

**PROPER USE GUIDELINES**

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

**1. INTRODUCTION**

This instruction sheet covers tooling selections for crimping, inserting, and extracting screw-machine contacts, and manual application procedures. Application procedures for the other tools are packaged with the tool.

**i NOTE**  
Read these instructions thoroughly before making any selections.

**i NOTE**  
Dimensions in this instruction sheet are in millimeters [with inches in brackets]. Figures and illustrations are for reference only and are not drawn to scale.

Reasons for reissue of this instruction sheet are provided in Section 7, REVISION SUMMARY.

**2. DESCRIPTION**

- The screw-machine contacts are supplied in loose-piece for manual (4/8-indent hand crimping tools) application and tape mounted for power assisted (machine) application. Insertion and extraction tools are used to insert contacts into and extract contacts from connectors (see Figure 1).

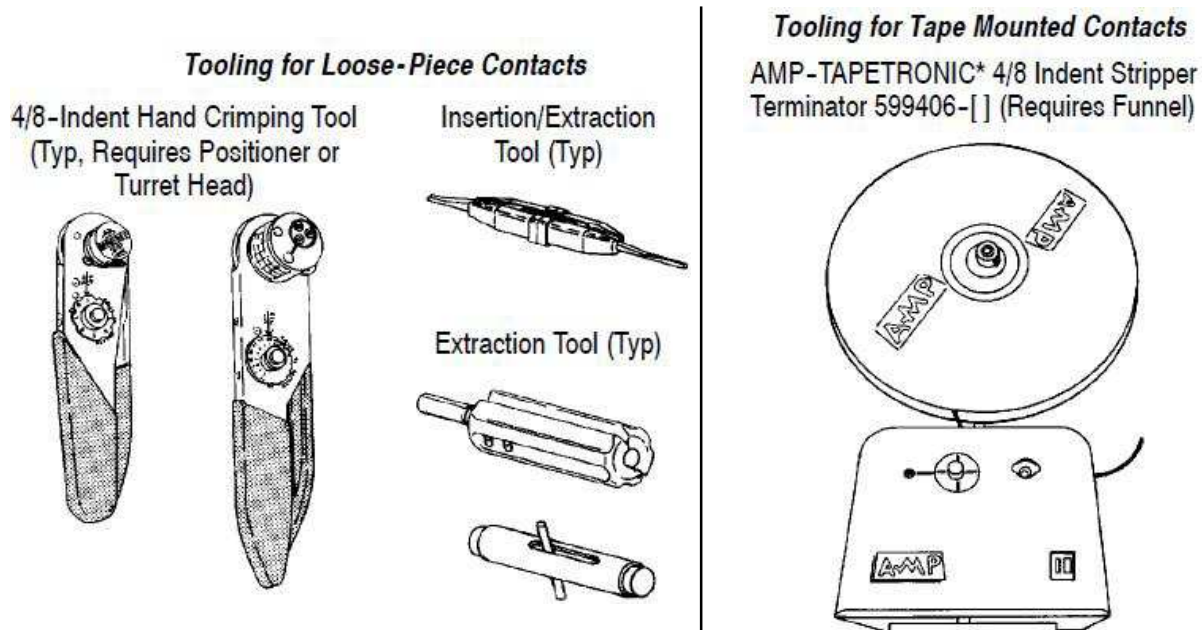


Figure 1

- The military uses a standardized numbering system which pertains to the tools that are qualified to military specifications (spec). Refer to Figure 2 for a cross-reference of these tools.
- Refer to Figure 3 for proper contact and tooling combination. **Note:** Read the chart from the left page across to the right page.

Description	Part	Military Spec
4/8-Indent Hand Crimping Tool	601966-1	MIL-C-22520/2-01
	601967-1	MIL-C-22520/1-01
	608651-1	---
Positioner or Turret Head	601966-2	MIL-C-22520/2-02
	601966-4	MIL-C-22520/2-06
	601966-5	MIL-C-22520/2-08
	601966-6	MIL-C-22520/2-09
	601966-8	MIL-C-22520/2-23
	601967-2	MIL-C-22520/1-02
	1-601967-2	MIL-C-22520/1-11
Insertion/Extraction Tool	91066-1	MIL-I-81969/1-01 or MS3156-22
	91067-1	MIL-I-81969/1-04
	91067-2	MIL-I-81969/1-02 or MS3156-20
	91066-3	MIL-I-81969/1-03 or MS3156-16
Extraction Tool	445147-1	MIL-C-81969/28-02
	58284-1	MIL-C-81969/28-03
	91074-1	MIL-C-81969/28-01 or MS3178-001

Figure 2

→	Tooling For Loose Piece Contacts		Tooling For Tape Mounted Contacts		CONNECTOR Military Spec	INSERTION TOOL	EXTRACTION TOOL
	Positioner or Turret Head	Hand Crimping Tool	Machine	Funnel			
	601967-2	601967-1	599406-5	125905-8	MIL-C-81659	91039-1	91040-1
	601967-2	601967-1	599406-5	125905-8	MIL-C-8165	91039-1	91040-1
	601967-2	601967-1	599406-5	125905-6	MIL-C-81659	91039-3	91040-3
	601966-8	601966-1	599406-7	1-125905-2	MIL-C-81659	91066-1	91066-1
	601966-8	601966-1	599406-7	1-125905-2	—	91066-1	91066-1
	601966-8	601966-1	599406-7	1-125905-2	—	91066-1	91066-1
→	601966-5	601966-1	599406-7	125905-1 (Max Insulation Dia 1.98 [.078])	MIL-C-81659	91067-2	91067-2
	601966-5	601966-1	599406-7	125905-1 (Max Insulation Dia 1.98 [.078])	—	91067-2	91067-2
	601966-5	601966-1	599406-7	—	—	91067-2	91067-2
	601967-2	601967-1	599406-5	125905-6	MIL-C-81659	91066-3	91066-3
	601967-2	601967-1	599406-5	125905-6	—	91066-3	91066-3
	601967-2	601967-1	—	—	MIL-C-81659	—	445147-1
	601967-2	601967-1	—	—	MIL-C-81659	—	445147-1

Figure 3 (cont'd)

### 3. TOOLING ASSEMBLY

#### 3.1. Installing Positioner

Refer to Figure 4 and proceed as follows:

1. Squeeze the tool handles together, then allow the handles to FULLY open.



**CAUTION**

*The tool handles must be FULLY opened when installing the positioner; otherwise, damage to the tool will occur.*

2. Insert the post of the positioner into the hole in the back of the tool. **Note:** Make sure the bayonet pin enters the slot in the retainer ring of the tool.

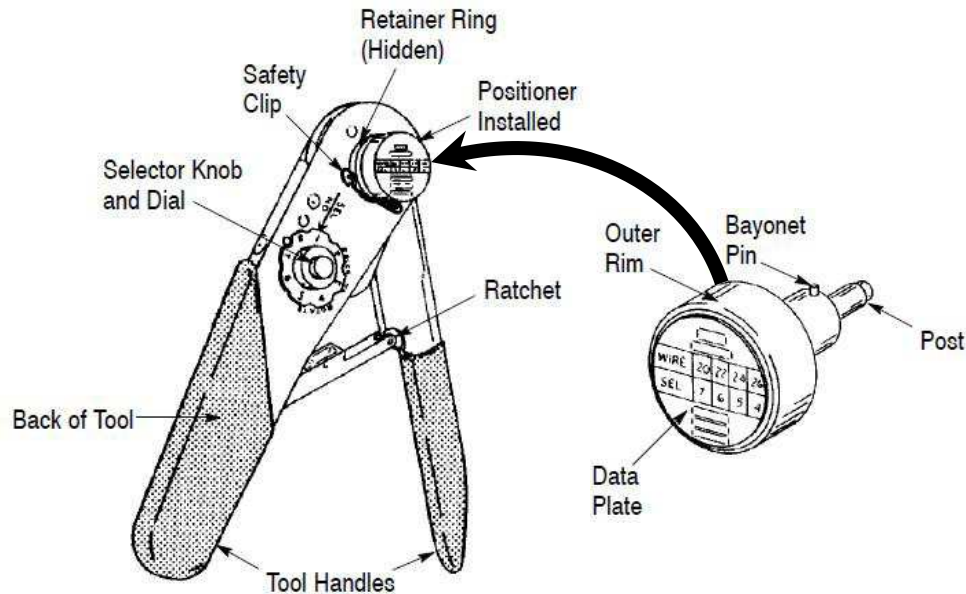


Figure 4

3. Firmly grip the outer rim of the positioner and push until the spring inside the positioner is depressed, then rotate the positioner clockwise until it stops.
4. Insert the tool safety clip into the retainer ring to lock the positioner in place.
5. Determine the selector setting according to the contact size and wire size listed in Figure 3 (or refer to the data plate on the positioner). Pull the selector knob and turn to the proper setting.



**CAUTION**

*The tool handles must be FULLY opened when changing the positioner selector setting; otherwise, damage to the tool will occur.*

#### 3.2. Installing Turret Head

Refer to Figure 5 and proceed as follows:

1. Squeeze the tool handles together, then allow the handles to FULLY open.



**CAUTION**

*The tool handles must be FULLY opened when installing the positioner; otherwise, damage to the tool will occur.*

2. Depress the turret trigger to release the turret from the index position (the turret should be extended).
3. Place the back of the turret head over the retainer ring on the back of the tool. Make sure that the turret head is seated, then tighten the two socket head cap screws of the turret head.
4. Rotate the turret until the positioner marked with the desired contact size is aligned with the index mark.
5. Press the turret until it is in the locked position.

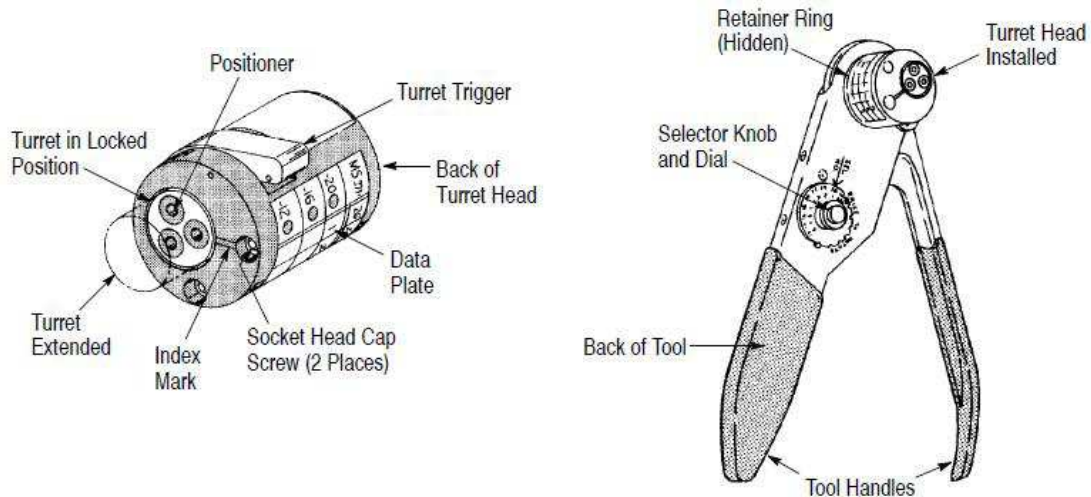


Figure 5

6. Determine the selector setting according to the contact size and wire size listed in Figure 3. Pull the selector knob and turn to the proper setting.



**CAUTION**

The tool handles must be FULLY opened when changing the positioner selector setting; otherwise, damage to the tool will occur.

**4. CRIMPING PROCEDURE**



**NOTE**

These tools have a ratchet which ensures proper crimping of the contacts. Once engaged, the ratchet will NOT release until the tool handles are FULLY closed.

1. Strip the wire according to the wire size listed in Figure 3.
2. Squeeze the tool handles together, then allow the handles to FULLY open.
3. Insert the mating end of the contact into the indenter from the FRONT of the tool until the contact bottoms (see Figure 6).

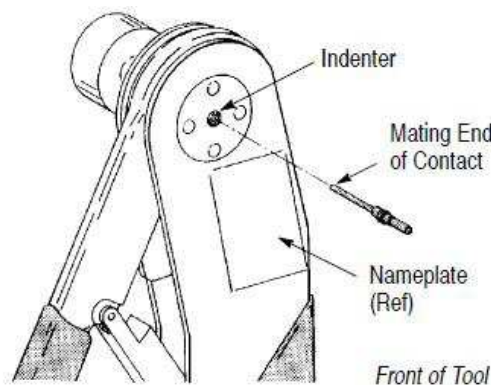


Figure 6

4. Insert the wire into the contact wire barrel. While holding the wire in place, squeeze the tool handles until the ratchet releases. Allow the handles to open.
5. Remove the crimped contact from the tool.  
Inspect the contact according to the applicable 114 Series Application Specification.

## 5. MAINTENANCE AND INSPECTION

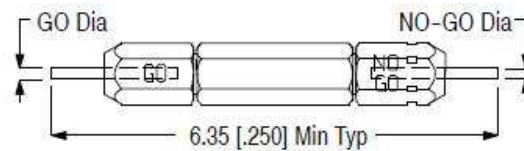
### 5.1. Daily Maintenance

Each operator should be aware of, and responsible for, the following steps of daily maintenance, to ensure continuous quality and reliability of each tool.

1. Remove dust, moisture, and other contaminants with a clean brush, or soft, lint-free cloth. DO NOT use objects that could damage the tool.
2. When the tool is not in use, keep the handles closed, and store the tool in a clean, dry area.

### 5.2. Gaging the Die Opening (Indenters)

This inspection requires the use of a plug gage conforming to the dimensions specified in Figure 7. For plug gages used for periodic general inspection, see Figure 8.



TOOL (Military Spec)	TOOL SELECTOR SETTING	GAGE ELEMENT DIAMETER $\pm 0.003$ [.0001]	
		GO	NO-GO
601966-1 (MIL-C-22520/2-01)	1	0.33 [.013]	0.46 [.018]
	2	0.41 [.016]	0.53 [.021]
	3	0.48 [.019]	0.61 [.024]
	4	0.56 [.022]	0.69 [.027]
	5	0.66 [.026]	0.79 [.031]
	6	0.76 [.030]	0.89 [.035]
	7	0.86 [.034]	0.99 [.039]
	8*	0.99 [.039]*	1.12 [.044]*
608651-1	1	1.78 [.070]	2.03 [.080]
	2	1.91 [.075]	2.16 [.085]
	3	2.03 [.080]	2.29 [.090]
	4*	2.16 [.085]*	2.41 [.095]*
	5	2.34 [.092]	2.59 [.102]
	6	2.51 [.099]	2.77 [.109]
	7	2.74 [.108]	3.00 [.118]
	8	3.00 [.118]	3.25 [.128]
601967-1 (MIL-C-22520/1-01) and 608668-1	1	0.71 [.028]	0.84 [.033]
	2	0.81 [.032]	0.94 [.037]
	3	0.91 [.036]	1.04 [.041]
	4*	0.99 [.039]*	1.12 [.044]*
	5	1.14 [.045]	1.27 [.050]
	6	1.32 [.052]	1.45 [.057]
	7	1.50 [.059]	1.63 [.064]
	8	1.73 [.068]	1.85 [.073]

\* Use for periodic general inspection. The plug gages listed in Figure 8 conform to these gage element diameters.

Figure 7