



# D6004†\* & D6006†\* Installation and Maintenance

**MASTER PNEUMATIC**

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

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

## 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 an air flow is initiated. When air flow stops, the 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 (For less oil M/P offers a double counter consult factory). 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 device being lubricated. 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 BAR	OIL SUPPLY PSIG BAR	MIN FLOW SCFM LITERS/S	RATED FLOW W/ 3 PSI DROP AT 100 PSIG
D6004†*	1/2"	45-150 3-10.2	0-30 0-2	5 10.6	60SCFM 127 L/S
D6006†*	3/4"	45-150 3-10.2	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) Provide an oil supply. For manual fill, use M/P reservoir #M476R
  - B) Central Oil Supply: If lubricator is installed vertically, install M481R Sight Dome Reservoir (air eliminator) at oil supply port having the plastic plug. If installed horizontally, lubricator should be positioned with this plug pointed up and use M482R Sight Dome Reservoir .
  - C) Oil supply tubing to Sight Dome Reservoir must be 3/8" O.D minimum. This is essential to prevent air lock.
3. **Start Up Procedure:** With oil supply connected pushdown on black plastic valve on top of Sight Dome Reservoir to fill bowl with oil. Loosen the 1/4" metal plug in the alternate servo-meter oil port and evacuate all air from the system (**Note: some oil will leak out**). This is a vital procedure to insure that the lubricator will dispense oil.
4. If oil supply runs dry and air enters central oil supply system, start-up procedures must be repeated.
5. 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.
6. 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.

7. Remove red cap from other end of the 1/8" nylon tube. Cut tube 3-4" shorter than air tool hose as some hoses contract 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.
8. Connect air hose to product to be lubricated 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 products may result.



# D6004†\* & D6006†\*

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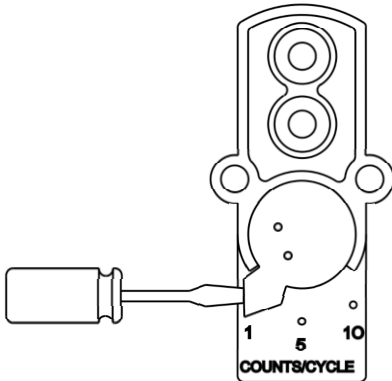
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## Installation & Operation Procedures

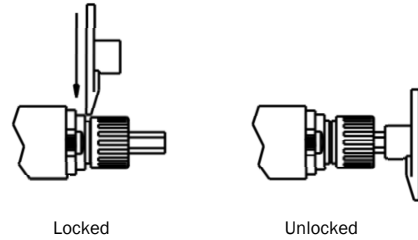
### Pneumatic Counter Adjusting Instructions: A418-04M Adjustable Counter:

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 the maximum and may be adjusted downward to a minimum of full stroke volume. ( 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 override button clockwise for more oil and counterclockwise for less oil, or turn volume control manually.



### Adjustment Data

MODEL NO	OIL DELIVERY (MAX)	OIL DELIVERY (MIN)	DROPS/ CLICK
D60045*	½ Drop/Cycle	.05 Drop/Cycle	0.01
D60041*	1 Drop/Cycle	.1 Drop/Cycle	0.02
D60042*	2 Drop/Cycle	.6 Drop/Cycle	0.04
D60065*	½ Drop/Cycle	.05 Drop/Cycle	0.01
D60061*	1 Drop/Cycle	.1 Drop/Cycle	0.02
D60062*	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.

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

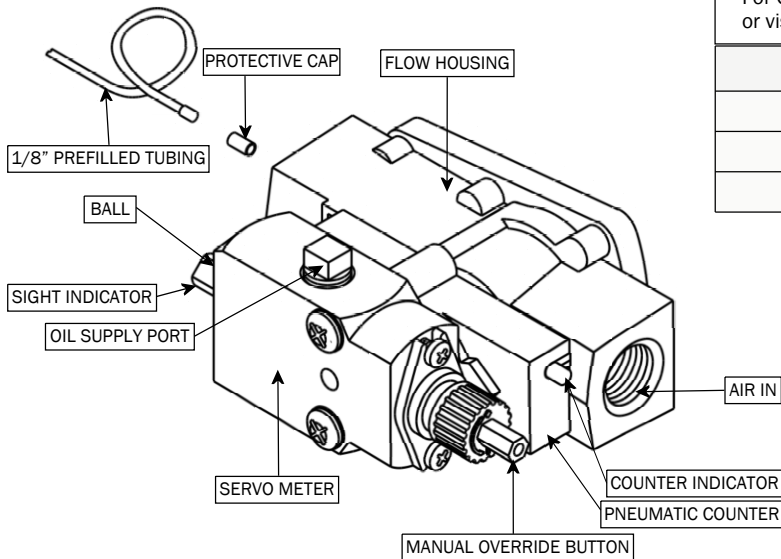
$$1 \text{ DROP} = 1/30\text{cc} (0.030 \text{ ml})$$

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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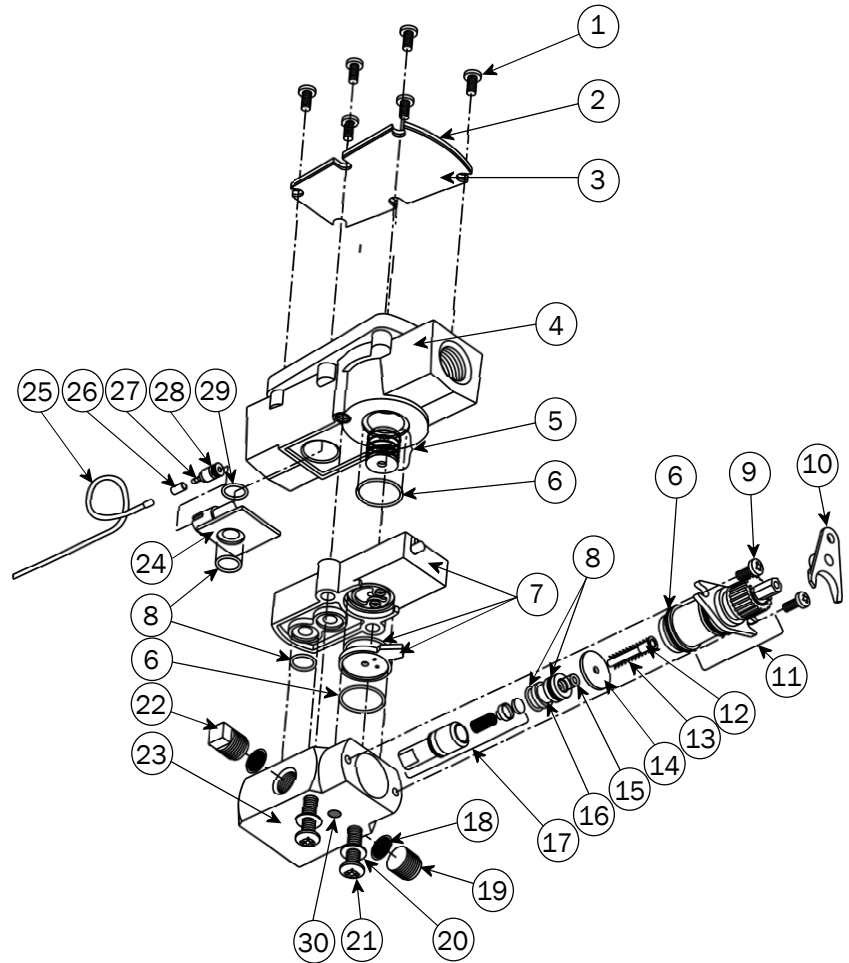
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## Parts List

## Section View

KEY	DESCRIPTION	PART #
1	SCREW	29-17
2	PLATE	M420-02
3	GASKET	M420-03
4	HOUSING	M420-01-Δ
5	POPPET ASSY	A420-09
6	O-RING	33-80
7	COUNTER ASSY	A418-04M
8	O-RING	456-79
9	SCREW	60L-05
10	KEY	457-34
11	END CAP ASSY	A457-42MM
12	METERING PIN/ASSY	►
13	RETURN SPRING	456-10A
14	WASHER	457-11M
15	O-RING	§
16	METERING INSERT	457-12+1
17	SIGHT INDICATOR KIT	KA456-72
18	SCREEN	420-60
19	ALLEN PLUG	01986DM
20	LOCKWASHER	420-120
21	SCREW	420-107
22	PLUG	03384
23	SERVO-METER HOUSING	457-40*
24	OIL TUBING CONNECTOR	420-142
25	OIL DELIVERY LINE	A-00942M
26	CAP	02731
27	OIL TUBE ADAPTER	420-143
28	O-RING	37-22PL
29	O-RING	103-95
30	FILTER	452-18


**Torque screws  
(#21) 20-30 in-lbs.**

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)

## Replacement Part and Accessories

Part Number	Description
PA457-40S- $\pm$ *	<b>Servo-Meter Assembly</b> (Sensing Disc Assembly, Servo-Meter Housing, Sight Indicator Kit, Meter Insert, Washer, End Cap Assy, Metering Pin Assy, Springs, Filter, and O-Ring)
PAM420-01-Δ	<b>Housing Assembly</b> (Housing, Gasket, Cover Plate, Oil Connector, Oil Tube Adapter, Screws, Spring, and O-Rings)
A420-09	<b>Poppet Assembly</b> ( Poppet, Spring )
A418-04M	<b>Counter Assembly</b> ( Counter Switch, Housing, Ball, Springs, Ratchet Plate, Cartridge, Piston, Retainer, Yellow Cap Plug, and O-Rings )
A457-42MM	<b>End Cap Assembly</b> ( Override Indicator, Adjusting Screw, Adjusting Knob, Piston, End Cap, Insert, U-Cup, and O-Ring )
KA456-72	<b>Sight Indicator Kit</b> ( Indicator Housing, Sight Dome, and Indicator Ball)
420-160	<b>Check Valve</b>
456-147M	<b>Bent Nose Pliers</b>
456-148	<b>Check Valve Installation Tool</b>