D6404‡* & D6406‡* Installation and Maintenance

07-29-08
REV MJF 06-19-14
ECN 4949

MASTER PNEUMATIC
6701 - 18 Mile Rd | Sterling Heights, MI 48314 | Phone: (586) 254-1000 | Fax: (586) 254-6055 | Email: mp@masterpneumatic.com

THANK YOU!

You have just purchased a quality Serv-Oil Single Point Downstream Lubricator from Master Pneumatic.

With care in its installation and maintenance, you can expect it to have a long and economical service life. Before you go any further, please take a few minutes to look over this information,

Installation & Operation Procedures

The Serv-Oil Single Point Downstream Lubricator with Integral Reservoir

Operating Principle:

A 3-way flow sensing valve opens and pressurizes a pneumatic counter each time the upstream air valve is actuated. When air valve exhausts, the sensing valve closes and exhausts air from the counter. The counter may be set to pressurize an adjustable servo-meter every cycle, every 5th cycle or every 10th cycle. When the servo-meter is pressurized, oil is injected into an 1/8th" pre-filled nylon tube that is connected to the lubricator outlet and runs inside the air hose to the tool or device. The amount of oil dispensed when the servo-meter is actuated may be adjusted down to 1/10th of full volume on the 1/2 and 1 drop servo-meters. The adjustment for the 2 drop version is 3/10th of full volume. (Shut off models are also available)

MODEL	PORTS	AIR PRESSURE PSIG	AIR PRESSURE BAR	OIL SUPPLY PSIG	OIL SUPPLY BAR	MIN FLOW SCFM	MIN FLOW LITERS/S	RATED FLOW W/ 3 PSI DROP AT 100 PSIG
D6404‡*	1/2"	60-150	4-10.2	0-30	0-2	5	10.6	60SCFM 127 L/S
D6406‡*	3/4"	60-150	4-10.2	0-30	0-2	5	10.6	100SCFM 212 L/S

Installation:

1. Install a filter or filter and regulator before the Serv-Oil Single Point Downstream Lubricator.

2. Lubricator has been factory tested with oil. However any air introduced from the oil supply must be evacuated. Follow these start-up procedures:

   A) Manual fill reservoirs: Fill reservoir with clean oil using the Q Cap or by removing the Q Cap and filling through the port, fill to the O-Ring. Loosen metal pipe plug in oil supply port and drain oil until all air is removed. Make sure both sides of the Servo-Meter Housing are plugged. Open vent on top of reservoir.

   B) Central Oil Supply: Oil supply tubing to Servo-Meter Housing must be 3/8" O.D minimum. This is essential to prevent air lock. If oil supply runs dry and air enters central oil supply system, start-up procedures must be repeated.

   C) Manually or pneumatically actuate the lubricator until there is no air present in the capillary tube.

3. Remove red protective cap from barbed fitting in outlet of the lubricator. Push the Manual Override Button several times until oil appears at the fitting.

4. Remove the red cap from one end of the nylon tube and connect to barbed fitting using the following procedures:

   A) Make a square cut at end of nylon tube using a proper tube cutter.

   B) Hold tube with M/P modified needle nose pliers (Part # 456-147M). Push and wiggle tube onto barbed fitting until it bottoms out. **Note:** Check Valve holder tool (Part# 456-148) can also be used to hold the brass barb (Part# 420-143) after it is removed from outlet side of Single Point Downstream Lubricator.

NOTE: Master Pneumatic offers optional Coaxial Fitting to simply this process.

5. Remove red cap from other end of the 1/8" nylon tube. Cut tube 3-4" shorter than air tool hose as some hoses contracts when pressurized.

   A) An Internal Check Valve (Part # 420-160) must be used. Install at tool end of nylon tube using M/P modified needle nose pliers (Part # 456-147M) and procedures as described in (6) above. M/P recommends using Check Valve holder tool (Part# 456-148) and modified needle nose pliers (Part# 456-147M) for installing Check Valve on nylon tube.

   B) Feed tube through hose by pushing and shaking hose or using electricians snake.

6. Connect pneumatic product to be lubricated to air hose and pressurize assembly, Cycle upstream control valve. The yellow counter indicator should move out and in with each valve cycle. The manual override button should go in every 5 valve cycles at factory setting, or every 1, 5 or 10 valve cycles if counter has been field adjusted.

   A) To eliminate any transient air from the system, it is desirable to operate the valve during the first few hours of production with the adjustment at factory setting. However be prepared to readjust units, as some complaints of over-lubrication of smaller pneumatic product may result.

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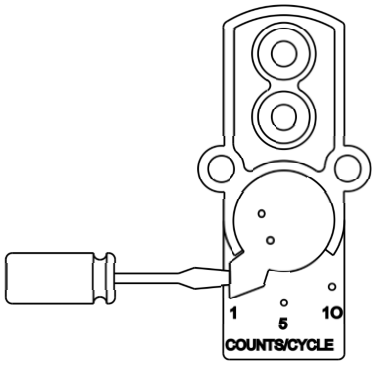
Pneumatic Counter Adjusting Instructions:
A418-04M Adjustable Counter:

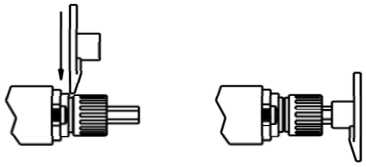
1. Use small screwdriver to move the lever as shown. The switch is pre-set to operate the servo-meter every 5th valve cycle. If the indicator is moved to #1 setting the servo-meter will be actuated every valve cycle If moved to the #10 setting, the servo-meter will be actuated every 10th valve cycle.

2. Use adjusting key to adjust oil volume per servo-meter actuation. It is pre-set to deliver 1 full drop and may be adjusted downward to a minimum of 1/10 drop.(See adjustment data chart)



Adjustment Knob Locking Instructions:

To put volume control knob into locked position, push on knob until click is felt. To unlock, wedge 457-34 key between volume control knob and shoulder until click is felt. Volume control knob will rotate freely. Use hex socket on key 457-34 to turn manual button clockwise for more oil and counterclockwise for less oil, or turn volume control manually.



Locked Unlocked

Adjustment Data

MODEL NO	OIL DELIVERY (MAX)	OIL DELIVERY (MIN)	DROPS/ CLICK
D64045*	½ Drop/Cycle	.05 Drop/Cycle	0.01
D64041*	1 Drop/Cycle	.1 Drop/Cycle	0.02
D64042*	2 Drop/Cycle	.6 Drop/Cycle	0.04
D64065*	½ Drop/Cycle	.05 Drop/Cycle	0.01
D64061*	1 Drop/Cycle	.1 Drop/Cycle	0.02
D64062*	2 Drop/Cycle	.6 Drop/Cycle	0.04

Adjustment Recommendation:

A lube rate of 1drop/20 std. Cu. Ft. of air used is recommended.
Use formula to calculate.

$$\text{Drops/Cycle} = \frac{\text{Air Consumption (SCFM)} \times \text{Duty Cycle (Sec)}}{1200}$$

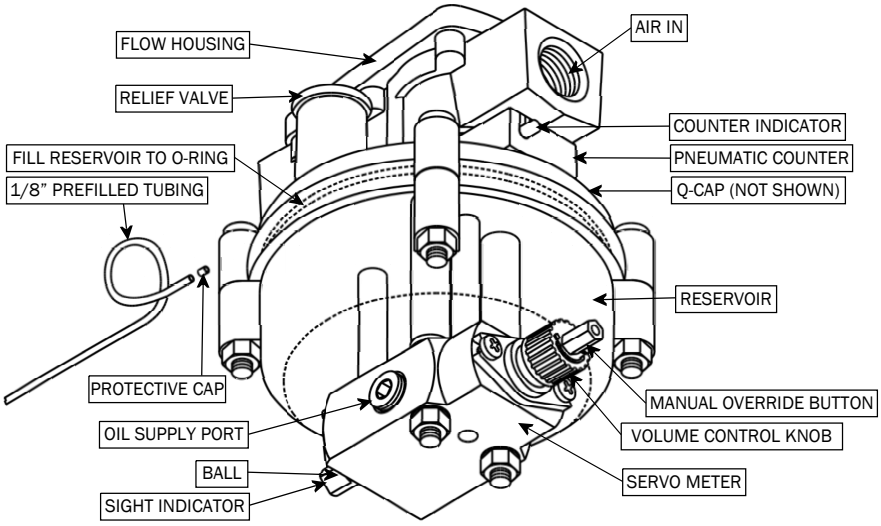
1 DROP = 1/30cc (0.030 ml)

Recommended oil viscosity: 31 to 1000 SUS @ 100°F. For other viscosities, contact Master Pneumatic.

For Cylinders: See our **"Pneumatic Injection Lubrication"** chart in our catalog or visit our website.

Drop Conversion chart

1/2DROP	1/60cc	0.015 ml
1 DROP	1/30cc	0.030 ml
2 DROP	1/15cc	0.060 ml



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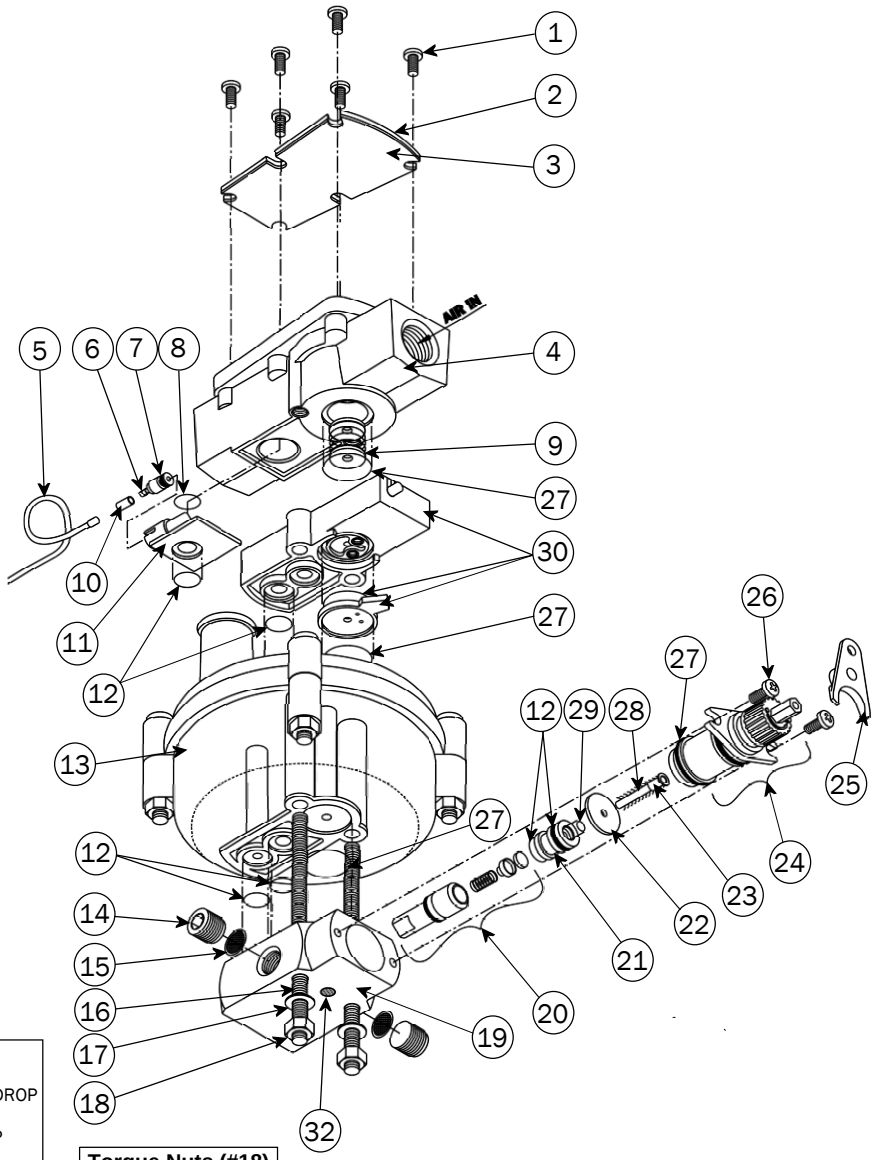
Parts List

KEY	DESCRIPTION	PART #
1	SCREW	29-17
2	PLATE	M420-02
3	GASKET	M420-03
4	HOUSING	M420-01-Δ
5	OIL DELIVERY LINE	A-00942M
6	OIL TUBE ADAPTER	420-143
7	O-RING	37-22PL
8	O-RING	103-95
9	POPPET ASSY	A420-09
10	CAP	02731
11	OIL TUBE CONNECTOR	420-142
12	O-RING	456-79
13	BOWL ASSEMBLY	PA420-22N
14	ALLEN PLUG	01986DM
15	SCREEN	420-60
16	TIE ROD	420-147
17	LOCKWASHER	420-120
18	NUT	10030
19	SERVO-METER HOUSING	457-40S*
20	SIGHT INDICATOR KIT	KA456-72
21	METERING INSERT	457-12-‡1
22	WASHER	457-11M
23	METERING PIN/ASSY	►
24	END CAP ASSY	A457-42MM
25	KEY	457-34
26	SCREW	60L-05
27	O-RING	33-80
28	RETURN SPRING	456-10A
29	O-RING	§
30	COUNTER ASSY	A418-04M
31	Q'CAP (NOT SHOWN)	A476-32L
32	FILTER	452-18

Δ = 1/2 FOR 1/2-14 NPTF, 1/2W FOR 1/2-14 BSPP
3/4 FOR 3/4-14 NPTF, 3/4W FOR 3/4-14 BSPP
► = 456-114-5 FOR HALF DROP SERVO-METER, A456-116 FOR ONE DROP SERVO-METER, 456-114-2 FOR TWO DROP SERVO-METER
§ = 456-110 FOR HALF DROP SERVO-METER, 37-22PL FOR ONE DROP SERVO-METER, 456-111PL FOR TWO DROP SERVO-METER
‡ = 5 FOR HALF DROP SERVO-METER, 1 FOR ONE DROP SERVO-METER, 2 FOR TWO DROP SERVO-METER
* = "W" FOR BSPP THREADS, "J" FOR BSPT THREADS (NPTF STANDARD)

Section View



Replacement Part and Accessories

Part Number	Description
PA457-40S-‡*	**Servo-Meter Assembly** (Servo-Meter Housing, Sight Indicator Kit, Meter Insert, Washer, End Cap Assy, Metering Pin Assy, Springs, Filter, and O-Ring)
PA420-22N	**Bowl Assembly** (Vent Valve, Strainer, Cover, Bowl, Q-Cap, Spring, Fastner, Nuts, Screws, Tie Rod, Lock washers, and O-Rings)
PAM420-01-Δ	**Housing Assembly** (Housing, Gasket, Cover Plate, Oil Connector, Oil Tube Adapter, Screws, Spring, and O-Rings)
A420-09	**Poppet Assembly** (Poppet and Spring)
A418-04M	**Counter Assembly** (Counter Switch, Housing, Ball, Springs, Ratchet Plate, Cartridge, Piston, Retainer, Yellow Cap Plug, and O-Rings)
A457-42MM	**End Cap Assembly** (Override Indicator, Adjusting Screw, Adjusting Knob, Piston, End Cap, Insert, U-Cup, and O-Ring)
KA456-72	**Sight Indicator Kit** (Indicator Housing, Sight Dome, and Indicator Ball)
420-160	**Check Valve**
456-147M	**Bent Nose Pliers**
456-148	**Check Valve Installation Tool**