6900 Paseo Padre Pkwy Fremont, CA,
94555-3641 United States

Termination Procedure for "482"Series SolderTacts®, Contacts for Twisted Pair Cable: D-602-56, D-602-57

1. Scope

This engineering standard contains the termination procedures, inspection requirements, and rework procedures for the SolderTacts® contacts D-602-56 and D-602-57.

2. References

2.1 Raychem Specification Control Drawings

2.1.1 D-602-56: Twisted Pair Contact, Plug (Inner socket/Outer pin)

2.1.2 D-602-67: Twisted Pair Contact, Receptacle (Inner pin/Outer socket)

2.2 Other Specification
Federal Standard QQ-S-571

2.3 Raychem Instructions

2.3.1 AA-400 Super Heater Instructions

2.3.2 AD-1319 Holding Fixture Instructions

2.3.3 HL1920E/HL2020E HeatGun® Heating Tool Instructions

2.4 Other Instructions

2.4.1 Visual Inspection Standards: "Verification Photos"

2.4.2 Video Tape: "SolderTacts® Contacts Installation Procedures"

3. Application Equipment and Tools

Heating Tool	Reflector	Holding Fixture
AA-400 Super Heater (Portable, compressed air)	#979663 Mini Solder-Sleeve® Reflector	AD-1319 Holding Fixture with AT-1319-17 Adapter
HL1920E / HL2020E Steinel Hot Air Gun △1	EH0600-000 HL-Solder-Sleeve® Reflector	

△1 Steinel HL1920E / HL2020E Replaces CV5300 and CV5700 MiniGun®. But they still can be used

4. General Information

4.1 Description

The D-602-56 and D-602-57 contacts are designed for use in the following connectors having size 16 cavities:

a. MIL-C-26482 Series 1
b. MIL-C-26500

These single-piece contacts solder to twisted-pair cable by means of preinstalled solder preforms in heat-shrinkable insulating sleeves.

4.2 Twisted-Pair Wire Accommodation

D-602-56 and D-602-57 contacts will accommodate twisted-pair cable of the following constructions:

Size:	AWG 30 through 24
Plating:	Tin or Silver
Stranding:	Solid or stranded
Insulation diameter:	0.060 inch (1,5 mm) max.

Consult Raychem for other wire constructions.

5 Termination Procedures

5.1 Twisted-Pair Cable Preparation

5.1.1 Untwist and straighten the wires for a length of approximately 1.5 inches (4 0 mm)

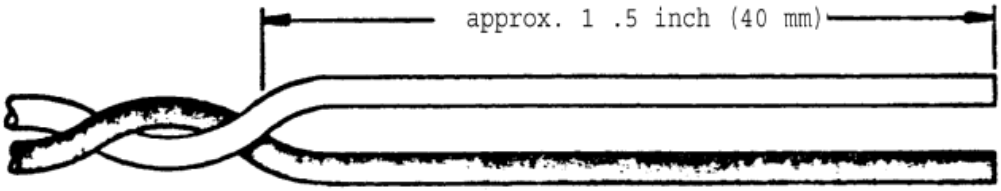


FIGURE 1

5.1.2 Strip both wires approximately 0.6 inch (15 mm) to the same point.

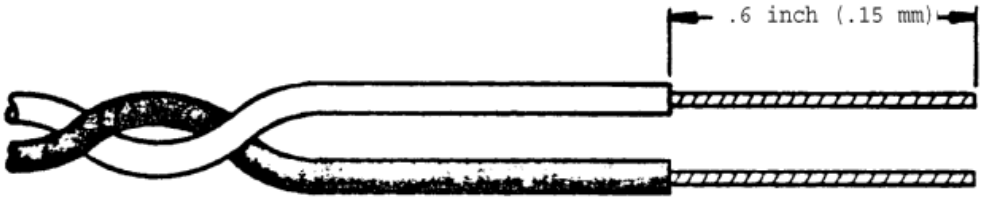


FIGURE 2

5.1.3 Make sure that stranded conductors are twisted into their normal lay.

NOTE
Retwist and smooth the strands with fingers, if necessary.

5.1.4 Pretin stranded wire and unplated solid wire to within 0.05 inch (1,3 mm) of the insulation, using Sn63 solder and RMA flux per QQ-S-571.

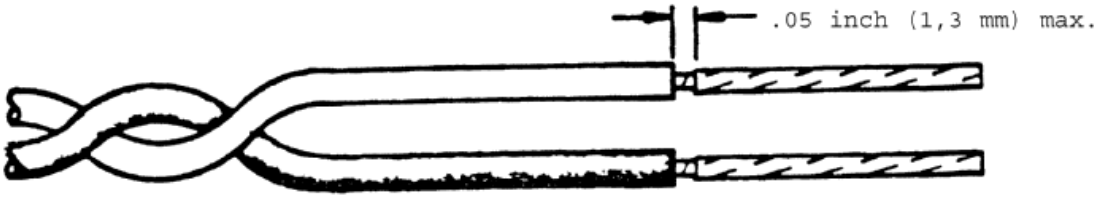


FIGURE 3

5.1.5 Standard Method (Recommended for 24 and 26 AWG).

5.1.5.1 Trim the signal conductor to 0.350 ± 0.015 inch (8,9 ± 0,4 mm).

5.1.5.2 Trim the ground conductor to 0.125 ± 0.015 inch (3,2 ± 0,4 mm).

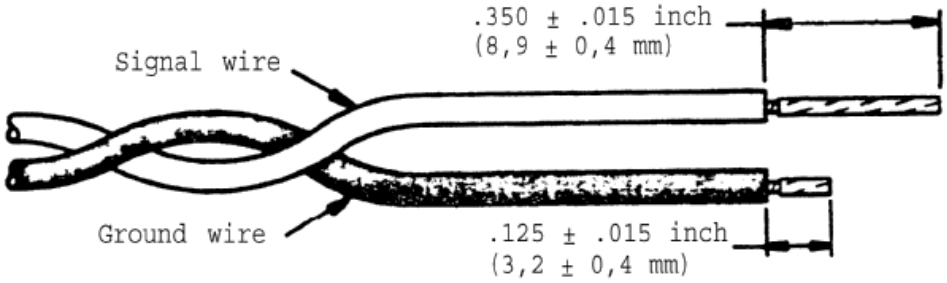


FIGURE 4

5.1.6 Optional Method (Recommended for 28 and 30 AWG).

5.1.6.1 Trim the signal conductor to 0.350 ± 0.015 inch (8, 9 ± 0, 4mm).

5.1.6.2 Trim ground lead 0.200 ± 0.015 (5,08 ± 0,38 mm) inch.

5.1.6.3 Fold the ground lead back and trim as shown.

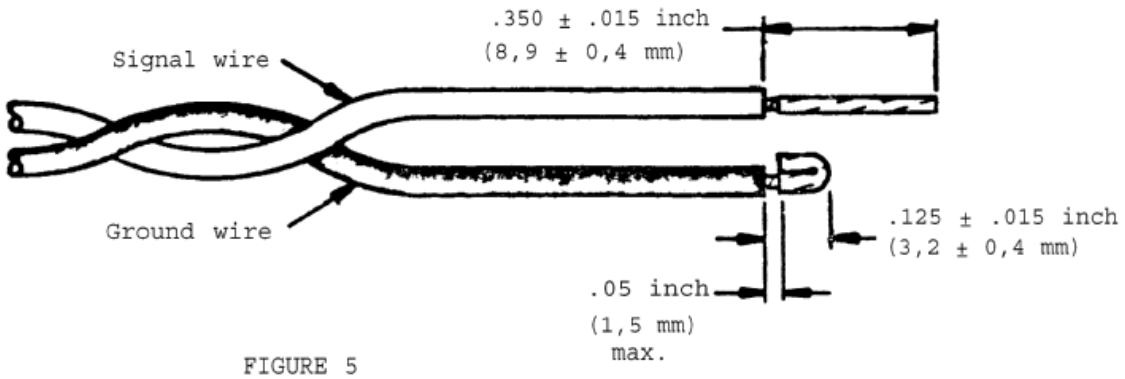


FIGURE 5

5.1.7 Make sure that the ends of both wires are straight.

5.2 Inserting Prepared Cable Into Contact.

5.2.1 Start the conductors into the contact as follows:

a. Signal wire (long strip length) into the inner, smaller - diameter insulating sleeve.

b. Ground wire (short strip length) between the two insulating sleeves, at a point not in line with either of the rear inspection windows.

5.2.2 Push both wires into the contact until they are fully inserted as shown below.

> **NOTE**
> Be careful not to force wires too far into the contact. Do not twist contact or wires. While pushing the wires in, rotate the contacts slightly back and forth to prevent the wires from catching.

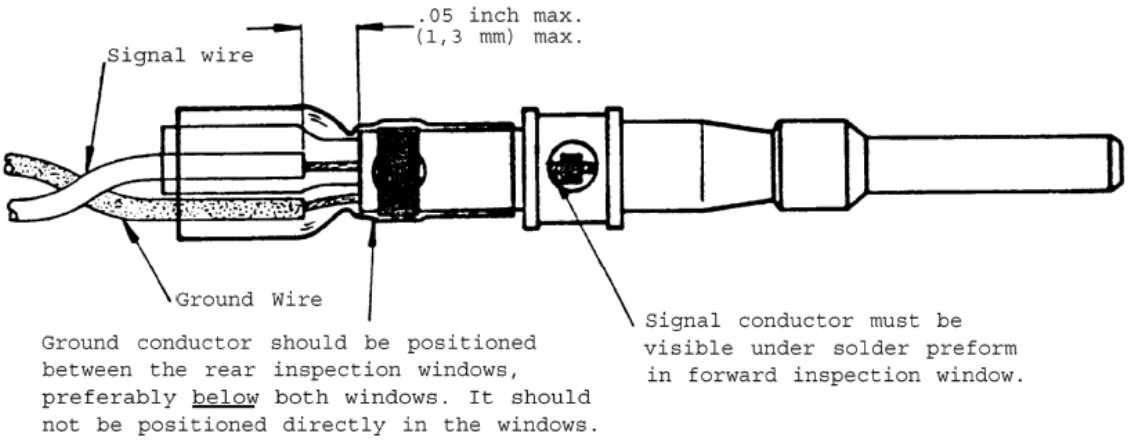


FIGURE 6

5.2.3 If the wires cannot be positioned correctly, remove them and check for improper strip dimensions, splayed or bent conductors, excess solder on conductors.

5.3 Heating Procedure

CAUTION
The AD-1319 holding fixture and adapter must be used to prevent damage to the contacts.

5.3.1 Install the AT-1319-17 adapter, insert a contact, and set up the dimensions as shown.

NOTE
Make sure that the contact is inserted into the appropriate end of the adapter: outer pin contact into the “up" end and outer socket contact into the “S” end. If using a hot-air heating tool, the spacer collar is not needed, but may be left in place.

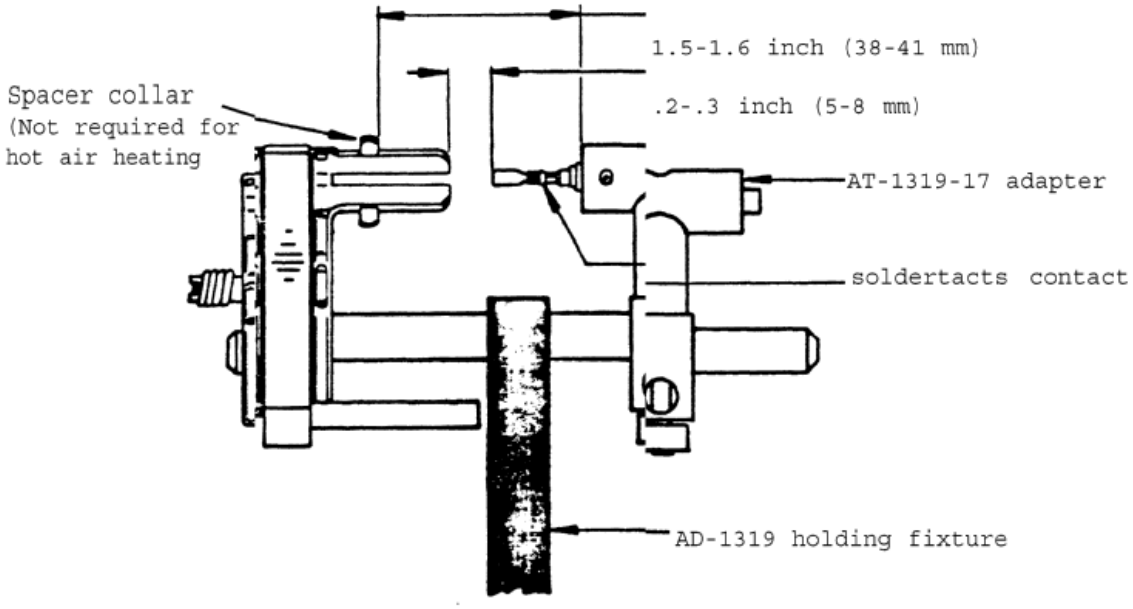


FIGURE 7

5.3.2 Insert the contact/cable assembly into the appropriate end the AT-1319-17 adapter as shown.
D-602-56 contacts (Inner socket/Outer pin) "P" end.

D-602-57 contacts (Inner pin/Outer socket) "S" end.

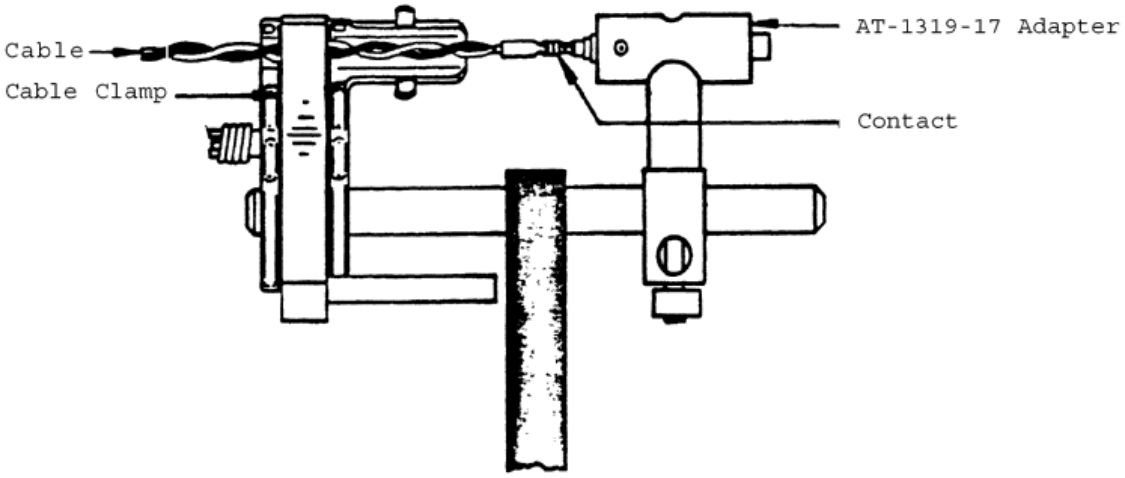


FIGURE 8

5.3.3 Clamp the twisted-pair cable in the AD-1319 holding fixture.

a. The cable must be fully inserted into the contact.
See Step 2 of Section 5.2.

b. The contact must be fully inserted into the adapter.

c. The cable must be straight between the contact and the cable clamp.

d. The ground wire should be <u>below</u> both rear inspection windows.

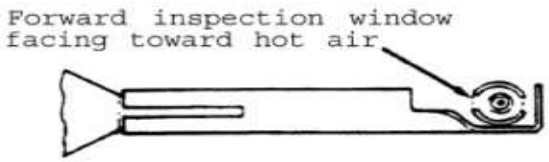
5.3.4 Applying heat with hot air heating tool (HeatGun or Super Heater).

5.3.4.1 Attach the appropriate reflector to the heating tool (See Section 3 for reflector selection).

5.3.4.2 Turn the heating tool on and allow to warm up (see instructions for tool used). Steinel settings: 700°F ± 50°F, setting Air Flow Stage II, Duration-20 to 30 Secs

5.3.4.3 Using the required holding fixture, position the contact in the hot air stream within the reflector.

NOTE
Center the forward inspection window in the reflector. For optimum heating, position the contact as shown



REFLECTOR FOR AA-400 OR M83521/5 HEATING TOOL

Figure 9

HL SOLDER SLV REFLECTOR
Figure 10

5.3.4.4 Continue to direct hot air around the contact until the small solder preform in the forward inspection window has melted and flowed. The large solder preform in the rear inspection window should have melted and flowed by this time; if it has not, direct hot air around the rear inspection window until it does.

NOTE
Be sure to allow the solder to solidify before removing the contact from the holding fixture.

5.3.5 After the termination has cooled at least 10 seconds, remove it from the holding fixture.

5.3.6 Inspect the completed termination according to Section 6 of this standard.

6. Inspection

6.1 Assembly Inspection

Inspect the completed termination for correct assembly according to the following criteria:

6.1.1 The distance from the rear of the contact body to the wire insulation should not exceed 0.05 inch (1, 3 mm).

6.1.2 The signal conductor must be visible through one of the forward inspection windows.

6.1.3 The ground conductor should not be positioned in either rear inspection window, but should be soldered to the inside surface of the contact body between the two rear inspection windows.

6.2 Heating Inspection Visually inspect the completed termination for proper heating according to the following criteria:

6.2.1 The small solder preform in the forward inspection windows must be melted and flowed so that:

a. Preform shows no trace of its original form (underheated condition).

b. Solder fillet is visible between signal conductor and inner contact soldering surface.

NOTE
Insufficient visible solder indicates overheated condition.

6.2.2 The large solder preform in the rear inspection window must be melted and flowed, so that:

a. Preform shows no trace of its original form (underheated condition).

b. Preform has flowed into the contact through the rear inspection windows.

6.2.3 The insulating sleeves must be shrunk over the area of exposed conductor between the wire insulation and the contact.

NOTE
Insulating sleeves may remain flared at end.

6.2.4 The insulating sleeves must not be darkened so as to obscure the solder joints or hinder inspection (overheated condition).

6.2.5 The twisted-pair cable insulation must not show signs of damage or overheating outside of the insulating sleeve. or overheating outside of the insulating sleeve.

6.3 Visual Inspection Standards ("Verification Photos") are available from Raychem.

7. Repair and Rework

7.1 Underheated Terminations

Reheat as directed in Section 5.3, and reinspect per section 6.

7.2 Overheated or Improperly Assembled Terminations.

7.2.1 Remove the contact from the cable as directed in Paragraph 7.3.

7.2.2 Check the cable for damage and incorrect stripping.

If the, cable is damaged, cut off the damaged portion and restrip per Section 5. 1.

If stripping is incorrect, restrip as required (Section 5.1).

7.2.3 Install a new contact (Sections 5.2 and 5.3)

7.3 Removing Contacts From Cable,

7.3.1 Use a sharp knife or razor blade to slit the outer insulating sleeve full length on opposite sides of the contact.

CAUTION
Safety glasses must be used during this operation.

CAUTION
Avoid cutting into the wire insulation.

7.3.2 Peel off the outer insulating sleeve.

7.3.3 Slit the inner sleeve in the area outside of the contact body.

7.3.4 Holding the contact with pliers, heat the contact until the solder melts, and quickly pull the heated contact off the cable.