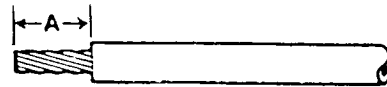


# 97 SERIES wire preparation for crimp termination

Strip wire to length shown in chart. Do not cut or nick wire strands. Twist wire strands back to their original lay.



Contact Size	Wire Size	Insulation O.D.	Stripping Length "A"
12	12-14 AWG	.097 160	176- 219
16	14-16 AWG	.079 100	140- 170
16	18-20 AWG	.079 100	109- 140
16	22-26 AWG	.039 .090	119- 140
16	28-30 AWG	.030 054	109- 140

## soldering

The application of solder is based on a few relatively fundamental principles, but simple as they are, these fundamentals must be understood and observed in order to secure consistent and successful results. Listed below are some fundamental requirements and hints to make your soldering operation easier. **SAFETY FIRST—Protective eye equipment must be worn whenever performing soldering operations.**

### A. Soldering tool preparation

The soldering tool should be cleaned prior to use and during use as necessary. A wet, fine-textured sponge should be used. Files should never be used.

### B. Preparing the conductor

When removing the insulation from conductors always use a thermal or precision cutting-type stripper. Care must be exercised to prevent damage to the individual wire strands or conductor. The conductor should be exposed to a length that will bring the insulation clearance above the solder cup equal to one and one-half times the outside diameter of the insulation, when the wire is inserted in the solder cup to its full depth.

### C. Pre-tinning

Stranded wire portions which come in contact with the area to be soldered should be tinned prior to attachment. Amphenol pre-tins the solder cup of the contacts used in its 97 series for ease in soldering. Pre-tinning eliminates the problems associated with soldering to some metals plus the problem of soldering where excessive tarnish is present.

### D. Wire coding

It is advisable to properly code each lead to assure that all circuits will be correct. If the wire is not color coded, printed cellulose tape or various types of adhesive tabs are available for this job.

### E. Application of heat

Heat is necessary (1) to convert the solder from the solid to liquid state, (2) to decrease surface tension, and (3) to cause the soldering to take place. With all variables considered, best safe results are secured at equilibrium temperatures of 525° F. to 575° F. Failure in proper heat application is the most common source of solder ills. It is essential that the metal being soldered be as hot as the applied molten solder.

### F. Soldering flux

It is the function of the soldering flux to remove the non-metallic oxide film from the surface of metals and keep it

removed during the soldering operation. There are several types of soldering fluxes, however, the only type suitable for electronic or electrical applications is ROSIN flux.

### G. Solder alloys

Solder is available in all compositions of the tinlead range from pure tin to pure lead. From the standpoint of speed, ease, economy and overall effectiveness in making soldered connections, a rosin core solder of 60/40 consistency, (60% tin and 40% lead) is most efficient. Also very efficient is a 50/50 rosin core solder usually used in fine electrical soldering.

### H. Hand soldering

The wattage rating and tip size of the soldering iron should be carefully selected in relation to the physical size of the members of the connection. Your solder salesman should be able to assist you in the proper tool and tip selection for each job. Heat sensitive components should be protected by the use of heat sinks during soldering. Various types of mounting fixtures are available for ease of soldering. A mating connector may even be used.

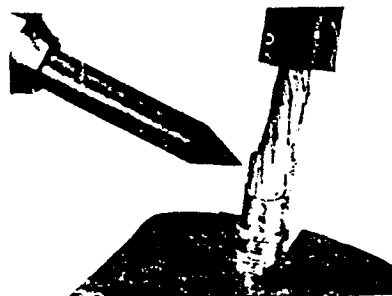
The solder connection should be completed in not less than 2 seconds, nor more than 5 seconds.

Do not disturb the connection until the solder has completely solidified.

There should be no exposed copper in the connection area after soldering. After soldering is completed, all flux and impurities should be removed from each solder connection.

This is most easily accomplished by a bath in alcohol, or soap and water. When soldering conductors to a multiple contact connector, it is usually advisable to start at the bottom and work towards the top. Amphenol's exclusive factory aligned contacts allow faster and easier terminations, since the connector can be fixtured and soldered without turning it or the contacts during the soldering operation.

Size 8 and larger contacts should be soldered outside of the connector to prevent heat damage to the insulator.



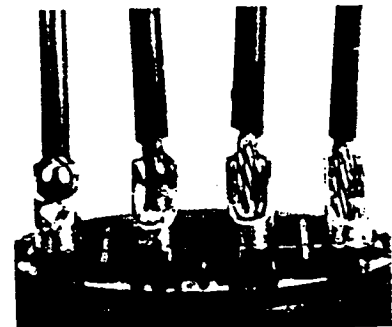
It is advisable to shape the soldering iron tip for the job. The small amount of time invested in this step, will result in quality workmanship.



### I. Soldering inspection

Soldered connections shall be smooth and shiny, and show outlines of the parts in the connection. Solder joints having a grey appearance are not acceptable, except for those made with high temperature solder. There shall be no excess solder, globules, peaks, strings, or bridging between adjacent conductive paths. There shall be no evidence of burning, scorching, or heat damage to connector or conductor. Solder connections which do not meet the criteria above should be reworked by first removing the solder, then cleaning the connection and resoldering.

An electrical continuity test should be made at this point. This can be done on a test block designed to provide a test of circuits in relation to coding as well as an electrical test of the connection.



Not Acceptable (Excess)      Acceptable (Maximum)      Acceptable (Minimum)      Not Acceptable (Insufficient)