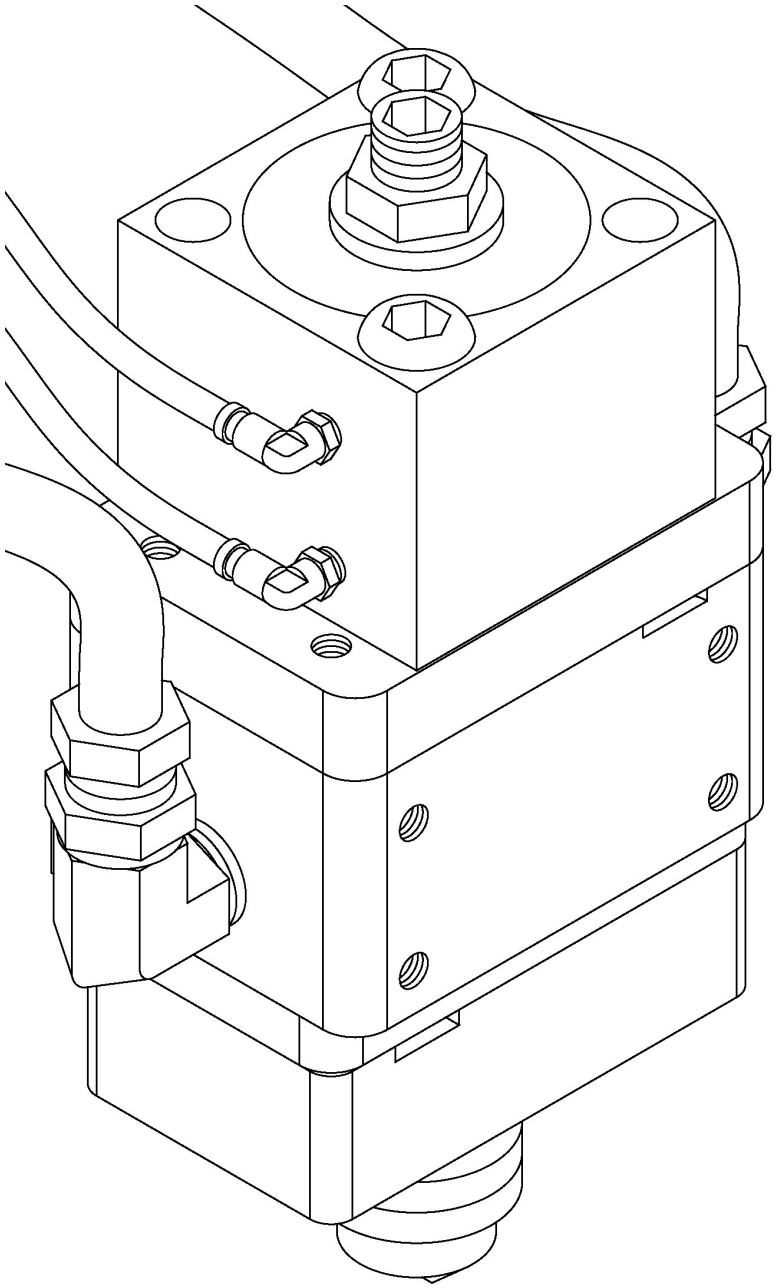

Snuff-Back Gun
Operating Instructions

Rook Metering Equipment

MICHAEL
ENGINEERING LIMITED

Rev. 12-2019

5625 Venture Way
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Snuff-Back Gun

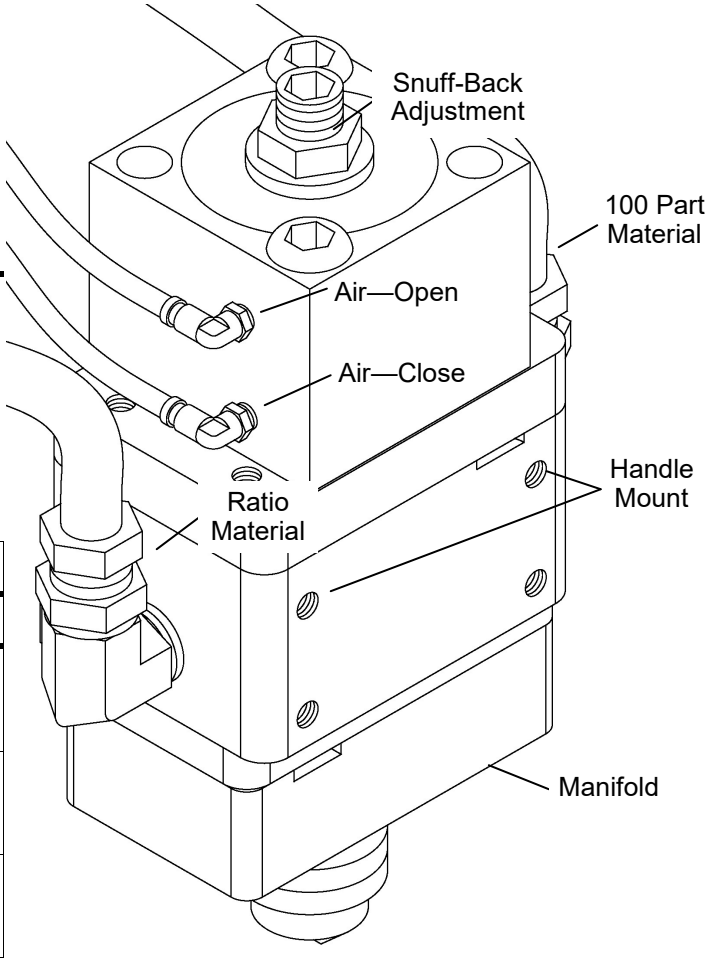
The Snuff-Back Gun is a two-part static mixer manifold. The main feature of this manifold is that it contains valves that stop the flow of material instantly and “snuff-back” a small amount of both materials, breaking the bead of material and allowing the operator to quickly and cleanly move to the next part.

The Snuff-Back Gun can mount on a stand or robotic arm, or be fitted with a handle for hand held operation. Control of the ratio must be maintained by the equipment feeding the Snuff-Back Gun. No control of the ratio is provided by the Snuff-Back Gun. Be sure to properly time, purge, and ratio check the metering machine before installing a mixer to the Snuff-Back Gun.

Resin and hardener are supplied from a metering machine through the hoses to the left and right sides of the gun body. Air lines are connected to control the opening and closing of the gun. When the rear airline has pressure the gun is ON; the cylinder moves forward. This opens the fluid path through the manifold. When the front airline has pressure the gun is OFF; the pintles retract into their seals. This closes the fluid path out the manifold and creates a snuff back action that prevents dripping.

Snuff-Back

The amount of snuff-back is controlled by an adjustment screw on the rear of the gun. Excessive snuff-back will cause mixed material to be retracted into the gun. Use the minimum amount of snuff back necessary to stop the flow of material. Turning the adjustment screw clockwise reduces snuff-back; counter-clockwise increases the snuff-back.

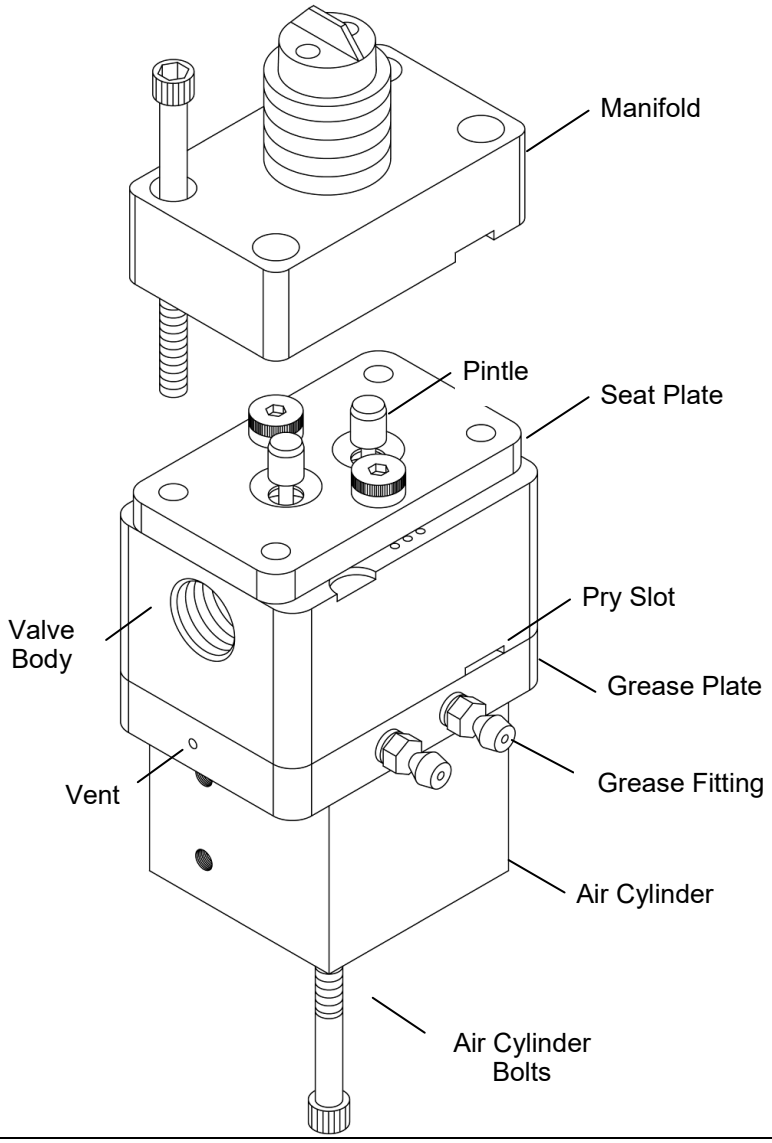


Maintenance

Routine maintenance is very important. Postponing maintenance will cause further issues and stoppages. Daily maintenance is required to keep a long life of the 450 Gun.

O-Ring Compatibility		
Type of O-Ring	**Color**	**Recommended Solvent**
Viton	Green or Brown	Methylene Chloride Alcohol Carbon Tetrachloride
EP	Black	MEK Ketones Acetone
Teflon	Clear/ Orange	All Chemicals Encapsulated

Maintenance



Tool List	
Part	Tool
Air Cylinder Bolts, Manifold Bolts, Mount Bolts	5/32” Allen Wrench
Pintle Bolts	7/64” Allen Wrench
Grease Fitting	1/4” Wrench
Body Assembly Bolts	1/8” Allen
Input Hose Fittings	11/16” Wrench
Snuff-Back Adjustment Bolt	3/16” Allen Wrench
Snuff-Back Adjustment Nut:	9/16” Wrench
Air Line Fittings	5/16” Wrench

Maintenance

Routine Maintenance

1. **Daily—**Using the supplied grease gun, pump grease through the grease fittings, in order to remove material that has leaked past the seals, the grease must be pumped until clean grease is visible at the vents.
2. Wipe the nose of the manifold clean and apply grease to the threads.

Routine Cleaning

1. Remove the manifold. Wipe off any material and soak for a full clean.
2. Clean the pintles by advancing the snuff-back adjustment until the pintles are visible from the seal plate. Wipe the spool valves with a solvent until clean.

Disassembly

Disassembly is best done if all fittings (fluid and pneumatic) are removed from the gun assembly.

Note: All numbers in parentheses represent the key number on the Replacement Parts Page, (for example; (1) is the manifold bolts shown on the replacement parts page).

1. Separate the manifold (2) from the gun assembly.
   Remove the four manifold bolts (1).
   If the manifold is frozen use the pry slots on the top and bottom to carefully pry the manifold from the gun assembly.
2. Remove the two air cylinder bolts (13) located at the corners of the air cylinder body.
3. Remove the air cylinder and pintles as a unit from the assembly.
   If not frozen the air cylinder should pull it out of the assembly. Take extreme care not to bend the pintles when removing the air cylinder.
   If frozen use the pry slots on the top and bottom of the assembly to carefully separate the air cylinder. Fastening the valve body in a vise can be helpful for this step.
4. Remove seat plate (5).
   Remove the two shoulder bolts (4) holding it in place.
   If frozen use the pry slots on the top and bottom to carefully pry the seat plate from the assembly.
5. Once the air cylinder is removed the valve body and grease plate should also separate and the gun is completely disassembled except for the air cylinder.

Optional Air Cylinder Disassembly

***** If it appears that the air cylinder has been contaminated with material it must be disassembled and cleaned, and if needed repaired.**

1. Remove the backing plate (17).
   Remove the two bolts holding the backing plate (14). Grab the snuff back adjustment screw (19) with a pair of pliers and pull the backing plate out of the air cylinder.
2. Remove the piston-pintle assembly from the air cylinder housing (12).
   *****This procedure must be done with great care so the pintles are not bent or damaged.**
   Push evenly on both pintles to force the piston-pintle assembly out of the air cylinder housing.

If Frozen:

Applying compressed air to the gun close port of the air cylinder will often force the piston out.
Using a small hand press and applying a straight, even force to the pintles is usually effective in forcing the piston-pintle assembly out of the housing.

Cleaning and Inspection

All parts must be thoroughly cleaned and inspected for damage and wear.

Acetone will work well to remove most resins that are still in a liquid state.

If the material has hardened or crystallized, soaking the parts in a solvent containing N-methyl-2-pyrrolidone will greatly assist loosening the hardened materials so they can be cleaned without scraping and potentially damaging them.

Maintenance

Air Cylinder Reassembly:
*****If the air cylinder was not disassembled this procedure can be skipped**

1. Insert the piston O-ring (16) onto the Piston (15) and the Backing Plate O-ring (18) onto the backing plate (17).
2. Grease the inside of the air cylinder housing (12) and the piston and backing plate O-rings with (Parker Super Lube) or an appropriate substitute.
3. Insert the Piston-Pintle assembly into the air cylinder housing.
4. Install the backing plate (17) on the housing.
   Insert and tightening the backing plate bolts (14).
5. Insert the two small O-rings (11) over the pintles and seat them into their pocket on the air cylinder assembly.
6. Insert small white split rings (10) over the pintles and seat them into the same pocket on top of the small O-rings (11).

Gun Reassembly

1. Insert two lips seals (6) into the grease plate (8).
   *****The procedure for inserting the Lip seals (6) is described in detail in the 'Lip Seal Insertion tool Instructions' (Page 10).**
2. With the lip seals installed, slide the grease plate onto the air cylinder-Pintle assembly.
   Be sure the orientation of the grease plate is correct when inserting. Take care not to bend the pintle assembly when inserting.
3. Insert the lip seals (6) and Encapsulated O-rings (3) onto the Inlet block (7) and install onto the air cylinder, grease plate assembly.
   Be sure the orientation of the inlet block in correct when inserting it.
   Take care that the Encapsulated O-rings (3) do not slip from their groove when inserting the Inlet block.
4. Tighten the whole assembly together using the two 10-24x2" bolts (13)
5. Insert two lips seals (6) into the Seat Plate (5).
   Be sure the orientation is correct before inserting the lip seals. These have a reverse orientation to the first four installed.
6. Insert the two Encapsulated O-rings (3) into the Inlet block and slide the seat plate over the pintles and into place.
   Be sure the O-rings (3) stay in their groove on the Inlet block when installing the seat plate.
7. Secure the seat plate onto the gun assembly using the two shoulder bolts (4).
8. Cycle the gun open and closed using a rubber tip pneumatic gun and 50 psi of air.
   Pintles should move in and out smoothly.
9. Check the gun was properly assembled by leak testing it. *****See the Leak Testing procedure see the Leak Test instructions in this manual (Page 8).**
   Note: Don't not put the gun back in service if it fails the leak test. Disassemble the gun and inspect for a damaged seal, debris or a damaged sealing surface. Correct the issue reassemble and Leak Test again.
10. Once the gun has passed the Leak Test place the last two Encapsulated O-rings (3) into the grooves of the manifold and install the manifold onto the gun assembly. Tighten into place using the four 10-24 x 2-1/2" Bolts (1).
    If the manifold does not have the same size ports, be sure orientation of the manifold is correct before installing.
11. To finish the assembly, Install the fluid and pneumatic fittings

Maintenance

Leak Testing

1. After rebuilding the snuff-back gun, it is crucial to leak test it before remounting the gun and connecting the air lines and material lines.
2. Prior to leak testing, fill the grease plate with grease as instructed in the daily maintenance section (pg. 3).
3. Use a rubber tipped air nozzle to cycle the gun by blowing air into the two air cylinder ports (fig. 1, D), one at a time, ensuring that the system is operating properly, once finished, return the pintles to the retracted position.
4. Spray soapy water on the pintles (fig. 1, A), then blow 50 psi air into one of the inlet ports (fig. 1, B). While pressurized, make sure that there are no air bubbles at the top of the pintle, and the grease ports and vents are not leaking (fig.1, C). If air bubbles are found around the pintle, the seal pockets are bot clean or the lip seals in the seal plate may be damaged. If grease is leaking from the vents and ports (fig. 1, C) then the lip seals in the grease plate side of the inlet body are damaged, or the pocket contains debris or is scratched. Repeat for the other pintle.
5. Leak test the air cylinder by first spraying soapy water on the seam between the air cylinder and grease plate, then pressurize the air cylinder by applying air to the port closest to the grease plate (fig. 2, E). Once pressurized, ensure that there are no air bubbles around the seam between the air cylinder and grease plate. If air bubbles are found, the O-rings around the pintles at the front of the air cylinder may be damaged or not seated correctly.
6. Once the assembly passes leak testing, it may now have the manifold reattached, as well as the material lines and air lines.

Fig. 1

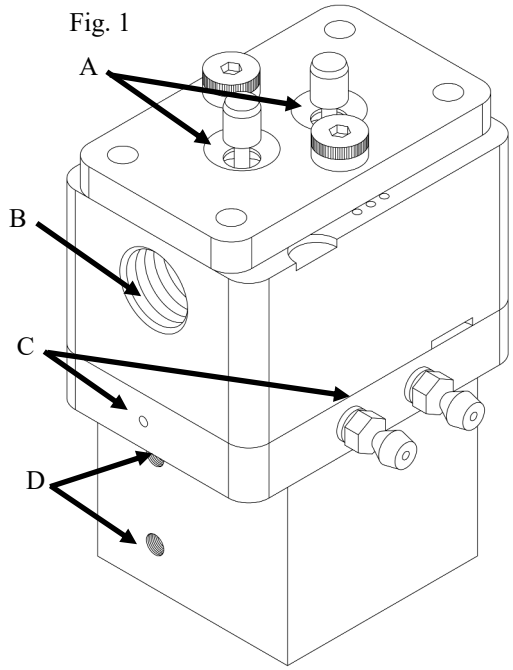
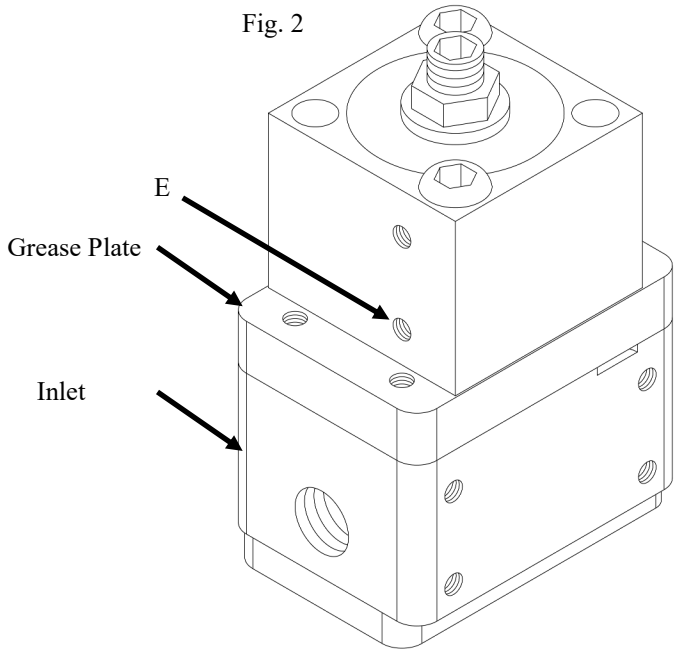


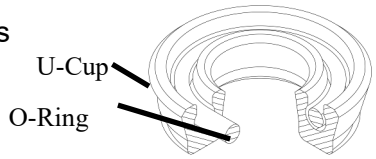
Fig. 2



Lip Seal Insertion Tool Instructions

The insertion tool is used to install the two lip seals into the Inlet Block (item 7 Page 7), and the two lip seals into the Grease Plate (item 8, page 7).
The insertion tool is Not used to install the two lip seals in the seat plate (item 5, page 7).
The lip seals for the seat plate have the opposite orientation are easily installed by hand. See diagram page 7.

Lip seals are two components: O-Ring and U-Cup. The O-Ring side should always face the material inlets.



Make sure all seal and O-ring pockets are clean and free of any material build up, dirt or debris. This is critical to get the gun properly sealed without leaking.

To use the insertion tool:

1. Apply some grease to the lip seal in order to allow for easier assembly.
2. Place seal into insertion tool with orientation shown in diagram, “lip out” (fig. 1).
3. Gently insert the seal into the tool. When fully inserted , the lip of the seal should extend slightly beyond the edge of the tool (fig 2). The lip seal should also be compressed enough to allow the edge of the seal to fit into the seal pocket for insertion.
4. Place the extended lip of the seal into the seal pocket (Fig. 3). The tool should rest flat against the surface of the part.
5. Hold the tool on the part to prevent movement. Using the press rod, push down firmly on the seal to insert it into the seal pocket.
6. Remove the tool and inspect the seal to ensure it is correctly inserted.
7. Follow the above procedure to install the remaining seals.

Lip Seal Insertion Tool
Part Number SL13-500

Fig. 1

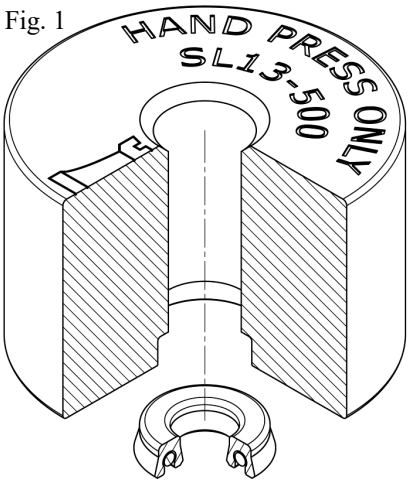


Fig. 2

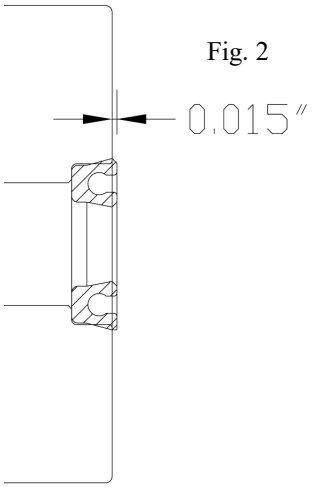
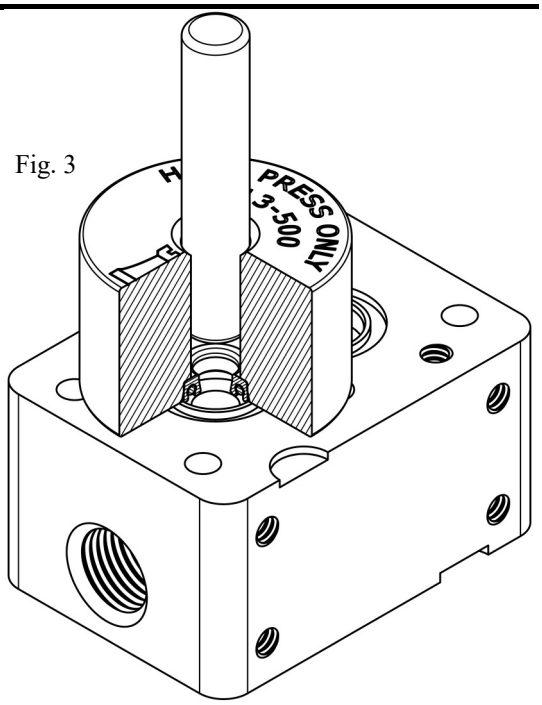
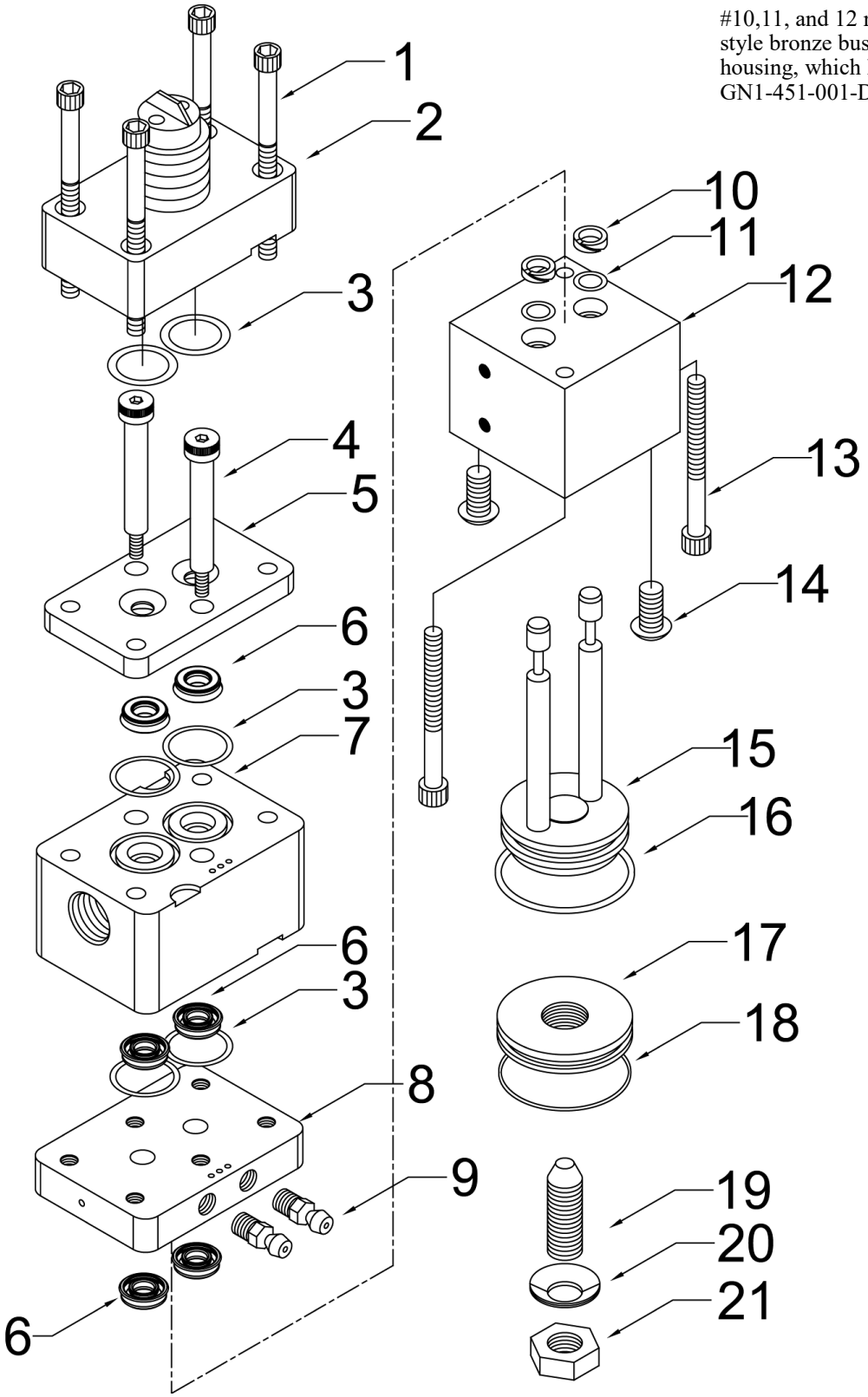


Fig. 3



Snuff Back Gun Replacement Parts

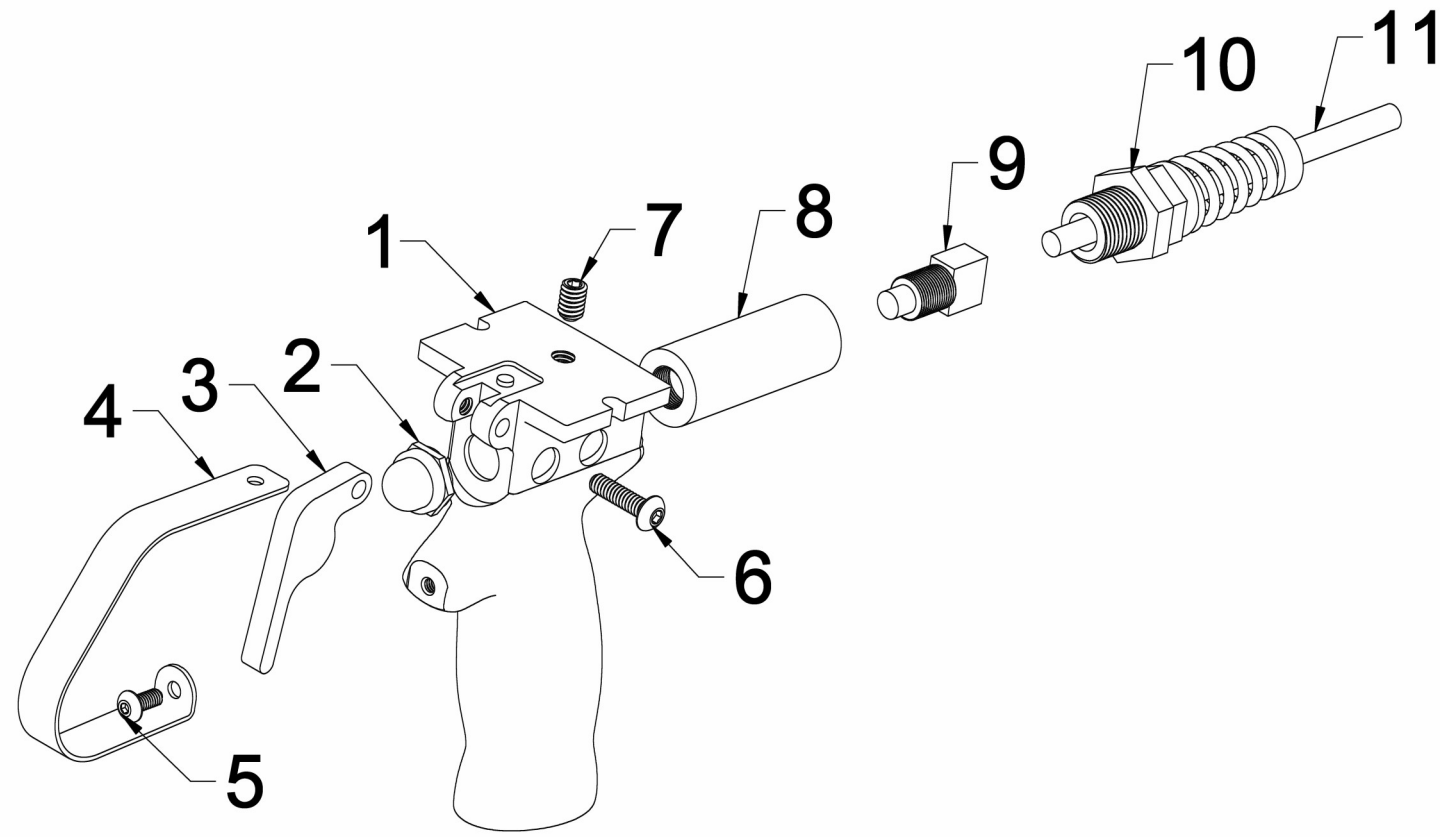
#10,11, and 12 replaced the old style bronze bushing style of housing, which had part number: GN1-451-001-D-97H



Snuff Back Gun Replacement Parts

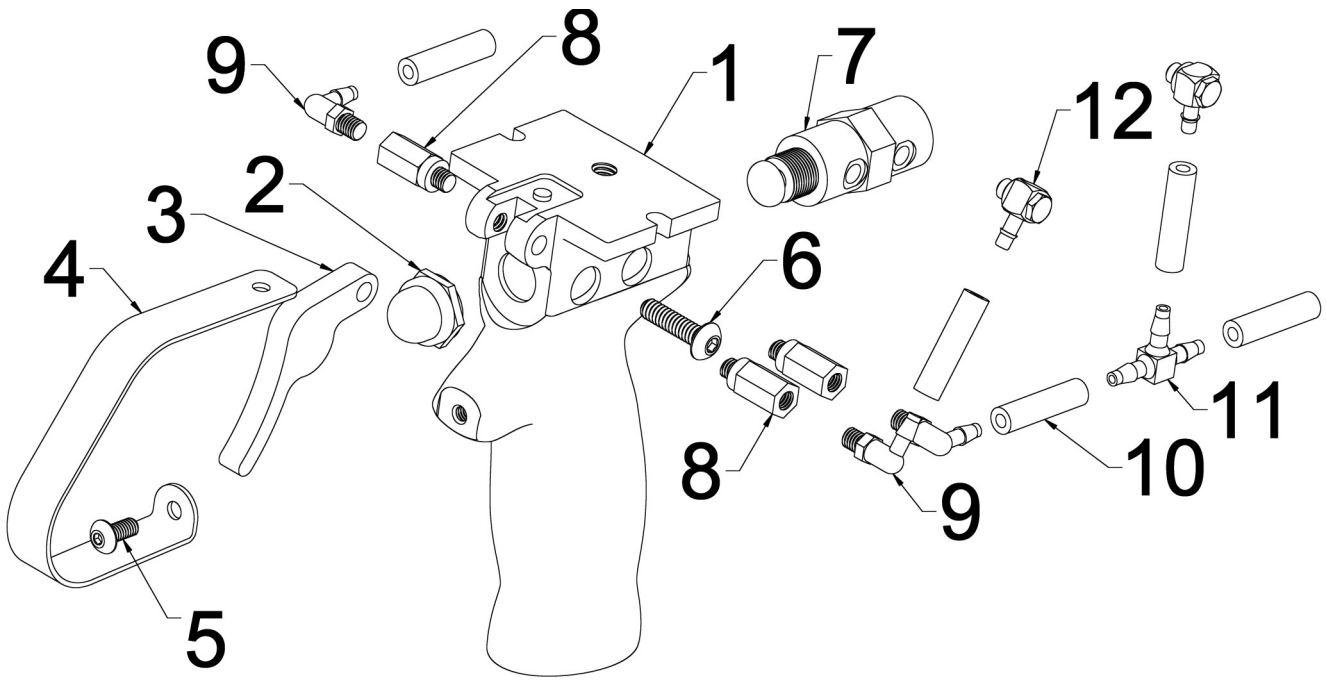
Key	Description	Qty	Part Number
1	10-24x2.5 SHCS	4	GN2-451013A75
2	Manifold	1	See Manifolds Pg. 16
3A	Viton O-Ring	6	SEE REBUILD KIT
3B	EP O-Ring	6	
3C	Teflon Encapsulated O-Ring	6	
4	Stainless Steel SHSS 1/4" x 1 1/2 long	2	GN2-451010A98
5A	Stainless Steel Seat Plate for 450 valve	1	GN2-451009A98
5B	Aluminum Seat Plate for 450 valve	1	GN2-451009A98AL
6A	Lip seal: Viton U-Cup and O-Ring	6	SEE REBUILD KIT
6C	Lip seal: Teflon U-Cup and O-Ring	6	
6D	Lip seal: Polytuff U-Cup and SS O-Ring	6	
6E	Lip seal: EP U-Cup and O-Ring	6	
7A	Alum. Body 9/16-18 inlet ports for 450 Valve	1	GN2-451008C97
7B	SS Body 9/16-18 inlet ports for 450 Valve	1	GN1-451008C98
8	Aluminum Grease Plate	1	GN1-451004B97
9	Grease Port	2	GN2-451003C75
10	Teflon Split Ring	2	SL1-TST010SPLTRNG
11	3/8” Viton O-Ring	2	SL1-009VITON
12	Air Cylinder Housing	1	GN1-451-001-D-97H
13	10-24x2 SHCS	4	GN2-451014B75
14	1/4-20 By 1/2” Button Head Cap Screw	2	FS8-1/4-20X1/2-BH
15	Replacement Piston and Hardened Pintles	1	GN2-451405A98H
16	Viton O-Ring (Piston)	1	GN2-401-406-A-00
17	Aluminum Back Plate	1	GN2-451408A97
18	Viton O-Ring (Back Plate)	1	GN2-401-407-A-00
19	3/8-24x1 Cup Point Socket Set Screw	1	FS16-3/8-24X1SETSC
20	3/8 Bonded Sealing Washer	1	GN2-451SEALWASH
21	3/8-24 Zinc Plated Jam Nut	1	FS2-3/8-24-JAM-PL
	Auto Grease 3oz Cartridge (not shown)	1	GN2-451GREASE
	Grease Gun 30z Cartridge Complete (not shown)	1	GN2-GRSEGUN450
	Grease Cartridge Single Formula 4	1	GN2-GREASECRT
REBUILD KITS			
450 Rebuild w/ TFE U-cups, TFE O-rings (Includes: 6C, 3C, 10, 11, 16, 18)*(Most Commonly Used)*		1	GN1-450-REBTT3
450 Rebuild w/ TFE U-cups, TFE O-rings (Includes: 6C, 3C, 10, 11, 16, 18) with lip seal insertion tool		1	GN1-450-REBTT3KIT
450 Rebuild w/ Polytuff U-cups, TFE O-rings (Includes: 6D, 3C)		1	GN1-400-RKTGT
450 Rebuild w/ Polytuff U-cups, Viton O-rings (Includes: 6E, 3A)		1	GN1-450-RK-TPV
450 Rebuild w/ Viton U-cups, Viton O-rings (Includes: 6A, 3A)		1	GN1-450-RKTFV
Lip Seal Insertion Tool		1	SL13-500

Snuff Back Gun Replacement Parts

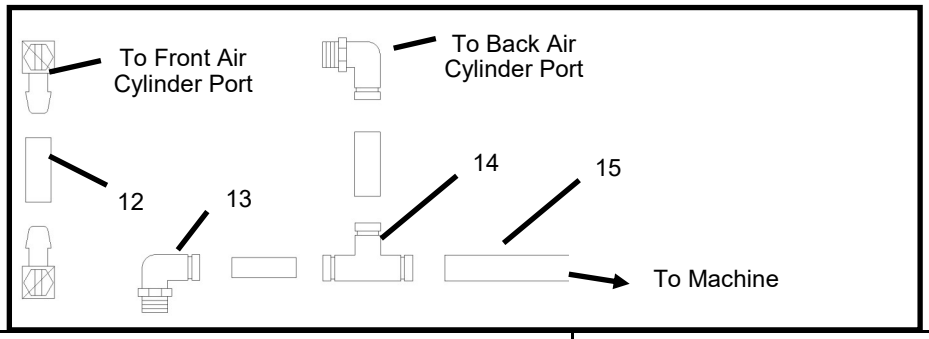


Key	Description	Part Number
1	Snuff-Back Gun Handle	GN2-450MOUNT-CASTF
2	Switch Rubber Dome Cover	EL1-DOME-BOOT
3	Trigger	GN2-450MOUNT-CASTTRIG
4	Trigger Guard	GN2-450MOUNT-CASTTRGD
5	8-32x3/8 SHCS	FS1-8-32X3/8SH
6	10-24x3/4 SHCS	FS1-10-24X3/4SH
7	1/4-20x3/8 Cup Point Set Screw	FS16-1/4-20X3/8SETSC
8	Electric Switch Housing	GN2-450MOUNT-CASTSWHS
9	Snuff-Back Gun Electric Switch	EL1-MPG106F
10	Wire Strain Relief	EL6-3/8STRRL
11	M12 Cable With Free End	EL17-M12-3M
	Complete Electric Snuff-Back Handle	GN2-450MOUNT-CASTAEL

Snuff Back Gun Replacement Parts

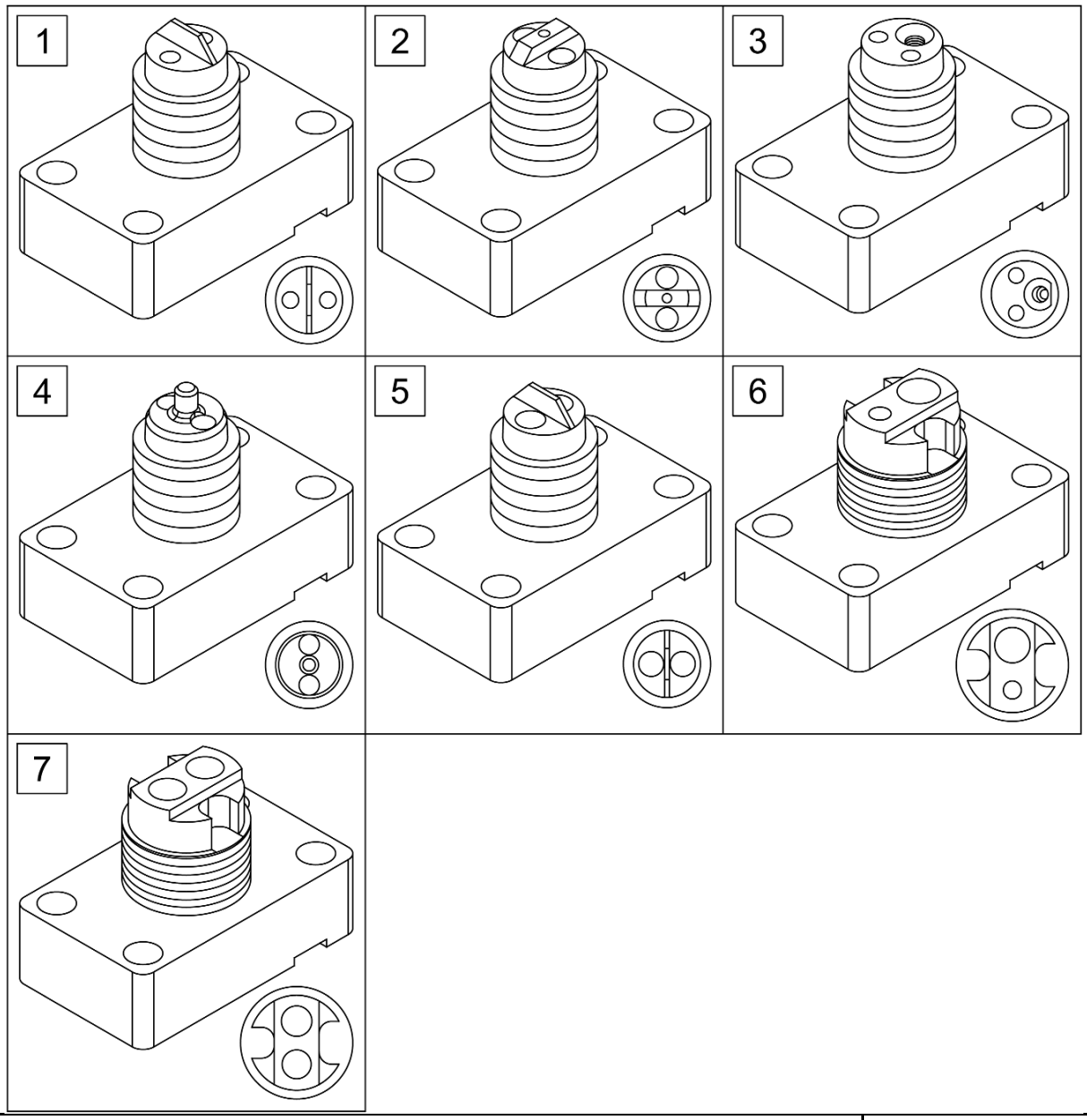


Parts below replace #'s 8,9,10,11 from above diagram



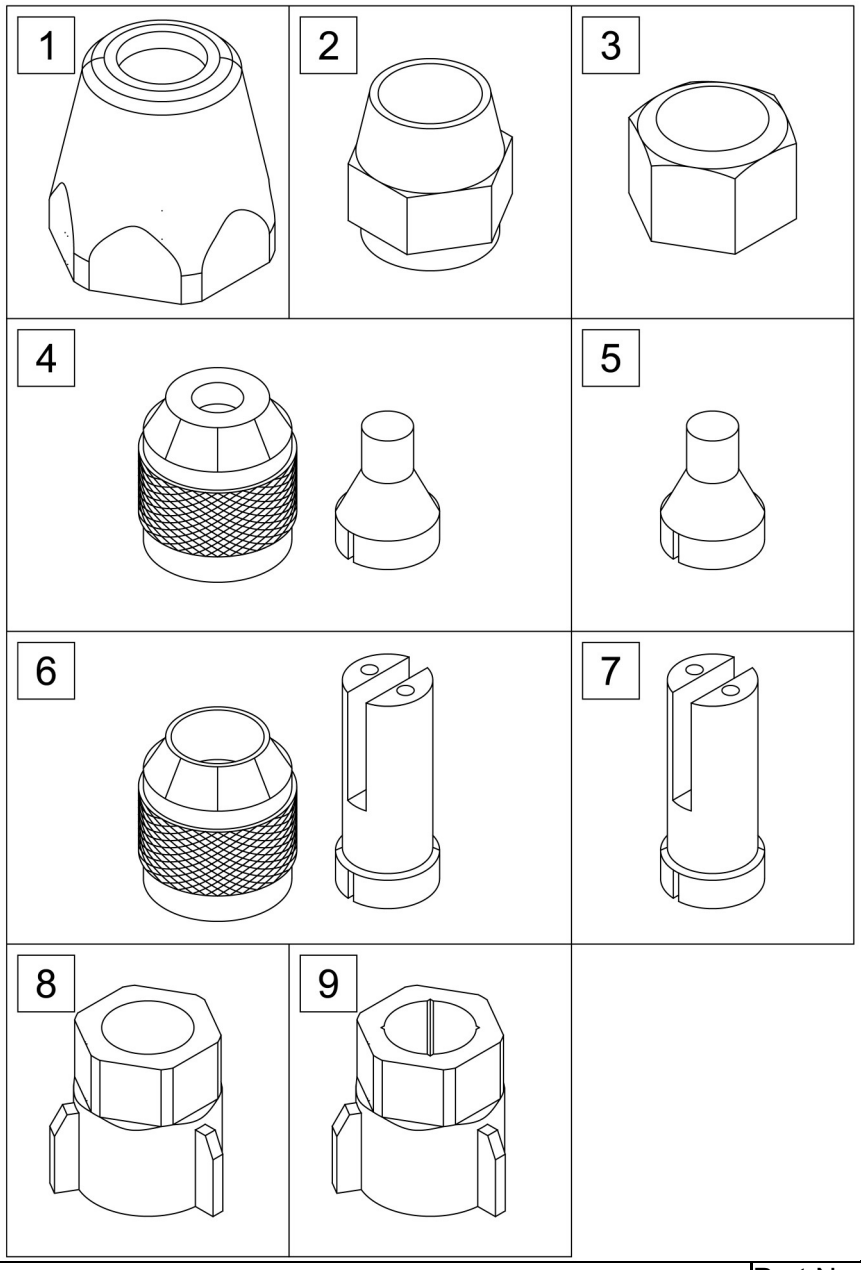
Key	Description	Part Number
1	Snuff-Back Gun Handle	GN2-450MOUNT-CASTF
2	Switch Rubber Dome Cover	EL1-DOME-BOOT
3	Trigger	GN2-450MOUNT-CASTTRIG
4	Trigger Guard	GN2-450MOUNT-CASTTRGD
5	8-32x3/8 SHCS	FS1-8-32X3/8SH
6	10-24x3/4 SHCS	FS1-10-24X3/4SH
7	Snuff-Back Gun Pneumatic Switch	PN1-4P4WAYHUM
8	10-32 Adapter Fitting	PN1-SSP-10
9	Barb Nipple Elbow 1/8	FG2-4BN1032L
10	1/8" Tubing	HS1-TWIN
11	Barb Nipple Tee 1/8x1/8x1/8	FG2-412TEEN
12	10-32 UNF Elbow Air Fitting	GN2-451015A96
13	Steel 5/32x10-32 Swivel Elbow	FG4-124470210
14	Steel 5/32 TEE	FG4-120600200
15	5/32" Hose, Varying Colors	HS2-5/32###

Snuff-Back Gun Manifolds



#	Part Description	Part Number
1	MANIFOLD, 1:1 RATIO	GN2-400M160A
2	MANIFOLD WIDE RATIO HIGH FLOW	GN2-400M160J
3	MANIFOLD WIDE RATIO	GN2-400M160D
4	MANIFOLD WIDE RATIO CENTER STREAM	GN2-400M160Z
5	MANIFOLD 1:1 RATIO HIGH FLOW	GN2-400M160G
6	MANIFOLD HI-RATIO STATOMIX FX INTERFACE	GN2-400MFX
7	MANIFOLD 1:1 RATIO FOR FX INTERFACE	GN2-400MF
MANIFOLDS ALSO AVAILABLE WITH SOLVENT PURGE UPON REQUEST		

Snuff-Back Gun Mixer Nuts



#	Part Description	Part Number
1	MIXER NUT FOR STATOMIXERS MFH AND MFHX	MX50-NUTMFH
2	BRASS MIXER NUT	MX50-NUTB
3	BRASS MANIFOLD CAP	MX50-CAPB
4	NIGHT CAP PLUG WITH NUT FOR 450 MANIFOLDS	GN2-450PLUG
5	NIGHT CAP PLUG FOR 450 MANIFOLDS	GN2-450PLUGONLY
6	450 RATIO SEPERATOR PLUG WITH NUT	GN2-RATIOPLUG
7	450 RATIO SEPERATOR PLUG ONLY	GN2-RATIOPLUGONLY
8	PLASTIC MIXER NUT (BLACK)	MX50-NUTP14
9	PLASTIC MIXER NUT (BLACK) SQ. MIXER MODIFIED	MX50-NUTP14Q