Cables, 1 AWG 14 Conductor	A	1.00	± 0.02	-	Figure 16
		B	0.38	± 0.02		
		C	0.28	± 0.02		
	1 Cable, 1 AWG 14 Conductor	A'	0.90	± 0.02	Fold the conductor back. Fold the shield back	
		B'	0.38	± 0.02		
		C'	0.56	± 0.02		
BACS52R4T1	1 Cable, 1 AWG 10 Conductor	A	1.00	± 0.02	-	Figure 14
		B	0.38	± 0.02		
		C	0.28	± 0.02		
	1 Cable, 1 AWG 16 Conductor	A'	0.90	± 0.02	Fold the conductor back. Fold the shield back.	
		B'	0.38	± 0.02		
		C'	0.56	± 0.02		

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ASSEMBLY OF BACS52R SHIELDED SPLICES

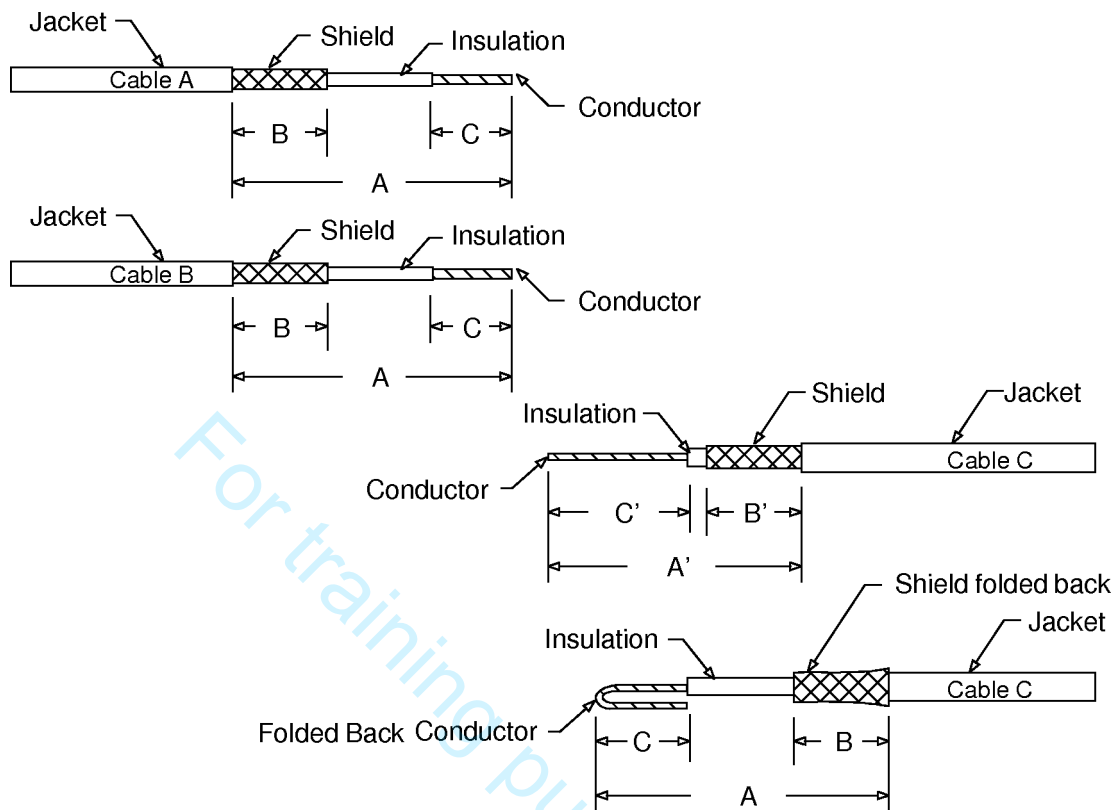


CABLE PREPARATION - 1 CLASS 1 CABLE TO 1 CLASS 1 CABLE

Figure 14

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF BACS52R SHIELDED SPLICES

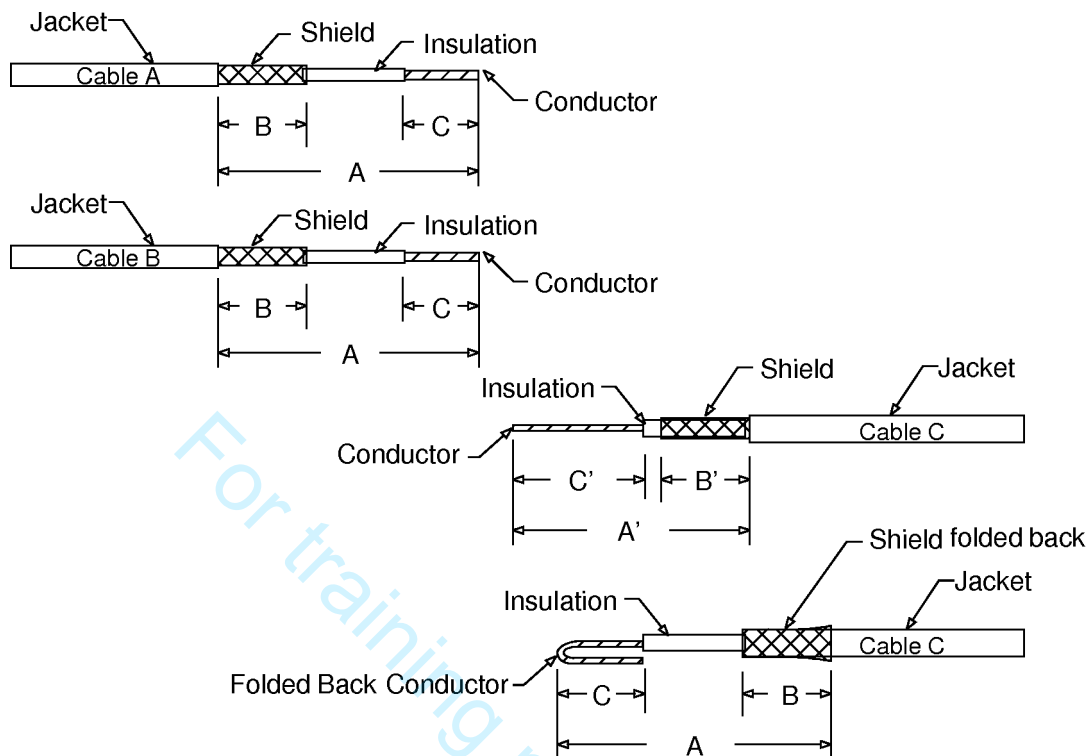


CABLE PREPARATION - 1 CLASS 2 CABLE TO 1 CLASS 2 CABLE

Figure 15

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF BACS52R SHIELDED SPLICES

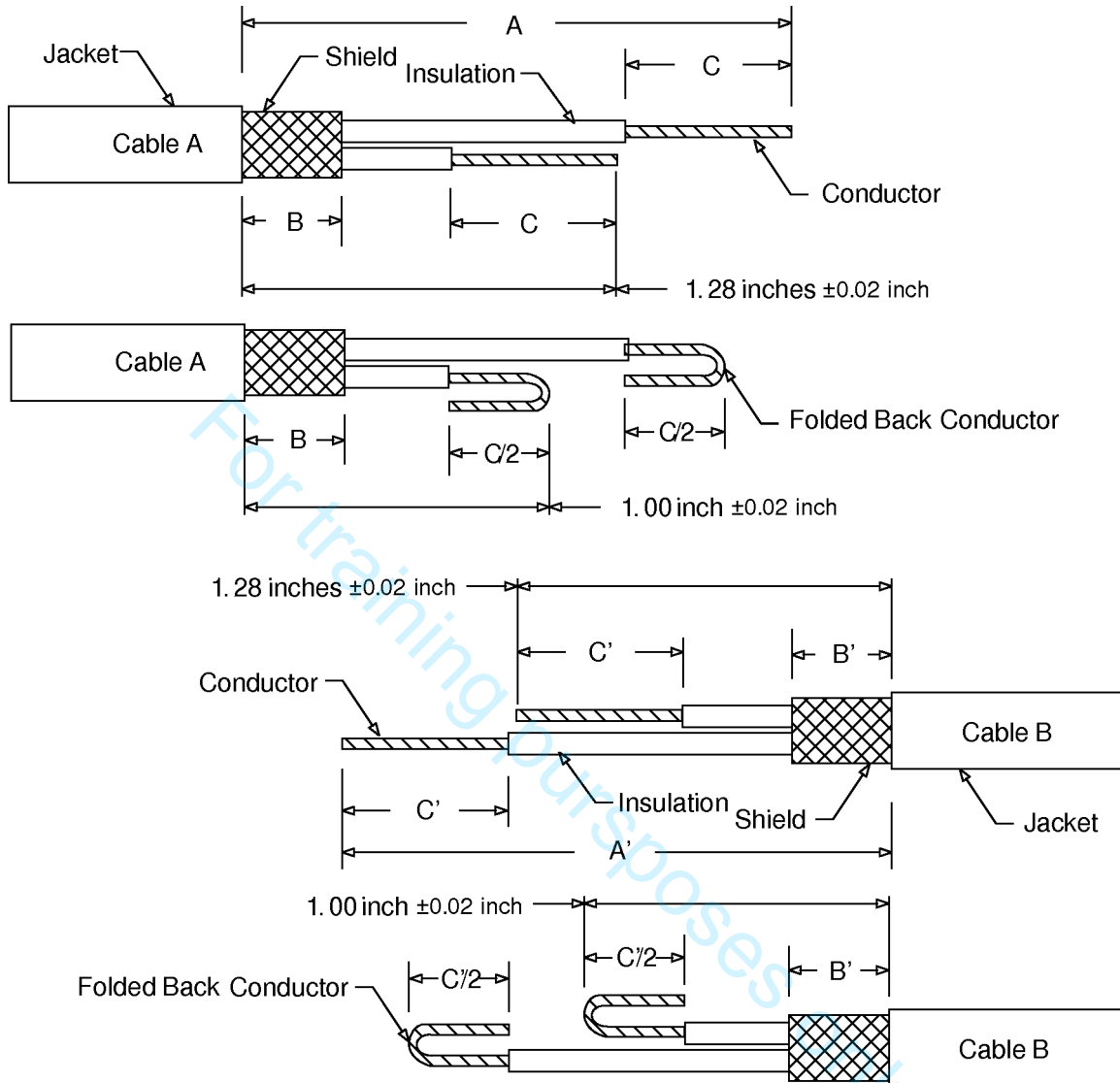


CABLE PREPARATION - 2 CLASS 1 CABLES TO 1 CLASS 1 CABLE

Figure 16

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF BACS52R SHIELDED SPLICES

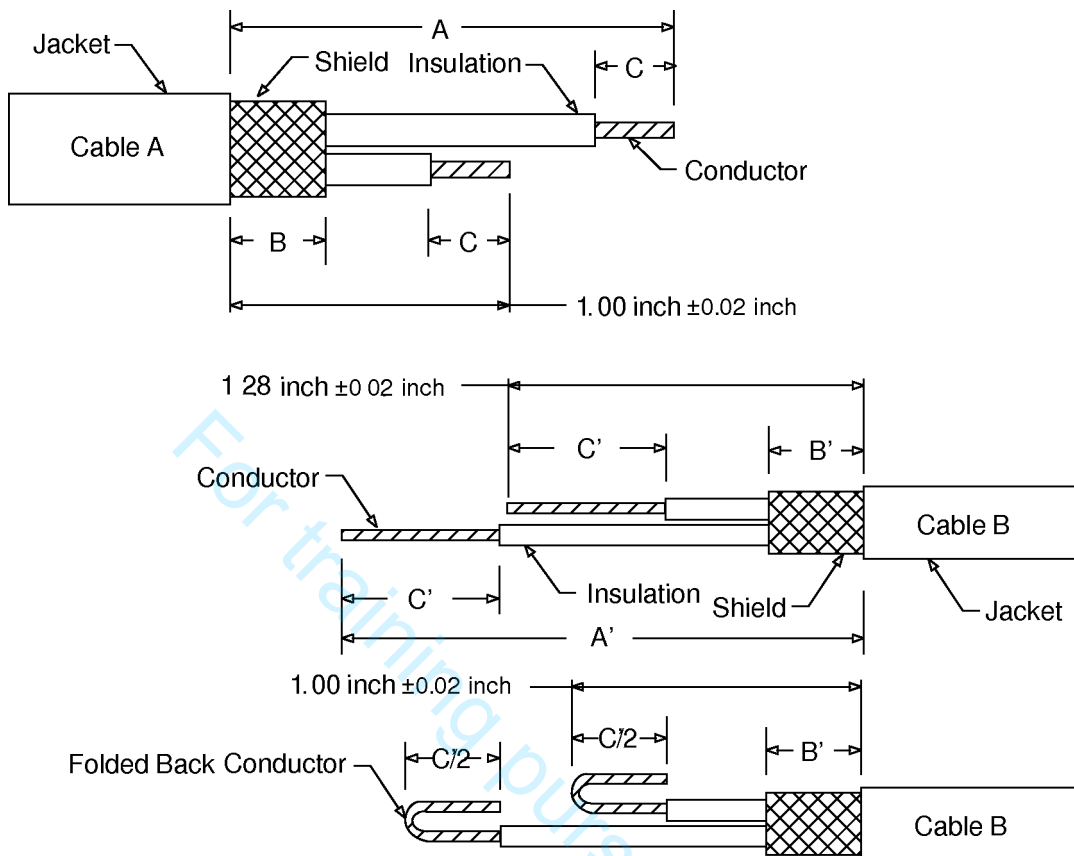


CABLE PREPARATION - 1 CLASS 2 CABLE TO 1 CLASS 2 CABLE

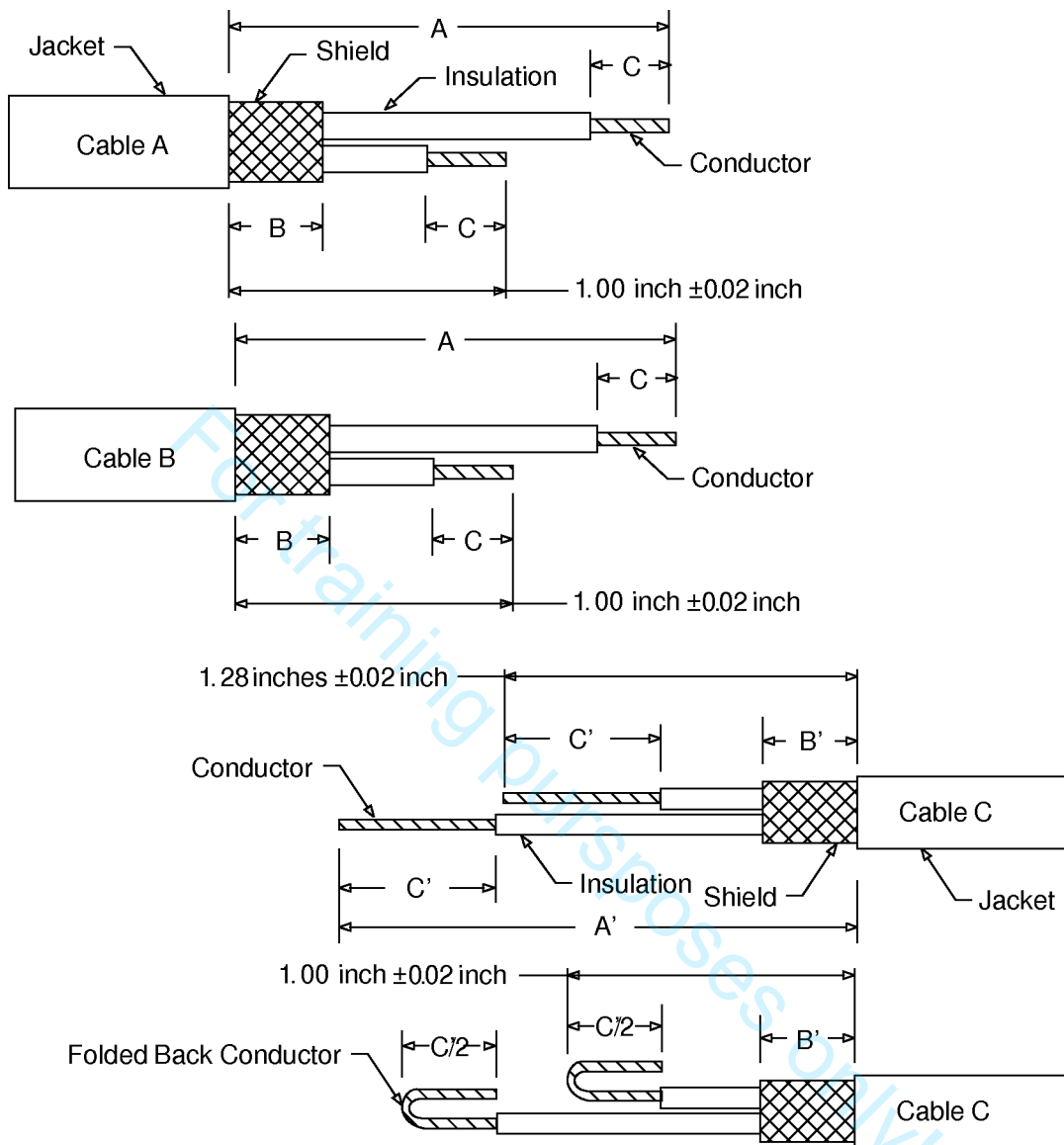
Figure 17

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ASSEMBLY OF BACS52R SHIELDED SPLICES

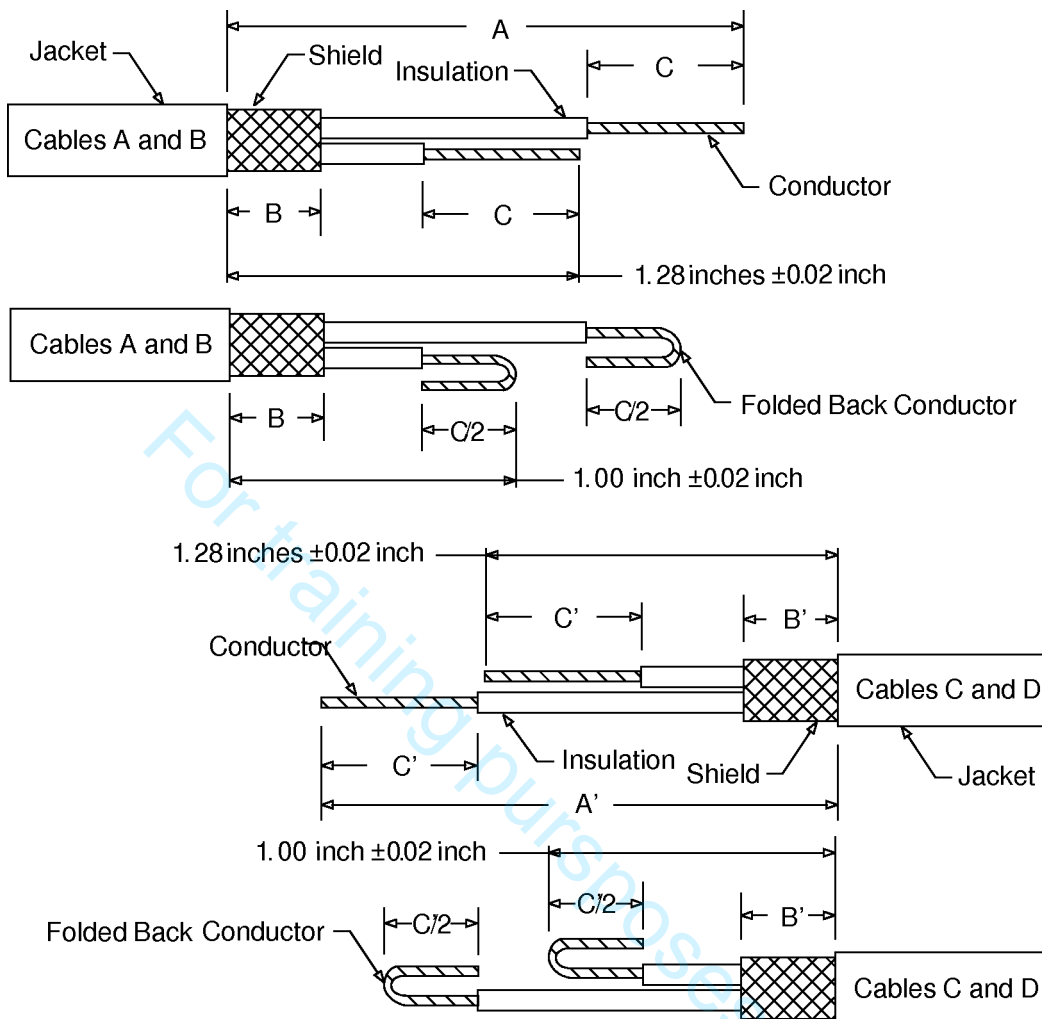


CABLE PREPARATION - 1 CLASS 2 CABLE TO 1 CLASS 2 CABLE
Figure 18

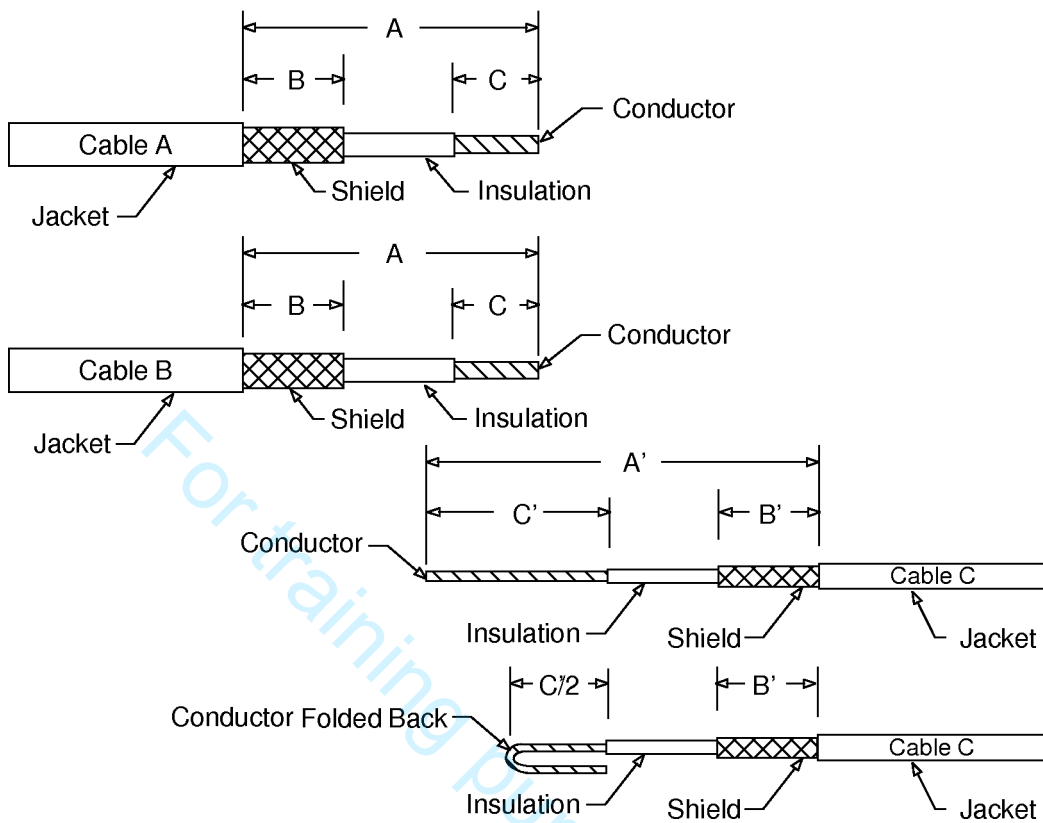
STANDARD WIRING PRACTICES MANUAL
ASSEMBLY OF BACS52R SHIELDED SPLICES

CABLE PREPARATION - 2 CLASS 2 CABLES TO 1 CLASS 2 CABLE
Figure 19

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF BACS52R SHIELDED SPLICES

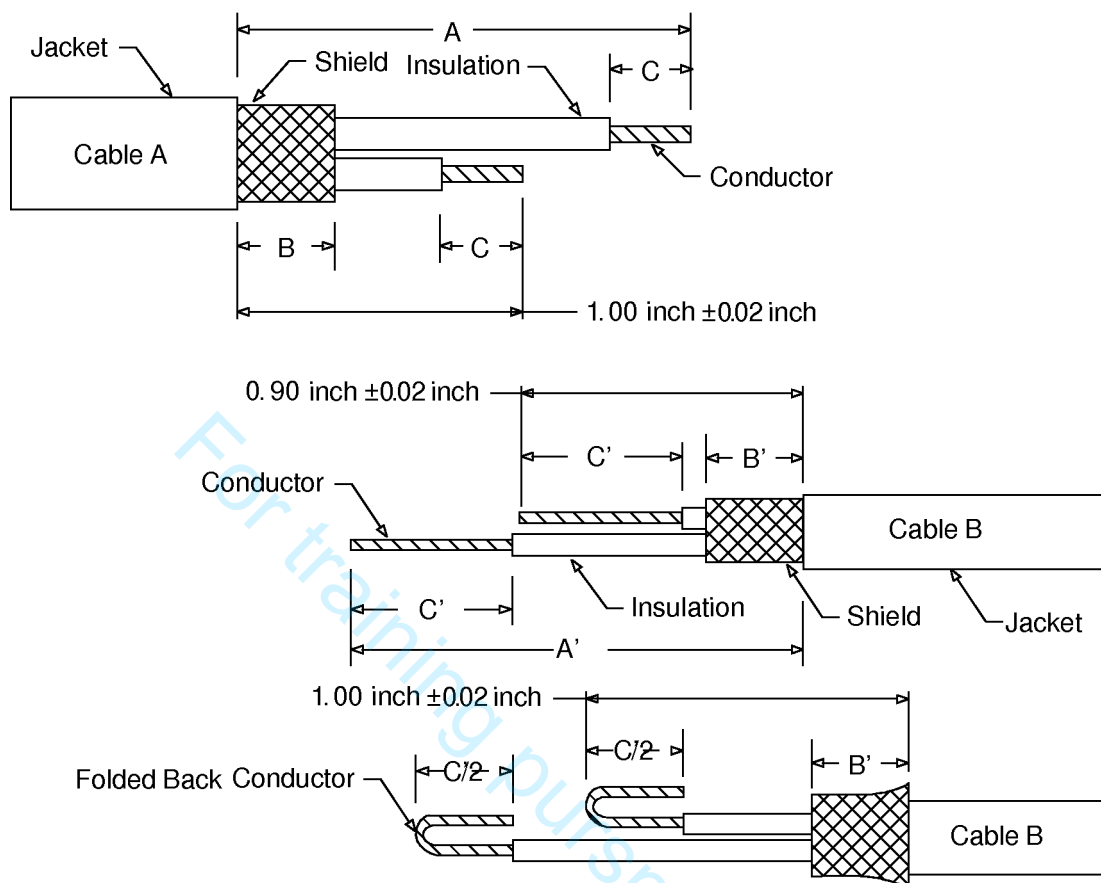


CABLE PREPARATION - 2 CLASS 2 CABLES TO 2 CLASS 2 CABLES
Figure 20

STANDARD WIRING PRACTICES MANUAL
ASSEMBLY OF BACS52R SHIELDED SPLICES

CABLE PREPARATION - 2 CLASS 1 CABLES TO 1 CLASS 1 CABLE
Figure 21

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF BACS52R SHIELDED SPLICES



CABLE PREPARATION - 2 CLASS 2 CABLES TO 2 CLASS 2 CABLES

Figure 22

For the cable preparation dimensions, refer to Table 7.

- (1) If one build-up sleeve is specified, put a 1.0 inch ± 0.1 inch length of the specified sleeve on the applicable wiring. Refer to Table 3.
- (2) If two build-up sleeves are specified, put the specified sleeves on the applicable wiring. Refer to Table 3.
 - (a) Put a 0.9 inch ± 0.1 inch length of the larger sleeve on the wiring
 - (b) Put a 1.0 inch ± 0.1 inch length of the other sleeve on the wiring
- (3) Prepare the end of each cable:
 - (a) Remove the necessary length of jacket from the end of the cable to make the distance from the end of the jacket to the end of the cable equal to dimension A or dimension A'.
Refer to Subject 20-00-15 for the procedure to remove the cable jacket.
 - (b) Remove the necessary length of shield to make the distance from the end of the jacket to the end of the shield equal to dimension B or dimension B'.
 - (c) If it is specified, fold the shield back. Refer to Table 7.
 - (d) For each wire in the cable, remove the necessary length of insulation to make the distance from the end of the insulation to the end of the conductor equal to dimension C or dimension C'.

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF BACS52R SHIELDED SPLICES

Refer to Subject 20-00-15 for the procedure to remove the insulation.

- (e) If it is specified, fold the conductor back. Refer to Table 7.
- (4) Put the solder shield splice sleeve on the cable or cables that are on the end of the splice assembly that has the smallest number of cables or the cable with the smallest diameter.

Make sure that the small end of the sleeve is put on first.

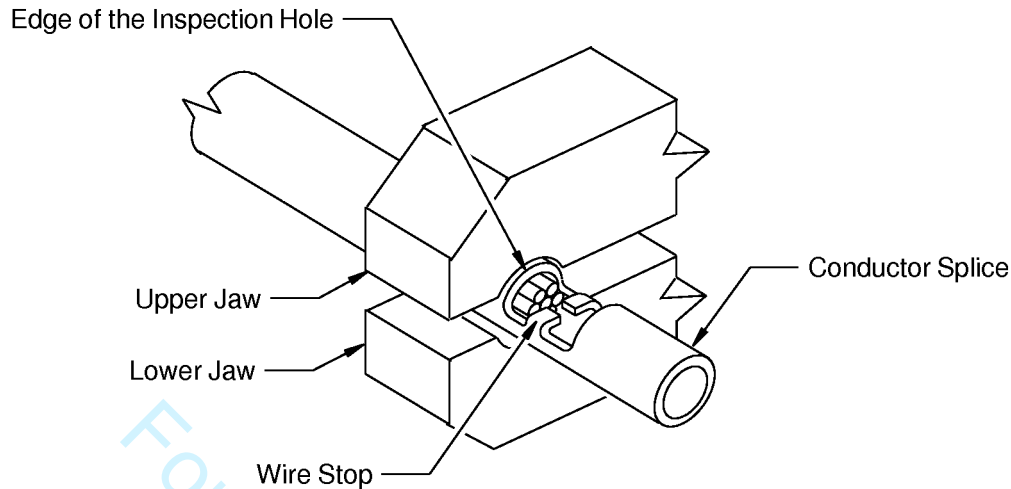
D. Assembly of the Conductor Splice

Table 8
CONDUCTOR SPLICE CRIMP TOOLS

Crimp Barrel Size	Type	Basic Unit	Die	Die or Nest Color	Supplier
20-26	Hand	AD1377	-	Red	Tyco Electronics
		GMT-232	-	Red	Daniels
		ST956C	-	Red	Boeing
		ST956D	-	Red	Boeing
	Power	PMTB-232	-	Red	Daniels
16-20	Hand	AD1377	-	Blue	Tyco Electronics
		GMT-232	-	Blue	Daniels
		ST956C	-	Blue	Boeing
		ST956D	-	Blue	Boeing
	Power	PMTB-232	-	Blue	Daniels
12-16	Hand	AD1377	-	Yellow	Tyco Electronics
		GMT-232	-	Yellow	Daniels
		ST956C	-	Yellow	Boeing
		ST956D	-	Yellow	Boeing
	Power	PMTB-232	-	Yellow	Daniels
12-10	Hand	49935	-	12-10	AMP
		59461	-	12-10	AMP
		M22520/5-01	Y641	12-10	QPL

- (1) Make a selection of a splice crimp tool from Table 8.
- (2) Put a seal sleeve on the wire or wires.
- (3) Assemble one end of the splice:
 - (a) Put one half of the conductor splice in the tool. Refer to Figure 23.

If the conductor splice has a seam, make sure that the seam is on the same side as the indenter.

STANDARD WIRING PRACTICES MANUAL
ASSEMBLY OF BACS52R SHIELDED SPLICES

POSITION OF THE CONDUCTOR SPLICE IN THE CRIMP TOOL
Figure 23

- (b) Slowly close the jaws of the tool until the splice is held in position.
- (c) If it is necessary, adjust the position of the splice in the crimp tool to make sure that the crimp occurs on correct location on the crimp barrel.
- (d) Put the conductors of the wire or wires in the crimp barrel of the splice. Refer to Figure 23.

Make sure that:

- The end of each conductor can be seen in the inspection hole
- The end of each conductor does not make an overlap with the wire stop
- The insulation of each wire is not in the crimp barrel
- The wires do not go across each other between the end of the wire seal and the splice.

- (e) Crimp the splice.

Make sure that:

- The splice does not have a crack
- The insulation of the wire or wires is not in the crimp barrel
- The distance between the end of the insulation and the crimp barrel is not more than 0.03 inch.

NOTE: Flaking of the plating on the conductor splice in the crimp area is permitted.

- (4) Do Step (3) again for the other end of the splice.
- (5) Align the center of the seal sleeve and the center of the conductor splice.

Make sure that:

- The seal sleeve is between the strands of the shield and the conductor splice
- The strands of the shield are not between the seal sleeve and the conductor splice.

- (6) If the seal sleeve makes an overlap with the shield, move the strands apart and put the sleeve between the shield and the conductor splice.

Make sure that the strands of the shield are not between the seal sleeve and the conductor splice.

- (7) Shrink the seal sleeve into its position.

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ASSEMBLY OF BACS52R SHIELDED SPLICES

Refer to:

- Table 1 for the seal sleeve part number
- Subject 20-10-14 for the procedure to shrink the sleeve.

Make sure that sufficient heat is applied on the ends of the seal sleeve to melt the seal rings on the wire insulation on each side of the splice assembly.

- (8) If the strands of the shield are moved apart, put the strands against the seal sleeve.

E. Assembly of the Shield Splice

Table 9
SOLDER SHIELD SPLICE SLEEVE INSTALLATION TOOLS

Tool			Reflector	
Description	Part Number	Supplier	Part Number	Supplier
Hot Air Gun	HL1802E	Steinel	07061	Steinel
		Steinel	07461	Steinel
	HL1910E	Steinel	07061	Steinel
		Steinel	07461	Steinel
I/R Heat Tool	IR-550	Tyco	RG-2	Tyco
	IR-1759	Tyco	AE-424	Tyco

- (1) Make a selection of a heat tool from Table 9

NOTE: A different tool is a satisfactory alternative if it can give equivalent results.

NOTE: If it is not possible, a hot air gun without a reflector is permitted.

- (2) If one build-up sleeve is on the wiring:

- Push the sleeve forward until the forward end of the sleeve is 0.2 inch \pm 0.03 inch from the rear edge of the shield.
- Shrink the sleeve into its position. Refer to Subject 20-10-14.
Make sure that the sleeve has a tight fit on the wiring.

- (3) If two build-up sleeves are on the wiring:

- Push the smaller sleeve forward until the forward end of the sleeve is 0.2 inch \pm 0.03 inch from the rear edge of the shield.
- Shrink the sleeve into its position. Refer to Subject 20-10-14.
Make sure that the sleeve has a tight fit on the wiring.
- Push the other sleeve forward until the forward end of the sleeve is 0.2 inch \pm 0.03 inch from the rear edge of the shield.
- Shrink the sleeve into its position. Refer to Subject 20-10-14.
Make sure that the sleeve has a tight fit on the first sleeve.

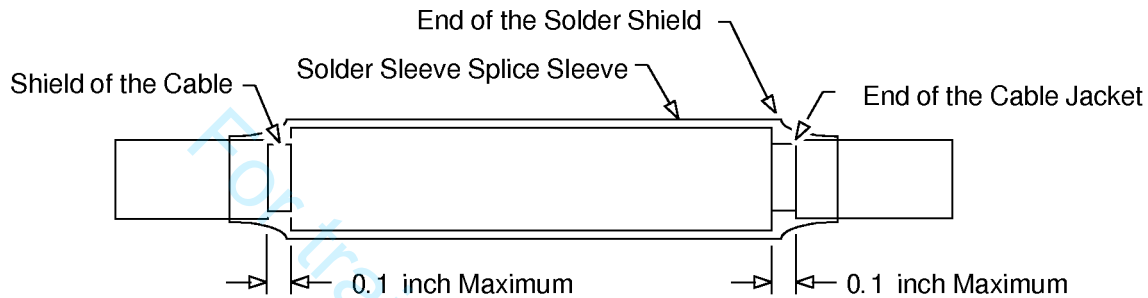
- (4) Align the center of the solder shield splice sleeve with the approximate center of the cable splice assembly on the two cables.

- (5) Apply heat to the center of the solder shield splice sleeve until the solder starts to melt and the sleeve starts to shrink tight on the cables.

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ASSEMBLY OF BACS52R SHIELDED SPLICES

- (6) Slowly move the heat toward one end of the shield to make the sleeve shrink as the heat is applied.
- (7) Apply more heat to the final half inch of the shield for 5 to 10 seconds.
Make sure that sufficient heat is applied to make a good solder joint.
- (8) Move the heat to the end of the sleeve until the seal ring is melted on the jacket of the cable. Refer to Figure 24.
Make sure that not more than 0.1 inch of the shield of the cable can be seen through the sleeve at each end of the splice assembly.


POSITION OF THE SOLDER SHIELD SPLICE SLEEVE
Figure 24

- (9) Do Step (5) through Step (8) again for the other half of the sleeve.



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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF TERMINALS AND SPLICES UNDER SPECIAL CONDITIONS

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF TERMINALS AND SPLICES UNDER SPECIAL CONDITIONS

This Subject gives the procedures to assemble terminals and splices when:

- The wire size is smaller than the crimp barrel of the terminal or splice
- The size of the wire insulation is smaller than the insulation grip of the terminal or splice
- The terminal or splice is assembled with more than one wire.

1. CIRCULAR AREA UNITS

A. Circular Area Units of Conductors

For the Circular Area Units (CAU) of a conductor, refer to Table 1.

CAU can be calculated if the Circular Mil Area (CMA) of a conductor is known. Refer to Figure 1.

NOTE: The circular mils of a conductor can be found in all wire tables. If the tables are not available, the CMA can be calculated. Refer to Figure 1.

$$CAU = \frac{CMA}{100} = \frac{(1000 \times \text{Strand Diameter})^2}{100} \times \text{Number of Strands}$$

CIRCULAR AREA UNITS OF A CONDUCTOR
Figure 1

Table 1
CAU OF CONDUCTORS

Wire Size (AWG)	Conductor		
	Type	Maximum O.D. (inch)	CAU
32	Solid	0.008	0.6
	Stranded	0.009	0.6
30	Solid	0.010	1
	Stranded	0.012	1
28	Solid	0.013	1.6
	Stranded	0.015	1.6
26	Solid	0.016	3
	Stranded	0.019	3
24	Solid	0.020	5
	Stranded	0.024	5
22	Solid	0.025	8
	Stranded	0.030	8
20	Solid	0.032	12
	Stranded	0.038	12
18	Solid	0.040	19
	Stranded	0.046	19

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ASSEMBLY OF TERMINALS AND SPLICES UNDER SPECIAL CONDITIONS

Table 1 (continued)

Wire Size (AWG)	Conductor		
	Type	Maximum O.D. (inch)	CAU
16	Solid	0.051	24
	Stranded	0.059	24
15	Solid	0.057	33
	Stranded	0.065	33
14	Solid	0.064	38
	Stranded	0.074	38
13	Solid	0.072	52
	Stranded	0.082	52
12	Solid	0.081	59
	Stranded	0.093	59
10	Solid	0.102	99
	Stranded	0.117	99
8	Solid	0.129	170
	Stranded	0.148	170
6	Solid	0.162	268
	Stranded	0.186	268
4	Solid	0.204	426
	Stranded	0.235	426
2	Solid	0.258	665
	Stranded	0.297	665
1	Solid	0.290	837
	Stranded	0.328	837
1/0	Solid	0.352	1045
	Stranded	0.374	1045
2/0	Solid	0.365	1330
	Stranded	0.420	1330
3/0	Solid	0.410	1665
	Stranded	0.472	1665
4/0	Solid	0.460	2109
	Stranded	0.530	2109

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ASSEMBLY OF TERMINALS AND SPLICES UNDER SPECIAL CONDITIONS

B. Circular Area Units of Terminals

Table 2
CAU OF TERMINALS

Crimp Barrel Size	CAU		Terminal		
	Minimum	Maximum	Type	Specification or Standard	Description
26	2	3	Insulated	BACT12AR()	With Insulation Grip
26-22	3	8	Insulated	BACT12AC()	With Insulation Grip
24	4	5	Insulated	BACT12AR()	With Insulation Grip
22	6	8	Insulated	BACT12AR()	With Insulation Grip
22-18	7	24	Insulated	BACT12AC()	With Insulation Grip
	5	20	Uninsulated	BACT12E()	No Insulation Grip
				BACT12G()	No Insulation Grip
				MS20659-()	With Insulation Grip
20	8	11	Insulated	BACT12AR()	With Insulation Grip
18	12	18	Insulated	BACT12AR()	With Insulation Grip
16	19	26	Insulated	BACT12AR()	With Insulation Grip
16-14	15	51	Insulated	BACT12AC()	With Insulation Grip
	21	42	Uninsulated	BACT12E()	No Insulation Grip
				BACT12G()	No Insulation Grip
				MS20659-()	With Insulation Grip
14	27	41	Insulated	BACT12AR()	With Insulation Grip
12	42	65	Insulated	BACT12AR()	With Insulation Grip
12-10	43	138	Insulated	BACT12AC()	With Insulation Grip
	50	100	Uninsulated	BACT12E()	No Insulation Grip
				BACT12G()	No Insulation Grip
				MS20659-()	With Insulation Grip
10	66	105	Insulated	BACT12AR()	With Insulation Grip
8	132	208	Insulated	BACT12AC()	With Insulation Grip
	131	181	Uninsulated	BACT12E()	No Insulation Grip
				BACT12G()	No Insulation Grip
				BACT12M()	No Insulation Grip
				MS20659-()	With Insulation Grip

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ASSEMBLY OF TERMINALS AND SPLICES UNDER SPECIAL CONDITIONS

Table 2 (continued)

Crimp Barrel Size	CAU		Terminal		
	Minimum	Maximum	Type	Specification or Standard	Description
6	209	331	Insulated	BACT12AC()	With Insulation Grip
	206	288	Uninsulated	BACT12E()	No Insulation Grip
				BACT12G()	No Insulation Grip
				BACT12M()	No Insulation Grip
				MS20659-()	With Insulation Grip
4	332	526	Insulated	BACT12AC()	With Insulation Grip
	327	457	Uninsulated	BACT12E()	No Insulation Grip
				BACT12G()	No Insulation Grip
				BACT12M()	No Insulation Grip
				MS20659-()	With Insulation Grip
2	527	837	Insulated	BACT12AC()	With Insulation Grip
	524	735	Uninsulated	BACT12E()	No Insulation Grip
				BACT12G()	No Insulation Grip
				BACT12M()	No Insulation Grip
				MS20659-()	With Insulation Grip
1	662	878	Uninsulated	BACT12M()	No Insulation Grip
				MS20659-()	With Insulation Grip
1/0	838	1195	Insulated	BACT12AC()	With Insulation Grip
	831	1119	Uninsulated	BACT12E()	No Insulation Grip
				BACT12G()	No Insulation Grip
				BACT12M()	No Insulation Grip
				MS20659-()	With Insulation Grip
2/0	1196	1505	Insulated	BACT12AC()	With Insulation Grip
	1049	1458	Uninsulated	BACT12E()	No Insulation Grip
				BACT12G()	No Insulation Grip
				BACT12M()	No Insulation Grip
				MS20659-()	With Insulation Grip
3/0	1323	1810	Uninsulated	BACT12E()	No Insulation Grip
				BACT12M()	No Insulation Grip
				MS20659-()	With Insulation Grip

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ASSEMBLY OF TERMINALS AND SPLICES UNDER SPECIAL CONDITIONS

Table 2 (continued)

Crimp Barrel Size	CAU		Terminal		
	Minimum	Maximum	Type	Specification or Standard	Description
4/0	1901	2310	Insulated	BACT12AC()	With Insulation Grip
	1666	2257	Uninsulated	BACT12E()	No Insulation Grip
				BACT12M()	No Insulation Grip
				MS20659-()	With Insulation Grip

C. Circular Area Units of Splices

Table 3
CAU OF BUTT SPLICES

Crimp Barrel Size	CAU		Splice		
	Minimum	Maximum	Type	Specification or Standard	Description
26-22	3	8	Insulated	NAS1388-()	With Insulation Grip
24-20	4	12	Insulated	NAS1388-()	With Insulation Grip
22-18	7	24	Insulated	NAS1388-()	With Insulation Grip
	5	20	Uninsulated	BACT12C()	No Insulation Grip
	7	24		NAS1387-()	No Insulation Grip
16-14	15	51	Insulated	NAS1388-()	With Insulation Grip
			Uninsulated	BACT12C()	No Insulation Grip
				NAS1387-()	No Insulation Grip
12-10	43	138	Insulated	NAS1388-()	With Insulation Grip
			Uninsulated	BACT12C()	No Insulation Grip
				NAS1387-()	No Insulation Grip
8	132	208	Insulated	NAS1389-()	No Insulation Grip
		181	Uninsulated	BACT12C()	No Insulation Grip
6	209	331	Insulated	NAS1389-()	No Insulation Grip
	206	288	Uninsulated	BACT12C()	No Insulation Grip
4	332	526	Insulated	NAS1389-()	No Insulation Grip
	327	457	Uninsulated	BACT12C()	No Insulation Grip
2	527	837	Insulated	NAS1389-()	No Insulation Grip
	524	735	Uninsulated	BACT12C()	No Insulation Grip

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ASSEMBLY OF TERMINALS AND SPLICES UNDER SPECIAL CONDITIONS

Table 3 (continued)

Crimp Barrel Size	CAU		Splice		
	Minimum	Maximum	Type	Specification or Standard	Description
1/0	838	1195	Insulated	NAS1389-()	No Insulation Grip
	975	1119	Uninsulated	BACT12C()	No Insulation Grip
2/0	1049	1458	Uninsulated	BACT12C()	No Insulation Grip
3/0	1323	1810	Uninsulated	BACT12C()	No Insulation Grip
4/0	1666	2257	Uninsulated	BACT12C()	No Insulation Grip

Table 4
CAU OF PARALLEL SPLICES

Crimp Barrel Size	CAU		Splice		
	Minimum	Maximum	Type	Part Number	Supplier
22-16	7	24	Uninsulated	34130	Tyco/AMP
16-14	15	51	Uninsulated	34137	Tyco/AMP
12-10	43	138	Uninsulated	34138	Tyco/AMP
300 MCM	2750	3250	Uninsulated	324448	Tyco/AMP

D. Circular Area Units of Adapters

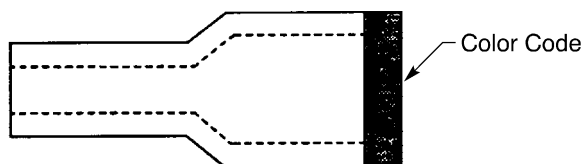
Table 5
CAU OF SPLICE ADAPTERS

Crimp Barrel Size	Wire Size (AWG)	Splice Adapter				
		CAU	Boeing Standard	Color Code	Part Number	Supplier
16-14	22	37	BACA14AN1	Red	327635	Tyco/AMP
	20					
	18					
12-10	22	100	BACA14AN2	Red	327636	Tyco/AMP
	20					
	18					
	16	94	BACA14AN3	Blue	327637	Tyco/AMP
	14					

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BACA14AN() SPLICE ADAPTER
Figure 2

Table 6
CAU OF SLEEVE ADAPTERS

CAU	Boeing Standard	Color
36	BACS13S063B	Red
65	BACS13S128C	Blue
138	BACS13S156C	Yellow

2. ASSEMBLY WHEN THE WIRE SIZE IS SMALLER THAN THE CRIMP BARREL SIZE

A. CAU of the Conductor and the Crimp Barrel

- (1) Find the CAU of the conductor. Refer to Table 1.
- (2) Find the CAU of the crimp barrel.

Refer to:

- Table 2 for the CAU of a terminal
- Table 3 for the CAU of a butt splice
- Table 4 for the CAU of a parallel splice.

- (3) If the CAU of the conductor is not within the minimum and maximum CAU of the crimp barrel, it is necessary to increase the CAU of the conductor.

For example, an AWG 20 wire and an AWG 12 wire can be spliced in a NAS1388 size 12-10 butt splice. However, the CAU of the AWG 20 conductor must be increased by a minimum of 31 CAU and a maximum of 126 CAU because:

- The CAU of the AWG 20 conductor is 12
- The minimum CAU of the size 12-10 splice is 43
- The maximum CAU of the size 12-10 splice is 138.

Refer to:

- Paragraph 2.B. for the assembly with the conductor folded back
- Paragraph 2.C. for the assembly with a splice adapter
- Paragraph 2.D. for the assembly with a filler wire stub
- Paragraph 2.E. for the assembly with a filler wire loop.

B. Assembly with the Conductor Folded Back

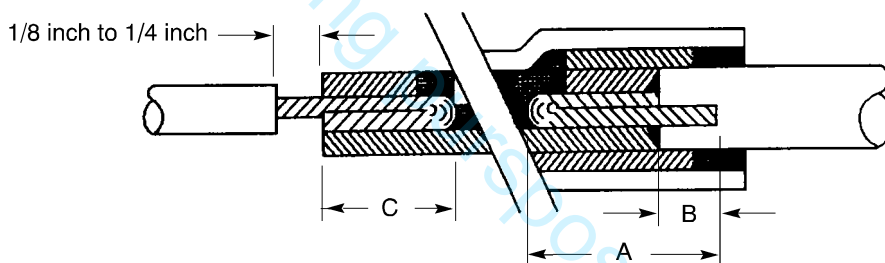
NOTE: Usually, a conductor that is folded back on itself does not sufficiently increase the CAU of the conductor. For the example in Paragraph 2.A., an AWG 20 conductor that is folded back has a CAU of 24 which is less than the necessary CAU for a size 12-10 splice.

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Table 7
CONDITIONS FOR A CONDUCTOR THAT IS FOLDED BACK

Crimp Barrel Size	Length		
	Dimension	Minimum (inch)	Maximum (inch)
22-18	A	15/32	17/32
	B	7/32	9/32
	C	7/32	9/32
16-14	A	7/16	1/2
	B	3/16	1/4
	C	7/32	9/32
12-10	A	21/32	23/32
	B	1/4	5/16
	C	3/8	7/16



DIMENSIONS FOR A CONDUCTOR THAT IS FOLDED BACK

Figure 3

- (1) Remove the necessary length of insulation from the end of the wire so that the conductor can be folded back.

Refer to Figure 3 and Table 7.

- (2) Fold the conductor back on itself.
- (3) Assemble the terminal or splice.

Refer to the applicable Subject for the assembly.

C. Assembly with a BACA14AN() Splice Adapter

- (1) To make a selection of a splice adapter from Table 5, add the CAU of the conductor to the CAU of the adapter.

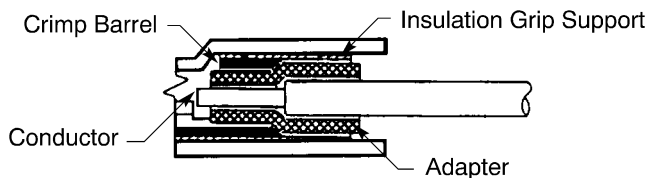
Make sure that the total CAU is within the minimum and maximum CAU of the crimp barrel.

- (2) Put the wire into the adapter so that the end of the insulation is against the bottom of the insulation grip support of the adapter. Refer to Figure 4.

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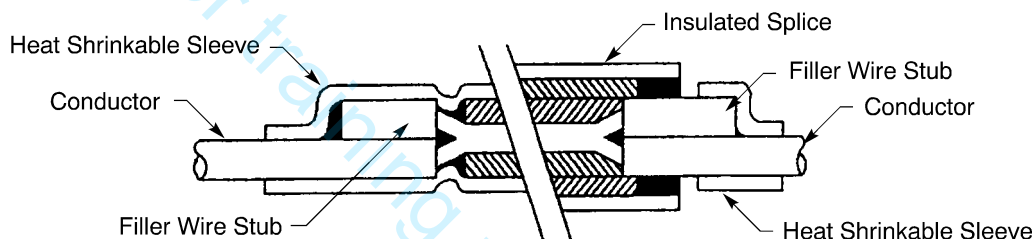


POSITION OF THE WIRE AND SPLICE ADAPTER IN THE CRIMP BARREL
Figure 4

- (3) Assemble the terminal or splice. Refer to the applicable Subject for the assembly.
Make sure that the end of the adapter is against the bottom of the crimp barrel. Refer to Figure 4.

D. Assembly with a Filler Wire Stub

CAUTION: ONLY ONE FILLER WIRE STUB CAN BE USED TO INCREASE THE CAU OF A CONDUCTOR.



CONFIGURATION OF AN ASSEMBLY WITH FILLER WIRE STUBS
Figure 5

- (1) Make a selection of a filler wire that will give the necessary CAU for the crimp barrel when the CAU of the filler wire is added to the CAU of the conductor.
- (2) Assemble the terminal or splice.

Refer to:

- Figure 5
- The applicable Subject for the assembly
- Subject 20-30-11 to install the necessary insulation on the free end of the stub wire.

E. Assembly with a Filler Wire Loop

- (1) Make a selection of a filler wire that will give the necessary CAU for the crimp barrel when the CAU of the filler wire is added to itself and to the CAU of the conductor.
- (2) Assemble the terminal or splice.

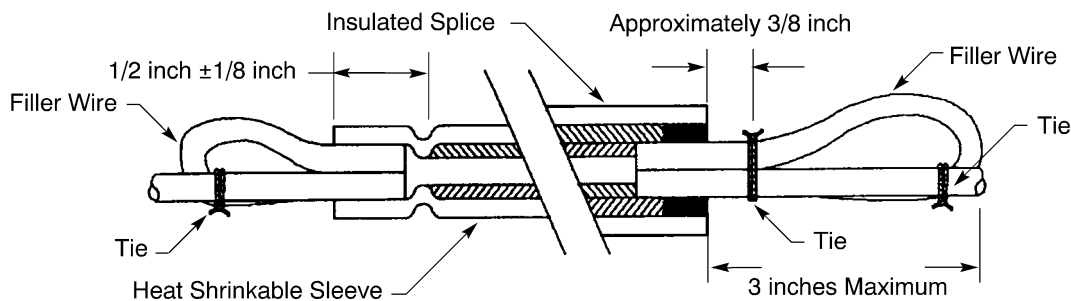
NOTE: A heat shrinkable sleeve or a tie, or both must be used to attach the filler loop to the conductor.

Refer to:

- Figure 6
- The applicable Subject for the assembly.

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CONFIGURATION OF AN ASSEMBLY WITH FILLER WIRE LOOPS

Figure 6

3. ASSEMBLY WHEN THE WIRE INSULATION IS SMALLER THAN THE INSULATION GRIP

A. Applicable Conditions

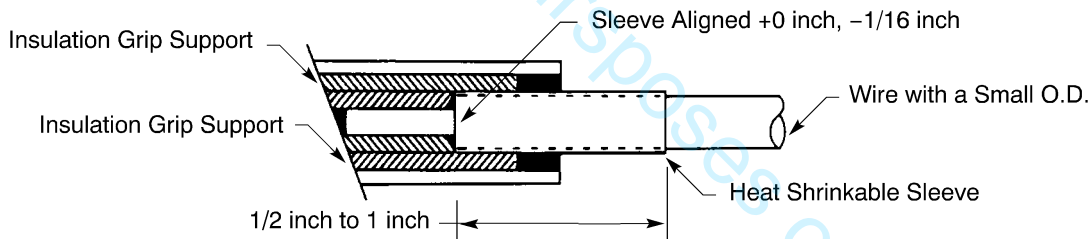
When the insulation grip cannot sufficiently hold the wire insulation because of the crimp tool adjustment and the wire size, the O.D. of the wire must be increased.

Refer to Paragraph 3.B..

B. Installation of a Heat Shrinkable Sleeve

- (1) Install a 1/2 inch to 1 inch length of heat shrinkable sleeve with the smallest possible diameter on the wire so that the end of the sleeve is aligned with the end of the insulation.

Refer to Figure 7 and Subject 20-10-14.



POSITION OF THE HEAT SHRINKABLE SLEEVE ON THE WIRE

Figure 7

STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF TERMINALS AND SPLICES UNDER SPECIAL CONDITIONS

4. ASSEMBLY WITH MORE THAN ONE WIRE

A. General Conditions for Wire Insulation

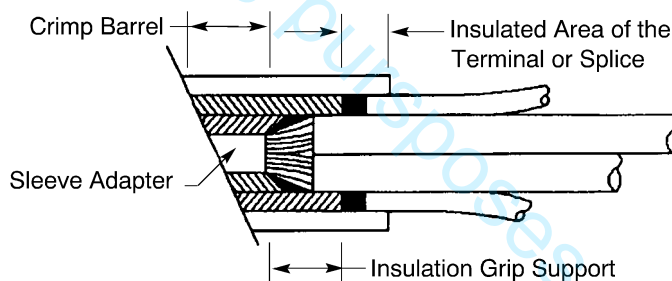
These conditions are applicable:

- If it is possible, the end of the insulation of all the wires must be held in the area of insulation grip that makes an overlap with the insulated area of the terminal or splice; refer to Figure 8
- When the dimensions of the crimp tool adjustment and the termination insulation grip support area permits, the necessary length of heat shrinkable sleeve must be installed on the wires; refer to Figure 9 and Figure 10.

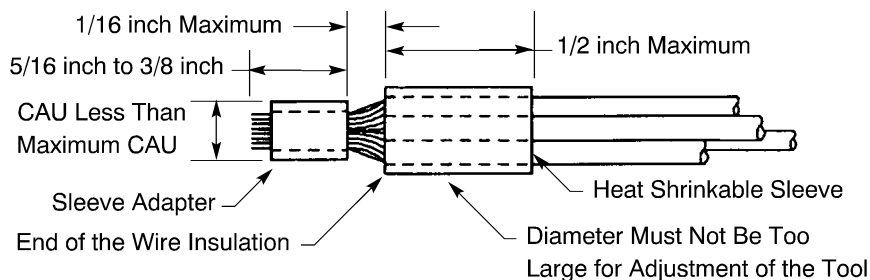
As an alternative when the applicable conditions are not possible, the end of the insulation of the wires can be outside the insulation grip of the terminal or splice, but the wires must be supported and insulated with:

- The applicable Grade and Class of heat shrinkable sleeve; refer to Subject 20-00-11 and Subject 20-10-14
- A sleeve that has a loose fit over the wires and terminal or splice, but stays tight after heat is applied
- A sleeve that has a loose fit over the wires and terminal or splice, but is held in position with ties if it is not possible to apply heat.

CAUTION: HEAT MUST NOT BE APPLIED TO A HEAT SHRINKABLE SLEEVES THAT IS INSTALLED OVER A SOLDER JOINT.



INSULATION OF THE WIRES IN THE INSULATION GRIP
Figure 8

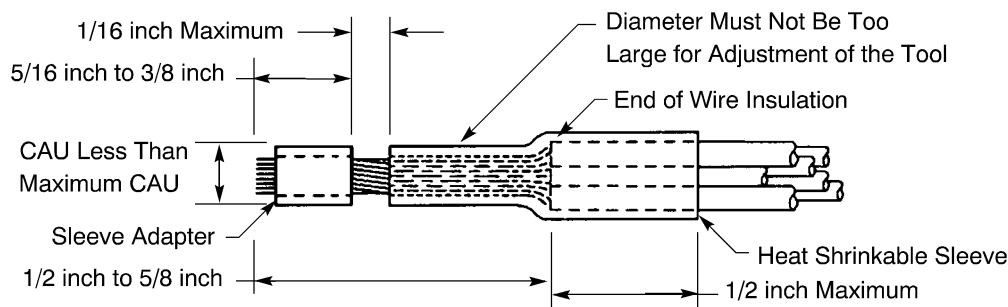


CONFIGURATION OF THE INSULATION OF THE WIRES
Figure 9

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STANDARD WIRING PRACTICES MANUAL

ASSEMBLY OF TERMINALS AND SPLICES UNDER SPECIAL CONDITIONS



ALTERNATIVE CONFIGURATION OF THE INSULATION OF THE WIRES

Figure 10

B. Assembly with More Than One Conductor

When more than one conductor is necessary in a terminal or splice, the CAU of the conductors can be increased and the terminal or splice can be assembled with any of these procedures:

- Paragraph 2.B. for the assembly with the conductor folded back
- Paragraph 2.C. for the assembly with a splice adapter
- Paragraph 2.D. for the assembly with a filler wire stub
- Paragraph 2.E. for the assembly with a filler wire loop

CAUTION: THESE CONDITIONS MUST BE OBEYED:

- THE CONDITIONS FOR THE END OF THE INSULATION OF THE WIRES; REFER TO PARAGRAPH 4.A.
- ONLY ONE CONDUCTOR THAT HAS BEEN FOLDED BACK ON ITSELF IS PERMITTED IN AN END OF A TERMINAL OR SPLICE
- ONLY ONE WIRE STUB IS PERMITTED IN AN END OF A TERMINAL OR SPLICE.

NOTE: As an alternative to a specified size of terminal or splice, a selection of a terminal or splice can be made in relation to the number and size of wires. Refer to Paragraph 4.C.

C. Selection of a Terminal or a Splice

- (1) Count the number of wires.
- (2) Find the size of each wire.
- (3) Find the crimp barrel size that agrees with the number of wires and the size of each wire in Table 8.
- (4) Make a selection of the terminal or splice.

Refer to:

- Table 2 for the terminals
- Table 3 for the butt splices
- Table 4 for the parallel splices.

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ASSEMBLY OF TERMINALS AND SPLICES UNDER SPECIAL CONDITIONS

Table 8
WIRE COUNT AND WIRE SIZE FOR ONE CRIMP BARREL OF A TERMINAL OR A SPLICE

Total Number of Wires	Wire		Terminal or Splice	
	Count	Size (AWG)	Type	Crimp Barrel Size
7	3	6	Uninsulated	1/0
	4	14		
6	3	8	Uninsulated	2
	3	12		
5	3	6	Insulated	1/0
	2	10		
5	3	8	Insulated	2
	2	16		
5	2	12	Insulated	6
	2	14		
	1	16		
5	2	20	Insulated	16-14
	3	22		
5	1	20	Insulated	16-14
	4	22		
5	5	22	Insulated	16-14
5	1	6	Uninsulated	2
	1	8		
	3	12		
4	1	2	Insulated	2/0
	1	4		
	2	10		
4	1	2	Insulated	1/0
	2	8		
	1	16		
4	1	2	Insulated	1/0
	1	8		
	2	16		
4	2	4	Insulated	1/0
	2	10		

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ASSEMBLY OF TERMINALS AND SPLICES UNDER SPECIAL CONDITIONS

Table 8 (continued)

Total Number of Wires	Wire		Terminal or Splice	
	Count	Size (AWG)	Type	Crimp Barrel Size
4	2	6	Insulated	2
	2	12		
4	2	6	Insulated	2
	2	16		
4	4	10	Insulated	4
4	2	12	Insulated	8
	1	14		
	1	16		
4	1	12	Insulated	8
	1	14		
	2	16		
4	4	14	Insulated	8
4	3	14	Insulated	8
	1	18		
4	3	16	Insulated	10-12
	1	20		
4	4	20	Insulated	16-14
4	3	20	Insulated	16-14
	1	22		
4	2	20	Insulated	16-14
	2	22		
4	1	20	Insulated	16-14
	3	22		
4	4	22	Insulated	16-14
4	2	2	Uninsulated	2/0
	2	12		
4	2	2	Uninsulated	3/0
	2	14		
4	1	2	Uninsulated	2/0
	1	4		
	2	12		

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ASSEMBLY OF TERMINALS AND SPLICES UNDER SPECIAL CONDITIONS

Table 8 (continued)

Total Number of Wires	Wire		Terminal or Splice	
	Count	Size (AWG)	Type	Crimp Barrel Size
4	2	4	Uninsulated	1/0
	2	10		
4	2	4	Uninsulated	1/0
	2	12		
4	1	4	Uninsulated	2
	3	12		
4	2	6	Uninsulated	2
	2	12		
4	4	8	Uninsulated	2
3	1	1/0	Insulated	2/0
	2	10		
3	3	2	Insulated	4/0
3	1	2	Insulated	2/0
	2	6		
3	3	4	Insulated	2/0
3	1	4	Insulated	1/0
	2	6		
3	2	6	Insulated	2
	1	16		
3	1	6	Insulated	2
	2	8		
3	1	8	Insulated	6
	2	12		
3	1	8	Insulated	6
	1	12		
	1	18		
3	1	8	Insulated	6
	1	14		
	1	20		
3	1	8	Insulated	6
	2	16		

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ASSEMBLY OF TERMINALS AND SPLICES UNDER SPECIAL CONDITIONS

Table 8 (continued)

Total Number of Wires	Wire		Terminal or Splice	
	Count	Size (AWG)	Type	Crimp Barrel Size
3	1	8	Insulated	8
	2	20		
3	3	10	Insulated	6
3	2	10	Insulated	6
	1	14		
3	1	10	Insulated	6
	2	12		
3	1	10	Insulated	8
	1	12		
	1	14		
3	1	10	Insulated	8
	1	14		
	1	20		
3	1	10	Insulated	8
	2	16		
3	3	12	Insulated	8
3	2	12	Insulated	8
	1	14		
3	2	12	Insulated	8
	1	16		
3	1	12	Insulated	10-12
	2	18		
3	2	14	Insulated	10-12
	1	18		
3	2	14	Insulated	10-12
	1	20		
3	2	14	Insulated	10-12
	1	22		
3	1	14	Insulated	10-12
	2	18		
3	3	16	Insulated	10-12

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ASSEMBLY OF TERMINALS AND SPLICES UNDER SPECIAL CONDITIONS

Table 8 (continued)

Total Number of Wires	Wire		Terminal or Splice	
	Count	Size (AWG)	Type	Crimp Barrel Size
3	2	16	Insulated	10-12
	1	18		
3	2	16	Insulated	10-12
	1	20		
3	2	16	Insulated	10-12
	1	22		
3	1	16	Insulated	10-12
	2	18		
3	3	18	Insulated	10-12
3	2	18	Insulated	16-14
	1	20		
3	2	18	Insulated	16-14
	1	22		
3	1	18	Insulated	16-14
	2	20		
3	1	18	Insulated	16-14
	2	22		
3	1	20	Insulated	16-14
	2	22		
3	3	22	Insulated	16-14
3	2	20	Insulated	16-14
	1	22		
3	1	20	Insulated	16-14
	2	22		
3	3	22	Insulated	16-14
3	3	22	Insulated	22-18
3	2	6	Uninsulated	2
	1	10		
3	1	6	Uninsulated	2
	2	8		
3	2	8	Uninsulated	4
	1	12		

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Table 8 (continued)

Total Number of Wires	Wire		Terminal or Splice	
	Count	Size (AWG)	Type	Crimp Barrel Size
3	2	10	Uninsulated	6
	1	20		
3	1	10	Uninsulated	6
	2	12		
3	1	10	Uninsulated	8
	2	16		
3	2	12	Uninsulated	8
	1	16		
3	2	12	Uninsulated	8
	1	16		
2	1	2/0	Insulated	4/0
	1	2		
2	2	1/0	Insulated	4/0
2	2	2	Insulated	2/0
2	1	2	Insulated	1/0
	1	6		
2	1	2	Insulated	2
	1	16		
2	1	4	Insulated	2
	1	6		
2	1	4	Insulated	2
	1	8		
2	2	6	Insulated	2
2	1	6	Insulated	4
	1	10		
2	2	8	Insulated	4
2	1	8	Insulated	6
	1	10		
2	1	8	Insulated	6
	1	12		

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ASSEMBLY OF TERMINALS AND SPLICES UNDER SPECIAL CONDITIONS

Table 8 (continued)

Total Number of Wires	Wire		Terminal or Splice	
	Count	Size (AWG)	Type	Crimp Barrel Size
2	1	8	Insulated	8
	1	14		
2	1	8	Insulated	8
	1	16		
2	2	10	Insulated	8
2	1	10	Insulated	8
	1	12		
2	1	10	Insulated	8
	1	14		
2	2	12	Insulated	10-12
2	1	12	Insulated	10-12
	1	14		
2	1	12	Insulated	10-12
	1	16		
2	1	12	Insulated	10-12
	1	18		
2	1	12	Insulated	10-12
	1	20		
2	1	12	Insulated	10-12
	1	22		
2	2	14	Insulated	10-12
2	1	14	Insulated	10-12
	1	16		
2	1	14	Insulated	10-12
	1	18		
2	1	14	Insulated	10-12
	1	20		
2	1	14	Insulated	10-12
	1	22		
2	2	16	Insulated	16-14

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ASSEMBLY OF TERMINALS AND SPLICES UNDER SPECIAL CONDITIONS

Table 8 (continued)

Total Number of Wires	Wire		Terminal or Splice	
	Count	Size (AWG)	Type	Crimp Barrel Size
2	1	16	Insulated	16-14
	1	18		
2	1	16	Insulated	16-14
	1	20		
2	1	16	Insulated	16-14
	1	22		
2	2	18	Insulated	16-14
2	1	18	Insulated	16-14
	1	20		
2	1	18	Insulated	16-14
	1	22		
2	2	20	Insulated	16-14
2	2	20	Insulated	22-18
2	1	20	Insulated	22-18
	1	22		
2	2	22	Insulated	22-18
2	1	2	Uninsulated	1/0
	1	6		
2	1	4	Uninsulated	2
	1	8		
2	2	8	Uninsulated	4
2	1	8	Uninsulated	6
	1	10		
2	1	10	Uninsulated	8
	1	12		
2	1	10	Uninsulated	8
	1	14		
2	1	12	Uninsulated	12-10
	1	14		
2	1	12	Uninsulated	12-10
	1	16		

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ASSEMBLY OF TERMINALS AND SPLICES UNDER SPECIAL CONDITIONS

Table 8 (continued)

Total Number of Wires	Wire		Terminal or Splice	
	Count	Size (AWG)	Type	Crimp Barrel Size
2	1	12	Uninsulated	12-10
	1	18		
2	1	12	Uninsulated	12-10
	1	20		
2	1	14	Uninsulated	12-10
	1	16		
2	1	14	Uninsulated	12-10
	1	18		
2	1	14	Uninsulated	12-10
	1	20		
2	1	14	Uninsulated	12-10
	1	22		
2	2	16	Uninsulated	12-10
2	1	16	Uninsulated	12-10
	1	18		
2	1	16	Uninsulated	16-14
	1	20		
2	1	16	Uninsulated	16-14
	1	22		
2	2	18	Uninsulated	16-14
2	1	18	Uninsulated	16-14
	1	20		
2	1	18	Uninsulated	16-14
	1	22		
2	2	20	Uninsulated	16-14
2	1	20	Uninsulated	22-18
	1	22		
2	2	22	Uninsulated	22-18

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