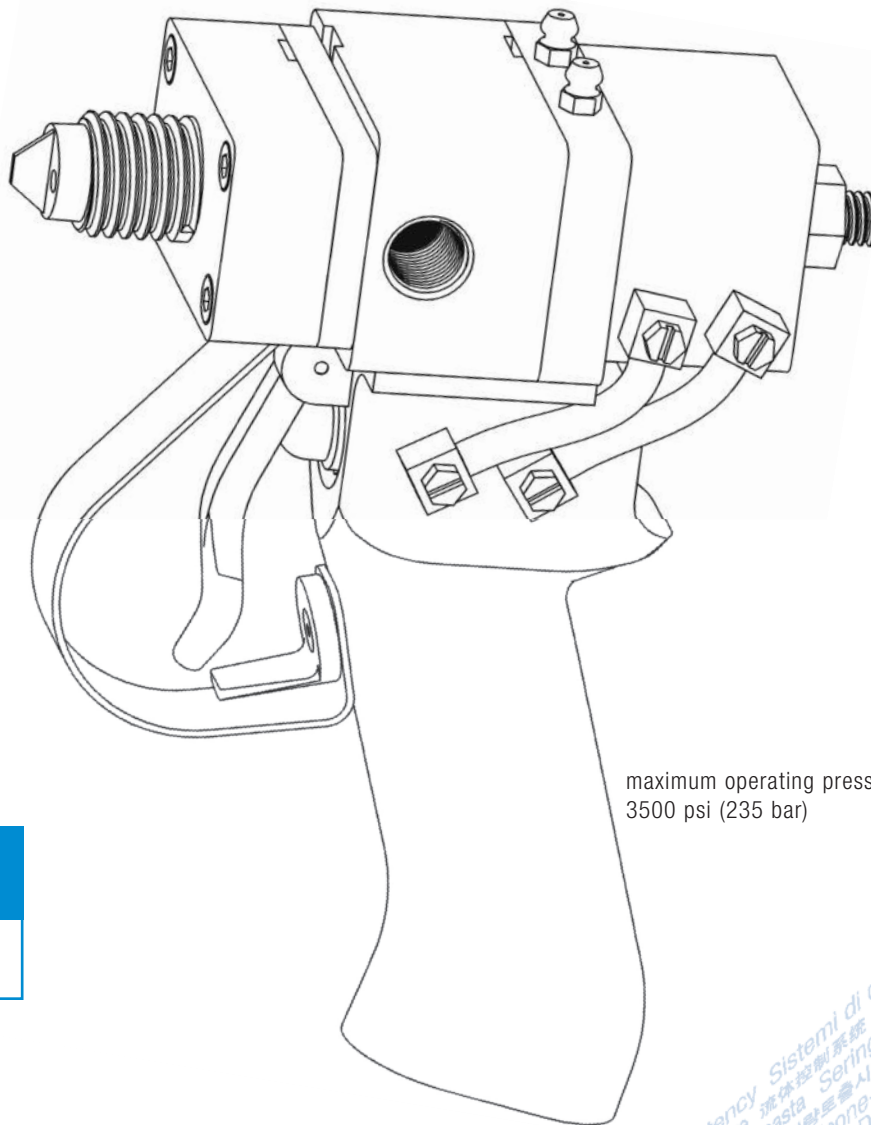


450 Autovalve Pneumatic/Snuff Back

Instructions/Parts List



maximum operating pressure
3500 psi (235 bar)

IMPORTANT!

Save this Sheet.

Forward to Maintenance
or Tool Crib Supervisors

Electronic pdf files of EFD
manuals are also available
at www.nordsonefd.com



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OPERATION

The **ON-OFF** operation of the valve is controlled by movement of the piston inside the air cylinder (1).

In the **OFF** position, the piston retracts and the dual spool valves (75) seat into the front lip seals (3) which are located inside the seat plate (8).

In the **ON** position, the piston and the spool valves move forward (75) which allows A & B fluids to pass through the manifold.

To eliminate drooling or stringing of the adhesive out of the mix tube, the spool valves (75) can be retracted through the front lip seals (3). This snuff back action is controlled by the adjustment screw (70) on the back of the air cylinder (1).

The snuff back should be adjusted so the fluid just stops at the end of the mixing tube. Excessive snuff back will cause premature plugging of the valve.

A disposable Series 160 mixer can be attached to the manifold. If the operating pressure exceeds 150 psi (10 bar), we recommend a metal jacket be used over the plastic mix tube. Refer to Catalog for details.

Note: For all reference numbers in parenthesis, see pages 9 thru 14.

Your 450 AUTOVALVE in general...

- Designed to dispense two-component adhesives and sealants..
- Dispenses low or high viscosity urethanes, epoxies and silicones.
- Can be mounted for beads or timed shots; optional handle is available for hand held applications.
- Provides an **ON-OFF** function. The metering of the adhesives in the proper ratio of A:B is controlled by the metering pumps. A stationary mount or gantry installation requires a swivel mounting bracket. To complete purging, turn the valve with the mixer pointing up and dispense A & B.

INSTALLATION

Connect Supply Lines

The A & B fluid hoses are connected to the side of the valve body (7), between the valve and the pumps, and should be as short as possible. It is a good practice to install check valves in the hoses just before the valve. Optional fitting with check valve is listed on page 18.

For stationary mount, the air lines will be connected to the side of the air cylinder (1). Air to the front of the cylinder to close and air to the back to open. If the optional handle is used, air is connected to the barbed fitting (105) on the side of the handle.

The air line should have minimum pressure of 80 psi.

Start- Up

With the hand-held model, start metering pumps and purge the air out of the A & B hoses and Autovalve. After the A and B fluids come out of the manifold, attach a mixer to the manifold and hold the valve upside down with the mixer pointing up. Dispensing A & B will purge the last pockets of air in the valve body.

A stationary mount or gantry installation requires a swivel mounting bracket. To complete purging, turn the valve with the mixer pointing up and dispense A & B.

1. Take a ratio check by weight of A:B after the manifold. The Autovalve does **No Metering**. The Volume Ratio of A:B is controlled by the metering pumps. However, between the metering pumps and the Autovalve are hoses. These hoses will expand under pressure and cause lead-lag problems. Lead-lag refers to the uneven starting of the A fluid before the B fluid. Nordson EFD offers 1:1 and wide ratio manifolds to reduce this problem. The selection of the correct manifold depends on both the volume and viscosity ratio of A and B. Consult EFD Technical Services for details at 800-556-3484.
2. Adjust snuff back screw (70) for minimum snuff back. See page 14 of this manual for Valve details.

MAINTENANCE

Two-component adhesives are messy and difficult to handle. It is important to note that Routine Maintenance must be observed. If one delays maintenance until the valve stops, clean-up is very time consuming.

Routine Maintenance

1. Release pressures in A and B fluid hoses. Remove manifold and clean. We recommend overnight soaking in a suitable solvent.
2. At the end of each shift, lubricate the back seals. We recommend our special Autogrease. Pump Autogrease through the grease fitting (4) and out the plug (11). Using extra grease will extend seal life
3. To clean the spool valves (75), first release the pressure on the A and B fluid hose. Then remove the manifold, and advance the snuff back adjustment (70) until the spool valves are protruding from the seat plate (8). With a toothbrush or rag soaked in solvent, brush the spool valves clean. Protective eyeglasses should be used.

Note: With moisture sensitive urethanes or epoxies the spool valves must be cleaned. After cleaning, coat them spool valves with Autogrease.

4. The O-Rings (6) and Lip Seals (3) are in a very harsh environment. In addition to resisting the adhesives, they must be inert to the strong solvents used in cleaning the valve.

The following options are available:

A. Chemical Compatibility with O-Rings.

Usually the adhesives do not chemically attack the O-Rings. However, during cleaning the valves are often immersed in aggressive solvents. The following types of O-rings are available:

Type of O-Ring	Color	Recommended for Contact With:
Viton®	Green or Brown	Methylene Chloride Alcohol Carbon Tetrachloride
EP	Black	MEK Ketones Acetone
PTFE	Clear/Orange	All Chemicals Encapsulated

B. Selection of Lip Seals.

The lip seal consists of a U-Cup with an interior O-Ring. The following types of lip seals are available:

1. Polyurethane U-Cup with an interior Viton® O-Ring. Good general purpose seal with good chemical and wear resistance. U-Cup colored orange with a brown Viton® O-Ring. Recommended for filled abrasive adhesives.
2. Viton® U-Cup with an interior Viton® O-Ring. Good chemical resistance, but it is a soft seal with poor wear resistance. U-Cup colored black with brown O-Ring.
3. Polytuff U-Cup and an interior SS Spring. Excellent chemical and wear resistance. U-Cup colored white with SS Spring. Other combinations available upon request.

C. Chemical Compatability.

The “A” or “B” resins can attack the seal material. An attacked seal will swell or become brittle in 3 to 14 days. If this occurs, choose an alternate seal material. Listed below are the general guidelines.

For specific recommendations for Meter Mix Dispensing, contact our Technical Service Department at 800-257-5238.

Part # 451-007-A-11 (Polyurethane)
(7702281)

Color: Orange
Epoxies – General
Polyurethanes
Polysulfides

Part # 451-007-A-01 (Polytuff)
(7702277)

Color: White
Epoxies - Amine Catalyst
Polyesters
Acrylics

Viton is a registered trademark of DuPont Dow Elastomers

PTFE is a registered trademark of E.I. DuPont De Nemours

Disassembly And Cleaning

1. Remove the manifold and seat plate (8). Pry bar slots are provided.
2. Remove the air cylinder bolts (2) and wiggle the air cylinder apart. If the assembly is frozen, use the pry bar slots on the valve body (7) to separate the valve body (7) from the tie plate (5). Insert flat pieces of metal between the valve body and the tie plate as per Figure 1. Thread the manifold screws (36) into the back of the tie plate and push the valve body apart. Apply uniform pressure to prevent the body from cocking and bending the spool valves (75).
3. Once apart, the parts should be cleaned. We recommend overnight soaking in suitable solvent. All parts can be soaked except the handle and air cylinder.

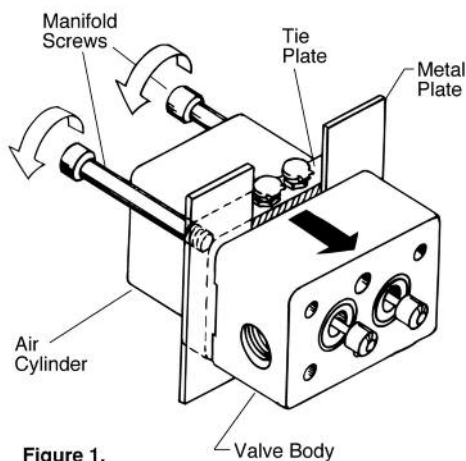


Figure 1.

Rebuilding Autovalve

1. After cleaning, inspect the following components:
 - a. Spool valves (75) for wear
 - b. Lip Seals (3) - both outside and inside lip
 - c. Manually retract and extend spool valves from air cylinder (1).
 - d. If the optional handle is used, connect air into the inlet and check 4-way action of cartridge valve (103).
2. Lubricate lip seals (3) and shafts (75) with Autogrease
3. Insert four back lip seals (3): two into tie plate (5) and two into the valve body (7). The lip seals are two piece: an O-Ring and U-Cup. They should always be installed with the O-Ring facing the material inlets (body of the valve).
4. Insert two front lip seals (3) that are located in the seat plate (8). They should be installed with the O-Ring facing the back of the valve (facing the air cylinder).
Optional Installation: With O-Ring facing manifold. Used when minimum snuff back is required. However, reduced seal life can be expected.
5. Insert O-Rings (6) and assemble air cylinder (1) and valve body (7). and the valve body (7) and engage the screws (2).
6. Push seat plate (8) through spool valves (75) and tighten bolts (9).

Final QC Check

Before the manifold is assembled, we recommend the following procedure:

1. Check the open and close movement of the spool valves (75).
2. Check gap between seat plate (8) and spool valve (75). Refer to Figure 2 when spool valves are in open position.
3. Check front lip seals by pressurizing the valve body (7) and applying soapy water into the front seals. The valve body can be pressurized by connecting air into the A and B inlet ports on the valve body.
4. Seat Plate (8)

Troubleshooting

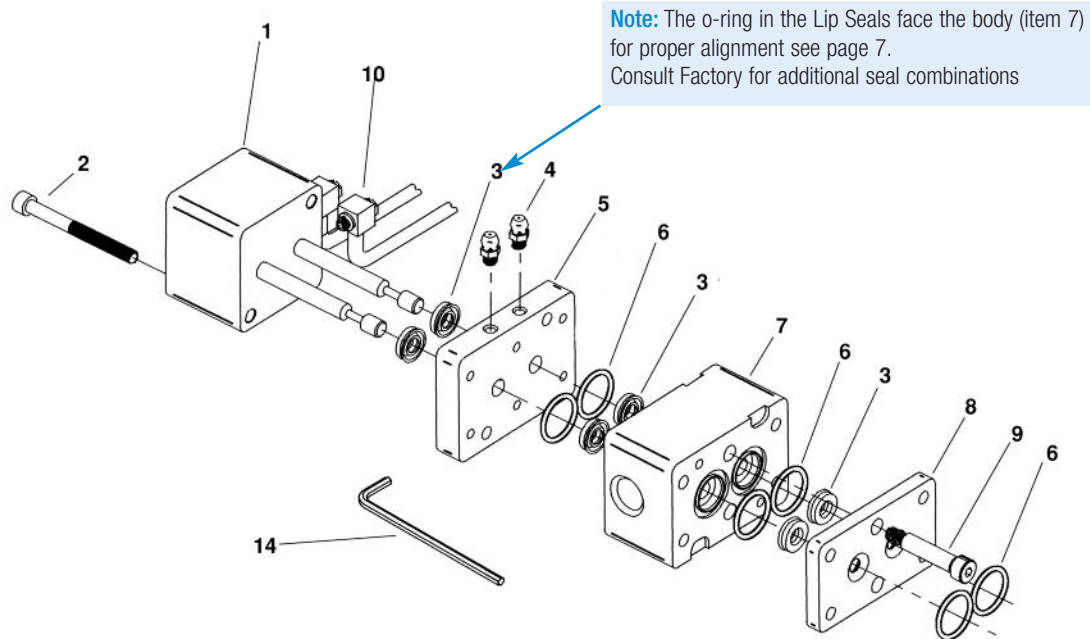
Problem	Cause	Solution
No Flow	Manifold clogged Air pressure too low Air valve damaged Valve fouled	Remove manifold and clean Require 80 psi inlet pressure See Note 1 below See Note 2 below Disassemble (see Maintenance)
Valve Leaks	Snuff back Spool valve (75) clogged Seals (3) worn Spool valve (75) worn	Retract snuff back screw (70) See Note 3 below Replace seals (see Maintenance) Inspect and replace if required
Valve Drools	Air trapped in valve Seals (3) worn	Replace Seals (see Maintenance) Review Start-Up Procedure
Off Ratio A:B	Metering pumps	Check pumps
A & B backs up into Tie Plate	Seals (3) damaged	Replace Back Lip Seals (page 6)
Material not mixing	Mixer Fouled Off Ratio A:B	Replace Mixer Take Ratio Check
Mixer Leaks	Manifold Fouled	Clean nose of manifold
Lip Seals Deteriorate	Chemical Attack	See Maintenance (page 6)

Note 1. Inspect air cartridge valve (103) in handle (90). The On-Off function of the valve is controlled by this cartridge valve in the handle. The air cylinder requires air in the front to close and air in the back to open.

To inspect the cartridge valve, disconnect the two air lines on the air cylinder (1). When the trigger is depressed, air should be flowing only through the back air line and not through the front air line. When the trigger (91) is released the air should reverse.

Note 2. Advance the snuff back screw (70) and pulse air into the air cylinder. Repeat 3 or 4 times.

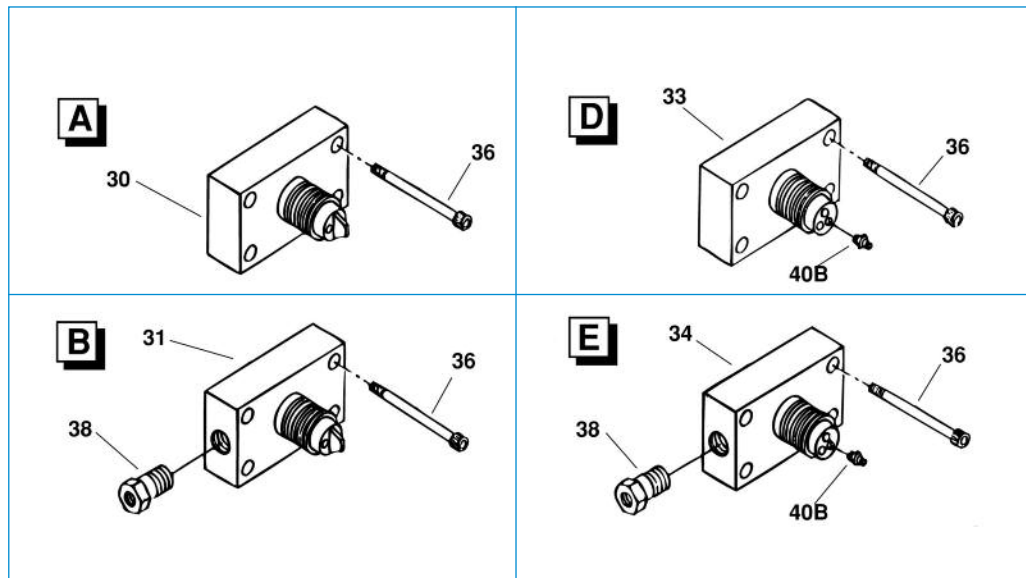
Note 3. First release the pressure on the A and B hoses. Remove the manifold and advance the snuff back screw (70) until the spool valves are protruding from the seat plate (8). With a toothbrush or rag soaked in solvent, brush the valves clean. After cleaning, depress trigger to retract spool valve.



SAP #	Ref. #	Part #	Qty.	Description
7702265	1	451 - 001 - D - 97H	1	Single Air Cylinder 5/16" stroke with Hardened SS Shafts
7702295	2	451 - 014 - B - 75	2	SHCS 10-24 x 2" long for 450 Series
7702266	3A	451 - 002 - A - 04	6	Lip Seal: Viton® U-Cup and Viton® O-Ring
7702281	3B	451 - 007 - A - 11	6	Lip Seal: PU U-Cup and Viton® O-Ring
7702280	3C	451 - 007 - A - 04T	6	Lip Seal: PTFE U-Cup and PTFE O-Ring
7702277	3D	451 - 007 - A - 01	6	Lip Seal: Polytuff® U-Cup and SS Spring
7702268	4	451 - 003 - C - 75	2	Grease Fitting, 10-32
7702270	5	451 - 004 - B - 97	1	Aluminum Tie Plate
7702813	6A	B - 501 - 03	6	Viton® O-Ring
7702810	6B	B - 501 - 01	6	EP O-Ring
7702275	6C	451 - 005 - A - 04	6	PTFE Encapsulated O-Ring
7702284	7A	451-008 - C - 97	1	AlumBody 9/16- 18 Inlet Ports for 450 Valve
7702287	7B	451-008 - C - 98	1	SS Body 9/16- 18 Inlet Ports for 450 Valve
7702288	8	451 - 009 - A - 98	1	Stainless Steel Seat Plate for 450 Valve
7702289	9	451 - 010 - A - 98	2	Stainless Steel SHSS 1/4" Dia x 1 1/2" long for 450 Valve
7702297	10	451 - 015 - A - 96-01	2	Assembled Air Tube and Fitting 10-32 Thread
7702364	11	451 - 301 - A - 03	1	Auto Grease 3oz. Cartridge (not shown)
7702372	12	451 - 302 - A - 75	1	Grease Gun 3 oz. Cartridge Complete (not shown)
7702015	13	401 - 005 - A - 75P	1	Adjustment Screw Driver for 450 Valve

MANIFOLDS

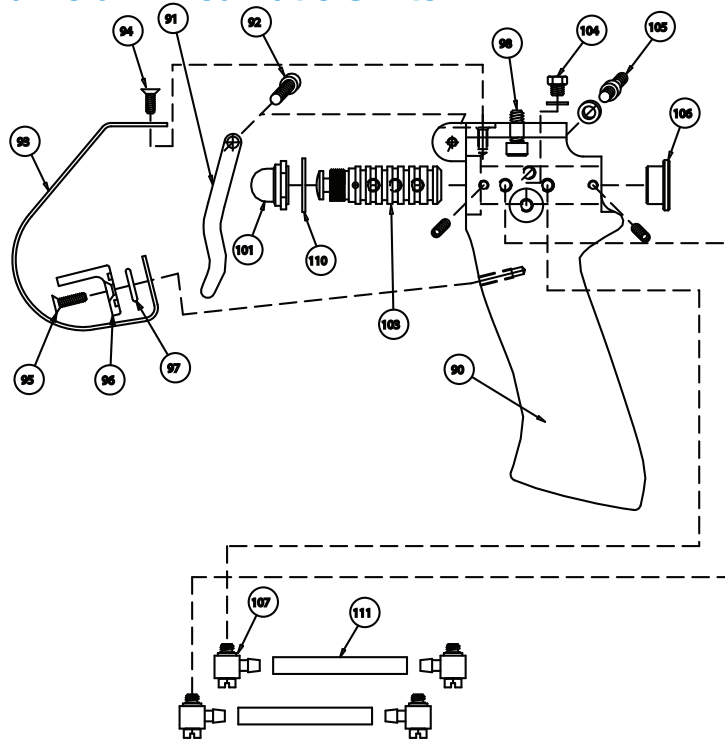
For Series 160 Disposable Mixers



SAP #	Ref. #	Part #	Qty.	Description
7702292	30A	451 - 012 - B - 97	1	Alum Manifold/160 Ser. 7/8" -14 Thread, 1:1 Ratio
7702293	30B	451 - 012 - B - 98	1	SS Manifold/160 Ser. 7/8" -14 Thread, 1:1 Ratio
7702322	31A	451 - 033 - B - 97	1	Alum Manifold/160 Ser. 7/8" -14 Thread, 1:1 Ratio with 1/4"NPT Solvent Port
7702349	33A	451 - 151 - A - 97	1	Alum Manifold/160 Ser. 7/8" -14 Thread, Wide Ratio
7702351	33B	451 - 151 - A - 98	1	SS Manifold/160 Ser. 7/8" -14 Thread, Wide Ratio
7702352	34A	451 - 152 - A - 97	1	Alum Manifold/160 Ser. 7/8" -14 Thread, Wide Ratio with 1/4"NPT Solvent Port
7702294	36	451 - 013 - A - 75	4	SHCS 10-24 x 2 1/2" long for 450 Manifold
7702492	38A	501 - 131	1	Check Valve: Brass Solvent Flush
7702494	38B	501 - 131SS	1	Check Valve: Stainless Steel Solvent Flush
7702327	40A	451 - 036 - A - 85	1	Polypropylene fitting, 10-32 with .09" orifice
7702328	40B	451 - 037 - A - 85	1	Polypropylene fitting, 10-32 with .06" orifice
7702329	40C	451 - 038 - A - 85	1	Polypropylene fitting, 10-32 with .04" orifice

MOUNT

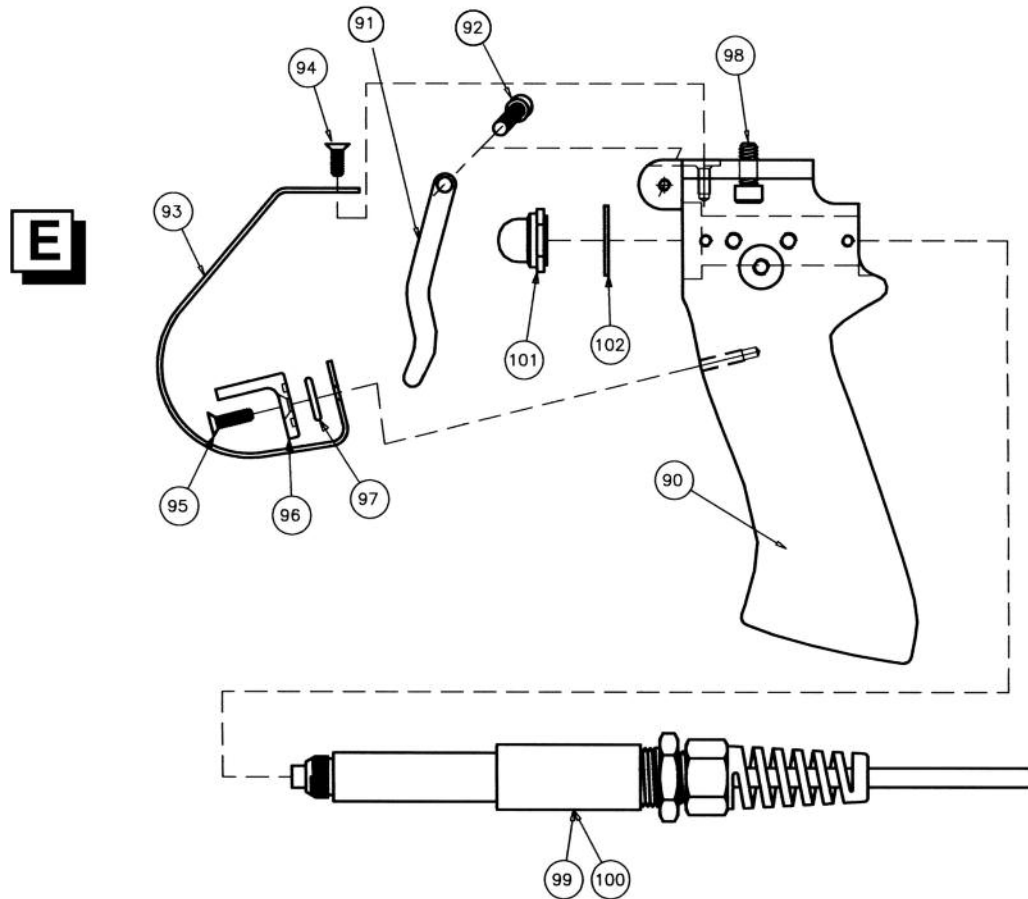
7701977 Hand Held - Pneumatic Switch



SAP #	Ref. #	Part #	Qty.	Description
7702315	90	451 - 023 - C - 97	1	Handle / Aluminum / Cartridge Option
7702317	91	451 - 025 - A - 97	1	Trigger for Mount H or E
7702319	92	451 - 027 - A - 75	1	Trigger Bolt, 8-32 x 3/4" long
7702393	93	451 - 336 - A - 98	1	Trigger Guard for 400/450 Switches
7702396	94	451 - 337 - A - 75	1	6-32 x 5/16" FHSCHS for 400/450 Switches
7702397	95	451 - 338 - A - 75	1	6-32 x 1/2" FHSCHS for 400/450 Switches
7702390	96	451 - 333 - A - 97	1	Safety Lock for 400/450 Switches
7702391	97	451 - 334 - A - 02	1	1/2" OD x 1/16" O'Ring for 400/450 Switches
7702331	98	451 - 040 - A - 75	2	SHCS 10-24 x 1/2" long for Mount S, E or H
7702383	101	451 - 326 - A - 75	1	Protective Rubber Boot for 400/450 Switches
7702318	103	451 - 026 - A - 96	1	4 Way Cartridge Valve for Pneumatic Handle
7702342	104	451 - 048 - A - 96	1	Brass Plug 10-32
7702313	105	451 - 021 - A - 96	1	10-32 Barbed Air Fitting
7702398	106	451 - 339 - A - 83	1	3/4" Dia. Acetal Plug
7702297	107	451 - 015 - A - 96 - 01	4	10-32 UNF Elbow Air Fitting
7702389	110	451 - 332 - A - 75	1	E-Clip
7702308	111	451 - 020 - A - 90P	2	1/8" ID Air Tubing x 2.00"

Note: Ref. Numbers 101, 103, and 110 can be purchased assembled as P/N 451-331-A-96 (7702388)

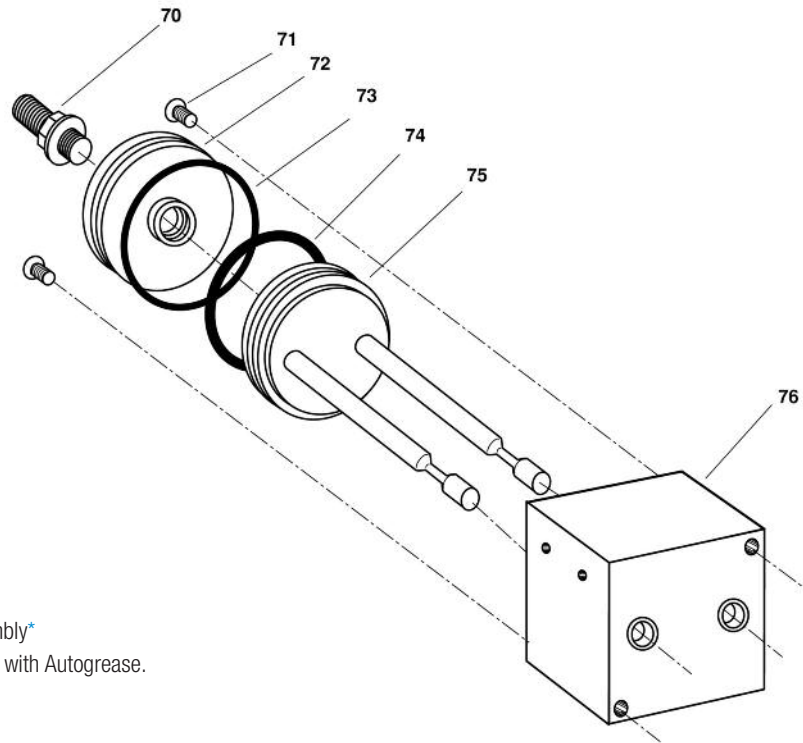
7701971 Hand Held - Electric Momentary Switch (24 Volt)
7701973 Hand Held - Electric Push On/Off Switch (24 Volt)



SAP #	Ref. #	Part #	Qty.	Description
7702315	90	451 - 023 - C - 97	1	Handle / Aluminum / Cartridge Option
7702317	91	451 - 025 - A - 97	1	Trigger for Mount H or E
7702319	92	451 - 027 - A - 75	1	Trigger Bolt, 8-32 x 3/4" long
7702393	93	451 - 336 - A - 98	1	Trigger Guard for 400/450 Switches
7702396	94	451 - 337 - A - 75	1	6-32 x 5/16" FSHCS for 400/450 Switches
7702397	95	451 - 338 - A - 75	1	6-32 x 1/2" FSHCS for 400/450 Switches
7702390	96	451 - 333 - A - 97	1	Safety Lock for 400/450 Switches
7702391	97	451 - 334 - A - 02	1	1/2" OD x 1/16" O'Ring for 400/450 Switches
7702331	98	451 - 040 - A - 75	2	SHCS 10-24 x 1/2" long for Mount S, E or H
7702376	99	451 - 320 - A - 97	1	Momentary Switch Assembly for 400/450 Series
7702378	100	451 - 321 - A - 97	1	Complete Push on/off Switch Assembly for 400/450 Series
7702383	101	451 - 326 - A - 75	1	Protective Rubber Boot for 400/450 Switches
7702384	102	451 - 327 - A - 75	1	CS Flat Washer for 400/450 Switches

AIR CYLINDER

7702265 Hardened SS Shafts



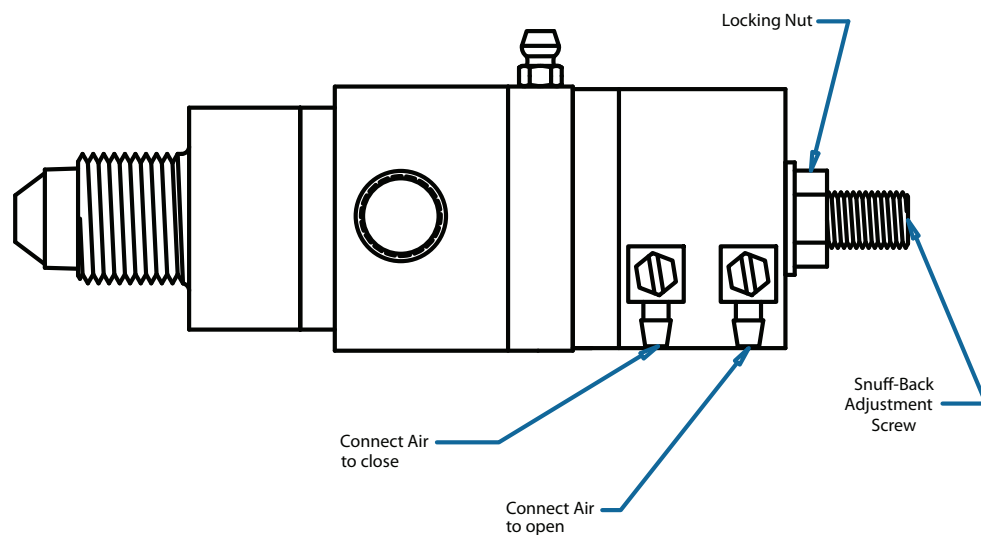
Note: Prior to assembly*
lubricate all O-Rings with Autogrease.

SAP #	Ref. #	Part #	Qty.	Description
7702403	70	451 - 410 - A - 75	1	Snuff Back Adjustment Screw
7702079	71	401 - 409 - A - 75	2	BHCS 1/4 - 20 x 1/2" long
7702402	72	451 - 408 - A - 97	1	Aluminum Back Plate
7702077	73	401 - 407 - A - 00	1	Brown Viton® O-Ring (Back Plate)
7702076	74	401 - 406 - A - 00	1	Brown Viton® O-Ring (Piston)
7702400	75	451 - 405 - A - 98H	1	Replacement Piston and Hardened SS Shafts
7702074	76	401 - 404 - A - 97	1	Replacement Body with Front Seals

*Viton® is a registered trademark of DuPont Dow Elastomers

450 Autovalve With Snuff-Back

Snuff-Back Adjustment: Advancing (clockwise turn) the snuff-back adjustment screw reduces snuff-back, retracting (counter-clockwise) it increases the snuff-back. Since excessive snuff-back action can cause plugging of the valve, adjust for minimum snuff-back, as follows: with the pumps on and valve in the “closed” position, advance the adjustment screw until material begins to drool out of the static mixer (acting as if the valve is open). Then retract the screw until fluid just stops, at the minimum snuff-back position. If material drools or drips during operation, slightly increase the snuff-back until the desired action is achieved.



SPARE PARTS KITS

450 AutoGun Repair Kits

Each Kit contains a complete set of Lip Seals and O-Rings.

AV-RK-TFV (7704092)

Ref. No.	Qty.	Description
13	2	PTFE Front Seal
3	6	Viton® U-Cup & Viton® O-Ring
6	6	Viton® (brown) O-Ring

AV-RK-TGT (7704093)

Ref. No.	Qty.	Description
13	2	PTFE Front Seal
3	6	Polytuff® U-Cup & SS Spring
6	6	PTFE encapsulated O-Ring

AV-RK-TGV (7704094)

Ref. No.	Qty.	Description
13	2	PTFE Front Seal
3	6	Polytuff® U-Cup & SS Spring
6	6	Viton® (brown) O-Ring

AV-RK-TPV (7704095)

Ref. No.	Qty.	Description
13	2	PTFE Front Seal
3	6	PU U-Cup & Viton® O-Ring
6	6	Viton® (brown) O-Ring

AV-RK-TTT (7704096)

Ref. No.	Qty.	Description
13	2	PTFE Front Seal
3	6	PTFE U-Cup & PTFE O-Ring
6	6	PTFE encapsulated O-Ring

Orifice Kit (40)

7702240 Part # 450-ORIF/KIT Which Contains:

Ref. No.	Qty.	Description
40A	1	Polypropylene Fitting .09" Orifice
40B	1	Polypropylene Fitting .06" Orifice
40C	1	Polypropylene Fitting .04" Orifice

Note: 450 AutoGun comes with (2) front seals to be discarded.

[Consult Factory for additional seal combinations](#)

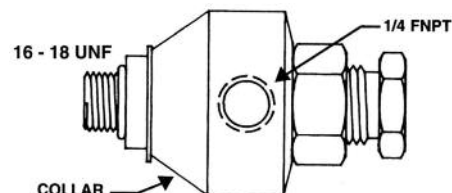
Viton is a registered trademark of DuPont Dow Elastomers

ACCESSORIES

Hose Fittings For 400 Valve

Swivel Check Valve Adapters

For A & B materials, we offer a combination check valve/fluid inlet adapter. This rugged, all in one, adapter provides a metal to metal seal for proven low maintenance, in an ideal location. It also incorporates a swivel connection for ease of air purging.



SAP #	Part No.	Description
7702408	451-F2EFNPT-97C	All SS, except Alum. collar, 1/4" FNPT

The valve body has 9/16" X 18 inlets.

The following fittings are available to connect the A & B hoses.

Note: All fittings are supplied with EP O-Rings. Optional Viton® O-Rings available on request. Substitute V for Viton® instead of Part No. suffix E.

Carbon Steel Pipe Adapters

SAP #	Part No.	Description	
7702414	451-F2EMNPT-75E	90 degree Elbow with 1/4"	MNPT
7702424	451-F3EMNPT-75E	90 degree Elbow with 3/8"	MNPT
7702407	451-F2EFNPT-75E	90 degree Elbow with 1/4"	FNPS
7702420	451-F3EFNPT-75E	90 degree Elbow with 3/8"	FNPS
7702419	451-F2SMNPT-75E	Straight Adapter with 1/4"	MNPT
7702428	451-F3SMNPT-75E	Straight Adapter with 3/8"	MNPT
7702416	451-F2SFNPT-75E	Straight Adapter with 1/4"	FNPS
7702425	451-F3SFNPT-75E	Straight Adapter with 3/8"	FNPS

Carbon Steel 37 Degree JIC Adapters

SAP #	Part No.	Description	
7702411	451-F2EJIC-75E	90 degree Elbow with 1/4"	Male JIC
7702421	451-F3EJIC-75E	90 degree Elbow with 3/8"	Male JIC
7702417	451-F2SJIC-75E	Straight Adapter with 1/4"	Male JIC
7702426	451-F3SJIC-75E	Straight Adapter with 3/8"	Male JIC

316 Stainless Steel 37 Degree JIC Adapters

SAP #	Part No.	Description	
7702413	451-F2EJIC-98E	90 degree Elbow with 1/4"	Male JIC
7702423	451-F3EJIC-98E	90 degree Elbow with 3/8"	Male JIC
7702418	451-F2SJIC-98E	Straight Adapter with 1/4"	Male JIC
7702427	451-F3SJIC-98E	Straight Adapter with 3/8"	Male JIC

Spare O-Rings - For Hose Fitting

SAP #	Part No.	Material	Description
7702433	451-FOR-02	EP	O-Ring for Fitting
7702431	451-FOR-00	Viton®	O-Ring for Fitting

Additional Accessories

Ratio Check Cap

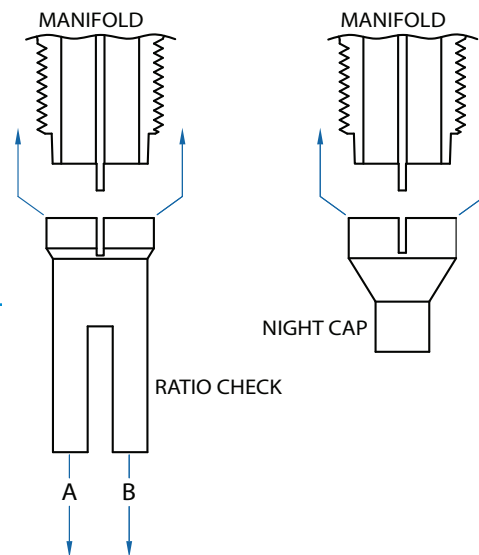
In order to ensure correct A/B ratio, ratio checks should be performed regularly with our new Ratio Check Cap.

Night Cap

At night or on weekends, it is a good idea to seal your system. After the static mixer is removed, a night cap can be installed. This seals the system and makes start-up simpler.

SAP #	Part No.	Description
7701184	165-RC/01*	Ratio Check Cap with retaining nut
7701181	165-Cap/01*	Night Cap with retaining nut

* Use with 1:1 ratio manifolds only.



MSDS

All Purpose Grease – Apg #2

This Material Safety Data Sheet complies with 29 CFR 1910.1200-OSHA Hazard Communication Standard

SECTION I - Product Identification

General of Generic ID: Aliphatic Hydrocarbon Gel
DOT Hazard Classification: None

SECTION II - Components

If present, IARC, NTP and OSHA Carcinogens and chemicals subject to the reporting requirements of SARA Title III Section 313 are identified in this section.

Ingredients	Exposure Limits	Percent	Footnote
White mineral oil (CAS# 8042-47-5)	PEL-TWA 5 mg/M3 TLV-TWA 5 mg/M3	84	(1)
Amorphous fumed silica (CAS# 67762-90-7)	PEL-TWA 6 mg/M3 TLV-TWA 2 mg/M3	12	
PTFE (CAS# 9002-84-0)	Not established	4	(2)

(1) OSHA Short Term Exposure Limit (STEL) for mineral oil mist is 5 mg/M3. ACGIH STEL for mineral oil mist is 10 mg/M3.

(2) PTFE - polytetrafluoroethylene fillers and corrosion inhibitors.

SECTION III

Property	Measurement	Property	Measurement
Boiling Point	650°F (component) @ 760 mmHg	Specific Gravity	0.8275 (component) @ 77°F
Vapor Pressure	>1 mmHg (component) @ 70°F	Percent Volatiles	Approximately 84%
Vapor Density	Not Available	Evaporation Rate	Slower than ether
		Appearance	White paste, slight odor

SECTION IV - Fire and Explosion Information

Flash Point: 445°F (component) by TCC
Explosive Limit: Not available
Extinguishing media: Dry chemical, carbon dioxide, water spray (fog), regular foam

Hazardous Decomposition Products: May form toxic materials including but not limited to: carbon monoxide, carbon dioxide, various hydrocarbons and trace amounts of COF₂ and CF₄ at temperatures above 1200°F.

Fire Fighting Procedures: no special requirements. Wear self-contained breathing apparatus with a full face piece operated in the positive pressure demand mode. Cool fire exposed containers with water spray.

Special Fire & Explosion hazards: No special requirements.

SECTION V - Health Hazard Data

Permissible Exposure Limits: Not established for product. See Section II for PEL/TLVs.

Effects of Acute Overexposure:

EYES: May cause mild irritation. Symptoms may include: stinging, tearing, redness and swelling.

SKIN: May cause mild irritation. Repeated or prolonged contact can dry the skin. Symptoms may include: redness, burning, drying, cracking, and skin burns.

BREATHING: Exposure to vapors or mists is possible. Short-term inhalation toxicity is low. Breathing small amounts incidental to normal handling and use is not likely to cause adverse effects; however, large amounts may be harmful. Symptoms are associated with exposure that occurs above the recommended exposure limits. Symptoms may include: Central Nervous Systems (CNS) effects such as: drowsiness, weakness, fatigue, nausea, headache, unconsciousness, coma and death. Exposure to thermal decomposition products generated by temperatures above 1000°F can cause polymer fume fever, with symptoms of fever, chill, cough and general malaise. This is generally a temporary condition.

SWALLOWING: Due to the nature of this material, it is difficult to swallow; however, single dose toxicity for each component is considered to be low. Small amounts swallowed incidental to normal handling and use are unlikely to cause harmful effects, although swallowing large amounts may be harmful. The petroleum based component in this product is considered an aspiration hazard. During swallowing or vomiting, this material can enter the lungs and cause inflammation and/or damage. The liquid may also be absorbed through the lungs and result in injury to other body systems.

FIRST AID:

EYES: If symptoms develop, move individual away from exposure and into fresh air. Flush eyes for at least 15 minutes while holding eyelids apart.

SKIN: Remove any contaminated clothing. Wash exposed area with soap and water. If symptoms persist, seek medical attention. Wash any contaminated clothing before reusing.

BREATHING: If affected, remove individual to fresh air. If breathing is difficult, administer oxygen (if you have been trained in its use). If breathing has stopped, give artificial respiration. Keep person warm, quiet and get medical attention.

SWALLOWING: Do not induce vomiting. Keep person warm, quiet and get medical attention. If possible, do not leave person unattended.

Aspiration of material into the lungs due to vomiting can cause chemical pneumonitis, which can be fatal.

Primary Route(s) of Entry: Inhalation and skin contact.

Effects of Chronic Overexposure: No data was found on chronic overexposures to this product or its components.

Medical Conditions Aggravated by Exposure: Skin contact may aggravate existing dermatitis or other significant skin conditions.

SECTION VI - Reactivity Data

Hazardous Polymerization: Cannot occur.

Stability: Stable

Incompatibility: Avoid contact with strong oxidizing agents, sodium - potassium alloy. Avoid conditions **such as:** open flame, temperature above 1000°F.

SECTION VII - Spill or Leak Procedures

SMALL SPILL: Vacuum, shovel or sweep up material.

LARGE SPILL: Persons not wearing protective equipment should be excluded from spill area until clean-up has been completed. Only personnel trained in spill clean-up under 29 CFR 1910.120 should be involved with spill clean-up procedures. Stop spill at source. Prevent material from entering drains, sewers, streams or other bodies of water. Prevent from spreading. If run occurs, notify appropriate authorities as required. Vacuum, shovel or sweep spilled product to clean containers for recovery. Transfer contaminated soil and other materials to container for disposal.

Waste disposal: Dispose of in accordance with all local, state, and federal regulations.

SECTION VIII - Protective Equipment to be Used

Respiratory Protection: If workplace exposure limit(s) or product or any component is exceeded (See Section II), a NIOSH/MSHA approved air supplied respirator is advised in absence of proper environmental control. OSHA regulations also permit other NIOSH/MSHA respirators under specified conditions - see 29 CFR 1910.134 or your safety equipment supplier. Engineering and/or administrative controls should be implemented to reduce exposure.

Ventilation: Provide sufficient mechanical (general and/or local exhaust) ventilation to maintain exposure below PEL/TLVs.

Protective Gloves: Wear chemical resistant gloves. Contact your safety equipment supplier.

Eye Protection: Chemical splash goggles in compliance with OSHA regulations are advised. Consult your safety equipment supplier.

Other protective equipment: To prevent repeated or prolonged skin contact, wear impervious clothing and boots.

SECTION IX - Special Precautions or Other Comments

Other Regulatory Information:

CERCLA — Not regulated

RCRA — Not regulated

SARA, Section 302 — Not regulated

SARA, Section 311/312 — Immediate health hazard

SARA, Section 313 — None known to meet the reporting requirements

DOT — Proper shipping name: Not applicable

Hazard Class: Not applicable

Containers of this material may be hazardous when emptied. Since emptied containers retaining product residues, vapors, liquids, and/or solids may pose a hazard. Containers identified as empty should be handled carefully. Observe all hazard precautions presented on the MSDS.

The information accumulated herein is believed to be accurate but is not warranted to be whether originating with the company or not.

Recipients are advised to confirm in advance of need that the information is current, applicable and suitable to their circumstances.

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