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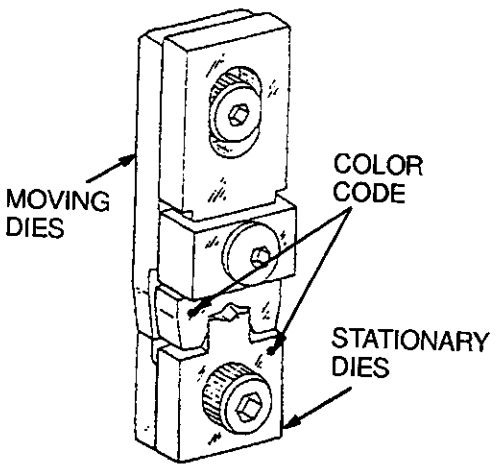
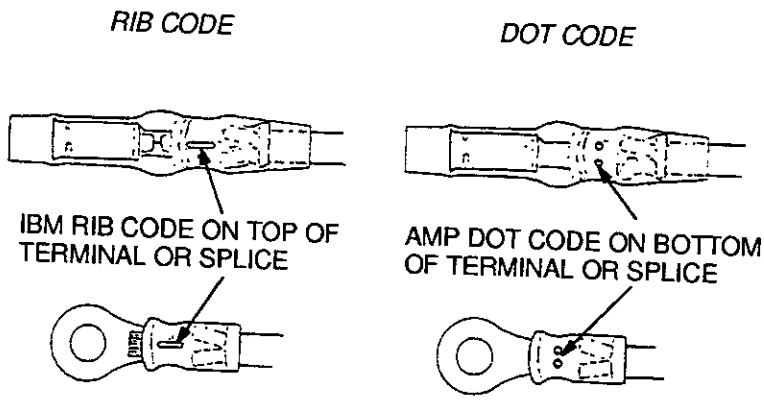
AMP* CRIMPING DIE ASSEMBLIES 69891, 69894, AND 314303-1 (RESTRICTED TO IBM AND IBM SUB-CONTRACTORS)

IS 2243

RELEASED
5-27-92





WIRE RANGE (mm² [AWG]) and DIE NO.	MACHINE NUMBER	COLOR AND DOT CODE	IBM (COM) CRIMP CODE	WIRE STRIP LENGTH			
				TERMINALS		SPLICES	
				MIN.	MAX.	MIN.	MAX.
0.05 - 0.13 mm² [30 - 26 AWG] 69891	69875-[ ]	YELLOW NO DOT CODE	SINGLE RIB	4.76 mm [.188]	5.56 mm [.219]	4.37 mm [.172]	5.16 mm [.203]
1.30 - 2.00 mm² [16 - 14 AWG] 69894	69875-[ ] and AMPOMATOR* IV B	BLUE 2 DOTS	SINGLE RIB	5.95 mm [.234]	6.75 mm [.266]	6.35 mm [.250]	7.14 mm [.281]
3.00 - 5.00 mm² [12 - 10 AWG] 314303-1	69875-[ ]	YELLOW 1 DOT	SINGLE RIB	7.94 mm [.313]	8.73 mm [.344]	8.73 mm [.344]	9.53 mm [.375]

Fig. 1

71-190A

1. INTRODUCTION

This Instruction Sheet (IS) covers the use and care of AMP Crimping Die Assemblies 69891, 69894, and 314303-1. These dies are used to crimp PIDG* terminals and splices on stranded copper wire with a wire size of 0.05-5.00 mm² [30-10 AWG]. These dies are designed to be used in the AMP-TAPETRONIC* Machine No. 69875-[ ] and AMPOMATOR Machine Mod. IV B as indicated in the chart in Figure 1.

For complete instructions concerning the related tooling, refer to Customer Manual 1993 packaged with Machine No. 69875-[ ], or Customer Manual 5290 packaged with the AMPOMATOR Machine Mod. IV B. These manuals include further instructions on tooling adjustments, die installation, tape loading, maintenance, etc.

Read this sheet thoroughly before installing or using the die assemblies.

NOTE

All dimensions on this sheet are in millimeters [with inches in brackets]. Figures and illustrations are for identification only, and are NOT drawn to scale.

2. DESCRIPTION

These die assemblies consist of two stationary dies and two movable dies. These features allow one set of dies to crimp the wire barrel while crimping the insulation simultaneously.

Refer to Catalog 82042 for complete PIDG product information and features.

*Trademark of AMP Incorporated

DANGER *AVOID PERSONAL INJURY. Always disconnect machine from power supply before performing adjustments, die installation or removal, and machine maintenance. Always keep guards and covers in place during normal machine operation.*

3. WIRE PREPARATION AND CRIMP INSTRUCTIONS

Figure 1 lists the preferred wire strip lengths for products discussed in this publication. However, depending on your wire stripping machine adjustment (strip length) capabilities, wire strip length may be increased to the nearest 0.8 mm [1/32 in.] if necessary.

NOTE *Do not use wires with nicked or missing conductor strands.*

Refer to the respective machine manual for crimp instructions.

4. COLOR AND DOT CODE

Dies, terminals, and splices are color–coded for a given wire range as shown in Figure 1. Dot coding is used as a method of verifying that the correct combination of die set and terminal or splice was used. Properly crimped terminals or splices will display dot code on the bottom and IBM† rib code on top as shown in Figures 1 and 2.

NOTE *Die No. 69891 does not contain a dot code.*

5. CRIMP INSPECTION

Inspect crimped terminals and splices by checking the features described in Figure 2.

Use only the terminals and splices that meet conditions shown in the "ACCEPT" column.

"REJECT" terminals and splices can be avoided through careful use of instructions provided in the machine manual and by performing regular die maintenance as instructed in Paragraph 6 of this Instruction Sheet.

6. DIE MAINTENANCE/INSPECTION PROCEDURE

DANGER *Disconnect power supply from tooling before any inspection, maintenance, adjustment, or repair.*

† IBM is a trademark of International Business Machines Corporation

AMP recommends that a maintenance/inspection program be performed periodically to ensure dependable and uniform terminations. Frequency of inspection may be adjusted to suit your requirements through experience.

Frequency of inspection depends upon:

1. The care, amount of use, and handling of the dies.
2. Type and size of products being crimped.
3. Skill level of the operator.
4. Presence of abnormal amounts of dust and dirt.
5. Your own established standards.

6.1. Initial Die Inspection

The dies are thoroughly inspected before shipping. The dies should be inspected immediately upon arrival at your facility to ensure the dies have not been damaged during shipment, and that they conform to Figure 7. If the dies are damaged upon arrival, retain the shipping container, file a claim with the carrier, and notify AMP Incorporated immediately.

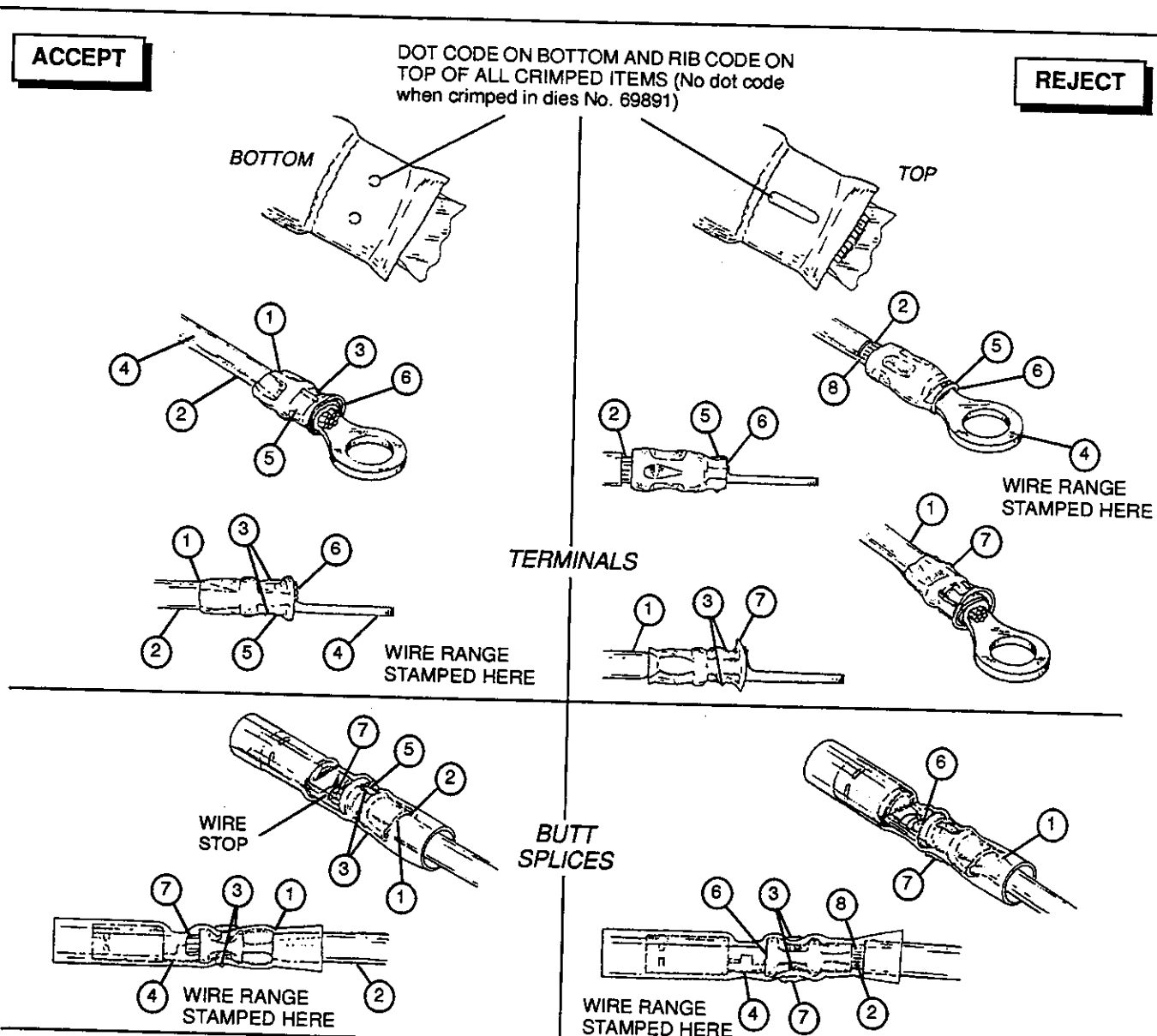
6.2. Daily Maintenance

It is recommended that each operator of the dies be made aware of — and responsible for — the following four steps of daily maintenance.

1. Remove dust, moisture, and other contaminants from the dies with a clean brush, or a soft, lint–free cloth. Do **NOT** use objects that could damage the dies.
2. Check the die alignment and tighten the die holding screws regularly.
3. Make certain the dies are protected with a THIN coat of any good SAE No. 20 motor oil. Do **NOT** oil excessively.
4. When the dies are not in use, store them in a clean, dry area.

6.3. Periodic Inspection

Regular inspections should be performed by quality control personnel. A record of scheduled inspections should remain with the dies and/or be supplied to supervisory personnel responsible for the dies. Though recommendations call for at least one inspection a month, the inspection frequency should be based on the amount of use, ambient working conditions, operator training and skill, and established company standards. These inspections should be performed in the following sequence:



(1) Insulation barrel is in firm contact with wire insulation.

(2) Wire fully inserted.

(3) Correct color code, dot and rib code, and die combination.

(4) Wire size is within wire range stamped on terminal tongue or splice.

(5) Crimp centered on wire barrel.

(6) End of conductor is flush with, or extends slightly beyond end of terminal wire barrel.

(7) End of conductor against wire stop of splice.
NOTE: If conductor is not against wire stop, conductor must at least be flush with, or extend beyond wire barrel of splice.

(1) Wire insulation extruded. (Insulation crimp too tight.) See machine manual for insulation crimp adjustment.

(2) Wire not fully inserted.

(3) Wrong dot or rib code and color code combination. See chart, Figure 1.

(4) Wire size is not within wire range stamped on terminal tongue or splice.

(5) Crimp not centered on wire barrel. See machine manual for terminal positioning and crimp location adjustments.

(6) End of conductor is not flush with or extending slightly beyond end of wire barrel. (Check for correct strip length.)

(7) Excessive flash or extruded insulation (wrong terminal, or splice combination used, or damaged dies).

(8) Nicked or missing conductor strands.

Fig. 2

71-190B

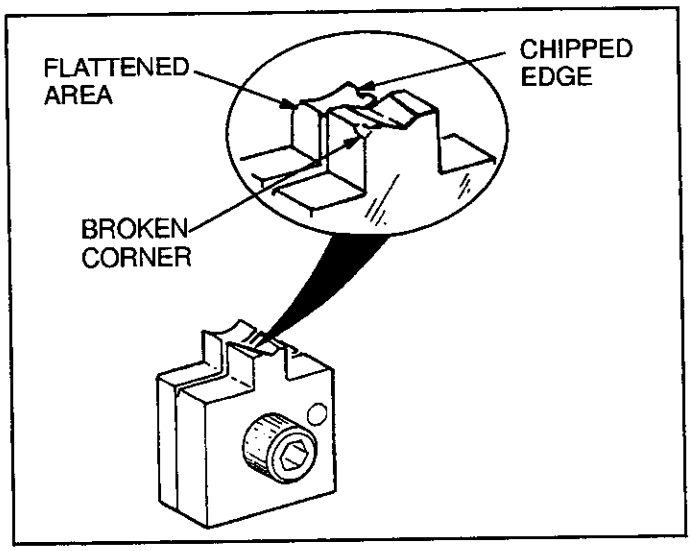


Fig. 3 71–188

6.4. Visual Inspection

1. Remove all lubrication and accumulated film by immersing the dies in a suitable commercial degreaser that will not affect paint or plastic material.

2. Make sure all die holding screws, retaining rings, and die components are in place. Refer to the parts list in Figure 7 if replacements are necessary.

3. Check all bearing surfaces for wear. Remove and replace worn components.

4. Inspect the crimp area for flattened, chipped, cracked, worn, or broken areas. Although dies may gage within permissible limits, worn or damaged die closure surfaces are objectional and can affect the quality of the crimp. See Figure 3. If damage is evident, the dies must be repaired before returning them to service (See Paragraph 7, DIE REPLACEMENT AND REPAIR).

6.5. Die Closure Inspection

Every die assembly is inspected for proper die closure dimensions before packaging. However, inspection of die closure for excessive wear is required periodically. Die closure inspection is accomplished using plug gages. AMP neither manufactures nor sells plug gages. A suggested plug gage design and the GO and NO–GO dimensions for plug gage elements are given in Figures 4 and 5. For additional information concerning the use of a plug gage, refer to IS 7424.

Clean oil or dirt from the die closure surfaces, bottoming surfaces, and plug gage elements.

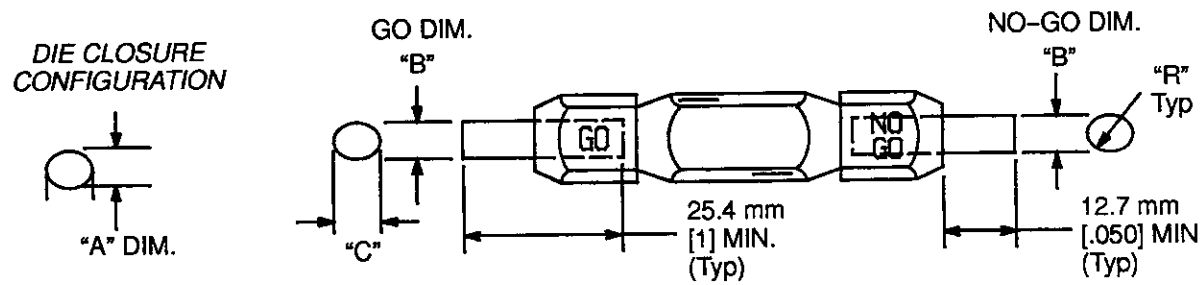
A. Wire Barrel Crimp Die Closure

1. Assemble dies so that wire barrel crimp dies are bottomed but not under pressure.

2. With wire barrel crimp dies bottomed, inspect the wire barrel crimp die closure using the proper plug gage. Hold gage in straight alignment with the die closure and carefully insert, without forcing, the GO element. See Figure 6A. The GO element must pass completely through the wire barrel crimp die closure.

3. Try to insert the NO–GO element. The NO–GO element may enter partially, but must not pass completely through the wire barrel crimp die closure. See Figure 6A.

SUGGESTED PLUG GAGE DESIGN – WIRE BARREL



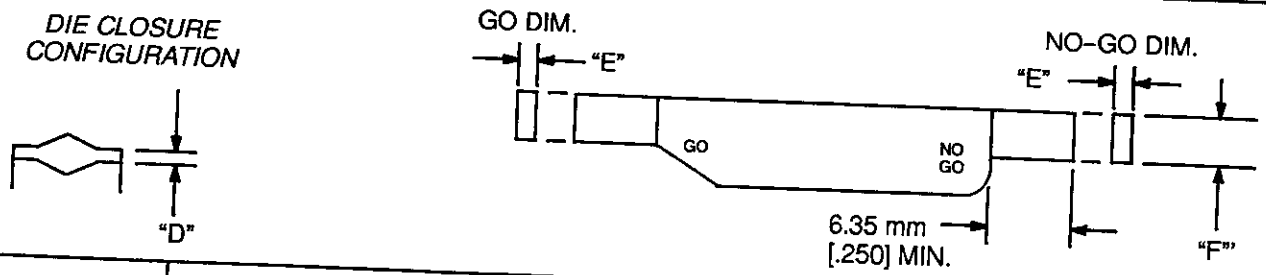
DIE SET NUMBER	DIE CLOSURE DIM'S "A"•		GAGE ELEMENT†† DIM'S "B"		"C" DIM.	"R" DIM.
	GO	NO–GO	GO	NO–GO		
69891	1.44 mm [.057]	1.60 mm [.063]	1.44 – 1.45 mm [.0570 – .0573]	1.59 – 1.60 mm [.0629 – .0630]	2.69 mm [.106]	2.03 mm [.080]
69894	2.89 mm [.114]	2.99 mm [.118]	2.89 – 2.90 mm [.1140 – .1143]	2.99 – 3.00 mm [.1179 – .1180]	4.57 mm [.180]	3.86 mm [.152]
314303–1	4.08 mm [.161]	4.19 mm [.165]	4.08 – 4.09 mm [.1610 – .1613]	4.18 – 4.19 mm [.1649 – .1650]	5.84 mm [.230]	4.57 mm [.180]

†† Material—Tool Steel.
• Die closure dimensions apply when wire barrel crimp dies are bottomed but not under pressure.

200–001E

Fig. 4

SUGGESTED PLUG GAGE DESIGN – INSULATION CRIMP



DIE SET NUMBER	DIE CLOSURE DIM'S "D"■		GAGE ELEMENT†† DIM'S "E"		"F" DIM.
	GO	NO-GO	GO	NO-GO	
69891	0.35 mm [.014]	0.86 mm [.034]	0.35 – 0.36 mm [.0140 – .0143]	0.86 – 0.87 mm [.0339 – .0340]	2.28 mm [.090]
69894	1.01 mm [.040]	1.52 mm [.060]	1.01 – 1.02 mm [.0400 – .0403]	1.52 – 1.53 mm [.0599 – .0600]	4.82 mm [.190]
314303-1	1.62 mm [.064]	2.13 mm [.084]	1.62 – 1.63 mm [.0640 – .0643]	2.13 – 2.14 mm [.0839 – .0840]	6.35 mm [.250]

†† Material—Tool Steel.
■ Die closure dimensions apply when dies are positioned at gage dimensions as shown in Figure 6B.

Fig. 5

200-001E

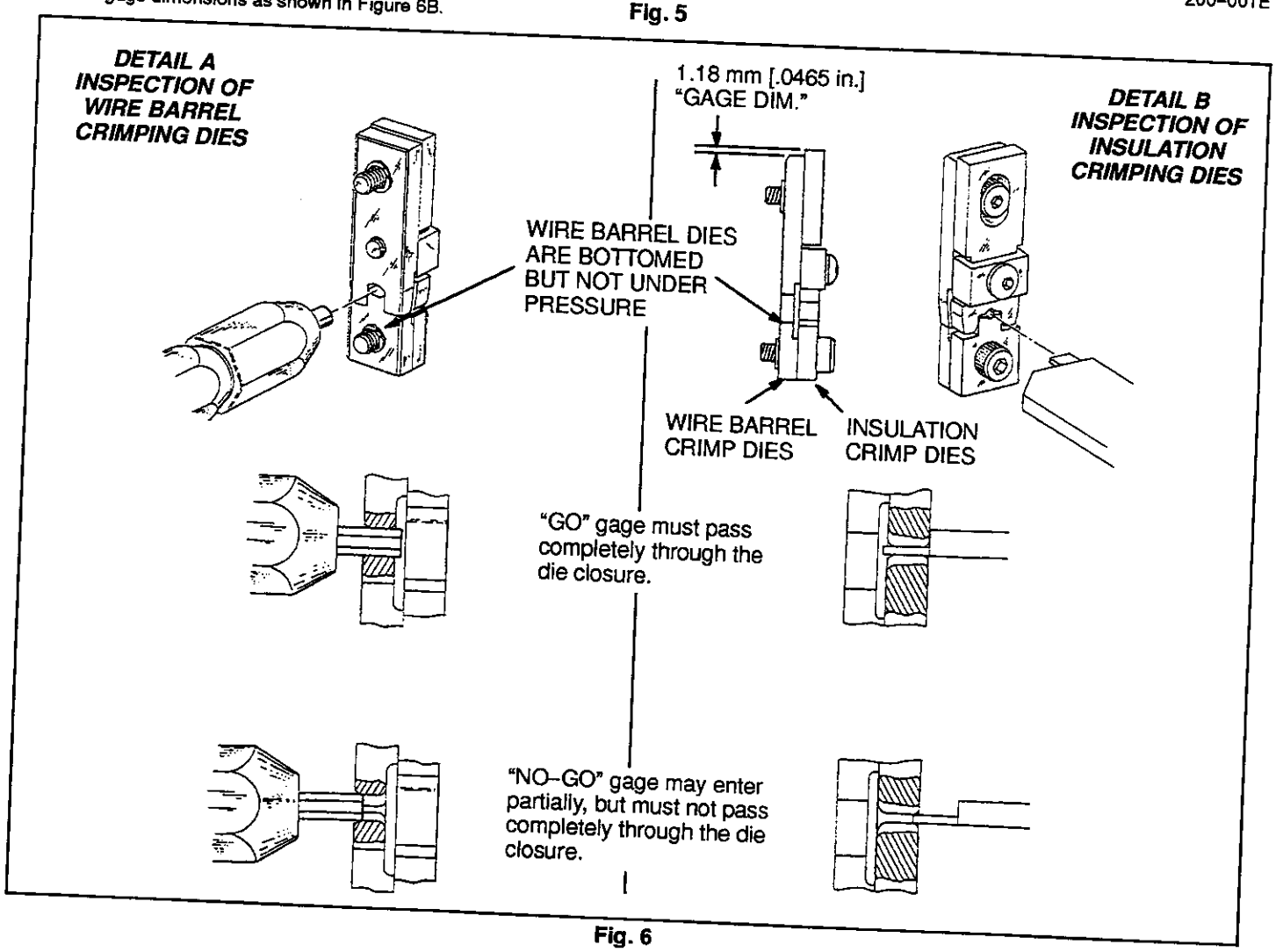


Fig. 6

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B. Insulation Crimp Die Closure

1. With wire barrel crimp dies bottomed and not under pressure, adjust dies to meet the "gage dimension" as shown in Figure 6B.

2. Inspect the insulation crimp die closure using the proper plug gage in the same manner as steps 6.5.A. (2) and (3).

If both wire barrel and insulation crimp die closures meet the plug gage conditions, the dies are considered to be correct and should be lubricated with a THIN coat of any good SAE No. 20 motor oil. If not, the dies must be repaired before returning them to service (See Paragraph 7, DIE REPLACEMENT AND REPAIR).

7. DIE REPLACEMENT AND REPAIR

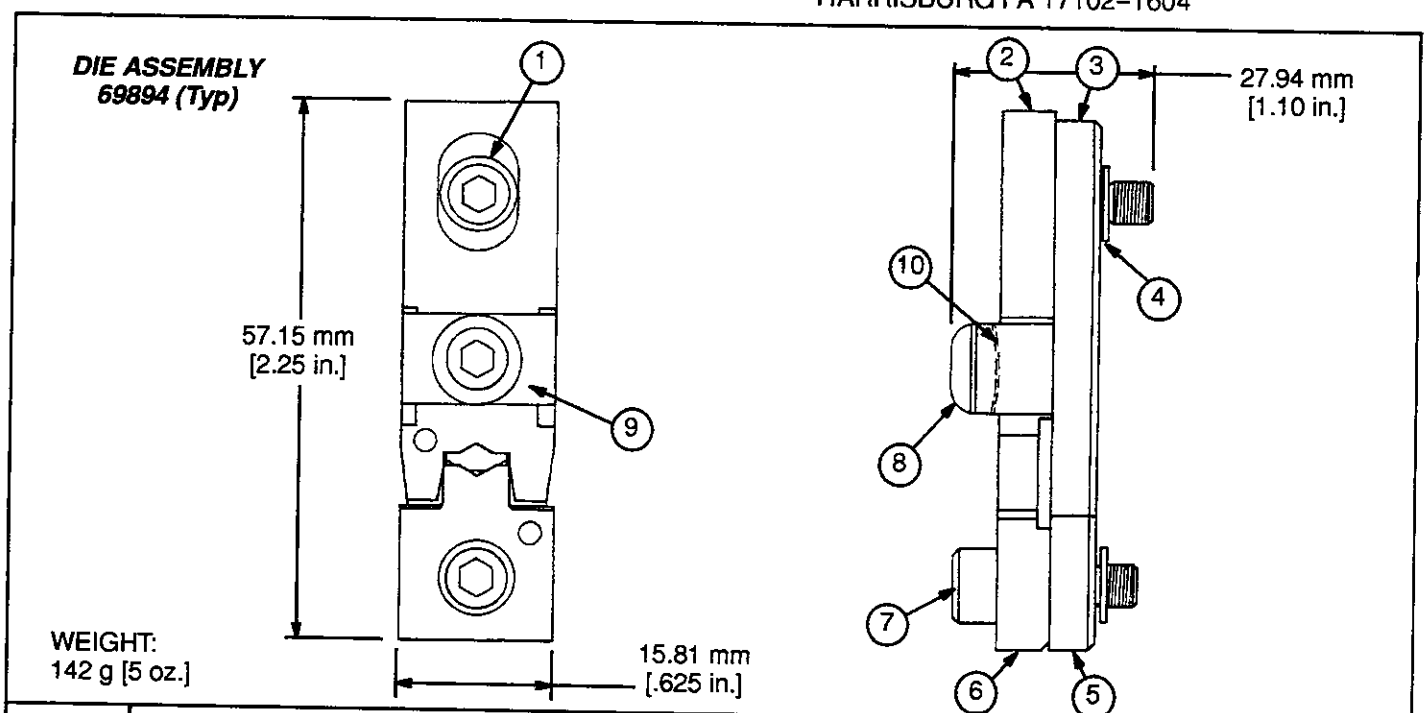
CAUTION *Due to their precision design, it is important that no parts of these dies are interchanged.*

The parts listed in Figure 7 are customer-replaceable. A complete inventory can be stocked and controlled to prevent lost time when replacement of parts is necessary. Replacement parts or additional dies can be ordered by contacting:

CUSTOMER SERVICE (38-35)
AMP INCORPORATED
P.O. BOX 3608
HARRISBURG PA 17105-3608

The dies can also be returned to AMP Incorporated for evaluation and repair. Ship the dies with a written description of the problem to:

CUSTOMER REPAIR (01-12)
AMP INCORPORATED
1523 NORTH 4TH STREET
HARRISBURG PA 17102-1604



ITEM	DESCRIPTION	QTY	DIE SET NUMBERS		
			69891	69894	314303-1
1	SCREW	1	59781-4	59781-2	59781-1
2	INSULATION DIE (MOVING)	1	307285-5	307285-8	307276-1
3	WIRE BARREL DIE (MOVING)	1	307079-1	307079-4	852051-1
4	RING, RETAINING	2	1-21046-3	1-21046-3	1-21046-3
5	WIRE BARREL DIE (STATIONARY)	1	1-59615-7	1-59615-5	852050-1
6	INSULATION DIE (STATIONARY)	1	1-59619-3	2-59619-0	1-59619-2
7	SCREW	1	59781-9	1-59781-0	59781-5
8	SCREW	1	3-59577-1	2-21002-7	2-59577-8
9	SADDLE	1	1-307275-1	1-307275-2	1-307275-0
10	WASHER, CURVED	1	24088-8	24088-8	24088-8

Fig. 7

71-192A