



**Termination Procedure For “748” Series SolderTacts Contact for
Coaxial Cable D-602-0172, D-602-0173**

1. Scope

This engineering standard contains the termination procedures, inspection requirements, and rework procedures for the SolderTacts® contacts D-602-0172 and D-602-0173.

2. References

2.1 Raychem Specification Control Drawings

D-602-0172: Shielded Contact, Plug, Coaxial Cable (Inner Socket/Outer Pin)

D-602-0173: Shielded Contact, Receptacle, Coaxial Cable (Inner Pin/Outer Socket)

D-600-0018: Dielectric Barrier (Paragraph 5.1.7)

2.2 Other Specifications

Federal Standard QQ-S-571

2.3 Raychem Instructions

AA-400 Super Heater Instructions

AD-1319 Holding Fixture Instructions

HL1920E and HL2020E Heat Guns® Heating Tool Instructions


IR-550 Two-Station Heater Instructions


2.4 Other Instructions

Visual inspection standards: “Verification Photos”

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 SolderSleeve® Reflector	AD-1319 Holding Fixture Reflector with AT-1319-14 Adapter
HL1920E / HL2020E Steinel Hot Air Gun® 	EH0600-000 HL-Solder- Sleeve® Reflector	or AD-1480 Repair Holding Fixture
IR-550 Two-Station heater (Bench-mounted, focused infrared)	993770-000 RG-2 Solder sleeve Reflector	Tooling Set #2 AT-1044-15

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

4. **General Information**

4.1 Description

The D-602-0172 and D-602-0173 contacts are designed for use in the following connectors having size 16 cavities:

MIL-C-28748 rectangular rack and panel connectors and Raychem RD-1 high-density circular connectors.

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

4.2 Coaxial Cable Accommodation

4.2.1 D-602-0172 and D-602-0173 contacts will generally accommodate coaxial cable of the dimensions shown, when conventionally stripped. Construction and/or conductor plating other than tin or silver may inhibit solderability. Consult Raychem for further details.

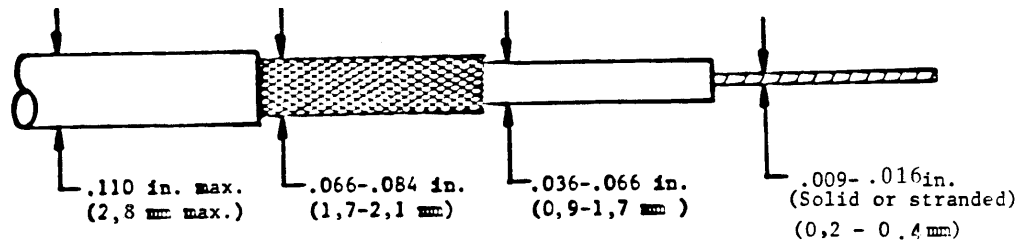


Figure 1

4.2.2 D-602-0172 and D-602-0173 contacts will accommodate coaxial cable of the dimensions shown, when the braid is folded back.

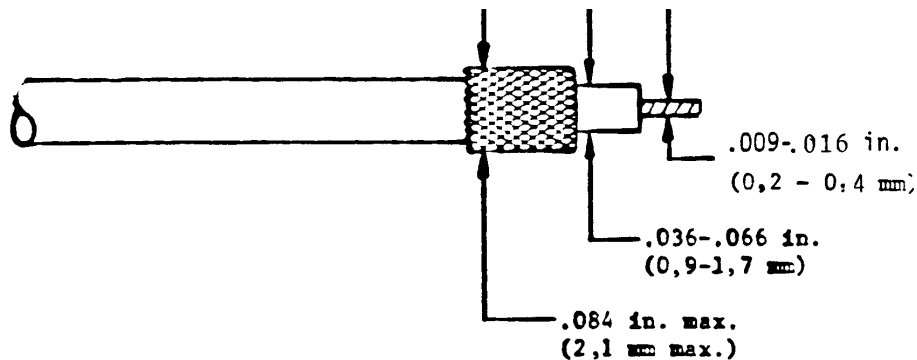


Figure 2

4.2.3 D-602-0172 and D-602-0173 contacts will accommodate RG-178B/U coaxial cable when the cable is prepared per paragraph 5.1.7.

5. Termination Procedures

5.1 Coaxial Cable Preparation

5.1.1 For cable conforming to Section 4.2.1: Strip the cable as shown below.

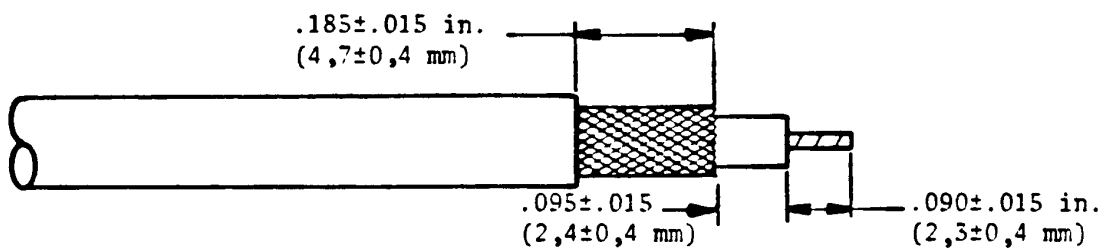


Figure 3

5.1.2 For cable with braid diameter smaller than 0.066 inch (1.7 mm) and conforming to Section 4.2.2: Prepare the cable as shown below.

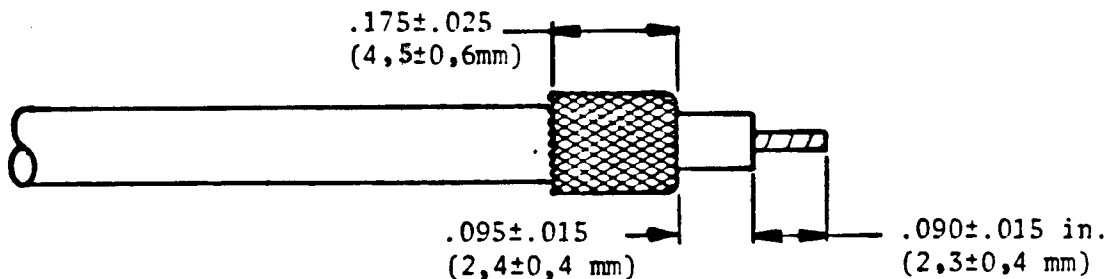


Figure 4

5.1.3 Straighten the center conductor and make sure that stranded center conductor is twisted into its original lay.

5.1.4 Pretinning stranded center conductors and unplated solid center conductors with Sn63 solder and RMA flux per QQ-S-571.

5.1.5 Make sure that the shield braid is trimmed evenly, and that no loose strands are extended out across the exposed dielectric.

5.1.6 Smooth the braid ends flat against the dielectric of jacket.

5.1.7 RG-178B/U Coaxial Cable Preparation

5.1.7.1 Strip the cable per the dimensions shown in Figure 3. Then flare the braid to expose the inner conductor dielectric.

5.1.7.2 Install the dielectric barrier tube, D-600-0018 and smooth the braid back over the barrier tube per Figure 4A.

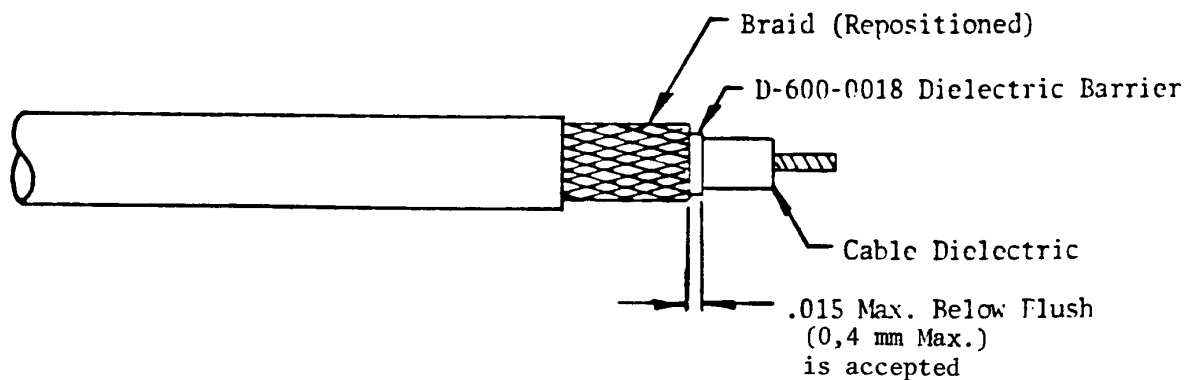


Figure 4A

5.2 Inserting Cable Into Contact

5.2.1 Slip contact carefully over the end of the prepared cable and gently push the contact onto the cable until it stops.

NOTE

Rotating the contact slightly during cable insertion will help prevent the braid from catching.

5.2.2 Inspect for proper insertion (see Figure 5).

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

The distance from the rear of the contact body to the cable jacket insulation must be as shown on Figure 5.

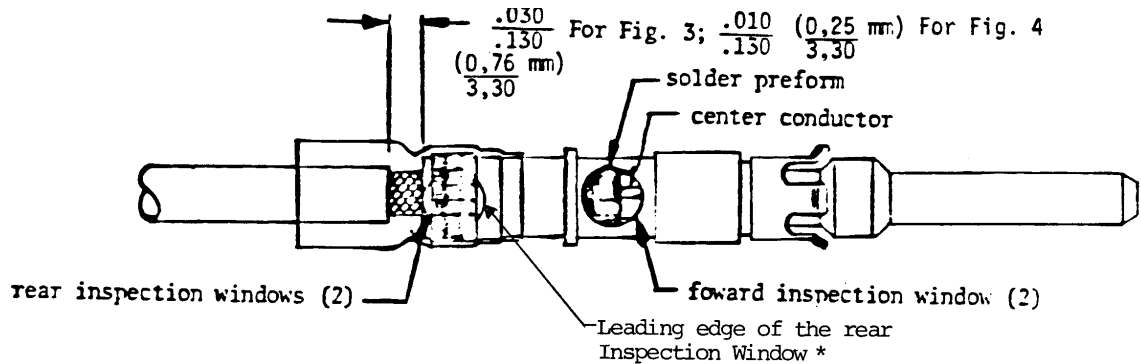


Figure 5

The shield braid leading edge should line up with the leading edge of the rear inspection window.*

5.2.3 If the cable cannot be inserted as required, remove the contact from the cable and check for improper strip dimensions, splayed shield braid, or bent center conductor.

5.3 Heating Procedure

5.3.1 Heating Procedure: Hot Air Heating Tools

NOTE

Either the AD-1319 holding fixture and adapter or the AD-1480 repair holding fixture must be used during termination to prevent damage to the contacts.

CAUTION

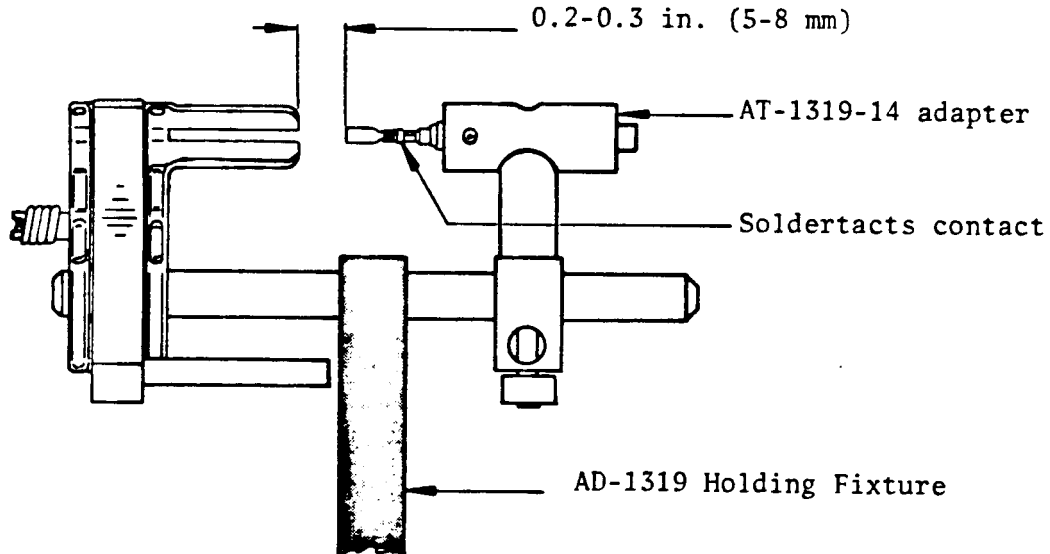
The AD-1480 Tool is designed to be used during the replacement of contacts where access will not permit the use of the AD-1319 fixture. The AD-1480 Tool is not designed for use as a production tool.

5.3.1.1 If the AD-1319 holding fixture is to be used, install the AT-1319-14 adapter, insert a contact, and set up the dimensions as shown in Figure 6.

Make sure that the contact is inserted in the appropriate end of the adapter.

D-602-0172 contacts (Inner socket/Outer pin): “P” end.

D-602-0173 contacts (Inner pin/Outer socket): “S” end.



SET-UP DIMENSIONS FOR AD-1319 HOLDING FIXTURE

Figure 6

5.3.1.2 Insert the contact/cable assembly into the appropriate end of the AT-1319-14 adapter or AD-1480 repair holding fixture as shown in Figure 7 or 8 push contact in until it is stopped by the bottom of the fixture.

D-602-0172 contacts (Inner socket/Outer pin): “P” end.

D-602-0173 contacts (Inner pin/Outer socket): “S” end.

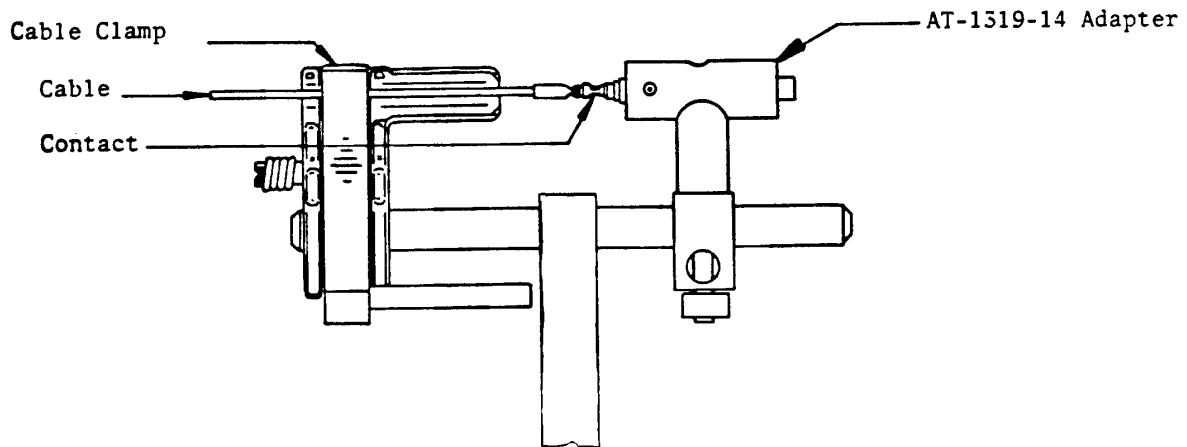
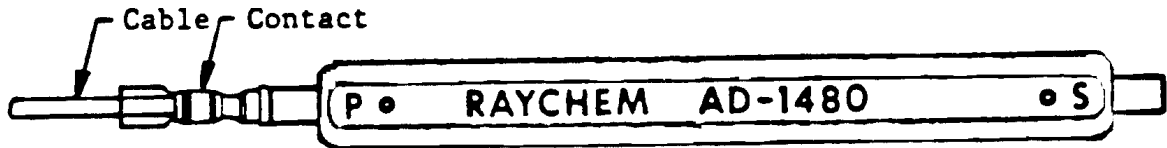


Figure 7

AD-1319 HOLDING FIXTURE AND AT-1319-14 ADAPTER WITH CONTACT/CABLE ASSEMBLY



**AD-1480 REPAIR HOLDING FIXTURE WITH CONTACT/CABLE ASSEMBLY
(OUTER PIN CONTACT SHOWN FOR REFERENCE)**

Figure 8

5.3.1.3 Clamp the coaxial cable in the AD-1319 holding fixture (if used).

NOTE

The cable must be fully inserted in the contact (see Section 5.2.2).

The contact must be fully inserted in the adapter.

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

5.3.1.4 Applying heat with hot air heating tool (Heat-Gun or Super Heater).
Attach the appropriate reflector to the heating tool (see Section 3 for reflector selection).

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

Using one of the required holding fixtures, position the contact in the hot air stream within the reflector.

For optimum heating, position the contact as shown in Figure 9 or 10. Center the forward inspection window in the reflector. Position the forward inspection window toward the hot air stream such that the inner solder preform is still visible during termination.

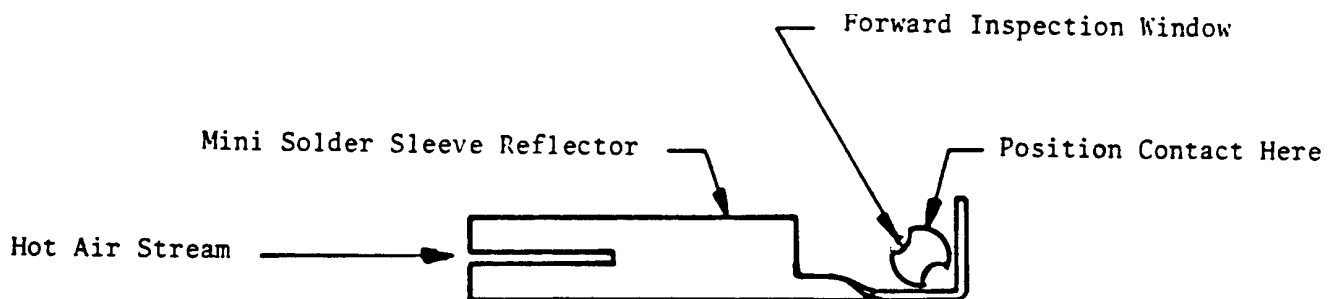


Figure 9

**Solder Sleeve Reflector**

HL SOLDER SLV REFLECTOR

Figure 10

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 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 or disturbing the cable position.

- 5.3.1.5 After the termination has cooled at least 15 seconds, remove it from the holding fixture.
- 5.3.1.6 Inspect the completed termination according to Section 6 of this standard.
- 5.3.2 Heating Procedure: IR-550 Two-Station Heater
 - 5.3.2.1 Set up the IR-550 heater according to Section 2 of the IR-550 instructions.
 - 5.3.2.2 Heat the contacts according to Section 3 of the IR-550 instructions.
 - 5.3.2.3 Inspect the completed termination according to Section 6 of this engineering standard.
 - 5.3.2.4 The IR-550 may require readjustment when a gable change is made.

**6. Inspection****7.3 Assembly Inspection**

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

6.1.1 If the distance from the rear end of the contact body to the cable jacket does not meet the requirements of 5.2.2 improper strip lengths and/or improper cable insertion is indicated.

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

6.1.3 The shield braid must be visible through the rear inspection windows.

7.4 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 window must be melted and flowed so that:

Preform shows no trace of its original form (underheated condition). A tracer of solder which is wetted to the substrate is acceptable.

Solder fillet is visible between center 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:

Preform shows no trace of its original form (underheated condition) . Trace of solder band which is wetted to the substrate is acceptable.

Solder fillet is visible between braid and contact body.

NOTE

Insufficient visible solder indicates overheated condition.

6.2.3 The insulating sleeve must be shrunk over the area of braid visible between the cable jacket and the contact.

NOTE

Insulating sleeve may remain flared at and.



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

6.2.5 The coaxial cable jacket must not show signs of damage 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 areas as directed in Section 5.3 and reinspect per Section 6. Avoid reheating areas that have been properly heated.

7.2 Overheated or Improperly Assembled Terminations.

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

7.2.2 Check the cable for damage and incorrect stripping.

NOTE

If the cable is damaged, cut off the damaged portion 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

CAUTION

Safety glasses must be used during this operation.

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

CAUTION

Avoid cutting into the wire insulation.

7.3.2 Hot air heating tools

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

7.3.3 IR-550 Heating Tool



Heat the contact the same as for termination, but without closing the wire clamp. As soon as the heating lamp goes out, pull the cable out of the contact.