



707, 727-787

## STANDARD WIRING PRACTICES MANUAL

### CONNECTOR AND TERMINAL ASSEMBLY WITH 65B47866() SHIELDED CABLE

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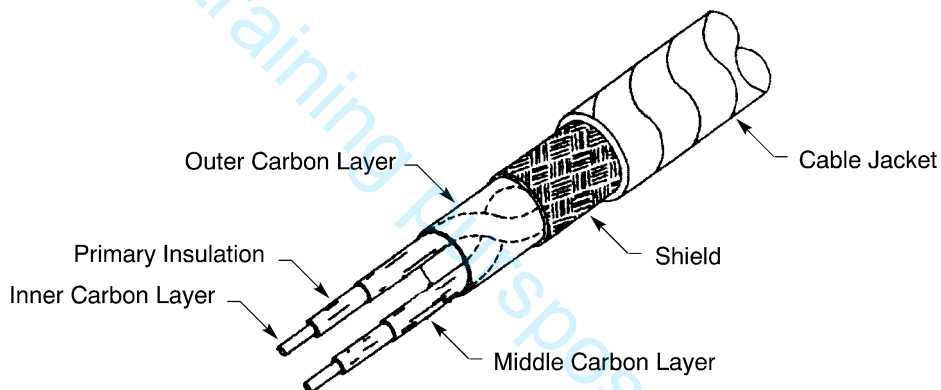
## CONNECTOR AND TERMINAL ASSEMBLY WITH 65B47866() SHIELDED CABLE

### 1. PART NUMBERS AND DESCRIPTION

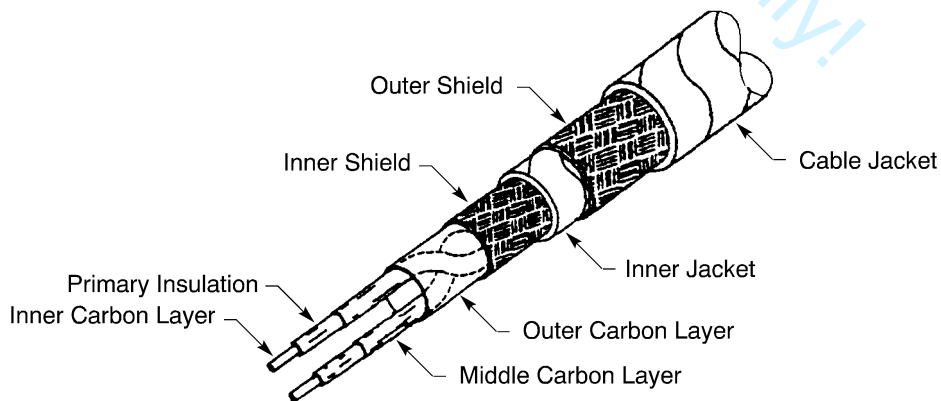
#### A. Cable Part Numbers

Table 1  
CABLE PART NUMBERS

Boeing Specification	Wire Size (AWG)	Number of Conductors	Number of Shields
65B47866-1	18	2	1
65B47866-2	20	2	1
65B47866-3	18	2	1
65B47866-4	20	2	1
65B47866-5	20	2	2



65B47866-1 AND 65B47866-2 CABLE CONFIGURATION  
Figure 1



65B47866-5 CABLE CONFIGURATION  
Figure 2

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## CONNECTOR AND TERMINAL ASSEMBLY WITH 65B47866() SHIELDED CABLE

### 2. CABLE PREPARATION

#### A. Applicable Connectors

Table 2  
APPLICABLE CONNECTORS

Connector		Connector Assembly Reference
Part Number	Supplier	
10-244()	Bendix	Subject 20-61-18
9816KS()	Matrix	Subject 20-63-14
BACC45F()	Boeing	Subject 20-61-11
BACC63BN()	Boeing	Subject 20-61-11
BACC63BP()	Boeing	Subject 20-61-11
BACC63BR()	Boeing	Subject 20-63-13
BACC63BT()	Boeing	Subject 20-63-13
BACC63BV()	Boeing	Subject 20-61-11
BACC63CB()	Boeing	Subject 20-61-11
BACC63CC()	Boeing	Subject 20-61-11
BACC63CM()	Boeing	Subject 20-63-13
BACC63CN()	Boeing	Subject 20-63-13
CN0986-()	Cinch	Subject 20-61-11
FRF()	ITT Cannon	Subject 20-61-19
MT30K-()	Matrix	Subject 20-63-13
MT37K-()	Matrix	Subject 20-63-13

#### B. Cable Preparation for the Assembly of BACC45F(), BACC63(), CN0986-(), 9816KS(), and FRF() Connectors

Table 3  
SHIELD GROUND WIRES

Area Of The Airplane	Temperature Grade	Boeing Specification	Wire Size (AWG)
Not Pressurized	A	BMS 13-16 Type 1 Black	18
	B	BMS 13-16 Type 1 Black	18
	C	BMS 13-16 Type 1 Black	18
	D	BMS 13-31 Type 1	18
		BMS 13-58 Type 1	18
		BMS 13-60 Type 7	18

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## CONNECTOR AND TERMINAL ASSEMBLY WITH 65B47866() SHIELDED CABLE

Table 3 (continued)

Area Of The Airplane	Temperature Grade	Boeing Specification	Wire Size (AWG)
Pressurized	A	BMS 13-16 Type 1 Black	20
	B	BMS 13-16 Type 1 Black	20
	C	BMS 13-16 Type 1 Black	20
	D	BMS 13-31 Type 1	20
		BMS 13-58 Type 1	20
		BMS 13-60 Type 7	20

Table 4  
MECHANICAL FERRULE PART NUMBERS

Cable		Ferrule				Wire Harness Temperature Grade
Part Number	Shield	Plating	Type	Part Number	Color	
65B47866-1	-	Nickel	Inner	BACS13S187BNP	-	A
						B
						C
						D
			Outer	BACS13S281CNP	-	A
						B
						C
						D
65B47866-1	-	Tin	Inner	BACS13S187B	Yellow	A
						B
			Outer	BACS13S281C	Purple	A
						B
65B47866-2	-	Nickel	Inner	BACS13S175BNP	-	A
						B
						C
						D
			Outer	BACS13S261CNP	-	A
						B
						C
						D

# STANDARD WIRING PRACTICES MANUAL

## CONNECTOR AND TERMINAL ASSEMBLY WITH 65B47866() SHIELDED CABLE

Table 4 (continued)

Cable		Ferrule				Wire Harness Temperature Grade
Part Number	Shield	Plating	Type	Part Number	Color	
65B47866-2	-	Tin	Inner	BACS13S175B	Green	A
						B
			Outer	BACS13S261C	Yellow	A
						B
65B47866-5	Inner	Nickel	Inner	BACS13S156BNP	-	A
						B
						C
						D
			Outer	BACS13S232CNP	-	A
						B
						C
						D
	Outer	Nickel	Inner	BACS13S205BNP	-	A
						B
						C
						D
			Outer	BACS13S281CNP	-	A
						B
						C
						D
65B47866-5	Inner	Tin	Inner	BACS13S156B	Red	A
						B
			Outer	BACS13S232C	Orange	A
						B
	Outer	Tin	Inner	BACS13S205B	Orange	A
						B
			Outer	BACS13S281C	Purple	A
						B

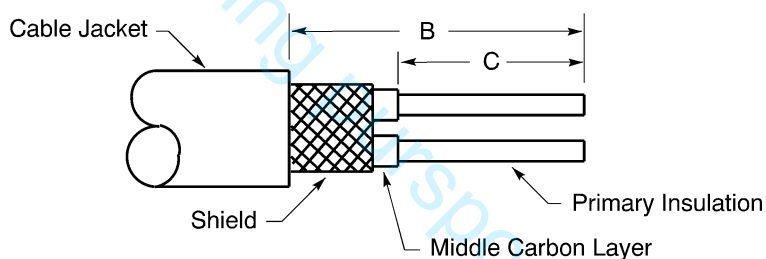
**NOTE:** Refer to the D-590 Boeing to Vendor Cross Reference Index for the Supplier Part Numbers for the BACS13S Ferrules.

# STANDARD WIRING PRACTICES MANUAL

## CONNECTOR AND TERMINAL ASSEMBLY WITH 65B47866() SHIELDED CABLE

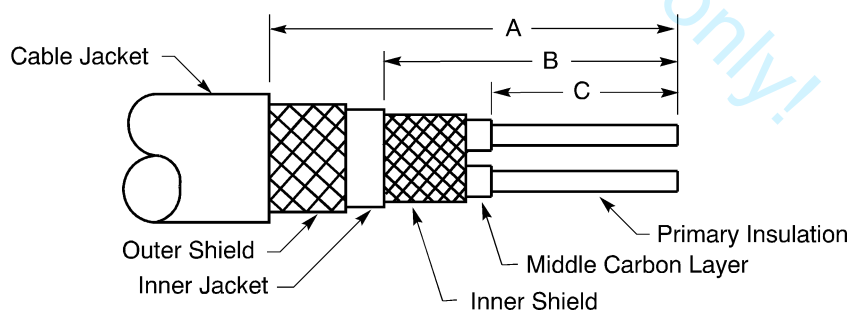
Table 5  
CABLE TRIM DIMENSIONS

Cable	Trim Dimension		
	Dimension	Target (inch)	Tolerance (inch)
65B47866-1	A	-	$\pm 0.06$
	B	3.00	$\pm 0.06$
	C	2.00	$\pm 0.06$
65B47866-2	A	-	$\pm 0.06$
	B	3.00	$\pm 0.06$
	C	2.00	$\pm 0.06$
65B47866-5	A	3.75	$\pm 0.06$
	B	3.00	$\pm 0.06$
	C	2.00	$\pm 0.06$



65B47866-1 AND 65B47866-2 CABLE TRIM DIMENSIONS

Figure 3



65B47866-5 CABLE TRIM DIMENSIONS

Figure 4

**STANDARD WIRING PRACTICES MANUAL****CONNECTOR AND TERMINAL ASSEMBLY WITH 65B47866() SHIELDED CABLE**

Refer to:

- Figure 1 and Figure 3 for the cable with one shield
- Figure 2 and Figure 4 for the cable with two shields
- Table 5 for the cable trim dimension values
- Table 2 for the location of the assembly procedures of the applicable connector.

- (1) Remove the necessary length of the cable jacket.

Make sure that the distance from the end of the jacket to the end of the cable is:

- Dimension B for a cable that has one shield
- Dimension A for a cable that has two shields

- (2) If the cable has two shields, remove the necessary length of the inner jacket.

Make sure that the distance from the end of the jacket to the end of the cable is dimension B.

- (3) Remove the necessary length of the middle carbon layer.

Make sure that the distance from the end of the layer to the end of the wires is dimension C.

**NOTE:** Damage of the primary insulation is permitted if the strands of the conductor cannot be seen.

- (4) Remove all of the unwanted carbon from the primary insulation with a fiberglass eraser or an abrasive pad.
- (5) Clean the insulation with acetone or an equivalent solvent.
- (6) Assemble a shield ground wire with mechanical ferrules for each shield. Refer to Subject 20-10-15.

These conditions are applicable:

- The selection of the ferrules is from Table 4
- The selection of the shield ground wire is from Table 3
- The length of the shield ground wire is 3.0 inches maximum
- The heat shrinkable sleeve is a 1.0 inch length of 3/8 inch diameter CRN or TFE 2X sleeve
- The CRN sleeve has temperature grade A or B
- The TFE 2X sleeve has a temperature grade C or D.

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

Refer to the applicable Subject for the assembly of the connector.

- (8) Put the necessary length of a 1/8 inch diameter TFE 2X heat shrinkable sleeve on each component wire.

Make sure that:

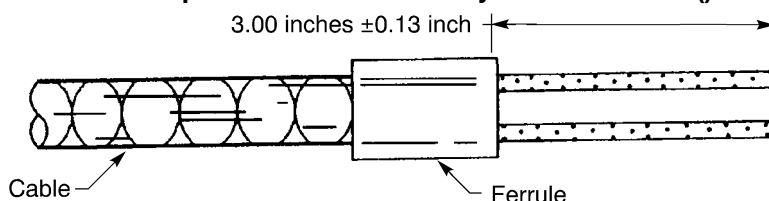
- The rearward end of each sleeve is against the ferrule
- The forward end of each sleeve is aligned with the end of the primary insulation of the component wire.

- (9) Shrink each sleeve into its position. Refer to Subject 20-10-14.

# STANDARD WIRING PRACTICES MANUAL

## CONNECTOR AND TERMINAL ASSEMBLY WITH 65B47866() SHIELDED CABLE

### C. 65B47866-1 and -2 Cable Preparation for the Assembly of Bendix 10-244() Connectors



**CABLE PREPARATION**  
**Figure 5**

Refer to Figure 5.

- (1) Remove 3.00 inches  $\pm 0.13$  inch of the cable jacket and the shield.
- (2) Cut the outer carbon layer along the longitudinal axis of the cable between the two component wires.
- (3) Remove the necessary length of the outer carbon layer.  
Make sure that the end of the carbon layer is aligned with the end of the cable jacket.
- (4) Move the two component wires apart from the end of the cable to the end of the jacket.
- (5) Remove the necessary length of the middle carbon layer on each component wire.  
Make sure that the distance from the end of the carbon layer to the end of the primary insulation is 0.50 inch  $\pm 0.06$  inch.

Refer to Subject 20-61-18.

**CAUTION:** MAKE SURE THAT DAMAGE TO THE PRIMARY INSULATION DOES NOT OCCUR.

- (6) Remove all of the unwanted carbon from the primary insulation with a fiberglass eraser or an abrasive pad.
- (7) Clean the insulation with acetone or an equivalent solvent.
- (8) Assemble a shield ground wire with mechanical ferrules. Refer to Subject 20-10-15.

These conditions are applicable:

- The selection of the ferrules is from Table 4
- The selection of the shield ground wire is from Table 3
- The length of the shield ground wire is 3.00 inches  $\pm 0.13$  inch maximum.

### D. 65B47866-1 and -2 Cable Preparation for the Assembly of Matrix MT30K-() and MT37K-() Connectors

**Table 6**  
**CONNECTOR PART NUMBERS**

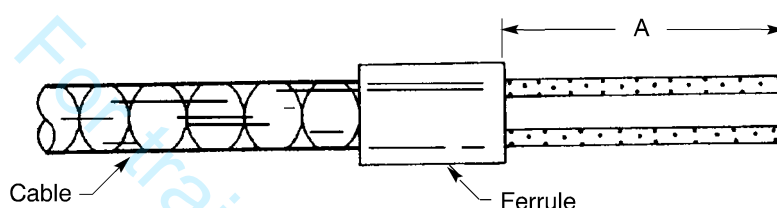
Part Number	Supplier
MT30K-2219-299	Matrix
MT37K-1203-191	Matrix
MT37K-1203-299	Matrix

# STANDARD WIRING PRACTICES MANUAL

## CONNECTOR AND TERMINAL ASSEMBLY WITH 65B47866() SHIELDED CABLE

Table 7  
CABLE TRIM DIMENSIONS

Connector	Trim Dimension		
	Dimension	Target (inch)	Tolerance (inch)
MT37K-1203-191	A	1-1/2	$\pm 1/8$
MT37K-1203-299	A	1	$\pm 1/8$
MT30K-2219-299	A	1-1/4	$\pm 1/8$



CABLE PREPARATION  
Figure 6

- (1) Remove the necessary length of the cable jacket and the shield. Refer to Figure 6 and Table 7.
- (2) Cut the outer carbon layer along the longitudinal axis of the cable between the two component wires.
- (3) Remove the necessary length of the outer carbon layer.  
Make sure that the end of the carbon layer is aligned with the end of the cable jacket.
- (4) Move the two component wires apart from the end of the cable to the end of the jacket.
- (5) Remove the necessary length of the middle carbon layer on each component wire.  
Make sure that the distance from the end of the carbon layer to the end of the primary insulation is 0.50 inch  $\pm 0.06$  inch.  
Refer to Subject 20-63-13.

**CAUTION:** MAKE SURE THAT DAMAGE TO THE PRIMARY INSULATION DOES NOT OCCUR.

- (6) Remove all of the unwanted carbon from the primary insulation with a fiberglass eraser or an abrasive pad.
- (7) Clean the insulation with acetone or an equivalent solvent.
- (8) Assemble a shield ground wire with mechanical ferrules. Refer to Subject 20-10-15.

These conditions are applicable:

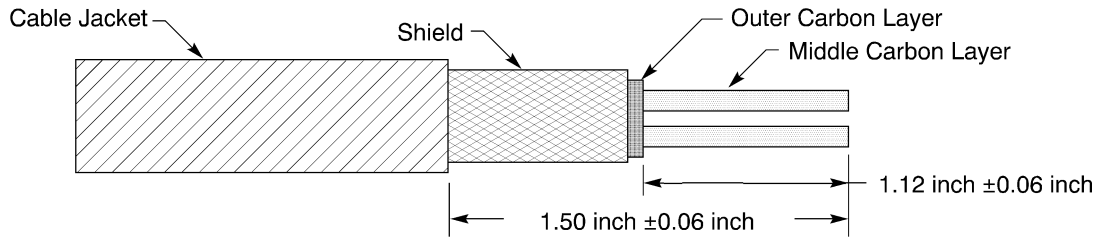
- The selection of the ferrules is from Table 4
- The selection of the shield ground wire is from Table 3
- The length of the shield ground wire is 3.00 inches  $\pm 0.13$  inch maximum.

### E. 65B47866-1 and -2 Cable Preparation for the Assembly of Connectors with Glenair 387()020 and Boeing S280W603 Backshells

This paragraph gives the procedure to prepare the 65B47866-2 cable.

# STANDARD WIRING PRACTICES MANUAL

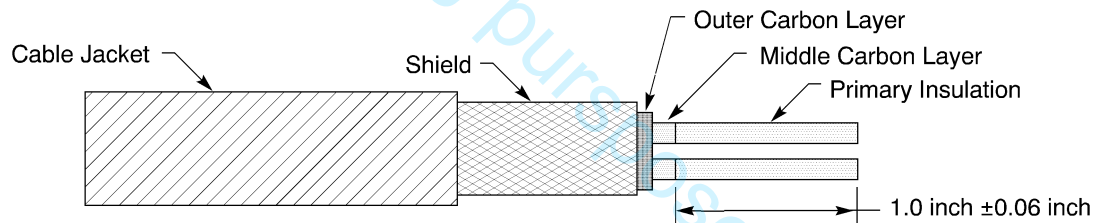
## CONNECTOR AND TERMINAL ASSEMBLY WITH 65B47866() SHIELDED CABLE



**CABLE TRIM DIMENSIONS**  
**Figure 7**

Refer to Figure 7.

- (1) Put the backshell on the cable so that it is away from the end of the cable.
- (2) Remove 1.50 inches  $\pm 0.06$  inch of the jacket from the end of the cable.
- (3) Remove 1.12 inches  $\pm 0.06$  inch of the shield from the end of the cable.
- (4) Move the two wires apart from the end of the cable to the end of the jacket.
- (5) Cut the outer carbon layer along the longitudinal axis of the cable between the two component wires.
- (6) Remove 1.12 inches  $\pm 0.06$  inch of the outer carbon layer.
- (7) Remove 1.00 inch  $\pm 0.06$  inch of the middle carbon layer from the end of each component wire. Refer to Figure 8.



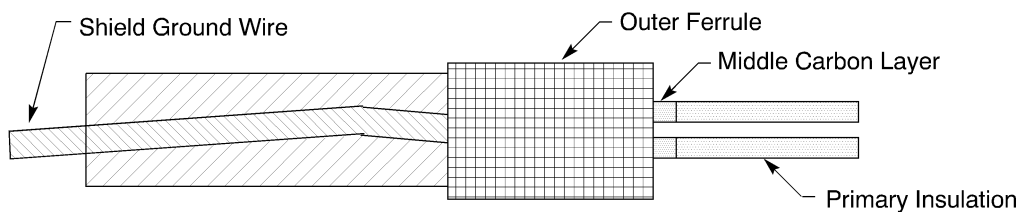
**REMOVAL LENGTH OF THE MIDDLE CARBON LAYER**  
**Figure 8**

- (8) Remove all of the unwanted carbon from the primary insulation with a fiberglass eraser or an abrasive pad.
- (9) Clean the insulation with acetone or an equivalent solvent.
- (10) Assemble the shield ground wire with mechanical ferrules and a 6.0 inch length of the shield from a BMS 13-58 Type 7 Class 1 AWG 20 wire. Refer to Subject 20-10-15.

Make sure that the shield ground wire makes an exit from the cable at the rear end of the ferrule. Refer to Figure 9.

# STANDARD WIRING PRACTICES MANUAL

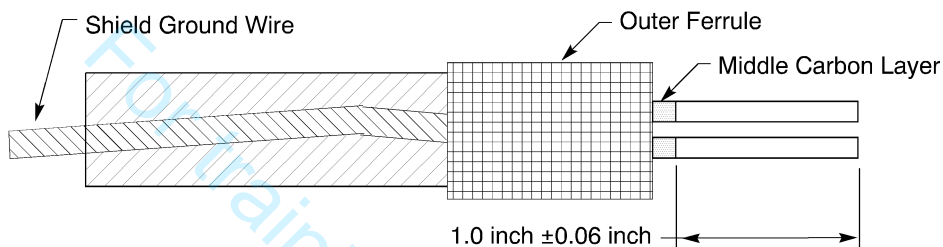
## CONNECTOR AND TERMINAL ASSEMBLY WITH 65B47866() SHIELDED CABLE



**POSITION OF THE SHIELD GROUND WIRE**

**Figure 9**

- (11) Remove 1.00 inch  $\pm 0.06$  inch of insulation from the end of each wire. Refer to Figure 10.



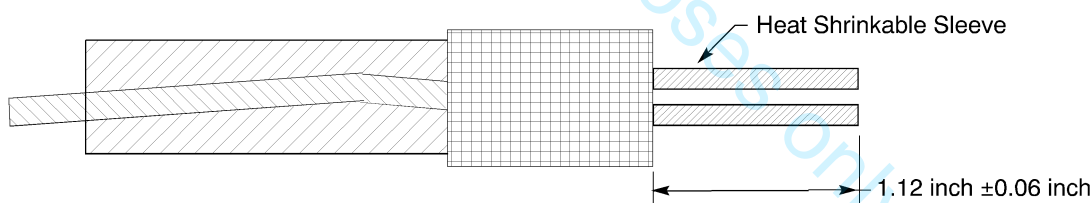
**INSULATION REMOVAL**

**Figure 10**

- (12) Put a 1.12 inch  $\pm 0.06$  inch length of 1/8 inch diameter of TFE 4X heat shrinkable sleeve on each conductor.

Make sure that the sleeve makes an overlap with the middle carbon layer of the conductor.

Refer to Figure 11.



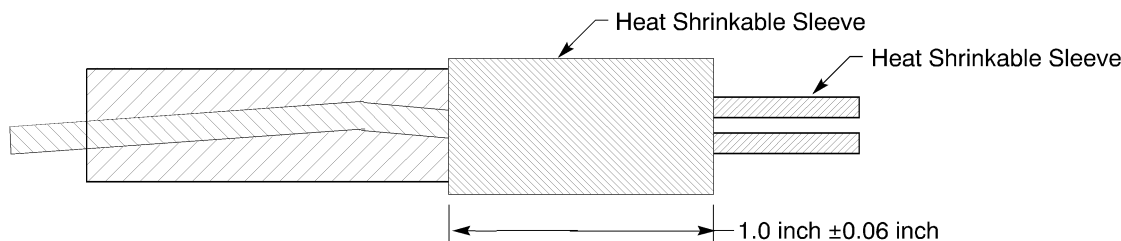
**POSITION OF THE HEAT SHRINKABLE SLEEVE ON THE CONDUCTORS**

**Figure 11**

- (13) Shrink each sleeve into its position. Refer to Subject 20-10-14.
- (14) Put a 1.00 inch  $\pm 0.06$  inch length of 3/8 inch diameter TFE 4X heat shrinkable sleeve on the cable. Make sure that the center of the sleeve is aligned with the center of the ferrule. Refer to Figure 12.

# STANDARD WIRING PRACTICES MANUAL

## CONNECTOR AND TERMINAL ASSEMBLY WITH 65B47866() SHIELDED CABLE



**POSITION OF THE HEAT SHRINKABLE SLEEVE ON THE CABLE**

**Figure 12**

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

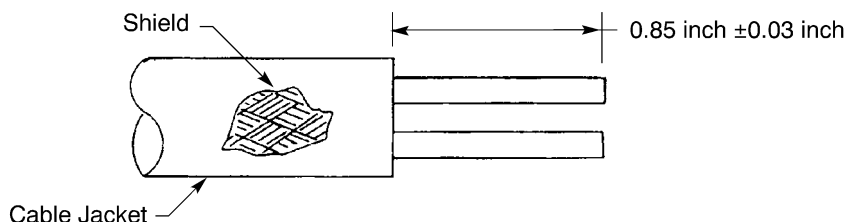
### 3. TERMINAL ASSEMBLY

#### A. Cable Preparation

**Table 8**  
**APPLICABLE TERMINALS**

Part Number	Supplier
321893	AMP

- (1) Remove 1.0 inch  $\pm$  0.1 inch of the cable jacket and the shield from the end of the cable.  
Make sure that the end of the jacket and the shield are perpendicular to the longitudinal axis of the cable.
- (2) Move the two component wires in the outer carbon layer apart.  
Make sure that the wires are parallel.
- (3) Cut the outer carbon layer along the longitudinal axis of the cable between the two wires.
- (4) Remove the necessary length of the outer carbon layer.  
Make sure that the end of the carbon layer is aligned with the end of the cable jacket.
- (5) Remove all of the unwanted carbon from the primary insulation with a fiberglass eraser or an abrasive pad.
- (6) Clean the insulation with acetone or an equivalent solvent.
- (7) Cut each wire so that the distance from the end of the cable jacket to the end of the wire is 0.85 inch  $\pm$  0.03 inch. Refer to Figure 13.



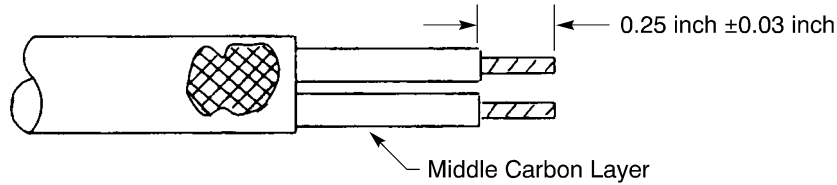
**NECESSARY LENGTH OF THE WIRES**

**Figure 13**

## STANDARD WIRING PRACTICES MANUAL

### CONNECTOR AND TERMINAL ASSEMBLY WITH 65B47866() SHIELDED CABLE

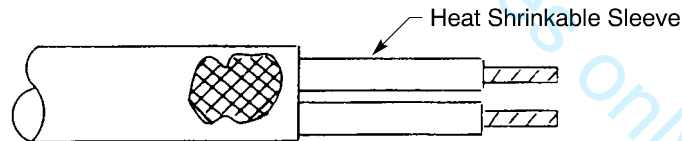
- (8) Remove 0.25 inch  $\pm$  0.03 inch of the primary insulation from each component wire. Refer to Figure 14.



#### INSULATION REMOVAL

Figure 14

- (9) Remove the necessary length of the middle carbon layer.  
Make sure that the distance from the end of the layer to the end of the primary insulation is 0.50 inch  $\pm$  0.03 inch.
- (10) Remove all of the unwanted carbon from the primary insulation with a fiberglass eraser or an abrasive pad.
- (11) Clean the insulation with acetone or an equivalent solvent.
- (12) Measure the insulation resistance at 500V DC between:
- The conductors
  - The shield and each conductor.
- Make sure that there are no carbon tracks.
- (13) Put a 0.60 inch  $\pm$  0.06 inch length of 1/8 inch diameter TFE 4X heat shrinkable sleeve on each component wire.  
Make sure that the forward end of the sleeve is aligned with the end of the primary insulation of the component wire. Refer to Figure 15.



#### POSITION OF THE HEAT SHRINKABLE SLEEVE ON THE WIRES

Figure 15

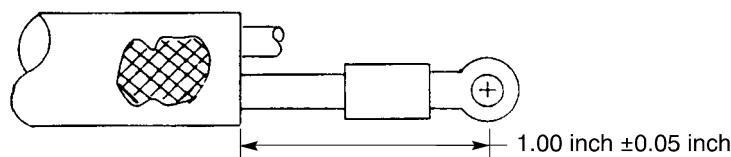
- (14) Shrink the sleeve into its position. Refer to Subject 20-10-14.

#### B. Terminal Assembly

- (1) Make a selection of a terminal from Table 8.
- (2) Make a selection of a crimp tool. Refer to Subject 20-30-11.
- (3) Attach a terminal to each wire:
  - (a) Put the terminal on the wire. Refer to Figure 16.

**STANDARD WIRING PRACTICES MANUAL**

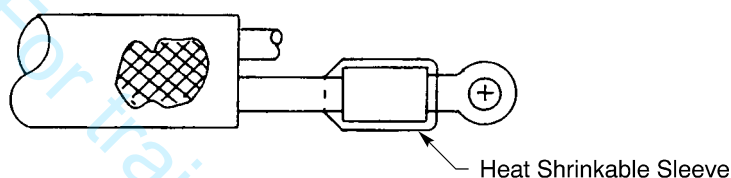
**CONNECTOR AND TERMINAL ASSEMBLY WITH 65B47866() SHIELDED CABLE**



**POSITION OF THE TERMINAL ON THE WIRE**

**Figure 16**

- (b) Crimp the terminal.
- (c) Put a 0.60 inch  $\pm 0.06$  inch length of 1/4 inch diameter TFE 4X heat shrinkable sleeve on the terminal. Refer to Figure 17.



**POSITION OF THE HEAT SHRINKABLE SLEEVE ON THE TERMINAL**

**Figure 17**

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

**4. ASSEMBLY OF THE VIBRO-METER CG505M1-03 CONNECTOR WITH 65B47866-1 AND -2 CABLE**

**A. Part Numbers and Description**

**Table 9**

**CONNECTOR PART NUMBERS**

Part Number	Supplier
CG505M1-03	Vibro-Meter

**Table 10**

**ALTERNATIVE CONNECTOR PART NUMBERS**

Specified Connector		Alternative Connector	
Part Number	Supplier	Part Number	Supplier
CG505M3-01	Vibro-Meter	812-505-000	Vibro-Meter
CG505M3-01	Vibro-Meter	812-505-000-301	Vibro-Meter
CG505M3-01	Vibro-Meter	CG505M1-03	Vibro-Meter
CG505M3-01	Vibro-Meter	VMCG505M1-03	Vibro-Meter
CG505M3-01	Vibro-Meter	VMCG505M3-01	Vibro-Meter

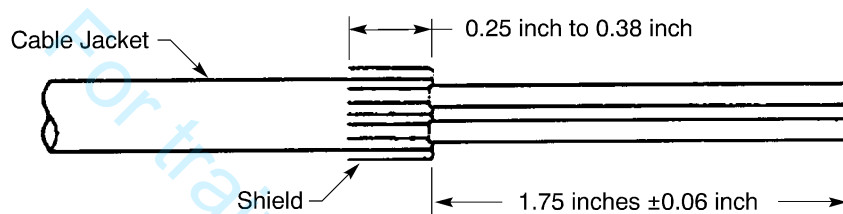
# STANDARD WIRING PRACTICES MANUAL

## CONNECTOR AND TERMINAL ASSEMBLY WITH 65B47866() SHIELDED CABLE

Table 11  
CONNECTOR ASSEMBLY KIT COMPONENTS

Component	Part Number	Supplier
Socket Contacts	-	-
Teflon Heat Shrinkable Sleeve	-	-
Insertion and Removal Tool	M15570-20	Deutsch

### B. Cable Preparation



**CABLE PREPARATION**  
**Figure 18**

- (1) Remove 1.75 inches  $\pm 0.06$  inch of the cable jacket from the end of the cable.
- (2) Move the strands of the shield apart.
- (3) Fold the strands back over the end of the cable jacket.
- (4) Remove the necessary length of the ends of the strands.

Make sure that the distance from the strand ends to the end of the jacket is 0.25 inch to 0.38 inch. Refer to Figure 18.

- (5) Put a 1.63 inch  $\pm 0.06$  inch length of TFE 2X heat shrinkable sleeve on the cable.
- (6) Move the two wires apart from the end of the cable to the end of the jacket.
- (7) Cut the outer carbon layer along the longitudinal axis of the cable between the two component wires.
- (8) Remove the necessary length of the outer carbon layer.  
Make sure that the end of the carbon layer is aligned with the end of the cable jacket.
- (9) Remove the necessary length of the middle carbon layer on each component wire.  
Make sure that the end of the layer is aligned with the end of the jacket.

**CAUTION:** MAKE SURE THAT DAMAGE TO THE PRIMARY INSULATION DOES NOT OCCUR.

- (10) Remove all of the unwanted carbon from the primary insulation with a fiberglass eraser or an abrasive pad.
- (11) Clean the insulation with acetone or an equivalent solvent.
- (12) Remove 0.16 inch  $\pm 0.02$  inch of the primary insulation from the end of each component wire.
- (13) Put the necessary length of a 1/8 inch diameter TFE 2X heat shrinkable sleeve on each component wire.

# 20-35-11

## STANDARD WIRING PRACTICES MANUAL

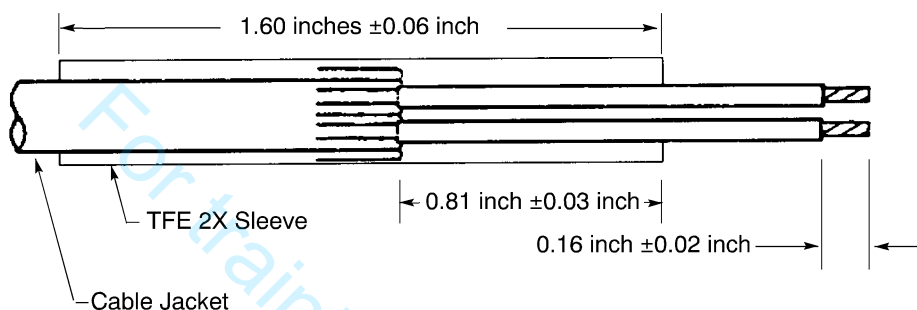
### CONNECTOR AND TERMINAL ASSEMBLY WITH 65B47866() SHIELDED CABLE

Make sure that:

- The rearward end of each sleeve is against the shield
- The forward end of each sleeve is aligned with the end of the primary insulation of the component wire.

- (14) Push the TFE 2X heat shrinkable sleeve toward the end of the cable until the forward end of the sleeve is beyond the end of the cable jacket or inner jacket.

Make sure that the distance from the forward end of the sleeve to the end of the cable jacket or inner jacket is 0.81 inch  $\pm$  0.03 inch. Refer to Figure 19.



**POSITION OF THE HEAT SHRINKABLE SLEEVE ON THE CABLE**

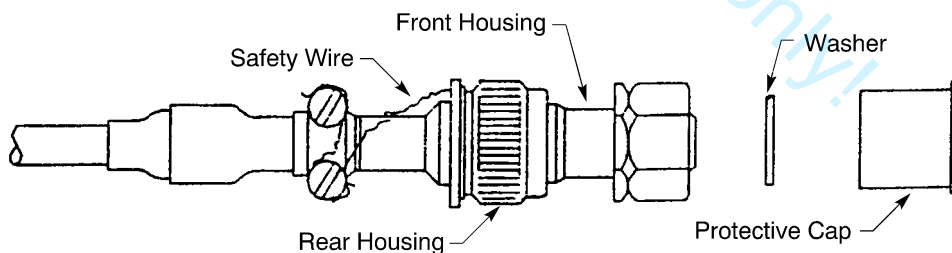
**Figure 19**

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

#### C. Connector Assembly

**Table 12**  
**CONTACT CRIMP TOOLS**

Basic Unit	Locator
M22520/2-01	M22520/2-02



**CONNECTOR ASSEMBLY**

**Figure 20**

- (1) Make a selection of a crimp tool from Table 12.
- (2) Assemble a contact, from the connector kit, on the end of both wires.
- (3) Put the 1.00 inch  $\pm$  0.06 inch Teflon heat shrinkable sleeve, from the connector kit, on the cable.

**20-35-11**

## STANDARD WIRING PRACTICES MANUAL

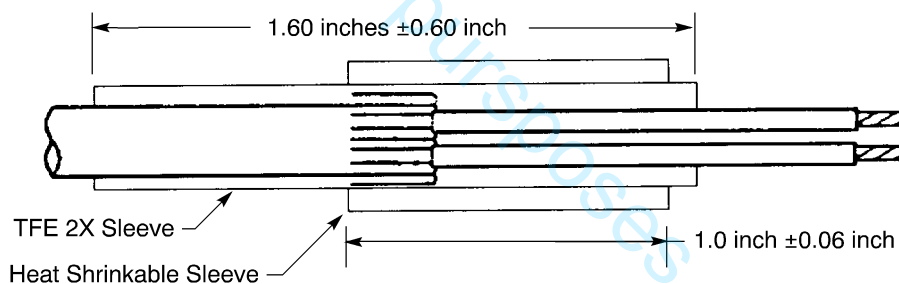
### CONNECTOR AND TERMINAL ASSEMBLY WITH 65B47866() SHIELDED CABLE

- (4) Push the rear housing of the connector, without the saddle clamp and the screws, rearward as far as possible on the wires and the TFE 2X heat shrinkable sleeve.
- (5) Make a selection of an insertion tool from Table 11.
- (6) With the red end of the tool, push each socket contact through the grommet of the connector front housing into the contact cavity until the contact is locked in position.
- (7) Lightly pull on the wire to make sure that the contact is locked in position.
- (8) If the contact is not locked in position:
  - (a) Push the white end of the tool forward on the wire into the contact cavity until it stops.
  - (b) At the same time, hold the wire against the tool and remove the wired contact and the tool.
  - (c) Turn the insertion tool 90 degrees on its longitudinal axis.
  - (d) Do Step (6) and Step (7) again.
- (9) Engage the threads of the rear housing and the front housing.
- (10) Tighten the rear housing.
 

Make sure that the clamp bar support at the rear of the connector housing is:

  - Parallel to the two socket contacts on the front of the connector
  - On the opposite side of the connector keyway.
- (11) Put the 1.0 inch  $\pm 0.06$  inch length of heat shrinkable sleeve on the TFE 2X sleeve. Refer to Figure 21.
 

Make sure that the rear end of the sleeve is aligned with the end of the strands of the shield.



**POSITION OF THE HEAT SHRINKABLE SLEEVE ON THE CABLE**

**Figure 21**

- (12) Shrink the sleeve into its position. Refer to Subject 20-10-14.
- (13) Install the cable clamp on the connector.
- (14) Tighten the two saddle clamp screws.
- (15) Torque each screw 8.0 in-lbs  $\pm 0.5$  in-lbs.
- (16) Install the safety wire on the screw heads. Refer to Figure 20.
- (17) Put the nickel washer on connector interface.
- (18) Put the protective cap on the engaging end of the connector. Refer to Figure 20.

#### D. Connector Installation

- (1) Remove the protective cap.
- (2) Engage the threads of the plug and the receptacle.

# STANDARD WIRING PRACTICES MANUAL

## CONNECTOR AND TERMINAL ASSEMBLY WITH 65B47866() SHIELDED CABLE

(3) Tighten the coupling nut 80 inch-pounds to 110 inch-pounds.

### 5. ASSEMBLY OF THE VIBRO-METER VMCG505M3-01, VIBRO-METER 812-505-000-301, ENDEVCO 26574, AND GLENAIR GC501 CONNECTORS WITH 65B47866-1, -2, AND -5 CABLE

#### A. Part Numbers and Description

Table 13  
CONNECTOR PART NUMBERS

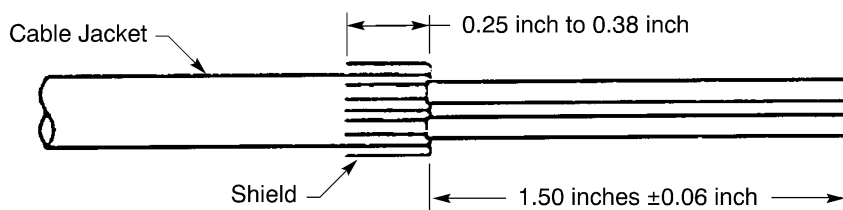
Part Number	Supplier
CG505M3-01	Vibro-Meter
VMCG505M3-01	Vibro-Meter
26574	ENDEVCO
GC501	Glenair

Table 14  
ALTERNATIVE PART NUMBERS

Specified Connectors		Alternative Connectors	
Part Number	Supplier	Part Number	Supplier
CG505M3-01	Vibro-Meter	812-505-000	Vibro-Meter
CG505M3-01	Vibro-Meter	812-505-000-301	Vibro-Meter
CG505M3-01	Vibro-Meter	CG505M1-03	Vibro-Meter
CG505M3-01	Vibro-Meter	VMCG505M1-03	Vibro-Meter
CG505M3-01	Vibro-Meter	VMCG505M3-01	Vibro-Meter

#### B. Cable Preparation

- (1) Remove the necessary length of the cable jacket from the end of the cable:
- 1.50 inches  $\pm 0.06$  inch for the 65B47866-1 and 65B47866-2 cables; refer to Figure 22
  - 2.75 inches  $\pm 0.06$  inch for the 65B47866-5 cable.

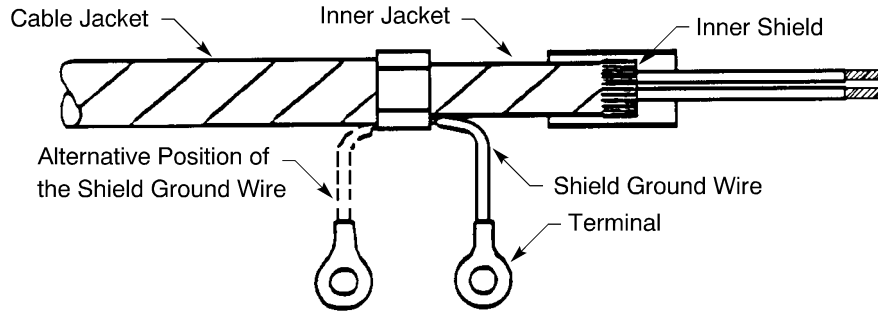


65B47866-1 AND 65B47866-2 CABLE PREPARATION  
Figure 22

- (2) For the 65B47866-5 cable, assemble a shield ground wire for the outer shield. Refer to Figure 23.

## STANDARD WIRING PRACTICES MANUAL

### CONNECTOR AND TERMINAL ASSEMBLY WITH 65B47866() SHIELDED CABLE



### CONFIGURATION OF THE SHIELD GROUND WIRE OF THE OUTER SHIELD OF THE 54B47866-5 CABLE

Figure 23

- (a) Assemble a shield ground wire with mechanical ferrules. Refer to Subject 20-10-15.  
These conditions are applicable:
    - The selection of the ferrules is from Table 4
    - The selection of the shield ground wire is from Table 3
    - The length of the shield ground wire is 2.0 inches maximum.
    - The heat shrinkable sleeve is a 1.0 inch  $\pm 0.06$  inch length of TFE 2X sleeve.
  - (b) Assemble a BACT12M terminal on the end of the shield ground wire. Refer to Subject 20-30-11.  
Make sure that a 1.0 inch  $\pm 0.06$  inch length of heat shrinkable sleeve is installed on the terminal.
  - (c) Remove 1.50 inches  $\pm 0.06$  inch of the inner jacket from the cable.
  - (3) Move the strands of the shield or the inner shield apart.
  - (4) Fold the strands back over the end of the cable jacket or the inner jacket.
  - (5) Remove the necessary length of the shield strands.  
Make sure that the distance from the strand ends to the end of the jacket is 0.25 inch to 0.38 inch. Refer to Figure 22.
  - (6) Put a 1.63 inch  $\pm 0.06$  inch length of TFE 2X heat shrinkable sleeve on the cable.
  - (7) Move the two wires apart from the end of the cable to the end of the jacket.
  - (8) Cut the outer carbon layer along the longitudinal axis of the cable between the two component wires.
  - (9) Remove the necessary length of the outer carbon layer.  
Make sure that the end of the carbon layer is aligned with:
    - The end of the cable jacket for the cable with one shield
    - The end of the inner jacket for the cable with two shields.
  - (10) Remove the necessary length of the middle carbon layer on each component wire.  
Make sure that the end of the layer is aligned with the end of the jacket.
- CAUTION:** MAKE SURE THAT DAMAGE TO THE PRIMARY INSULATION DOES NOT OCCUR.
- (11) Remove all of the unwanted carbon from the primary insulation with a fiberglass eraser or an abrasive pad.
  - (12) Clean the insulation with acetone or an equivalent solvent.

# 20-35-11

## STANDARD WIRING PRACTICES MANUAL

### CONNECTOR AND TERMINAL ASSEMBLY WITH 65B47866() SHIELDED CABLE

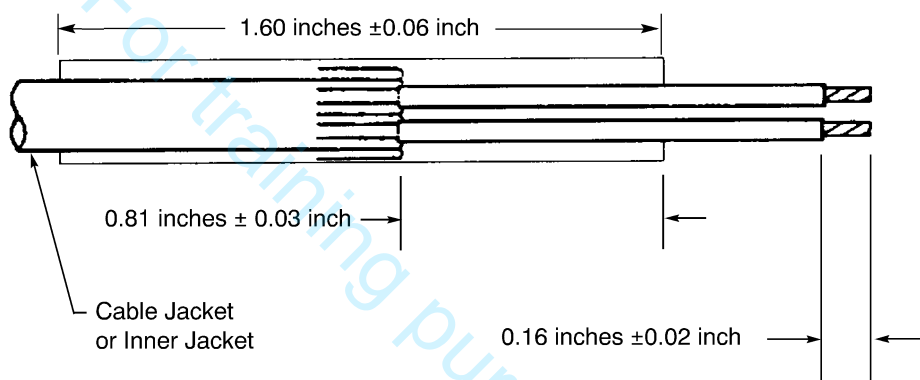
- (13) Remove 0.16 inch  $\pm$  0.02 inch of the primary insulation from the end of each component wire.
- (14) Put the necessary length of a 1/8 inch diameter TFE 2X heat shrinkable sleeve on each component wire.

Make sure that:

- The rearward end of each sleeve is against the shield
- The forward end of each sleeve is aligned with the end of the primary insulation of the component wire.

- (15) Push the TFE 2X heat shrinkable sleeve forward, toward the end of the cable, until the forward end of the sleeve is beyond the end of the cable jacket or inner jacket.

Make sure the distance from the forward end of the sleeve to the end of the cable jacket or inner jacket is 0.81 inch  $\pm$  0.03 inch. Refer to Figure 24.



**POSITION OF THE HEAT SHRINKABLE SLEEVE ON THE CABLE**

**Figure 24**

- (16) Shrink the sleeve into its position. Refer to Subject 20-10-14.
- (17) Remove 0.16 inch  $\pm$  0.02 inch of the primary insulation from the end of each component wire.

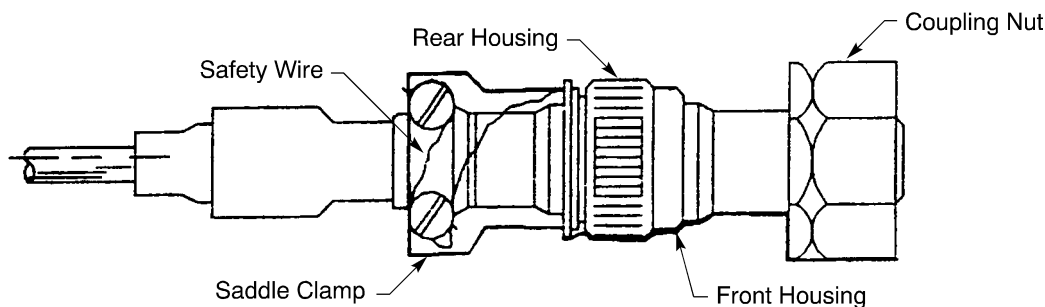
#### C. Connector Assembly

**Table 15**  
**CONTACT CRIMP TOOLS**

Basic Unit	Locator
ST2220-1-Y	ST2220-1-1

# STANDARD WIRING PRACTICES MANUAL

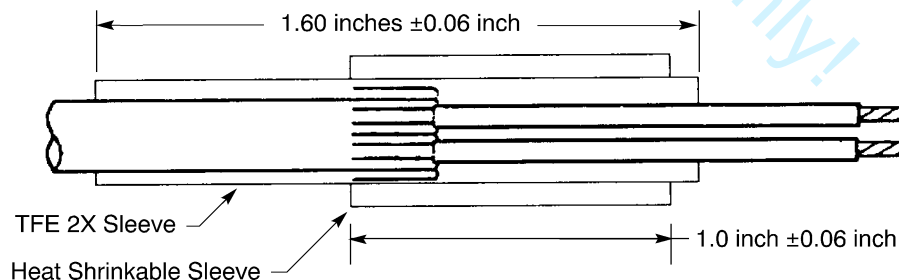
## CONNECTOR AND TERMINAL ASSEMBLY WITH 65B47866() SHIELDED CABLE



### CONNECTOR ASSEMBLY

Figure 25

- (1) Make a selection of a crimp tool from Table 15.
- (2) Assemble a contact, from the connector kit, on the end of both wires.
- (3) Put the 1.0 inch  $\pm 0.06$  inch Teflon heat shrinkable sleeve, from the connector kit, on the cable.
- (4) Push the rear housing of the connector, without the saddle clamp and the screws, rearward as far as possible on the wires and the TFE 2X heat shrinkable sleeve.
- (5) Make a selection of a contact insertion tool from Table 11.
- (6) With the red end of the tool, push each socket contact through the grommet of the connector front housing into the contact cavity until the contact is locked in position.
- (7) Lightly pull on the wire to make sure that the contact is locked in position.
- (8) If the contact is not locked in position:
  - (a) Push the white end of the tool forward on the wire into the contact cavity until it stops.
  - (b) At the same time, hold the wire against the tool and remove the wired contact and the tool.
  - (c) Turn the insertion tool 90 degrees on its longitudinal axis.
  - (d) Do Step (6) and Step (7) again.
- (9) Put the 1.0 inch  $\pm 0.06$  inch length of heat shrinkable sleeve on the TFE 2X sleeve. Refer to Figure 26. Make sure that the rear end of the sleeve is aligned with the end of the strands of the shield.



### POSITION OF THE HEAT SHRINKABLE SLEEVE ON THE CABLE

Figure 26

- (10) Shrink the sleeve into its position. Refer to Subject 20-10-14.
- (11) Install the cable clamp on the connector.

**STANDARD WIRING PRACTICES MANUAL****CONNECTOR AND TERMINAL ASSEMBLY WITH 65B47866() SHIELDED CABLE**

- (12) For the 65B47866-5 cable, attach the terminal of the shield ground wire on one of the saddle clamp screws.
- (13) Tighten the two screws.
- (14) Torque each screw 8.0 in-lbs  $\pm$  0.5 in-lbs.
- (15) Install the safety wire on the screw heads. Refer to Figure 25.

**6. APPROVED TOOL SUPPLIERS****A. Crimp Tool Suppliers**

**Table 16**  
**CRIMP TOOL SUPPLIERS**

<b>Tool</b>	<b>Supplier</b>
M22520/2-01	QPL
M22520/2-02	QPL
ST2220-1-1	Boeing
ST2220-1-Y	Boeing

**B. Contact Insertion and Removal Tools**

**Table 17**  
**INSERTION AND REMOVAL TOOL SUPPLIERS**

<b>Tool</b>	<b>Supplier</b>
M15570-20	Deutsch



707, 727-787

## STANDARD WIRING PRACTICES MANUAL

### PREPARATION OF THE S280T004-1 AUDIO CABLE

<u>Paragraph</u>	<u>Page</u>
1. <u>S280T004-1 AUDIO CABLE</u>	1
A. Part Numbers and Description	1
B. Cable Preparation	1

For training purposes only!

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# STANDARD WIRING PRACTICES MANUAL

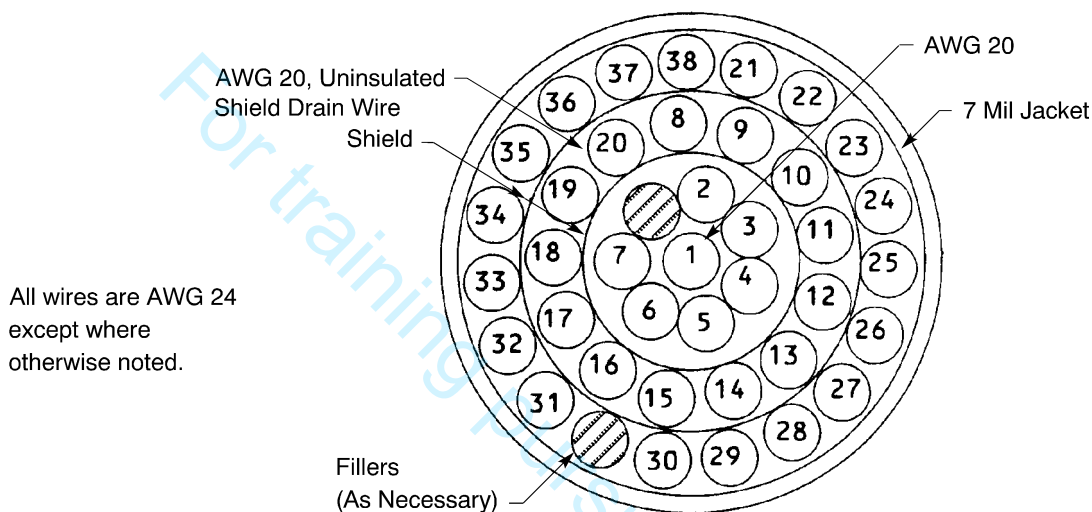
## PREPARATION OF THE S280T004-1 AUDIO CABLE

### 1. S280T004-1 AUDIO CABLE

#### A. Part Numbers and Description

Table 1  
CABLE PART NUMBERS

Boeing Specification	Description
S280T004-1	Audio Cable



CONFIGURATION OF THE S280T004-1 CABLE  
Figure 1

#### B. Cable Preparation

- (1) Put a 2 inch  $\pm$  1/2 inch length of 3/8 inch diameter heat shrinkable sleeve over the cable.
- (2) Remove 2 inches  $\pm$  1/8 inch of the cable jacket.

**CAUTION:** DO NOT CAUSE ANY DAMAGE TO ANY OF THE WIRES.

- (3) Cut the shield and the fillers so that the ends are within 1/8 inch of the jacket.

**CAUTION:** DO NOT CUT THE BLACK INSULATED WIRE WITH THE FILLERS.

- (4) Remove the wire insulation. Refer to Subject 20-61-11.
- (5) Put a Thermofit heat shrinkable sleeve on the uninsulated ground wire so that the sleeve:
  - Is within 1/8 inch of the insulation barrel of the contact
  - Is over the cable jacket
  - Extends 1/2 inch  $\pm$  1/8 inch beyond the saddle bar.
- (6) Shrink the sleeve in position.

# 20-35-12

# STANDARD WIRING PRACTICES MANUAL

## CONNECTOR ASSEMBLY WITH S280T006-1 AND S280T006-2 SPOILER CABLES

<u>Paragraph</u>	<u>Page</u>
<b>1. PART NUMBERS AND DESCRIPTION</b>	<b>1</b>
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B. Connector Part Numbers	1
C. Contact Part Numbers	1
D. Necessary Assembly Components	1
<b>2. CONNECTOR ASSEMBLY WITH THE S280T006-1 SPOILER CABLE</b>	<b>2</b>
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<b>3. ASSEMBLY OF THE BACC45FM16-10S, BACC63BV16-10S, AND 48-00R16-10S RECEPTACLES WITH S280T006-2 CABLE</b>	<b>2</b>
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B. Case Ground Wire Preparation	2
C. Cable Preparation	2
D. Shield Ground Wire Assembly with Mechanical Ferrules	3
E. Shield Ground Wire Assembly with a Shield-Kon	6
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A. Crimp Tools	14

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## STANDARD WIRING PRACTICES MANUAL

## CONNECTOR ASSEMBLY WITH S280T006-1 AND S280T006-2 SPOILER CABLES

1. PART NUMBERS AND DESCRIPTION

## A. Spoiler Cable Part Numbers

Table 1  
CABLE PART NUMBERS

Boeing Specification	Supplier
S280T006-1	Boeing
S280T006-2	Boeing

## B. Connector Part Numbers

Table 2  
CONNECTOR PART NUMBERS

Part Number	Type	Supplier
48-00R16-10S	Receptacle	Amphenol
BACC45FM14-7P	Receptacle	Boeing
BACC45FM16-10S	Receptacle	Boeing
BACC63BV14-7P	Receptacle	Boeing
BACC63BV16-10S	Receptacle	Boeing

## C. Contact Part Numbers

Table 3  
CONTACT PART NUMBERS

Boeing Standard	Contact Size		Contact Type	Supplier
	Engaging End	Crimp Barrel		
BACC47CP2T	16	16	Socket	Boeing

## D. Necessary Assembly Components

Table 4  
NECESSARY ASSEMBLY COMPONENTS

Component	Part Number	Supplier
Ferrule, Inner	BACS13S219B	Boeing
Ferrule, Outer	BACS13S297C	Boeing
Splice, Moisture Proof	D436-59	Raychem
Splice, Parallel	34137	AMP
Terminal Lug	BACT12M	Boeing

20-35-13

**STANDARD WIRING PRACTICES MANUAL****CONNECTOR ASSEMBLY WITH S280T006-1 AND S280T006-2 SPOILER CABLES**

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

**2. CONNECTOR ASSEMBLY WITH THE S280T006-1 SPOILER CABLE****A. Connector Assembly**

Refer to Subject 20-61-11.

**3. ASSEMBLY OF THE BACC45FM16-10S, BACC63BV16-10S, AND 48-00R16-10S RECEPTACLES WITH S280T006-2 CABLE****A. Shield Ground Wire Preparation**

- (1) For a shield ground wire that must be attached to a ground stud, cut a 12.00 inch  $\pm 0.25$  inch length of BMS 13-48 Type 8 AWG 18 wire.
- (2) For a shield ground wire that must be attached to a backshell, cut a 2.00 inch  $\pm 0.25$  inch length of BMS 13-48 Type 8 AWG 18 wire.
- (3) Remove 0.25 inch  $\pm 0.06$  inch of insulation from one end of the wire.
- (4) Make a selection of a terminal lug from Table 4.
- (5) Assemble the terminal lug on the wire. Refer to Subject 20-30-11.

**B. Case Ground Wire Preparation**

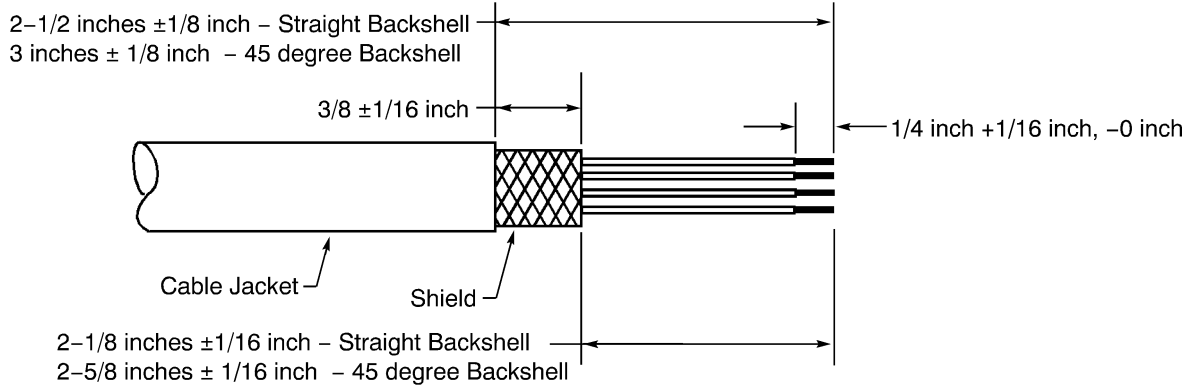
- (1) Cut a 12.00 inch  $\pm 0.25$  inch length of BMS 13-48 Type 8 AWG 18 wire.
- (2) Put the wire number code on the wire. Refer to Subject 20-10-11.
- (3) Remove 0.25 inch  $\pm 0.06$  inch of insulation from one end of the wire.
- (4) Make a selection of a terminal lug from Table 4.
- (5) Assemble the terminal lug on the wire. Refer to Subject 20-30-11.

**C. Cable Preparation**

- (1) Put the connector backshell on the cable approximately 6 inches from the end.
- (2) Make a selection of a 0.5 inch diameter Grade B, Class 1 heat shrinkable sleeve from Subject 20-00-11.
- (3) Put a 2.50 inch  $\pm 0.50$  inch length of the heat shrinkable sleeve on the cable.
- (4) Put a 1.50 inch  $\pm 0.13$  inch length the heat shrinkable sleeve on the cable.
- (5) Prepare the cable. Refer to Figure 1.

# **STANDARD WIRING PRACTICES MANUAL**

## **CONNECTOR ASSEMBLY WITH S280T006-1 AND S280T006-2 SPOILER CABLES**



### **CABLE PREPARATION**

**Figure 1**

- (a) If it is necessary, cut the end of the cable to make the end perpendicular to its longitudinal axis.
- (b) Remove the necessary length of cable jacket from the end of the cable:
  - 2.50 inches  $\pm 0.13$  inch for a straight backshell
  - 3.00 inches  $\pm 0.13$  inch for a 45 degree backshell
- (c) Remove the necessary length of the shield from the end of the cable:
  - 2.13 inches  $\pm 0.06$  inch for a straight backshell
  - 2.63 inches  $\pm 0.06$  inch for a 45 degree backshell
- (d) Remove 0.25 inch  $+0.06$  inch,  $-0$  inch of insulation from the end of each wire of the cable.

### **D. Shield Ground Wire Assembly with Mechanical Ferrules**

A satisfactory alternative to the assembly of a shield ground wire with mechanical ferrules is the assembly with:

- A Shield-Kon; refer to Paragraph 3.E.
- A solder sleeve; refer to Paragraph 3.F.

# STANDARD WIRING PRACTICES MANUAL

## CONNECTOR ASSEMBLY WITH S280T006-1 AND S280T006-2 SPOILER CABLES

Table 5  
FERRULE CRIMP TOOLS

Outer Ferrule	Crimp Tool			
	Basic Unit	Die		
		Part Number	Cavity	Dimension (inch)
BACS13S297C	44-000	44-140	A	0.290
	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	-	

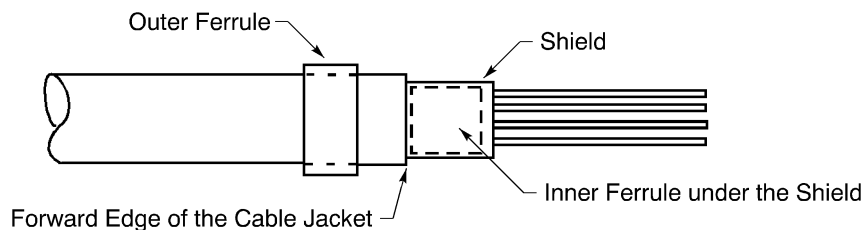
- (1) Make a selection of an inner ferrule and outer ferrule from Table 4.
- (2) Make a selection of a ferrule crimp tool from Table 5.
- (3) Make a selection of a 3/8 inch diameter Grade B, Class 1 heat shrinkable sleeve from Subject 20-00-11.
- (4) Put a 1.0 inch  $\pm 0.13$  inch length of the heat shrinkable sleeve on the cable.
- (5) Put the outer ferrule on the cable.
- (6) Put the inner ferrule on the cable. Refer to Figure 2.

Make sure that the ferrule is:

- Between the shield and the wires of the cable
- Tight against the end of the cable jacket.

## STANDARD WIRING PRACTICES MANUAL

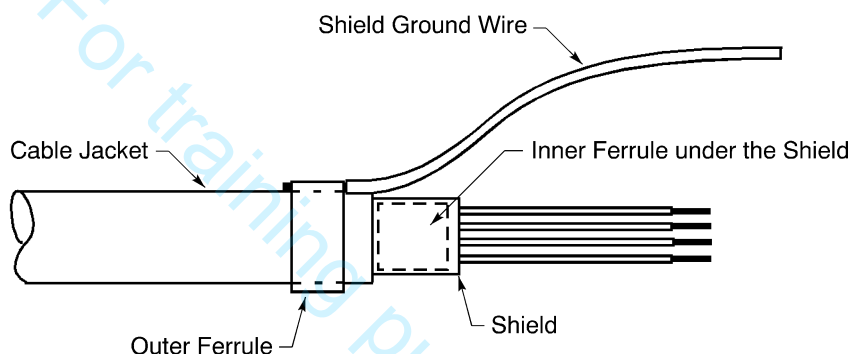
### CONNECTOR ASSEMBLY WITH S280T006-1 AND S280T006-2 SPOILER CABLES



**POSITION OF THE INNER FERRULE**

**Figure 2**

- (7) From the forward end of the cable, put the end of the shield ground wire without insulation between the cable jacket and the outer ferrule. Refer to Figure 3.



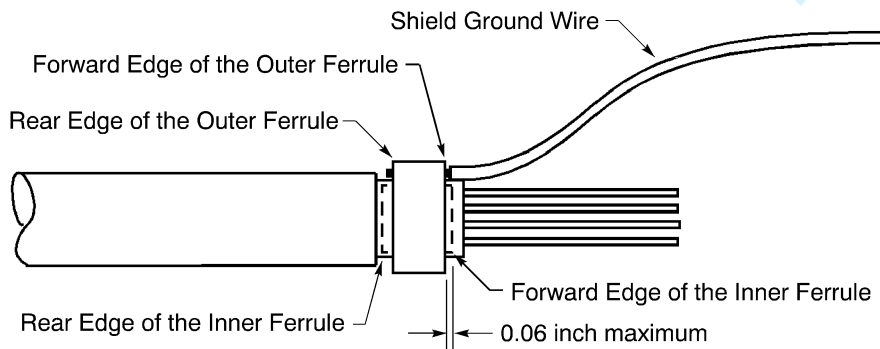
**INITIAL POSITION OF THE OUTER FERRULE AND THE SHIELD GROUND WIRE**

**Figure 3**

- (8) Push the outer ferrule and the shield ground wire forward at the same time until the center of the outer ferrule is aligned with the center of the inner ferrule. Refer to Figure 4.

Make sure that:

- The distance from the forward edge of the inner ferrule to the forward edge of the outer ferrule is not more than 0.06 inch
- The end of the shield ground wire is between the rear edge of the outer ferrule and the rear edge of the inner ferrule.



**POSITION OF THE OUTER FERRULE AND THE SHIELD GROUND WIRE**

**Figure 4**

**20-35-13**

## STANDARD WIRING PRACTICES MANUAL

### CONNECTOR ASSEMBLY WITH S280T006-1 AND S280T006-2 SPOILER CABLES

- (9) Crimp the outer ferrule.
- (10) Remove the length of the shield that extends forward farther than the forward edge of the outer ferrule.

**NOTE:** The surface of the inner ferrule can be used to cut against.

- (11) Align the center of the 1 inch sleeve with the center of the outer ferrule.
- (12) Shrink the sleeve into position. Refer to Subject 20-10-14.

#### E. Shield Ground Wire Assembly with a Shield-Kon

Refer to Subject 20-10-15.

Make sure that the shield ground wire is extended forward from the forward end of the Shield-Kon. Refer to Figure 4.

#### F. Shield Ground Wire Assembly with a Solder Sleeve

Refer to Subject 20-10-15.

Make sure that the shield ground wire is extended forward from the forward end of the solder sleeve. Refer to Figure 4.

#### G. Splice Assembly

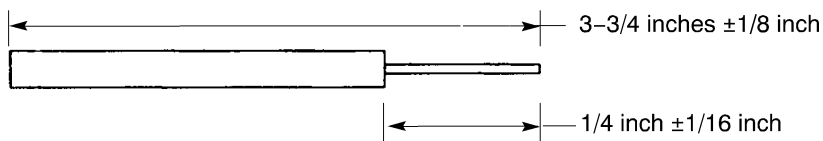
**Table 6**  
**SPLICE CRIMP TOOLS**

Splice	Crimp Tool Basic Unit
34137	49900
	49935
	WT130
	WT1300
D-436-59	AD-1377

**NOTE:** The applicable shield termination mechanism can be:

- A mechanical ferrule
- A Shield-Kon
- A solder sleeve.

- (1) Make a selection of a splice from Table 4.  
Two splices are necessary.
- (2) Make a selection of a crimp tool from Table 6.
- (3) Prepare four BMS 13-48 Type 8 AWG 20 splice wires. Refer to Figure 5.



#### INSULATION REMOVAL LENGTH

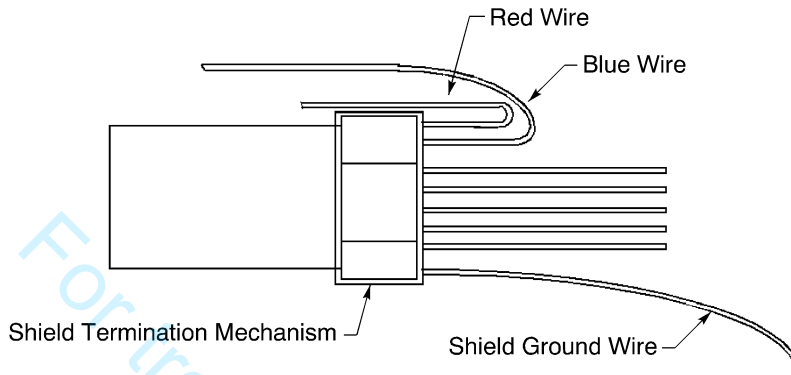
**Figure 5**

**20-35-13**

## STANDARD WIRING PRACTICES MANUAL

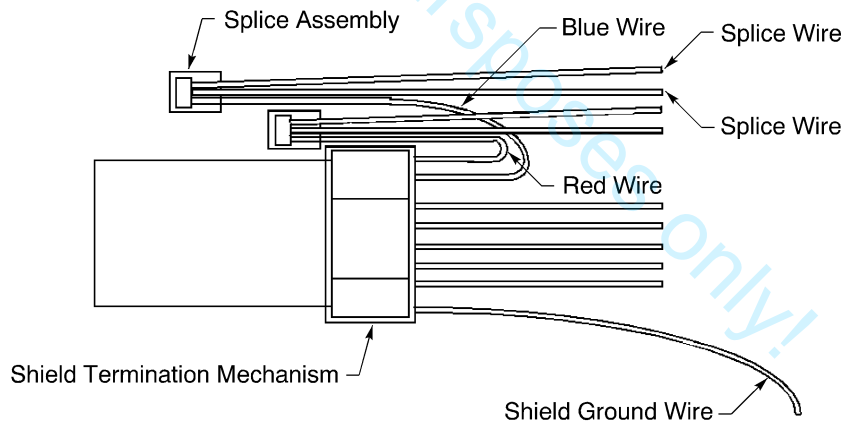
### CONNECTOR ASSEMBLY WITH S280T006-1 AND S280T006-2 SPOILER CABLES

- (a) Cut each wire 3.75 inches  $\pm$  0.13 inch.
- (b) Remove 0.25 inch  $\pm$  0.06 inch of insulation from the end of each wire.
- (4) Bend the red and the blue wires back across the applicable shield termination mechanism. Refer to Figure 6.



**PREPARATION FOR THE ASSEMBLY OF SPLICES**  
Figure 6

- (5) If the splice is a moisture proof splice:
  - (a) Put the end of the red wire and the ends of the two splice wires in the same end of the splice. Refer to Figure 7.



**CONFIGURATION OF THE SPLICES**  
Figure 7

- (b) Crimp the splice.
- (c) Put the moisture proof sleeve on the splice.  
Make sure that the center of the sleeve is aligned with the center of the splice.
- (d) Shrink the sleeve. Refer to Subject 20-10-14.  
Make sure that the lining of the sleeve is fully melted.
- (e) Do Step (a) through Step (d) again with the blue wire.

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**STANDARD WIRING PRACTICES MANUAL****CONNECTOR ASSEMBLY WITH S280T006-1 AND S280T006-2 SPOILER CABLES**

- (6) If the splice is a parallel splice:

**Table 7**  
**NECESSARY MATERIAL**

<b>Material</b>	<b>Part Number</b>	<b>Supplier</b>
Heat Shrinkable Sleeve	DWP-125	Raychem

- (a) Put the end of the red wire and the ends of the two splice wires in the same end of the splice. Refer to Figure 7.
- (b) Crimp the splice.
- (c) Make a selection of heat shrinkable sleeve. Refer to table 7.
- NOTE: Refer to Subject 20-00-11 for an alternative heat shrinkable sleeve.
- (d) Put a 0.75 inch length of the selected shrinkable sleeve on the splice assembly.  
Make sure that:
- The sleeve has the smallest possible diameter that can move easily on the splice assembly
  - The center of the sleeve is aligned with the center of the splice.
- (e) Shrink the sleeve into position. Refer to Subject 20-10-14.
- (f) Do Step (a) through Step (d) again with the blue wire.
- (7) Cut the ends of the four splice wires to align them with the ends of the remaining wires of the cable. Refer to Figure 7.

**H. Contact Assembly**

- (1) Make a selection of a contact from Table 3.  
10 contacts are necessary.
- (2) Remove 0.25 inch  $\pm$  0.06 inch of insulation from the end of each splice wire. Refer to Figure 5.
- (3) Remove 0.25 inch  $\pm$  0.06 inch of insulation from one end of the case ground wire.
- (4) Assemble a contact on the end of:
- Each of the five remaining AWG 20 wires of the cable
  - Each of the four AWG 18 splice wires
  - The AWG 18 case ground wire.

Refer to Subject 20-61-11.

**I. Connector Assembly**

NOTE: The applicable shield termination mechanism can be:

- A mechanical ferrule
  - A Shield-Kon
  - A solder sleeve.
- (1) Install each assembled contact in the connector.

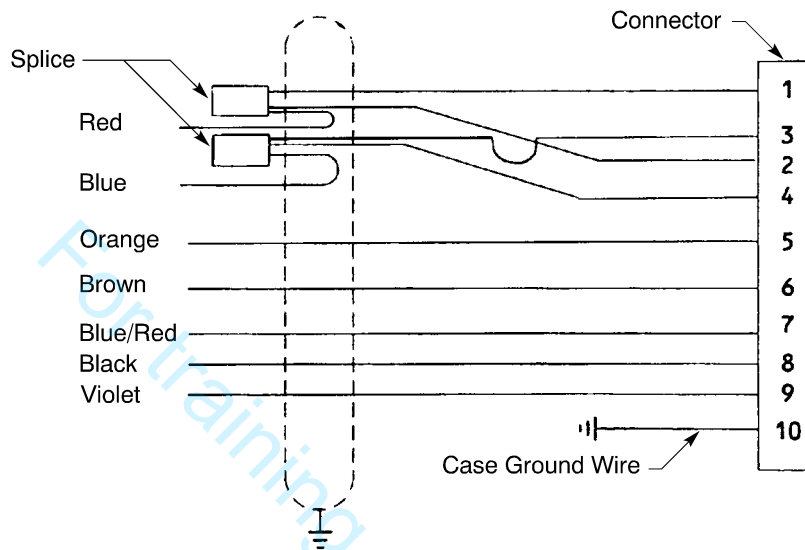
## STANDARD WIRING PRACTICES MANUAL

### CONNECTOR ASSEMBLY WITH S280T006-1 AND S280T006-2 SPOILER CABLES

Refer to:

- Figure 8
- Subject 20-61-11 for the contact insertion procedure.

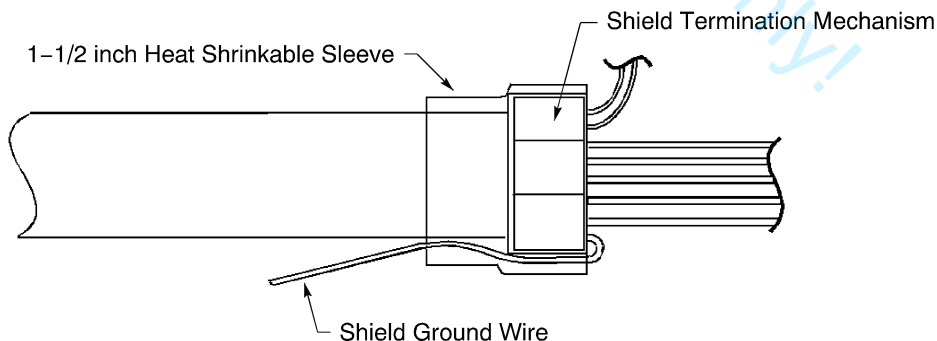
Make sure to install the contact of the case ground wire in pin 10 of the connector.



**CONTACT INSERTION**  
**Figure 8**

- (2) If the shield ground wire must be attached to a ground stud:
- Bend the wire back across the applicable shield termination mechanism.
  - Align the forward edge of the 1.5 inch sleeve with the forward edge of the shield termination mechanism. Refer to Figure 9.

Make sure that the shield ground wire is between the sleeve and the cable.



**CONFIGURATION OF THE SHIELD GROUND WIRE FOR INSTALLATION ON A GROUND STUD**  
**Figure 9**

- Shrink the sleeve into position. Refer to Subject 20-10-14.
- Fold the wire forward across the 1.5 inch sleeve.

**20-35-13**

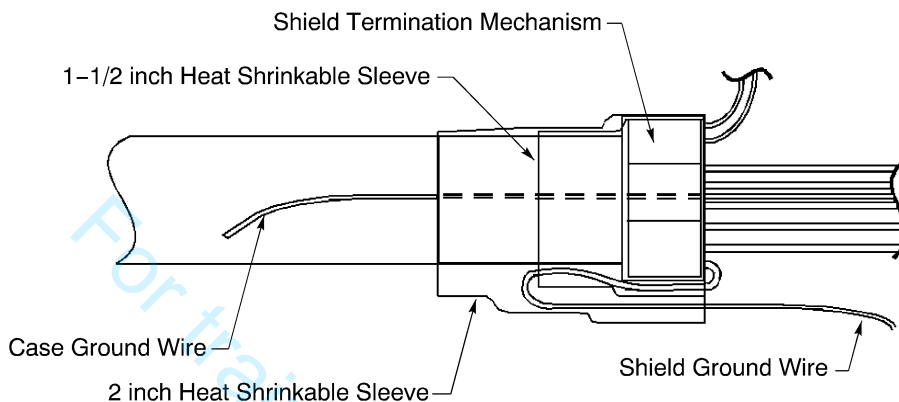
## STANDARD WIRING PRACTICES MANUAL

### CONNECTOR ASSEMBLY WITH S280T006-1 AND S280T006-2 SPOILER CABLES

- (e) Align the forward edge of the 2.5 inch sleeve with the forward edge of the shield termination mechanism. Refer to Figure 10.

Make sure that:

- The shield ground wire is between the sleeves
- The case ground wire is between the sleeves.



### CONFIGURATION OF THE SHIELD GROUND WIRE FOR INSTALLATION ON A GROUND STUD

Figure 10

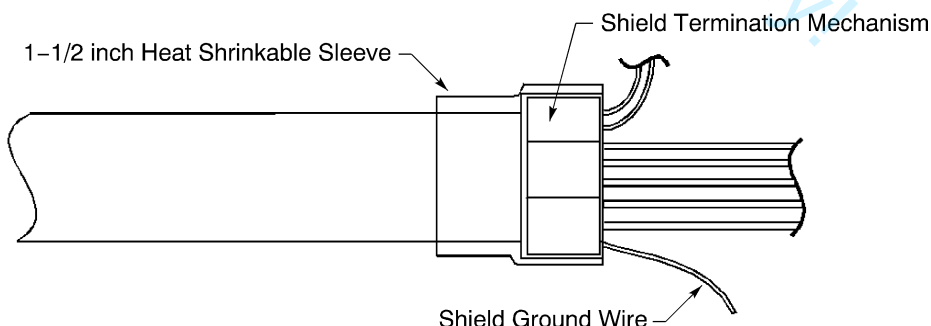
- (f) Shrink the sleeve into position. Refer to Subject 20-10-14.
- (g) Install the backshell.
- (h) To make a tight fit under the saddle clamp, put the necessary layers of Permacel P-440 tape on the cable.

Make sure that:

- The center each layer of tape is aligned with the center of the saddle clamp
- Each layer of tape makes 100 percent overlap.

- (3) If the shield ground wire must be attached to a backshell:

- (a) Align the forward edge of the 1.5 inch sleeve with the forward edge of the shield termination mechanism. Refer to Figure 11.



### CONFIGURATION OF THE SHIELD GROUND WIRE FOR INSTALLATION ON A BACKSHELL

Figure 11

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

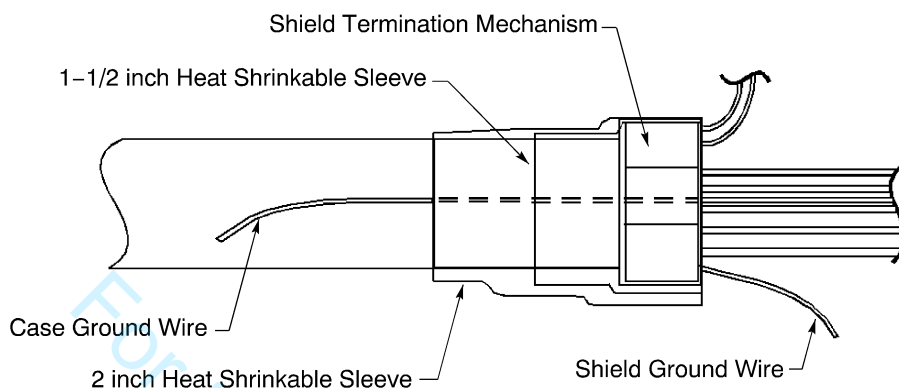
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## STANDARD WIRING PRACTICES MANUAL

### CONNECTOR ASSEMBLY WITH S280T006-1 AND S280T006-2 SPOILER CABLES

- (c) Align the forward edge of the 2.5 inch sleeve with the forward edge of the shield termination mechanism. Refer to Figure 12.

Make sure that the case ground wire is between the sleeves.



### CONFIGURATION OF THE SHIELD GROUND WIRE FOR INSTALLATION ON A BACKSHELL

Figure 12

- (d) Shrink the sleeve into position. Refer to Subject 20-10-14.  
 (e) Install the backshell.  
 (f) To make a tight fit under the saddle clamp, put the necessary layers of Permacel P-440 tape on the cable.

Make sure that:

- The center each layer of tape is aligned with the center of the saddle clamp
- Each layer of tape makes 100 percent overlap.

- (g) Put the terminal lug of the shield ground wire on a saddle clamp screw.

- (4) Install the saddle clamp.

#### 4. ASSEMBLY OF THE BACC45FM14-7P AND BACC63BV14-7P RECEPTACLES WITH S280T006-2 CABLE

##### A. Shield Ground Wire Preparation

- (1) For a shield ground wire that must be attached to a ground stud, cut an 8.00 inch  $\pm 0.25$  inch length of BMS 13-48 Type 8 AWG 18 wire.
- (2) For a shield ground wire that must be attached to a backshell, cut a 2.00 inch  $\pm .025$  inch length of BMS 13-48 Type 8 AWG 18 wire.
- (3) Remove 0.25 inch  $\pm 0.06$  inch of insulation from one end of the wire.
- (4) Make a selection of a terminal lug from Table 4.
- (5) Assemble the terminal lug on the wire. Refer to Subject 20-30-11.

##### B. Cable Preparation

- (1) Put the connector backshell on the cable approximately 6 inches from the end.
- (2) Make a selection of a 0.5 inch diameter Grade B, Class 1 heat shrinkable sleeve from Subject 20-00-11.
- (3) Put a 2.50 inch  $\pm 0.50$  inch length of the heat shrinkable sleeve on the cable.

**STANDARD WIRING PRACTICES MANUAL****CONNECTOR ASSEMBLY WITH S280T006-1 AND S280T006-2 SPOILER CABLES**

- (4) Put a 1.50 inch  $\pm 0.13$  inch length of the heat shrinkable sleeve on the cable.
- (5) Prepare the cable. Refer to Figure 1.
  - (a) If it is necessary, cut the end of the cable to make the end perpendicular to its longitudinal axis.
  - (b) Remove 2.50 inches  $\pm 0.13$  inch of the outer jacket from the end of the cable.
  - (c) Remove 2.13 inches  $\pm 0.06$  inch of the shield from the end of the cable.
  - (d) Remove 0.25 inch  $+0.06$  inch,  $-0$  inch of insulation from the end of each wire of the cable.

**C. Shield Ground Wire Assembly with Mechanical Ferrules**

A satisfactory alternative to the assembly of a shield ground wire with mechanical ferrules is the assembly with:

- A Shield-Kon; refer to Paragraph 4.D.
  - A solder sleeve; refer to Paragraph 4.E.
- (1) Make a selection of an inner ferrule and outer ferrule from Table 4.
  - (2) Make a selection of a ferrule crimp tool from Table 5.
  - (3) Make a selection of a 3/8 inch diameter Grade B, Class 1 heat shrinkable sleeve from Subject 20-00-11.
  - (4) Put a 1.0 inch  $\pm 0.13$  inch length of the heat shrinkable sleeve on the cable.
  - (5) Put the outer ferrule on the cable.
  - (6) Put the inner ferrule on the cable. Refer to Figure 2.

Make sure that the ferrule is:

    - Between the shield and the wires of the cable
    - Tight against the end of the cable jacket.
  - (7) From the forward end of the cable, put the end of the shield ground wire without insulation between the cable jacket and the outer ferrule. Refer to Figure 3.
  - (8) Push the outer ferrule and the shield ground wire forward at the same time until the center of the outer ferrule is aligned with the center of the inner ferrule. Refer to Figure 4.

Make sure that:

    - The distance from the forward edge of the inner ferrule to the forward edge of the outer ferrule is not more than 0.06 inch
    - The end of the shield ground wire is between the rear edge of the outer ferrule and the rear edge of the inner ferrule.
  - (9) Crimp the outer ferrule.
  - (10) Remove the unwanted length of the shield that extends forward farther than the forward edge of the outer ferrule.

NOTE: The surface of the inner ferrule can be used to cut against.
  - (11) Align the center of the 1 inch sleeve with the center of the outer ferrule.
  - (12) Shrink the sleeve into its position. Refer to Subject 20-10-14.

**D. Shield Ground Wire Assembly with a Shield-Kon**

Refer to Subject 20-10-15.

Make sure that the shield ground wire is extended forward from the forward end of the Shield-Kon. Refer to Figure 4.

**STANDARD WIRING PRACTICES MANUAL****CONNECTOR ASSEMBLY WITH S280T006-1 AND S280T006-2 SPOILER CABLES****E. Shield Ground Wire Assembly with a Solder Sleeve**

Refer to Subject 20-10-15.

Make sure that the shield ground wire is extended forward from the forward end of the solder sleeve.  
Refer to Figure 4.

**F. Contact Assembly**

- (1) Make a selection of the contacts from Table 3.
- (2) Assemble a contact on the end of each of the seven AWG 20 wires of the cable. Refer to Subject 20-61-11.

**G. Connector Assembly**

NOTE: The applicable shield termination mechanism can be:

- A mechanical ferrule
- A Shield-Kon
- A solder sleeve.

- (1) Install each assembled contact in the connector.

Refer to:

- Figure 8
- Subject 20-61-11 for the contact insertion procedure.

- (2) If the shield ground wire must be attached to a ground stud:

- (a) Bend the wire back across the applicable shield termination mechanism.
- (b) Align the forward edge of the 1.5 inch sleeve with the forward edge of the shield termination mechanism. Refer to Figure 9.

Make sure that the shield ground wire is between the sleeve and the cable.

- (c) Shrink the sleeve into position. Refer to Subject 20-10-14.
- (d) Fold the wire forward across the 1.5 inch sleeve.
- (e) Align the forward edge of the 2.5 inch sleeve with the forward edge of the shield termination mechanism. Refer to Figure 10.

Make sure that the shield ground wire is between the sleeves.

- (f) Shrink the sleeve into position. Refer to Subject 20-10-14.
- (g) Install the backshell.
- (h) To make a tight fit under the saddle clamp, put the necessary layers of Permacel P-440 tape on the cable.

Make sure that:

- The center each layer of tape is aligned with the center of the saddle clamp
- Each layer of tape makes 100 percent overlap.

- (3) If the shield ground wire must be attached to a backshell:

- (a) Align the forward edge of the 1.5 inch sleeve with the forward edge of the shield termination mechanism. Refer to Figure 11.
- (b) Shrink the sleeve into position. Refer to Subject 20-10-14.
- (c) Align the forward edge of the 2.5 inch sleeve with the forward edge of the shield termination mechanism. Refer to Figure 12.

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## STANDARD WIRING PRACTICES MANUAL

### CONNECTOR ASSEMBLY WITH S280T006-1 AND S280T006-2 SPOILER CABLES

- (d) Shrink the sleeve into position. Refer to Subject 20-10-14.
- (e) Install the backshell.
- (f) To make a tight fit under the saddle clamp, put the necessary layers of Permacel P-440 tape on the cable.

Make sure that:

- The center each layer of tape is aligned with the center of the saddle clamp
- Each layer of tape makes 100 percent overlap.

- (g) Put the terminal lug of the shield ground wire on a saddle clamp screw.

- (4) Install the saddle clamp.

#### 5. APPROVED TOOL SUPPLIERS

##### A. Crimp Tools

**Table 8**  
**CRIMP TOOL SUPPLIERS**

Tool	Supplier
44-000	Balmar
44-140	Balmar
4414	Thomas & Betts
49900	AMP
49935	AMP
612648	Buchanan
612893	Buchanan
613214	Buchanan
613011	Buchanan
620175	Buchanan
620308	Buchanan
AD-1377	Raychem
HX-4	Daniels
M22520/5-01	QPL
M22520/5-41	QPL
ST2966M	Boeing
ST965-2	Boeing
ST965A-14	Boeing
ST965B	Boeing
ST965B-14	Boeing
WT130	Thomas & Betts
WT1300	Thomas & Betts

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## STANDARD WIRING PRACTICES MANUAL

### CONNECTOR ASSEMBLY WITH S280T006-1 AND S280T006-2 SPOILER CABLES

Table 8 (continued)

Tool	Supplier
WT211-14	Thomas & Betts
WT214	Thomas & Betts
WT414	Thomas & Betts
WT440	Thomas & Betts
Y140	Daniels

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## STANDARD WIRING PRACTICES MANUAL

### SHIELD TERMINATION OF THE RAYCHEM (TYCO) 0024A0014 BALANCED LINE CABLE

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**STANDARD WIRING PRACTICES MANUAL****SHIELD TERMINATION OF THE RAYCHEM (TYCO) 0024A0014 BALANCED LINE CABLE****1. PART NUMBERS AND DESCRIPTION****A. Cable Part Numbers**

**Table 1**  
**CABLE PART NUMBERS**

<b>Part Number</b>	<b>Supplier</b>
0024A0014	Raychem

**2. SHIELD TERMINATION****A. Cable Preparation**

- (1) Remove 2 inches of the jacket from the end of the cable.
- (2) Remove the length of the shield so that the end of the shield is 1/4 inch from the end of the jacket.
- (3) For contact assembly with size 22 contacts:
  - (a) Remove 1-1/4 inches of insulation from the end of the wire.
  - (b) Put a 2 inch length of 1/16 inch diameter Kynar heat shrinkable sleeve on the wire and under the shield so that:
    - The end of the sleeve is against the end of the jacket
    - The other end of the sleeve extends a minimum of 5/8 inch beyond the end of the wire insulation.
  - (c) Shrink the sleeve in position. Refer to Subject 20-10-14.

**B. Shield Ground Wire Assembly**

- (1) Assemble a shield ground wire with a solder sleeve. Refer to Subject 20-10-15.

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STANDARD WIRING PRACTICES MANUAL

SHIELD TERMINATION OF RAYCHEM (TYCO) 55A6087 CABLES

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# STANDARD WIRING PRACTICES MANUAL

## SHIELD TERMINATION OF RAYCHEM (TYCO) 55A6087 CABLES

### 1. PART NUMBERS AND DESCRIPTION

#### A. Connector Part Numbers

Table 1  
CONNECTOR PART NUMBERS

Part Number	Type	Supplier
BACC63BP	Plug	Boeing

#### B. Shield Termination Components

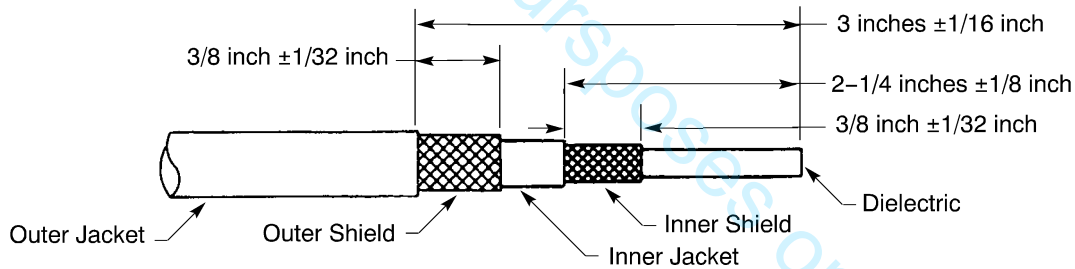
Table 2  
SHIELD TERMINATION COMPONENTS

Component	Part Number	Supplier
Heat Shrinkable Solder Sleeve	BACS13BH2	Boeing
Terminal	BACT12AC3	Boeing

### 2. SHIELD TERMINATION

#### A. Cable Preparation

- (1) Prepare the cable. Refer to Figure 1.



CABLE TRIM DIMENSIONS

Figure 1

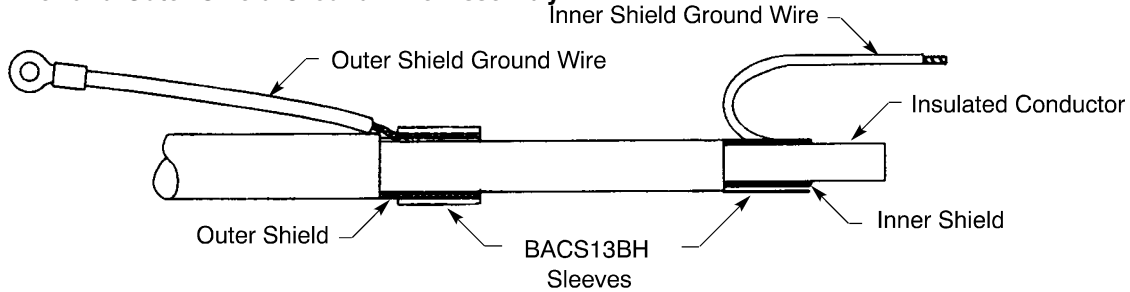
- (a) Remove 3 inches  $\pm 1/16$  inch of the outer jacket from the end of the cable.
- (b) Remove the length of the outer shield so that the end of the shield is 3/8 inch  $\pm 1/32$  inch from the end of the outer jacket.
- (c) Remove 2-1/4 inches  $\pm 1/8$  inch of the inner jacket from the end of the cable.
- (d) Remove the length of the inner shield so that the end of the shield is 3/8 inch  $\pm 1/32$  inch from the end of the inner jacket.

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## STANDARD WIRING PRACTICES MANUAL

### SHIELD TERMINATION OF RAYCHEM (TYCO) 55A6087 CABLES

#### B. Inner and Outer Shield Ground Wire Assembly



**INNER SHIELD AND OUTER SHIELD GROUND WIRES**  
**Figure 2**

- (1) Cut a 6 inch  $\pm 1/16$  inch length of BMS 13-16 Type I Class 1 AWG 18 wire for the shield ground wire.
- (2) Remove the insulation from both ends of the wire. Refer to Subject 20-30-11.
- (3) Make a selection of a heat shrinkable solder sleeve from Table 2.
- (4) To terminate an inner shield with a shielded contact:
  - (a) Hold the shield ground wire on the inner shield.
  - (b) Put the sleeve on the cable and the end of the ground wire. Refer to Figure 2.
  - (c) Assemble the contact. Refer to Subject 20-61-11.
- (5) To terminate either an inner shield without a shielded contact or an outer shield:
  - (a) Make a selection of a terminal lug from Table 2.
  - (b) Crimp the terminal lug on one end of one ground wire. Refer to Subject 20-30-11.
  - (c) Hold the shield ground wire on the cable.
  - (d) Put the sleeve on the cable and the end of the ground wire. Refer to Figure 2.
  - (e) Shrink the sleeve in position.

Make sure that the shield ground wire points away from the end of the cable.



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## STANDARD WIRING PRACTICES MANUAL

### SHIELD TERMINATION OF THE RAYCHEM (TYCO) 55A6090 CABLE

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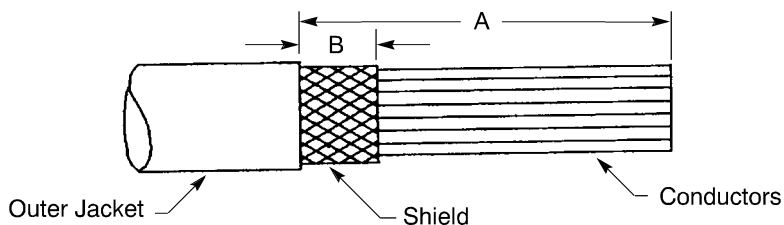
# STANDARD WIRING PRACTICES MANUAL

## SHIELD TERMINATION OF THE RAYCHEM (TYCO) 55A6090 CABLE

This Subject gives the procedures to terminate the outer shield of the Raychem 55A6090 cable.

### 1. CABLE SHIELD TERMINATION

#### A. Cable Preparation



**CABLE TRIM DIMENSIONS**

**Figure 1**

**Table 1**  
**CABLE TRIM DIMENSIONS**

Connector	Cable Trim		
	Dimension	Minimum (inch)	Maximum (inch)
BACC45FS20C	A	2-7/8	3-1/8
	B	11/32	13/32
BACC63BP18R	A	2-3/4	3
	B	11/32	13/32
BACC63BP22R	A	3	3-1/4
	B	11/32	13/32
BACC63BV18R	A	2-3/4	3
	B	11/32	13/32
BACC63BV22R	A	3	3-1/4
	B	11/32	13/32

- (1) Prepare the cable.

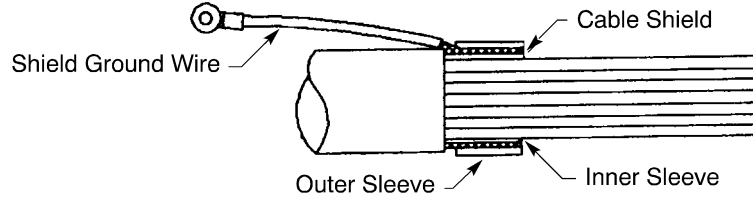
Refer to Figure 1 and Table 1.

- Remove the necessary length of the outer jacket so that the distance from the end of the jacket to the end of the cable is Dimension A.
- 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 Dimension B.

## STANDARD WIRING PRACTICES MANUAL

### SHIELD TERMINATION OF THE RAYCHEM (TYCO) 55A6090 CABLE

#### B. Shield Ground Wire Assembly



**SHIELD GROUND WIRE ASSEMBLY**  
**Figure 2**

- (1) Prepare the shield ground wire. Refer to Subject 20-10-15.
  - (a) Make a selection of the shield ground wire.
  - (b) Cut a 6.0 inch  $\pm 0.1$  inch length of the wire.
  - (c) Remove the necessary insulation from both ends of the wire.
- (2) Assemble the BACT12AC3 general purpose terminal on the end of the ground wire. Refer to Subject 20-30-11.
- (3) Attach the shield ground wire to the shield with mechanical ferrules. Refer to Subject 20-10-15.
- (4) Make a selection of a 3/8 inch diameter Grade B, Class 1 heat shrinkable sleeve from Subject 20-00-11.
- (5) Put a 1.06 inch  $\pm 0.06$  inch length of the sleeve on the cable.  
Make sure that the center of the sleeve is aligned with the center of the outer ferrule.
- (6) Shrink the sleeve into its position. Refer to Subject 20-10-14.

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## STANDARD WIRING PRACTICES MANUAL

### SHIELD TERMINATION OF THE RAYCHEM (TYCO) 55A6088 CABLE

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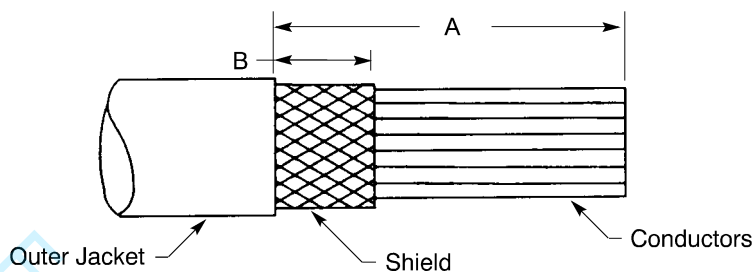
# STANDARD WIRING PRACTICES MANUAL

## SHIELD TERMINATION OF THE RAYCHEM (TYCO) 55A6088 CABLE

This Subject gives the procedures to terminate the outer shield of the Raychem 55A6088 cable.

### 1. CABLE SHIELD TERMINATION

#### A. Cable Preparation



**CABLE TRIM DIMENSIONS**

**Figure 1**

**Table 1**  
**CABLE TRIM DIMENSIONS**

Connector	Cable Trim		
	Dimension	Minimum (inch)	Maximum (inch)
BACC45FS20	A	2-7/8	3-1/8
	B	11/32	13/32
BACC63BP14	A	2-3/8	2-5/8
	B	11/32	13/32
BACC63BP18	A	2-3/4	3
	B	11/32	13/32
BACC63BP20	A	2-7/8	3-1/8
	B	11/32	13/32
BACC63BP22	A	3	3-1/4
	B	11/32	13/32
BACC63BV18	A	2-3/4	3
	B	11/32	13/32
BACC63BV22	A	3	3-1/4
	B	11/32	13/32

- (1) Prepare the cable.

Refer to Figure 1 and Table 1.

- (2) Remove the necessary length of the outer jacket so that the distance from the end of the jacket to the end of the cable is Dimension A.

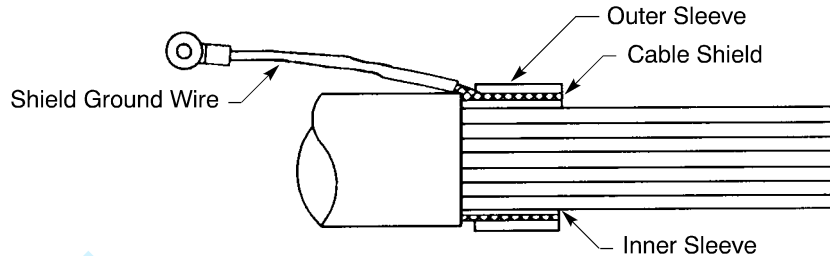
# 20-35-19

# **STANDARD WIRING PRACTICES MANUAL**

## **SHIELD TERMINATION OF THE RAYCHEM (TYCO) 55A6088 CABLE**

- (3) Remove the necessary length of the shield so that the distance from the end of the shield to the end of the jacket is Dimension B.

### **B. Shield Ground Wire Assembly**



**SHIELD GROUND WIRE ASSEMBLY**  
**Figure 2**

- (1) Prepare the shield ground wire. Refer to Subject 20-10-15.
  - (a) Make a selection of the shield ground wire.
  - (b) Cut a 6.0 inch  $\pm 0.1$  inch length of the wire.
  - (c) Remove the necessary length of insulation from both ends of the wire.
- (2) If a terminal is specified:
  - (a) Assemble the BACT12AC3 general purpose terminal on the end of the ground wire. Refer to Subject 20-30-11.
  - (b) Attach the shield ground wire to the shield with mechanical ferrules. Refer to Subject 20-10-15.
- (3) If a contact is specified, install a contact on the shield ground wire. Refer to Subject 20-61-11.
- (4) Make a selection of a 5/8 inch diameter Grade B, Class 1 heat shrinkable sleeve from Subject 20-00-11.
- (5) Put a 1.06 inch  $\pm 0.06$  inch length of the sleeve on the cable.  
Make sure that the center of the sleeve is aligned with the center of the outer ferrule.
- (6) Shrink the sleeve into its position. Refer to Subject 20-10-14.



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## STANDARD WIRING PRACTICES MANUAL

SHIELD TERMINATION OF RAYCHEM (TYCO) 55A6160 AND 55A6160-20 CABLES, AND CHAMPLAIN 61-02651 AND 61-02783 CABLES

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## STANDARD WIRING PRACTICES MANUAL

### SHIELD TERMINATION OF RAYCHEM (TYCO) 55A6160 AND 55A6160-20 CABLES, AND CHAMPLAIN 61-02651 AND 61-02783 CABLES

#### 1. CABLE PREPARATION

##### A. Cable Part Numbers

Table 1  
CABLE PART NUMBERS

Part Number	Supplier
55A6160	Raychem
55A6160-20	Raychem
61-02651	Champlain
61-02783	Champlain

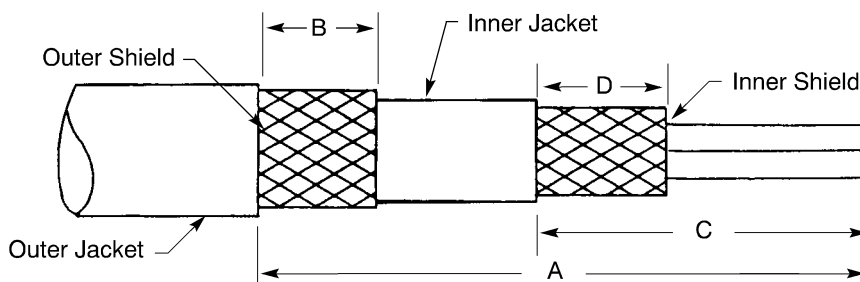
##### B. Cable Preparation

Table 2  
CABLE TRIM DIMENSIONS

Cable	Cable Trim		
	Dimension	Target (inch)	Tolerance (inch)
55A6160	A	3-1/2	± 1/8
	B	3/8	± 1/32
	C	2-1/4	± 1/8
	D	3/8	± 1/32
55A6160-20	A	3-1/2	± 1/8
	B	3/8	± 1/32
	C	2-1/2	± 1/8
	D	3/8	± 1/32
61-02651	A	3-1/2	± 1/8
	B	3/8	± 1/32
	C	2-1/2	± 1/8
	D	3/8	± 1/32
61-02783	A	3-1/2	± 1/8
	B	3/8	± 1/32
	C	2-1/2	± 1/8
	D	3/8	± 1/32

## STANDARD WIRING PRACTICES MANUAL

### SHIELD TERMINATION OF RAYCHEM (TYCO) 55A6160 AND 55A6160-20 CABLES, AND CHAMPLAIN 61-02651 AND 61-02783 CABLES



**CABLE PREPARATION**

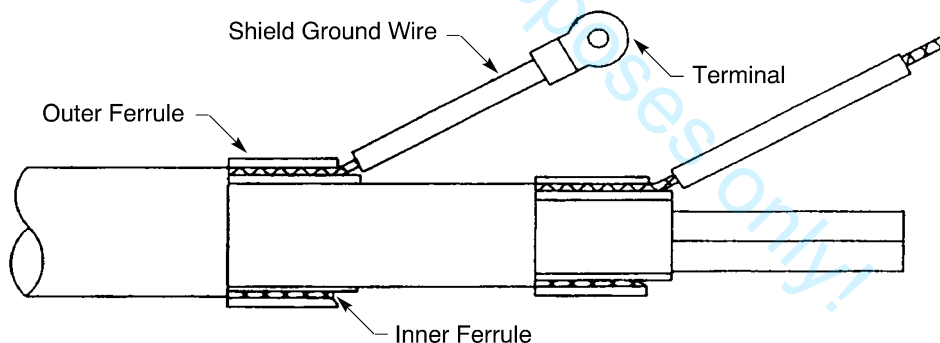
**Figure 1**

Refer to Table 2 and Figure 1.

- (1) Remove the necessary length of the outer jacket so that the distance from the end of the jacket to the end of the cable is dimension A.
- (2) Remove the necessary length of the outer shield so that the distance from the end of the outer shield to the end of the outer jacket is dimension B.
- (3) Remove the necessary length of the inner jacket so that the distance from the end of the inner jacket to the end of the cable is dimension C.
- (4) Remove the necessary length of the inner shield so that the distance from the end of the inner shield to the end of the inner jacket is dimension D.

## 2. TERMINATION OF THE OUTER SHIELD

### A. Shield Ground Wire Assembly



**SHIELD GROUND WIRE ON THE OUTER SHIELD**

**Figure 2**

- (1) Assemble a shield ground wire with mechanical ferrules on the outer shield. Refer to Figure 2 and Subject 20-10-15.

**NOTE:** A satisfactory alternative for the Raychem 55A6160 cable is the assembly of the shield ground wire with a BACS13BH2 solder sleeve. Refer to Subject 20-10-15.

## STANDARD WIRING PRACTICES MANUAL

### SHIELD TERMINATION OF RAYCHEM (TYCO) 55A6160 AND 55A6160-20 CABLES, AND CHAMPLAIN 61-02651 AND 61-02783 CABLES

Make sure that:

- The shield ground wire is a 6 inch  $\pm 1/16$  inch length of AWG 20 wire
- The length of the heat shrinkable sleeve is 1-1/8 inches  $\pm 1/16$  inch.

**NOTE:** If the shield ground wire is assembled with a solder sleeve, the heat shrinkable sleeve is not used.

- (2) Assemble a BACT12M terminal on the ground wire. Refer to Subject 20-30-11.

### 3. TERMINATION OF THE INNER SHIELD

#### A. Shield Ground Wire Assembly

- (1) Assemble a shield ground wire with mechanical ferrules on the inner shield. Refer to Figure 2 and Subject 20-10-15.

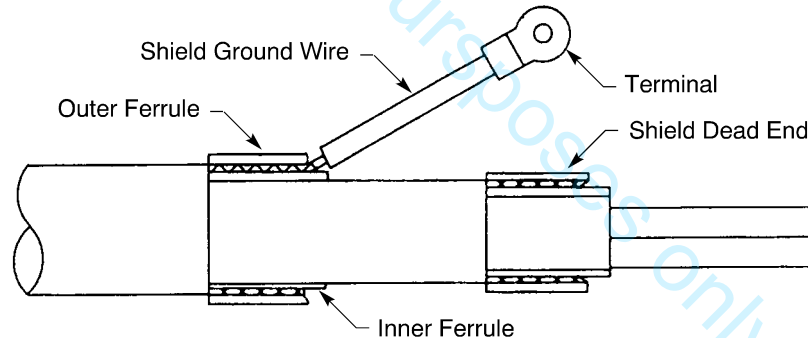
**NOTE:** A satisfactory alternative for the Raychem 55A6160 cable is the assembly of the shield ground wire with a BACS13BH2 solder sleeve. Refer to Subject 20-10-15.

Make sure that:

- The shield ground wire is a 6 inch  $\pm 1/16$  inch length of AWG 20 wire
- The length of the heat shrinkable sleeve is 1-1/8 inches  $\pm 1/16$  inch.

**NOTE:** If the shield ground wire is assembled with a solder sleeve, the heat shrinkable sleeve is not used.

#### B. Assembly of a Shield Dead End



**SHIELD DEAD END ON THE INNER SHIELD**  
**Figure 3**

- (1) Assemble a shield dead end on the inner shield. Refer to Figure 3 and Subject 20-10-15.  
Make sure that the length of the heat shrinkable sleeve is 1-1/8 inches  $\pm 1/16$  inch.

#### C. Assembly of a Shield Ground Wire That Is Attached to a Cable Conductor

- (1) Assemble a shield ground wire with mechanical ferrules on the inner shield. Refer to Subject 20-10-15.

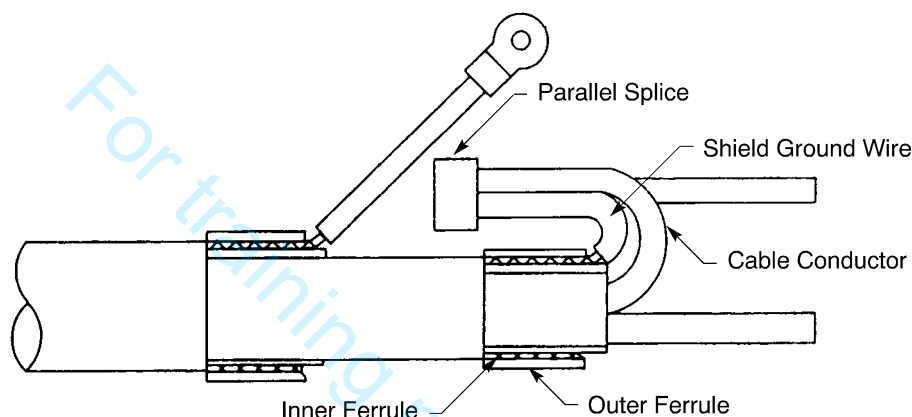
## STANDARD WIRING PRACTICES MANUAL

### SHIELD TERMINATION OF RAYCHEM (TYCO) 55A6160 AND 55A6160-20 CABLES, AND CHAMPLAIN 61-02651 AND 61-02783 CABLES

Make sure that:

- The shield ground wire is a 4.5 inch  $\pm 0.06$  inch length of AWG 20 wire
  - The length of the heat shrinkable sleeve is 1.06 inches  $\pm 0.06$  inch.
- (2) Attach these wires with a parallel splice:
- The end of the shield ground wire
  - One end of a 4.5 inch  $\pm 0.06$  inch length of the same type of wire as the shield ground wire
  - The specified conductor of the cable.

Refer to Figure 4 and Subject 20-30-12.



**CONFIGURATION OF THE SHIELD GROUND WIRE**

**Figure 4**

- (3) Put one layer of the TFE Stage B tape on the splice.
- (4) Make a selection of a heat shrinkable sleeve. Refer to Table 7.

**Table 3**  
**NECESSARY MATERIAL**

Material	Part Number	Supplier
Heat Shrinkable Sleeve	DWP-125	Raychem

**NOTE:** Refer to Subject 20-00-11 for alternative heat shrinkable sleeve.

- (5) For the Raychem 55A6160-20 cable, put the sufficient length of the selected heat shrinkable sleeve on the splice so that both ends of the sleeve extend beyond the ends of the splice.
- (6) For the Raychem 61-02651 and the 61-02783 cables, put one layer of PTFE tape on the splice so that both ends of the layer of tape extend beyond the ends of the splice.
- (7) Fold the shield ground wire and the cable conductor back over the ferrule so that free end of the wire opposite the splice is aligned with the end of the remaining conductor of the cable.

Refer to Figure 4.

- (8) Make a selection of a Grade B, Class 1 heat shrinkable sleeve from Subject 20-00-11.
- (9) Put a 1.5 inch  $\pm 0.06$  inch length of the sleeve on the wires with the splice and the cable.
- (10) Shrink the sleeve into position. Refer to Subject 20-10-14.

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## STANDARD WIRING PRACTICES MANUAL

### CONNECTOR ASSEMBLY WITH MICRODOT 202-3836-0000 AVM CABLE

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# STANDARD WIRING PRACTICES MANUAL

## CONNECTOR ASSEMBLY WITH MICRODOT 202-3836-0000 AVM CABLE

### 1. PART NUMBERS AND DESCRIPTION

#### A. Cable Part Numbers

Table 1  
CABLE PART NUMBERS

Part Number	Supplier
202-3836-000	Microdot

#### B. Connector Part Numbers

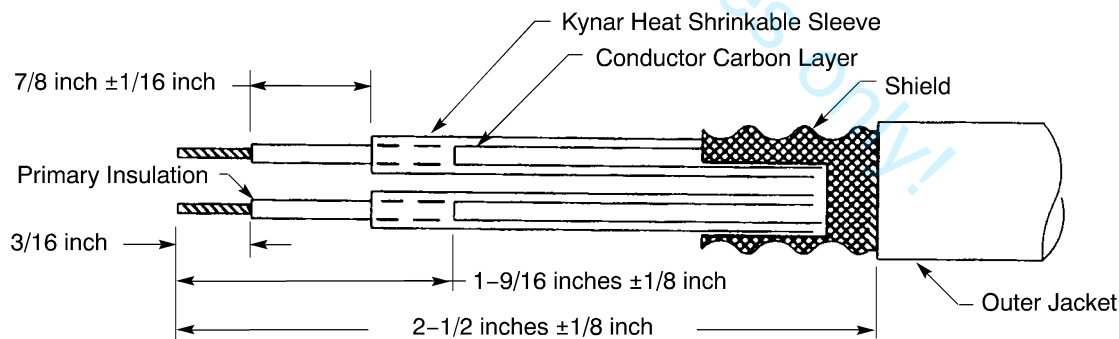
Table 2  
CONNECTOR PART NUMBERS

Boeing Standard	Type
BACC66()	Plug
	Receptacle
BACC45F()	Plug
	Receptacle
BACC63BP()	Plug
BACC63BV()	Receptacle

### 2. ASSEMBLY OF BACC66() CONNECTORS

#### A. Cable Preparation

Refer to Figure 1.



CABLE TRIM DIMENSIONS

Figure 1

- (1) Remove 2-1/2 inches  $\pm$  1/8 inch of the outer jacket from the end of the cable.
- (2) Push the shield back.
- (3) Remove 1-9/16 inches  $\pm$  1/8 inch of the carbon layer from the end of each conductor.

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## STANDARD WIRING PRACTICES MANUAL

### CONNECTOR ASSEMBLY WITH MICRODOT 202-3836-0000 AVM CABLE

**CAUTION:** MAKE SURE THAT DAMAGE TO THE PRIMARY INSULATION DOES NOT OCCUR.

- (4) Remove the remaining carbon from the primary insulation with acetone or an equivalent solvent.
- (5) Remove 3/16 inch of the primary insulation from the end of each conductor.

#### B. Connector Assembly

- (1) Assemble the contacts. Refer to Subject 20-71-14.
- (2) Put a 1-3/8 inch  $\pm$  1/8 inch length of 1/16 inch diameter of Kynar heat shrinkable sleeve on each conductor.  
Make sure that the distance from the end of the sleeve to the end of the primary insulation is 7/8 inch  $\pm$  1/16 inch.
- (3) Shrink the sleeves in position. Refer to Subject 20-10-14.
- (4) Install the contacts in the connector. Refer to Subject 20-71-14.
- (5) Assemble a shield dead end on the free end of the shield. Refer to Subject 20-10-15.
- (6) Make a selection of a Grade B, Class 1 heat shrinkable sleeve from Subject 20-00-11.
- (7) Put a 1.00 inch  $\pm$  0.25 inch length of the sleeve on the end of the cable.  
Make sure that the end of the sleeve is 0.25 inch from the connector grommet.
- (8) Shrink the sleeve into its position. Refer to Subject 20-10-14.

### 3. ASSEMBLY OF BACC45F(), BACC63BP(), AND BACC63BV() CONNECTORS

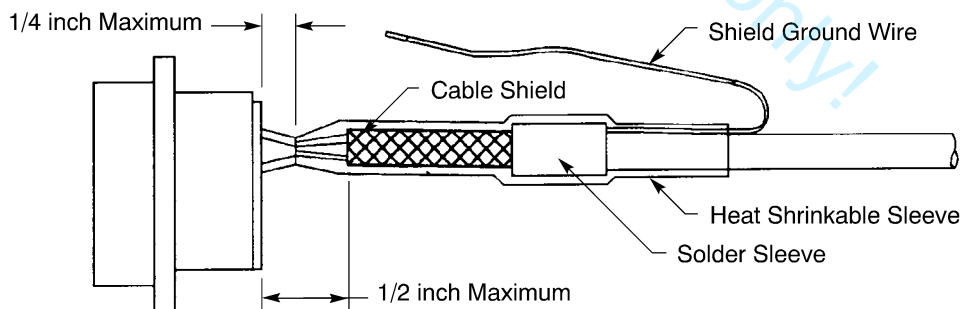
#### A. Cable Preparation

- (1) Remove 2 inches  $\pm$  1/8 inches of the outer jacket from the end of the cable.
- (2) Remove 2 inches  $\pm$  1/8 inches of the shield from the end of the cable.
- (3) Remove 1 inch  $\pm$  1/16 inch of the carbon layer from the end of each conductor.

**CAUTION:** MAKE SURE THAT DAMAGE TO THE PRIMARY INSULATION DOES NOT OCCUR.

- (4) Remove the remaining carbon from the primary insulation with acetone or an equivalent solvent.

#### B. Connector Assembly



### CONNECTOR ASSEMBLY WITH A MICRODOT 202-3836-0000 CABLE

Figure 2

- (1) Assemble the contacts. Refer to Subject 20-61-11.
- (2) Put a 3/4 inch  $\pm$  1/16 inch length of 1/16 inch diameter of Kynar heat shrinkable sleeve on each conductor.

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## **STANDARD WIRING PRACTICES MANUAL**

### **CONNECTOR ASSEMBLY WITH MICRODOT 202-3836-0000 AVM CABLE**

- (3) Shrink the sleeves in position. Refer to Subject 20-10-14.
- (4) Assemble the shield ground wire.  
Refer to Figure 2 and Subject 20-10-15.
- (5) Make a selection of a Grade B, Class 1 heat shrinkable sleeve from Subject 20-00-11.
- (6) Put a 2.00 inch  $\pm 0.13$  inch length of the sleeve on the cable.
- (7) Install the contacts in the connector. Refer to Subject 20-61-11.
- (8) Push the sleeve over the shield and the conductors until the end of the sleeve is 1/4 inch or less from the connector grommet.
- (9) Shrink the sleeve in position. Refer to Subject 20-10-14.

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## STANDARD WIRING PRACTICES MANUAL

### SHIELD TERMINATION OF THE CHAMPLAIN 30-04749 ADF CABLE

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## STANDARD WIRING PRACTICES MANUAL

### SHIELD TERMINATION OF THE CHAMPLAIN 30-04749 ADF CABLE

#### 1. PART NUMBERS AND DESCRIPTION

##### A. Cable Part Numbers

Table 1  
CABLE PART NUMBERS

Part Number	Supplier
30-40749	Champlain

#### 2. SHIELD TERMINATION

##### A. Cable Preparation

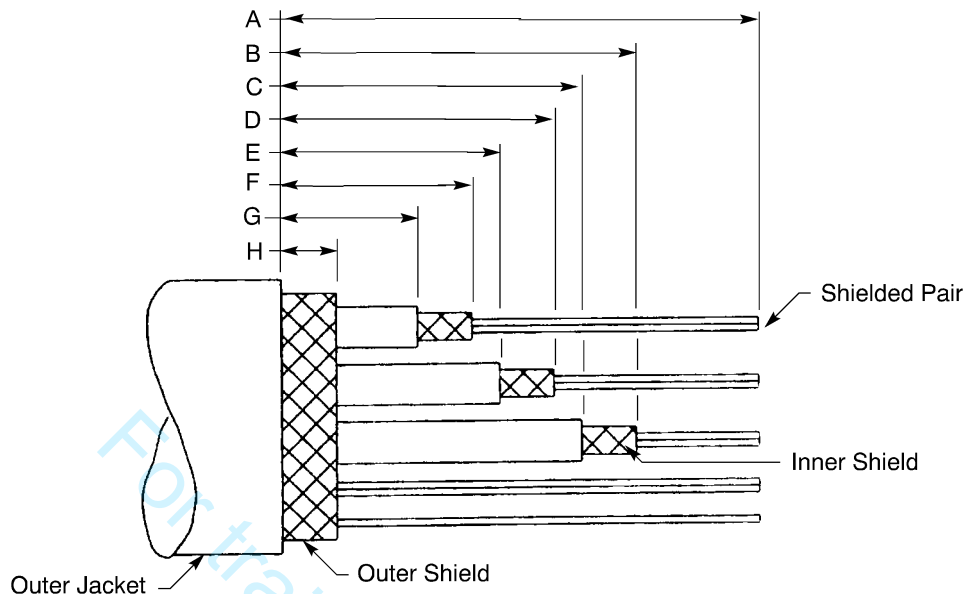
Table 2  
CABLE TRIM DIMENSIONS

Dimension	Removal Length (inch)	
	Target	Tolerance
A	4-1/2	1/8
B	2-1/4	1/32
C	2	1/8
D	1-3/4	1/32
E	1-1/2	1/8
F	1-1/4	1/32
G	1	1/8
H	1/4	1/32

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## STANDARD WIRING PRACTICES MANUAL

### SHIELD TERMINATION OF THE CHAMPLAIN 30-04749 ADF CABLE



**CABLE TRIM DIMENSIONS**

**Figure 1**

- (1) If a connector clamp is specified, put the clamp on the cable.
- (2) Prepare the cable.
 

Refer to Table 2 and Figure 1.

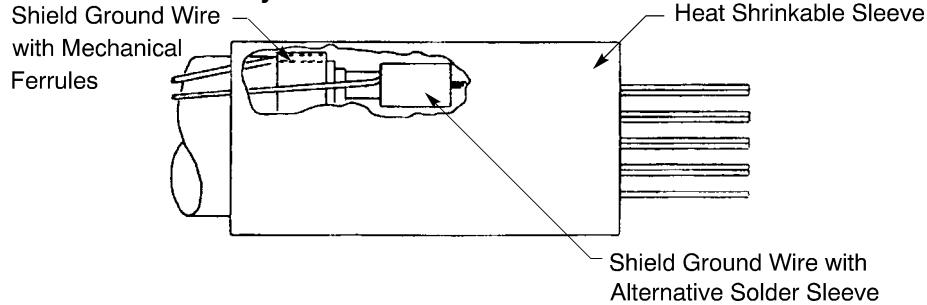
  - (a) Remove the necessary length of the outer jacket so that the distance from the end of the jacket to the end of the cable is Dimension A.
  - (b) Remove the necessary length of the outer shield so that the distance from the end of the outer jacket to the end of the shield is Dimension H.
  - (c) Remove the necessary lengths of the outer jackets from each shielded pair.
  - (d) Remove the necessary lengths of the shields from each shielded pair.
- (3) Put a 4-1/2 inch  $\pm$  1/8 inch length of heat shrinkable sleeve on the cable.
- (4) Put a 1/2 inch  $\pm$  1/16 inch length of heat shrinkable sleeve on each shielded pair so that the end of each sleeve extends 1/8 inch under the shield.
- (5) Shrink the 1/2 inch sleeves in position. Refer to Subject 20-10-14.

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## STANDARD WIRING PRACTICES MANUAL

### SHIELD TERMINATION OF THE CHAMPLAIN 30-04749 ADF CABLE

#### B. Shield Ground Wire Assembly



#### SHIELD GROUND WIRE ASSEMBLY AND INSULATION

Figure 2

- (1) Assemble a shield ground wire on each shield of the 3 shielded pairs. Refer to Subject 20-10-15 and Figure 2.

These conditions are applicable:

- The shield ground wires are 6 inches  $\pm 1/16$  inch in length
- The shield ground wires are assembled with a BACS13S109B inner ferrule and a BACS13S175C outer ferrule.

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

**NOTE:** The assembly of a shield ground wire with a solder sleeve is a satisfactory alternative.

- (2) Assemble a shield ground wire on the outer shield of the cable. Refer to Subject 20-10-15 and Figure 2.

These conditions are applicable:

- The shield ground wire is 6 inches  $\pm 1/16$  inch in length
- The shield ground wire is assembled with a BACS13S297B inner ferrule and a BACS13S375C outer ferrule.
- The heat shrinkable sleeve is 4-1/2 inches  $\pm 1/8$  in length.

- (3) Push the heat shrinkable sleeve over the shield ground wires and the shielded pairs.
- (4) Shrink the sleeve in position. Refer to Subject 20-10-14.



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STANDARD WIRING PRACTICES MANUAL

SHIELD TERMINATION OF THE CHAMPLAIN 30-04680 ADF CABLE

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**STANDARD WIRING PRACTICES MANUAL****SHIELD TERMINATION OF THE CHAMPLAIN 30-04680 ADF CABLE****1. PART NUMBERS AND DESCRIPTION****A. Cable Part Numbers**

**Table 1**  
**CABLE PART NUMBERS**

<b>Part Number</b>	<b>Supplier</b>
30-04680	Champlain

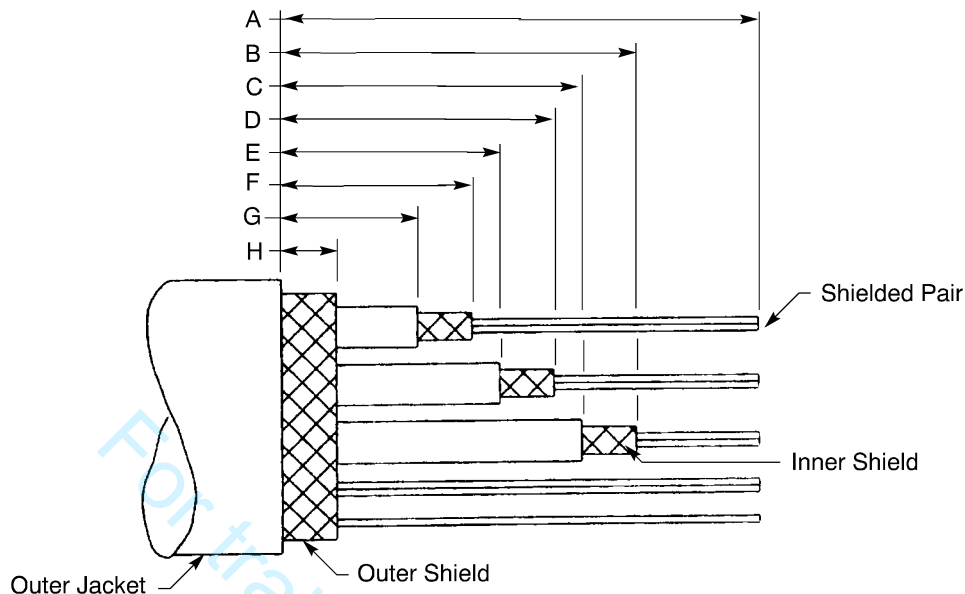
**2. SHIELD TERMINATION****A. Cable Preparation**

**Table 2**  
**CABLE TRIM DIMENSIONS**

<b>Dimension</b>	<b>Removal Length (inch)</b>	
	<b>Target</b>	<b>Tolerance</b>
A	4-1/2	1/8
B	2-1/4	1/32
C	2	1/8
D	1-3/4	1/32
E	1-1/2	1/8
F	1-1/4	1/32
G	1	1/8
H	1/4	1/32

## STANDARD WIRING PRACTICES MANUAL

### SHIELD TERMINATION OF THE CHAMPLAIN 30-04680 ADF CABLE



#### CABLE TRIM DIMENSIONS

Figure 1

- (1) If a connector clamp is specified, put the clamp on the cable.
- (2) Prepare the cable.
 

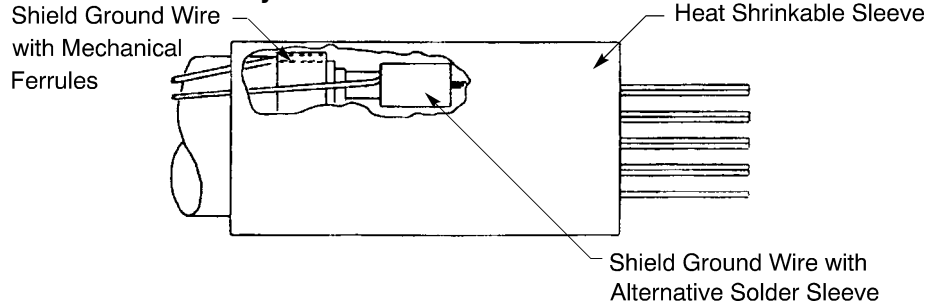
Refer to Table 2 and Figure 1.

  - (a) Remove the necessary length of the outer jacket so that the distance from the end of the jacket to the end of the cable is Dimension A.
  - (b) Remove the necessary length of the outer shield so that the distance from the end of the outer jacket to the end of the shield is Dimension H.
  - (c) Remove the necessary lengths of the outer jackets from each shielded pair.
  - (d) Remove the necessary lengths of the shields from each shielded pair.
- (3) Put a 4-1/2 inch  $\pm$  1/8 inch length of heat shrinkable sleeve on the cable.
- (4) Put a 1/2 inch  $\pm$  1/16 inch length of heat shrinkable sleeve on each shielded pair so that the end of each sleeve extends 1/8 inch under the shield.
- (5) Shrink the 1/2 inch sleeves in position. Refer to Subject 20-10-14.

## STANDARD WIRING PRACTICES MANUAL

### SHIELD TERMINATION OF THE CHAMPLAIN 30-04680 ADF CABLE

#### B. Shield Ground Wire Assembly



#### SHIELD GROUND WIRE ASSEMBLY AND INSULATION

Figure 2

- (1) Assemble a shield ground wire on each shield of the 3 shielded pairs. Refer to Subject 20-10-15 and Figure 2.

These conditions are applicable:

- The shield ground wires are 6 inches  $\pm$  1/16 inch in length
- The shield ground wires are assembled with a BACS13S109B inner ferrule and a BACS13S175C outer ferrule.

**NOTE:** Refer to the D-590 Boeing to Vendor Cross Reference Index for the supplier part numbers for the BACS13S ferrules.

**NOTE:** The assembly of a shield ground wire with a solder sleeve is a satisfactory alternative.

- (2) Assemble a shield ground wire on the outer shield of the cable. Refer to Subject 20-10-15 and Figure 2.

These conditions are applicable:

- The shield ground wire is 6 inches  $\pm$  1/16 inch in length
- The shield ground wire is assembled with a BACS13S297B inner ferrule and a BACS13S375C outer ferrule.
- The heat shrinkable sleeve is 4-1/2 inches  $\pm$  1/8 in length; refer to Paragraph 2.A., Step (3).

- (3) Push the heat shrinkable sleeve over the shield ground wires and the shielded pairs.
- (4) Shrink the sleeve in position. Refer to Subject 20-10-14.



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STANDARD WIRING PRACTICES MANUAL

SHIELD TERMINATION OF THE RAYCHEM (TYCO) CTC-0039-()-9/5-9 THERMOCOUPLE CABLE

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# STANDARD WIRING PRACTICES MANUAL

## SHIELD TERMINATION OF THE RAYCHEM (TYCO) CTC-0039-()-9/5-9 THERMOCOUPLE CABLE

### 1. PART NUMBERS AND DESCRIPTION

#### A. Cable Part Numbers

Table 1  
THERMOCOUPLE CABLE PART NUMBERS

Part Number	Supplier
CTC-0039-()-9/5-9	Raychem

### 2. SHIELD TERMINATION

#### A. Cable Preparation

Refer to Subject 20-00-15 and Figure 1.

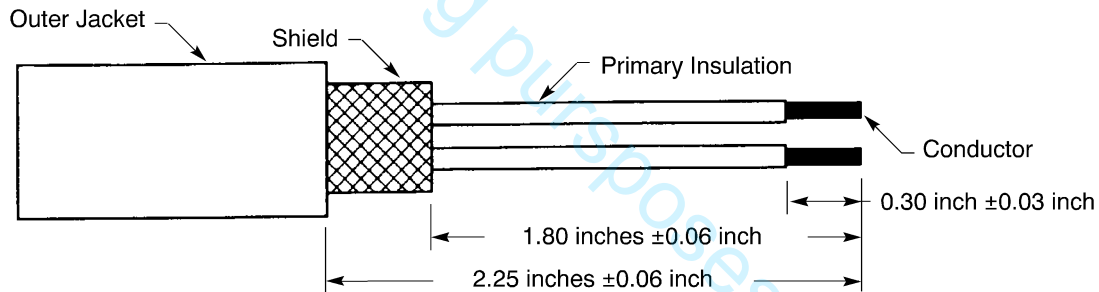
- (1) Remove 2.25 inches  $\pm 0.06$  inch of the outer jacket from the end of the cable.

Either of these tools can be used:

- A pair of Meisei 4C tweezers with a Meisei M-10 power supply
- An X-ACTO knife.

- (2) Remove 1.80 inches  $\pm 0.06$  inch of the shield from the end of the cable.

- (3) Remove 0.30 inch  $\pm 0.03$  inch of the insulation from the end of each wire.



CABLE TRIM DIMENSIONS  
Figure 1

#### B. Shield Ground Wire Assembly

- (1) Assemble a shield ground wire with either of these:

- A mechanical ferrule
- A solder sleeve.

Refer to Subject 20-10-15.



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STANDARD WIRING PRACTICES MANUAL

SHIELD TERMINATION OF THE ENDEVCO 16833 AVM CABLE

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## STANDARD WIRING PRACTICES MANUAL

## SHIELD TERMINATION OF THE ENDEVCO 16833 AVM CABLE

1. PART NUMBERS AND DESCRIPTION

## A. Cable Part Numbers

Table 1  
CABLE PART NUMBERS

Part Number	Supplier
16833	Endevco

## B. Connector Part Numbers

Table 2  
CONNECTOR PART NUMBERS

Part Number	Configuration	Supplier
115-5066	Plug	Amphenol
115-5074	Plug	Amphenol
BACC63AE	Plug	Boeing
BACC63AF	Receptacle	Boeing
BACC63X	Plug	Boeing
BACC63Y	Receptacle	Boeing

2. SHIELD TERMINATION FOR THE ASSEMBLY OF AMPHENOL 115-5066 AND 115-5074 CONNECTORS

## A. Shield Termination

Refer to Subject 20-62-12.

3. SHIELD TERMINATION FOR THE ASSEMBLY OF BACC63AE, BACC63AF, BACC63X AND BACC63Y CONNECTORS

## A. Cable Preparation

- (1) Remove 1-3/4 inches  $\pm$  1/8 inch of the outer jacket from the end of the cable.
- (2) Remove 1-3/4 inches  $\pm$  1/8 inch of the shield from the end of the cable.
- (3) Carefully cut the outer carbon layer along the groove between the two conductors.
- (4) Pull the conductors apart back to the end of the outer jacket.
- (5) Remove the unwanted outer carbon layer.
- (6) Remove the inner carbon layer so that the end of the layer is 1/2 inch  $\pm$  1/16 inch beyond the location on the wire that is specified for the assembly of the contact.

Refer to Subject 20-61-11.

**CAUTION:** MAKE SURE THAT DAMAGE DOES NOT OCCUR TO THE PRIMARY INSULATION.

- (7) Remove the remaining carbon from primary insulation with acetone or an equivalent solvent.

## B. Shield Ground Wire Assembly

- (1) Assemble a shield ground wire with a mechanical ferrule.

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**SHIELD TERMINATION OF THE ENDEVCO 16833 AVM CABLE**

Refer to Subject 20-10-15.

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## STANDARD WIRING PRACTICES MANUAL

### TERMINAL ASSEMBLY WITH ALUMEL-CHROMEL THERMOCOUPLE WIRE

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# STANDARD WIRING PRACTICES MANUAL

## TERMINAL ASSEMBLY WITH ALUMEL-CHROMEL THERMOCOUPLE WIRE

This Subject gives the procedure to assemble AMP and Thermo-Electric terminals with Alumel-Chromel (Al-Ch) thermocouple wire.

### 1. PART NUMBERS AND DESCRIPTION

#### A. Thermocouple Terminal Part Numbers

Table 1  
ALUMEL AND CHROMEL THERMOCOUPLE TERMINAL PART NUMBERS

Material	Terminal	
	Part Number	Supplier
Alumel	1387-4	Thermo-Electric
	1-321898-0	AMP
Chromel	1387-3	Thermo-Electric
	1-321897-0	AMP

#### B. Alumel-Chromel Thermocouple Cable Part Numbers

Table 2  
ALUMEL AND CHROMEL THERMOCOUPLE WIRE PART NUMBERS

Part Number	Supplier
WC-94102	Revere
252-94102	Galite
852-4000311	Pirelli
852-4985321	Pirelli

### 2. TERMINAL ASSEMBLY

#### A. Wire Preparation

Table 3  
INSULATION REMOVAL LENGTH

Terminal	Wire Insulation		
	Color	Removal Length (inch)	
		Target	Tolerance
1387-3	White	5/16	± 1/16
1387-4	Green	5/16	± 1/16
1-321897-0	White	1/4	± 1/16
1-321898-0	Green	1/4	± 1/16

(1) Remove the necessary length of insulation from the end of each wire. Refer to Table 3.

# STANDARD WIRING PRACTICES MANUAL

## TERMINAL ASSEMBLY WITH ALUMEL-CHROMEL THERMOCOUPLE WIRE

### B. Terminal Assembly

**Table 4**  
**TERMINAL CRIMP TOOLS**

Terminal	Crimp Tool		
	Basic Unit	Setting	Supplier
1387-3	Y14MV	-	Burndy
	WT110M	-	Thomas & Betts
1387-4	Y14MV	-	Burndy
	WT110M	-	Thomas & Betts
1-321897-0	46673	3	AMP
1-321898-0	46673	3	AMP

- (1) Make a selection of a crimp tool from Table 4.
- (2) Put the end of the white wire into the crimp barrel of the chromel terminal.  
NOTE: The Thermo-Electric 1387-3 terminals are identified on the under side with a CR mark.
- (3) Crimp the terminal.
- (4) Put the end of the green wire into the crimp barrel of the alumel terminal.  
NOTE: The Thermo-Electric 1387-4 terminals are identified on the under side with a AL mark.
- (5) Crimp the terminal.
- (6) For the Thermo-Electric terminals, solder the terminal to the wire with Ag05B silver solder.