



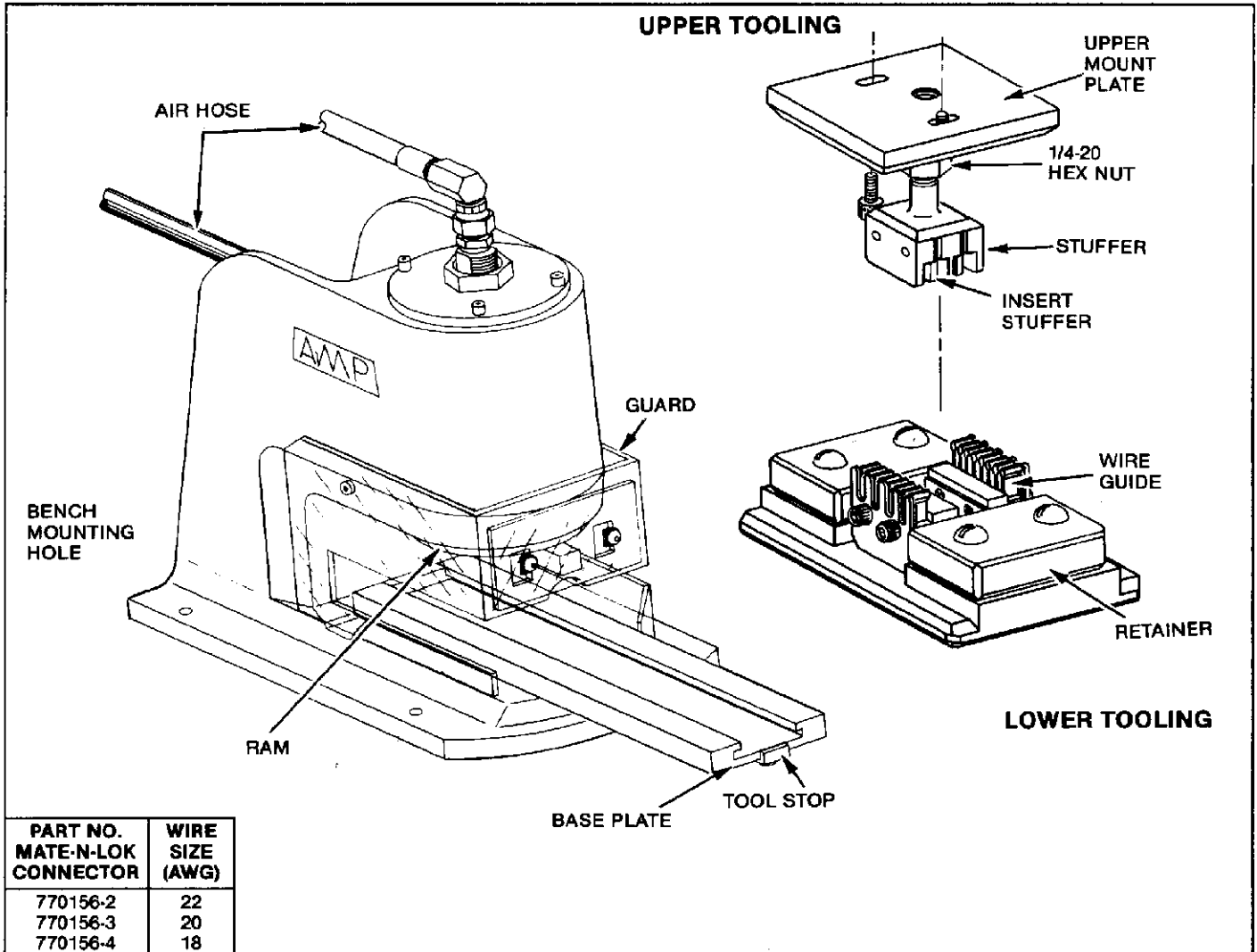
**AMP* MATE-N-LOK* CONNECTOR
TOOLING ASSEMBLY 231920-2**

Instruction Sheet
IS 9330
RELEASED 6-1-87

CUSTOMER HOTLINE 1 800 722-1111

Section I of this instruction sheet provides application procedures for AMP Tooling Assembly.

Section II provides maintenance and inspection procedures for AMP Tooling Assembly.



PART NO. MATE-N-LOK CONNECTOR	WIRE SIZE (AWG)
770156-2	22
770156-3	20
770156-4	18

Fig. I-1

SECTION I APPLICATION

I-1. INTRODUCTION

AMP MATE-N-LOK Connector Tooling Assembly 231920-2 is designed for use with AMP Pneumatic Arbor Frame Assembly 91112-2 to mass terminate unstripped discrete (stranded) wires to the AMP Commercial MATE-N-LOK Connectors (Plug Assemblies) listed by part number in Figure I-1. Ribbon cable can be terminated to these connectors, providing the cable meets the wire and insulation requirements listed in AMP Application Specification 114-49001.

This instruction sheet covers application and certification procedures for Tooling Assembly 231920-2. Refer to AMP Instruction Sheet IS 7763 for information concerning AMP Pneumatic Unit 91112-2. AMP Application Specification 114-49001 covers MATE-N-LOK connectors.

Read these instructions thoroughly before assembling the tooling and before terminating any connectors with Tooling Assembly 231920-2.

NOTE All dimensions presented on this instruction sheet are in inches.

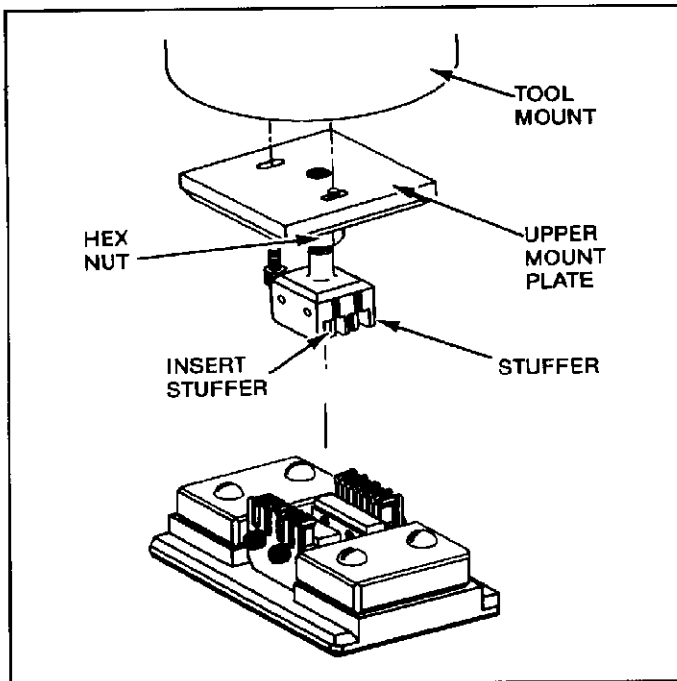


Fig. I-2

I-2. DESCRIPTION (Figure I-2)

Each tooling assembly consists of two subassemblies: (1) upper tooling and (2) lower tooling. Each subassembly is packaged as a single part.

The upper tooling consists of an insert stuffer, a stuffer, an upper mount plate, and hardware. The insert stuffer is secured to the stuffer by two slotted spring pins. The insert stuffer forces the wires into the slotted contact beams. The upper mount plate is the interface between the upper tooling and Pneumatic Unit 91112-2.

The lower tooling consists of a retainer and a retainer plate, a wire guide, a slide base, a stop, and hardware. The retainer and retainer plates act as a connector holding fixture, securing the connector to be terminated to the lower tooling. The wire guide aligns the individual wires with the connector. The slide base houses the lower tooling components and shuttles in and out on the channel of the pneumatic unit.

I-3. INSTALLING THE TOOLING ASSEMBLY

The procedures which follow are recommended to install the tooling assembly in Pneumatic Unit 91112-2.

WARNING Disconnect the air supply during installation or repair procedures.

A. Installation of Upper Tooling

1. Remove guard on the pneumatic unit by removing the three button head cap screws on

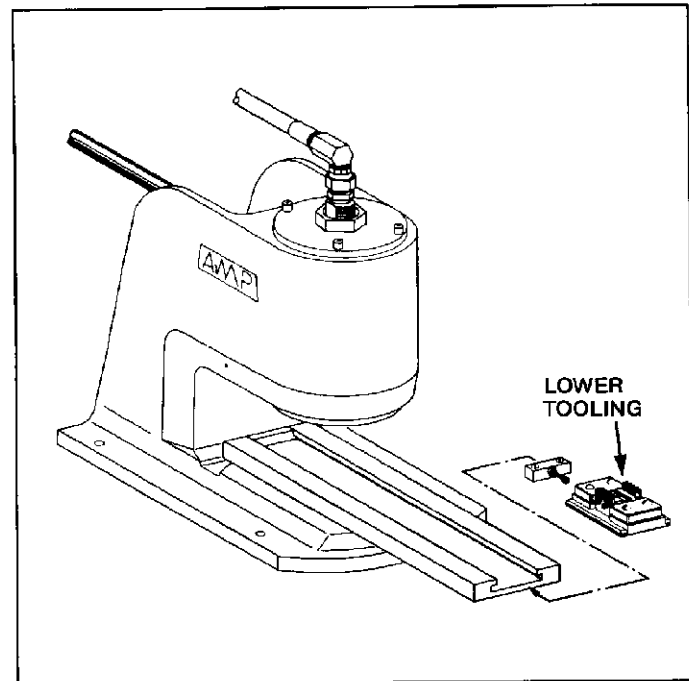


Fig. I-3

the side. It is not necessary to loosen the two adjustment screws on the front of the guard.

2. Attach the upper tooling to the pneumatic unit using the two 4-40 by .375-in.-long socket head cap screws. See Figure I-2. Do NOT tighten screws completely at this point.

B. Installation of Lower Tooling

1. Take off front tool stop at end of channel on pneumatic unit by removing the screw on the bottom of the channel. See Figure I-3.
2. Position the lower tooling in the channel of the pneumatic unit, so that the stop of the tooling assembly enters the channel first. See Figure I-3.
3. Shuttle the lower tooling in until the front tool stop butts against the throat of the pneumatic unit. Then secure it with the two screws provided.
4. Temporarily align the lower tooling under the ram of the pneumatic unit by slightly loosening the 6-32 hex nut and turning the 6-32 by 1.00-in.-long socket head cap screw. Turning the screw CLOCKWISE moves the lower tooling toward the throat of the pneumatic unit; turning the screw COUNTER CLOCKWISE moves the lower tooling away from the throat of the pneumatic unit.
5. When lower tooling appears under the ram, re-attach front tool stop of the pneumatic unit on the channel and tighten the hex nut and socket head cap screw.

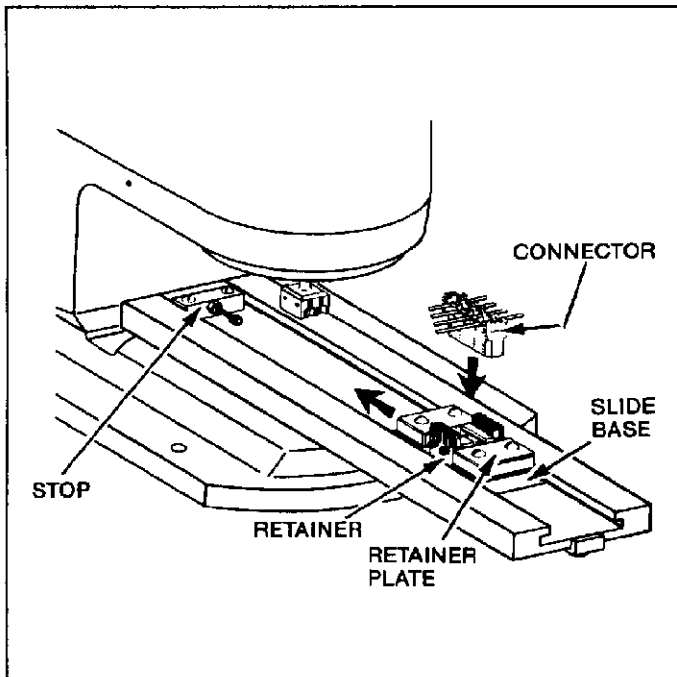


Fig. I-4

C. Adjusting Ram Height Position

The location of the ram height position should be established prior to terminating. This is important so that the ram—in its FULL DOWN position—will not damage the connector. The proper ram height position is necessary also to ensure that the connector is fully terminated and that the upper tooling does not prevent the lower tooling from entering the termination area.

To ensure that the unit will not damage the MATE-N-LOK connectors during the initial crimping procedure, raise the ram height position sufficiently, using the procedures listed in AMP Instruction Sheet IS 7763.

WARNING *Keep fingers from between upper and lower tooling when performing the adjustment process.*

I-4. SETUP PROCEDURE

The following setup procedure is recommended for terminating discrete wires (as specified in AMP Application Specification 114-49001) to the MATE-N-LOK connectors. Obtain a test connector and scrap wires, and proceed as follows:

1. Ensure that the wire, the MATE-N-LOK connector, and the tooling assembly are compatible.
2. Shuttle the slide base OUT.
3. Orient the MATE-LOK connector so that it can be positioned between the retainer and

retainer plates as shown in Figure I-4. The slotted contact beams should face UP and the lip should be on the left. Otherwise, the wires will not enter the beams.

4. Secure the connector in the retainer, using the retainer plates. See Figure I-4. Then reconnect the air supply.

NOTE *With the connector retained in the lower tooling, it is suggested that the correct ram height position be established at this point, using the procedure given in IS 7763. Keep fingers away from tooling while performing this task. Depress and hold the foot switch, allowing the upper tooling to reach its FULL DOWN position. Observe the distance between the upper tooling and the connector and adjust the ram height accordingly.*

5. When you are sure that the ram height position has been correctly established, re-install the guard on the pneumatic unit and tighten all screws.

I-5. CRIMPING PROCEDURE

1. Prepare the discrete wires for either dead-end or feed-thru terminations, using the procedures specified in AMP Application Specification 114-49001.
2. With the slide base in the OUT position, lace the individual wires in alternate slots of the wire guide and into the connector. The wires should be positioned near the back wall of the connector for dead-end terminations, or they should be laced over the slotted contact beams for feed-thru terminations. See Figure I-5.
3. Align the conductors with the connector by loosening the four 6-32 by .50-in.-long socket head cap screws and moving the wire guide back and forth until perpendicular alignment between the wires and the connector is achieved.
4. When the wires are properly aligned, secure the wire guide by tightening the screws. The wires will be held securely in position by the retainer.
5. Push the lower tooling back to the IN position.
6. Depress and then release the foot switch to complete one cycle of operation.
7. Remove and inspect the terminated MATE-N-LOK connector according to Application Specification 114-49001. Access to the terminated connector is gained through the front of the guard (see Figure I-1). Be especially sure to

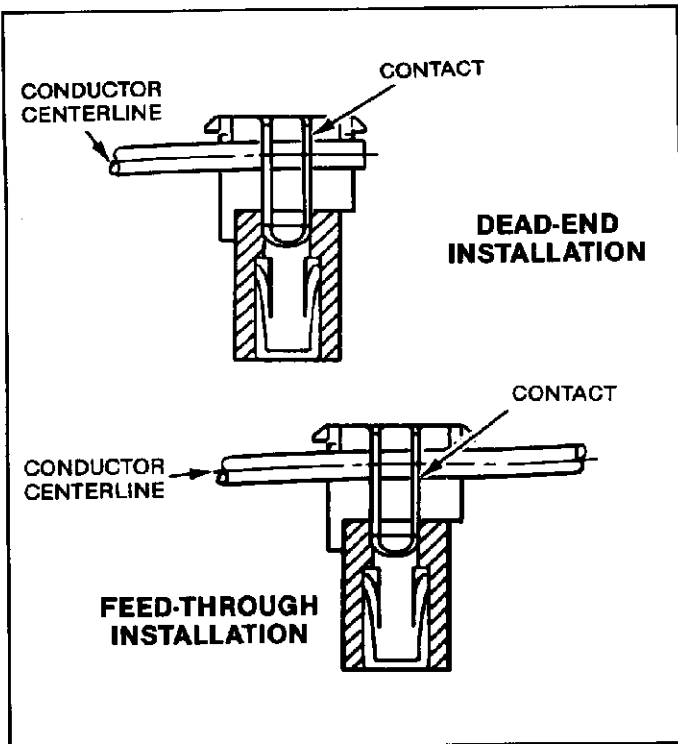


Fig. I-5

check insertion depth according to the information supplied in the AMP Application Specification. If the insertion depth is incorrect, adjust the upper tooling using the directions provided in IS 7763. Then continue terminating test connectors and adjusting upper tooling until the proper insertion depth is achieved.

NOTE

Various insulation diameters may affect the insertion depth dimension if more than one make of cable is employed. If using wire from different manufacturers, check insertion depth dimension each time a different make of wire is terminated.

When the correct insertion depth has been established and the terminated connections meet the requirements of AMP Application Specification 114-49001, Tooling Assembly 231920-2 and AMP Pneumatic Unit 91112-2 are now ready for terminating production connectors.

NOTE

After the connectors have been terminated, it is recommended that the appropriate covers be installed over the terminated connectors to reduce the exposed areas of conductors and contacts. Use Cover 770232-1 for dead-end terminations, and use Cover 770233-1 for feed-thru terminations.

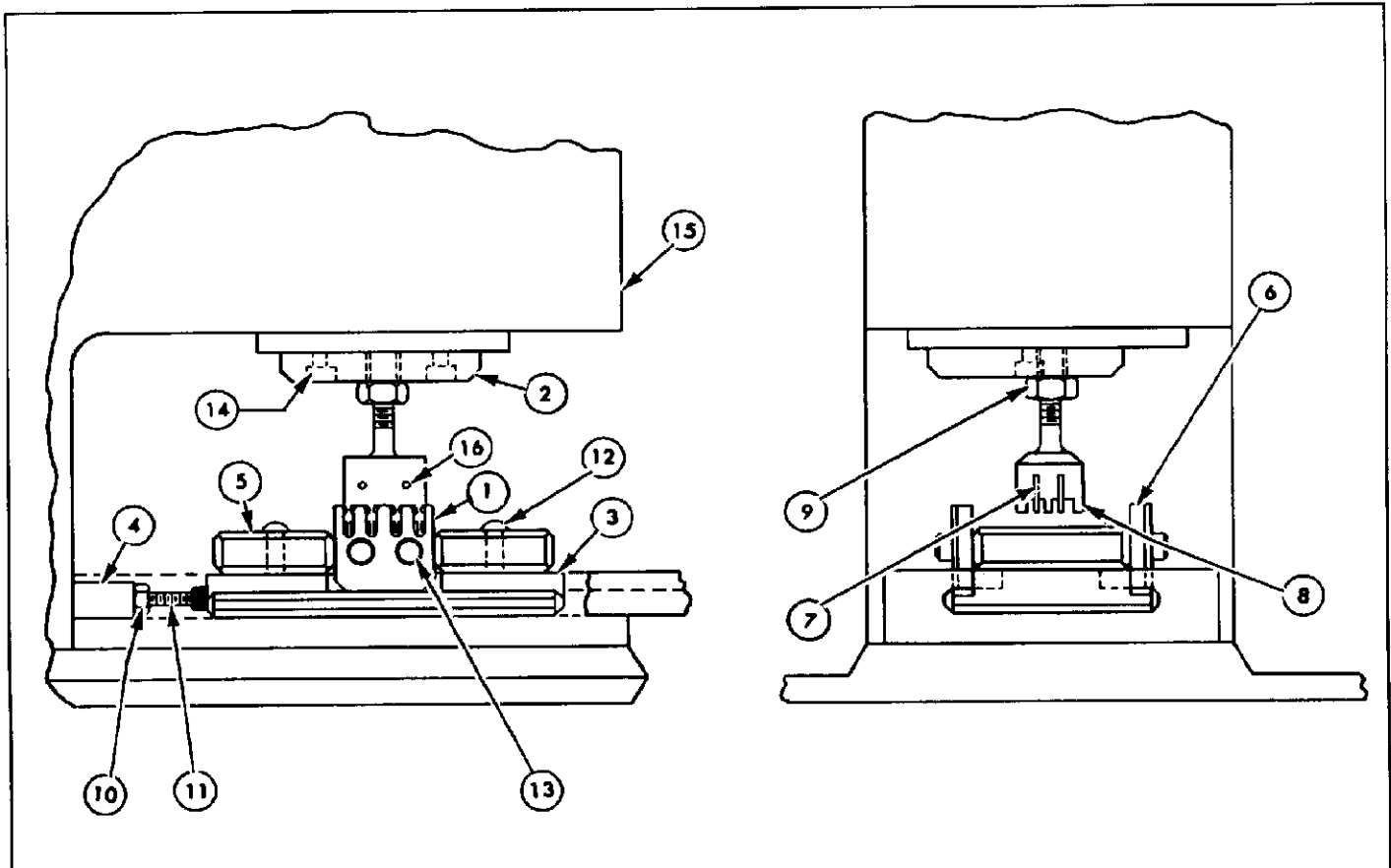
I-6. REMOVAL OF TOOLING ASSEMBLY

If it is necessary to remove the tooling assembly, proceed as follows:

1. Disconnect the air supply from the pneumatic unit.
2. Remove the guard, using the procedure previously described.
3. Remove the upper and lower tooling by reversing the sequence described in Section I-3, INSTALLING THE TOOLING ASSEMBLY.

Section I of this instruction sheet provides application procedures for AMP Tooling Assembly.

Section II provides maintenance and inspection procedures for AMP Tooling Assembly.



TOOLING ASSEMBLY PART NO.	PRODUCT DESIGNED FOR	CUSTOMER-REPLACEABLE PARTS				
		ITEM	PART NO.	DESCRIPTION	QTY	
231920-2	Commercial MATE-N-LOK Connectors Part No. 770156-2 770156-3 and 770156-4	1	231899-1	RETAINER	2	
		2	231921-1	PLATE, Upper Mount	1	
		3	231924-1	BASE, Slide	1	
		4	231923-1	STOP	1	
		5	231922-1	PLATE Retainer	2	
		6	231898-1	GUIDE, Wire	2	
		7	231897-1	STUFFER, Insert	2	
		8	231896-1	STUFFER	1	
		9	1- 21068-5	NUT, Hex, 1/4 x 20	1	
		10	21068-5	NUT, Hex, 6-32	1	
		11	2- 21000-4	SCREW, Skt Hd Cap, 6-32 x 1.0 L	1	
		12	1- 21100-0	SCREW, Btn Hd Cap, 6-32 x 5.0 L	4	
		13	21100-6	SCREW, Btn Hd, 4-40 x .375 L	2	
		14	1- 22249-4	SCREW, Skt Hd Cap, 4-40 x .375 L	2	
		15	91112-2	ASSEMBLY, Pneumatic Arbor Frame	Ref	
		16	21028-7	PIN, Slotted Spring, .562 L	2	
ENGINEERING APPROVAL				Doug Leiby	DATE	6-1-87

Fig. II-1

SECTION II MAINTENANCE/INSPECTION

II-1. TOOL CERTIFICATION

These instructions have been approved by AMP Design, Production, Quality Control Engineers to provide documented maintenance and inspection procedures in accordance with AMP Corporate

Policy 3-3. Through AMP Test Laboratories and the inspection of product assembly, the procedures described herein have been established to ensure the quality and reliability of the AMP Tooling Assemblies.

Customer-replaceable parts are listed in Figure II-1.

II-2. INSPECTION PROCEDURES

A. Daily Maintenance

It is recommended that each operator of the tooling assembly be made aware of—and responsible for—the following steps of 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 tooling assembly.
2. Make sure that all components of the upper and lower tooling are in place and are properly secured.
3. When the assembly is not in use, store it in a clean, dry area.

B. Periodic Inspection

Regular inspections should be performed by quality control personnel. A record of scheduled inspections should remain with the tooling assembly and/or be supplied to supervisory personnel responsible for the equipment. Though recommendations call for at least one inspection a month, their 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 sequence that follows:

B-1. Visual Inspection

1. Remove all lubrication and accumulated film with a suitable commercial degreaser that will not affect paint or plastic material.

2. Make sure all upper tooling and lower tooling screws and assembly components are in place. Refer to the parts list in Figure II-1 if replacements are necessary.

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

4. Inspect the termination area for flattened, chipped, cracked, worn, or broken portions. If damage is evident, the assembly components must be repaired before returning them to service (see Paragraph II-3, REPAIR).

B-2. Wire Termination

After termination, the wires shall meet the requirements as specified in AMP Application Specification 114-49001. If the wires conform to the inspection dimensions, the assembly is considered dimensionally correct. If not, the assembly must be adjusted or repaired before returning it to service.

II-3. REPAIR

The parts listed in Figure II-1 can be replaced by qualified personnel at your production or tool repair facility. Parts that are not listed must be replaced or repaired by qualified AMP personnel.

When returning tooling to AMP Incorporated for repair, send the tooling assembly, along with a written description of the problem, to:

AMP Incorporated
Customer Repair
1523 North 4th Street
Harrisburg, PA. 17102-1604

or a wholly owned subsidiary of AMP Incorporated.