

## APPENDIX A - WIRE VISUAL AIDS AND ILLUSTRATIONS

### WIRING: CONNECTORS, CABLING, AND HARNESSING - WIRE DRESS TO CONNECTORS

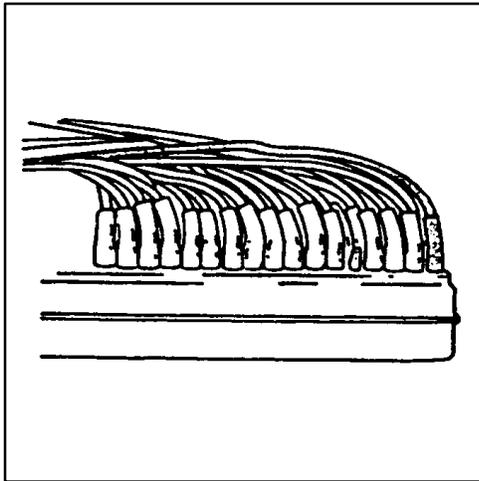


FIGURE A-1

#### PREFERRED

All wires dressed with even bends to terminate in solder cups.

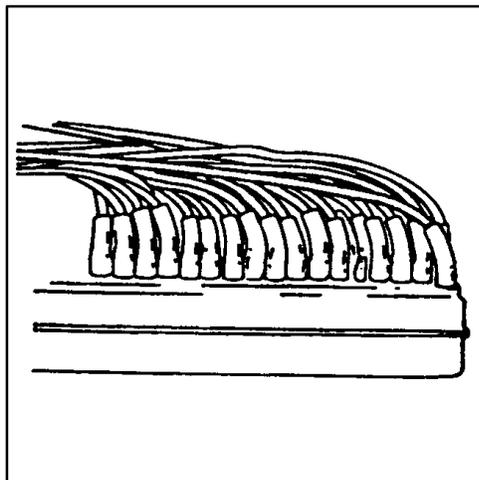


FIGURE A-2

#### NONCONFORMING

End wire on the right is taut with no stress relief.

WIRING: CONNECTORS, CABLING, AND HARNESSING -  
STRESS RELIEF SHRINKABLE SLEEVING ON SOLDER CUPS

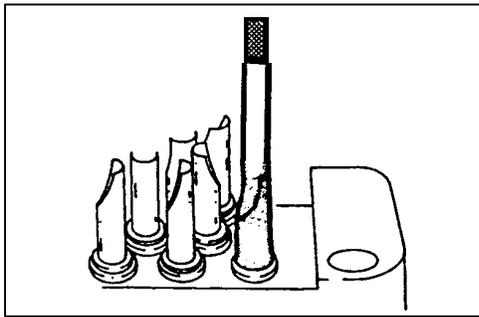


FIGURE A-3

PREFERRED

1. Sleeving on wire covers solder cup and provides support over wire insulation (see controlling specification)
2. Sleeving is fully shrunk over the insulation, wire, and solder cup.
3. Sleeving is sufficiently rigid to provide stress relief and prevent wire bending at the solder joint.

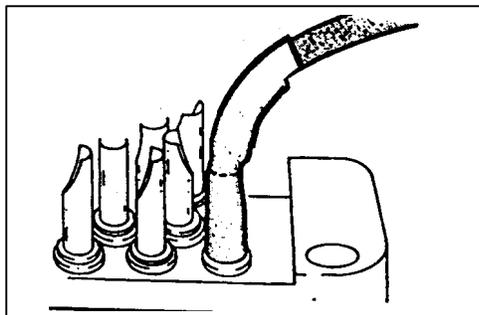


FIGURE A-4

NONCONFORMING

The sleeving is not fully shrunk and permits wire bending and flexing at the joint.

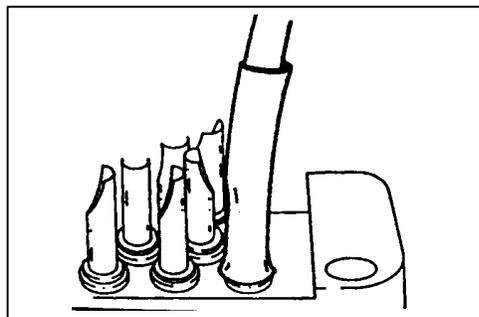


FIGURE A-5

NONCONFORMING

The sleeving is not fully shrunk.

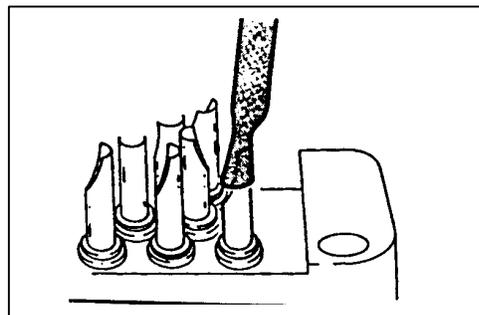


FIGURE A-6

NONCONFORMING

Sleeving does not grip at least half of the cup barrel below the opening.

WIRING: CONNECTORS, CABLING, AND HARNESSING, WIRE PREPARATION,  
THERMAL STRIPPING

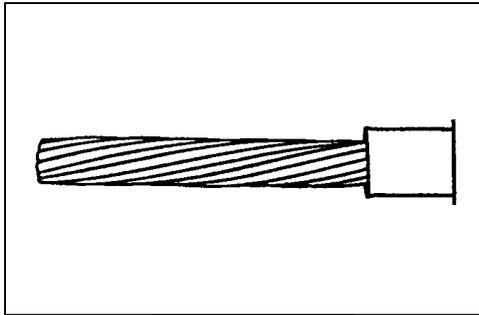


FIGURE A-7

PREFERRED

1. Insulation has been removed from the conductor with no visible damage to the wire strands.
2. Normal lay of wire, if disturbed, shall be retwisted to the original wire lay.

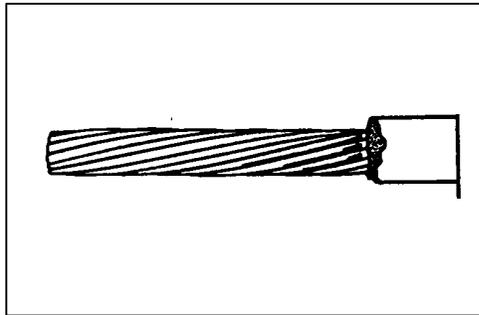


FIGURE A-8

ACCEPTABLE

Minor burnishing and indentation; base metal not exposed.

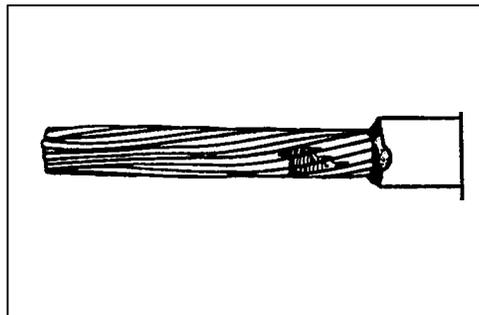


FIGURE A-9

NONCONFORMING

1. Wire strands are gouged and scraped exposing base metal.
2. Original lay of stranding has been straightened and distorted.

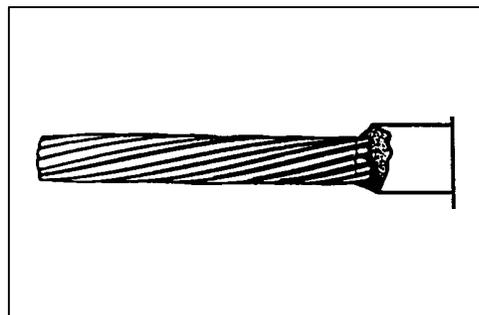


FIGURE A-10

NONCONFORMING

Wire strands show evidence of a nicked condition caused by stripper blades.

WIRE PREPARATION: MECHANICAL STRIPPING

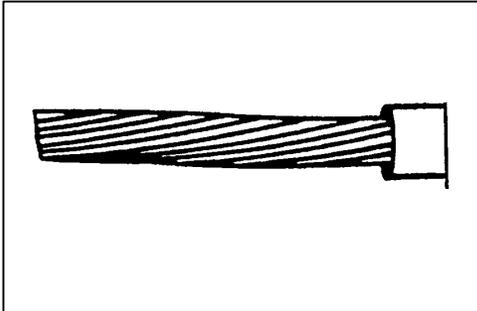


FIGURE A-11

ACCEPTABLE

Wire lay undisturbed; no visible damage to wire strands.

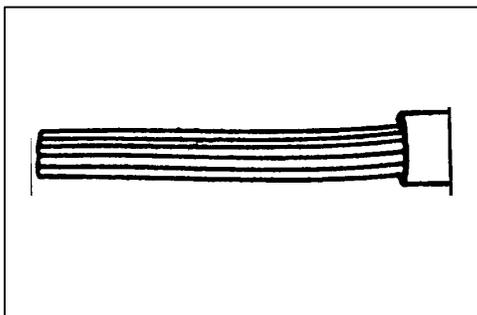


FIGURE A-12

UNACCEPTABLE

Wire strands combed straight. If retwisted to original lay, may be acceptable.

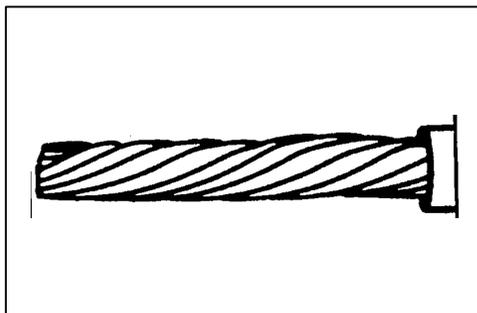


FIGURE A-13

UNACCEPTABLE

Excessive retwist.

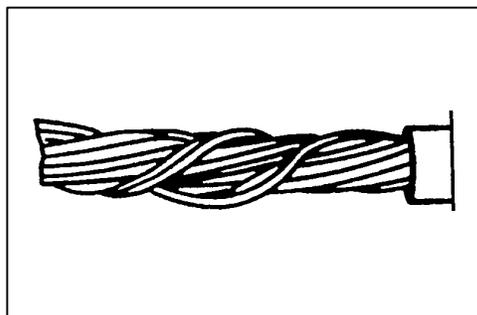


FIGURE A-14

UNACCEPTABLE

Wire strands retwisted in excess of normal lay and overlapped.

WIRING: CONNECTORS, CABLING, AND HARNESSING,  
WIRE PREPARATION, THERMAL STRIPPING

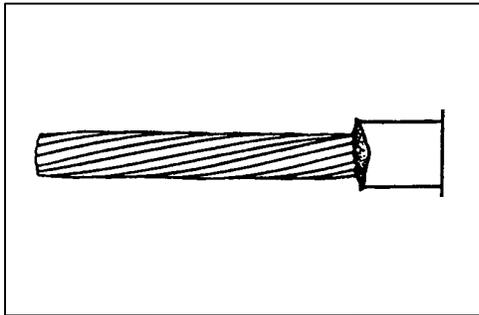


FIGURE A-15

PREFERRED

Insulation stripped by thermal stripping shall have minimum edge flash with no damage to the wire strands.

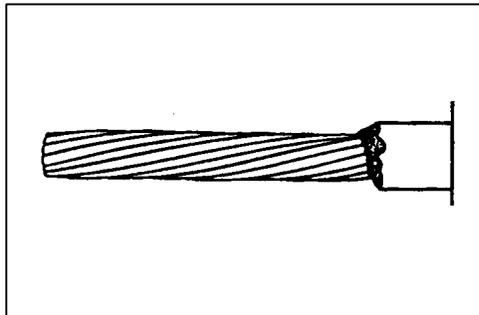


FIGURE A-16

ACCEPTABLE

Mechanical or thermal stripped insulation irregularity is acceptable if it does not exceed 1/4 of the outside diameter of the wire with insulation.

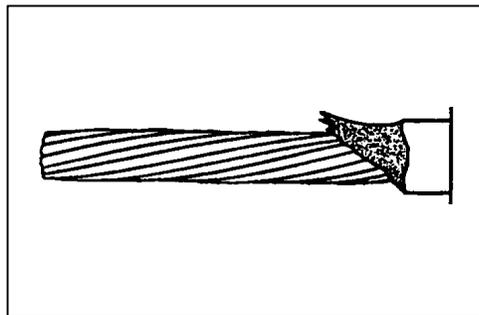


FIGURE A-17

ACCEPTABLE MINIMUM

Edge flash, due to improper stripping, should not exceed 1/4 of the outside diameter of the wire with insulation.

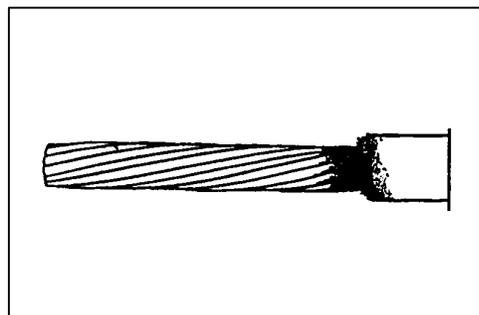


FIGURE A-18

NONCONFORMING

Burned or charred insulation, as shown, is the result of improper application of heat.

WIRING: CONNECTORS, CABLING, AND HARNESSING, WIRE PREPARATION,  
TINNING STRANDED CONDUCTORS

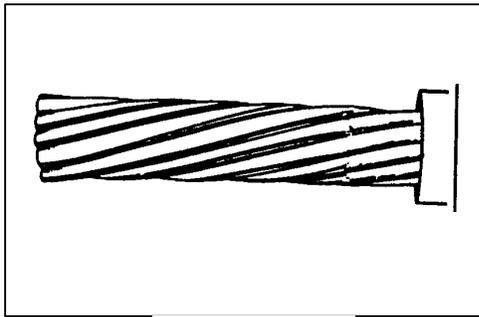


FIGURE A-19

PREFERRED

1. Complete wetting of the tinned area has resulted in a bright, thin, and even tinning of the strands
2. Tinning has reached insulation, but wicking is minimal.

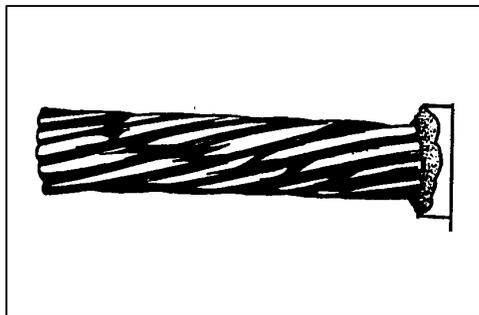


FIGURE A-20

ACCEPTABLE

Traces of solder wicking under insulation, but the contour of the stranding is easily discernible.

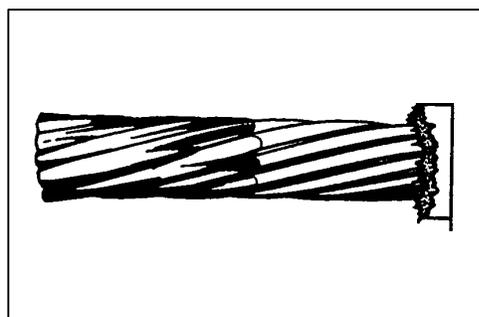


FIGURE A-21

ACCEPTABLE

Length of tinning is determined by type of termination; however, it should be sufficient to prevent separation of strands when wire is wrapped around a terminal.

WIRING: CONNECTORS, CABLING, AND HARNESSING - INSTALLATION OF STRAPS

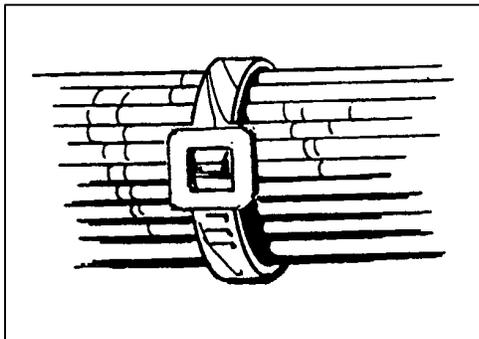


FIGURE A-22

ACCEPTABLE

1. Conductors secured with a plastic strap.
2. When tightened correctly, strap will not move laterally along the bundle under normal handling but can be rotated in place.

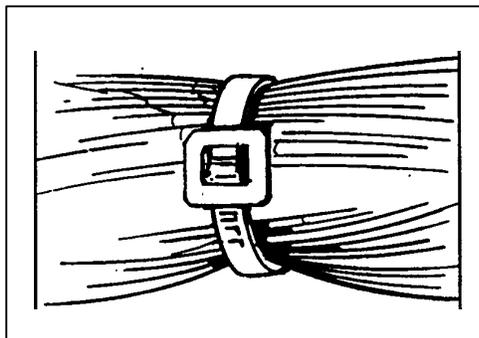


FIGURE A-23

UNACCEPTABLE

Strap is too tight and is deforming the insulation on the wire.

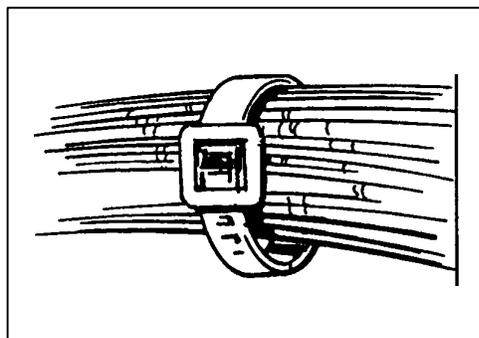


FIGURE A-24

UNACCEPTABLE

Strap is too loose and will slip easily along the bundle with normal handling.

### CRIMPS: INSULATION CLEARANCE

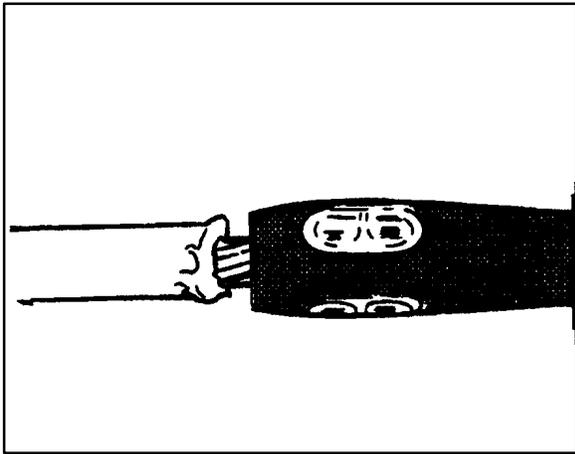


FIGURE A-25

#### MINIMUM CONDUCTOR EXPOSURE

Insulation terminates 0.010 in. minimum from contact crimp barrel.

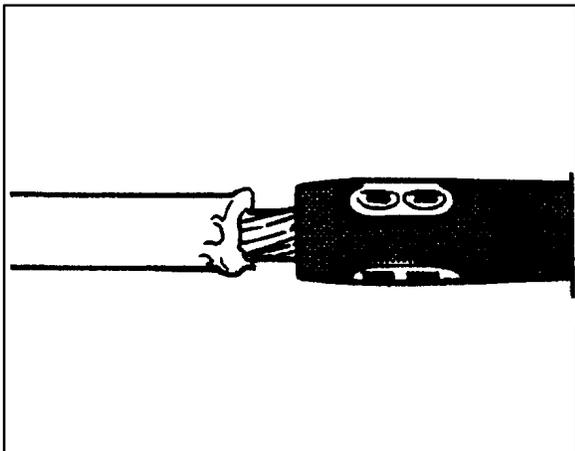


FIGURE A-26

#### MAXIMUM CONDUCTOR EXPOSURE

Amount of exposed bare wire between the insulation and the contact crimp barrel does not exceed 0.03 inch maximum for No. 20 AWG wire and smaller, and 0.05 inch maximum for No. 18 AWG wire and larger.

CRIMPS: ACCEPTABLE AND UNACCEPTABLE

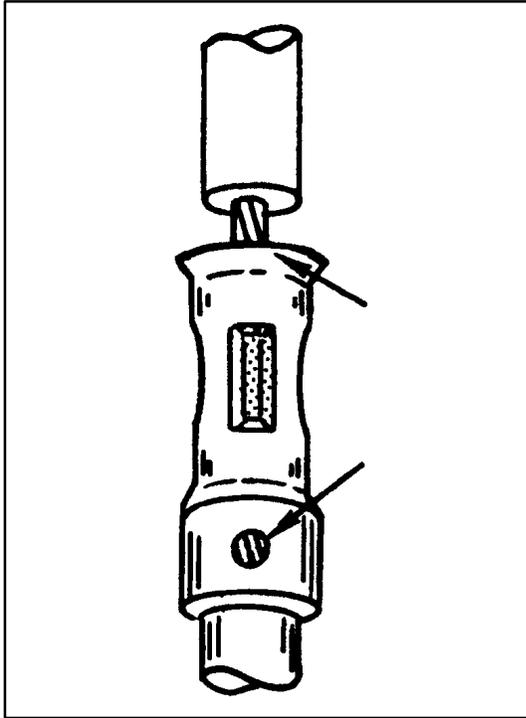


FIGURE A-27

ACCEPTABLE

Care should be taken when seating contacts in the crimping tool. The tool indentors should crimp the contact midway between the shoulder of the insulation support and the inspection hole. The wire is visible in the inspection hole.

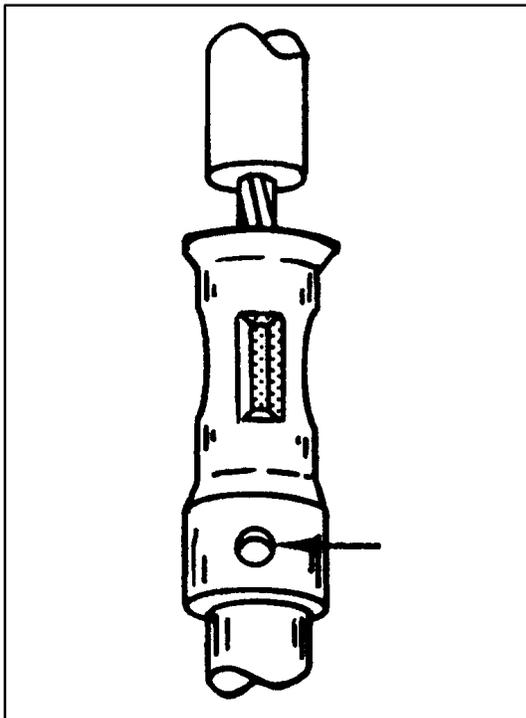


FIGURE A-28

UNACCEPTABLE

If the wire is not stripped back far enough or incorrectly seated in the contact, the wire will not be visible in the inspection hole, as shown.

CRIMPS: UNACCEPTABLE

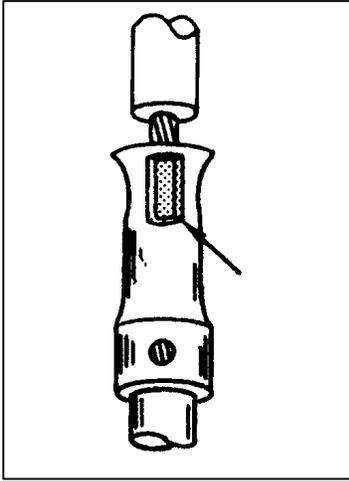


FIGURE A-29A

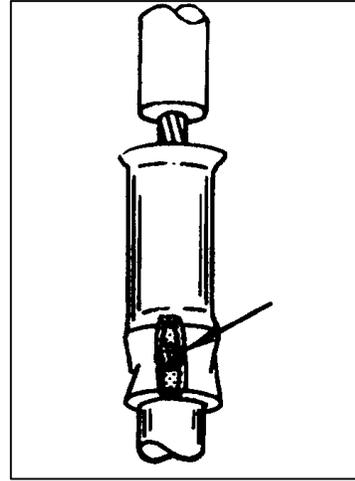


FIGURE A-29B

Failure to properly seat contact in crimping die, or use of incorrect crimping tool will result in improperly crimped contacts. Crimping over the inspection hole or on the radius of the shoulder as shown in Figures A-29A and A-29B is unacceptable.

UNACCEPTABLE PIN

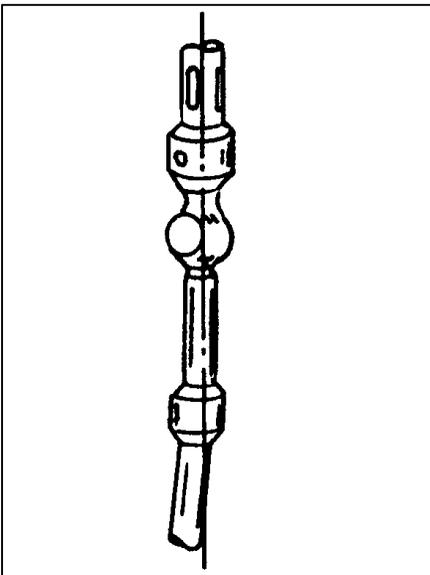


FIGURE A-30

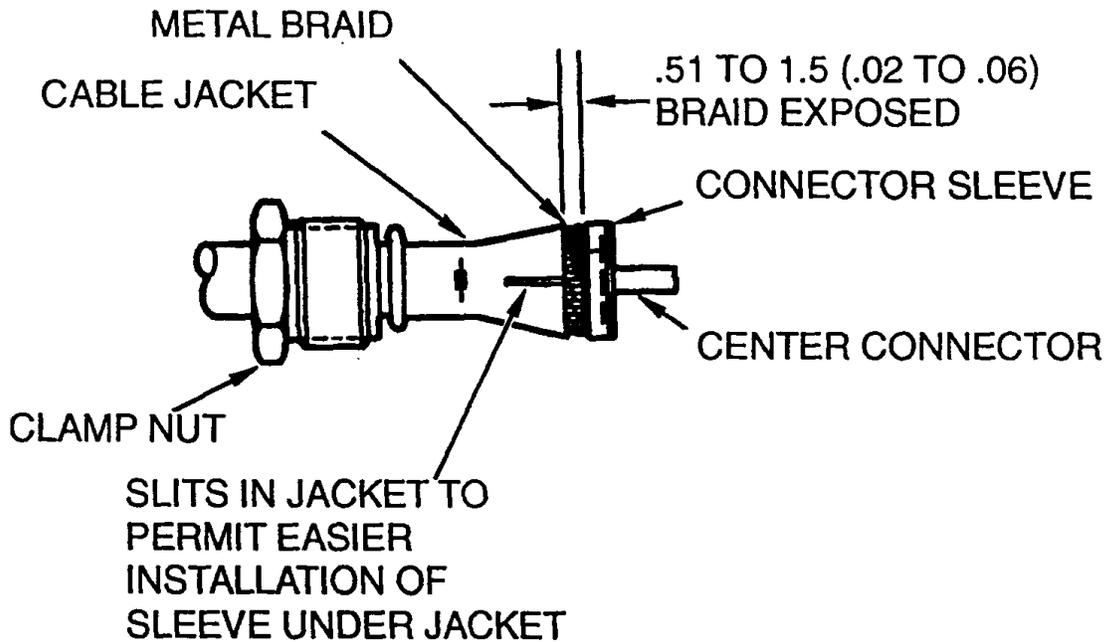
## APPENDIX B - CRITICAL PROBLEMS IN COAXIAL CABLE ASSEMBLY

Because of poor connector design, faulty assembly instructions, or wrong choice of materials, certain types of coaxial cable assembly failures occur frequently. Problem areas are as follows:

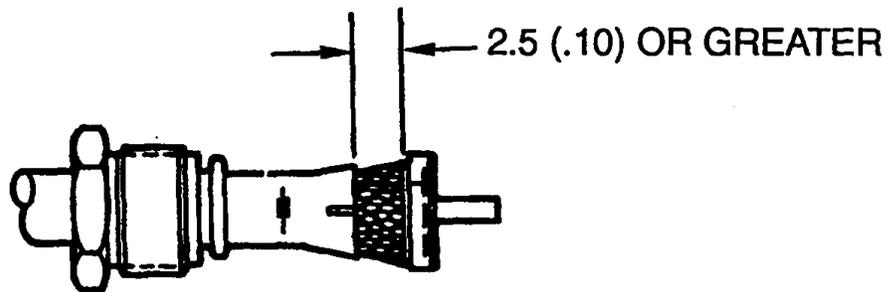
**Plastic Jacket Layer in the Compression System.** Certain manufacturers' RF-connector designs or assembly instructions allow the jacket to be in the clamping system. For example, the metal clamp nut presses against the teflon cable jacket, which presses against the metal braid, which presses against the metal cable barrel of the connector. The problem encountered with this arrangement is that after torquing, the teflon jacket cold-flows, and the connection becomes loose. Intermittent circuits and system failure can result. Either this type of connector should not be used, or the plastic jacket should be trimmed back so that only metal-to-metal compression exists (see Figure B-1). If the connector design is such that satisfactory metal-to-metal compression cannot be achieved after torquing, the connector should not be used.

**Inadequate Center Conductor to Center Contact Solder Joint.** Certain manufacturers recommend that the center conductor be tinned, and that this tinned conductor be placed in the center contact. Then, the solder joint between the center conductor and center contact is made by reflowing the tinning in the center contact. Invariably, this makes an insufficient solder joint (see Figure B-2). A sufficient solder joint is made by placing a small length of rosin core solder in the contact wire well, e.g., 3.17mm (0.125 inch) length, 0.38 mm (0.015 inch) diameter. The center conductor is inserted into the wire well and the contact is heated to melt the solder and position the contact on the center conductor.

**Breakage of Stress-Relief Sleeving.** In assemblies where shrinkable sleeving is used to provide stress relief from a connector ferrule to the cable, there is often a major transition in diameter as shown in Figure B-3. If MIL-I-23053/8 sleeving is used for stress relief, it often cracks at the large diameter of the transition. The use of MIL-I-23053/8 sleeving for these applications should be avoided.



**A. INADEQUATE EXPOSURE OF METAL BRAID. JACKET MAY BE IN CLAMPING SYSTEM**



**B. PROPER EXPOSURE OF METAL BRAID SO JACKET WILL NOT BE IN CLAMPING SYSTEM**

**DIMENSIONS IN MILLIMETERS (INCHES)**

Figure B-1. Illustration of Proper Trimback of Jacket to Isolate it from the Clamping System

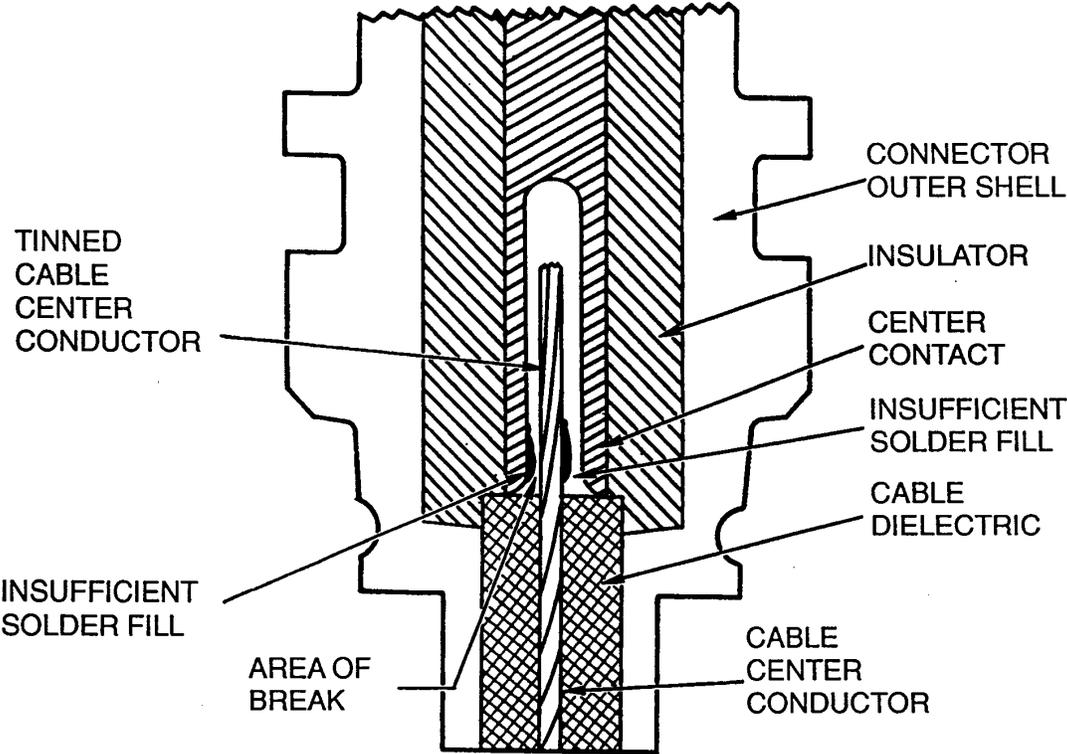


Figure B-2. Broken Solder Joint Caused by Insufficient Solder Fill

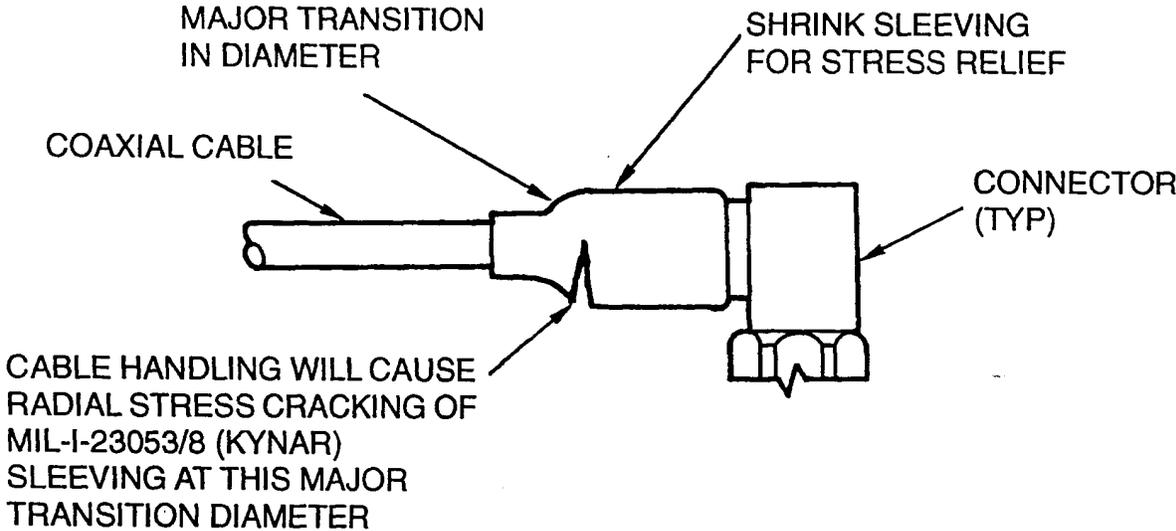


Figure B-3. Problem Point for Kynar Stress Relief Slewing

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6. REMARKS		
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