

CONNECTOR CRIMPING & SOLDERING

1. Stripping Cable Insulation



Problems with connector systems often begin with improper or accidental cutting of wire strands when stripping cable insulation. Each strand is important, and all of them must be included in the contact barrel to avoid unnecessary hot spots during later operation. When removing insulation, position a sharp blade at a right angle and apply steady, controlled pressure, cutting only the cable insulation, not the copper wire.

2. Cleaning Copper Wire



Aged and badly tarnished copper wire should be thoroughly scraped with a stiff wire brush that penetrates the entire bundle and cleans every strand. The wires are ready for insertion into the contact barrel when they are burnished to their original bright copper finish. Contact barrels are lined with silver plating to assure consistently high conductivity, which will be reduced if the barrel is crimped around aged or tarnished copper wire.

3. Crimping



The best preparation will be defeated if inadequate tools or improper crimping procedures are employed. Never use a hammer and chisel or the "squeeze-in-a-vise" method. They won't do the job, and will lead directly to substantial reduction in connector life. Use a crimping tool. It effectively compresses the contact barrel tightly around the cable strands so that all of them are pressed tightly against each other and the inside wall of the contact barrel. Doing this requires that the stripped cable be inserted all the way into the barrel of the contact, and that the contact point is centered in the crimping tool. When the crimp has been completed, check the appearance of the contact. A properly crimped contact barrel is compacted tightly with the outer strands. The outer strands on an improperly crimped barrel will be loose and will not have adequate clamping force. Test for low pull-out force by giving the cable a tug. If the cable can be loosened, re-crimp until it is tight.

4. Soldering

The alternative to crimping is to solder all cable strands within the contact barrel. The right proportion of solder is essential if this procedure is employed. Use a quality 60/40 solder (60 percent tin, 40 percent lead) in wire form with a rosin flux.

core. Cable strands should be separately fluxed with rosin paste, and the contact should be held in a vise with the barrel entrance facing up. Apply heat to the barrel while the solder flows in beside the wire strands.

Here are some things to avoid when soldering:

- A. Don't use too much solder to the point that it flows out of the contact barrel.
- B. Don't allow flux or solder on the outside of the contact. This will interfere with contact mounting within the installation or with the contact connection to a mating connector.
- C. Don't overheat and cause excessive solder to "wick" up into the cable and stiffen it. This could interfere with contact flexibility when connectors are mated.
- D. Don't solder when contact is in the connector housing. Solder away from the housing and then insert the contact into the housing.

5. Inserting Contact into Housing

Contacts should never be forced into the housing. If the contact does not fit easily, check the contact barrel for distortion. Replace the barrel if it is distorted or shows signs of wear or damage.

PREVENTATIVE MAINTENANCE

Damaged connectors, contacts and cables may present hazards. When you see a problem, take corrective action immediately.

1. DIRTY CONNECTORS

When engaged and disengaged, the crown contact surfaces of the connectors "over wipe", thus providing a self-cleaning action. To ensure the continued benefit of this feature, clean the contact surfaces and lubricate the connector. Use a "white" lithium grease, which may be obtained from hardware stores and automotive parts suppliers.

2. OVERHEATING CONNECTORS

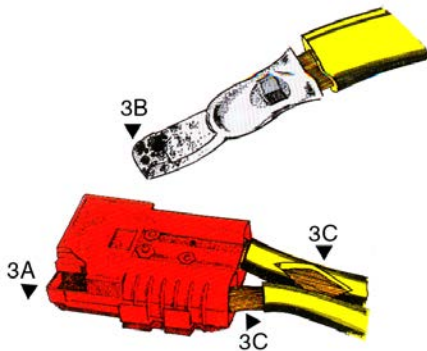
Connector housings can overheat for many reasons. To prevent this:

- A. Examine the crimp between cable and contact. Improper crimping, corrosion, and broken wires result in unnecessary resistance causing the contact to heat up.
- B. Check contact crown surfaces for signs of "pitting".

3. OTHER CONDITIONS

If any of the following conditions exists, the connector housing, contact and or cable should be replaced immediately.

- A. Housing: Cracks, missing pieces, evidence of excessive heat, discoloration.
- B. Contacts: Pitting, burns, corrosion, excessive wear, cracked crimp barrels, discoloration.
- C. Cable: Exposed copper near housing, cracked cable, peeling or frayed insulation.



CONNECTOR CHECK LIST

EQUIPMENT IDENTIFICATION NUMBER

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HOUSING

Cracks				
Breakage				
Excessive Heat - Touch				
Excessive Heat - Discoloration				
Excessive - Heat - Overheating				

CONTACTS

Pitting				
Discoloration				
Wear				
Corrosion				
Improper Crimp				

CABLES

Exposed Copper				
Cracks/Cuts				
Excessive Heat				
Cut Strands				
Corrosion				
Damage				