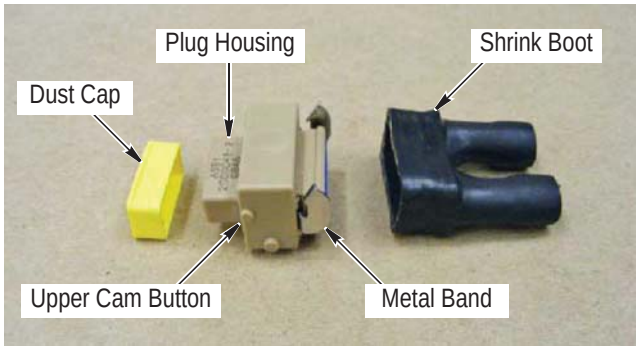
Power Plug Connector



Quadrax Socket Contact Kit 2000032-1
(Quadrax Pin Contact Kits 2000031-1 and 2000031-2 Not Shown)
and Quad Cable (BMS 13-72T03C04G024) 1835611-3

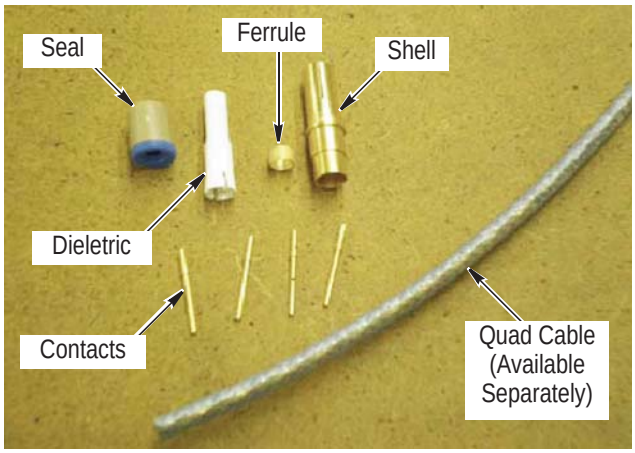


Figure 1

1. INTRODUCTION

This instruction sheet covers terminating the PNP IFE data cable harness assembly. Power plug connector, quadrax pin and socket contacts, and quad cable are required for the termination.

NOTE

Dimensions in this instruction sheet are in metric units [with U.S. customary units in brackets]. Figures are not drawn to scale.

Reasons for reissue of this instruction sheet are provided in Section 6, REVISION SUMMARY.

2. DESCRIPTION

Components of the power plug connector and quadrax socket contact kit are shown in Figure 1.

NOTE

Because of materials, revisions, and physical characteristics, connector and component colors may vary.

NOTE

If the cam handle comes off of the plug housing, re-install it onto the metal band with the upper cam button to the front of the plug housing as shown in Figure 1.

The contacts accept a wire size of 24 AWG. The quad cable has 4 colored conductors with a maximum outside diameter given in Figure 2.
Larger data cable outside diameter are acceptable.

Quad Cable

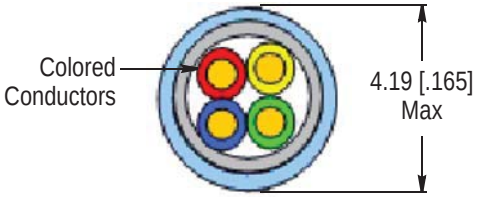


Figure 2

The following Daniels Manufacturing Corporation (DMC) tooling is required to crimp the contacts and ferrule:

PIN AND SOCKET CONTACTS		
HAND TOOL	POSITIONER	SELECTOR SETTING
M22520/2-01	K709	5

FERRULE		
HAND TOOL	DIE SET	
	Socket Ferrule	Pin Ferrule
M22520/5-01 (608650-1)	Y1996P	Y1977

Quadrax Ferrule Tool 1976593-[ ] is also required to hold the ferrule in place for crimping.
Size 8 Quadrax Removal Tool 1738894-1 is available for contact removal if required for assembly or repair.

3. TERMINATION

Terminate each of the socket and pin contacts onto the quad cable as follows:

1. Place the individual seal and ferrule (flange end first) on the cable between 152 and 304 mm [6 and 12 in.] from the end of the cable to avoid interference with the termination procedure.

   For cables with an outside diameter over 4.19 mm [.165 in.], place only the seal onto the cable. Retain the ferrule to install after stripping the cable.

2. Using an appropriate cable cutter, cut the cable to the proper length. See Figure 3.

NOTE

The cable length must accommodate a minimum of 25.4 mm [1 in.] free travel of the plug connector in the guide plate required for mating.

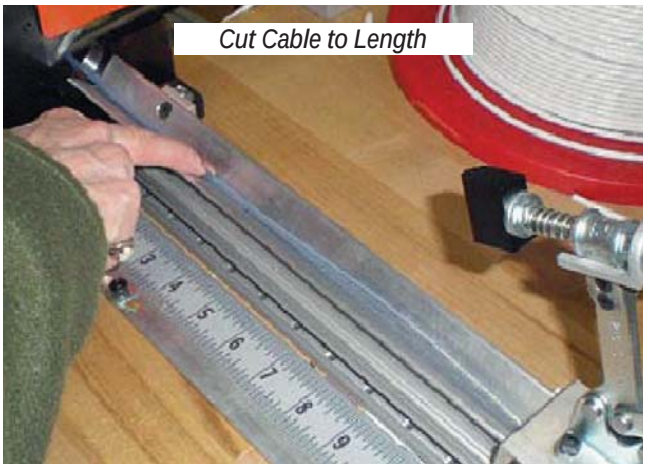
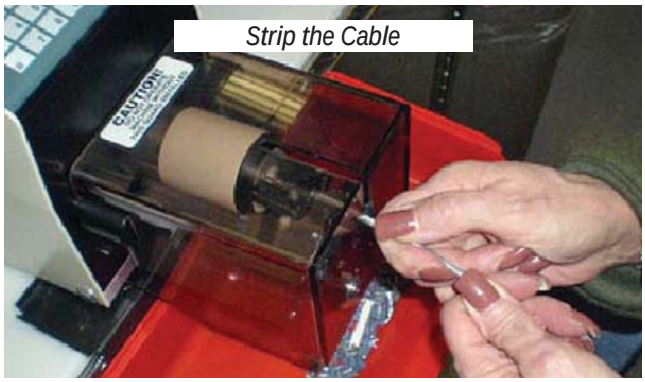


Figure 3

3. Strip the outer jacket and the braid shielding 10.2 +0.762/-0.254 mm [.400 +.030/-.010 in.] and 5.59 +0.51 mm [.220 +.020 in.], respectively, from the end of the cable. Do not remove the binder tape at this time. See Figure 4.



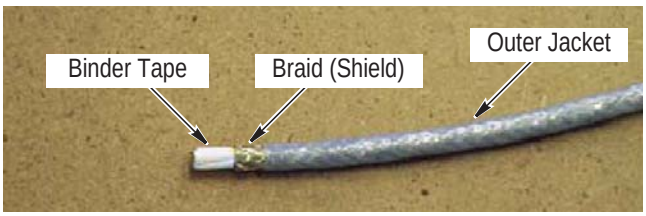


Figure 4

4. Using tweezers or similar tool, trim the exposed braid (shield) that is over the jacket. See Figure 5, Detail A. Fan out the braid as shown in Figure 5, Detail B.

5. Trim and remove the exposed binder tape. Refer to Figure 5, Detail C.

6. Fan out the 4 colored conductors. The center filler should be exposed. See Figure 6, Detail A. Using tweezers or similar tool, remove the center filler as shown in Figure 6, Detail B.

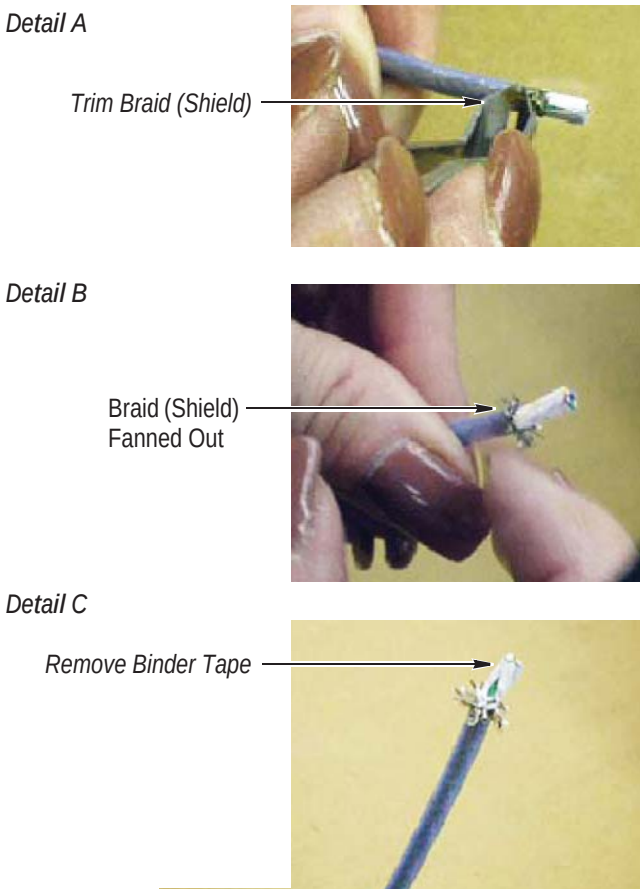


Figure 5

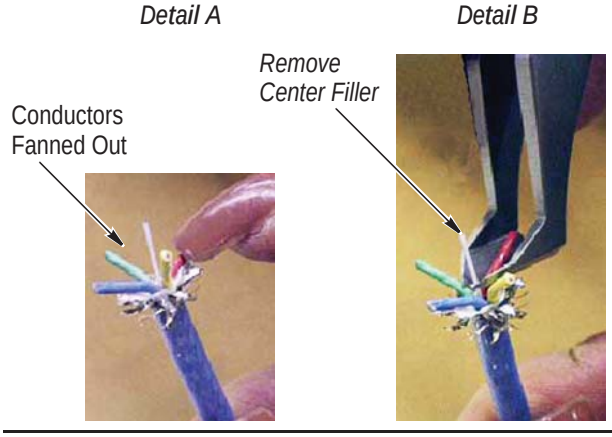


Figure 6

7. Using a standard stripping tool, strip the outer jacket of each of the 4 colored conductors to 3.43 +1.57 mm [.135 +.062 in.] as shown in Figure 7.

For cables with an outside diameter over 4.19 mm [.165 in.], place the individual ferrule (flange end first) on the cable between 152 and 304 mm [6 and 12 in.] from the end of the cable to avoid interference with the termination procedure.

Stripping Outer Jacket of Each Conductor

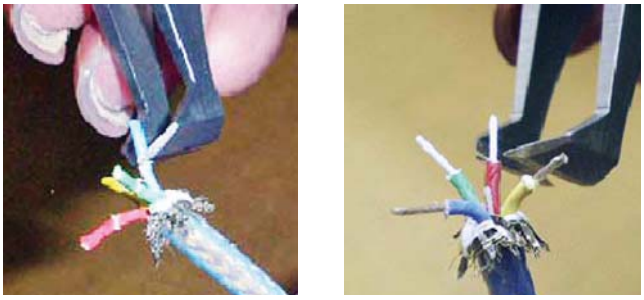
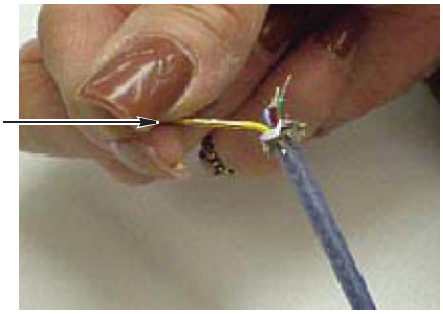


Figure 7

8. Individually install the contacts onto each colored conductor (see Figure 8, Detail A), then using the tooling listed in Section 2, crimp the contacts. Refer to Figure 8, Details B and C. Bundle the contacts together as shown in Figure 8, Detail D.

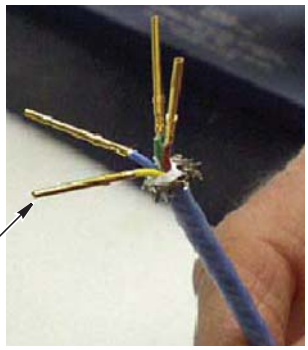
Detail A



Detail B

Figure 8 (Cont'd)

Detail C



Detail D

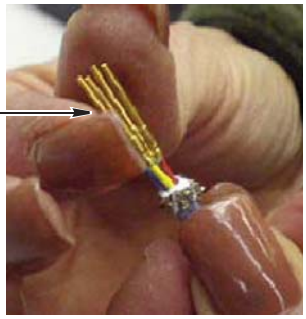


Figure 8 (End)

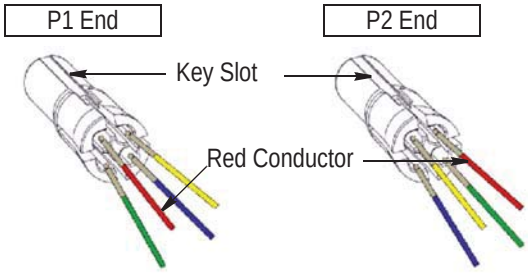
9. Align the key slot of the one-piece dielectric with the red conductor. Insert the 4 contacts simultaneously into the dielectric until they bottom at the end of the braid as shown in Figure 9.

Then slide the ferrule under the braid.

NOTE

Ensure that the flange of the ferrule is facing away from the dielectric.

Data Connector Wiring of Socket Contacts



Data Connector Wiring of Pin Contacts

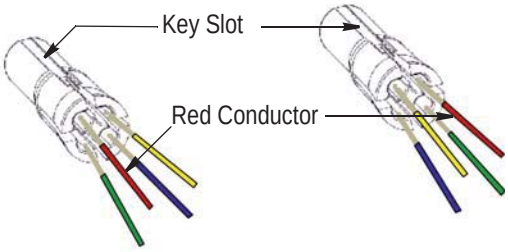
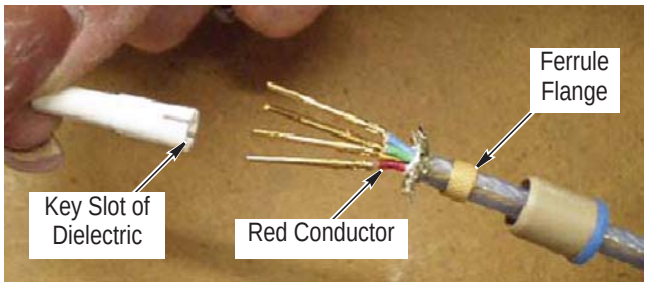
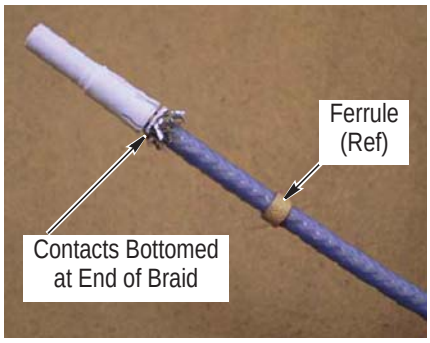


Figure 9 (Cont'd)





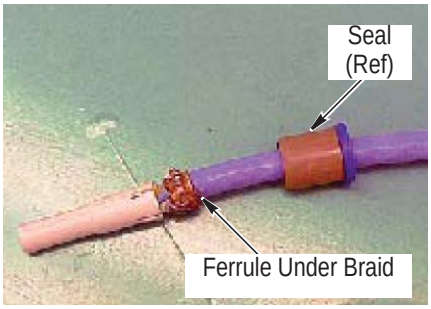
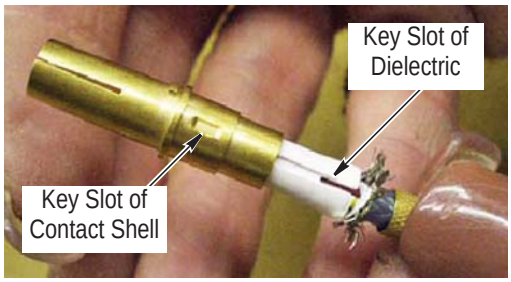


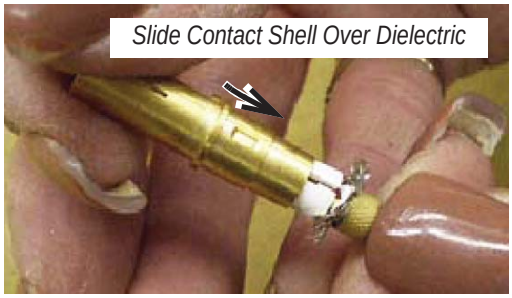
Figure 9 (End)

10. Align the contact shell key slot with the key slot of the one-piece dielectric as shown in Figure 10, Detail A. Then, slide the shell onto the dielectric until the contact shell bottoms over the ferrule as shown in Figure 10, Details B and C. This will sandwich the braid between the ferrule and the contact shell.

Detail A



Detail B



Detail C

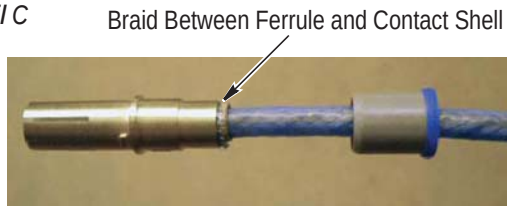


Figure 10

11. Use the quadrax ferrule tool (refer to 408-10191 for operating instructions) to hold the contact shell over the ferrule so that proper bottoming prior to crimping is ensured. See Figure10.

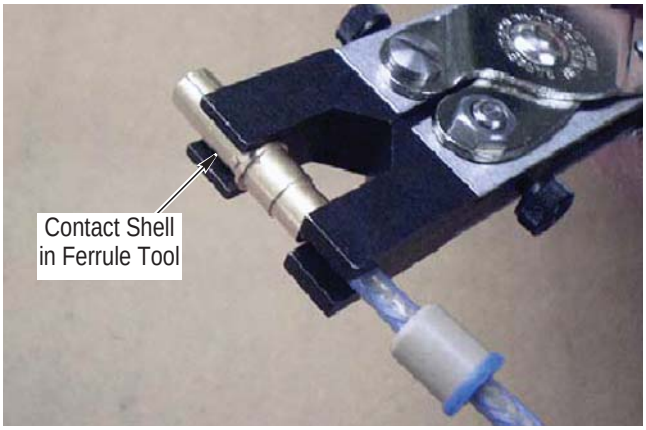
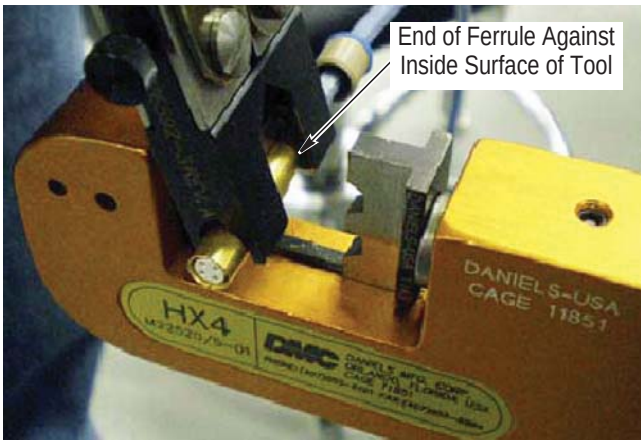
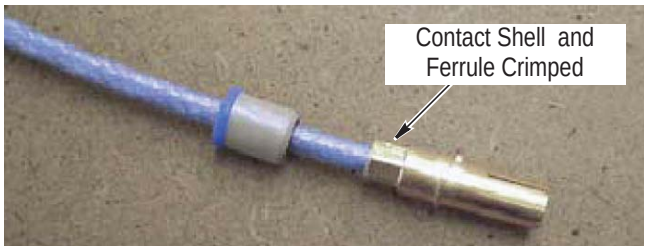


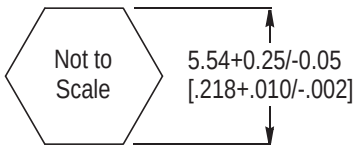
Figure 11 (Cont'd)

12. Using the crimping tool, crimp the contact, then check the crimp height as shown in Figure 12.





Hex Crimp Height Specification



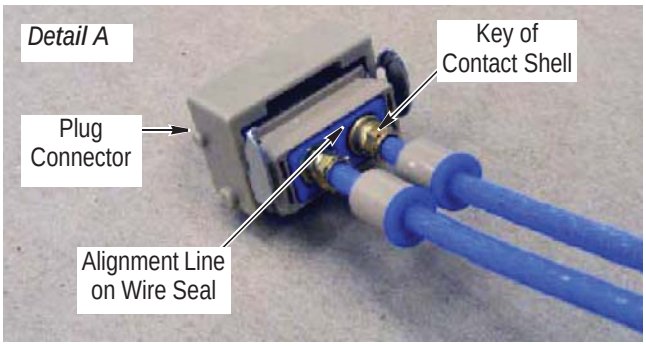
Note: Check crimp height across all three flats. The average of the three readings must be within specification.

Figure 12

13. To install the contacts into the data housings, the following is required: two contacts (key A and key B), two individual cable seals, two 152-mm [6-in.] pieces of heat shrink tubing (RNF-150-1/4-0) and Shrink Boot 1954015-1. Proceed as follows:

a. Align the keys of the contact shells with the alignment lines on the back of the wire seal of the plug connector. Refer to Figure 13, Detail A.

b. Bottom the contacts until they click behind the retention clips inside the plug connector. After the contacts are bottomed, run the wire seal over the contacts as shown in Figure 13, Detail B.



Mating Face of Plug Connector

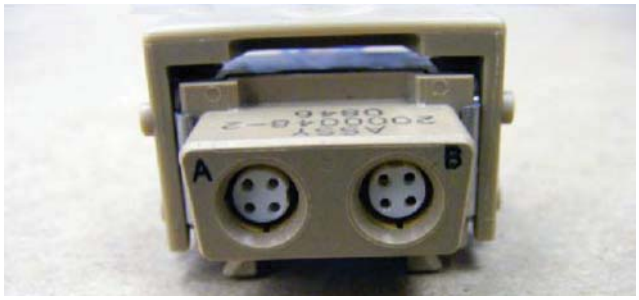


Figure 13

c. Clean the cables and rear of the plug connector housing using a tissue dampened with isopropyl alcohol. Refer to Figure 14, Detail A.

DANGER

STOP

Isopropyl alcohol is flammable and harmful if swallowed or inhaled and may cause irritation.

d. Slide the shrink boot over the two wire bundles so that the boot connector end faces the rear of the plug connector housing. Position the shrink boot so that it is behind the metal band of the plug connector and the boot lip is around the connector boot groove. See Figure 14, Detail B.

NOTE

If one boot leg is not used (no cables or wire entering), install an appropriate-sized rod or plug prior to shrinking the shrink boot.

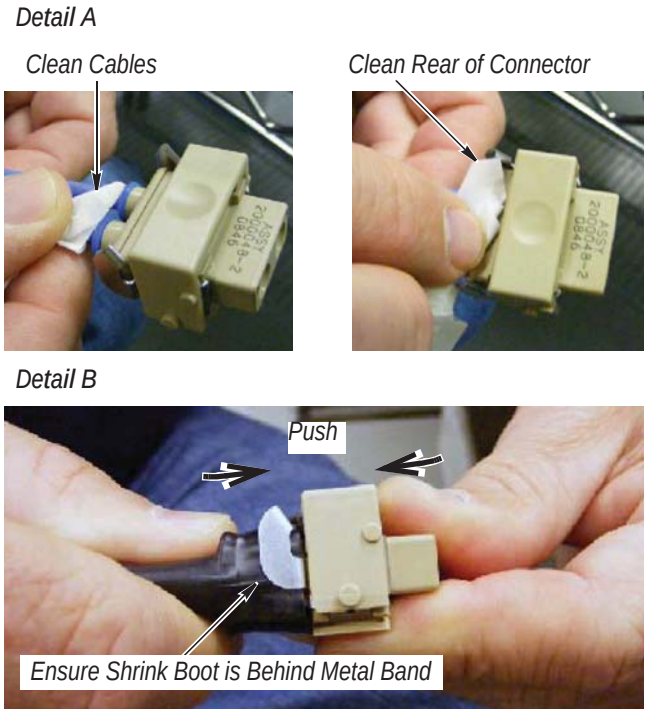


Figure 14

e. Place Reflector TG-13/A-170-HG-RFL-LARGE onto the Steinel HL1910E heat gun, or equivalent heat gun, using the reflector adapter ring. Make sure the adapter ring and reflector are fully seated on the heat gun. See Figure 15, Detail A.

f. Place the heat gun into the cut-outs in the base of the fixture as shown in Figure 15, Detail A. Make sure that the reflector is squarely against the face of the connector positioning block. If it is not square, rotate the reflector into position.

NOTE

The top of the reflector should be aligned with the top of the connector positioning block, not exceeding the top surface by more than 6.35 mm [.250 in.].

g. Turn on the heat gun and let it warm up for a minimum of two minutes.

NOTE

Refer to Section 4 to determine the required heat gun setting to achieve the thermal profile.

h. Remove the cam handle from the plug connector.

i. Insert the plug connector into the opening in the connector positioning block with the metal band facing AWAY FROM THE HEAT GUN. See Figure 15, Detail B. Heat the plug connector for **90 seconds**. Do not start timing until the plug connector is fully seated in the connector positioning block. Verification can be obtained through the visual inspection slot.

Steinel is a trademark.

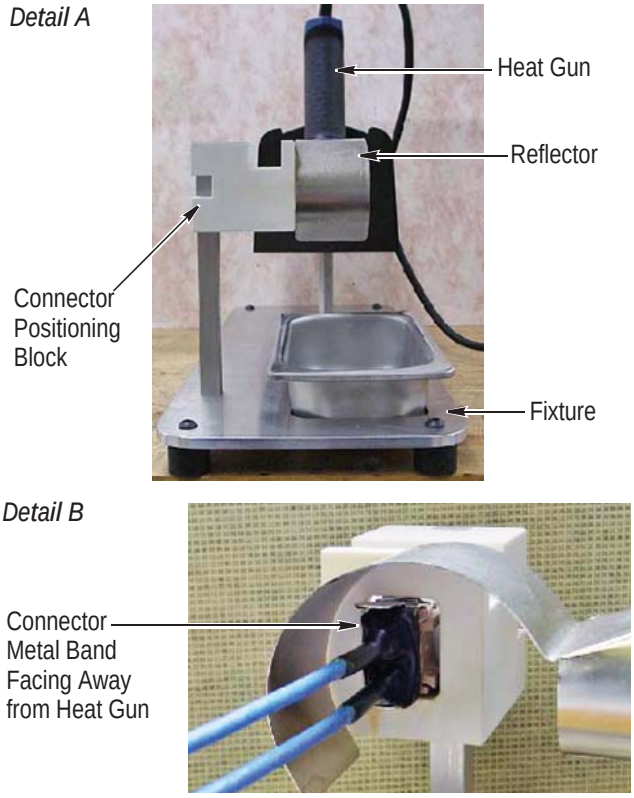


Figure 15

DANGER

To avoid personal injury when using the heat gun:

— Follow installation instructions carefully.

— Use adequate ventilation and avoid charring or burning when installing.

— Charring or burning the product will produce fumes that may cause eye, skin, nose and throat irritation.

—Consult Material Safety Data Sheets (MSDS) RAY2010 and RAY3122 for further information.

j. Remove the plug connector from the connector positioning block, rotate it 180 degrees, then place it back into the block. Heat the plug connector for **60 seconds**. Do not start timing until the plug connector is fully seated in the connector positioning block.

k. Remove the plug connector from the connector positioning block and inspect the shrink boot for complete recovery. Adhesive will be visible and flowing out from the boot legs and the connector end of the boot. Wipe off excess adhesive.

l. Verify that the shrink boot is lined up properly with the plug connector (not skewed or twisted). Use a wooden stick, spatula, or similar tool to lightly press the shrink boot onto the housing while the adhesive is still warm.

m. Allow the shrink boot and harness to cool in such a way that the shrink boot will not be deformed or misaligned.

NOTE

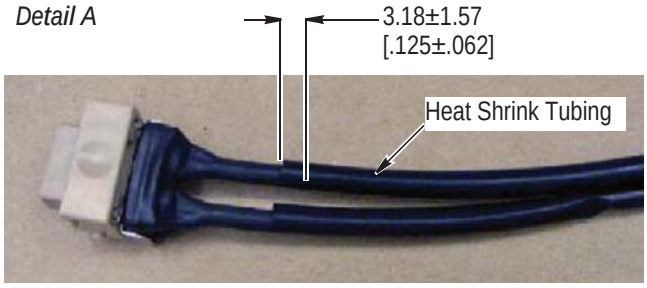
When adhesive build-up is apparent on the connector positioning block, clean the block. Allow the block and adhesive to cool until warm to the touch. Remove the adhesive from the block by peeling it off by hand, or if needed, lightly scraping it with a small flat wooden stick. Wipe any adhesive residue off the block with an isopropyl alcohol wipe.

n. Place a 15.24-mm [.600-in.] diameter dowel pin or rod between the shrink boot legs during cooling to maintain the required socket clearance (refer to Figure 17).

o. Re-install the cam handle onto the metal band of the plug connector with the upper cam button to the front of the plug housing (see Figure 1).

p. Position the two heat shrink tubings onto the data cable bundles so that one end overlaps the boot leg from the rear end of the plug connector to the dimension given in Figure 16, Detail A. Completely recover the heat shrink tubing in place so that no visible “chill marks” remain. See Figure 16, Details B and C.

Detail A



Detail B

Detail C

Heat Shrink Tubing Completely Recovered

Figure 16

14. Check the cable leg separation to make sure it meets the dimensions given in Figure 17.

Cable Leg Separation

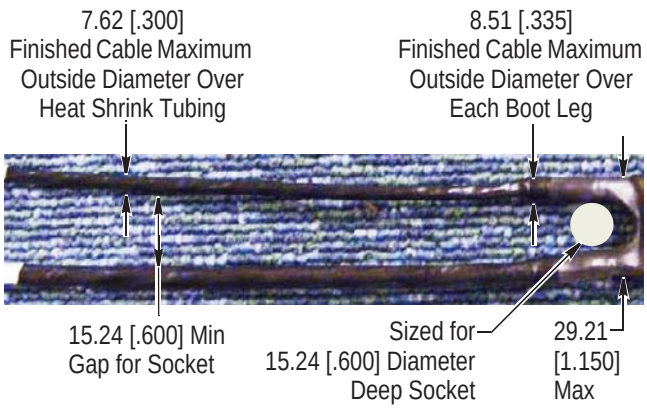


Figure 17

15. Install the dust cap onto the mating end of the plug connector.

4. HEAT GUN PROFILING

1. Ensure that all components including the fixture, heat gun, reflector, plug connector, and thermocouple are at room temperature (approximately 22°C [72°F]).

2. Insert the thermocouple into circuit cavity number 8 on the backside of the blank connector housing. Refer to Figure 18.

3. Place the heat gun in the fixture, set on HIGH No. 7 (or equivalent setting), and allow the heat gun and fixture to warm up for two minutes.

Heat Gun, Fixture, and Thermocouple Set Up

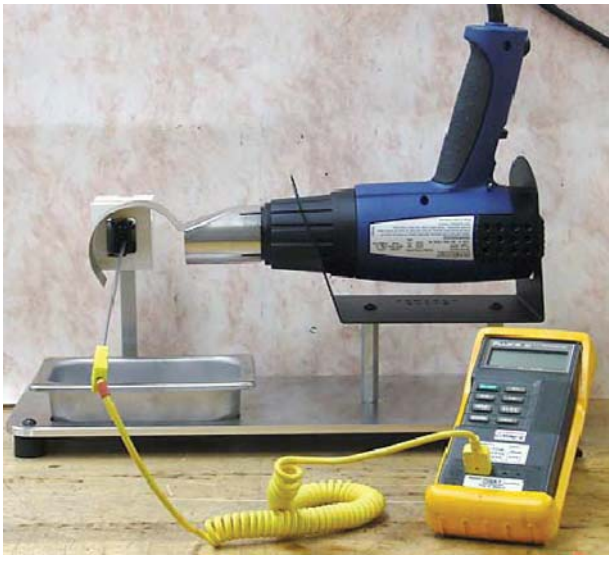


Figure 18

4. Plug the thermocouple and plug connector (with the metal band facing AWAY FROM THE HEAT GUN) into the fixture. Make sure that the connector housing stays completely inside the cavity of the fixture.

5. Record the length of time it takes the thermocouple to reach 150°C [302°F]. It should take 120 ±20 seconds.

6. Compare the heat gun heating profile to the profile given in Figure 19. The heating profiles should match. If not, the heat gun must be adjusted to match the profile. Repeat the procedure using different settings to find the optimal temperature setting.

NOTE

If it takes more than 140 seconds to reach 150°C [302°F], increase the temperature setting; if it takes less than 100 seconds, decrease the temperature setting.

5. REPLACEMENT AND REPAIR

DO NOT used defective or damaged products. The following parts are customer replaceable. Order replacement parts through your representative, or call 1-800-526-5142, or send a facsimile of your purchase order to 717-986-7605, or write to:

CUSTOMER SERVICE (038-035)
TYCO ELECTRONICS CORPORATION
PO BOX 3608
HARRISBURG PA 17105-3608

CUSTOMER REPLACEABLE PARTS	
DESCRIPTION	PART NUMBER
Fixture	AE-PNP-FIXT
Connector Positioning Block	AE-PNP-FIXT-01
Drip Pan	AE-PNP-FIXT-04
Thermocouple	AEP-PNP-FIXT-TC
Reflector	TG-13/A-170-HG-RFL-LARGE

6. REVISION SUMMARY

Revisions to this instruction sheet include:

- Updated instruction sheet to corporate requirements
- Removed references to instruction sheets from Section 1
- Added die set to tooling in Section 2
- Added Section 5
- Replaced Validation with Approval email on file

Heat Gun Profile Using PNP Fixture

Note: TE reserves the right to amend this drawing at any time. Users should evaluate the suitability of the product for their application.

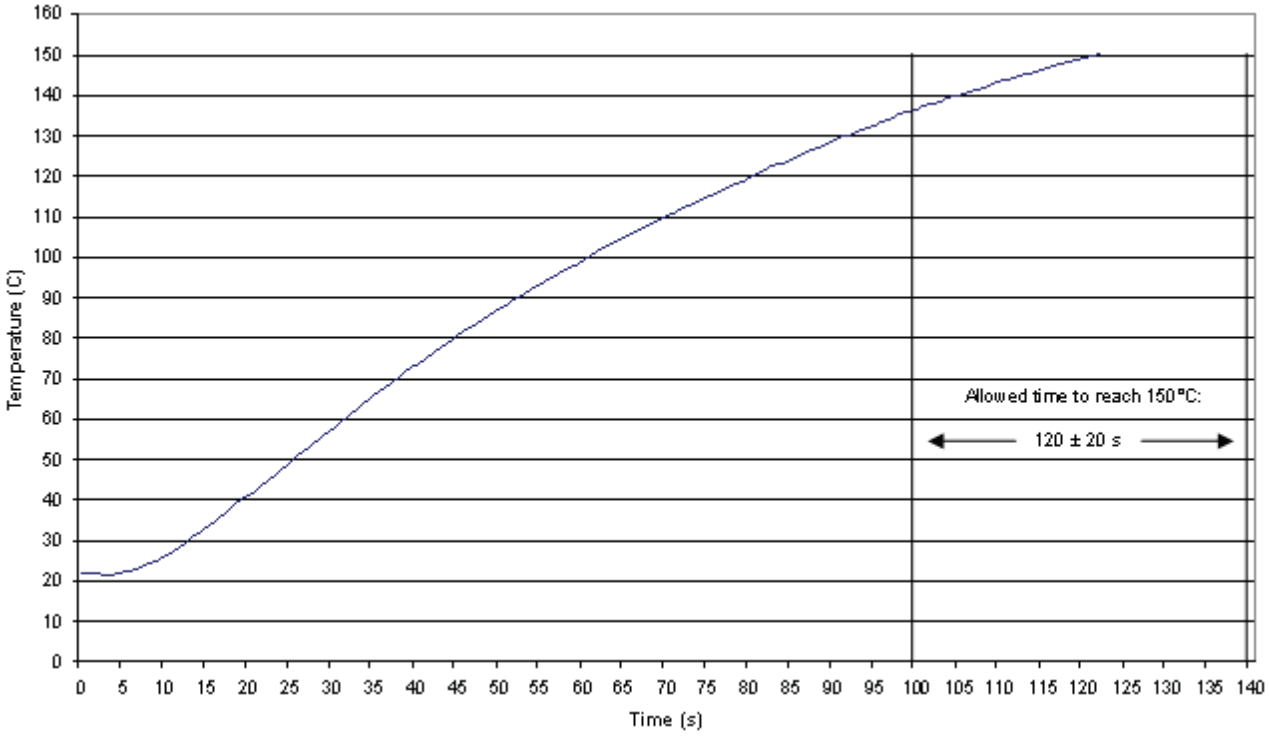


Figure 19

OCEAN CHIPS
Океан Электроники
Поставка электронных компонентов

Компания «Океан Электроники» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Поставка оригинальных импортных электронных компонентов напрямую с производств Америки, Европы и Азии, а так же с крупнейших складов мира;
- Широкая линейка поставок активных и пассивных импортных электронных компонентов (более 30 млн. наименований);
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Помощь Конструкторского Отдела и консультации квалифицированных инженеров;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Поставка электронных компонентов под контролем ВП;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- При необходимости вся продукция военного и аэрокосмического назначения проходит испытания и сертификацию в лаборатории (по согласованию с заказчиком);
- Поставка специализированных компонентов военного и аэрокосмического уровня качества (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Actel, Aeroflex, Peregrine, VPT, Syfer, Eurofarad, Texas Instruments, MS Kennedy, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Компания «Океан Электроники» является официальным дистрибьютором и эксклюзивным представителем в России одного из крупнейших производителей разъемов военного и аэрокосмического назначения «**JONHON**», а так же официальным дистрибьютором и эксклюзивным представителем в России производителя высокотехнологичных и надежных решений для передачи СВЧ сигналов «**FORSTAR**».

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