

PROPER USE GUIDELINES

Cumulative Trauma Disorders can result from the prolonged use of manually powered hand tools. AMP hand tools are intended for occasional use and low volume applications. AMP offers a wide selection of powered application equipment for extended-use, production operations.

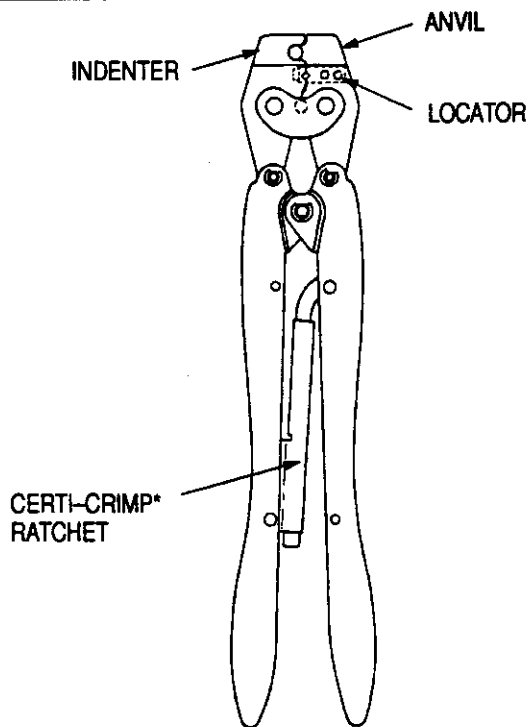


Figure 1

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1. INTRODUCTION

This instruction sheet covers the use of AMP Hand Crimping Tool 220009-2 (see Figure 1) which is designed to apply AMP 50-Ohm RF Series BNC Coaxial Connectors (listed in Figure 2) to 2.54-mm [.100-in.]-center ribbon coaxial cable. Read these instructions thoroughly before using the tool.

Reasons for reissue are provided in Section 6, REVISION SUMMARY.

NOTE

Dimensions on this sheet are in millimeters [with inches in brackets].

2. DESCRIPTION

The tool (shown in Figure 1) features two crimping sections (contained within the indenter and anvil jaws), a locator, and a CERTI-CRIMP ratchet.

One crimping section is used to crimp the connector ferrule and the other section is used to crimp the center contact.

The locator aids in positioning the center contact in the crimping dies.

The CERTI-CRIMP ratchet assures full crimping of the contact. Once engaged, the ratchet will not release until the handles have FULLY closed.

CAUTION

The crimping dies bottom before the CERTI-CRIMP ratchet releases. This design feature assures maximum electrical and tensile performance of the crimp. Do NOT re-adjust the ratchet.

3. CRIMPING PROCEDURE

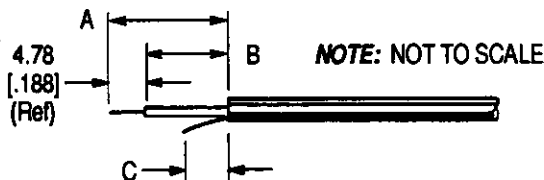
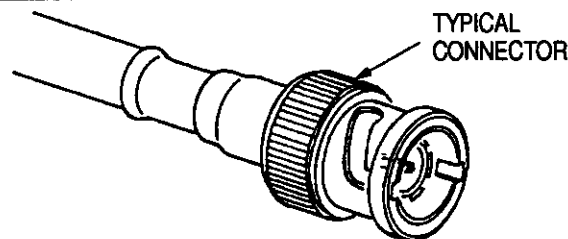
NOTE

Each hand tool is coated with a preservative to prevent rust or corrosion. Wipe this preservative from the tool, particularly from the crimping jaws, before using the tool.

The crimping procedure requires two separate crimps. First, the center contact must be crimped to the center conductor of the ribbon coaxial cable; then the ferrule is crimped to the cable and connector.

3.1. Crimping the Center Contact

1. Separate individual cable to the length required, slide the ferrule onto the cable, and strip the cable to the dimensions shown in Figure 2. Remove the foil around the exposed dielectric.



CONNECTOR TYPE	PART NUMBER	CABLE STRIP DIM. $\pm .41$ [$\pm .016$]		
		A	B	C
Plug	2-227079-2	15.88	11.13	5.56
Jack	225396-8	[.625]	[.438]	[.219]
Pnl Jk	225397-8			
Bhd Jk	225398-8	19.84 [.781]	15.09 [.594]	5.56 [.219]

Figure 2

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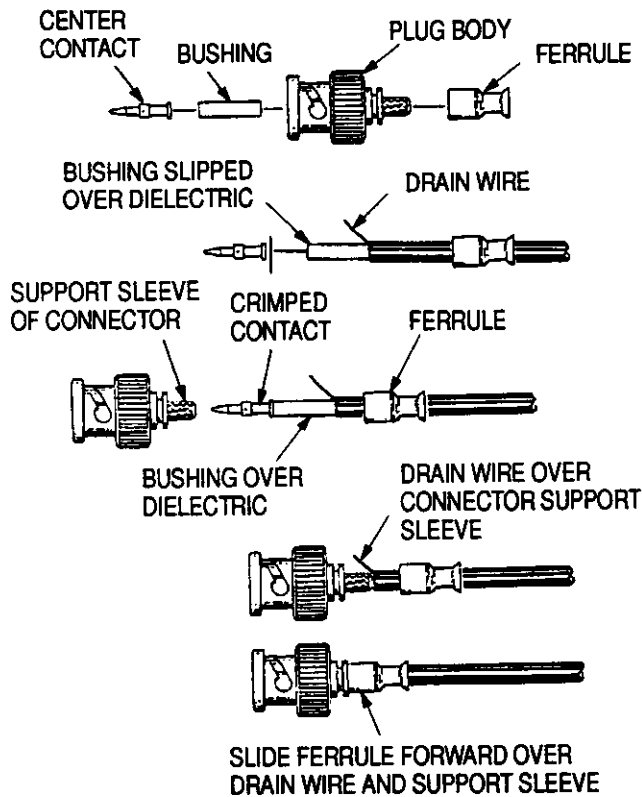


Figure 3

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2. Slip the bushing over the dielectric and under the drain wire, as shown in Figure 3.
3. Open the tool's jaws by squeezing the handles until the ratchet releases and then allow the handles to open FULLY.
4. Insert the center contact in the tool head as shown in Figure 4.

FLANGE ON CONTACT RESTS ON LOCATOR BUSHING HAS BEEN SLIPPED OVER DIELECTRIC

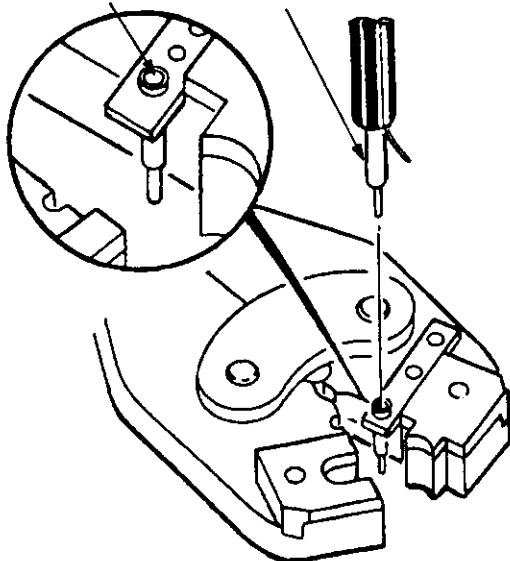


Figure 4

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5. Close tool handles until the contact is held firmly in place. Do not deform the wire barrel.
6. Insert the cable center conductor into the contact wire barrel until the cable dielectric and bushing butt against the contact.
7. To complete crimp, close handles until ratchet releases. Allow handles to open fully and remove crimped contact.

3.2. Crimping the Ferrule

NOTE

Dual-wall, heat-shrink tubing may be used to provide additional cable support. Slide a section of heat-shrink tubing onto the cable. The tubing should be long enough to extend from the applied connector body to a minimum of 12.7-mm [1/2-inch] over the cable jacket.

1. Insert the crimped center contact into the connector body until it bottoms. Make sure that the cable drain wire is positioned over the connector body support sleeve, as shown in Figure 3.
2. Slip the ferrule forward over the drain wire until the ferrule butts against the connector body.
3. Position the connector assembly in the tool, as shown in Figure 5.

TYPICAL CONNECTOR

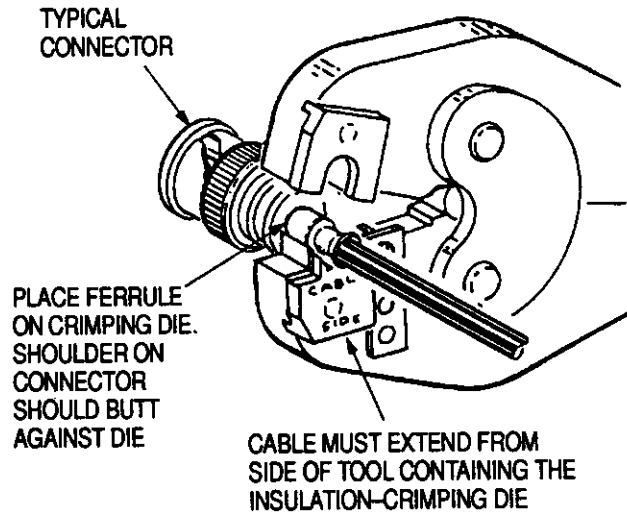


Figure 5

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4. To complete crimp, hold assembly in place and close handles until ratchet releases. Handles will open automatically and crimped ferrule may be removed.

If heat-shrink tubing is used, slide the tubing up against the connector body and apply heat with an appropriate heat source. Refer to Figure 6 for recommended cut-out dimensions for panel and bulkhead mount jacks.

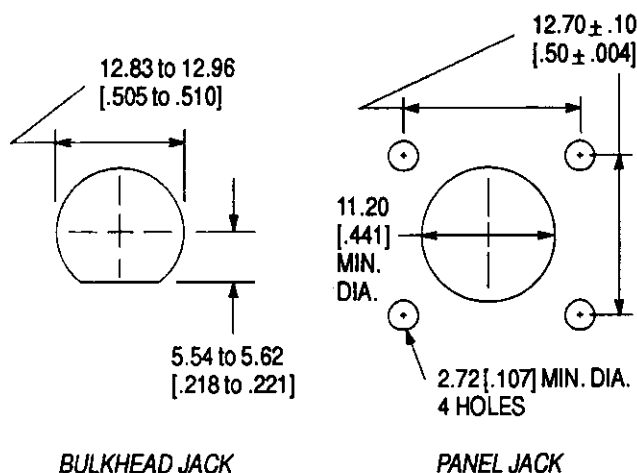
RECOMMENDED PANEL CUT-OUT DIMENSIONS

Figure 6

4. MAINTENANCE AND INSPECTION PROCEDURE

AMP recommends that a maintenance and inspection program be performed periodically to ensure dependable and uniform terminations. Frequency of inspection depends on:

1. The care, amount of use, and handling of the hand tool.
2. The presence of abnormal amounts of dust and dirt.
3. The degree of operator skill.
4. Your own established standards.

The hand tool is inspected before being shipped; however, AMP recommends that the tool be inspected immediately upon its arrival at your facility to ensure that the tool has not been damaged during shipment. Due to the precision design, it is important that no parts of these tools be interchanged except those replacement parts listed in Figure 10.

4.1. Daily Maintenance

1. Remove dust, moisture, and other contaminants with a clean brush, or a soft, lint-free cloth. Do NOT use objects that could damage the tool.
2. Make certain that the retaining pins are in place and that they are secured with retaining rings.
3. All pins, pivot points, and bearing surfaces should be protected with a thin coat of any good SAE No. 20 motor oil. Do not oil excessively.
4. When the tool is not in use, keep handles closed to prevent objects from becoming lodged in the crimping dies. Store the tool in a clean, dry area.

4.2. Lubrication

Lubricate all pins, pivot points, and bearing surfaces with SAE No. 20 motor oil as follows:

- Tools used in daily production – lubricate daily
- Tools used daily (occasional) – lubricate weekly
- Tools used weekly – lubricate monthly

Wipe excess oil from tool, particularly from crimping area. Oil transferred from the crimping area onto certain terminations may affect the electrical characteristics of an application.

4.3. Periodic Inspection

1. Hand tool should be immersed (handles partially closed) in a reliable commercial degreasing compound to remove accumulated dirt, grease, and foreign matter.
2. Close tool handles until ratchet releases and then allow them to open freely. If they do not open quickly and fully, the spring is defective and must be replaced. See Section 5, REPLACEMENT AND REPAIR.
3. Inspect head assembly for worn, cracked, or broken dies. If damage is evident, return the tool to AMP for evaluation and repair. See Section 5, REPLACEMENT AND REPAIR.

4.4. Crimping Die Closure Inspection

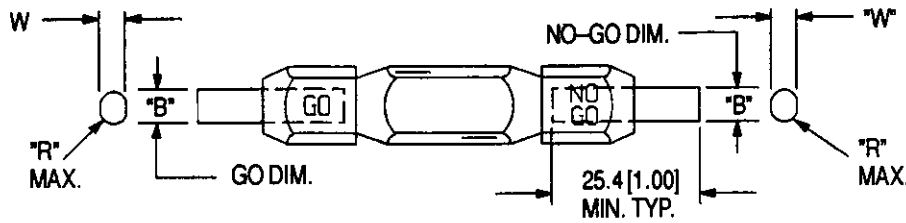
This inspection requires the use of two plug gages conforming to the dimensions shown in Figure 7. AMP does not manufacture or market these gages.

To gage die closure, refer to Figure 7 and Figure 8 and proceed as follows:

1. Remove traces of oil or dirt from the crimping chamber and plug gage.
2. Close the tool handles until it is evident that the jaws have bottomed; then hold in this position. Do NOT force the jaws beyond initial contact.
3. Align the GO element with the appropriate crimping chamber. Push element straight into the crimping chamber without using force. The GO element must pass completely through the crimping chamber.
4. Check with the NO-GO element in the same manner as step 3. The NO-GO element may start entry, but must not pass completely through the crimping chamber.
5. Check the other crimping chamber by repeating Steps 2 through 4 using the appropriate plug gage.

If die closure conforms to the gage inspection, the crimping chambers are considered dimensionally correct. If correct, the tool should be lubricated with a thin coat of any good SAE No. 20 motor oil and

SUGGESTED PLUG GAGE DESIGN



CRIMP AREA	GAGE ELEMENT DIMENSIONS			
	DIMENSION "B"		"W" MAX.	RADIUS "R" (MAX)
	GO	NO-GO		
Ferrule (Insul)	2.718 to 2.725 [.1070 to .1073]	2.969 to 2.972 [.1169 to .1170]	2.29 [.090]	1.14 [.045]
Ferrule	4.242 to 4.249 [.1670 to .1673]	4.392 to 4.394 [.1729 to .1730]	4.06 [.160]	2.03 [.080]

Figure 7

INSPECTION OF FERRULE CRIMPING SECTION

INSPECTION OF FERRULE (INSULATION) CRIMPING SECTION

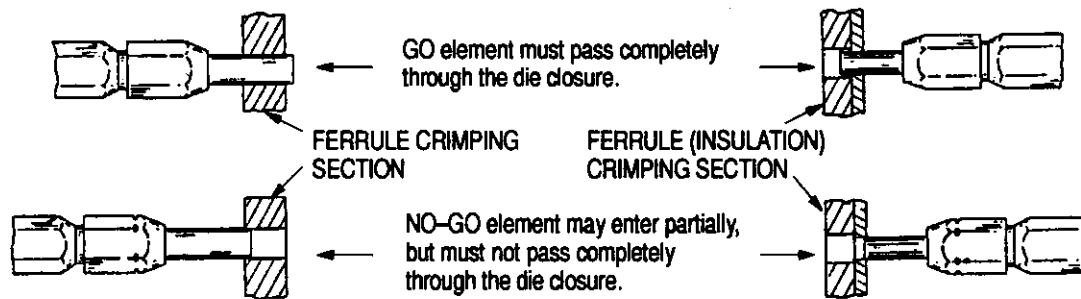
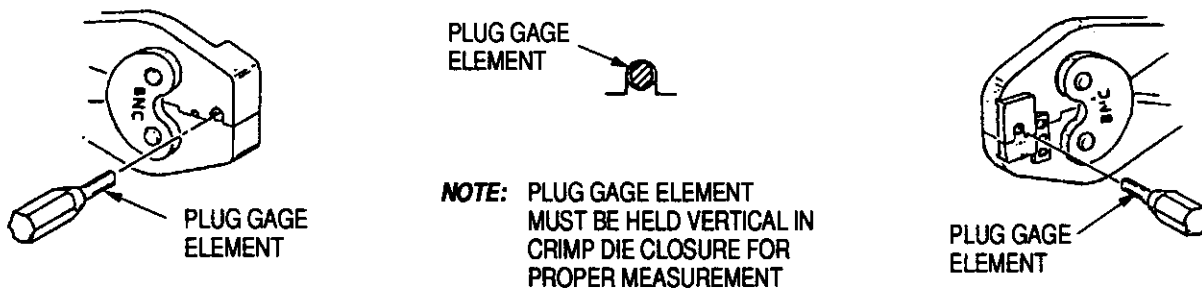


Figure 8

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returned to service. If not correct, the tool must be returned to AMP for further evaluation and repair. Refer to Section 5, REPLACEMENT AND REPAIR. For additional information regarding the use of a plug gage, refer to AMP instruction sheet 408-7424.

Height Comparator RS-1019-5LP) which can be purchased from:

York Machinery & Supply Co.
20 North Penn Street
York, PA 17401-1014

or VALCO
1410 Stonewood Drive
Bethlehem, PA 18017-3527

To measure the center contact crimp height, proceed as follows:

4.5. Center Contact Crimp Height Inspection

This inspection requires the use of a micrometer with a modified anvil as shown in Figure 9. AMP recommends use of the modified micrometer (Crimp

1. Select an appropriate center contact.
2. Refer to Section 3, CRIMPING PROCEDURE, and crimp the contact accordingly.

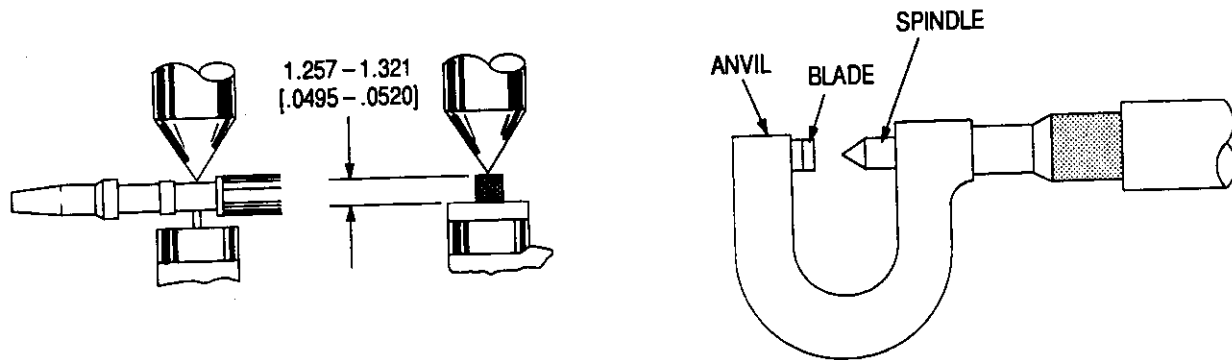


Figure 9

3. Using a crimp height comparator, measure wire barrel crimp height as shown in Figure 9. If the crimp height conforms to that shown in the chart, the tool is considered dimensionally correct. If not, return the tool to AMP for evaluation and repair (refer to Section 5, REPLACEMENT AND REPAIR).

For additional information concerning the use of the crimp height comparator, refer to AMP instruction sheet 408-7424.

4.6. CERTI-CRIMP Ratchet Inspection

The CERTI-CRIMP ratchet feature on AMP hand tools should be checked to ensure that the ratchet dies do not release prematurely, allowing the crimping dies to open before they have fully bottomed. Obtain a 0.025-mm [.001-in.] shim that is suitable for checking the clearance between the bottoming surfaces of the crimping dies. Proceed as follows:

1. Select an appropriate center contact.
2. Position the contact and wire between the crimping dies, as described in Section 3.1, Crimping the Center Contact (Steps 1 through 6).
3. Hold the contact and wire in place and squeeze the handles until the CERTI-CRIMP ratchet releases. Hold the handles in this position, maintaining just enough tension to keep the dies closed.
4. Check the clearance between the bottoming surfaces of the crimping dies. If the clearance is 0.025 mm [.001 in.] or less, the ratchet is satisfactory. If clearance exceeds 0.025 mm [.001 in.], the ratchet is out of adjustment and must

be repaired. See Section 5, REPLACEMENT AND REPAIR.

5. REPLACEMENT AND REPAIR

Replacement parts are listed in Figure 10. Parts other than those listed in Figure 10 should be replaced by AMP to ensure quality and reliability of the tool. Order replacement parts through your AMP representative, or call 1-800-526-5142, or send a facsimile of your purchase order to 1-717-986-7605, or write to:

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

For tool repair service or CERTI-CRIMP ratchet adjustment, return the tool, with a written description of the problem, to:

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

6. REVISION SUMMARY

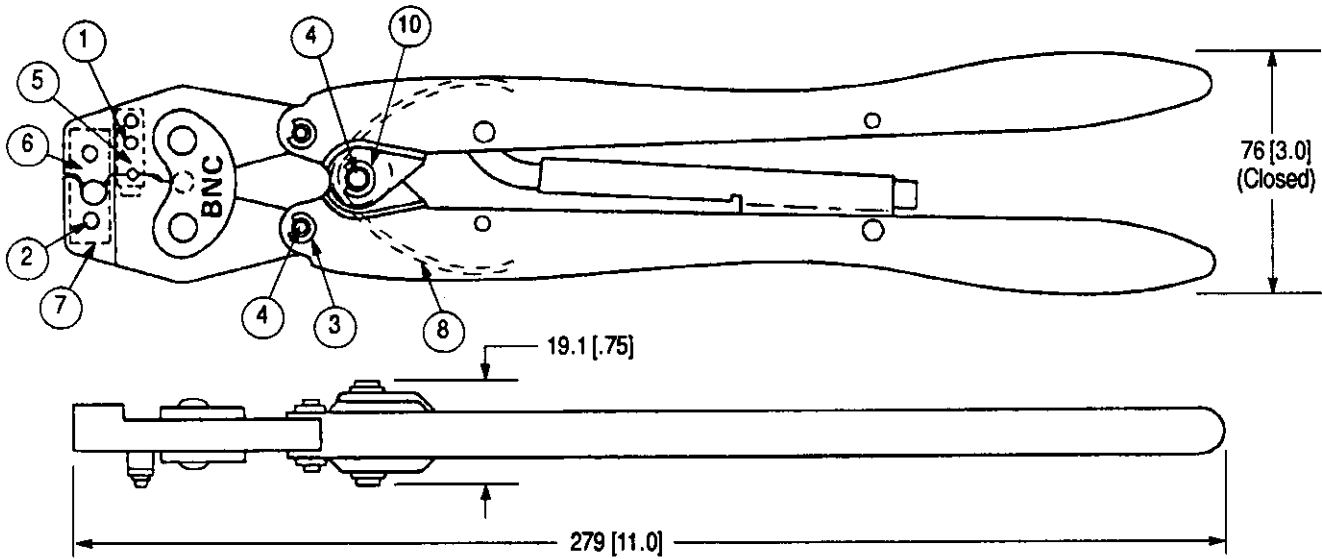
Since the previous release, the following changes and additions were made to this document:

Per EC 0150-4131-92:

- Changed part number of item 4 and added items 8, 9, and 10 to Figure 10

Per EC 0990-0252-93:

- Updated format
- Added metric units



REPLACEABLE PARTS

ITEM	PART NUMBER	DESCRIPTION
1	1-21000-0	SCREW
2	1-21002-8	SCREW
3	21045-3	RING, Retaining
4	1-23619-6	PIN, Retaining
5	4-304052-8	LOCATOR
6	307458-3	ANVIL, Insulation
7	307459-3	INDENTER, Insulation
8	39364	SPRING
9	2-23620-9	PIN, Retaining
10	21045-6	RING, Retaining

Figure 10

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