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**1. INTRODUCTION**

This instruction sheet is intended to provide you with "Instructions" on product application and a "Maintenance and Inspection Procedure" for the following interchangeable crimping dies for series SMA connectors:

**AMP\* NO. 220091-1**

First read instructions shipped with tools for information concerning crimping procedure and general tool usage. Then refer to selection chart shipped with connectors for proper connectors, cables, and cable strip lengths to use.

Basic instructions on the use of these dies are provided in Section 2, "Instructions." Section 4 contains "Maintenance and Inspection Procedure" which will enable you to establish and maintain a *die certification program*.

**2. INSTRUCTIONS**

**2.1 DIE INSTALLATION AND CRIMPING PROCEDURE**

- (a) Shut off air supply for pneumatic tool.
- (b) Each set of dies consists of a moving die and a stationary die. See Figure 1.
- (c) Position stationary die in stationary die holder. Take up on die holding screw enough to hold die in place. Do not tighten screw.
- (d) Position moving die in moving die holder. Take up on die holding screw enough to hold die in place. Do not tighten screw.
- (e) Connect air supply for pneumatic tool.
- (f) Actuate pneumatic tool, or if hand tool is used, close handles until dies bottom.
- (g) Tighten both die holding screws while dies are bottomed. See Figure 2.
- (h) Tool is now ready for operation.

**IMPORTANT: CHECK DIE ALIGNMENT AND TIGHTEN DIE HOLDING SCREWS AT LEAST TWICE DAILY WHILE IN USE.**

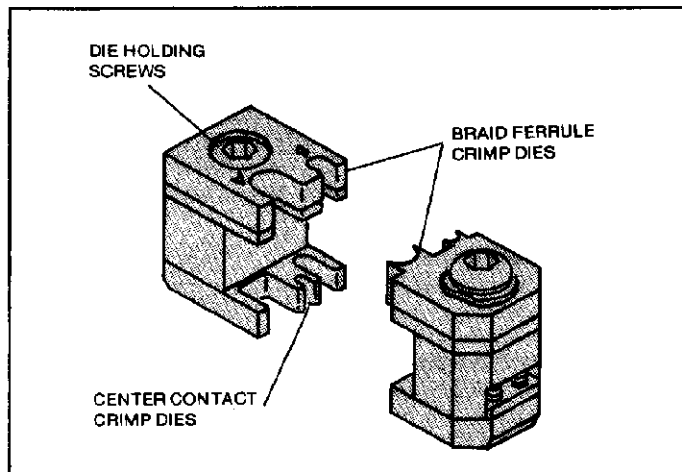


Figure 1

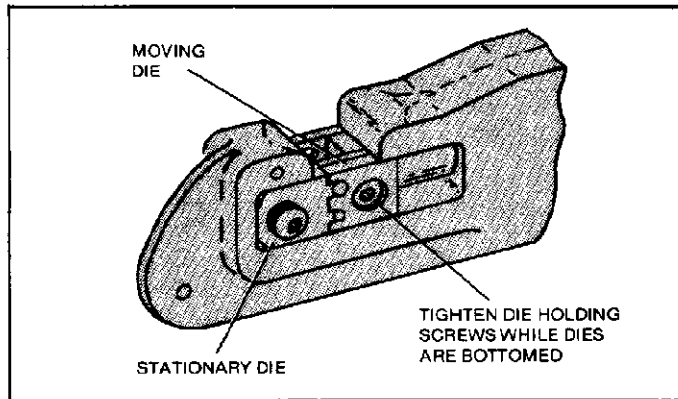


Figure 2

**2.2 CENTER CONTACT CRIMPING**

- (a) The die assemblies have two sets of crimping dies as shown in Figure 1. One set crimps the center contact; the other set crimps the braid ferrule.
- (b) Slip ferrule on cable, then strip cable and flare braid as shown on instructions packaged with connectors.
- (c) Open handles if hand tool is being used.
- (d) Place contact on locator as shown in Figure 3. Groove in contact must seat on locator.
- (e) Close tool handles, or advance manual take-up handle on pneumatic tool, to close dies just enough to hold contact in place without deforming wire barrel.
- (f) Insert cable center conductor into contact wire barrel. Cable dielectric should butt against contact. Avoid excess pressure which could move locator and mislocate crimp.
- (g) Close tool handles until ratchet releases, or apply power for pneumatic tool, to complete crimp.
- (h) Remove crimped contact from dies. (Apply light pressure on end of contact, if necessary, to ease removal of contact from crimping die.)

**2.3 FERRULE CRIMPING**

- (a) Insert crimped center contact into connector body until dielectric on cable butts against dielectric inside body. Flared braid fits around support sleeve. (Refer to instructions packaged with connectors.)
- (b) Slide ferrule forward over braid until ferrule butts against shoulder on connector body. Assembly is now ready to be crimped.
- (c) Place ferrule on stationary die so that shoulder on connector body butts against die. See Figure 4.

**NOTE:** *Braid crimps are designated A and B. Parts for larger size cables (55, 58A, etc.) are crimped in die "A". The 174, 188A, 316 sizes require the use of die "B" for braid crimp.*

- (d) Hold assembly in place and press trigger or close tool handles.
- (e) Remove crimped assembly from crimping dies.

All illustrations and information contained in this instruction sheet are based on the latest product information available at the time of publication.

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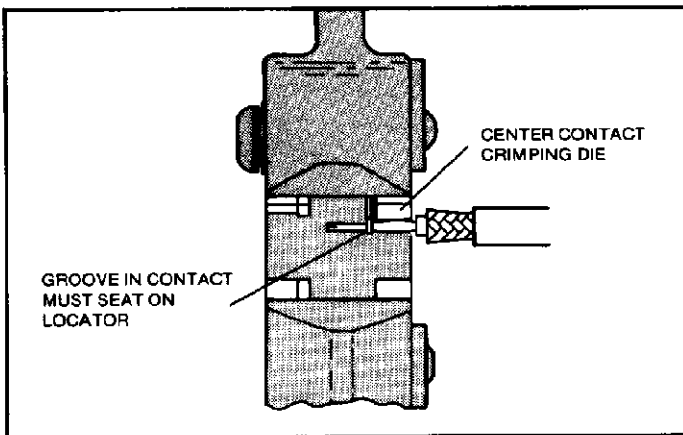


Figure 3

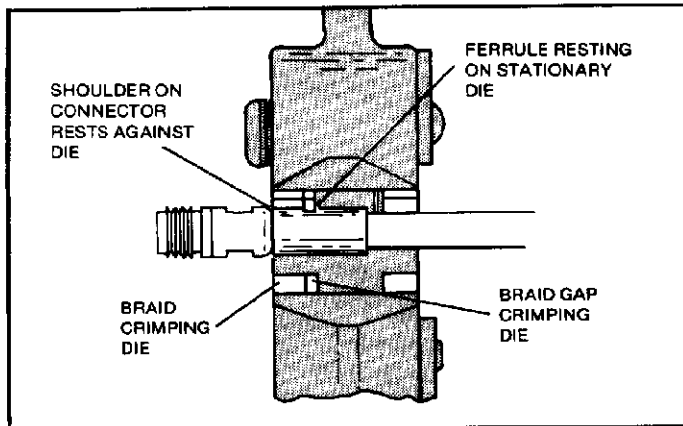


Figure 4

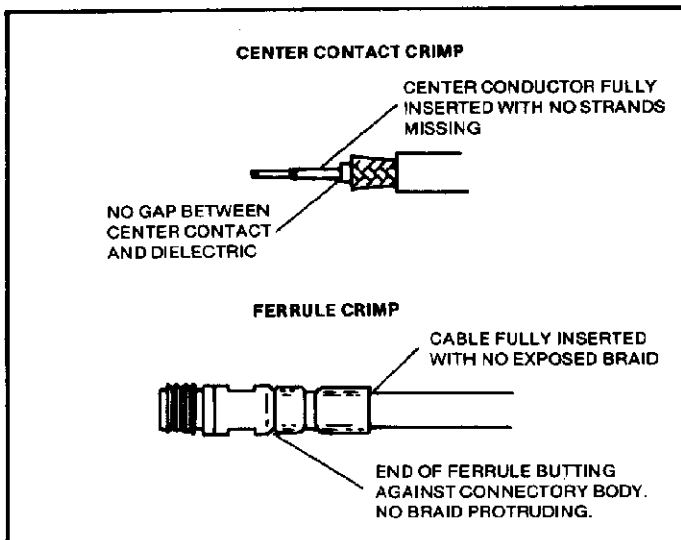


Figure 5

### 3. CRIMP INSPECTION

Inspect crimped connectors by checking for the features described in Figure 5. Use only the connectors that meet conditions shown. "REJECT" connectors can be avoided through careful use of instructions in Section 2 and by performing regular tool and die maintenance and inspection.

## 4. MAINTENANCE/INSPECTION PROCEDURE

AMP recommends that a maintenance/inspection program be performed periodically. This is necessary to assure that continued use of the dies will result in the same dependable and uniform terminations for which the dies were designed.

We recommend an initial frequency of inspection of once a month. This frequency may be adjusted to suit your requirements through experience. The frequency of an inspection is dependent upon:

1. The care, amount of use, and handling of the dies.
2. The type and size of the products crimped.
3. The degree of operator skill.
4. The presence of abnormal amounts of dust and dirt.
5. Your own established standards.

All AMP dies are thoroughly inspected before being shipped from the factory, however, since there is a possibility of die damage in shipment, AMP recommends that new dies be inspected in accordance with this section when received in your plant.

### 4.1 CLEANING

Do not allow deposits of dirt, grease and foreign matter to accumulate in the die closure area. These deposits may cause excessive wear in the die closure surfaces, thereby affecting the quality of the crimp. The dies should be wiped clean frequently with a clean cloth.

### 4.2 VISUAL INSPECTION

Visually inspect the die closure surfaces for broken, pitted or chipped areas. Although dies may gage within permissible limits, worn or damaged die closure surfaces are objectionable and can affect the quality of the crimp.

### 4.3 DIE CLOSURE INSPECTION

Every AMP die set is inspected and tested for proper die closure before being shipped from the factory. An inspection should, however, be performed periodically to measure the center contact and braid ferrule die closures.

Die closure inspection is accomplished using GO NO-GO plug gages. AMP neither manufactures nor sells plug gages, however, a suggested plug gage design is shown in Figure 6. The GO NO-GO dimensions of plug gages are listed in Figure 6. The following procedure is recommended for measuring the die closures.

- (a) Remove traces of oil or dirt from the die closure and plug gage members.
- (b) When using pneumatic tool, reduce air supply pressure to a range between 15-20 P.S.I. Actuate tool to bottom dies.

When using hand tool, close handles of tool until dies bottom. Do not apply additional pressure to tool handles.

- (c) With crimping dies bottomed, check the center contact wire barrel crimp die closure using the proper plug gage. Hold gage in straight alignment with the



SUGGESTED PLUG GAGE DESIGN						
CRIMP	DIE CLOSURE DIM'S. "A"†		GAGE MEMBER†† DIM'S.			
	GO	NO-GO	DIM. B		"W" MAX.	RADIUS "R" (MAX.)
CENTER CONTACT CRIMP	.0490	.0520	.0490-.0493	.0519-.0520	.021	.021
BRAID CRIMP B	.1080	.1150	.1080-.1083	.1149-.1150	.088	.044
BRAID GAP CRIMP B	.0920	.1010	.0920-.0923	.1009-.1010	.086	.052
BRAID CRIMP A	.2160	.2240	.2160-.2163	.2239-.2240	.182	.091
BRAID GAP CRIMP A	.1820	.1910	.1820-.1823	.1909-.1910	.176	.107

† DIE CLOSURE DIMENSIONS APPLY WHEN DIES ARE BOTTOMED, BUT NOT UNDER PRESSURE.

†† MATERIAL — TOOL STEEL

Figure 6

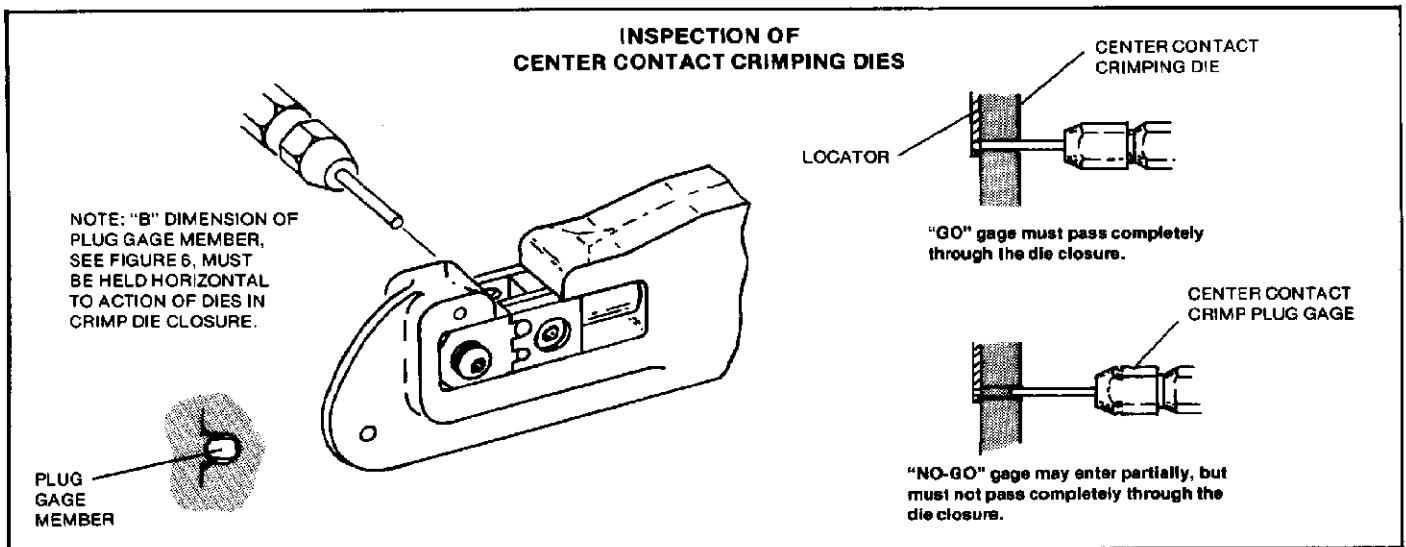


Figure 7

dies and carefully try to insert, without forcing, the GO element, and then the NO-GO element. See Figure 7. The GO element must pass completely through the barrel crimp die closure.

- (d) Check the braid gap crimp die closure, using the proper plug gages, in the same manner as step (c). See Figure 8, Detail B.
- (e) Repeat above procedure, using the proper plug gage for the braid crimp dies. See Figure 8, Detail A. Note that the GO element for the braid crimp die gage cannot be inserted beyond the braid gap crimp dies since they have a smaller opening.
- (f) If all dies meet the GO NO-GO gage conditions, the dies may be considered dimensionally correct.
- (g) If you find that the crimping dies do not conform with the GO NO-GO gage conditions, contact your local AMP field representative.

#### 4.4 CERTI-CRIMP ★ RATCHET INSPECTION

The CERTI-CRIMP ratchet feature on AMP hand tools should be checked to make certain that the ratchet does not release prematurely allowing dies to open before dies have fully bottomed.

To check ratchet feature:

- (a) Make a test crimp. When this crimp is made, squeeze handles until the ratchet is free, however, DO NOT RELAX PRESSURE ON TOOL HANDLES.
- (b) Bottoming is satisfactory if bottoming surfaces of the dies make contact with each other or if the clearance between the bottoming surfaces is .001" or less.
- (c) If the .001" shim stock can be inserted completely between the bottoming surfaces of the dies, the dies are considered as not bottoming. Contact your local AMP field representative.

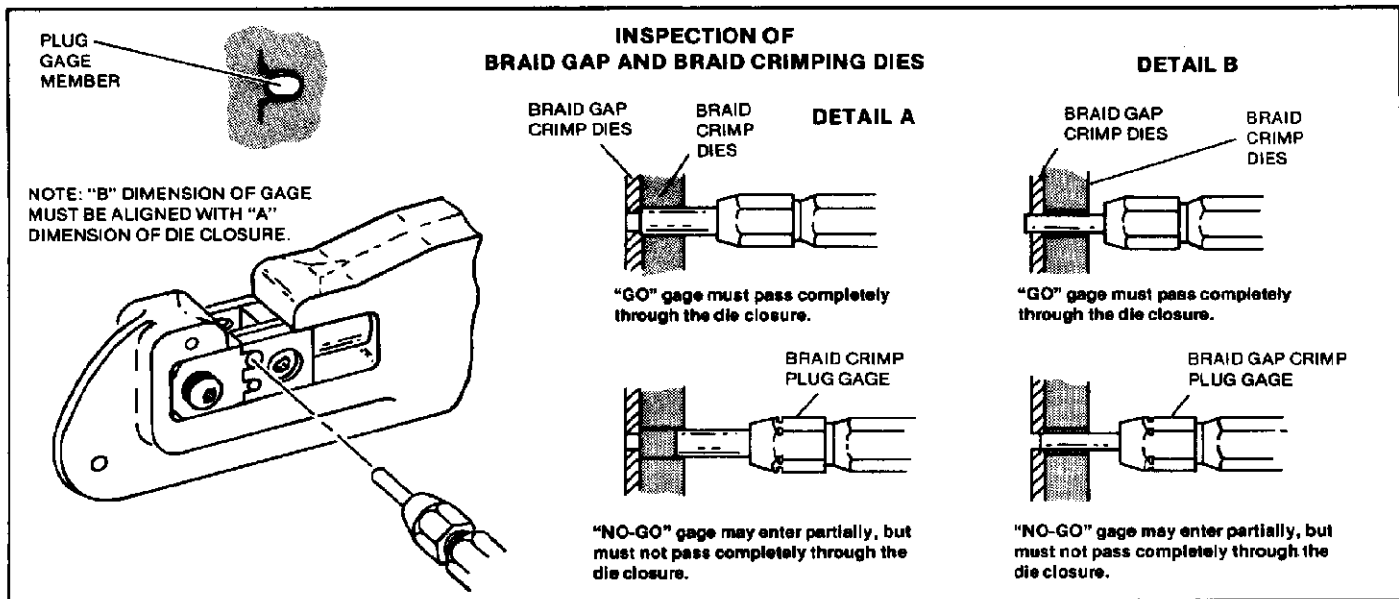
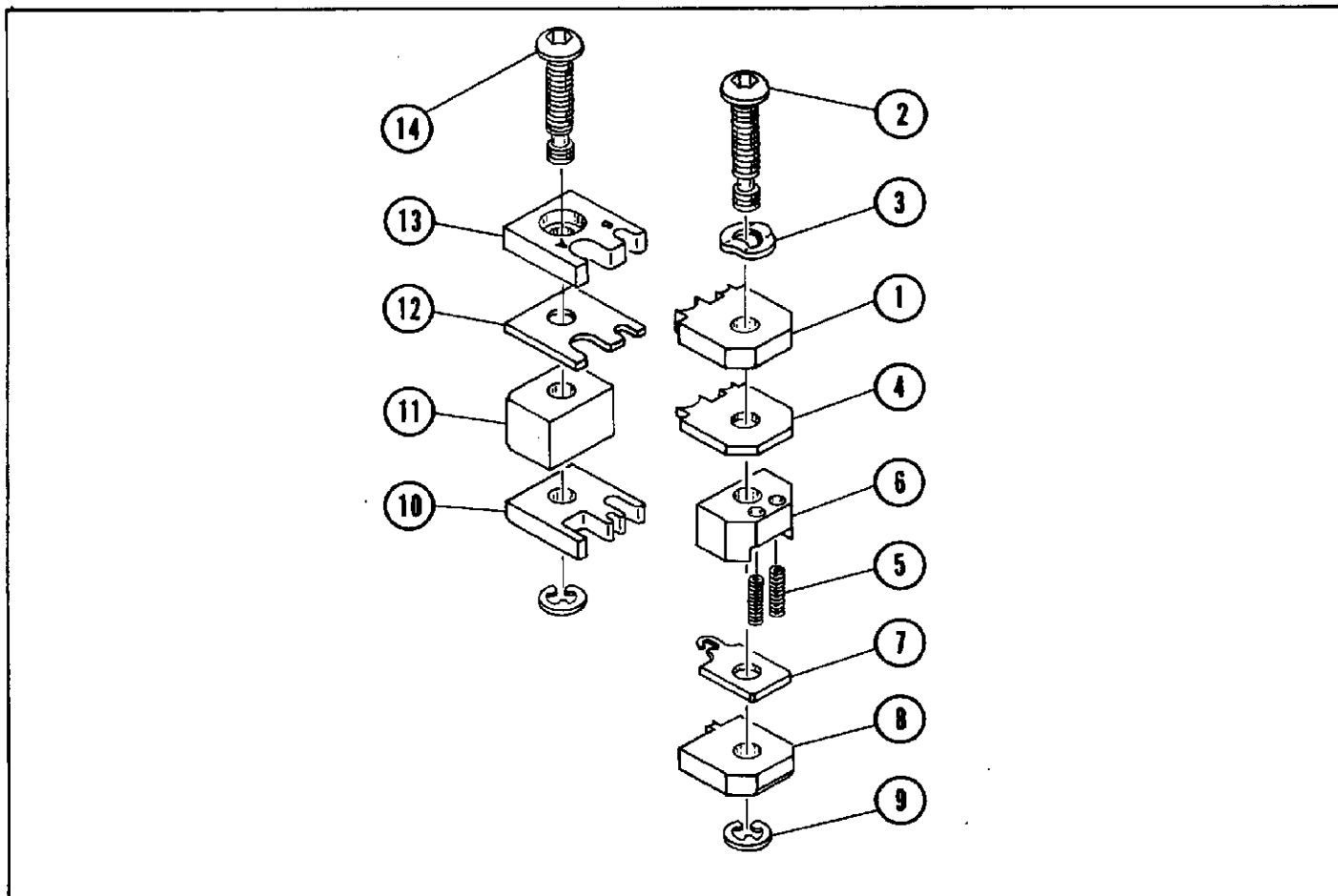


Figure 8

#### 4.5 REPLACEMENT PARTS

It may be advantageous to stock certain replaceable parts to prevent loss of production time. Figure 9

lists the customer replaceable parts that can be purchased from AMP Incorporated, Harrisburg, Pa., or a wholly owned subsidiary of AMP Incorporated.



ITEM	DESCRIPTION	QUANTITY	PART NO.
1	ANVIL,BRAID	1	308397-1
2	SCREW, SPECIAL	1	306105-7
3	WASHER,CURVED	1	24088-7
4	ANVIL,BRAID GAP	1	308398-1
5	SPRING (LENGTH CUT TO .375)	2	5-304668-2
6	SPACER,UPPER	1	308404-1
7	LOCATOR	1	308401-1
8	ANVIL,CENTER CONTACT	1	308402-1
9	RING,RETAINING	2	1- 21046-3
10	INDENTER,CENTER CONTACT	1	308403-1
11	SPACER,LOWER	1	2- 59676-8
12	INDENTER,BRAID GAP	1	308399-1
13	INDENTER,BRAID	1	308400-1
14	SCREW,SPECIAL	1	306592-1

Figure 9

REL. DATE	REV. DATE	APPROVALS	
2-11-76		ENG <i>Tom Stambaugh</i>	PUB. <i>Paul Felty</i>