

# customer manual

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ORIGINAL INSTRUCTIONS

## **SAFETY PRECAUTIONS — AVOID INJURY — READ THIS FIRST!**

Safeguards are designed into this application equipment to protect operators and maintenance personnel from most hazards during equipment operation. However, certain safety precautions must be taken by the operator and repair personnel to avoid personal injury, as well as damage to the equipment. For best results, application equipment must be operated in a dry, dust-free environment. Do not operate equipment in a gaseous or hazardous environment.

Carefully observe the following safety precautions before and during operation of the equipment:



*Always wear approved eye protection while operating equipment.*



*Always wear appropriate ear protection while using equipment.*



*Moving parts can crush and cut. Always keep guard(s) in place during normal operation.*



*Always insert power plug into a grounded receptacle to avoid electrical shock.*



*Always turn off the main power switch and disconnect the electrical cord from the power source when performing repair or maintenance on the equipment.*



*Never insert hands into installed equipment. Never wear loose clothing or jewelry that may catch in moving parts of the equipment.*



*Never alter, modify, or misuse the equipment.*

## **SUPPORT CENTER**

**CALL TOLL FREE 1-800-522-6752 (CONTINENTAL UNITED STATES AND PUERTO RICO ONLY)**

The **Support Center** offers a means of providing technical assistance when required.

In addition, Field Service Specialists are available to provide assistance in the adjustment or repair of the application equipment when problems arise which your maintenance personnel are unable to correct.

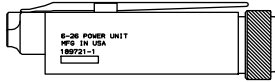
### **INFORMATION REQUIRED WHEN CONTACTING THE SUPPORT CENTER**

When calling the Support Center regarding service to equipment, it is suggested that a person familiar with the device be present with a copy of the manual (and drawings) to receive instructions. Many difficulties can be avoided in this manner.

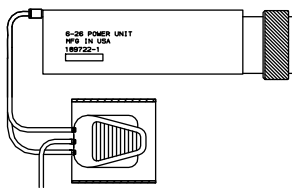
When calling the Support Center, be ready with the following information:

1. Customer name
2. Customer address
3. Person to contact (name, title, telephone number, and extension)
4. Person calling
5. Equipment number (and serial number if applicable)
6. Product part number (and serial number if applicable)
7. Urgency of request
8. Nature of problem
9. Description of inoperative component(s)
10. Additional information/comments that may be helpful

**Hand Actuated System  
189721-[ ] (Non-Logic)**



**Foot Actuated System  
189722-[ ] (Non-Logic)**



**Note:** The basic 626 pneumatic tooling system consists of a power unit, a tool holder assembly or adapter, a crimping head or adapter, and if required, crimping dies.

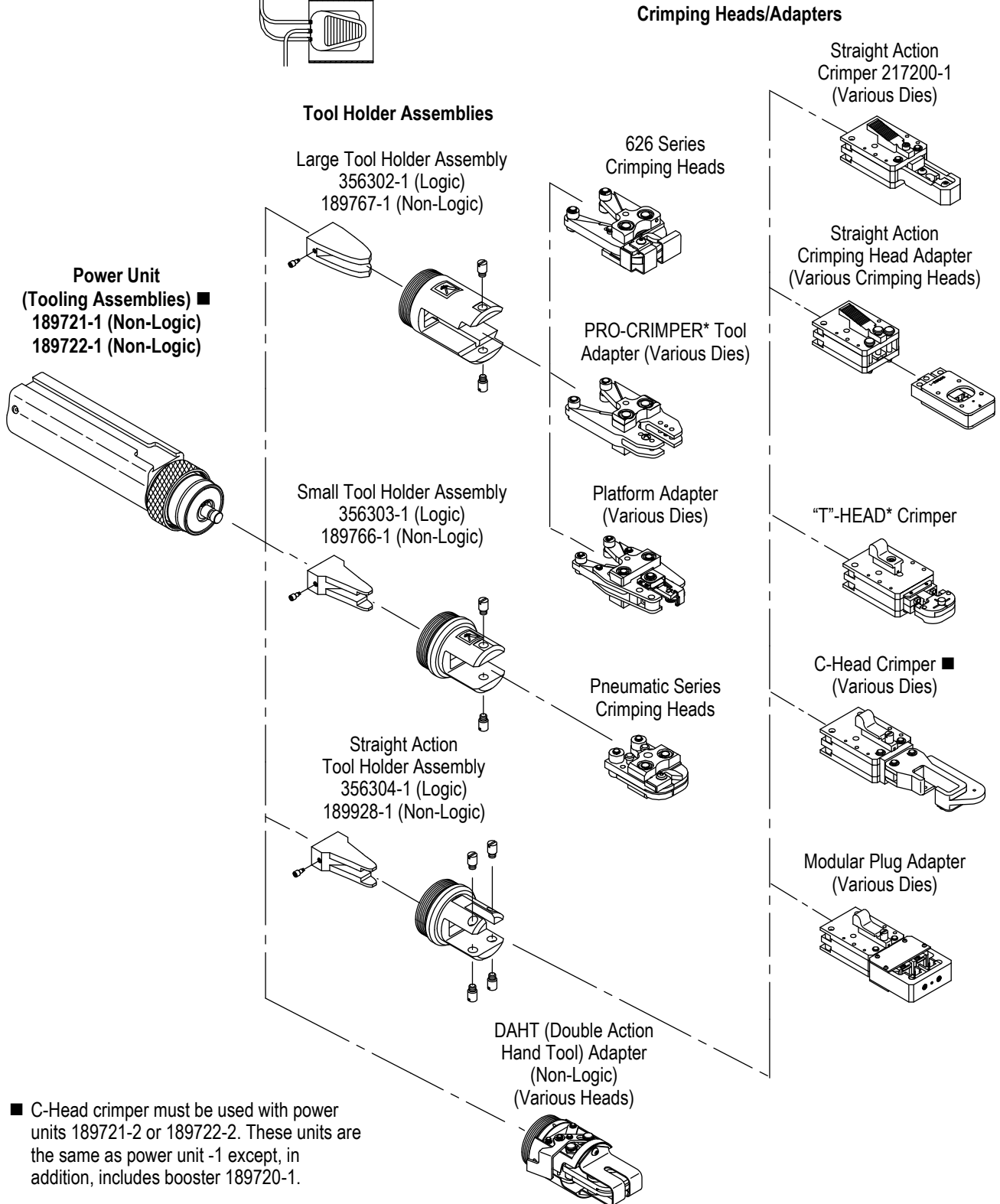


Figure 1

## 1. INTRODUCTION

This manual provides information on the various configurations of the tooling assemblies, available options, accessories, and upgrade capabilities for 626 pneumatic tooling systems. The manual also includes complete operation and maintenance information for both systems. Since there is a wide variety of crimping heads that may be used with the various tooling assemblies, specific information concerning the individual crimping heads, such as wire preparation and crimping head installation and maintenance, is provided with the instructions packaged with the individual crimping heads.

When reading this manual, pay particular attention to DANGER, CAUTION, and NOTE statements.

**DANGER**

Denotes an imminent hazard that may result in moderate or severe injury.

**CAUTION**

Denotes a condition that may result in product or equipment damage.

**NOTE**

Highlights special or important information.

Also, pay particular attention to the following safety precautions:



Always wear approved eye protection while operating equipment.



Always wear appropriate ear protection while using equipment.



Always disconnect the air and lockout the tool when not in use or when head or tool holder is detached.

Reasons for reissue of this document are provided in Section 10, REVISION SUMMARY.

**NOTE**

Dimensions in this customer manual are in metric units [with U.S. customary units in brackets]. Figures are not drawn to scale.

**DANGER**

This power unit should only be operated by trained personnel.

**DANGER**

If not using quick-disconnect fittings to connect the tool to the air supply, other means must be provided to easily disconnect the tool from the air supply.

## 2. DESCRIPTION

The 626 pneumatic tooling systems are designed to accept a wide variety of crimping heads for crimping various types of terminals and splices onto wires ranging in size from 6 through 26 AWG. As shown in Figure 1, there are two system configurations:

- hand actuated (non-logic)
- foot actuated (non-logic)

The systems employ a modular design concept, wherein each system configuration contains the (same) identical power unit. System variations are then achieved by expansion of the power unit to obtain the desired system functions. This system modularity permits the user to change from one system to another and retain the capabilities of the others without the expense of additional power units. It is feasible for the user to have the capabilities of both systems with only a single power unit.

The differences between the systems involve the method of actuation of the power unit (hand or foot actuated) and the type of crimp cycle control (operator controlled or CERTI-CRIMP\* tool ratchet logic controlled). The hand-actuated system has a hand switch assembly mounted directly on the power unit so that the operator

can actuate the unit while holding it. The foot actuated system has a foot pedal assembly that permits foot actuation of the power unit, freeing the operator's hands for other uses. With either of these systems, the operator has complete control over the crimp cycle time. However, when actuating either the hand switch or the foot switch, the operator must momentarily keep the switch closed to ensure that the crimping head jaws or dies bottom. Also, the operator must time the release of the switch so as not to overstress the crimping head.

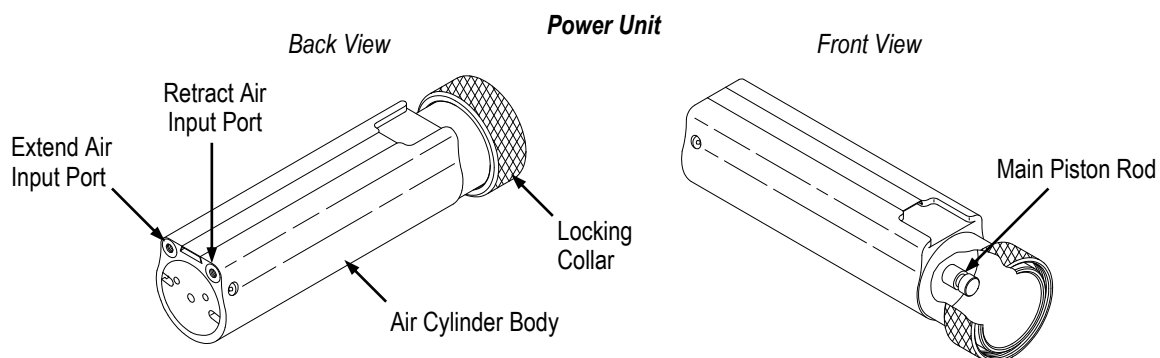
All of the six types of tool holder assemblies shown in Figure 1 are compatible with either power unit. Thus, both systems have the capability of using any of the associated crimping heads or adapters-both systems can therefore be used to crimp terminals and splices onto the full range of wire sizes. The tool holder assemblies are interchangeable with both systems, providing flexibility of choice and future add-on capabilities for the user.

The logic control feature of the tool holder assemblies assures consistent and repeatable crimping cycles, providing fully crimped products and essentially eliminating the possibility of partial crimps. In effect, once the actuation device (hand or foot switch) is depressed, the operator must hold the actuation device closed momentarily to ensure the tool performs a complete crimping cycle.

The date code is marked on the body of the tool. The date code is formatted as YYWW, where YY represents the year of the manufacture, and WW represents the week of manufacture. For example, if the date code marked on a tool is 0642, the tool was made in the 42nd week of 2006.

## 2.1. Power Unit

The power unit (shown in Figure 2) has two air input ports (back of unit) used to extend and retract the power unit pistons. With air activation, three internal piston stages, operating in tandem, extend or retract the main piston rod at the front of the unit. A locking collar on the front end of the power unit is used to attach any one of the tool holder assemblies.



Specifications	
Weight	0.708 kg [1.56 lbs]
Length	203 mm [8 in.]
Diameter	51 mm [2 in.]
Air Supply	620-690 kPa [90-100 psi]
Noise (Max)	90-95 dBA
Vibration	<2.5 m/s <sup>2</sup>

Figure 2

Figure 3 shows a typical tool holder assembly and its associated crimping head being attached to the power unit. Each tool holder assembly has a unique cam that attaches directly to the piston rod of the power unit. Once the cam is attached to the piston rod and secured by means of a setscrew, the associated tool holder assembly is placed over the cam onto the front of the power unit. The locking collar is then threaded onto the threads on the base of the tool holder assembly, securing the tool holder to the power unit. The associated crimping head or adapter is then attached to the tool holder assembly. When properly assembled, the power unit head with the cam and tool holder assembly will be free to swivel in either direction. This swivel feature permits the crimping head or adapter to move freely when the operator positions the terminal or splice and wire into the crimping head or adapter.

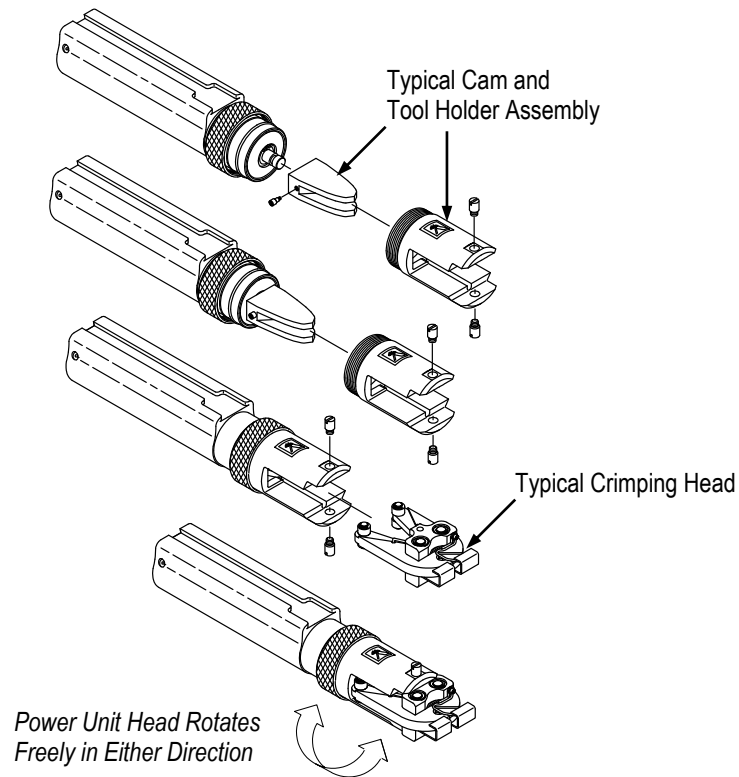


Figure 3

## 2.2. Hand Actuated System (Non-Logic)



**DANGER**

*Air pressure must be removed from the unit while head or tool holder is detached.*

The hand actuated system (shown in Figure 4) has a hand switch assembly mounted on the back of the power unit. The hand switch assembly contains a manually operated four-way valve with one input port (connects to main air supply) and two output ports that mate with the input ports of the power unit. The hand switch assembly therefore controls the application of air to either extend or retract the pistons of the power unit. When the switch lever is pressed inward toward the cylinder body of the power unit, extension occurs. When released, the spring-loaded switch lever returns to its normal position, causing retraction. As previously described, any of the tool holder assemblies (with associated crimping head or adapter) can be attached to the power unit as shown in Figure 3.

## 2.3. Foot Actuated System (Non-Logic)



**DANGER**

*Air pressure must be removed from the unit while head or tool holder is detached.*

The foot actuated system (shown in Figure 5) has a separate foot switch assembly which controls the application of air to the power unit. The foot switch assembly contains a foot-operated, four-way valve with one input port (connected to main air supply) and two output ports, which connect to the input ports of the power unit via two air lines. In the unactuated condition, main air is passed through the normally closed port of the valve to the retract input port of the power unit. When the foot switch is activated, the valve is switched and main air is passed through its normally open port to the extend input port of the power unit. Thus, the foot switch assembly remotely controls extension and retraction of the power unit.

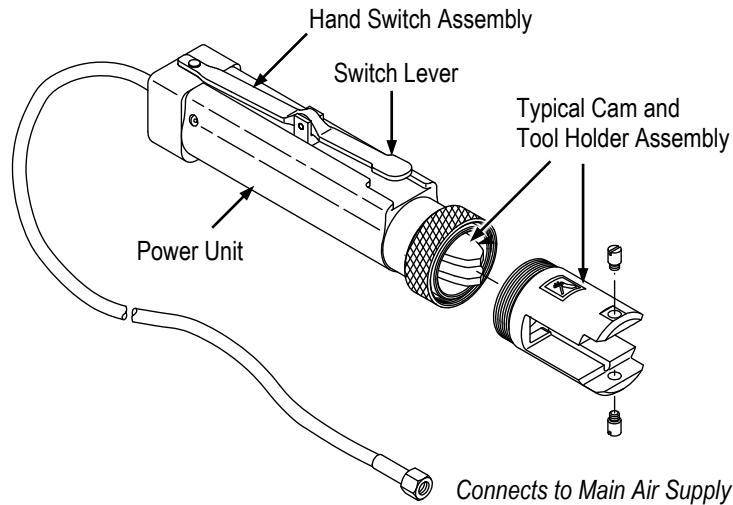


Figure 4

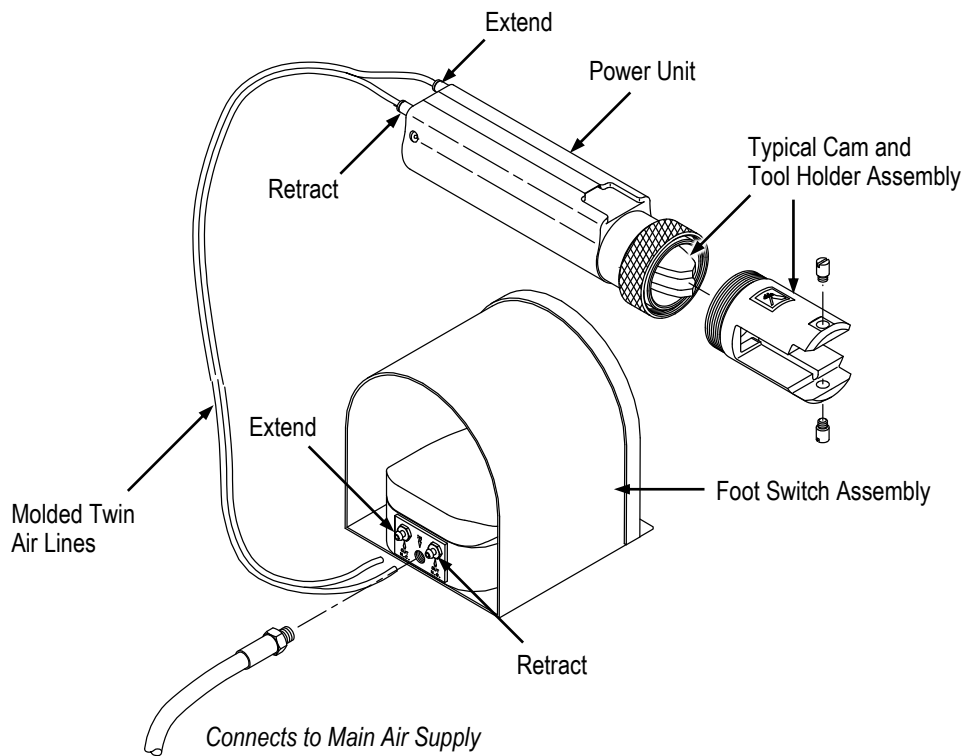


Figure 5

### 3. AIR LINE REQUIREMENTS AND SETUP



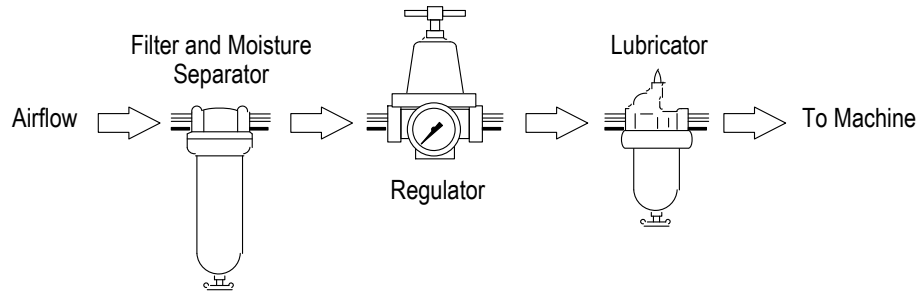
**DANGER**

*Air pressure must be removed from the unit while head or tool holder is detached.*

For proper operation, the power units (pneumatic tooling assemblies) require an adequate air supply to maintain between 620 and 690 kPa [90 and 100 psi] constant air pressure. Pressure less than 620 kPa [90 psi] will be insufficient for proper crimp operation. Pressure over 690 kPa [100 psi] may cause damage to the tooling system.

A filter and moisture separator, regulator, and lubricator must be used with these tooling assemblies to ensure dependable performance and long life. It is recommended that quick-disconnect fittings are used to connect the tool to the air supply. If not using quick-disconnect fittings, provide a pneumatic lock-out on the air line that bleeds air after it is turned off. These items are customer supplied.

It is strongly recommended that these items be installed at *each tool station* in the order given in Figure 6. Mount the items as close as possible to the tooling assembly, preferably where the tool hose is connected to the air system. Make sure the items are checked after every 40 hours of use by the tool operator or maintenance personnel. Figure 6 also lists suggested manufacturers and benefits of using this equipment.



DRAIN REGULARLY	CHECK AIR PRESSURE REGULARLY (620 kPa [90 psi] Min-690 kPa [100 psi] Max)	CHECK OIL LEVEL REGULARLY (Adjust to Very Fine Mist-Approximately 1 Drop per 15-20 Tool Cycles)
<ul style="list-style-type: none"> <li>— Minimizes clogging and excessive wear</li> <li>— Minimizes rust and corrosion</li> <li>— Prevents water from washing away lubricants</li> <li>— Prevents water emission from exhaust ports</li> </ul>	<ul style="list-style-type: none"> <li>— Promotes smooth, consistent performance</li> <li>— Protects hoses and components from damage</li> </ul>	<ul style="list-style-type: none"> <li>— Eliminates sluggish or sticking valves and pistons</li> <li>— Provides protective film for highly polished or close tolerance surfaces</li> <li>— Provides seal in close tolerance areas</li> <li>— Extends life of pistons, cylinders, and valves</li> </ul>
SUGGESTED MANUFACTURERS		
Filter/Moisture Separator, Regulator, Lubricator		Lubricator Oil (Use Only Good Quality, Non-Synthetic Air Lubricant)
C.A. Norgen Co., Littleton, CO Chicago Pneumatic, New York, NY		Chicago Pneumatic Air Tool Airoilene Oil (SAE 10) Chicago Pneumatic, New York, NY

Figure 6

#### 4. SYSTEM SETUP AND PREPARATION FOR OPERATION



**DANGER**

*Air pressure must be removed from the unit while head or tool holder is detached.*

As delivered, both systems have required air lines installed with the main air supply line ready for connection to the main air supply. Perform the steps in this section for initial setup and any time a different cam and/or tool holder assembly is to be used.

System setup includes the following general steps:

1. Make sure the power unit is not connected to the main air supply.
2. Assemble the applicable cam to the power unit.
3. Assemble the tool holder assembly to the power unit, ensuring that the cam and tool holder assembly are properly aligned.
4. Connect the main air supply.

Airoilene is a trademark. SAE is a trademark.



## 4.2. Air Supply

If the tool is connected to an air supply, disconnect the tool and make sure there is no residual pressure in the tool.

## 4.3. Extending the Piston

If the piston is not extended, grasp the piston with the piston pliers and pull away from the body of the tool.

## 4.4. Cam and Tool Holder Assembly (Non-Logic) Installation

A strip of adhesive-backed safety labels, printed in various languages, is packaged with the tool holder assembly. Remove the appropriate label from the strip and attach it to the safety sleeve (which is supplied with the small and large tool holder assemblies) as shown in Figure 7 or directly to the adapter (which does not require the safety sleeve).



### NOTE

*Previously installed cam and tool holder assembly must be removed before installing different ones. Removal is the reverse of installation.*

Select the applicable cam for the tool holder assembly to be used, then proceed as follows:



### CAUTION

*Make sure to select the correct combination of tool holder assembly and cam. If incorrect combination is used, the system will not operate properly.*

1. If cam setscrew is not installed in cam, thread setscrew into cam two to three turns.
2. Place cam (with setscrew) onto piston rod as shown in Figure 7. Cam should butt against the piston rod face. If not, turn the cam setscrew *counterclockwise* until cam fits on piston rod properly.



### CAUTION

*Over-tightening the cam setscrew may damage the setscrew or cam.*

3. Tighten cam setscrew, then pull on cam to ensure that it is firmly attached.
4. Align the tool holder assembly with the cam, and push tool holder assembly onto power unit so that it passes over the friction ring on the power unit piston.



### CAUTION

*After installation, ensure that the cam and tool holder assembly are aligned before operation of system. If the cam and tool holder assembly are misaligned while the power unit is operating, damage can occur to the system.*

5. Slide power unit locking collar toward tool holder assembly until it butts against the stop ring on the power unit piston. Then turn locking collar *clockwise* to engage threads on the bottom of the tool holder assembly. Tighten locking collar to fully secure the tool holder.



### NOTE

*When tool holder is properly installed, the locking collar will butt against the stop ring and the threads of the tool holder will not be visible. If not properly installed, check that combination of cam and tool holder assembly is correct and that they are aligned properly.*

6. Rotate the tool holder assembly one full turn in each direction, and note that the power unit locking collar rotates with the holder.



### DANGER

*To avoid personal injury, periodically check that locking collar is tightly securing the tool holder assembly.*

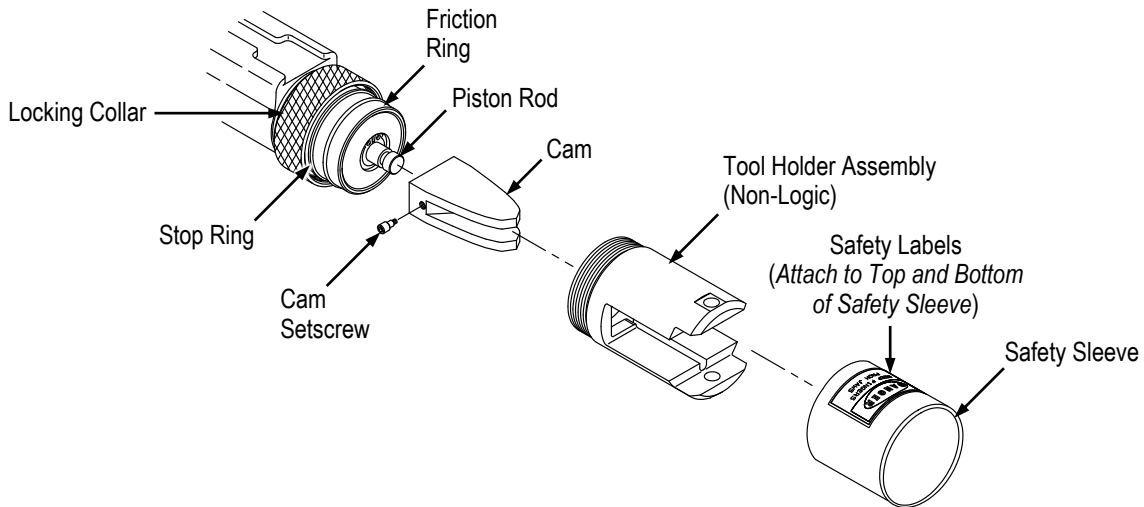


Figure 7

#### 4.5. Cam and Tool Holder Assembly (Logic) Installation

A strip of adhesive-backed safety labels, printed in various languages, is packaged with the tool holder assembly. Remove the appropriate label from the strip and attach it to the safety sleeve (which is supplied with the small and large tool holder assemblies) as shown in Figure 8 or directly to the adapter (which does not require the safety sleeve).



**NOTE**

Previously installed cam and tool holder assembly must be removed before installing different ones. Removal is the reverse of installation.

Select the applicable cam for the tool holder assembly to be used, then proceed as follows:



**CAUTION**

Make sure to select the correct combination of tool holder assembly and cam. If an incorrect combination is used, the system will not operate properly.

1. If cam setscrew is not installed in cam, thread setscrew into cam two to three turns.

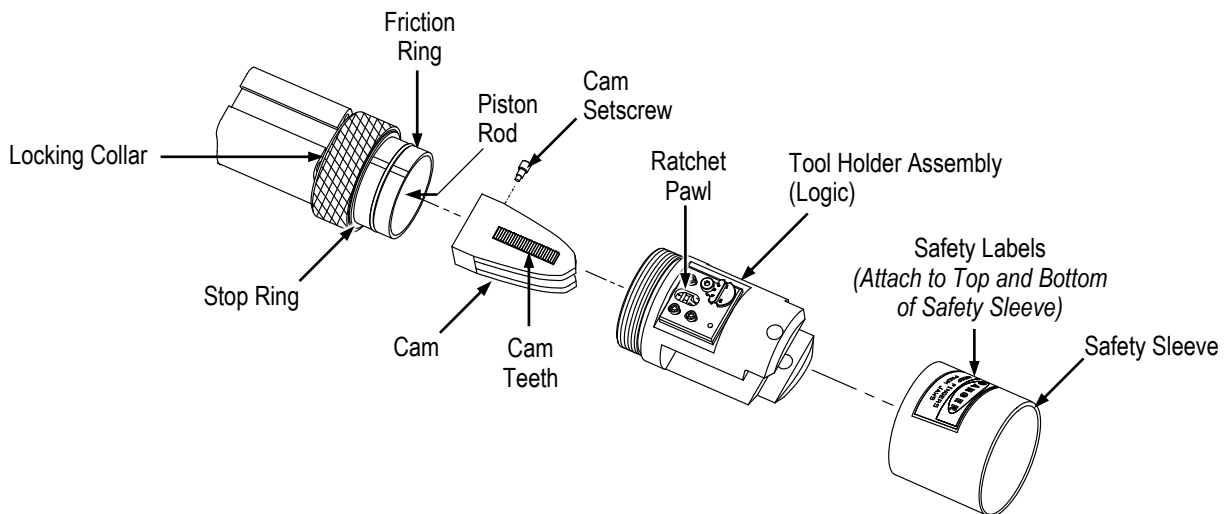


Figure 8

2. Place cam (with setscrew) onto piston rod as shown in Figure 8. Cam should butt against the piston rod face. If not, turn the cam setscrew *counterclockwise* until cam fits on piston rod properly.

**CAUTION**

*Over-tightening the cam setscrew may damage the setscrew or cam.*

3. Tighten cam setscrew, then pull on cam to ensure that it is firmly attached.
4. Align tool holder assembly ratchet pawl with the cam teeth and push tool holder assembly onto power unit so that it passes over the friction ring on the power unit piston.

**CAUTION**

*After installation, ensure that the cam and tool holder assembly are aligned before operation of system. If the cam and tool holder assembly are misaligned while the power unit is operating, damage can occur to the system.*

5. Slide power unit locking collar toward tool holder assembly until it butts against the stop ring on the power unit piston. Then turn locking collar *clockwise* to engage threads on the bottom of the tool holder assembly. Tighten locking collar to fully secure the tool holder.

**NOTE**

*When tool holder is properly installed, the locking collar should be butted against the stop ring and threads of the tool holder should not be visible. If not properly installed, check that correct combination of cam and tool holder assembly was used and that they are aligned.*

6. Rotate the tool holder assembly one full turn in each direction and note that the power unit locking collar rotates with the holder.

**DANGER**

*To avoid personal injury, periodically check that locking collar is tightly securing the tool holder assembly.*

#### 4.6. Crimping Head or Adapter Installation

**DANGER**

*When the power unit is connected to the main air supply, the power unit piston will retract. To avoid personal injury, keep hands and fingers away from front of power unit.*

Refer to the instruction sheet packaged with the crimping head or adapter. Figure 3 shows installation of a typical crimping head onto a typical tool holder assembly. After the crimping head or adapter has been installed, the power unit may be re-connected to the main air supply.

#### 4.7. Permanent Mounting of Power Unit

Use pneumatic tool stand assembly 856402-1 to permanently mount the power unit to a bench or other work surface.

**CAUTION**

*Do not clamp the power unit in a vise or similar fixture; it may cause damage to the unit or prevent proper operation of the power unit.*

#### 4.8. Hanging Power Unit

The power unit may be used with a counterbalance by attaching the counterbalance to the eyebolt on the back of the unit as shown in Figure 9. Do not hang the power unit by its air hose.

Power Unit With Hand Switch Assembly

Power Unit Without Hand Switch Assembly

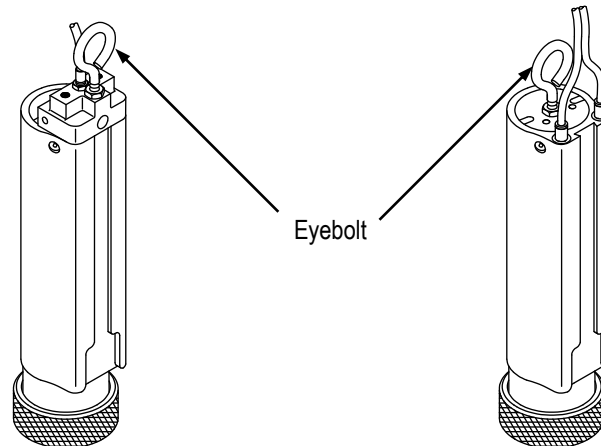


Figure 9

## 5. OPERATION

This section covers instruction for actuating the power unit of both systems. For information concerning wire preparation, terminal or splice placement in crimping head or adapter, and wire insertion, refer to the instructions packaged with the crimping head or adapter being used.



### **DANGER**

*To avoid personal injury, always keep fingers clear of crimping area when operating the power unit. Never place anything within the crimping area except terminals or splices.*

After the terminal or splice and wire are positioned in the crimping head or adapter, depress and momentarily *hold* the hand switch or foot switch until the power unit extends and the crimping head jaws or crimping dies have fully bottomed. When the jaws or dies have fully bottomed, release the hand switch or foot switch. The power unit piston should retract and the crimped product may be removed.

## 6. MAINTENANCE AND INSPECTION

Perform a maintenance and inspection program periodically to ensure dependable operation. Frequency of inspection depends on:

- care, amount of use, and handling of the system
- degree of operator skill
- presence of abnormal amounts of dust and dirt
- established standards

### 6.1. Inspection and Cleaning

At a minimum, the power unit should be inspected and cleaned after every eight hours of operation as follows:



### **DANGER**

*Air pressure must be removed from the unit while head or tool holder is detached.*

1. Disconnect the system from the main air supply.
2. Remove tool holder assembly (with crimping head or adapter in place).
3. Firmly grasp the cam with the piston pliers and pull the cam away from the body of the tool so that it is fully extended.
4. Inspect the stop ring, locking collar, and friction ring for wear. Replace, if necessary.



### **DANGER**

*To avoid personal injury, replace the stop ring every 250,000 cycles (refer to Paragraph 9.1 for replacement procedure) and replace the locking collar when any sign of wear is evident.*

5. Inspect piston, cylinder wall, and cam for wear and remove dust, moisture, and other contaminants with a clean, soft brush or lint-free cloth.
6. Apply a *thin* coat of any good grade SAE 20 motor oil to the cam. Remove any excess oil.
7. Check that the cam setscrew is securely holding the cam onto the piston rod. Tighten the setscrew, if necessary.
8. Check crimping head or adapter in accordance with the instructions packaged with the specific crimping head or adapter being used.



**DANGER**

*To avoid personal injury and damage to the tool, make sure that quick pins securing the crimping head or adapter to the tool holder assembly are fully tightened. Use a medium-strength threadlocker to prevent the quick pins from loosening.*

9. Re-assemble the tool holder assembly (with crimping head or adapter in place).



**DANGER**

*To avoid personal injury, check that the locking collar is tightly securing the tool holder assembly before operating power unit.*

10. Re-connect the power unit to main air supply.



**DANGER**

*When power unit is connected to main air supply, power unit piston will retract. To avoid personal injury, keep hands and fingers away from front of power unit.*

**6.2. Lubrication**

It is recommended that lubricated air for the main air supply input is provided. However, if the power unit has been or is being used with dry (unlubricated) air, lubricate the power unit after every eight hours of use as follows:

1. Disconnect main air supply.
2. Disconnect the air line(s) from the back of the power unit.
3. Apply one or two drops of SAE 10 *air cylinder* oil into the inlet fitting(s).
4. Re-connect the air line(s) and main air supply.



**DANGER**

*When the power unit is connected to the main air supply, the power unit piston will retract. To avoid personal injury, keep hands and fingers away from the front of the power unit.*

**7. TROUBLESHOOTING**

Figure 11 lists some abnormal conditions along with the probable cause and remedy for the condition. If the condition cannot be isolated, call the number at the bottom of page 1.

SYSTEM TYPE	ABNORMAL CONDITION	PROBABLE CAUSE	REMEDY
Hand Actuated	Power unit piston will not extend when actuated.	Power unit not connected to main air supply.	Connect power unit to main air supply.
		Faulty hand switch assembly or foot switch assembly.	Replace switch assembly.
Foot Actuated	Power unit piston extends when connected to main air supply.	Air line connections to power unit reversed.	Disconnect main air supply, then reverse air line connections on power unit.
	Loss of power.	Improper lubrication.	Check operation of lubricator in main air supply. If dry air is being used, lubricate in accordance with Section 6.
		Power unit internal seals worn or damaged.	Replace seals or, for information on obtaining evaluation and repair, refer to Paragraph 9.2.

Figure 10

## 8. OPTIONS AND ACCESSORIES

Call 1-800-522-6752 to order options and accessories.

## 9. REPLACEMENT AND REPAIR

### 9.1. Stop Ring Replacement

#### A. Removal

1. Disconnect tool from main air supply.
2. Remove the tool holder (and cam) from the air cylinder body. Remove the friction ring.
3. Remove the stop ring by inserting the end of a flat blade screwdriver under the removal notch and prying outward. Slide the stop ring off the front of the air cylinder.



#### CAUTION

*Be careful when removing parts to prevent scarring on the outside surface of the cylinder.*

4. Slide the locking collar off the front of the air cylinder.
5. Inspect the stop ring groove for wear or permanent deformation. If excessive wear or damage is evident, refer to Paragraph 9.2 for information on obtaining customer repair service.

#### B. Installation

1. Using a caliper, measure the width of the stop ring groove. See Figure 11. Using this dimension, refer to Figure 12 for the stop ring to be used.
2. Slide the locking collar onto the front of the air cylinder.
3. Slide the stop ring onto the front of the air cylinder and *carefully* seat the ring into the stop ring groove. Do not deform the ring.
4. Install the friction ring.
5. Visually inspect the tooling assembly to assure that the locking collar, stop ring, and friction ring are properly installed.
6. Using a caliper, measure the diameter of the stop ring. See Figure 11. Take measurements at several different locations around the ring. If the measurements are within the tolerance (for the stop ring being used) provided in Figure 12, the tooling assembly is considered dimensionally correct. If any of the measurements are not within the tolerance, refer to Paragraph 9.2 for information on obtaining further evaluation and repair.

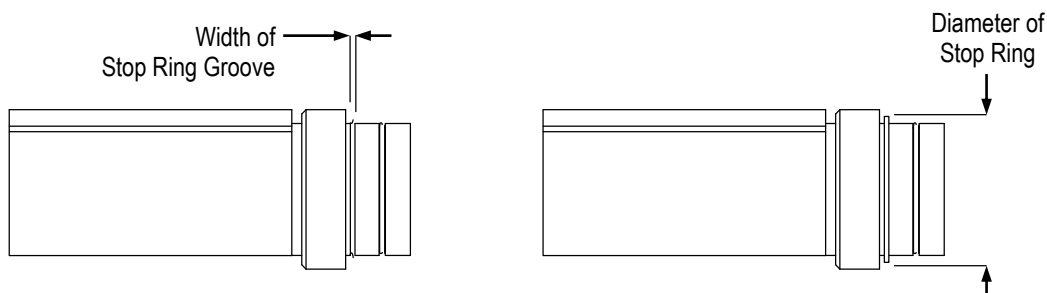


Figure 11

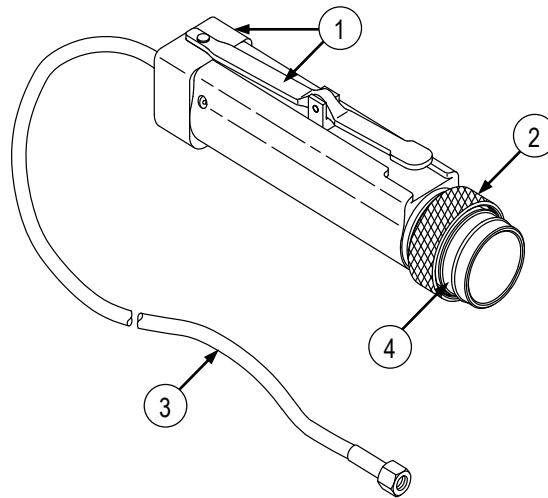
## 9.2. Replacement Parts and Repair

Replacement parts and recommended spares are identified and listed in Figure 12. For replacement parts for crimping heads, adapters, and crimping dies, refer to the instruction sheet packaged with the head, adapter, or crimping dies.

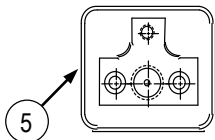
To order replacement parts, call 1-800-522-6752, send a facsimile of your purchase order to 717-986-7605, or write to:

CUSTOMER SERVICE (038-035)  
 TYCO ELECTRONICS CORPORATION  
 PO BOX 3608  
 HARRISBURG PA 17105-3608

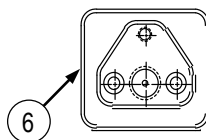
Call 1-800-522-6752 for customer repair service.



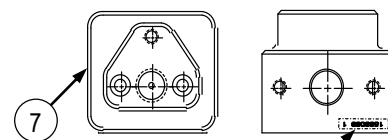
Type 1 Valve  
 Uses Repair Kit 217435-1



Type 2 Valve  
 Uses Repair Kit 217435-2



Type 3 Valve  
 Uses Repair Kit 1583089-1



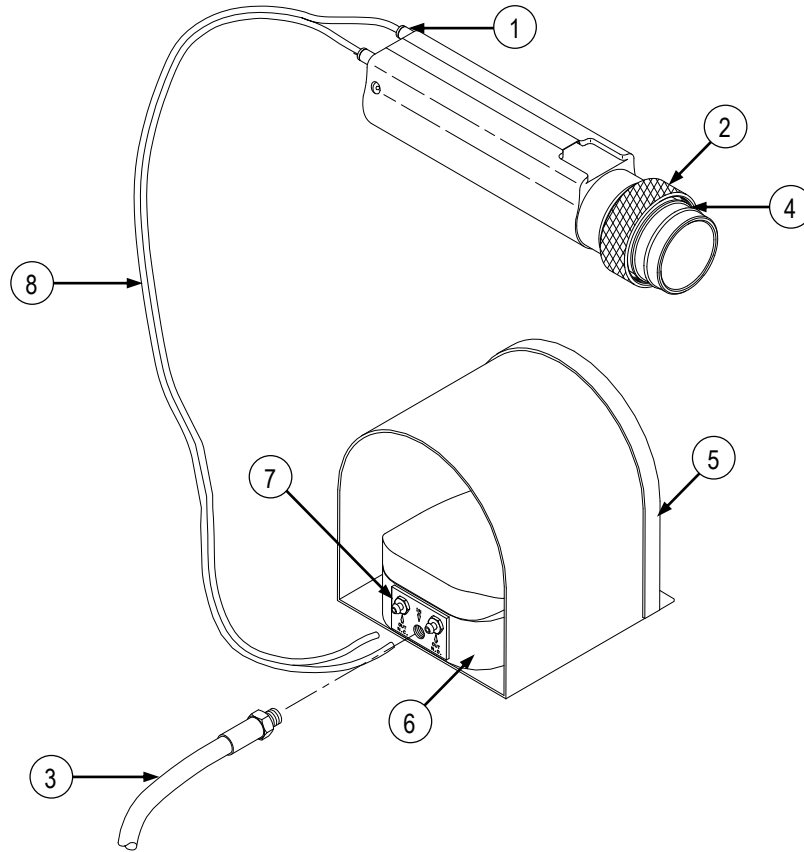
Part Number Stamped On Valve

Replacement Parts for Hand Actuated Power Units 189721-[ ] (Non-Logic)

ITEM	PART NUMBER	DESCRIPTION	QTY PER UNIT
1	1583088-1	VALVE ASSEMBLY, Pneumatic	1
2	189848-1	COLLAR, Locking	1
3	38111	HOSE, Air	1
4	904381-1	RING, Stop (Groove Width 0.99 mm [.039 in.] Approx, Ring Dia 51.05 mm [2.01 in.] Max)	1
	904384-1	RING, Stop (Groove Width 1.73 mm [.068 in.] Approx, Ring Dia 50.5 mm [1.99 in.] Max)	
5	217435-1 ‡	REPAIR KIT, Spool (O-Rings and Return Spring for Valve Body)	1
6	217435-2 ‡	REPAIR KIT, Spool (O-Rings and Return Spring for Valve Body)	1
7	1583089-1 ‡	REPAIR KIT, Spool (Seals, Spool Cap, and Spring for Valve Body)	1
Not Shown	217434-1 ‡	REPAIR KIT, Seals (O-Rings and Snap Rings for Power Unit)	1

‡ Recommended spare part

Figure 12 (Cont'd)



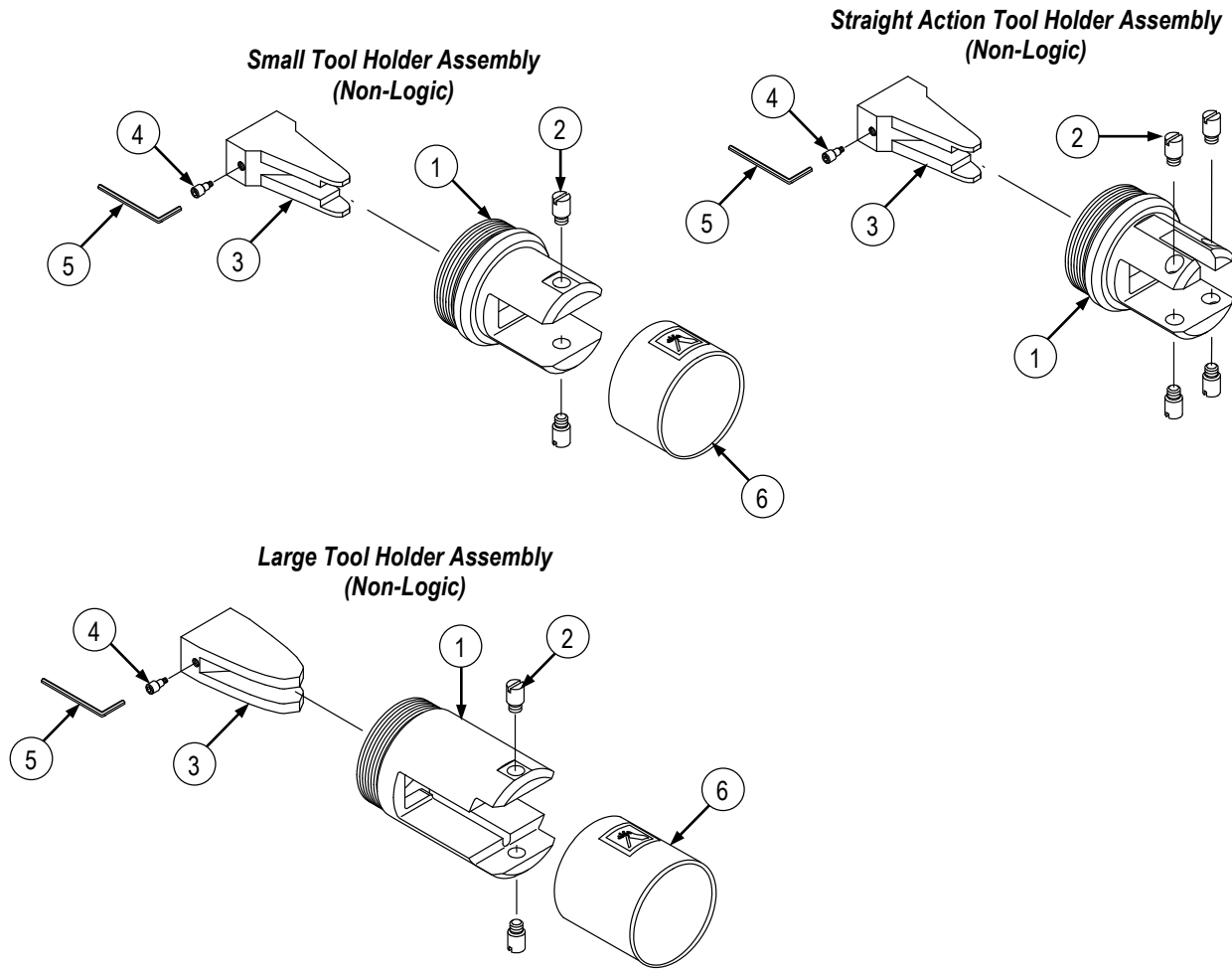
Replacement Parts for Foot Actuated Power Units 189722-[ ] (Non-Logic)

ITEM	PART NUMBER	DESCRIPTION	QTY PER UNIT
1	189847-1	FITTING, Quick Connect	2
2	189848-1	COLLAR, Locking	1
3	38111-0	HOSE, Air	1
4	904381-1	RING, Stop (Groove Width 0.99 mm [.039 in.] Approx, Ring Dia 51.05 mm [2.01 in.] Max)	1
	904384-1	RING, Stop (Groove Width 1.73 mm [.068 in.] Approx, Ring Dia 50.5 mm [1.99 in.] Max)	
5	453866-1	GUARD	1
6	19912-1	VALVE, Foot Pedal	1
7	986886-2	FITTING, Quick Connect	2
8	985794-1	HOSE, Molded, Twin	1
Not Shown	217434-1 ‡	REPAIR KIT, Seals (O-Rings and Snap Rings for Power Unit)	1

‡ Recommended spare part

Figure 12 (Cont'd)



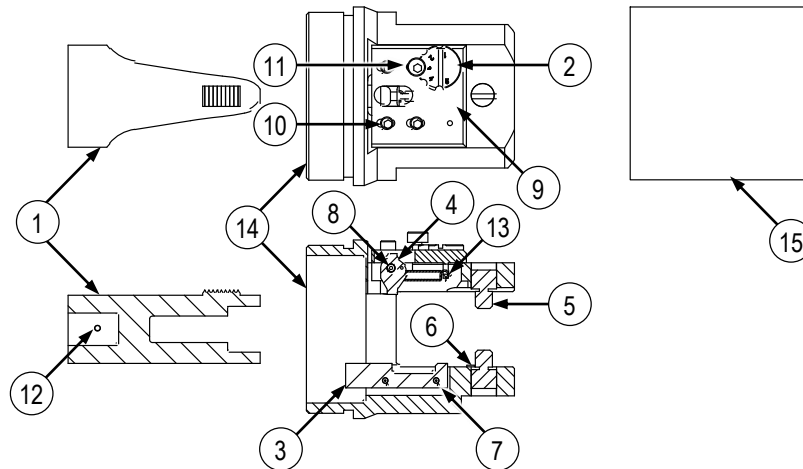


**Replacement Parts for Tool Holder Assembly (Non-Logic)**

ITEM	PART NUMBER	DESCRIPTION	QTY PER ASSEMBLY		
			Large 189767-1	Small 189766-1	Straight Action 189928-1
1	189726-1	TOOL HOLDER, Large	1	—	—
	189725-1	TOOL HOLDER, Small	—	1	—
	217350-1	TOOL HOLDER, Straight Action	—	—	1
2	354425-1 ‡	PIN, Pivot	2	2	4
3	189764-1	CAM, Large	1	—	—
	189763-2	CAM, Small	—	1	—
	189763-1	CAM, Straight Action	—	—	1
4	189765-1 ‡	SETSCREW, 10-32	1	1	1
5	21027-6 ‡	WRENCH, Hex	1	1	1
6	356022-1 ‡	SLEEVE, Safety	1	1	—

‡ Recommended spare part

Figure 12 (Cont'd)



Replacement Parts for Tool Holder Assembly (Logic)

ITEM	PART NUMBER	DESCRIPTION	QTY PER ASSEMBLY		
			Large 189767-1	Small 189766-1	Straight Action 189928-1
1	356444-1	CAM, Large	1	—	—
	356438-1	CAM, Small	—	1	—
	356623-1	CAM, Straight Action	—	—	1
2	356439-1	ECCENTRIC	1	1	1
3	356440-1	INSERT, 626 Ratchet	1	—	—
	356440-2	INSERT, 626 Ratchet	—	1	—
4	356441-1	PAWL	1	1	1
5	354425-1 ‡	PIN, Pivot	2	2	4
6	3-21028-4	PIN, Slotted Spring (.09×.375 in.)	—	2	—
7	4-21028-4	PIN, Slotted Spring (.09×1.00 in.)	2	2	—
8	4-21028-9	PIN, Slotted Spring (.125×.375 in.)	1	1	1
9	356437-1	PLATE, Eccentric Adjustment	1	1	1
10	1-21000-5	SCREW, Socket Head Cap (4-40×.50 in.)	3	3	3
11	21989-3	SCREW, Socket Head Shoulder (.125×.25 in.)	1	1	1
12	189765-1 ‡	SETScrew, Special	1	1	1
13	37887	SPRING	1	1	1
14	356443-1	TOOL HOLDER, Large	1	—	—
	356442-1	TOOL HOLDER, Small	—	1	—
	356624-1	TOOL HOLDER, Straight Action	—	—	1
15	356022-1 ‡	SLEEVE, Safety	1	1	—

‡ Recommended spare part

Figure 12 (End)

## 10. REVISION SUMMARY

Revisions to this customer manual include:

- Changed company name and logo, and updated manual to corporate requirements
- Removed reference to catalog from Section 1