

Rivet Tool

Maintenance Manual



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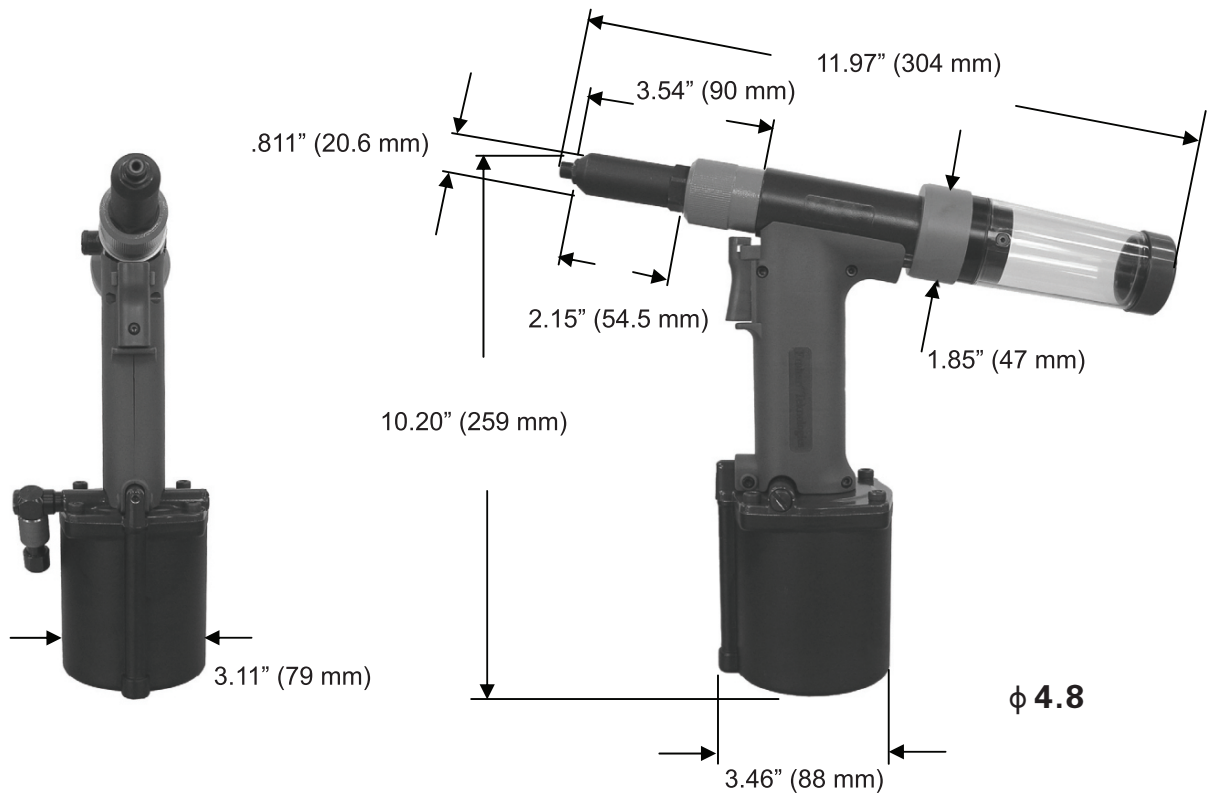
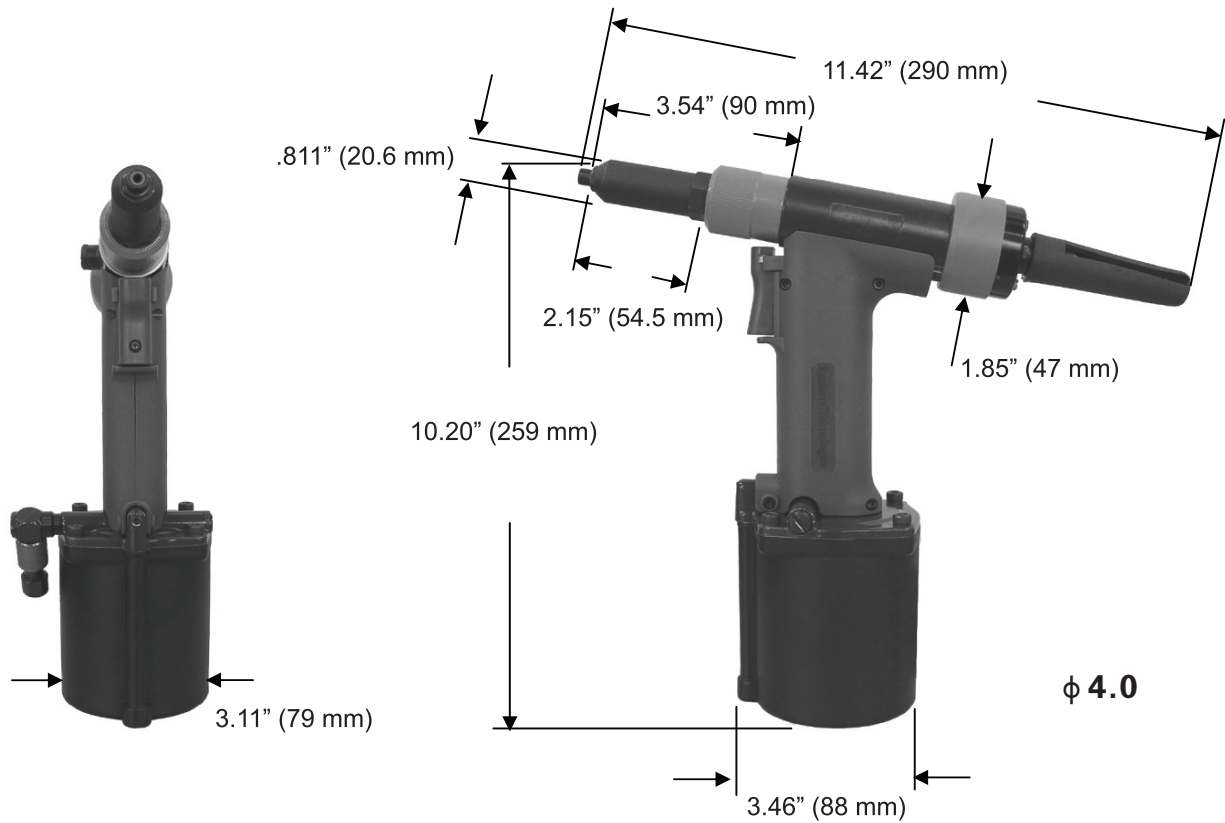
Safety Instructions



TO INSURE PROPER FUNCTIONING AND SAFE OPERATION READ THIS MANUAL CAREFULLY BEFORE SETTING UP OR OPERATING THE 6000 SERIES TOOLS

1. **DO NOT** use this tool in a manner other than that recommended.
2. Always wear eye protection when using or when near a tool that is in use.
3. This tool is **NOT** designed for use in explosive atmospheres.
4. Inspect tool for damage before connecting to air supply including all air connections.
5. Trained personnel must perform tool repair and/or maintenance at the prescribed intervals.
6. Disconnect the air supply when adjusting, servicing or removing any part of the tool.
7. Keep fingers off the trigger when connecting the air supply or if the air supply fails.
8. Keep fingers away from the front of the tool when connecting the air supply or setting rivets.
9. **DO NOT** point the tool at anyone.
10. **DO NOT** operate tool with the nose housing removed.
11. **DO NOT** operate tool without the Deflector or Collector.
12. **DO NOT** modify the tool in any way. Modification will make void any applicable warranties and could result in damage to the tool or physical injury to the user.
13. **DO NOT** look into the tool from the front or the back during use or when connected to air supply.
14. The operating pressure must not exceed 100 psi (6.9 bar).
15. **DO NOT** direct tool exhaust towards anyone.
16. Wash hands if exposed to hydraulic fluid or lubricant.
17. Keep hair, fingers and loose clothing away from moving parts of the tool.

Dimensions



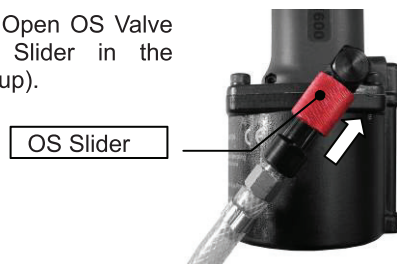
Basic Tool Operation

Before operating the tool check the following:

- ❑ Inspect tool for damage or leaking oil – **do not use tool if it is damaged or leaking oil.**
- ❑ Check that correct nosepiece is fitted and tightened to 60 - 65 in-lbs [6.8 – 7.3 N-m] torque.
- ❑ Check that the nose housing nut (8) is tight – hand tighten only.
- ❑ Connect tool to air supply – see air supply requirements (page 4).
- ❑ Fit Mandrel Collector (96) – (MCS tool only).
- ❑ Open air supply valve by Sliding red OS Sleeve (93) on side of tool (see note below).
- ❑ Insert rivet into nosepiece.
- ❑ Position rivet in work piece.
- ❑ Pull trigger to set rivet.
- ❑ Release trigger – if equipped, MCS suction will draw mandrel into the collector.

! Note: The tool has an OS (Open-Shut) Valve for switching the air supply ON and OFF to save air when the tool is not in use.

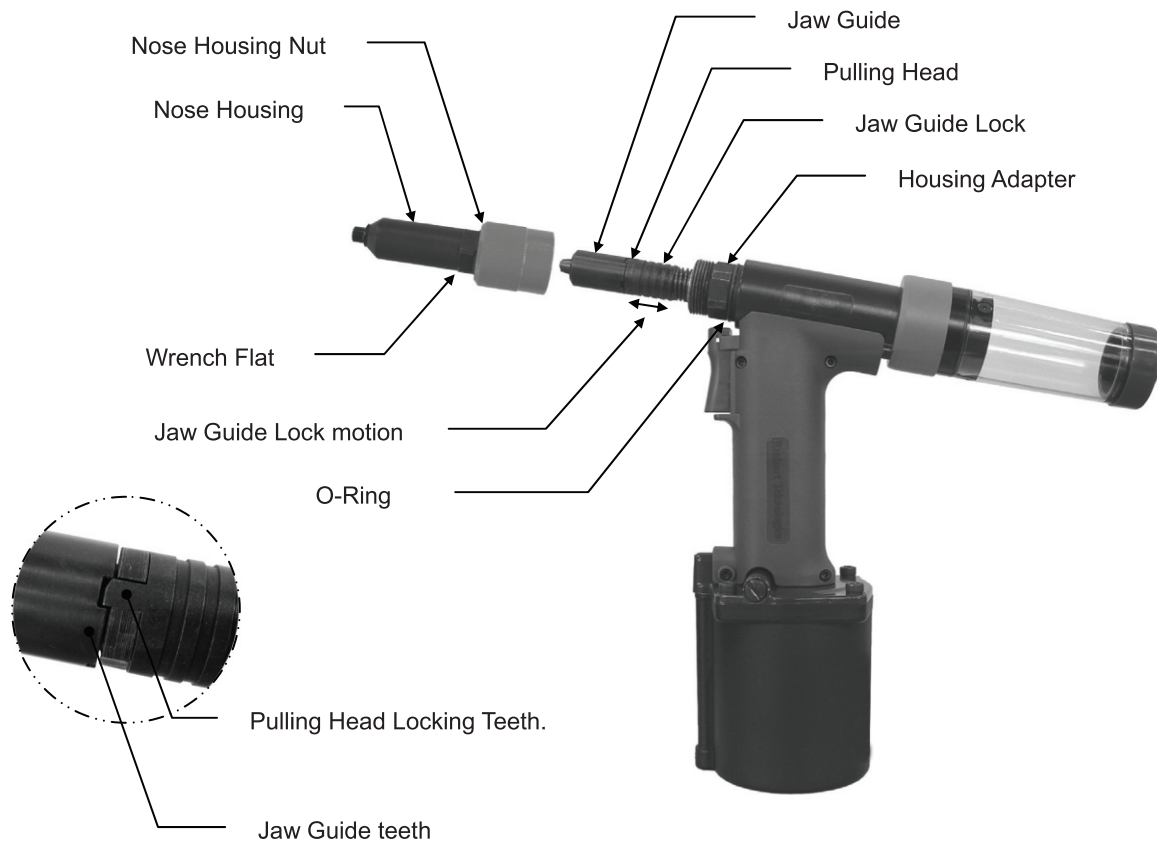
Air Supply ON: Open OS Valve by sliding OS Slider in the direction shown (up).



Air Supply OFF: Close OS Valve by sliding OS Slider in the direction shown (down).



Front End Service



For optimum tool performance, Front-End maintenance should be performed regularly as per the "Preventative Maintenance Schedule".

! Note: UNPLUG AIR SUPPLY while servicing front-end to avoid INJURY.

1. REMOVE NOSE HOUSING:

Unscrew the Nose Housing Nut by hand and slide Nose Housing off the tool.

2. REMOVE JAW GUIDE TO ACCESS JAWS AND INTERNAL PARTS:

Pull back the Jaw Guide Lock to disengage the Jaw Guide Lock teeth and unscrew and remove the Jaw Guide.
Remove Jaws, Jaw Pusher, and Jaw Pusher Spring for servicing.

3. CLEAN PARTS:

Clean Jaws, Jaw Guide, Jaw Pusher, Spring and thread area of the Pulling Head.
Apply Seal Lube to outside surface of Jaws and inside surface of the Jaw Guide.

4. REASSEMBLY OF INTERNAL PARTS AND JAW GUIDE:

Place the Jaws into the Jaw Guide and slide the Jaw Pusher Spring and Jaw Pusher into the Pulling Head.
Apply a small amount of Seal Lube to the Pulling Head threads and Jaw Guide Lock teeth. Screw the Jaw Guide onto the Pulling Head until the teeth on the Jaw Guide Lock stop the Jaw Guide rotating.

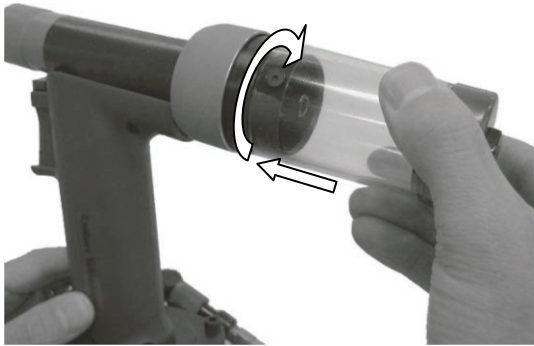
Apply Jaw lubricant to the Jaw area by submerging the assembled Jaw Guide into Jaw lube about 1 in. (25mm).
Clean off excess Jaw Lube from the outside of the Jaw Guide.

5. REINSTALL NOSE HOUSING ASSEMBLY:

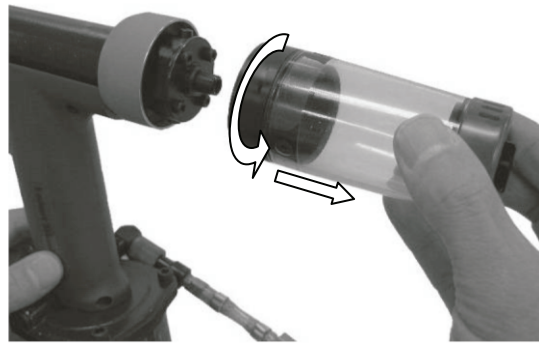
Refit the Nose Housing and Hand-tighten the Nose Housing Nut securely against the O-Ring. If the Nut is not tightened sufficiently against the O-Ring there may be a loss of suction.

Mandrel Collection System (MCS) 6000 MCS

For safety purposes, removing the Collector from the tool automatically turns the MCS suction OFF. Refitting the Collector turns the MCS suction ON.



MCS suction ON



MCS suction OFF

Cleaning the Collector Silencer

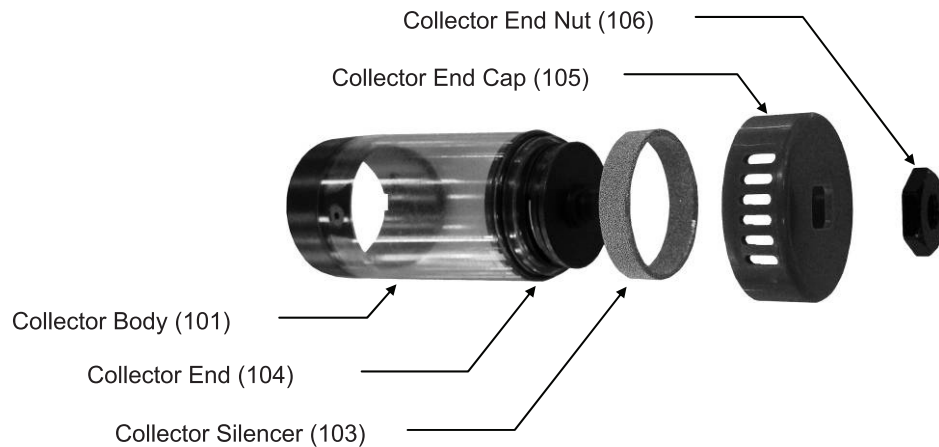
For optimum performance, the Collector Silencer should be cleaned at regular intervals as per the "Preventative Maintenance Schedule".



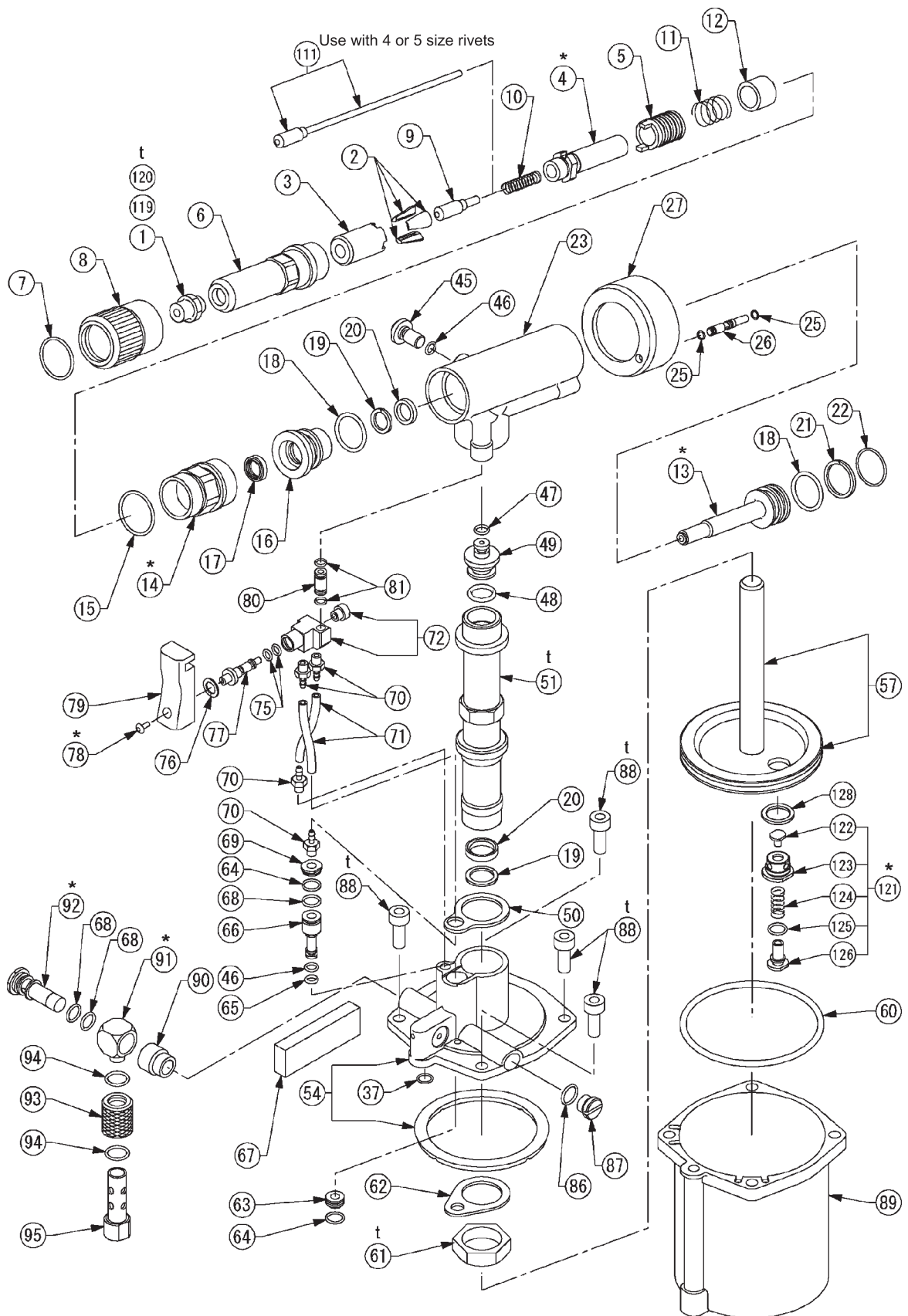
Note: UNPLUG AIR SUPPLY while servicing Collector to avoid INJURY.

1. CLEAN THE COLLECTOR :

- Remove and empty the Collector (96) by turning counterclockwise.
- Remove the Collector End Nut (106) (17mm wrench) and remove the Collector End Cap (105).
- Remove the Collector Silencer (103).
- Clean and remove debris from all components.

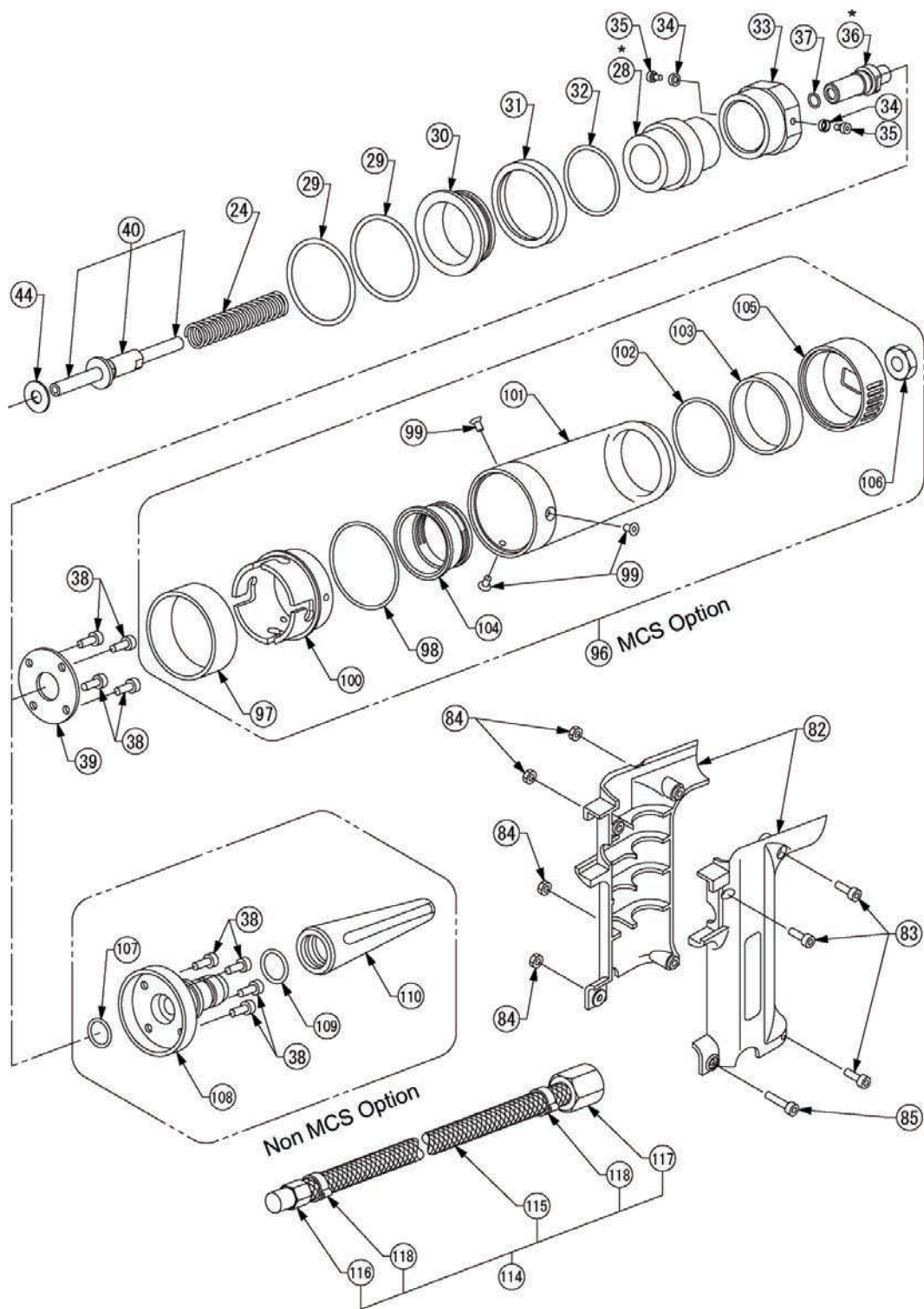


Diagram



(*) These items require Loctite® 242 adhesive.

(†) These items have a specific tightening torque as indicated in the "Tool Assembly Torque Requirements" table.



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Parts List

Item	Part No.	Description	6000	6000 MCS	Item	Part No.	Description	6000	6000 MCS
1		Nose Piece	1	1	76	076	Retaining Ring	1	1
2		13300	1set(3)	1set(3)	77	077	S Valve Rod	1	1
3		Jaw Guide	1	1	78	078	Button Head Cap Screw	1	1
4		Pulling Head	1	1	79	079	Trigger	1	1
5		Jaw Guide Lock	1	1	80	080	Connect Tube	1	1
6		Nose Housing	1	1	81	081	O-Ring	2	2
7		O-Ring	1	1	82	082	Handle Assembly	1	1
8		Nose Housing Nut	1	1	83	083	Socket Head Cap Screw	3	3
9		Jaw Pusher	1	1	84	084	Hexagon Nut	4	4
10		Jaw Pusher Spring	1	1	85	085	Socket Head Cap Screw	1	1
11		Spring	1	1	86	086	O-Ring	1	1
12		Spring Receiver	1	1	87	087	Plug	1	1
13		Hydraulic Piston	1	1	88	088	Socket Head Cap Screw	4	4
14		Housing Adapter	1	1	89	089	Chamber	1	1
15		O-Ring	1	1	90	090	R Joint Spacer	1	1
16		Rod Seal Case	1	1	91	091	R Joint	1	1
17		Scraper	1	1	92	092	R Joint Adapter	1	1
18		O-Ring	2	2	93	093	O S Slider	1	1
19		B.U-Ring	2	2	94	094	O-Ring	2	2
20		Penta Seal	2	2	95	095	O S Joint	1	1
21		B.U-Ring	1	1	96	096	Collector (Assembly)	-	1
22		O-Ring	1	1	97	097	Collector Lock Collar	-	1
23		Handle Upper	1	1	98	098	O-Ring	-	1
24		Return Spring	1	1	99	099	Flat Head Cap Screw	-	3
25		O-Ring	2	2	100	100	Collector Lock	-	1
26		MCS Valve Rod	1	1	101	101	Collector Body	-	1
27		MCS Cap	1	1	102	102	O-Ring	-	1
28		End Cap Adapter	1	1	103	103	Collector Silencer	-	1
29		O-Ring	2	2	104	104	Collector End	-	1
30		Slider	1	1	105	105	Collector End Cap	-	1
31		Slider Pusher	1	1	106	106	Collector End Nut	-	1
32		O-Ring	1	1	107	107	O-Ring	1	-
33		End Cap	1	1	108	108	Deflector Adapter	1	-
34		Collar	2	2	109	109	O-Ring	1	-
35		Collar Screw	2	2	110	110	Deflector	1	-
36		Ejector Guide	1	1	111	111	Jaw Pusher Assembly	1	1
37		O-Ring	2	2	114	114	Air Line Assembly	1	1
38		Socket Head Cap Screw	4	4	115	115	Air Line	1	1
39		End Cap Plate	-	1	116	116	Air Line Fitting	1	1
40		Ejector (Assembly)	1	1	117	117	Hose Female Fitting	1	1
44		Packing	1	1	118	118	O-Clamp (0911)	2	2
45		Fill Screw	1	1	119	119	Nose Piece 4Size	1	1
46		O-Ring	2	2	120	120	Nose Piece 5Size	1	1
47		O-Ring	1	1	121	121	EXT Valve Assembly	1	1
48		O-Ring	1	1	122	122	EXT Valve Head	1	1
49		Sleeve Upper	1	1	123	123	EXT Valve Case	1	1
50		Upper Plate	1	1	124	124	EXT Valve Spring	1	1
51		Sleeve Lower	1	1	125	125	O-Ring	1	1
54		Handle Lower Assembly	1	1	126	126	EXT Valve Rod	1	1
57		Air Piston Assembly	1	1	128	128	Washer	1	1
60		O-Ring	1	1					
61		Sleeve Lock Nut	1	1					
62		Bottom Plate	1	1					
63		J Valve Cap	1	1					
64		O-Ring	2	2					
65		O-Ring	1	1					
66		J Valve Rod	1	1					
67		EXT Silencer	1	1					
68		O-Ring	3	3					
69		Valve Stopper	1	1					
70		Fitting	4	4					
71		Air Tube	2	2					
72		S.V Case Assembly	1	1					
75		O-Ring	2	2					

Hydraulic Oil Charging Procedure

! IMPORTANT. TOOL MUST BE DISCONNECTED FROM THE AIR SUPPLY. USE ONLY APPROVED HYDRAULIC OIL SPECIFIED IN THIS MANUAL.

1. Disconnect from air supply.
2. Remove Nose Housing (6) and Collector (96).
3. Remove four Socket Head Cap Screws (88) using 4mm Hex-Key wrench (accessory). (Fig. 1)
4. Turn tool upside down and remove Chamber (89). Then pull out Air Piston Assembly (57). (Fig. 2)
5. Drain the oil from the tool into a waste oil container.
6. Clean the dirt off the Air Piston Assembly (57) and inner Chamber (89) with a clean rag. Apply a thin layer of Seal Lube to inner Chamber.
7. Loosen Jaw Guide (3) approximately 3 full turns or a 0.12" (3mm) gap and loosen Fill Screw (45) approximately 3 - 3½ full turns or a 0.14" (3.6mm) gap (Fig. 3).
8. Secure the tool upside down again and pour hydraulic oil into Sleeve Lower (51) to the level of the Backup Ring (white part) (19). (Fig. 4)
9. Push Air Piston Assembly (57) into Sleeve Lower (51) to half-way point so that dirty hydraulic oil and air bubbles will come out from the loosened Fill Screw (45). Hold Air Piston Assembly until no more oil or bubbles come out. (Fig. 5)
10. Loosely tighten Fill Screw (45) and pull out Air Piston Assembly (57).
11. Pour more hydraulic oil into Sleeve Lower (51) to the level of the Backup Ring and push Air Piston Assembly (57) into Sleeve Lower (51). Push Air Piston inwards then outwards 5-6 times in a slow, constant motion. Then pull it out and check for bubbles rising to the oil surface. If there are still bubbles, repeat the procedure until there are no more bubbles (Fig. 6).
It may be necessary to repeat this procedure 2-3 times to bleed all bubbles from the oil.
If after 3 attempts there are still bubbles in the oil, go back to No.5 and start again by draining the hydraulic oil.

Fig. 1

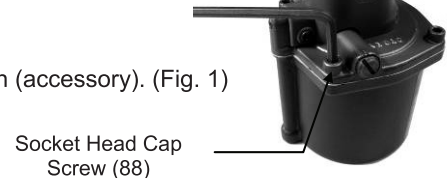


Fig. 2

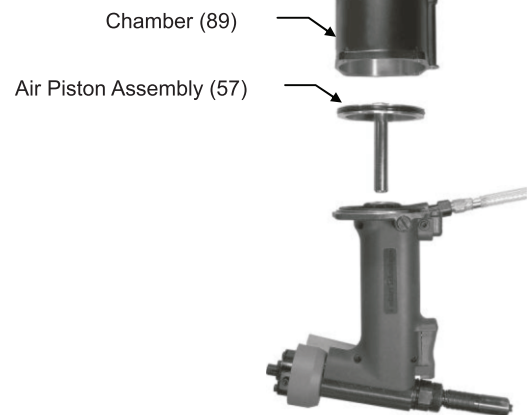


Fig. 3

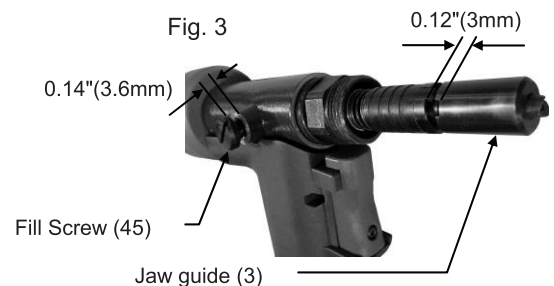


Fig. 4

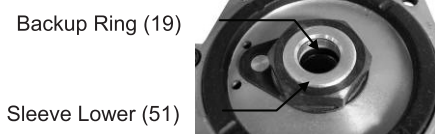


Fig. 5

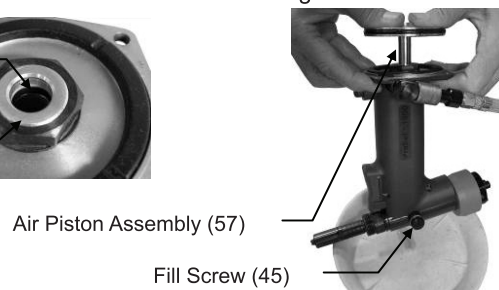
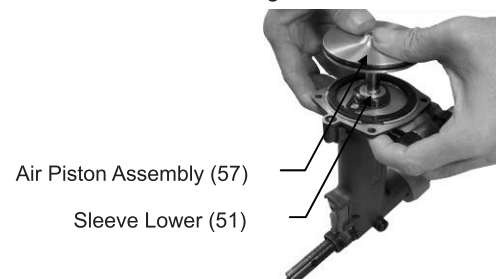


Fig. 6



12. When there are no more bubbles in the oil, top off the hydraulic oil in the Sleeve Lower (51) to the level of the Backup Ring (19).
13. Make sure the Jaw Guide (3) is loose (see No.7). Push the Air Piston Assembly (57) into the Sleeve Lower (51) to the half-way point. While holding the Air Piston at the half-way point, replace the Nose Housing and hand tighten.
14. With a clean rag, wipe off any oil on the Air Piston Assembly (57), Handle Lower Assembly (54), and Sleeve Lower (51). Put Chamber (89) over Air Piston Assembly (57) then turn the tool upright and tighten the four Socket Head Cap Screws (88) to a Torque of 46 - 51 in-lbs (5.2 – 5.8 N-m).
15. Remove the Nose Housing (6), and tighten the Jaw Guide (3) by hand until it stops.
16. Loosen the Fill Screw (45) approximately 3 - 3½ full turns or a 0.14"(3.6mm) gap to allow excess hydraulic oil and bubbles to escape. When no more oil comes out, tighten the Fill Screw (Fig. 7).
17. Wipe off any dirt and oil on the tool.
18. Replace the Nose Housing (6) and Collector (96).

Fig. 7



Note: During assembly and disassembly, do not allow any metal swarf or dirt into the Hydraulic Oil and inner Chamber.

Maintenance

Preventative Maintenance Schedule		
Item	Action	Frequency
Clean and lubricate Front End of tool	See "Front End Service"	1 x per day or 5,000 rivet settings.
Inspect jaws	Look for broken jaws and damage or wear on jaw teeth.	During "Front End Service" or when jaws slip on mandrel.
Collector	Empty Collector	When the quantity of stored spent Mandrels starts to interfere with mandrels entering the Collector. (Storage quantity depends on rivet – approx. 50-70 3/16" (4.8mm) rivets).
	Clean Collector Silencer	Once a week or when MCS suction will not pull spent mandrels into the Collector.

Troubleshooting

Symptom	Probable Cause	Remedy
TOOL FAILS TO OPERATE	Tool not connected to air supply. OS Valve is in "OFF" position. Insufficient air pressure. Air pressure is too high. Tool is low on hydraulic fluid.	Connect to recommended air supply source. Slide OS Valve to ON position. Adjust air supply pressure. Adjust air supply pressure. Service tool by qualified service personnel.
TOOL NOT RETURNING	Possible jam due to debris in Nose Housing.	Perform "Front End Service" and check for debris or damage.
TOOL LOSING STROKE	Tool low on hydraulic fluid.	Service tool by qualified service personnel.
JAWS SLIPPING ON MANDRELS	Jaws dirty or need lubrication. Jaws worn.	Clean and lube jaws. Replace jaws.
JAWS FAIL TO OPEN	Dirty Nose Housing, Jaws or Jaw Guide. Nose Housing loose. Excess hydraulic oil in tool.	Perform "Front End Service" and clean inside of Nose Housing. Tighten Nose Housing. Service tool by qualified service personnel.
MANDREL STICKING IN JAWS	Jaws dirty or need lubrication.	Perform "Front End Service" to clean and lubricate Jaws.
RIVET FAILS TO INSERT INTO NOSEPIECE	Incorrect nosepiece. Shear ring stuck in hole of nosepiece.	Install correct nosepiece. Remove shear ring, check for the correct Nosepiece and review application parameters to ensure proper riveting.
RIVET MANDREL DOES NOT BREAK	Rivet not fully set. Mandrel break load requirement too high. Insufficient air pressure.	Repeat stroke required, or change rivet. Upgrade tool. Adjust air supply pressure to recommended level.
MCS NOT WORKING	Tool not connected to air supply. Collector not tight or missing. Mandrel path blocked.	Connect to recommended air supply source. Check Collector. Clear mandrel path.
LOW VACUUM	Dirty Silencer. Collector is full of mandrels. Insufficient air pressure.	Clean or change Silencer. Discard the mandrels. Adjust air supply pressure.