Pneumatic Division
Richland, Michigan USA
www.parker.com/pneumatics

(05-13-2013)

LUBRICATORS

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Pneumatic Division

Richland, Michigan 49083
269-629-5000

Installation & Service Instructions 1L002C

In-Line Lubricator Model 02L

ISSUED: February, 2006
Supersedes: December, 2005

Doc.# 1L002, ECN# 060042, Rev. 6

⚠ WARNING

To avoid unpredictable system behavior that can cause personal injury and property damage:

- **Disconnect electrical supply (when necessary) before installation, servicing, or conversion.**
- **Disconnect air supply and depressurize all air lines connected to this product before installation, servicing, or conversion.**
- **Operate within the manufacturer's specified pressure, temperature, and other conditions listed in these instructions.**
- **Medium must be moisture-free if ambient temperature is below freezing.**
- **Service according to procedures listed in these instructions.**
- **Installation, service, and conversion of these products must be performed by knowledgeable personnel who understand how pneumatic products are to be applied.**
- **After installation, servicing, or conversion, air and electrical supplies (when necessary) should be connected and the product tested for proper function and leakage. If audible leakage is present, or the product does not operate properly, do not put into use.**
- **Warnings and specifications on the product should not be covered by paint, etc. If masking is not possible, contact your local representative for replacement labels.**

Installation

1. Refer to Warnings.

   CAUTION! Depressurize Before Servicing!

2. Install at air inlet or tool if possible. Unit will operate in any position, allowing it to be mounted on air hose.
3. Install the unit with the air flowing in direction of arrow on body.
4. **MAKE SURE AIR SUPPLY IS TURNED OFF AND DEPRESSURIZED BEFORE REMOVING FILL PLUG**. Remove fill plug and fill unit. Use only clean oil, SAE 10 or lighter is best.
5. Unit must be moved periodically or it will not feed oil. **DO NOT** install on rigid, non-moving air lines.

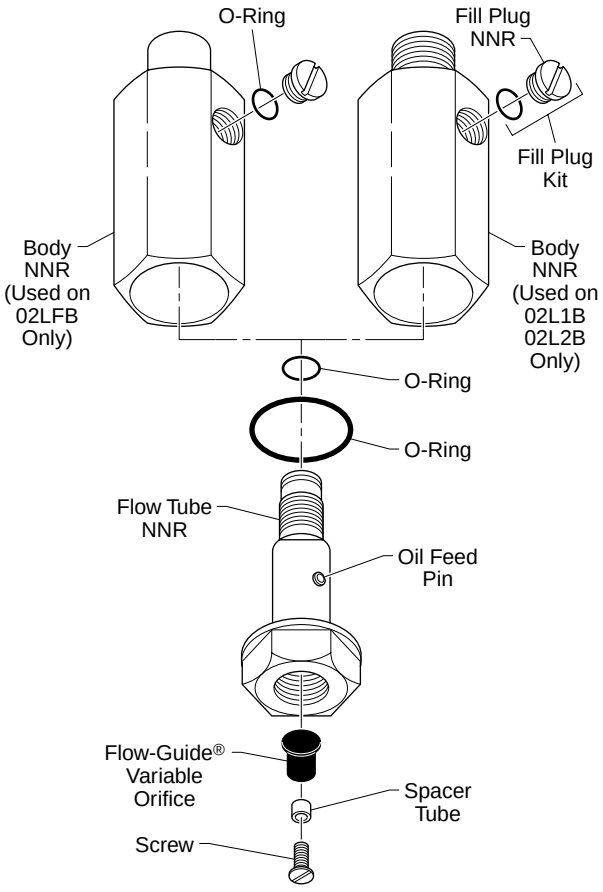
Maintenance

1. Remove flow tube occasionally and clean inside of body. Blow out flow tube with air gun. Be sure oil feed pin moves freely.

Repair Kits and Replacement Parts

O-Ring Kit PS435

Brass Fill Plug Kit PS434



NNR = NOT NORMALLY REPLACED

⚠ WARNING

FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS AND/OR SYSTEMS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.

This document and other information from The Company, its subsidiaries and authorized distributors provide product and/or system options for further investigation by users having technical expertise. It is important that you analyze all aspects of your application, including consequences of any failure and review the information concerning the product or systems in the current product catalog. Due to the variety of operating conditions and applications for these products or systems, the user, through its own analysis and testing, is solely responsible for making the final selection of the products and systems and assuring that all performance, safety and warning requirements of the application are met.

The products described herein, including without limitation, product features, specifications, designs, availability and pricing, are subject to change by The Company and its subsidiaries at any time without notice.

EXTRA COPIES OF THESE INSTRUCTIONS ARE AVAILABLE FOR INCLUSION IN EQUIPMENT / MAINTENANCE MANUALS THAT UTILIZE THESE PRODUCTS. CONTACT YOUR LOCAL REPRESENTATIVE.

Pneumatic Division
Richland, Michigan 49083
269-629-5000

Instructions d'installation et Service 1L002C (French Canadian)

Lubrificateur an ligne Modèle 02L

DISTRIBUE: Février, 2006
Supplantent: Décembre, 2005

Doc.# 1L002, ECN# 060042, Rev. 6

⚠ AVERTISSEMENT

Afin d'éviter un fonctionnement imprévu du système pouvant occasionner des blessures aux personnes et des dommages matériels :

- **Débrancher l'alimentation électrique (si nécessaire) avant toute installation, entretien ou conversion.**
- **Débrancher l'alimentation en air et dépressuriser toutes les canalisations d'air connectées à cet appareil avant installation, entretien ou conversion.**
- **Utiliser l'appareil conformément aux normes de pression, température, et autres conditions spécifiées par le fabricant dans ces instructions.**
- **Le médium doit être exempt d'humidité si la température descend en dessous de 0°C.**
- **L'entretien doit se faire conformément aux procédures décrites ici.**
- **L'installation, l'entretien, et la conversion de ces appareils doivent être effectués par des personnels qualifiés, au fait des techniques pneumatiques.**
- **Après installation, entretien, ou conversion, les alimentations en air et en électricité (si nécessaire) seront connectées et l'appareil testé pour vérifier son fonctionnement correct et l'absence de fuites. Si l'appareil présente une fuite audible ou ne fonctionne pas correctement, ne pas l'utiliser.**
- **Les inscriptions concernant les avertissements et spécifications sur l'appareil ne devront pas être recouvertes de peinture, etc. Si le masquage est impossible, contactez votre représentant local pour des étiquettes de remplacement.**

⚠ AVERTISSEMENT

LA DEFAILLANCE, LE CHOIX ERRONE OU L'USAGE NON CONFORME DES PRODUITS ET/OU SYSTEMES ICI DECRITS, OU PRODUITS Y AFFERANT, PEUVENT ENTRAINER LA MORT, DES BLESSURES AUX PERSONNES ET DES DOMMAGES MATERIELS.

Ce document et autres informations de « The Company », ses filiales et distributeurs autorisés offre des options complémentaires d'utilisation du produit et/ou système pour des utilisateurs ayant l'expertise technique requise. Il est important que vous analysiez tous les aspects de l'usage prévu, y compris les conséquences de toute défaillance, et que vous passiez en revue les informations concernant les produits et systèmes dans le catalogue actuel des produits. En raison de la diversité des conditions de fonctionnement et d'utilisation de ces produits ou systèmes, l'utilisateur, et lui seul, selon ses propres analyses et tests, porte la responsabilité du choix final des produits et systèmes. Il est aussi de sa responsabilité pleine et entière de s'assurer que les produits soient utilisés conformément aux normes de sécurité et avertissements d'usage.

Les produits décrits ici, y compris, mais non exclusivement, les caractéristiques des produits, spécifications, aspects, disponibilité et prix, sont susceptibles de modification à tout moment et sans préavis par « The Company » et ses filiales.

DES EXEMPLAIRES SUPPLEMENTAIRES DE CES INSTRUCTIONS SONT DISPONIBLES POUR ACCOMPAGNER LES APPAREILS/MANUELS D' ENTRETIEN CORRESPONDANT A CES PRODUITS. CONTACTEZ VOTRE REPRESENTANT LOCAL.

INSTALLATION

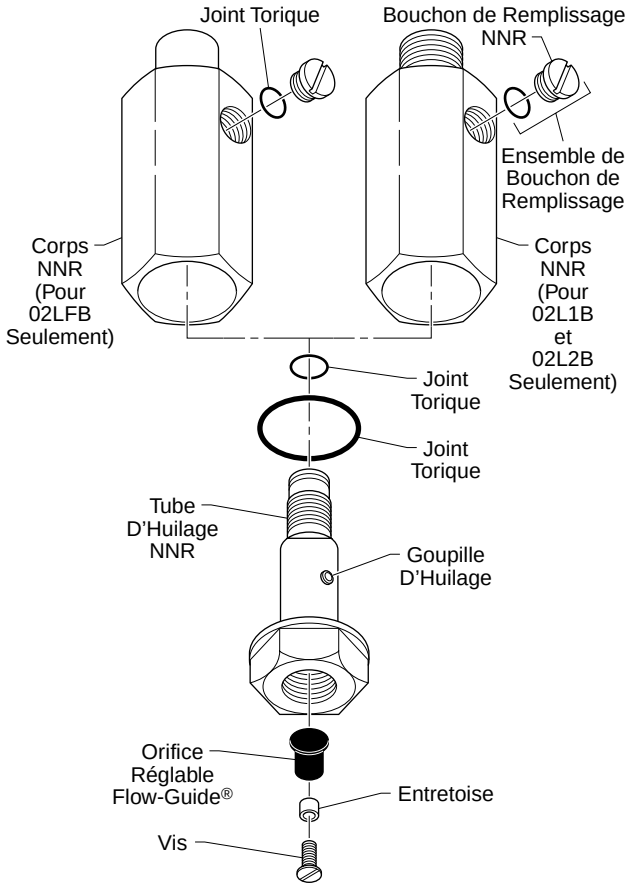
1. Lire l'avertissements. **ATTENTION! DÉTENDRE LA PRESSION AVANT TOUTE INTERVENTION!**
2. Installer à l'entrée d'air ou sur l'outil si possible. Le dispositif fonctionne dans n'importe quelle position, ce qui permet de le monter sur le tuyau flexible d'air comprimé.
3. Monter le dispositif de manière à ce que l'air s'écoule dans la direction de la flèche.
4. **S'ASSURER QUE L'ARRIVÉE D'AIR EST FERMÉE ET QUE LE SYSTÈME EST MIS HORS PRESSION AVANT D'OTER LE BOUCHON DE REMPLISSAGE.** Ôter le bouchon de remplissage et remplir le dispositif. N'utiliser que de l'huile propre. L'huile de viscosité SAE 10 ou plus légère est recommandée.
5. Le dispositif doit être déplacé de temps à autre pour délivrer l'huile. **NE PAS** le monter sur des conduites d'air rigides et fixes.

ENTRETIEN

1. Démonter de temps en temps le tube d'huilage et nettoyer l'intérieur du corps. Souffler dans le tube d'huilage au pistolet à air. S'assurer que la goupille d'huilage se déplace librement.

TROUSSES DE RÉPARATION ET PIÈCES DE RECHANGE

Jeu de joints toriques **PS435**
Ensemble de bouchon de remplissage en laiton **PS434**



NNR = NORMALEMENT NON REMPLACÉ

Pneumatic Division
Richland, Michigan 49083
269-629-5000

Las Instrucciones de la instalación y el Servicio
1L002C (Spanish)
Lubricador en Línea Modelo 02L
PUBLICADO: Febrero, 2006
Desbancan: Diciembre, 2005
Doc.# 1L002, ECN# 060042, Rev. 6

⚠ ADVERTENCIA

Para evitar un comportamiento impredecible del sistema que pueda ocasionar lesiones personales y daños a la propiedad:

- **Antes de instalar, reparar o convertir, desconecte el suministro eléctrico (cuando sea necesario).**
- **Antes de instalar, reparar o convertir, desconecte el suministro de aire y despresurice todas las líneas de aire que están conectadas a este producto.**
- **Haga funcionar dentro de la presión, temperatura y demás condiciones especificadas por el fabricante y que se incluyen en estas instrucciones.**
- **El medio debe estar libre de humedad si la temperatura ambiente se encuentra por debajo del punto de congelación.**
- **Repare de acuerdo con los procedimientos que se incluyen en estas instrucciones.**
- **La instalación, reparación y conversión de estos productos debe ser realizada por personal competente que entienda la manera en que se deben aplicar los productos neumáticos.**
- **Después de la instalación, reparación y conversión, se debe conectar los suministros eléctricos y de aire (cuando sea necesario), y el producto se debe poner a prueba para determinar que funciona correctamente y no tiene pérdidas. Si se detecta una pérdida audible, o si el producto no funciona correctamente, no lo ponga en funcionamiento.**
- **Las advertencias y especificaciones que aparecen en el producto no deben estar cubiertas por pintura, etc. Si no resulta posible colocarlo con cinta adhesiva, póngase en contacto con su representante local para obtener etiquetas de repuesto.**

⚠ ADVERTENCIA

EL FALLO O LA SELECCIÓN INCORRECTA O EL USO INCORRECTO DE LOS PRODUCTOS Y/O SISTEMAS AQUÍ DESCRITOS U OTROS ARTÍCULOS RELACIONADOS PUEDE RESULTAR EN MUERTE, LESIONES PERSONALES Y DAÑO A LA PROPIEDAD.

Este documento y demás información de la compañía, sus subsidiarias y distribuidores autorizados ofrecen opciones de productos y sistemas para mayor investigación por parte de los usuarios que cuentan con conocimientos técnicos. Es importante que analice todos los aspectos de su aplicación, incluyendo las consecuencias de cualquier fallo y que revise la información concerniente al producto o los sistemas que se encuentran en el catálogo actual de productos. Debido a la variedad de condiciones de funcionamiento y aplicaciones para estos productos o sistemas, el usuario, mediante su propio análisis y pruebas, es únicamente responsable por la selección final de los productos y sistemas, y por garantizar que se cumpla con todos los requisitos de funcionamiento, seguridad y advertencia de la aplicación.

Los productos aquí descritos, incluyendo pero sin limitarse, a las características del producto, las especificaciones, los diseños, la disponibilidad y los precios, están sujetos a cambios por parte de la compañía y de sus subsidiarias en cualquier momento sin aviso.

SE PUEDE OBTENER COPIAS ADICIONALES DE ESTAS INSTRUCCIONES PARA INCLUIR CON EL EQUIPO / LOS MANUALES DE MANTENIMIENTO QUE UTILIZAN ESTOS PRODUCTOS. COMUNIQUESE CON SU REPRESENTANTE LOCAL.

INSTALACION

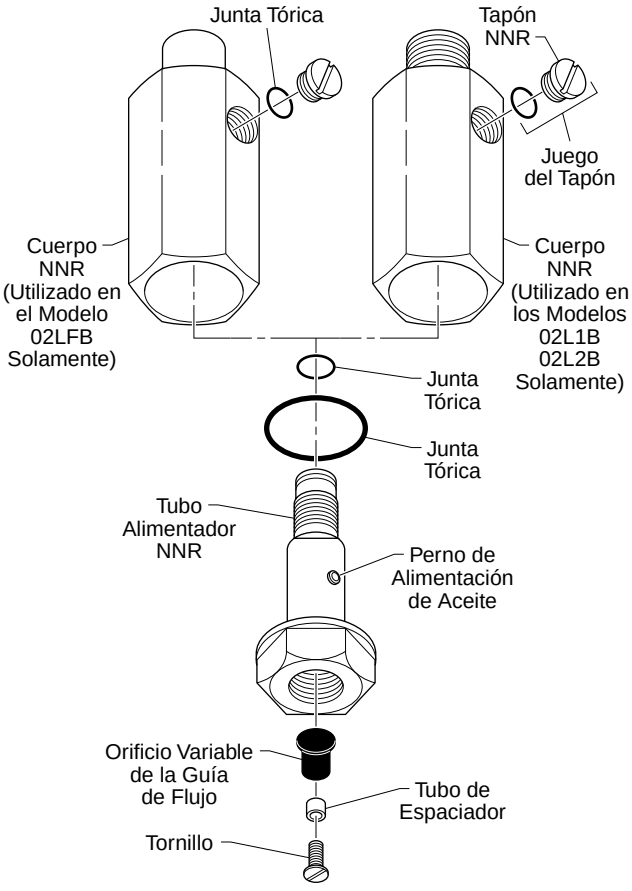
1. Remítase a la Advertencias. **PRECAUCION DESPRESURIZAR ANTES DEL SERVICIO DE MANTENIMIENTO!**
2. Instale en la entrada de aire o herramienta si fuera posible. La unidad operará en cualquier posición, permitiendo que se pueda montar en la manguera de aire.
3. Instale la unidad de manera que el aire fluya en dirección de la flecha en el cuerpo de la misma.
4. **ASEGURARSE DE QUE EL SUMINISTRO DE AIRE ESTÉ DESCONECTADO Y DESPRESURIZADO ANTES DE RETIRAR EL TAPÓN.** Retire el tapón y llene la unidad. Utilice solamente aceite limpio, SAE 10 o más liviano es lo mejor.
5. La unidad se debe mover periódicamente o no alimentará aceite. **NO** instalarla en conductos de aire rígidos no movibles.

MANTENIMIENTO

1. Retire el tubo alimentador ocasionalmente y limpie el interior del cuerpo. Limpie el tubo alimentador con el chorro de aire de una escopeta de aire comprimido. Asegúrese de que el perno de alimentación de aceite se mueva libremente.

JUEGOS DE REPARACION Y REPUESTOS

Juego de juntas tóricas **PS435**
Juego de tapones de bronce **PS434**



NNR = NORMALMENTE NO SE REEMPLAZA

Pneumatic Division
Richland, Michigan 49083
269-629-5000

Installation & Service Instructions: 1L105C

Prep-Air® I Air Line Lubricator

ISSUED: November, 2003
Supersedes: January, 2002

Doc.# 1L105, ECN# 030539, Rev. 1

⚠WARNING

To avoid unpredictable system behavior that can cause personal injury and property damage:

- **Disconnect electrical supply (when necessary) before installation, servicing, or conversion.**
- **Disconnect air supply and depressurize all air lines connected to this product before installation, servicing, or conversion.**
- **Operate within the manufacturer's specified pressure, temperature, and other conditions listed in these instructions.**
- **Medium must be moisture-free if ambient temperature is below freezing.**
- **Service according to procedures listed in these instructions.**
- **Installation, service, and conversion of these products must be performed by knowledgeable personnel who understand how pneumatic products are to be applied.**
- **After installation, servicing, or conversion, air and electrical supplies (when necessary) should be connected and the product tested for proper function and leakage. If audible leakage is present, or the product does not operate properly, do not put into use.**
- **Warnings and specifications on the product should not be covered by paint, etc. If masking is not possible, contact your local representative for replacement labels.**

Introduction

Follow these instructions when installing, operating, or servicing the product.

Application Limits

These products are intended for use in general purpose compressed air systems only.

Operating Pressure Range:	**kPa**	**PSIG**	**bar**
Lubricators w/ Plastic Bowls			
Maximum	1034	150	10.34
Lubricators w/ Metal Bowls			
Maximum	1724	250	17.24

Minimum Flow for Lubrication: 1.0 SCFM at 100 PSIG

Operating Temperature Range:

Lubricators w/ Plastic Bowls -29°C * to 49°C (-20°F to 120°F)

Lubricators w/ Metal Bowls -29°C * to 74°C (-20°F to 165°F)

* Temperatures below 0°C (32°F) require moisture free air.

Suggested Lubricant: F442 Oil

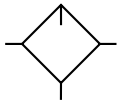
Petroleum based oil of 100 to 200 SUS viscosity at 100°F and an aniline point greater than 200°F.

(DO NOT USE OILS WITH ADDITIVES, COMPOUNDED OILS CONTAINING SOLVENTS, GRAPHITE, DETERGENTS, OR SYNTHETIC OILS.)

Installation:

1. Lubricator should be installed with reasonable accessibility for service whenever possible — repair service kits are available. Keep pipe or tubing lengths to a minimum with inside clean and free of dirt and chips. Pipe joint compound should be used sparingly and applied only to the male pipe — never into the female port. Do not use PTFE tape to seal pipe joints — pieces have a tendency to break off and lodge inside the unit, possibly causing malfunction. Also new pipe or hose should be installed between the lubricator and equipment being protected.
2. Install lubricator so that air flows from "IN" to "OUT" as marked on the lubricator.
3. Installation should be downstream of the filter and regulator but upstream of the device it is to lubricate (valve, cylinders, tool, etc.).
4. Install lubricator vertically with bowl drain mechanism at the bottom. Free moisture will thus drain into the sump ("quiet zone") at the bottom of the bowl.
5. Verify that lock ring is installed properly. If it is not, install lock ring and turn clockwise until it clicks into place. (See **Bowl Replacement** for more details.)

ANSI Symbol:



Operation

Air flowing through the unit goes through two paths. At low flow rates the majority of the air flows through the venturi section **(A)**. The rest of the air opens the flapper **(C)**. The velocity of the air flowing through the venturi section **(A)** creates a pressure drop. This lower pressure allows the oil to be forced from the reservoir through the pickup tube **(B)** and travels up to the metering screw **(D)**. The rate of oil delivery is then controlled by adjusting the metering screw **(D)**. Oil flows past the metering screw **(D)** and forms a drop in the nozzle tube **(E)**. As the oil drops through the dome **(F)** and back into the venturi section **(A)**, it is broken up into fine particles. It is then mixed with the air flowing past the flapper **(C)** and is carried downstream. As the air flow increases, the flapper **(C)** will open more fully. The additional flow will assure that the oil delivery rate will increase linearly with the increase of air flow.

To fill lubricator with oil without turning the line pressure off, first remove the fill plug **(G)** to relieve pressure from the bowl **(H)**, then either pour oil through fill plug hole or remove bowl **(H)** and pour oil directly into the bowl.

⚠WARNING

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⚠ CAUTION

Polycarbonate bowls, being transparent and tough, are ideal for use with Filters and Lubricators. They are suitable for use in normal industrial environments, but should not be located in areas where they could be subjected to direct sunlight, an impact blow, nor temperatures outside of the rated range. As with most plastics, some chemicals can cause damage. Polycarbonate bowls should not be exposed to chlorinated hydro-carbons, ketones, esters and certain alcohols. They should not be used in air systems where compressors are lubricated with fire-resistant fluids, such as phosphate ester and di-ester types.

Metal bowls are recommended where ambient and/or media conditions are not compatible with polycarbonate bowls. Metal bowls resist the action of most such solvents, but should not be used where strong acids or bases are present or in salt laden atmospheres. Consult the factory for specific recommendations where these conditions exist.

TO CLEAN POLYCARBONATE BOWLS, USE MILD SOAP AND WATER ONLY! DO NOT use cleansing agents such as acetone, benzene, carbon tetrachloride, gasoline, toluene, etc., which are damaging to this plastic.

Maintenance:

1. Periodically fill lubricator, do not allow oil level to drop below end of suction tube.
2. Keep oil and air clean to prevent clogging of oil passages. A filter installed upstream of the lubricator is recommended.

Cleaning:

1. Depress button on lock ring, turn counterclockwise and remove along with bowl assembly.
2. Clean the lubricator element and bowl assembly with MILD SOAP AND WATER ONLY! See CAUTION above.
3. Reinstall the bowl assembly and lock ring. Turn lock ring clockwise until it clicks into place.

Bowl Replacement:

1. Depress button on lock ring, turn counterclockwise and remove along with bowl assembly.
2. Install new bowl assembly and lock ring. Turn lock ring clockwise until it clicks into place.

⚠ **WARNING:** Conversion or replacement of an old metal bowl with a new plastic bowl will reduce the product pressure / temperature rating. Be certain that the circuit and environment does not exceed the lower ratings; and that rating labels elsewhere on the product are replaced with one describing the lower rating. Failure to do so may cause property damage, injury or death.

Bowl Guard Installation:

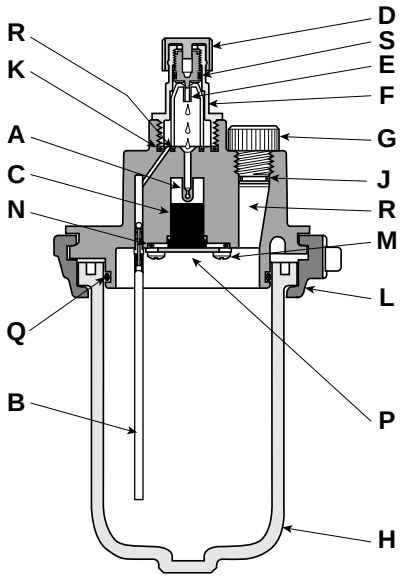
1. Depress button on lock ring, turn counterclockwise and remove.
2. Slip guard over bowl.
3. Reinstall the bowl assembly and lock ring. Turn lock ring clockwise until it clicks into place.

Pressure Fill Adapter Installation:

Remove fill plug (G) and discard. Install pressure fill adapter in its place.

Service:

1. Remove fill plug **(G)**, replace o-ring **(J)** on fill plug with new one from kit and reinstall fill plug.
2. Remove sight dome **(F)**, replace o-ring **(K)** under sight dome, o-ring **(R)** under drip tube, & small o-ring **(S)** for adjusting needle with new ones from kit, if necessary, and reinstall sight dome.
3. Remove lock ring assembly **(L)** and bowl assembly.
4. Remove (4) screws **(M)**, plate, gasket **(N)** and servo-vane **(C)**.
5. Proceed using a, b, or c, depending on construction of your lubricator.
   a. 1/4" through 1/2" lubricators with old style servo-vane **(C)** (ears on top) - discard old servo-vane and strap **(P)**. Install new strap onto new servo-vane making sure chamfered corner on servo-vane and strap line up with each other. NOTE: If your unit falls in this group, be sure to read step 11 at right.
   b. 1/4" through 1/2" lubricators with new style servo-vane **(C)** (flat topped). Discard old servo-vane and strap **(P)**. Install new strap onto new servo-vane making sure chamfered corner on servo-vane and strap line up with each other.
   c. 3/4" and 1" lubricators - discard old servo-vane **(C)** and strap **(P)**. Install new strap onto new servo-vane making sure chamfered corner on servo-vane and strap line up with each other.
6. Install servo-vane **(C)** and strap **(P)** into body making sure chamfered corners on servo-vane and strap line up with chamfer in body.
7. Install new gasket **(N)**.
8. Reinstall cover plate and screws **(M)** on compact, tighten screws 0.5 to 0.9 Nm (6 to 8 in-lbs); on standard and full size models, tighten screws 1.4 to 1.7 Nm (12 to 15 in-lbs).
9. Replace bowl o-ring **(Q)** with new one.
10. Reinstall bowl assembly **(H)** and lock ring assembly **(L)**.
11. If your lubricator is the type mentioned in step 5.a. and your flow requirements are below 16 SCFM at 100 PSIG, this retrofit may not perform satisfactorily to fulfill your lubrication needs. Test your unit and, if this occurs, contact the Technical Service Department.



Service Kits / Parts:

Item	Description	Compact	Standard	Full Size
	Service Kit, "A" Level	**03580 8000**	**03582 8000**	**03586 8000**
	Service Kit, "B" Level	**03580 8050B**	**03582 8050B**	**03586 8050B**
B	Siphon Tube & Filter "A" Level, "B" Not Avail.	—	03582 8001	03586 8001
F	Sight Dome, "A" Level	03580 7109	03580 7109	03580 7109
F	Sight Dome, "B" Level	03580 7150B	03580 7150B	03580 7150B
G	Fill Plug, "A" Level	04589 7017	04589 7017	04589 7017
G	Fill Plug, "B" Level	03580 7011P	03580 7011P	03580 7011P
L	Lock Ring Assembly	—	03582 7502B	03586 7501B
Q	O-Ring *	02709 7202B	03454 7240B	03454 7247B

* Furnished in Service Kit.

Accessories

Item	Compact Lubricator 03580 03581	Standard Lubricator 03582 03583 03584	Full Size Lubricator 03586 03588
Bowl Guards	03530 0100B	03532 0100B	03536 0100B
Bowl Kits			
Polycarbonate	03530 0500B	03532 0500B	03536 0500B
Metal	03530 0400B	03532 0400B	03536 0400B
Manual Drain	PS512P	PS512P	PS512P
Pipe Mounting Bracket	00902 0400B	00902 0400B	00906 0400B
Oil			
1 Gallon	F442002	F442002	F442002
12 Quart Case	F442003	F442003	F442003
4 Gallon Case	F442005	F442005	F442005

Pneumatic Division
Richland, Michigan 49083
269-629-5000

Installation Instructions:
1L106

ISSUED: November, 2003
Supersedes: May, 1999

Doc.# 1L106, ECN# 030539, Rev. 1

Installation Instructions:

#035820500 Tamperproof Option for Use with 3500 Series Lubricators.

A. TO INSTALL

1. Drop metal insert into cavity over the adjusting screw so that the convex or dome side of the insert is facing upwards.
2. Use a blunt instrument, such as a pencil eraser, and flatten the metal insert thereby causing it to become firmly wedged in place over the adjusting screw.

B. TO REMOVE

1. Use a pointed tool to dislodge the insert which then becomes easy to remove and allows adjustment of the lubricator.

NOTE: Any attempt to tamper with the lubricator setting will be evidenced by a severely damaged metal insert.

Pneumatic Division
Richland, Michigan 49083
269-629-5000

Installation & Service Instructions: 1L401G

06L, 07L, 08L , 16L, 17L, & 18L Mist & Micro-Mist Lubricator Kits

ISSUED: November, 2003
Supersedes: December, 1998
Doc.# 1L401, ECN# 030539, Rev. 8

⚠WARNING

To avoid unpredictable system behavior that can cause personal injury and property damage:

- **Disconnect electrical supply (when necessary) before installation, servicing, or conversion.**
- **Disconnect air supply and depressurize all air lines connected to this product before installation, servicing, or conversion.**
- **Operate within the manufacturer's specified pressure, temperature, and other conditions listed in these instructions.**
- **Medium must be moisture-free if ambient temperature is below freezing.**
- **Service according to procedures listed in these instructions.**
- **Installation, service, and conversion of these products must be performed by knowledgeable personnel who understand how pneumatic products are to be applied.**
- **After installation, servicing, or conversion, air and electrical supplies (when necessary) should be connected and the product tested for proper function and leakage. If audible leakage is present, or the product does not operate properly, do not put into use.**
- **Warnings and specifications on the product should not be covered by paint, etc. If masking is not possible, contact your local representative for replacement labels.**

⚠ CAUTION

Polycarbonate bowls, being transparent and tough, are ideal for use with Filters and Lubricators. They are suitable for use in normal industrial environments, but should not be located in areas where they could be subjected to direct sunlight, an impact blow, nor temperatures outside of the rated range. As with most plastics, some chemicals can cause damage. Polycarbonate bowls should not be exposed to chlorinated hydrocarbons, ketones, esters and certain alcohols. They should not be used in air systems where compressors are lubricated with fire-resistant fluids such as phosphate ester and diester types.

Metal bowls are recommended where ambient and/or media conditions are not compatible with polycarbonate bowls. Metal bowls resist the action of most such solvents, but should not be used where strong acids or bases are present or in salt laden atmospheres. Consult the factory for specific recommendations where these conditions exist.

TO CLEAN POLYCARBONATE BOWLS USE MILD SOAP AND WATER ONLY! DO NOT use cleansing agents such as acetone, benzene, carbon tetrachloride, gasoline, toluene, etc., which are damaging to this plastic.

Bowl guards are recommended for added protection of polycarbonate bowls where chemical attack may occasionally occur.

Introduction

Follow these instructions when installing, operating, or servicing the product.

Application Limits

These products are intended for use in general purpose compressed air systems only.

With Polycarbonate Bowl

	kPa	PSIG	bar
Operating Pressure Maximum	1030	150	10.3

Operating Temperature Maximum: 52°C (125°F)

With Metal Bowl

	kPa	PSIG	bar
Operating Pressure Maximum	1720	250	17.2

Operating Temperature Maximum: 80°C (175°F)

Instructions

1. Turn off air supply and depressurize the lubricator before removing any parts.
2. For sight gauge and restrictor kits, remove the bowl.
3. Follow the individual kit instructions below for the kit replacement involved.
4. After the completion of sight gauge or body service kit installation, replace the bowl o-ring with a new one, cleaning the areas where the o-ring seals. (NOTE: Use only mineral based oils or grease; do not use silicone.) Screw bowl completely back into body.
5. Repressurize the assembled unit and check for possible leaks.

Operation and Service

1. **Filling** — The Lubricator may be refilled by pouring oil through the fill hole at the top after removing the plug.

   CAUTION: Micro-Mist Lubricators require the air supply to be shut-off and the pressure in the bowl released before removing the fill plug. Standard Mist type unit do not require this shut-off. If the type of unit cannot be determined, turn the fill plug one

⚠WARNING

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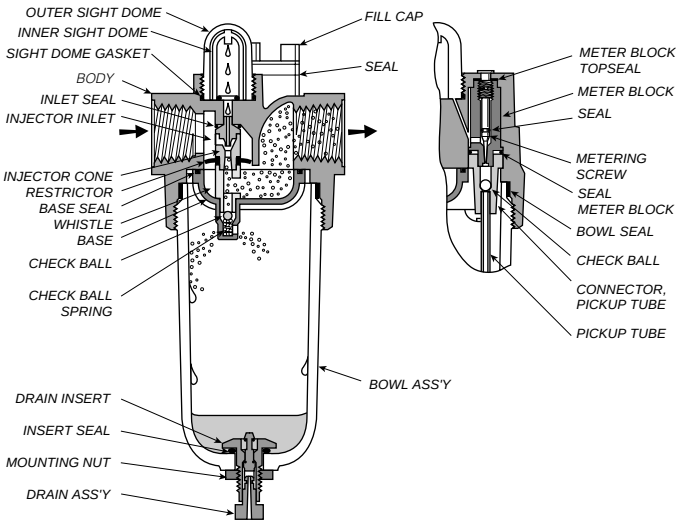
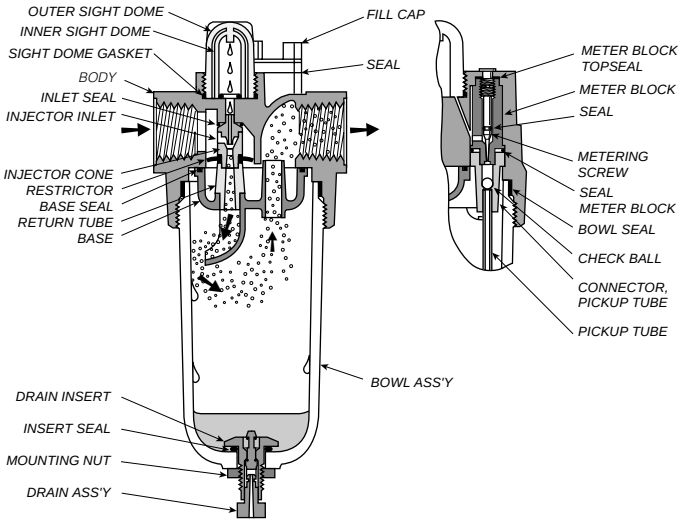


Mist Lubricator
06L, 07L, 08L



Micro-Mist Lubricator
16L, 17L, 18L

turn towards open and allow the air to escape. A standard Mist Type will depressurize in less that (1) minute and the fill plug can be removed. Micro-Mist units will not depressurize and require a shut-off and depressurization of the system before further removal of the fill plug.

Fill Micro-Mist units to a level below the internal scoop (most unit will have a “fill” line indicating this maximum level). Standard Mist units may be filled to the top of the bowl. Use an oil of 100 to 200 SUS viscosity at 100°F such as SAE No. 10 hydraulic oil or spindle oil. **DO NOT USE OILS WITH ADHESIVES OR TACKY ADDITIVES. COMPOUNDED OILS CONTAINING SOLVENTS, GRAPHITE, SOAPS OR DETERGENTS (automotive oils generally contain detergents) ARE NOT RECOMMENDED.**

2. Replace the fill plug and seat firmly. Excessive torque is not required. Repressurize the lubricator and check for leakage.
3. **Oil delivery adjustment** — Micro-Mist types will begin oil delivery as soon as air flow is established and the oil path in the lubricator is filled — only a few seconds. Standard Mist types may require several minutes after a bowl has been depressurized while the line pressure was maintained. In either type of unit, make adjustments while air is flowing and oil drops are visible in the sight dome. Use a blade screwdriver to turn the adjusting screw in the top of the lubricator.

   Leaner — Clockwise

   Richer — Counterclockwise

   The rate of oil drops in the sight dome should be used to judge the requirements for the application.

Individual Kit Instructions

A. **Sight Dome & Fill Cap Kit**

After step 1, remove the old parts. Clean the exposed sealing surfaces on the body. Install the new seals. Fit the domes together, install and torque 25-30 inches. Install the new cap, seal, and hand tighten. Check for sight dome and fill cap leaks in step 5.

B. **Sight Gauge Kit**

After step 2, remove the old parts and clean the sight gauge sealing surfaces on the bowl. Fit the large o-ring into the sight gauge groove (note the gripping nibs). Place the sight gauge in position, add the screws and o-rings and secure with 12-16 lb-inches torque. Follow step 4 next.

C. **Restrictor Kit**

After step 2, remove the two screws in the body holding the plastic base. Remove the base and pull out the restrictor, injector, cone, o-ring, pickup tube, and metering block. The return tube can remain in the base. Remove the o-rings from the injector and base and replace with the new kit o-rings. (NOTE: Kit PS231B has two base o-rings — select the correct size. Also new Micro-Mist lubricators do not require base o-rings — series 16L,17L,18L). Place the new restrictor onto the cone (center rib facing the bowl interior on Hi-flow size units) and install into the body, making certain the injector with o-ring is properly centered and engaged into the body. Carefully replace the plastic base, engaging the cone and tighten the holding screws 10-15 lb-inches for Standard and Compact Series size units, and 30-40 lb-inches for Hi-flow Series size units. Follow step 4 next.

D. **Pressure Fill Adaptor Kit**

After step 1, remove the fill cap and clean the sealing surface on the body. Place the kit o-ring into the adaptor's groove and thread the adaptor unit into the body with 20-30 lb-inches torque. Follow step 5 before making any hydraulic fitting connections.

Kits Available

Description	Kit No.	Series
Sight Dome/ Fill Cap Kit	PS508P (Black) PS509P (Yellow)	06L, 07L, 08L 16L, 17L, 18L
Sight Gauge Kit	PS117P PS217P PS317P	06L, 16L 07L, 17L 08L, 17L
Body Service Kit	PS131BP PS231BP PS331CP	06L, 16L 07L, 17L 08L, 18L
Pressure Fill Adaptor Kit	PS122P	06L, 07L, 08L 16L, 17L, 18L

Pneumatic Division
Richland, Michigan 49083
269-629-5000

Installation & Service Instructions: 1L800B

2" Basic Lubricator

ISSUED: November, 2003
Supersedes: September, 2000

Doc.# 1L800, ECN# 030539, Rev. 4

⚠WARNING

To avoid unpredictable system behavior that can cause personal injury and property damage:

- **Disconnect electrical supply (when necessary) before installation, servicing, or conversion.**
- **Disconnect air supply and depressurize all air lines connected to this product before installation, servicing, or conversion.**
- **Operate within the manufacturer's specified pressure, temperature, and other conditions listed in these instructions.**
- **Medium must be moisture-free if ambient temperature is below freezing.**
- **Service according to procedures listed in these instructions.**
- **Installation, service, and conversion of these products must be performed by knowledgeable personnel who understand how pneumatic products are to be applied.**
- **After installation, servicing, or conversion, air and electrical supplies (when necessary) should be connected and the product tested for proper function and leakage. If audible leakage is present, or the product does not operate properly, do not put into use.**
- **Warnings and specifications on the product should not be covered by paint, etc. If masking is not possible, contact your local representative for replacement labels.**

Introduction

Follow these instructions when installing, operating, or servicing the product.

Application Limits

These products are intended for use in general purpose compressed air systems only.

Maximum Operating Pressure:

	kPa	PSIG	bar
Inlet Pressure	1380	200	13.8

Maximum Ambient Temperature: 80°C (175°F)

ANSI Symbol

Lubricator w / Manual Drain

Installation

1. Lubricator unit should be installed with reasonable accessibility for service whenever possible - repair service kits are available. Keep pipe or tubing lengths to a minimum with inside clean and free of dirt and chips. Pipe joint compound should be used sparingly and applied only to the male pipe - never into the female port. Do not use PTFE tape to seal pipe joints - pieces could break off and lodge inside unit or devices which are located downstream of unit, possibly causing malfunction.
2. Install lubricator so that air flow is in direction of arrow on body.
3. Installation must be upstream from, and close as possible to the devices it is to service (valve, cylinder, tool, etc.). Whenever possible, avoid locations that require airborne oil to move in an upward direction to reach the device to be lubricated.
4. The installation of an individual lubricator for each air consuming device provides best assurance of proper lubrication.
5. In new installations, it is good practice to "wet down" the inside diameter of piping and/or hose with oil before making final connections. Although your Lubricator delivers oil to the line, precoating the inside diameter with oil helps insure that proper amounts of oil are delivered to the point of application.

Operation & Service

1. **FILLING** - Removal of the oil fill plug vents the bowl pressure and allows the unit to be filled without shutting down the air supply line. (Line pressure is blocked by the action of a check valve.) Fill bowl (standard capacity 32 fluid ounces) with oil having 150 to 200 SUS viscosity at 38°C (100°F) - this is the same as SAE number 10; (petroleum based hydraulic oils or spindle oils are good examples). DO NOT USE OILS WITH ADHESIVES OR TACKY ADDITIVES. COMPOUND OILS CONTAINING SOLVENTS, GRAPHITE, SOAPS OR DETERGENTS (automotive oils generally contain detergents), ARE NOT RECOMMENDED. Suggested Lubricant: F442 oil.
2. Replace the fill plug and seat it firmly. Avoid excessive torque. Check to insure that the lubricator is pressurized. The lubricator is now ready for setting.
3. **OIL DELIVERY ADJUSTMENT** - To adjust the oil delivery, use a flat blade screwdriver to turn the adjusting screw in the top of the lubricator.

   Turn the screw ***clockwise*** to obtain a **leaner** mixture and ***counterclockwise*** for a **richer** mixture.

   By counting the number of drops per minute in the sight dome, you can adjust to your requirements. Generally, one drop per minute for every 10-15 SCFM (280-420 std. liters/min) flow is satisfactory. Twenty-five (25) drops per minute equals about 1 oz/hr (0.8 ml/min) - volume of oil passing through Sight Dome. **NOTE: This is a constant density type lubricator which delivers a constant ratio of oil to air flow. Therefore, if air flow increases or decreases, oil delivery will be adjusted proportionately. ONLY IF A DIFFERENT RATIO IS DESIRED NEED YOUR METERING SCREW SETTING BE CHANGED AFTER YOUR INITIAL SETTING.**

Repairs & Adding Options to Lubricator

Service kits are available for routine maintenance. Note how unit was assembled when making repairs. Consult Figure on back for visual guidance. If you have questions concerning how to service this unit, contact your local authorized dealer or your customer service representative.

⚠WARNING

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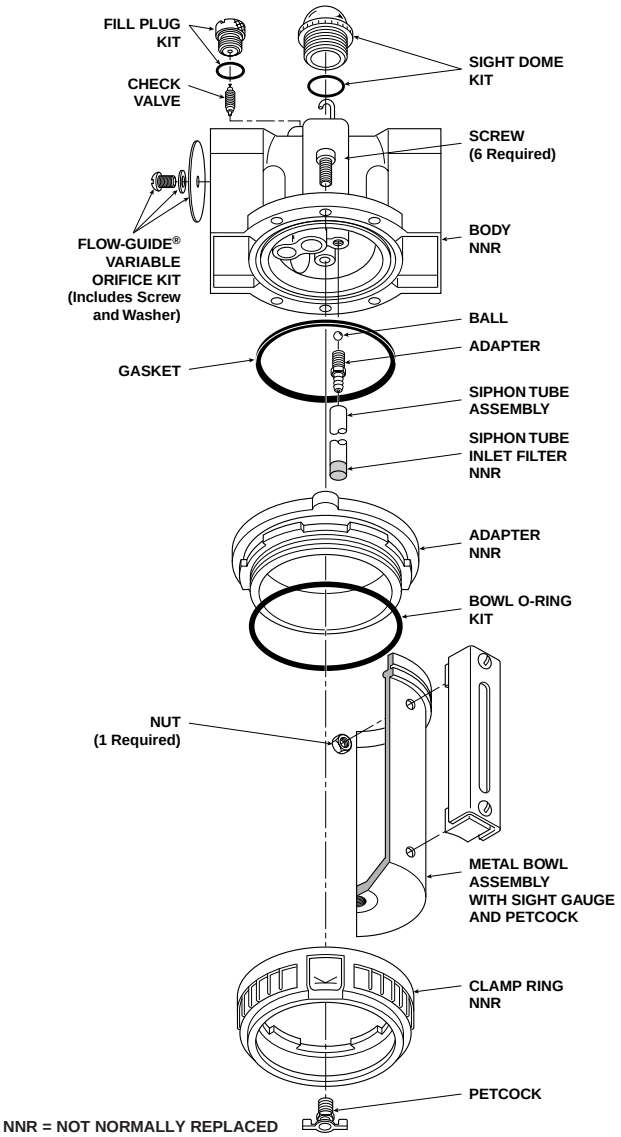

NNR = NOT NORMALLY REPLACED

Maintenance Procedures

1. Given clean operating conditions, this unit will be trouble-free. Contaminants from dirty oil may collect on the siphon tube inlet filter, requiring the filter to be cleaned by tapping on a hard surface and blowing off with an air blow gun.

2. IF THE OIL DELIVERY RATE DROPS, the lubricator should be cleaned. Shut off the air supply and reduce the pressure in the unit to zero. Remove the adjusting screw and clean the needle and seat in the body. Inspect and clean the passage from the needle seat down into the siphon tube adapter. Remove the Flow-Guide® variable orifice screw and clean air passages with a small wire. Check the bore that the screw fits into for contaminants and clean if necessary. Be sure the passageway from the sight dome cavity downward is open. Remove and clean the valve seat and the valve bracket.

3. Drain off any contaminants which collect in the bottom of the bowl.

Kits and Parts Available

Kit No.	Description
PS607	O-Ring Repair Kit
PS608	Bowl O-Ring Kit
PS609	Siphon Tube Assembly Kit
PS610	Fill Plug Kit
PS611	Flow-Guide® Variable Orifice Kit
PS612	Metal Bowl Kits (with sight gauge and petcock)
PS613	Sight Dome Kit

⚠ CAUTION

Certain compressor oils, chemicals, household cleaners, solvents, paints and fumes will attack plastic bowls and can cause bowl failure. Do not use near these materials. When bowl becomes dirty replace bowl or wipe only with a clean, dry cloth. Reinstall metal bowl guard or buy and install a metal bowl guard. Immediately replace any crazed, cracked, damaged or deteriorated plastic bowl with a metal bowl or a new plastic bowl and a metal bowl guard.

SOME OF THE MATERIALS THAT WILL ATTACK POLYCARBONATE PLASTIC BOWLS

Acetaldehyde	Chlorovenzene	Methylene chloride
Acetic acid (conc.)	Chloroform	Methylene salicylate
Acetone	Cresol	Milk of lime (CaOH)
Acrylonitrile	Cyclohexanol	Nitric acid (conc.)
Ammonia	Cyclohexanone	Nitrobenzene
Ammonium fluoride	Cyclohexene	Nitrocellulose lacquer
Ammonium hydroxide	Dimethyl formamide	Phenol
Ammonium sulfide	Dioxane	Phosphorous hydroxy
chloride		
Anaerobic adhesives	Ethane tetrachloride	Phosphorous trichloride
& sealants	Ethyl acetate	Propionic acid
Antifreeze	Ethyl ether	Pyridine
Benzene	Ethylamine	Sodium hydroxide
Benzoic acid	Ethylene chlorohydrin	Sodium sulfide
Benzyl alcohol	Ethylene dichloride	Styrene
Brake fluids	Ethylene glycol	Sulfuric acid (conc.)
Bromobenzene	Formic acid (conc.)	Sulphural chloride
Butyric acid	Freon (refrig. & propell.)	Tetrahydronaphthalene
Carbolic acid	Gasoline (high aromatic)	Tiophene
Carbon disulfide	Hydrazine	Toluene
Carbon tetrachloride	Hydrochloric acid (conc.)	Turpentine
Caustic potash solution	Lacquer thinner	Xylene
Caustic soda solution	Methyl alcohol	Perchlorethylene & others

TRADE NAMES OF SOME COMPRESSOR OILS, RUBBER COMPOUNDS AND OTHER MATERIALS THAT WILL ATTACK POLYCARBONATE PLASTIC BOWLS

Atlas "Perma-Guard"	"Nylock" VC-3
Buna N	Parco #1306 Neoprene
Cellulube #150 and #220	*Permabond #910
Crylex #5 cement	Petron PD287
*Eastman 910	Prestone
Garlock #98403 (polyurethane)	Pydraul AC
Haskel #568-023	Sears Regular Motor Oil
Hilgard Co.'s hil phene	Sinclair oil "Lily White"
Houghton & Co. oil #1120, #1130,	Stauffer chemical
and #1055	FYRQUEL #150
Houtosafe 1000	Stillman #SR 269-75
Kano Kroil	(polyurethane)
Keystone penetrating oil #2	Stillman #SR 513-70 (neoprene)
*Loctite 271	Tannergas
*Loctite 290	Telar
*Loctite 601	Tenneco anderol #495
*Loctite Teflon-Sealant	and #500 oils
Marvel Mystery Oil	Titon
Minn. Rubber 366Y	*Vibra-tite
National compound #N11	Zerex

*When in raw liquid form.

WE CANNOT POSSIBLY LIST ALL HARMFUL SUBSTANCES, SO CHECK WITH A MOBAY CHEMICAL OR GENERAL ELECTRIC OFFICE FOR FURTHER INFORMATION ON POLYCARBONATE PLASTIC.

⚠ CAUTION

EXCEPT as otherwise specified by the manufacturer, this product is specifically designed for compressed air service, and use with any other fluid (liquid or gas) is a misapplication. For example, use with or injection of certain hazardous liquids or gases in the system (such as alcohol or liquid petroleum gas) could be harmful to the unit or result in a combustible condition or hazardous external leakage. Manufacturers warranties are void in the event of misapplication, and manufacturer assumes no responsibility for any resulting loss.

Before using with fluids other than air, or for nonindustrial applications, or for life support systems consult manufacturer for written approval.

Pneumatic Division
Richland, Michigan 49083
269-629-5000

Installation & Service Instructions: 1L801B

2" Basic Lubricator (3 Quart Capacity)

ISSUED: November, 2003
Supersedes: January, 2002

Doc.# 1L801, ECN# 030539, Rev. 4

⚠WARNING

To avoid unpredictable system behavior that can cause personal injury and property damage:

- **Disconnect electrical supply (when necessary) before installation, servicing, or conversion.**
- **Disconnect air supply and depressurize all air lines connected to this product before installation, servicing, or conversion.**
- **Operate within the manufacturer's specified pressure, temperature, and other conditions listed in these instructions.**
- **Medium must be moisture-free if ambient temperature is below freezing.**
- **Service according to procedures listed in these instructions.**
- **Installation, service, and conversion of these products must be performed by knowledgeable personnel who understand how pneumatic products are to be applied.**
- **After installation, servicing, or conversion, air and electrical supplies (when necessary) should be connected and the product tested for proper function and leakage. If audible leakage is present, or the product does not operate properly, do not put into use.**
- **Warnings and specifications on the product should not be covered by paint, etc. If masking is not possible, contact your local representative for replacement labels.**

Introduction

Follow these instructions when installing, operating, or servicing the product.

Application Limits

These products are intended for use in general purpose compressed air systems only.

Maximum Operating Pressure:

	kPa	PSIG	bar
Inlet Pressure	1380	200	13.8

Maximum Ambient Temperature: 66°C (150°F)

ANSI Symbol

Lubricator w / Manual Drain

Installation

1. Lubricator unit should be installed with reasonable accessibility for service whenever possible - repair service kits are available. Keep pipe or tubing lengths to a minimum with inside clean and free of dirt and chips. Pipe joint compound should be used sparingly and applied only to the male pipe - never into the female port. Do not use PTFE tape to seal pipe joints - pieces could break off and lodge inside unit or devices which are located downstream of unit, possibly causing malfunction.
2. Install lubricator so that air flow is in direction of arrow on body.
3. Installation must be upstream from, and close as possible to the devices it is to service (valve, cylinder, tool, etc.). Whenever possible, avoid locations that require airborne oil to move in an upward direction to reach the device to be lubricated.
4. The installation of an individual lubricator for each air consuming device provides best assurance of proper lubrication.
5. In new installations, it is good practice to "wet down" the inside diameter of piping and/or hose with oil before making final connections. Although your Lubricator delivers oil to the line, precoating the inside diameter with oil helps insure that proper amounts of oil are delivered to the point of application.

Operation & Service

1. **FILLING** - Removal of the oil fill plug vents the bowl pressure and allows the unit to be filled without shutting down the air supply line. (Line pressure is blocked by the action of a check valve.) Fill bowl (standard capacity 32 fluid ounces) with oil having 150 to 200 SUS viscosity at 38°C (100°F) - this is the same as SAE Number 10; (petroleum based hydraulic oils or spindle oils are good examples). DO NOT USE OILS WITH ADHESIVES OR TACKY ADDITIVES. COMPOUND OILS CONTAINING SOLVENTS, GRAPHITE, SOAPS OR DETERGENTS (automotive oils generally contain detergents), ARE NOT RECOMMENDED. Suggested Lubricant: F442 oil.
2. Replace the fill plug and seat it firmly. Avoid excessive torque. Check to insure that the lubricator is pressurized. The lubricator is now ready for setting.
3. **OIL DELIVERY ADJUSTMENT** - To adjust the oil delivery, use a flat blade screwdriver to turn the adjusting screw in the top of the lubricator.

   Turn the screw ***clockwise*** to obtain a **leaner** mixture and ***counterclockwise*** for a **richer** mixture.

   By counting the number of drops per minute in the sight dome, you can adjust to your requirements. Generally, one drop per minute for every 10-15 SCFM (280-420 std. liters/min) flow is satisfactory. Twenty-five (25) drops per minute equals about 1 oz/hr (0.8 ml/min) - volume of oil passing through Sight Dome. **NOTE: This is a constant density type lubricator which delivers a constant ratio of oil to air flow. Therefore, if air flow increases or decreases, oil delivery will be adjusted proportionately. ONLY IF A DIFFERENT RATIO IS DESIRED NEED YOUR METERING SCREW SETTING BE CHANGED AFTER YOUR INITIAL SETTING.**

Repairs & Adding Options to Lubricator

Service kits are available for routine maintenance. Note how unit was assembled when making repairs. Consult Figure on back for visual guidance. If you have questions concerning how to service this unit, contact your local authorized dealer or your customer service representative.

⚠WARNING

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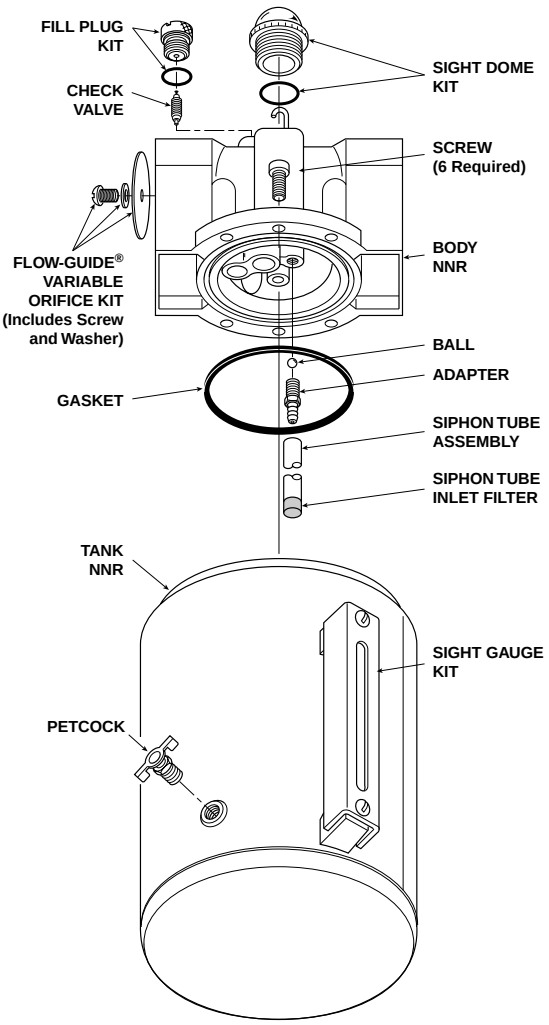


NNR = NOT NORMALLY REPLACED

Maintenance Procedures

1. Given clean operating conditions, this unit should be trouble-free. Contaminants from dirty oil may collect on the siphon tube inlet filter, requiring the filter to be cleaned by tapping on a hard surface and blowing off with an air blow gun.
2. IF THE OIL DELIVERY RATE DROPS, the lubricator should be cleaned. Shut off the air supply and reduce the pressure in the unit to zero. Remove the adjusting screw and clean the needle and seat in the body. Inspect and clean the passage from the needle seat down into the siphon tube adapter. Remove the Flow-Guide® variable orifice screw and clean air passages with a small wire. Check the bore that the screw fits into for contaminants and clean if necessary. Be sure the passageway from the sight dome cavity downward is open. Remove and clean the valve seat and the valve bracket.
3. Drain off any contaminants which collect in the bottom of the tank.

Kits and Parts Available

Kit No.	Description
PS608	O-Ring Repair Kit
PS615	Siphon Tube Assembly Kit
PS610	Fill Plug Kit
PS611	Flow-Guide® Variable Orifice Kit
PS613	Sight Dome Kit
PS616	Sight Gauge Kit

⚠ CAUTION

Certain compressor oils, chemicals, household cleaners, solvents, paints and fumes will attack plastic bowls and can cause bowl failure. Do not use near these materials. When bowl becomes dirty replace bowl or wipe only with a clean, dry cloth. Reinstall metal bowl guard or buy and install a metal bowl guard. Immediately replace any crazed, cracked, damaged or deteriorated plastic bowl with a metal bowl or a new plastic bowl and a metal bowl guard.

SOME OF THE MATERIALS THAT WILL ATTACK POLYCARBONATE PLASTIC BOWLS

Acetaldehyde	Chlorovenzene	Methylene chloride
Acetic acid (conc.)	Chloroform	Methylene salicylate
Acetone	Cresol	Milk of lime (CaOH)
Acrylonitrile	Cyclohexanol	Nitric acid (conc.)
Ammonia	Cyclohexanone	Nitrobenzene
Ammonium fluoride	Cyclohexene	Nitrocellulose lacquer
Ammonium hydroxide	Dimethyl formamide	Phenol
Ammonium sulfide chloride	Dioxane	Phosphorous hydroxy
Anaerobic adhesives & sealants	Ethane tetrachloride	Phosphorous trichloride
Antifreeze	Ethyl acetate	Propionic acid
Benzene	Ethyl ether	Pyridine
Benzoic acid	Ethylamine	Sodium hydroxide
Benzyl alcohol	Ethylene chlorohydrin	Sodium sulfide
Brake fluids	Ethylene dichloride	Styrene
Bromobenzene	Ethylene glycol	Sulfuric acid (conc.)
Butyric acid	Formic acid (conc.)	Sulphural chloride
Carbolic acid	Freon (refrig. & propell.)	Tetrahydronaphthalene
Carbon disulfide	Gasoline (high aromatic)	Tiophene
Carbon tetrachloride	Hydrazine	Toluene
Caustic potash solution	Hydrochloric acid (conc.)	Turpentine
Caustic soda solution	Lacquer thinner	Xylene
	Methyl alcohol	Perchlorethylene & others

TRADE NAMES OF SOME COMPRESSOR OILS, RUBBER COMPOUNDS AND OTHER MATERIALS THAT WILL ATTACK POLYCARBONATE PLASTIC BOWLS

Atlas "Perma-Guard"	"Nylock" VC-3
Buna N	Parco #1306 Neoprene
Cellulube #150 and #220	*Permabond #910
Crylex #5 cement	Petron PD287
*Eastman 910	Prestone
Garlock #98403 (polyurethane)	Pydraul AC
Haskel #568-023	Sears Regular Motor Oil
Hilgard Co.'s hil phene	Sinclair oil "Lily White"
Houghton & Co. oil #1120, #1130, and #1055	Stauffer chemical FYRQUEL #150
Houtosafe 1000	Stillman #SR 269-75 (polyurethane)
Kano Kroil	Stillman #SR 513-70 (neoprene)
Keystone penetrating oil #2	Tannergas
*Loctite 271	Telar
*Loctite 290	Tenneco anderol #495 and #500 oils
*Loctite 601	Titon
*Loctite Teflon-Sealant	*Vibra-tite
Marvel Mystery Oil	Zerex
Minn. Rubber 366Y	
National compound #N11	

*When in raw liquid form.

WE CANNOT POSSIBLY LIST ALL HARMFUL SUBSTANCES, SO CHECK WITH A MOBAY CHEMICAL OR GENERAL ELECTRIC OFFICE FOR FURTHER INFORMATION ON POLYCARBONATE PLASTIC.

⚠ CAUTION

EXCEPT as otherwise specified by the manufacturer, this product is specifically designed for compressed air service, and use with any other fluid (liquid or gas) is a misapplication. For example, use with or injection of certain hazardous liquids or gases in the system (such as alcohol or liquid petroleum gas) could be harmful to the unit or result in a combustible condition or hazardous external leakage. Manufacturers warranties are void in the event of misapplication, and manufacturer assumes no responsibility for any resulting loss.

Before using with fluids other than air, or for nonindustrial applications, or for life support systems consult manufacturer for written approval.

Pneumatic Division
Richland, Michigan 49083
269-629-5000

Installation & Service Instructions: 1M103G

Miniature Series Micro-Mist Lubricators & Particulate Filters

ISSUED: October, 2006
Supersedes: November, 2000

Doc.# 1M103, ECN# 061074, Rev. 9

⚠ WARNING

To avoid unpredictable system behavior that can cause personal injury and property damage:

- **Disconnect electrical supply (when necessary) before installation, servicing, or conversion.**
- **Disconnect air supply and depressurize all air lines connected to this product before installation, servicing, or conversion.**
- **Operate within the manufacturer's specified pressure, temperature, and other conditions listed in these instructions.**
- **Medium must be moisture-free if ambient temperature is below freezing.**
- **Service according to procedures listed in these instructions.**
- **Installation, service, and conversion of these products must be performed by knowledgeable personnel who understand how pneumatic products are to be applied.**
- **After installation, servicing, or conversion, air and electrical supplies (when necessary) should be connected and the product tested for proper function and leakage. If audible leakage is present, or the product does not operate properly, do not put into use.**
- **Warnings and specifications on the product should not be covered by paint, etc. If masking is not possible, contact your local representative for replacement labels.**

⚠ CAUTION

Polycarbonate bowls, being transparent and tough, are ideal for use with Filters and Lubricators. They are suitable for use in normal industrial environments, but should not be located in areas where they could be subjected to direct sunlight, an impact blow, nor temperatures outside of the rated range. As with most plastics, some chemicals can cause damage. Polycarbonate bowls should not be exposed to chlorinated hydrocarbons, ketones, esters and certain alcohols. They should not be used in air systems where compressors are lubricated with fire-resistant fluids such as phosphate ester and diester types.

Metal bowls are recommended where ambient and/or media conditions are not compatible with polycarbonate bowls. Metal bowls resist the action of most such solvents, but should not be used where strong acids or bases are present or in salt laden atmospheres. Consult the factory for specific recommendations where these conditions exist.

TO CLEAN POLYCARBONATE BOWLS USE MILD SOAP AND WATER ONLY! DO NOT use cleansing agents such as acetone, benzene, carbon tetrachloride, gasoline, toluene, etc., which are damaging to this plastic.

⚠ WARNING

To avoid polycarbonate bowl rupture that can cause personal injury or property damage, do not exceed bowl pressure or temperature ratings. Polycarbonate bowls have a 150 PSIG pressure rating and a maximum temperature rating of 125°F.

Safety Guide

For more complete information on recommended application guidelines, see the Safety Guide section of Pneumatic Division catalogs or you can download the **Pneumatic Division Safety Guide** at: www.parker.com/safety

Introduction

Follow these instructions when installing, operating, or servicing the product.

Application Limits

These products are intended for use in general purpose compressed air systems only.

Operating Inlet Pressure:

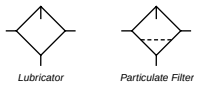
	kPa	PSIG	bar
with Polycarbonate Bowl	1000	150	10.3
with Metal Bowl	1700	250	17.0

NOTE: The maximum recommended pressure drop for a particulate filter is 70 kPa (10 psig, 0.7 bar)

Ambient Temperature Range:

with Polycarbonate Bowl	0°C to 52°C (32°F to 125°F)
with Metal Bowl	0°C to 80°C (32°F to 175°F)

ANSI Symbols



Micro-Mist Lubricators (Figure 1)

Description

These micro-mist lubricators are designed to deliver an atomized oil mist to air operated tools, motors, and other pneumatic equipment. Units are equipped with full-view sight glass for visual indication of oil drop rate, needle valve feed adjustment to regulate oil drop rate, and a venturi bypass disc to compensate for changes in air flow demands.

Installation of Lubricator

1. Lubricator should be installed with reasonable accessibility for service whenever possible - repair service kits are available. Keep pipe and tubing lengths to a minimum with inside clean and free of dirt and chips. Pipe joint compounds should be used sparingly and applied only to the male pipe – never into the female port. Do not use PTFE tape to seal pipe joints - pieces have a tendency to break off and lodge inside the unit, possibly causing malfunction.
2. Install lubricator so that air flow is in the direction of arrow on body.
3. Installation should be upstream from, and as close as possible, to the device it is to lubricate (valve, cylinder, tool, etc.). Whenever possible, avoid locations that require air-borne oil to move in an upward direction to reach the device to be lubricated.
4. The installation of an individual lubricator for each air consuming device provides best assurances of proper lubrication.
5. In new installations, it is good practice to "wet down" the inside diameter of piping and/hose with oil before making final connections. Although your lubricator delivers oil to the line, pre-coating the inside diameter with oil helps insure that proper amounts of oil are delivered to the point of application.

Operation & Service of Lubricator

⚠ **Warning: Before filling, inlet pressure must be eliminated and then de-pressurize system pressure.**

1. FILLING - After de-pressurizing system, remove fill plug or bowl to refill lubricator. Fill bowl to fill line indicated on the bowl with oil of 150 to 200 SSU at 100°F viscosity - same as SAE No. 10 (petroleum based hydraulic oils or spindle oils are good examples). DO NOT USE OILS WITH TACKY ADDITIVES, COMPOUND OILS CONTAINING SOLVENTS, GRAPHITE, SOAPS OR DETERGENTS. (Automotive oils generally contain detergents and are not recommended.
2. Replace the fill plug or bowl and seat firmly. Excessive torque is not necessary. The lubricator is now ready for setting.

⚠ WARNING

FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS AND/OR SYSTEMS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.

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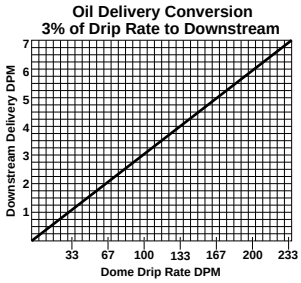
EXTRA COPIES OF THESE INSTRUCTIONS ARE AVAILABLE FOR INCLUSION IN EQUIPMENT / MAINTENANCE MANUALS THAT UTILIZE THESE PRODUCTS. CONTACT YOUR LOCAL REPRESENTATIVE.

3. OIL DELIVERY ADJUSTMENT - To adjust oil delivery, turn the adjusting needle on top of the lubricator.
   Leaner - Clockwise Richer - Counterclockwise

By counting the number of drops per minute in the sight dome, you can adjust lubricator to your required setting. Approximately 3% of the droplets visible in the sight dome go downstream; adjust drip rate accordingly. Consult oil delivery conversion chart (see below).

Generally, one drop per minute downstream for every 10-15 SCFM flow is satisfactory. 25 drops per minute equals one ounce per hour - volume of oil passing through the sight dome.

NOTE: This is a constant density type lubricator which delivers a constant ratio of oil to air flow. Therefore, if air flow increases or decreases, oil delivery will be effected proportionately. ONLY IF DIFFERENT RATIO IS DESIRED NEED YOUR NEEDLE VALVE SETTING BE CHANGED AFTER YOUR INITIAL SETTING.



Service Kits - Lubricator

Kit#	Description
PS420	Polycarbonate Bowl with Manual Drain - consists of items: 1 (open bottom), 4, 12 & 13
PS421	Polycarbonate Bowl without Drain - consists of items: 1 (closed bottom) & 4
PS447B	Metal Bowl with Manual Drain - consists of items: 1 (open bottom), 4, 12 & 13
P05117	Twist Drain Knob

Parts Identification List - Lubricator

Item#	Description	Item#	Description
1	Bowl - open & closed bottoms (open shown)	11	Restrictor
2	Deflector	12	O-ring (drain to bowl)
3	Body	13	Manual drain (twist style)
4	O-ring (body to bowl)	14	Metering screw
5	Eyelet	15	O-ring (metering screw to body)
6	Atomizer	16	Seal (deflector to body)
7	Gasket (body to inner & outer sight domes)	17	Check ball
8	Outer sight dome	18	Pickup tube
9	Inner sight dome	19	Twist Drain knob
10	Eyelet		

Particulate Filter (Figure 2)

Description

These air line filters are heavy-duty units used to remove airborne impurities from air supply lines by means of centrifugal force and filter element. Units are equipped with vane-type deflectors and drain valves. Deflector plate creates swirling action to the air stream assuring entrainments separation at all flow rates. Filter element with extra large surface assures fine filtration with low pressure drop. Turn manual drain counterclockwise to open and clockwise to close.

Installation of Filter

1. Filter should be installed with reasonable accessibility for service whenever possible - repair service kits are available. Keep pipe and tubing lengths to a minimum with inside clean and free of dirt and chips. Pipe joint compounds should be used sparingly and applied only to the male pipe - never into the female port. Do not use PTFE tape to seal pipe joints - pieces have a tendency to break off and lodge inside the unit, possibly causing malfunction.
2. Install unit so that air flow is in the direction of arrow. Installation must be upstream of and close to devices it is to service (valve, cylinder, tool, etc.). Position unit vertically with the bowl drain mechanism at the bottom. Free moisture will thus drain into the sump (“quiet zone”) at the bottom of the bowl.

Operation of the Filter

1. Both free moisture and solids are removed automatically by the filter.
2. Manual drain filters must be drained regularly before the separated moisture and oil reaches the bottom of the element holder. Automatic drain models (pulse drain) will collect and dump liquids automatically. They are actuated when a pressure drop occurs within the filter.
3. The filter element should be removed and replaced when the pressure differential across the filter exceeds 70 kPa (10 psig, 0.7 bar).

Service

⚠ **Caution: SHUT OFF AIR SUPPLY and exhaust the primary and secondary pressure before dis-assembling unit. (Units may be serviced without removing them from the air line.)**

Servicing Filter Element

1. Unscrew threaded bowl and element holder. Then remove filter element, deflector, and gaskets.
2. Clean all internal parts, bowl, and body before re-assembling unit. See Polycarbonate bowl cleaning section.
3. Install deflector, filter element, and gaskets.
4. Attach element holder. Torque from 0.9 to 1.4 N•m (8 to 12 in-lbs).
5. To assist with retaining bowl’s o-ring while installing bowl, lubricate the o-ring (with a mineral based oil or grease). Then place on the bowl.
6. Screw bowl into the body until it is stopped by body; then back off bowl 1/8 turn.
7. Apply pressure to the system and check for leaks. If leaks occur, shut off the air supply, de-pressurize the system and make necessary adjustments to eliminate leakage.

If you have questions concerning how to service this unit, contact your local dealer or your customer service representative.

Service Kits- Filter

Kit#	Description
PS404	Polycarbonate Bowl with Manual Drain - consists of items: 19, 24, 26 & 27
PS408	Polycarbonate Bowl with Automatic Drain - consists of items: 19, 24, 26, 28, 29, 30, 31 & 32
PS447B	Metal Bowl with Manual Drain - consists of items: 19, 24, 26 & 27
PS451	Metal Bowl with Automatic Drain - consists of items: 19, 24, 26, 28, 29, 30, 31 & 32
PS403	5 Micrometer Element Kit - consists of items: 20, 21 & 24
PS407	5 Micrometer Element Cartridge Kit - consists of items: 20, 21, 22, 23 & 24
PS401	40 Micrometer Element Kit - consists of items: 20, 21 & 24
P05117	Twist Drain Knob

Parts Identification List - Filter Units

Item#	Description	Item#	Description
19	Bowl	27	Manual Drain (twist style)
20	Gasket	28	Brass Barbed Fitting
21	Filter Element	29	O-ring - pulse drain
22	Filter Holder	30	Drain (body of pulse drain shown))
23	Deflector	31	Diaphragm
24	O-ring (body to bowl)	32	Pin
25	Body	33	Twist Drain Knob
26	O-ring (drain to bowl)		

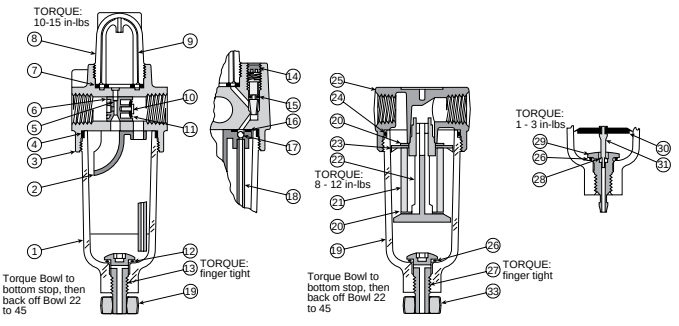


Figure 1: Micro-Mist Lubricator

Figure 2: Particulate Filter

Pneumatic Division
Richland, Michigan 49083
269-629-5000

Installation & Service Instructions: 1M107C

1/8" & 1/4" P3A-E Mini Modular Filter / Regulator

ISSUED: November, 2003
Supersedes: January, 2000
Doc.# 1M107, ECN# 030539, Rev. 1

⚠ WARNING

To avoid unpredictable system behavior that can cause personal injury and property damage:

- **Disconnect electrical supply (when necessary) before installation, servicing, or conversion.**
- **Disconnect air supply and depressurize all air lines connected to this product before installation, servicing, or conversion.**
- **Operate within the manufacturer's specified pressure, temperature, and other conditions listed in these instructions.**
- **Medium must be moisture-free if ambient temperature is below freezing.**
- **Service according to procedures listed in these instructions.**
- **Installation, service, and conversion of these products must be performed by knowledgeable personnel who understand how pneumatic products are to be applied.**
- **After installation, servicing, or conversion, air and electrical supplies (when necessary) should be connected and the product tested for proper function and leakage. If audible leakage is present, or the product does not operate properly, do not put into use.**
- **Warnings and specifications on the product should not be covered by paint, etc. If masking is not possible, contact your local representative for replacement labels.**

⚠ CAUTION

Polycarbonate bowls, being transparent and tough, are ideal for use with Filters and Lubricators. They are suitable for use in normal industrial environments, but should not be located in areas where they could be subjected to direct sunlight, an impact blow, nor temperatures outside of the rated range. As with most plastics, some chemicals can cause damage. Polycarbonate bowls should not be exposed to chlorinated hydrocarbons, ketones, esters and certain alcohols. They should not be used in air systems where compressors are lubricated with fire-resistant fluids such as phosphate ester and diester types.

Metal bowls are recommended where ambient and/or media conditions are not compatible with polycarbonate bowls. Metal bowls resist the action of most such solvents, but should not be used where strong acids or bases are present or in salt laden atmospheres. Consult the factory for specific recommendations where these conditions exist.

TO CLEAN POLYCARBONATE BOWLS USE MILD SOAP AND WATER ONLY! DO NOT use cleansing agents such as acetone, benzene, carbon tetrachloride, gasoline, toluene, etc., which are damaging to this plastic.

Bowl guards are recommended for added protection of polycarbonate bowls where chemical attack may occasionally occur.

Introduction

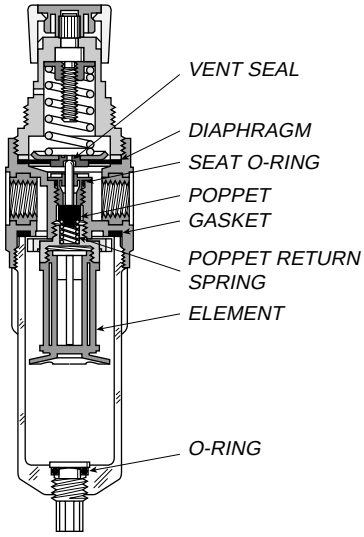
Follow these instructions when installing, operating, or servicing the product.

Application Limits

These products are intended for use in general purpose compressed air systems only.

With Polycarbonate Bowl

	kPa	PSIG	bar
Operating Pressure Maximum	**830**	**120**	**8.3**
Operating Temperature Maximum:	52°C (125°F)		



Installation

1. The equipment to which the FILTER / REGULATOR is attached should be internally cleaned to remove all traces of accumulated oil and dirt. Also, new pipe or hose should be installed between the filter and equipment being protected.
2. Blow all upstream pipe work clear of accumulated dirt and liquids.
3. Select a filter / regulator location as close as possible to the equipment being protected.
4. Install filter / regulator so that air flows in the direction of arrow on body.
5. Install filter / regulator vertically with the bowl drain mechanism at the bottom. Free moisture will thus drain into the sump "quiet zone" at the bottom of the bowl.
6. Gauge ports are located on both sides of the REGULATOR body for your convenience. It is necessary to install a gauge or socket pipe plugs into each port during installation.

⚠ WARNING

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This document and other information from The Company, its subsidiaries and authorized distributors provide product and/or system options for further investigation by users having technical expertise. It is important that you analyze all aspects of your application, including consequences of any failure and review the information concerning the product or systems in the current product catalog. Due to the variety of operating conditions and applications for these products or systems, the user, through its own analysis and testing, is solely responsible for making the final selection of the products and systems and assuring that all performance, safety and warning requirements of the application are met.

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Operation & Service

1. Both free moisture and solids are removed automatically by the FILTER / REGULATOR.
2. Drain whenever water level in sump "quiet zone" reaches the lower baffle. Install Automatic Drain if bowl draining is frequent.
3. The filter element should be removed and replaced when the pressure differential across the filter is 10 PSIG.
4. To remove the filter element: SHUT AIR LINE DOWN and exhaust the primary and secondary pressure.
   a. Unscrew threaded bowl.
   b. Unscrew element and remove.
   c. Clean bowl and internal parts before reassembling.
   d. Attach clean element assembly and tighten firmly.
   e. Replace bowl gasket; lubricate gasket to assist in retaining it in position. Use only mineral base oils or grease. Do NOT use synthetic oils such as esters, and do NOT use silicones.
   f. Screw bowl into body and tighten firmly.
5. The regulator may be serviced without removing it from the line. Before disassembling FILTER / REGULATOR, SHUT OFF AIR SUPPLY AND EXHAUST PRIMARY AND SECONDARY PRESSURE. Disengage the adjusting knob by pulling upward. Turn the adjusting knob counterclockwise until compression is released from pressure control spring. For servicing diaphragm, unscrew bonnet from body. For servicing the poppet, remove threaded bowl and filter element assembly.
6. BEFORE TURNING ON AIR SUPPLY, TURN ADJUSTING KNOB COUNTERCLOCKWISE UNTIL COMPRESSION IS RELEASED FROM PRESSURE CONTROL SPRING. Turn on air pressure. Then proceed to adjust the desired downstream pressure by turning adjusting knob clockwise. This permits pressure to build up slowly in the downstream line.
7. To decrease regulated pressure settings, always reset from a pressure lower than then final setting required. Example, lowering the secondary pressure from 80 PSI to 60 PSI is best accomplished by dropping the secondary pressure to 50 PSI, then adjusting upward to 60 PSI.
8. When desired secondary pressure settings have been reached, push the adjusting knob down to lock.

Kits Available

Kit No.	Description
P3A-KA00RFN	Filter Repair Kit
P3A-KA00EEN	Element Kit (5 Micron)
P3A-KA00RRN	Relieving Diaphragm Kit
P3A-KA00RNN	Non-Relieving Diaphragm Kit

Pneumatic Division
Richland, Michigan 49083
269-629-5000

Installation & Service Instructions: 1M301

Miniature Series Mist Lubricators & Particulate Filters

ISSUED: April, 2013
Supersedes: November, 2003

Doc# 1M301, EN# 130068, Rev. 3

⚠ WARNING

To avoid unpredictable system behavior that can cause personal injury and property damage:

- **Disconnect electrical supply (when necessary) before installation, servicing, or conversion.**
- **Disconnect air supply and depressurize all air lines connected to this product before installation, servicing, or conversion.**
- **Operate within the manufacturer's specified pressure, temperature, and other conditions listed in these instructions.**
- **Medium must be moisture-free if ambient temperature is below freezing.**
- **Service according to procedures listed in these instructions.**
- **Installation, service, and conversion of these products must be performed by knowledgeable personnel who understand how pneumatic products are to be applied.**
- **After installation, servicing, or conversion, air and electrical supplies (when necessary) should be connected and the product tested for proper function and leakage. If audible leakage is present, or the product does not operate properly, do not put into use.**
- **Warnings and specifications on the product should not be covered by paint, etc. If masking is not possible, contact your local representative for replacement labels.**

Introduction

Follow these instructions when installing, operating, or servicing the product.

Application Limits

These products are intended for use in general purpose compressed air systems only.

Operating Inlet Pressure:

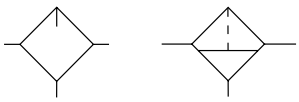
	kPa	PSIG	bar
with Polycarbonate Bowl	1000	150	10.3
with Metal Bowl	1700	250	17.0

NOTE: The maximum recommended pressure drop for a particulate filter is 70 kPa (10 psig, 0.7 bar)

Ambient Temperature Range:

with Polycarbonate Bowl	0°C to 52°C (32°F to 125°F)
with Metal Bowl	0°C to 80°C (32°F to 175°F)

Symbols



Lubricator Particulate Filter

Mist Lubricators (Figure 1)

Description

These mist lubricators are designed to deliver an atomized oil mist to air operated tools, motors, and other pneumatic equipment. Units are equipped with full-view sight glass for visual indication of oil drop rate, needle valve feed adjustment to regulate oil drop rate, and a venturi bypass disc to compensate for changes in air flow demands.

Installation of Lubricator

1. Lubricator should be installed with reasonable accessibility for service whenever possible - repair service kits are available. Keep pipe and tubing lengths to a minimum with inside clean and free of dirt and chips. Pipe joint compounds should be used sparingly and applied only to the male pipe – never into the female port. Do not use PTFE tape to seal pipe joints - pieces have a tendency to break off and lodge inside the unit, possibly causing malfunction.
2. Install lubricator so that air flow is in the direction of arrow on body.
3. Installation should be upstream from, and as close as possible, to the device it is to lubricate (valve, cylinder, tool, etc.). Whenever possible, avoid locations that require air-borne oil to move in an upward direction to reach the device to be lubricated.
4. The installation of an individual lubricator for each air consuming device provides best assurances of proper lubrication.
5. In new installations, it is good practice to "wet down" the inside diameter of piping and/hose with oil before making final connections. Although your lubricator delivers oil to the line, pre-coating the inside diameter with oil helps insure that proper amounts of oil are delivered to the point of application.

Operation & Service of Lubricator

⚠ Warning: Before filling, inlet pressure must be eliminated and then de-pressurize system pressure.

1. FILLING - After de-pressurizing system, remove bowl to refill lubricator. Fill bowl to fill line indicated on the bowl with oil of 150 to 200 SSU at 100°F viscosity - same as SAE No. 10 (petroleum based hydraulic oils or spindle oils are good examples). DO NOT USE OILS WITH TACKY ADDITIVES, COMPOUND OILS CONTAINING SOLVENTS, GRAPHITE, SOAPS OR DETERGENTS. (Automotive oils generally contain detergents and are not recommended.
2. Replace the bowl and seat firmly. Excessive torque is not necessary. The lubricator is now ready for setting.
3. OIL DELIVERY ADJUSTMENT - To adjust oil delivery, turn the adjusting needle on top of the lubricator.

Leaner - Clockwise Richer - Counterclockwise

By counting the number of drops per minute in the sight dome, you can adjust lubricator to your required setting.

Generally, one drop per minute downstream for every 10-15 SCFM flow is satisfactory. 25 drops per minute equals one ounce per hour - volume of oil passing through the sight dome.

NOTE: This is a constant density type lubricator which delivers a constant ratio of oil to air flow. Therefore, if air flow increases or decreases, oil delivery will be effected proportionately. ONLY IF DIFFERENT RATIO IS DESIRED SHOULD YOUR ADJUSTMENT KNOB SETTING BE CHANGED AFTER YOUR INITIAL SETTING.

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Service Kits - Lubricator

Kit#	Description
PS420	Polycarbonate Bowl with Manual Drain - consists of items: 18 (open bottom), 15, 16, 17 & 32
PS421	Polycarbonate Bowl without Drain - consists of items: 18 (closed bottom) & 15
PS740	Drip Control (Polycarbonate)
PS740N	Drip Control (Nylon)

Parts Identification List - Lubricator

Item#	Description	Item#	Description
1	Knob	11	Spring
2	Drip Control Body	12	Ball, Check
3	Needle	13	Body
4	O-ring	14	Tube
5	Drip Tube	15	O-ring (Body to Bowl)
6	Seal Plate	16	Twist Drain
7	O-ring	17	O-ring (Drain)
8	By-pass Plate	18	Bowl
9	By-pass	32	Twist Drain Knob
10	Ball, Check		

Particulate Filter (Figure 2)

Description

These air line filters are heavy-duty units used to remove airborne impurities from air supply lines by means of centrifugal force and filter element. Units are equipped with vane-type deflectors and drain valves. Deflector plate creates swirling action to the air stream assuring entrainments separation at all flow rates. Filter element with extra large surface assures fine filtration with low pressure drop. Turn manual drain clockwise to open and counterclockwise to close.

Installation of Filter

1. Filter should be installed with reasonable accessibility for service whenever possible - repair service kits are available. Keep pipe and tubing lengths to a minimum with inside clean and free of dirt and chips. Pipe joint compounds should be used sparingly and applied only to the male pipe - never into the female port. Do not use PTFE tape to seal pipe joints - pieces have a tendency to break off and lodge inside the unit, possibly causing malfunction.
2. Install unit so that air flow is in the direction of arrow. Installation must be upstream of and close to devices it is to service (valve, cylinder, tool, etc.). Position unit vertically with the bowl drain mechanism at the bottom. Free moisture will thus drain into the sump (“quiet zone”) at the bottom of the bowl.

Operation of the Filter

1. Both free moisture and solids are removed automatically by the filter.
2. Manual drain filters must be drained regularly before the separated moisture and oil reaches the bottom of the element holder. Automatic drain models (pulse drain) will collect and dump liquids automatically. They are actuated when a pressure drop occurs within the filter.
3. The filter element should be removed and replaced when the pressure differential across the filter exceeds 70 kPa (10 psig, 0.7 bar).

Service

⚠ **Caution: SHUT OFF AIR SUPPLY and exhaust the primary and secondary pressure before dis-assembling unit. (Units may be serviced without removing them from the air line.)**

Servicing Filter Element

1. Unscrew threaded bowl and element holder. Then remove filter element, deflector, and gaskets.
2. Clean all internal parts, bowl, and body before re-assembling unit. See Polycarbonate bowl cleaning section.
3. Install deflector, filter element, and gaskets.
4. Attach element holder. Torque from 0.9 to 1.4 Nm (8 to 12 in-lbs).
5. To assist with retaining bowl’s o-ring while installing bowl, lubricate the o-ring (with a mineral based oil or grease). Then place on the bowl.
6. Screw bowl into the body until it is stopped by body; then back off bowl 1/8 turn.
7. Apply pressure to the system and check for leaks. If leaks occur, shut off the air supply, de-pressurize the system and make necessary adjustments to eliminate leakage.

If you have questions concerning how to service this unit, contact your local dealer or your customer service representative.

Service Kits- Filter

Kit#	Description
PS404	Polycarbonate Bowl with Manual Drain - consists of items: 19, 24, 26 & 27
PS408	Polycarbonate Bowl with Automatic Drain - consists of items: 19, 24, 26, 28, 29, 30 & 31
PS447B	Metal Bowl with Manual Drain - consists of items: 19, 24, 26 & 27
PS451	Metal Bowl with Automatic Drain - consists of items: 19, 24, 26, 28, 29, 30 & 31
PS403	5 Micrometer Element Kit - consists of items: 20, 21 & 24
PS407	5 Micrometer Element Cartridge Kit - consists of items: 20, 21, 22, 23 & 24
PS401	40 Micrometer Element Kit - consists of items: 20, 21 & 24

Parts Identification List - Filter Units

Item#	Description	Item#	Description
19	Bowl	27	Manual Drain (twist style)
20	Gasket	28	O-ring - pulse drain
21	Filter Element	29	Drain (body of pulse drain shown)
22	Filter Holder		
23	Deflector	30	Diaphragm
24	O-ring (body to bowl)	31	Pin
25	Body	32	Twist Drain Knob
26	O-ring (drain to bowl)		

Safety: Transparent Bowls

⚠ CAUTION

Polycarbonate bowls, being transparent and tough, are ideal for use with Filters and Lubricators. They are suitable for use in normal industrial environments, but should not be located in areas where they could be subjected to direct sunlight, an impact blow, nor temperatures outside of the rated range. As with most plastics, some chemicals can cause damage. Polycarbonate bowls should not be exposed to chlorinated hydrocarbons, ketones, esters and certain alcohols. They should not be used in air systems where compressors are lubricated with fire-resistant fluids such as phosphate ester and diester types.

Metal bowls are recommended where ambient and/or media conditions are not compatible with polycarbonate bowls. Metal bowls resist the action of most such solvents, but should not be used where strong acids or bases are present or in salt laden atmospheres. Consult the factory for specific recommendations where these conditions exist.

TO CLEAN POLYCARBONATE BOWLS USE MILD SOAP AND WATER ONLY! DO NOT use cleansing agents such as acetone, benzene, carbon tetrachloride, gasoline, toluene, etc., which are damaging to this plastic.

⚠ WARNING

To avoid polycarbonate bowl rupture that can cause personal injury or property damage, do not exceed bowl pressure or temperature ratings. Polycarbonate bowls have a 150 PSIG pressure rating and a maximum temperature rating of 125°F.

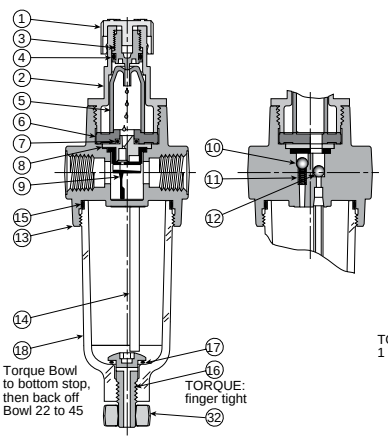


Figure 1: Mist Lubricator

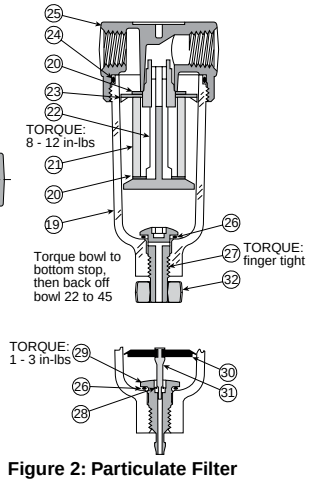


Figure 2: Particulate Filter

Pneumatic Division
Richland, Michigan 49083
269-629-5000

Installation & Service Instructions:
2L101E
1/4" & 3/8" Economy
1/4", 3/8" & 1/2" Compact
1/2" & 3/4" Standard
Mist & Micromist Lubricators
ISSUED: September 2012
Supersedes: September 2006
Doc. #2L101, ECN# 120039, Rev. 9

⚠WARNING

To avoid unpredictable system behavior that can cause personal injury and property damage:

- **Disconnect electrical supply (when necessary) before installation, servicing, or conversion.**
- **Disconnect air supply and depressurize all air lines connected to this product before installation, servicing, or conversion.**
- **Operate within the manufacturer's specified pressure, temperature, and other conditions listed in these instructions.**
- **Medium must be moisture-free if ambient temperature is below freezing.**
- **Service according to procedures listed in these instructions.**
- **Installation, service, and conversion of these products must be performed by knowledgeable personnel who understand how pneumatic products are to be applied.**
- **After installation, servicing, or conversion, air and electrical supplies (when necessary) should be connected and the product tested for proper function and leakage. If audible leakage is present, or the product does not operate properly, do not put into use.**
- **Warnings and specifications on the product should not be covered by paint, etc. If masking is not possible, contact your local representative for replacement labels.**

⚠CAUTION

Polycarbonate bowls, being transparent and tough, are ideal for use with Filters and Lubricators. They are suitable for use in normal industrial environments, but should not be located in areas where they could be subjected to direct sunlight, an impact blow, nor temperatures outside of the rated range. As with most plastics, some chemicals can cause damage. Polycarbonate bowls should not be exposed to chlorinated hydrocarbons, ketones, esters and certain alcohols. They should not be used in air systems where compressors are lubricated with fire-resistant fluids such as phosphate ester and diester types.

Metal bowls are recommended where ambient and/or media conditions are not compatible with polycarbonate bowls. Metal bowls resist the action of most such solvents, but should not be used where strong acids or bases are present or in salt laden atmospheres. Consult the factory for specific recommendations where these conditions exist.

TO CLEAN POLYCARBONATE BOWLS USE MILD SOAP AND WATER ONLY! DO NOT use cleansing agents such as acetone, benzene, carbon tetrachloride, gasoline, toluene, etc., which are damaging to this plastic.

Bowl guards are recommended for added protection of polycarbonate bowls where chemical attack may occasionally occur.

⚠ WARNING

To avoid polycarbonate bowl rupture that can cause personal injury or property damage, do not exceed bowl pressure or temperature ratings. Polycarbonate bowls have a 150 PSIG pressure rating and a maximum temperature rating of 125°F.

Safety Guide

For more complete information on recommended application guidelines, see the Safety Guide section of Pneumatic Division catalogs or you can download the **Pneumatic Division Safety Guide** at: www.parker.com/safety

Introduction

Follow these instructions when installing, operating, or servicing the product.

Application Limits

These products are intended for use in general purpose compressed air systems only.

With Polycarbonate Bowl

	kPa	PSIG	bar
Operating Pressure Maximum	**1000**	**150**	**10.3**

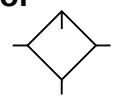
Operating Temperature Maximum 52°C (125°F)
Operating Temperature Minimum 0°C (32°F)

With Metal Bowl

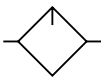
	kPa	PSIG	bar
Operating Pressure Maximum	**1700**	**250**	**17.0**

Operating Temperature Maximum 80°C (175°F)
Operating Temperature Minimum 0°C (32°F)

ANSI Symbol



Lubricator w/ Manual Drain



Lubricator Less Drain

Installation

1. The lubricator should be installed with reasonable accessibility for service whenever possible. Keep pipe or tubing lengths to a minimum with inside clean and free of dirt and chips. Pipe joint compound should be used sparingly and applied only to the male pipe – never into the female port. Do not use PTFE tape to seal pipe joints – pieces have a tendency to break off and lodge inside the unit, possibly causing malfunction.
2. Install lubricator so air flows in the direction of arrow on body.
3. Installation should be upstream of the device it is to lubricate (valve, cylinders, tool, etc.).

⚠WARNING

FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS AND/OR SYSTEMS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.

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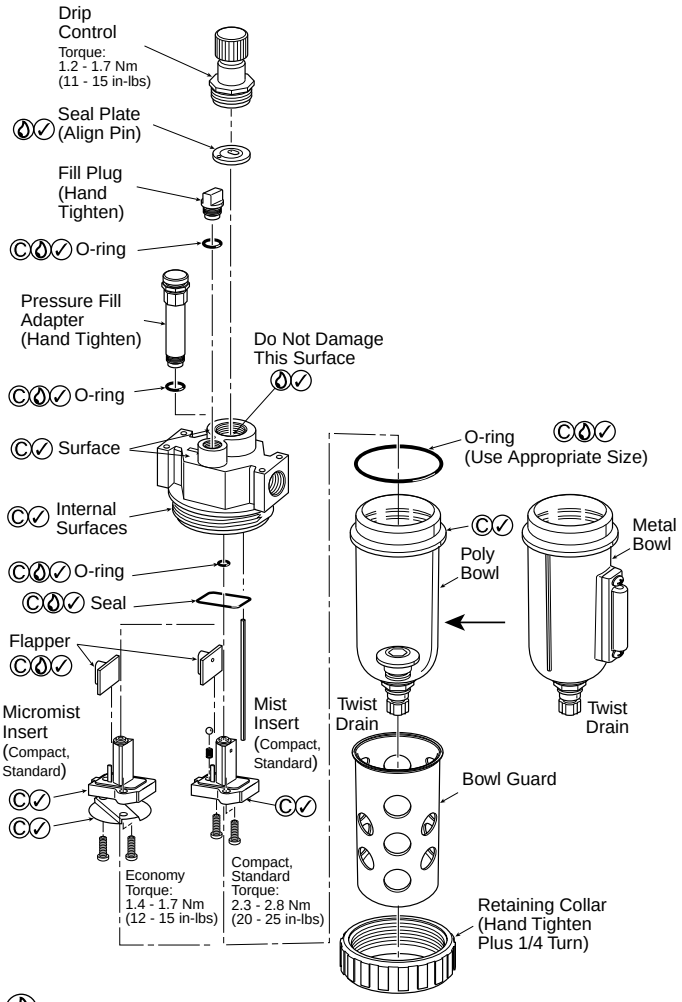


Lightly grease with provided lubricant.

Inspect for nicks, scratches, and surface imperfections. If present, reduced service life is probable and future replacement should be planned.

Clean with lint-free cloth.

Operation and Service

(Refer to Above Pictorial)

1. Filling — The Mist lubricator can be filled without turning off the upstream pressure. Slowly remove the fill plug (black) by turning counterclockwise. This allows the bowl pressure to vent.

   The inlet pressure of the Micromist lubricator must be turned off and depressurized before the fill plug (yellow) is removed. Turn counterclockwise to remove. Fill to oil level line.

   Suggested lubricant: F442

   Petroleum based oil of 100 to 200 SUS viscosity at 100°F and an aniline point greater than 200°F. (Mobil DTE24 and Sun Company Sunvis 932 are good examples). Do not use oils with adhesives, compound oils containing solvents, graphite, detergents or synthetic oils.

2. Replace the fill plug (by turning clockwise) and seat firmly. Excessive torque is not required. Turn on air supply for Micromist type. If leakage occurs, DO NOT OPERATE — conduct repairs again.The lubricator is now ready for setting.

3. Oil delivery adjustment — To adjust oil delivery, turn adjustment knob on top of the lubricator.

   Leaner — Clockwise

   Richer — Counterclockwise

   By counting the number of drops per minute in the sight dome, you can adjust to your requirements.

   Mist lubricator — Every drop visible in the sight dome goes downstream.

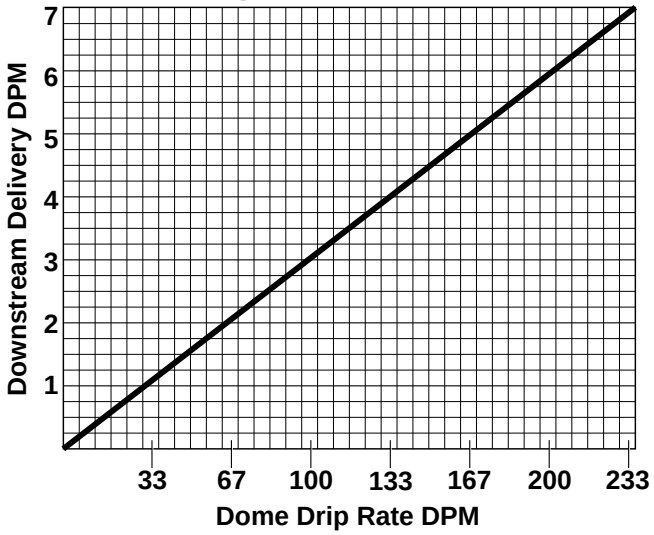
   Micromist lubricator — Approximately 3% of the droplets visible in the sight dome go downstream; adjust drip rate accordingly. Consult oil delivery conversion chart.

   Generally, one drop per minute downstream for every 10 - 15 SCFM flow is satisfactory.

   25 drops per minute equals one (1) ounce per hour - volume of oil passing through the sight dome.

NOTE: This is a constant density type lubricator which delivers a constant ratio of oil air flow. Therefore, if air flow increases or decreases, oil delivery will be adjusted proportionately. ONLY IF A DIFFERENT RATIO IS DESIRED SHOULD YOUR ADJUSTMENT KNOB SETTING BE CHANGED AFTER YOUR INITIAL SETTING.

Oil Delivery Conversion
3% of Drip Rate to Downstream



4. To replace fill plug, drip control, & service lubricator:
   A. Turn off air supply and depressurize the unit.
   B. Refer to pictorial for servicing and torque values.
   C. Turn on air supply and check lubricator for leakage. If leakage occurs, **DO NOT OPERATE** — conduct repairs again.

Kits Available

Description	Economy 1/4" & 3/8"	Mist Compact, Standard 1/4", 3/8" & 1/2"	Micromist Compact, Standard 1/2" & 3/4"
Lubricator Repair Kit	PS918	PS718	PS748
Drip Control (Polycarbonate) and Fill Plug Kit	PS938	PS738	PS739
Drip Control (Nylon) and Fill Plug Kit	PS938N	PS738N	PS739N

Note: Sixth character in model number denotes drip control material. For B or F use the polycarbonate kit, and for C or G use the nylon kit.

Pneumatic Division
Richland, Michigan 49083
269-629-5000

Installation & Service Instructions: 2L300C

1" Lubricator Series

ISSUED: August, 2006
Supersedes: November, 2003

Doc.# 2L300, ECN# 060900, Rev. 7

⚠ WARNING

To avoid unpredictable system behavior that can cause personal injury and property damage:

- **Disconnect electrical supply (when necessary) before installation, servicing, or conversion.**
- **Disconnect air supply and depressurize all air lines connected to this product before installation, servicing, or conversion.**
- **Operate within the manufacturer's specified pressure, temperature, and other conditions listed in these instructions.**
- **Medium must be moisture-free if ambient temperature is below freezing.**
- **Service according to procedures listed in these instructions.**
- **Installation, service, and conversion of these products must be performed by knowledgeable personnel who understand how pneumatic products are to be applied.**
- **After installation, servicing, or conversion, air and electrical supplies (when necessary) should be connected and the product tested for proper function and leakage. If audible leakage is present, or the product does not operate properly, do not put into use.**
- **Warnings and specifications on the product should not be covered by paint, etc. If masking is not possible, contact your local representative for replacement labels.**

⚠ CAUTION

Polycarbonate bowls, being transparent and tough, are ideal for use with Filters and Lubricators. They are suitable for use in normal industrial environments, but should not be located in areas where they could be subjected to an impact blow, nor temperatures outside of the rated range. As with most plastics, some chemicals can cause damage. Polycarbonate bowls should not be exposed to chlorinated hydro-carbons, ketones, esters, and certain alcohols. They should not be used in air systems where compressors are lubricated with fire resistant fluids such as phosphate esters and di-esters types. In areas where polycarbonate bowls are exposed to high temperatures or atmospheres containing vapors or fluids, which are damaging to plastic, use metal bowls.

Metal bowls resist the action of most such solvents but should not be used where strong acids or bases are present or in salt laden atmospheres. Consult the factory for specific recommendations where these conditions exist.

TO CLEAN POLYCARBONATE BOWLS USE MILD SOAP AND WATER ONLY! DO NOT use cleaning agents such as acetone, benzene, carbon tetrachloride, gasoline, toluene, etc., which are damaging to this plastic.

Bowl guards are recommended for added protection of polycarbonate bowls where chemical attack may occasionally occur.

Safety Guide

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Introduction

Follow these instructions when installing, operating, or servicing the product.

Application Limits

These products are intended for use in general purpose compressed air systems only.

	kPa	PSIG	bar
Operating Pressure Maximum	1700	250	17.0
Operating Temperature Maximum			80°C (175°F)
Operating Temperature Minimum			0°C (32°F)

ANSI Symbol

Lubricator w/ Manual Drain

Lubricator Less Drain

Installation

1. The lubricator should be installed with reasonable accessibility for service whenever possible. Keep pipe or tubing lengths to a minimum with inside clean and free of dirt and chips. Pipe joint compound should be used sparingly and applied only to the male pipe – never into the female port. Do not use PTFE tape to seal pipe joints – pieces have a tendency to break off and lodge inside the unit, possibly causing malfunction.
2. Install lubricator so air flows in the direction of arrow on body.
3. Installation should be upstream of the device it is to lubricate (valve, cylinders, tool, etc.).

Operation and Service

(Refer to Pictorial on Following Page)

1. Filling — The Mist lubricator can be filled without turning off the upstream pressure. Slowly remove the fill plug by turning counterclockwise. This allows the bowl pressure to vent.

   Suggested lubricant: F442

   Petroleum based oil of 100 to 200 SUS viscosity at 100°F and an aniline point greater than 200°F. (Mobil DTE24 and Sun Company Sunvis 932 are good examples). Do not use oils with adhesives, compound oils containing solvents, graphite, detergents or synthetic oils.
2. Replace the fill plug (by turning clockwise) and seat firmly. Excessive torque is not required. If leakage occurs, **DO NOT OPERATE** — conduct repairs again.The lubricator is now ready for setting.
3. Oil delivery adjustment — To adjust oil delivery, turn adjustment knob on top of the lubricator.

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Leaner — Clockwise

Richer — Counterclockwise

By counting the number of drops per minute in the sight dome, you can adjust to your requirements.

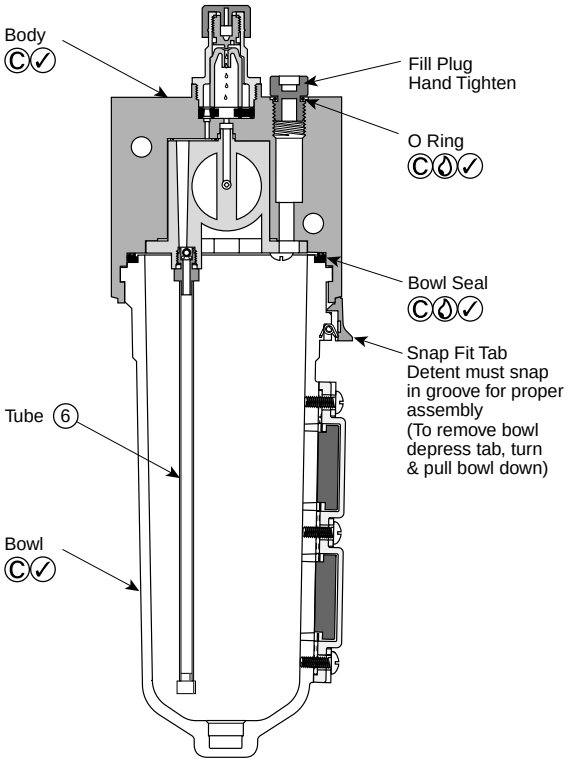
Mist lubricator — Every drop visible in the sight dome goes downstream.

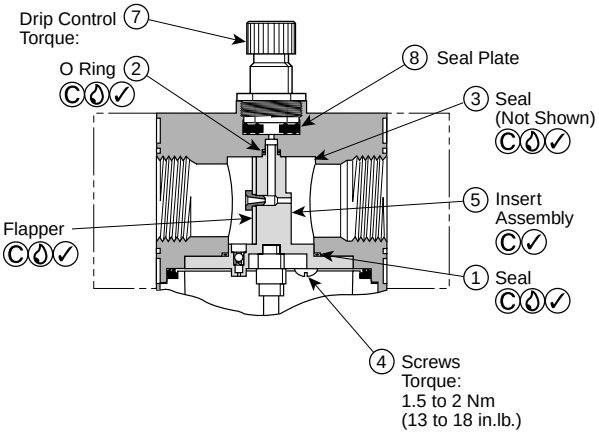
Generally, one drop per minute downstream for every 10 - 15 SCFM flow is satisfactory.

25 drops per minute equals one (1) ounce per hour - volume of oil passing through the sight dome.

NOTE: This is a constant density type lubricator which delivers a constant ratio of oil air flow. Therefore, if air flow increases or decreases, oil delivery will be adjusted proportionately. ONLY IF A DIFFERENT RATIO IS DESIRED SHOULD YOUR ADJUSTMENT KNOB SETTING BE CHANGED AFTER YOUR INITIAL SETTING.

4. To replace fill plug, drip control, & service lubricator:
   A. Turn off air supply and depressurize the unit.
   B. Refer to pictorial for servicing and torque values.
   C. Turn on air supply and check lubricator for leakage. If leakage occurs, **DO NOT OPERATE** — conduct repairs again.





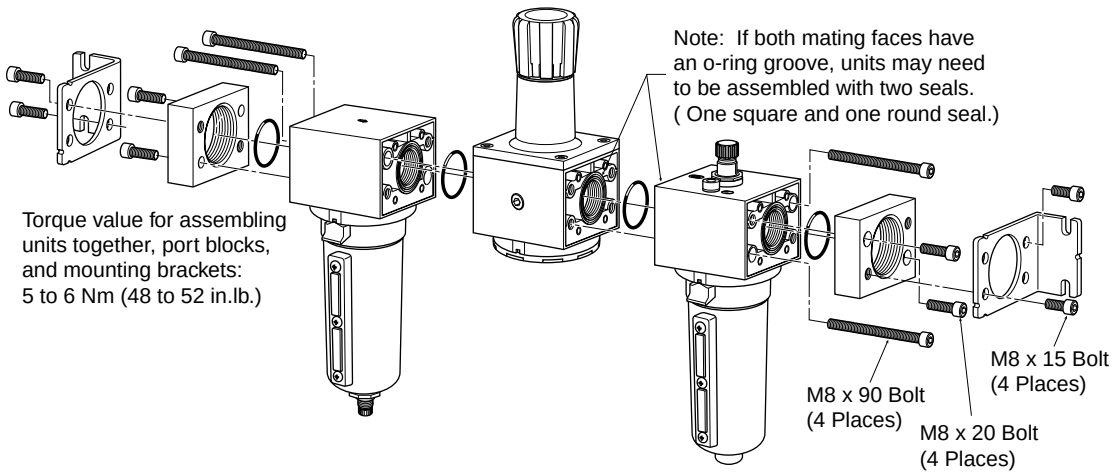
Service Kits Available

Description	Kit Number	Contains Items
Lubricator Repair Kit	P3NKA00RL	(1) Seal, (2) O-Ring, (3) Seal (Not Shown), (4) Screws, (5) Insert Assembly (Including Flapper), and (6) Tube
Sight Dome / Drip Control (Polycarbonate)	PS740	(7) Drip Control, (8) Seal Plate
Sight Dome / Drip Control (Polyamide / Nylon)	PS740N	

💧 Lightly grease with provided lubricant.

✓ Inspect for nicks, scratches, and surface imperfections. If present, reduced service life is probable and future replacement should be planned.

Ⓒ Clean with lint-free cloth.



Pneumatic Division
Richland, Michigan 49083
269-629-5000

Installation & Service Instructions:
2L301B
1/4", 3/8" & 1/2" Compact
1/2" & 3/4" Standard
Remote Auto-Fill Device
ISSUED: September, 2012
Supersedes: November, 2003
Doc.# 2L301, EN# 120039, Rev. 4

⚠ WARNING

To avoid unpredictable system behavior that can cause personal injury and property damage:

- **Disconnect electrical supply (when necessary) before installation, servicing, or conversion.**
- **Disconnect air supply and depressurize all air lines connected to this product before installation, servicing, or conversion.**
- **Operate within the manufacturer's specified pressure, temperature, and other conditions listed in these instructions.**
- **Medium must be moisture-free if ambient temperature is below freezing.**
- **Service according to procedures listed in these instructions.**
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Bowl guards are recommended for added protection of polycarbonate bowls where chemical attack may occasionally occur.

Introduction

Follow these instructions when installing, operating, or servicing the product.

Application Limits

These products are intended for use in general purpose compressed air systems only.

Operating Pressure Range:	**kPa**	**PSIG**	**bar**
Lubricators w/ Plastic Bowls Maximum	1034	150	10.34
Lubricators w/ Metal Bowls Maximum	1724	250	17.24

20 PSI minimum bowl (inlet) pressure. Oil inlet pressure must be at least 20 PSI above system air pressure and may be up to 300 PSIG maximum.

General Safety Information

Always SHUT OFF AIR SUPPLY and DEPRESSURIZE UNITS when servicing, modifying or converting pneumatic equipment.

Conversion Instructions

1. Remove bowl from lubricator.
2. Remove the manual drain-cock assembly from bowl.
3. Clean bowl with mild soap and water (do not use other cleaners or degreasers), before reassembling Remote Auto-Fill to bowl.

   NOTE: See polycorbonate bowl cleaning section.
4. Place o-ring seal on auto-fill assembly bottom threaded projection and insert assembly into the bowl drain opening, from within the bowl.
5. Secure Auto-Fill unit to bowl with Jam Nut by pressing against float inside the bowl and running the nut against the bowl boss outside the bowl; finger tighten. Hold Jam Nut with fingers and complete assembly with 1/2" open end wrench. A maximum of one (1) full turn will secure the nut.
6. Install body-to-bowl o-ring and bowl into body. Tighten 06 collar to 28 to 32 in lbs (3.2 to 3.6 Nm) torque. Tighten 07 collar to 48 to 52 in lbs (5.4 to 5.9 Nm) torque.

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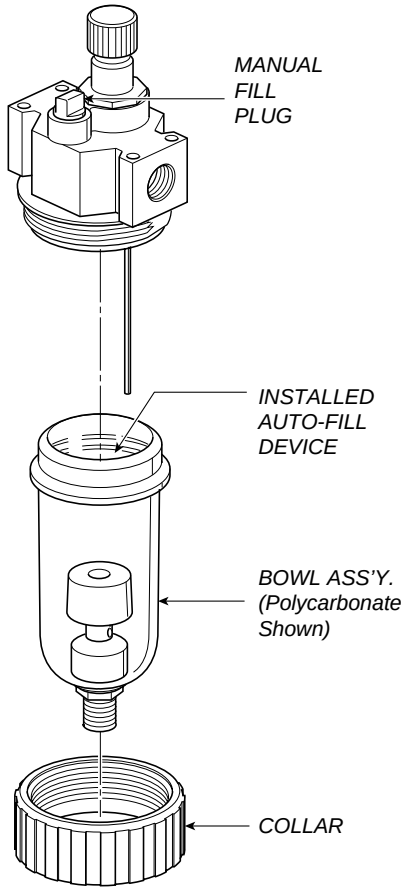
7. Connect the hydraulic supply line to the bottom of the Auto-Fill Device.
8. Remove the manual fill plug and add enough oil to reach the bottom of the float.
9. Turn on air supply and check for external leakage at the top and bottom of the bowl assembly.

   Note: Air may leak out the bottom of the fill device unless its interior has been “wetted” with oil from step 8. Also, oil may automaticlly drain out before air pressure is applied, hence the oil line connection at step 7 is important.
10. Unit is now ready for operation.



Installation

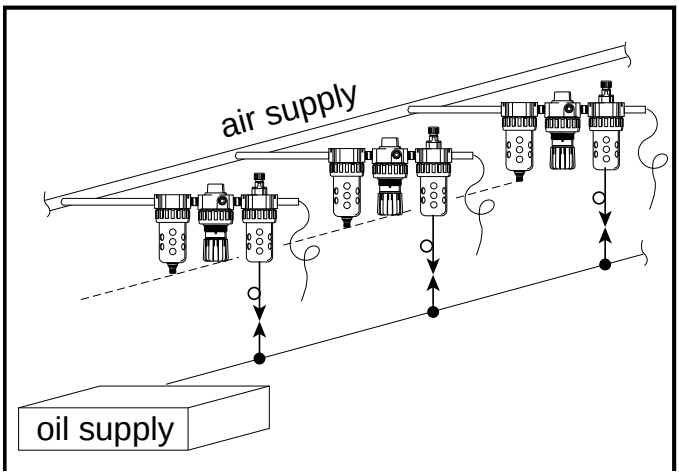
1. Connect oil supply feeder line to the Remote Auto Fill 1/8-27 NPT female thread fitting. Flexible tubing is recommended between lubricator and oil supply main header line. Also attach a shut-off valve, which may be necessary should servicing be required.

   ⚠**CAUTION:** Rigid pipe should be avoided to prevent possible lubricator bowl damage due to stress and machine vibration.

2. Connect opposite end of flexible tube feeder line to main oil supply line.

   NOTE: Oil supply source and main supply line should be pressurized at least 20 PSI above system air pressure, and may be up to 300 PSIG maximum. Oil supply line should be pressurized for 2 to 15 minutes, one or more times a day. Frequency should be based on maintaining oil in lubricator at its highest level.

   NOTE: Oil supply pressure should be shut off after the refill period is completed. Lubricators will not permit additional oil to be admitted until supply system pressure has first dropped below air system pressure.



Suggested Lubricant

Petroleum based oil of 100 to 200 SSU viscosity at 100°F. (DO NOT USE OILS WITH ADDITIVES, COMPOUNDED OILS CONTAINING SOLVENTS, GRAPHITE, DETERGENTS OR SYNTHETIC OILS.)

Pneumatic Division
Richland, Michigan 49083
269-629-5000

Installation and Service Instructions: 2L302

Liquid Level Sensor

ISSUED: November, 2003
Supersedes: None

Doc. #2L302, ECN #030539, Rev. 2

⚠WARNING

To avoid unpredictable system behavior that can cause personal injury and property damage:

- **Disconnect electrical supply (when necessary) before installation, servicing, or conversion.**
- **Disconnect air supply and depressurize all air lines connected to this product before installation, servicing, or conversion.**
- **Operate within the manufacturer's specified pressure, temperature, and other conditions listed in these instructions.**
- **Medium must be moisture-free if ambient temperature is below freezing.**
- **Service according to procedures listed in these instructions.**
- **Installation, service, and conversion of these products must be performed by knowledgeable personnel who understand how pneumatic products are to be applied.**
- **After installation, servicing, or conversion, air and electrical supplies (when necessary) should be connected and the product tested for proper function and leakage. If audible leakage is present, or the product does not operate properly, do not put into use.**
- **Warnings and specifications on the product should not be covered by paint, etc. If masking is not possible, contact your local representative for replacement labels.**

⚠CAUTION

Polycarbonate bowls, being transparent and tough, are ideal for use with Filters and Lubricators. They are suitable for use in normal industrial environments, but should not be located in areas where they could be subjected to direct sunlight, an impact blow, nor temperatures outside of the rated range. As with most plastics, some chemicals can cause damage. Polycarbonate bowls should not be exposed to chlorinated hydrocarbons, ketones, esters and certain alcohols. They should not be used in air systems where compressors are lubricated with fire-resistant fluids such as phosphate ester and diester types.

Metal bowls are recommended where ambient and/or media conditions are not compatible with polycarbonate bowls. Metal bowls resist the action of most such solvents, but should not be used where strong acids or bases are present or in salt laden atmospheres. Consult the factory for specific recommendations where these conditions exist.

TO CLEAN POLYCARBONATE BOWLS USE MILD SOAP AND WATER ONLY! DO NOT use cleansing agents such as acetone, benzene, carbon tetrachloride, gasoline, toluene, etc., which are damaging to this plastic.

Bowl guards are recommended for added protection of polycarbonate bowls where chemical attack may occasionally occur.

⚠WARNING

To avoid polycarbonate bowl rupture that can cause personal injury or property damage, do not exceed bowl pressure or temperature ratings. Polycarbonate bowls have a 150 PSIG pressure rating and a maximum temperature rating of 125°F.

Introduction

Follow these instructions when installing, operating, or servicing the product.

Application Limits

These products are intended for use in general purpose compressed air systems only.

With Polycarbonate Bowl

	kPa	PSIG	bar
Operating Pressure Maximum	**1000**	**150**	**10.3**
Operating Temperature Maximum	52°C (125°F)		
Operating Temperature Minimum	0°C (32°F)		

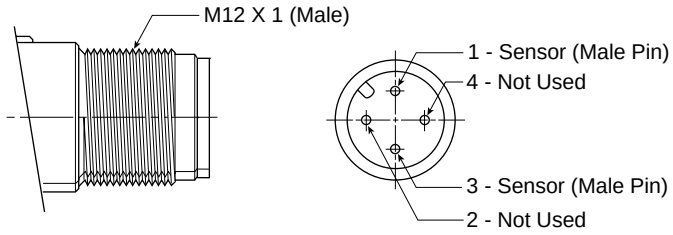
With Metal Bowl

	kPa	PSIG	bar
Operating Pressure Maximum	**1700**	**250**	**17.0**
Operating Temperature Maximum	80°C (175°F)		
Operating Temperature Minimum	0°C (32°F)		

Electrical Specifications

1. **Voltage:**
   200VDC Max.
   240/60 - 220/50 VAC Max.
2. **Maximum Current:**
   DC - 10W
   AC - 5VA

   Note: 5VA current rating for AC is based on a resistive load, or inductive load with external surge suppression. For unprotected inductive loads, the maximum current rating is 0.5VA.



⚠WARNING

FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS AND/OR SYSTEMS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.

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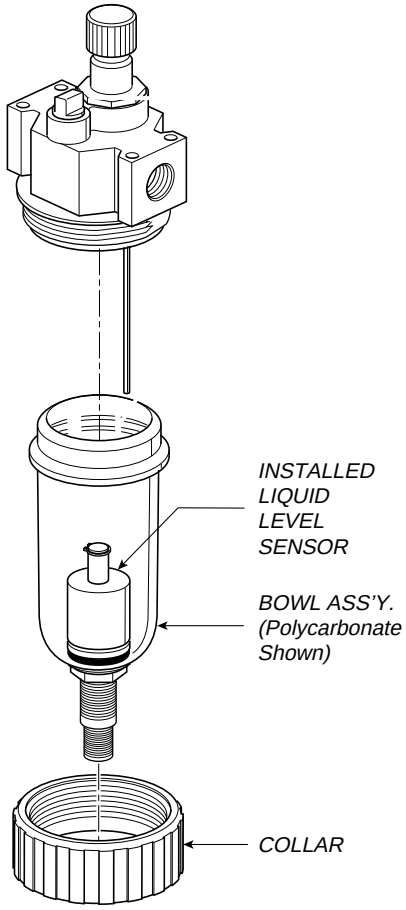
General Safety Information

Always SHUT OFF AIR SUPPLY and DEPRESSURIZE UNITS when servicing, modifying or converting pneumatic equipment.

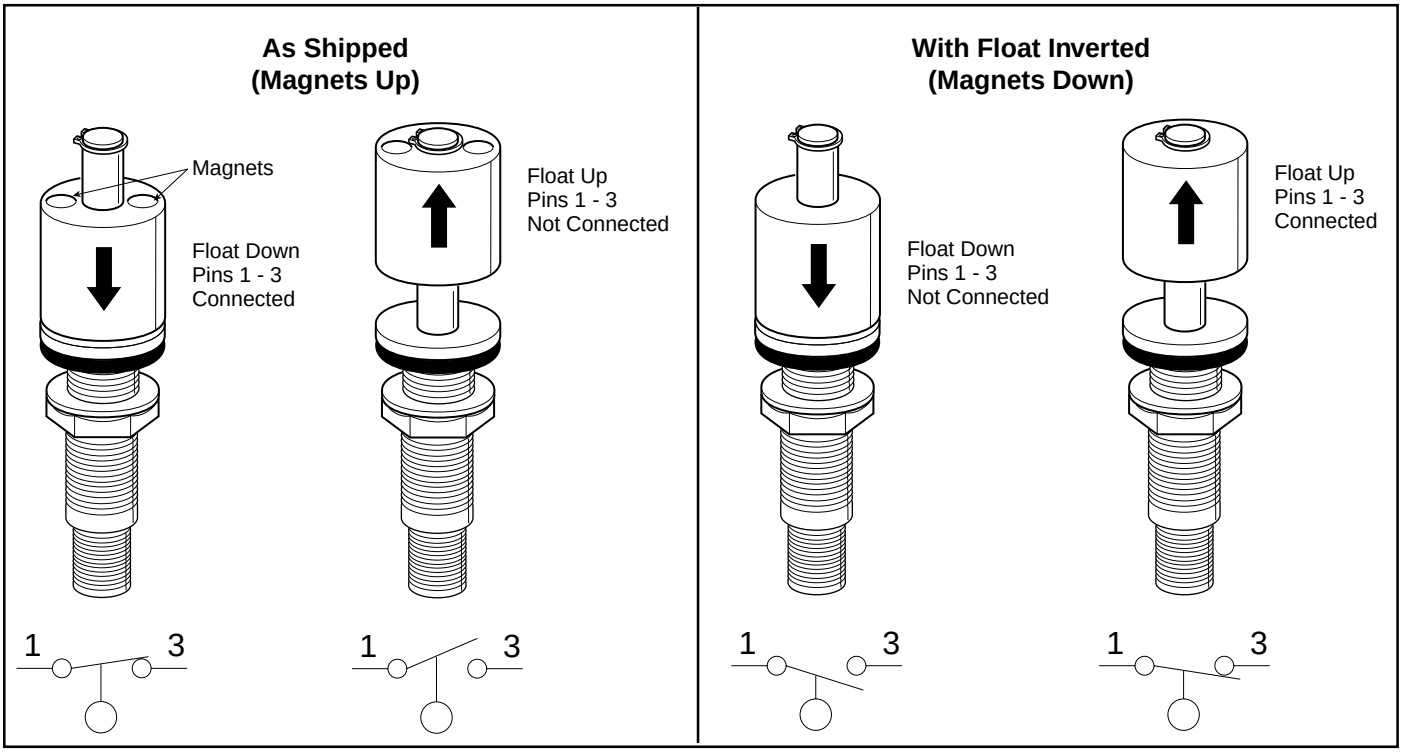
Conversion Instructions

1. Remove bowl from lubricator.
2. Remove the manual drain-cock assembly from bowl.
3. If Necessary, clean bowl with mild soap and water (do not use other cleaners or degreasers), before assembling Sensor to bowl.

   NOTE: See polycarbonate bowl cleaning section on front.
4. Place o-ring seal on Liquid Level Sensor assembly bottom threaded projection and insert assembly into the bowl drain opening, from within the bowl.
5. Secure Sensor unit to bowl with Jam Nut by pressing against float inside the bowl and running the nut against the bowl boss outside the bowl; finger tighten. Hold Jam Nut with fingers and complete assembly with open end wrench. A maximum of one (1) full turn will secure the nut.
6. Install body-to-bowl o-ring and bowl into body. Tighten 06L, 16L collar to 28 – 32 inch pounds torque. Tighten 07L, 17L collar to 48 – 52 inch pounds torque.
7. Turn on air supply and check for external leakage at the top and bottom of the bowl assembly.
8. If leakage is present, do not put into service. Perform assembly again.
9. Unit is now ready for operation.



Electrical Contacts



Pneumatic Division
Richland, Michigan 49083
269-629-5000

Installation & Service Instructions: 2M300C

Right Angle Bracket

ISSUED: November, 2003
Supersedes: September, 2000

Doc.# 2M300, ECN# 030539, Rev. 4

⚠ WARNING

To avoid unpredictable system behavior that can cause personal injury and property damage:

- **Disconnect electrical supply (when necessary) before installation, servicing, or conversion.**
- **Disconnect air supply and depressurize all air lines connected to this product before installation, servicing, or conversion.**
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- **Medium must be moisture-free if ambient temperature is below freezing.**
- **Service according to procedures listed in these instructions.**
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Introduction:

Follow these instructions when installing, operating, or servicing the product.

Application Limits

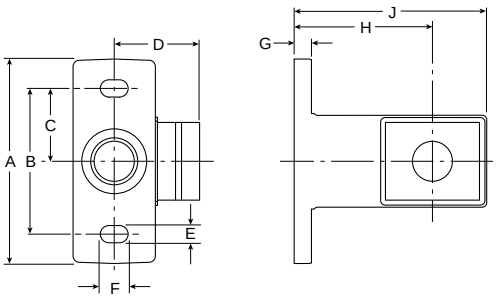
These products are intended for use in general purpose compressed air systems only.

Operating Pressure:

	kPa	PSIG	bar
Maximum Inlet Pressure:	**1700**	**250**	**17**

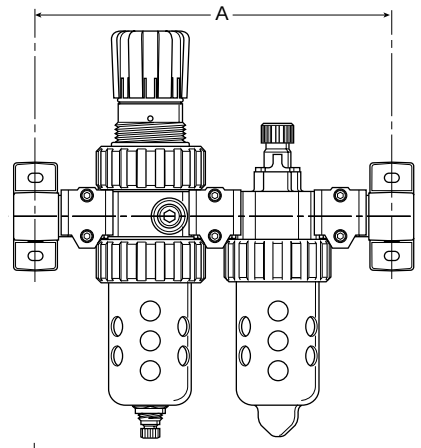
Operating Temperature:

Maximum Temperature 80°C (175°F)
Minimum Temperature 0°C (32°F)

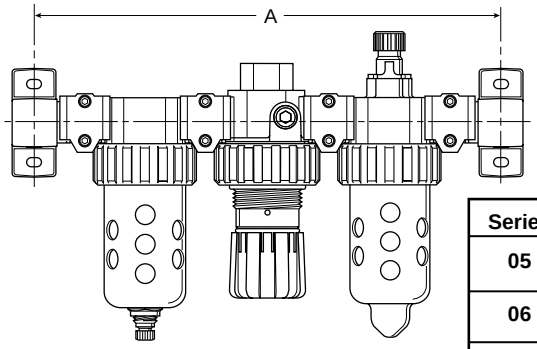


Right Angle Bracket Dimensions

Series	A	B	C	D	E	F	G	H	J
05	2.83	2.28	1.14	1.16	.28	.43	.28	1.49	2.31
	72.0 mm	58.0 mm	29.0 mm	29.5 mm	7.0 mm	11.0 mm	7.0 mm	37.8 mm	58.8 mm
06	2.96	2.11	1.05	1.23	.27	.42	.25	2.00	2.74
	75.2 mm	53.6 mm	26.8 mm	31.4 mm	6.8 mm	10.6 mm	6.4 mm	50.8 mm	69.6 mm
07	3.22	2.37	1.17	1.32	.27	.42	.25	2.12	3.00
	81.8 mm	60.3 mm	29.8 mm	33.5 mm	6.8 mm	10.6 mm	6.4 mm	53.8 mm	76.2 mm



Series	A
05	6.7 170 mm
06	9.7 246 mm
07	10.7 272 mm



Series	A
05	9.0 229 mm
06	13.0 330 mm
07	14.4 366 mm

Installation

The right angle bracket can be installed using the two methods outlined on reverse side. Keep pipe or tubing lengths to a minimum with inside clean and free of dirt and chips. Pipe joint compound should be used sparingly and applied only to the male pipe - never the female port. Do not use PTFE tape to seal pipe joints - pieces have a tendency to break off and lodge inside the unit, possibly causing malfunction.

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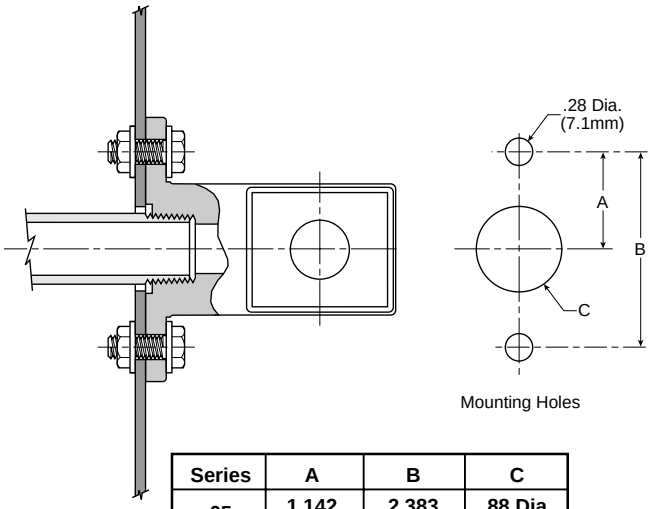
Direct Piped Method

The direct piped method is used when the right angle bracket is bolted to the user's machine and the inlet and outlet pipe is screwed directly into the back of the ninety degree bracket. A through hole must be provided in the user's machine to allow access for the inlet and outlet pipe.

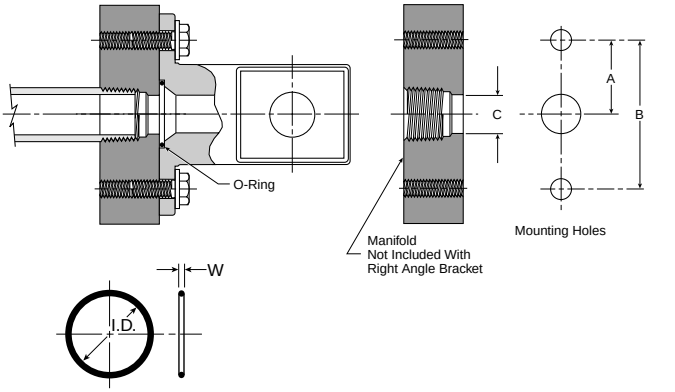


Series	A	B	C
05	1.142 29.0 mm	2.383 58.0 mm	.88 Dia. 22.4 mm
06	1.055 26.8 mm	2.110 53.6 mm	.88 Dia. 22.4 mm
07	2.375 60.3 mm	1.173 29.8 mm	1.00 Dia. 25.4 mm

Direct Pipe Ported Method

Manifold Method

This method is used when the right angle bracket is mounted to the user's manifold. The inlet and outlet pipe is screwed into the manifold. An o-ring is used to seal between the bracket and manifold.



O-Ring Details

Series	I.D. (Inch)	W (Inch)
05 & 06	.737	.103
07	.862	.103

Series	A	B	C
05	1.142 29.0 mm	2.383 58.0 mm	.50 Dia. 12.7 mm
06	1.055 26.8 mm	2.110 53.6 mm	.50 Dia. 12.7 mm
07	2.375 60.3 mm	1.173 29.8 mm	.63 Dia. 16.0 mm

Manifold Mounting Method

Pneumatic Division
Richland, Michigan 49083
269-629-5000

Installation & Service Instructions: 3L101

PL606 Mist Lubricators

ISSUED: February, 2004
Supersedes: August, 2002

Doc.# 3L101, EPN# 030539, Rev. 1

⚠WARNING

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- **Operate within the manufacturer's specified pressure, temperature, and other conditions listed in these instructions.**
- **Medium must be moisture-free if ambient temperature is below freezing.**
- **Service according to procedures listed in these instructions.**
- **Installation, service, and conversion of these products must be performed by knowledgeable personnel who understand how pneumatic products are to be applied.**
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Introduction

Follow these instructions when installing, operating, or servicing the product.

Application Limits

These products are intended for use in general purpose compressed air systems only.

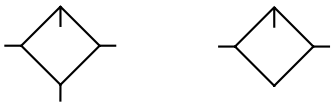
With Metal Bowl

	kPa	PSIG	bar
Operating Pressure Maximum			
Without Drain or Sight Gauge	**2068**	**300**	**20.7**
With Manual Drain	**2068**	**300**	**20.7**
With Sight Gauge	**1034**	**150**	**10.3**

Operating Temperature Range

No Drain ..... 0°C to 82°C (32°F to 180°F)
Manual Drain ..... 0°C to 82°C (32°F to 180°F)
Manual Drain & Sight Gauge ... 0°C to 49°C (32°F to 120°F)

Symbol



Lubricator w/Manual Drain | **Lubricator less Drain**

Installation

1. The lubricator should be installed with reasonable accessibility for service whenever possible. Keep pipe or tubing lengths to a minimum with inside clean and free of dirt and chips. Pipe joint compound should be used sparingly and applied only to the male pipe – never into the female port. Do not use PTFE tape to seal pipe joints – pieces have a tendency to break off and lodge inside the unit, possibly causing malfunction.
2. Install lubricator so air flows in the direction of arrow on body.
3. Installation should be upstream of the device it is to lubricate (valve, cylinders, tool, etc.).

Service Kits Available

Description	Kit Number
Needle Valve	RK606Y/N
Sight Dome	RK606SY/N
Drip Tube	PDTK606
Sight Glass 64 oz. Bowl	PRKB605X30B
Bowl - Aluminum	BK603B/N
Bowl & Sight Glass 64 oz.	PBK606X30B
Button Head Fill Fitting	SAA606C109-1
Fill Plug	SA606B4

Operation

1. Oil delivery adjustment — To adjust oil delivery, turn adjustment knob on top of the lubricator.

   Leaner — Clockwise

   Richer — Counterclockwise

   By counting the number of drops per minute in the sight dome, you can adjust to your requirements.

   Mist lubricator — Every drop visible in the sight dome goes downstream.

   25 drops per minute equals one (1) ounce per hour - volume of oil passing through the sight dome.

   NOTE: This is a constant density type lubricator which delivers a constant ratio of oil air flow. Therefore, if air flow increases or decreases, oil delivery will be adjusted proportionately. ONLY IF A DIFFERENT RATIO IS DESIRED SHOULD YOUR ADJUSTMENT KNOB SETTING BE CHANGED AFTER YOUR INITIAL SETTING.

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Service Procedure

⚠ **Caution: Shut off air supply and exhaust the pressure trapped within the lubricator bowl before servicing unit.**

1. Filling — The Mist lubricator can be filled without turning off the upstream pressure. Slowly remove the fill plug (gold) by turning counterclockwise. This allows the bowl pressure to vent.

   Suggested lubricant: F442

   Petroleum based oil of 100 to 200 SSU viscosity at 100°F and an aniline point greater than 200°F. (Mobil DTE24 and Sun Company Sunvis 932 are good examples). Do not use oils with adhesives, compound oils containing solvents, graphite, detergents or synthetic oils.
2. Replace the fill plug (by turning clockwise) and seat firmly. Excessive torque is not required.
3. To replace fill plug, drip control, & service lubricator:
   A. Turn off air supply and depressurize the unit.
   B. Refer to pictorial for servicing and torque values.
   C. Turn on air supply and check lubricator for leakage. If leakage occurs, **DO NOT OPERATE** — conduct repairs again.
4. To install sight glass (32 oz. bowl):

   Step 1 - Install elbow fittings as shown, use pipe sealant on 1/8" NPT male threads.

   Install ferrules and nuts as shown.

   Position elbow fittings as shown.

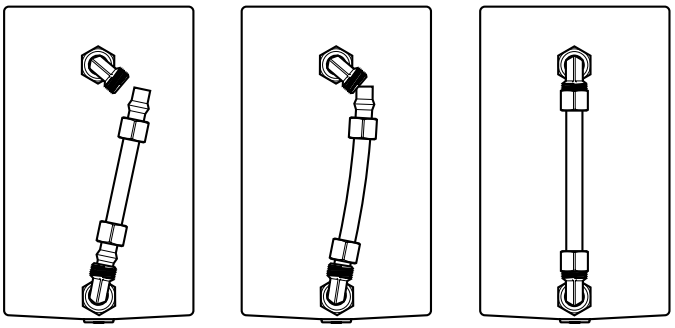
   Insert sight glass into bottom elbow fitting as shown (Do not thread lower nut to elbow until Step 3).

   Step 2 - Flex sight glass and position top elbow fitting to allow sight glass to slip into top fitting.

   Be careful not to flex sight glass too much.

   Step 3 - Carefully position elbow fitting as shown.

   Tighten ferrule nuts after positioning elbows vertically as shown. (Snug nut to ferrule then turn 1/4 turn more).



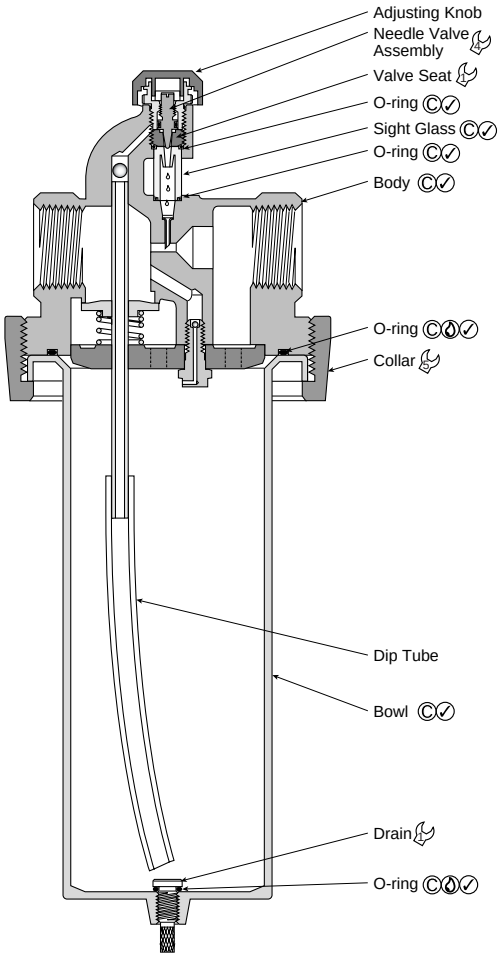
Lightly grease with provided lubricant.

Inspect for nicks, scratches, and surface imperfections. If present, reduced service life is probable and future replacement should be planned.

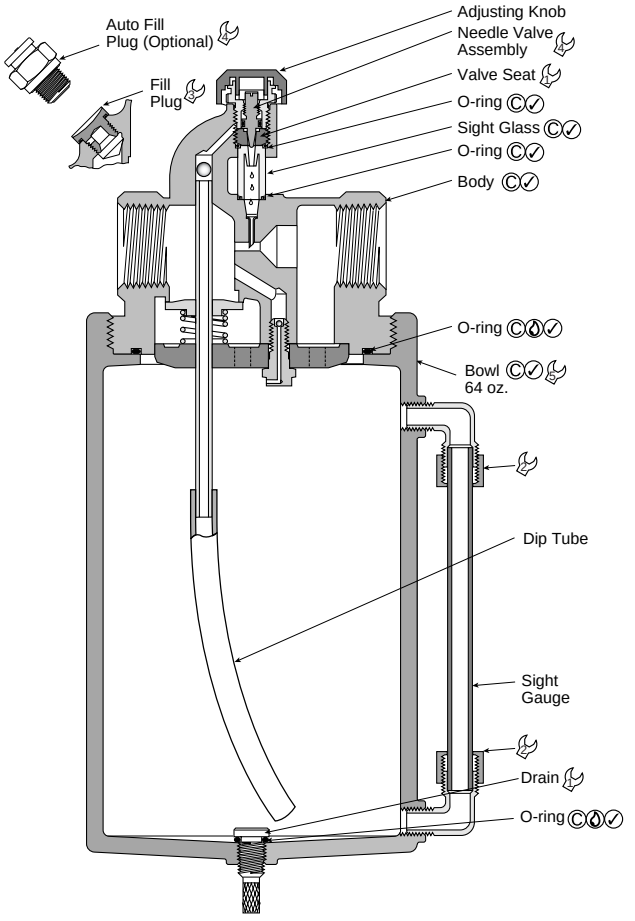
Clean with lint-free cloth.

Torque: Nm (In.-Lb.)

1. Hand Tight
2. Snug plus 1/4 turn
3. 1,1 to 2,3 Nm (10 to 20 in. lb.)
4. 6,8 to 7,9 Nm (60 to 70 in. lb.)
5. 14,1 to 16,9 Nm (125 to 150 in. lb.)



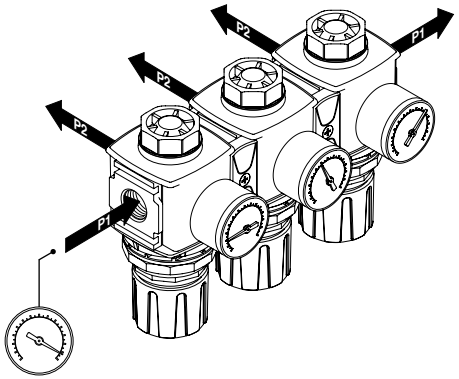
PL606 Lubricator with 32 oz. Bowl



PL606 Lubricator with 64 oz. Bowl

P31 Mini + P32 Compact

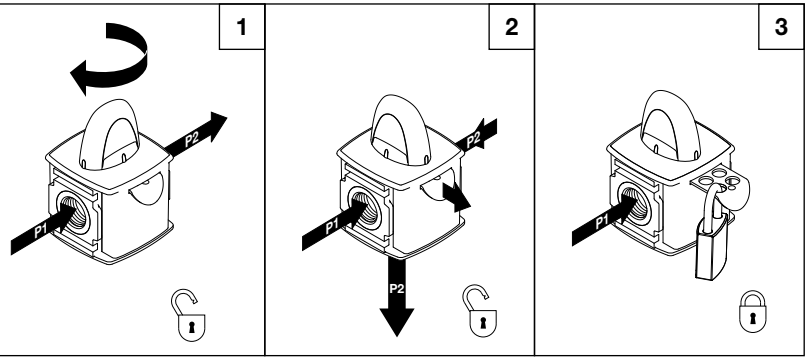
(UK) Common Ported Regulators
(CN) 汇流型减压阀
(FR) Régulateurs à orifices communs
(DE) Regler mit allgemeinen Anschlüssen
(IT) Regolatori con porte comuni
(JP) 共通ポートレギュレータ
(KR) 공통급기 레귤레이터
(ES) Reguladores de boca común
(SE) Sammanbyggda regulatorer



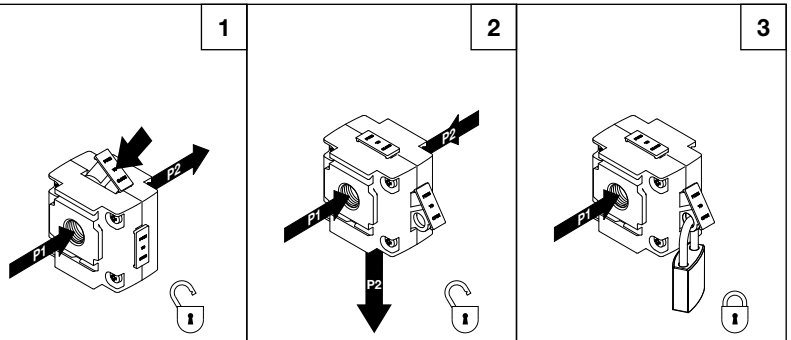
Safety Lockout Valves

(UK) Safety Lockout Valves
(CN) 可锁定安全阀
(FR) Distributeurs verrouillables
(DE) Sicherheitsabschaltventile
(IT) Valvole di bloccaggio di sicurezza
(JP) セーフティーロックアウトバルブ
(KR) 안전 잠압 배기밸브
(ES) Válvulas de bloqueo - seguridad
(SE) Säkerhetsavstängningsventiler

(UK) Ball Valve
(CN) 球阀
(FR) Vanne à boisseau
(DE) Kugelventil
(IT) Valvola a sfera
(JP) ボールバルブ
(KR) 볼밸브
(ES) Válvula de bola
(SE) Kulventil



(UK) Slide Valve
(CN) 截止阀
(FR) Tiroir
(DE) Schieberventil
(IT) Valvola scorrevole
(JP) スライドバルブ
(KR) 슬라이드밸브
(ES) Válvula de corredera
(SE) Slidventil



5FRL100 Rev. 3
www.parker.com
EN100698

Global Air Preparation System

Parker

(UK) ⚠ WARNING

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- Disconnect air supply and depressurize all air lines connected to this product before installation, servicing or conversion.
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- Medium must be moisture-free if ambient temperature is below freezing.
- Service according to procedures listed in these instructions.
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(UK) ⚠ WARNING

FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS AND/OR SYSTEMS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.

This document and other information from the Company, its subsidiaries and authorised distributors provide product and/or system options for further investigation by users having technical expertise. It is important that you analyze all aspects of your application, including consequences of any failure and review the information concerning the product or systems in the current product catalogue. Due to the variety of operating conditions and applications for these products or systems, the user, through its own analysis and testing, is solely responsible for making the final selection of the products and systems and assuring that all performance, safety and warning requirements of the application are met.

The products described herein, including without limitation, product features, specifications, designs, availability and pricing, are subject to change by The Company and its subsidiaries at any time without notice.

(UK) ⚠ CAUTION

Polycarbonate bowls, being transparent and tough, are ideal for use with Filters and Lubricators. They are suitable for use in normal industrial environments, but should not be located in areas where they could be subjected to direct sunlight, an impact blow, nor temperatures outside of the rated range. As with most plastics, some chemicals can cause damage. Polycarbonate bowls should not be exposed to chlorinated hydrocarbons, ketones, esters and certain alcohols. They should not be used in air systems where compressors are lubricated with fire-resistant fluids such as phosphate ester and diester types.

Metal bowls are recommended where ambient and/or media conditions are not compatible with polycarbonate bowls. Metal bowls resist the action of most such solvents, but should not be used where strong acids or bases are present or in salt laden atmospheres. Consult the factory for specific recommendations where these conditions exist.

TO CLEAN POLYCARBONATE BOWLS USE MILD SOAP AND WATER ONLY! DO NOT use cleansing agents such as acetone, benzene, carbon tetrachloride, gasoline, toluene, etc., which are damaging to this plastic.

(UK) Safety Guide

For more complete information on recommended application guidelines, see the Safety Guide section of Pneumatic Division catalogues or you can download the Pneumatic Division Safety Guide at: *www.parker.com/safety*

(UK) ⚠ WARNING

To avoid polycarbonate bowl rupture that can cause personal injury or property damage, do not exceed bowl pressure or temperature ratings. Polycarbonate bowls have a 150 PSIG (10 bar) pressure rating and a maximum temperature rating of 125°F (52°C).

EXTRA COPIES OF THESE INSTRUCTIONS ARE AVAILABLE FOR INCLUSION IN EQUIPMENT / MAINTENANCE MANUALS THAT UTILIZE THESE PRODUCTS. CONTACT YOUR LOCAL REPRESENTATIVE.

(CN) ⚠ 警告

为避免不可预测的系统运作而导致人身伤害和资产损害：

- 安装，维修和改动前必须断开电源供应；
- 安装，维修和改动前必须断开气源供应，释放连接该产品的管路压力；
- 必须在厂商所指定的压力，温度和其他使用说明书中注明的环境条件下操作使用；
- 在环境温度低于零下时介质必须是无油的；
- 根据使用说明书中厂商推荐的程序保养；
- 必须由气动专业人士来安装，维护和改动产品；
- 安装，维修，改动后，气源和电气需要连接，并测试产品功能及是否有泄漏。如果有可听到的泄漏声或操作不正确，不可投入使用；
- 产品上的警示和规范不能被油漆等覆盖。如果标签不清晰，请联系相关人员更换标签。

(CN) ⚠ 警告

错误或者不正确地选择和使用产品以及错误地描述相关产品信息有可能会导致死亡，人身伤害和财产损失。

这个文件和另外的信息来自公司总部，它是给分销商补充和授权产品或者系统的选项，是给用户调查研究用的技术资料。分析你的所有应用，包括任何一旦发生错误的后果并在现有的产品目录中阅读相关产品或系统信息，对于您来说都是非常有必要的。由于操作环境和产品或系统的使用是多样性的，用户通过自己的分析和测试，对最终产品和系统选择负有绝对责任，并需要确保所有产品的性能，安全和应用时需要注意的问题都已满足。

这里提到的产品，包括无限制性，产品特性，说明书，设计，实用性和价格可由公司总部及其下属公司在没有通知的情况下改变。

(CN) ⚠ 注意

碳酸聚酯水杯是透明坚固的，是过滤器和油雾器的理想选择。适合一般工业环境应用，但是不适用于那些阳光直射，冲击和户外温差大的场合。因为含有大量塑料，某些化学物质会损伤水杯。碳酸聚酯水杯不能暴露于碳氢化合物，酮，酯和某些酒精。此类杯体不能应用于被防火型液体，如，碳酸盐酯和二酯类润滑过的空压机的气动系统中。

在那些不适合碳酸聚酯水杯的环境中，推荐使用金属水杯。金属水杯能抵抗大多数溶解剂，但是不能用在强酸，含盐的场所。对于特殊场合请咨询工厂。

只能使用温和肥皂水和清水洗涤碳酸聚酯水杯。不能使用丙酮，苯，四氯化碳，汽油，甲苯等清洁剂，这会直接损害塑料。

(CN) 安全指南

更多完整的推荐应用指导信息，请见气动样本中的安全指南部分或者可以在气动部门安全指南网站下载资料：www.parker.com/safety

(CN) ⚠ 警告

为了避免碳酸聚酯水杯破裂而导致的人身或财产损害，不能使用超过水杯的压力和温度范围。碳酸聚酯水杯最高承受 150 PSIG (10bar)压力和最高 125°F (52°C)的温度。

如需多份涉及这些产品维修/操作指南的使用说明书。请联系当地办事处。

(FR) ⚠ MISE EN GARDE

Afin de prévenir tout comportement imprévisible du système pouvant entraîner des accidents et des dommages matériels :

- **Débrancher l'alimentation électrique (s'il y a lieu) avant de procéder à l'installation, à l'entretien ou à la transformation.**
- **Débrancher l'approvisionnement en air et mettre hors pression toutes les conduites d'air de ce produit avant de procéder à l'installation, à l'entretien ou à la transformation.**
- **Faire fonctionner dans les conditions de pression, de température et autres qui sont indiquées dans ces instructions.**
- **Si la température ambiante est inférieure au point de congélation, le fluide doit être exempt d'humidité.**
- **Effectuer l'entretien conformément aux procédures qui sont indiquées dans ces instructions.**
- **L'installation, l'entretien et la transformation de ces produits doivent être effectués par des personnes familiarisées avec les produits pneumatiques.**
- **Après l'installation, l'entretien ou la transformation, rétablir l'alimentation électrique ainsi que l'approvisionnement en air (s'il y a lieu) et tester le produit afin de s'assurer qu'il fonctionne bien et qu'il n'y a pas de fuites. Si une fuite s'entend ou si le produit ne fonctionne pas correctement, ne pas le mettre en service.**
- **Les mises en garde et les indications portées sur le produit ne doivent pas être recouvertes par de la peinture, etc. Si le masquage n'est pas possible, contacter le représentant local pour obtenir des étiquettes de remplacement.**
- **Les mises en garde et les indications portées sur le produit ne doivent pas être recouvertes par de la peinture, etc. Si le masquage n'est pas possible, contacter le représentant local pour obtenir des étiquettes de remplacement.**

(FR) ⚠ MISE EN GARDE

LA NON OBSERVATION D'INSTRUCTIONS OU LA SÉLECTION IMPROPRE OU L'USAGE INAPPROPRIÉ DES PRODUITS ET/OU DES SYSTÈMES DÉCRITS AUX PRÉSENTES, OU ARTICLES CONNEXES, PEUVENT ENTRAÎNER LA MORT, DES PRÉJUDICES CORPORELS ET/OU DES DOMMAGES MATÉRIELS.

Le présent document et toute autre information provenant de la Société, de ses filiales et distributeurs agréés se réfèrent à des produits et/ou des systèmes pouvant faire l'objet de tests et de contrôles de la part d'utilisateurs compétents, possédant une expertise technique. Il est important que vous analysiez tous les aspects de votre application, notamment les conséquences d'une défaillance, et étudiiez les informations concernant le produit ou les systèmes qui figurent dans le catalogue actuel. Compte tenu de la variété des conditions d'exploitation et des applications inhérentes à ces produits et/ou systèmes, l'utilisateur est, par le biais de ses propres analyses et tests, seul responsable de la sélection finale desdits produits et/ou systèmes et s'engage à ce que son application réponde à tous les critères relatifs aux performances, à la sécurité et aux mises en garde.

Les produits décrits aux présentes, y compris et sans limitation, les caractéristiques produit, les spécifications, les conceptions, la disponibilité et les prix, peuvent faire l'objet de modifications par la Société et ses filiales, à tout moment et sans préavis.

(FR) ⚠ ATTENTION

Durs et transparents, les bols en polycarbonates sont parfaitement indiqués pour l'utilisation dans les filtres et les lubrificateurs. Ils sont compatibles avec les milieux industriels normaux mais ne doivent pas être placés dans des lieux où ils pourraient être exposés à la lumière directe du soleil, à des chocs ou à des températures situées en-dehors de leur plage d'utilisation nominale. Comme la plupart des plastiques, cette matière peut être endommagée par certains produits chimiques. Les bols en polycarbonate ne doivent pas être exposés aux hydrocarbures chlorés, aux cétones, aux éthers et à certains alcools. Ils ne doivent pas être utilisés dans des systèmes pneumatiques dont les compresseurs sont lubrifiés par des fluides résistant au feu tels que les esters et diesters de phosphate.

Les bols métalliques sont recommandés lorsque le milieu et/ou le fluide sont incompatibles avec les bols en polycarbonates. Les bols métalliques sont résistants à la plupart de ces solvants mais ne doivent pas être utilisés en milieu fortement acide ou basique, ou en atmosphère salée. Si de telles conditions prévalent, adressez-vous au fabricant afin d'obtenir des recommandations spécifiques.

NETTOYER LES BOLS EN POLYCARBONATE UNIQUEMENT À L'EAU ET AU SAVON DOUX ! NE PAS utiliser d'agents nettoyants tels que l'acétone, le benzène, le tétrachlorure de carbone, l'essence, le toluène, etc., qui endommageraient ce plastique.

(FR) Guide de sécurité

Pour obtenir de plus amples informations sur les directives à appliquer recommandées, prière de vous reporter à la section Guide de sécurité des catalogues de la Pneumatic Division ou de télécharger le Guide de sécurité de la Pneumatic Division sur le site : www.parker.com/safety

(FR) ⚠ MISE EN GARDE

Pour éviter que le bol de polycarbonate se rompe et provoque des préjudices corporels ou des dommages matériels, ne pas dépasser les limites maximales de pression et de température, à savoir 150 PSIG (10 bar) et 125 °F (52°C).

DES EXEMPLAIRES DE CES INSTRUCTIONS SONT DISPONIBLES POUR INSERTION DANS LE MATÉRIEL OU LES MANUELS D'ENTRETIEN QUI UTILISENT CES PRODUITS. VEUILLEZ CONTACTER VOTRE REPRÉSENTANT LOCAL.

(DE) ⚠ WARNUNG

Als Schutz vor unvorhersehbarem Systemverhalten, das zu Verletzungen und Sachschäden führen kann, sind folgende Maßnahmen zu ergreifen:

- **Vor Einbau, Servicearbeiten oder Umbau gegebenenfalls die Stromversorgung unterbrechen.**
- **Vor Einbau, Servicearbeiten oder Umbau die Druckluftversorgung unterbrechen und alle an das Produkt angeschlossenen Luftleitungen vom Druck befreien.**
- **Im Betrieb sind die vom Hersteller angegebenen Druck- und Temperaturbereiche und die übrigen in der Betriebsanleitung aufgeführten Betriebsbedingungen einzuhalten.**
- **Das Betriebsmedium muss bei Umgebungstemperaturen unter dem Gefrierpunkt absolut trocken sein.**
- **Servicearbeiten sind gemäß den in diesem Handbuch aufgeführten Vorgehensweisen durchzuführen.**
- **Einbau, Servicearbeiten und Umbau dieser Produkte dürfen nur von geschulten Mitarbeitern vorgenommen werden, die über gute Kenntnisse beim Einsatz von Pneumatikprodukten verfügen.**
- **Nach Einbau, Servicearbeiten oder Umbau ist die Strom- und Druckluftversorgung bei Bedarf wieder anzuschließen und das Produkt einer sorgfältigen Dichtigkeits- und Funktionsprüfung zu unterziehen. Wenn eine hörbare Undichtigkeit vorliegt oder das Produkt nicht einwandfrei funktioniert, darf es nicht in Betrieb genommen werden.**
- **Warntexte und technische Angaben auf dem Produkt dürfen nicht durch Farbe oder dgl. verdeckt sein. Wenn sich die Schilder nicht abdecken lassen, hält der Händler vor Ort neue Schilder bereit.**

(DE) ⚠ WARNUNG

DURCH DAS VERSAGEN ODER DIE UNSACHGEMÄSSE AUSWAHL ODER VERWENDUNG DER HIER BESCHRIEBENEN PRODUKTE UND/ODER SYSTEME ODER DAMIT IN VERBINDUNG STEHENDER GERÄTE KANN ES ZU TODESFÄLLEN, VERLETZUNGEN UND SACHBESCHÄDIGUNGEN KOMMEN.

Dieses Dokument und andere Information der Parker Hannifin Corporation, ihrer Niederlassungen und autorisierten Händler stellt Produkt- und/oder Systemoptionen zur Verfügung, die durch einen Anwender mit entsprechenden technischen Kenntnissen vor dem Einsatz auf Eignung überprüft werden müssen. Es ist wichtig, dass alle Aspekte der Anwendung analysiert und die produkt- oder systemrelevanten Angaben dieses Produktkatalogs überprüft werden. Aufgrund der Vielfältigkeit von Betriebsbedingungen und Einsatzbereichen dieser Produkte oder Systeme ist der Anwender, in Form von eigenen Analysen und Tests, allein verantwortlich für die endgültige Auswahl des Produkts bzw. Systems. Er muss sicherstellen, dass alle Leistungsmerkmale, Sicherheits- und Warnhinweise für den jeweiligen Einsatzbereich erfüllt sind.

Die hier beschriebenen Produkte, einschließlich aller Angaben zu Produktmerkmalen, Spezifikationen, Konstruktionen, Verfügbarkeit und Preisgestaltung, können jederzeit, ohne Ankündigung und uneingeschränkt von der Parker Hannifin Corp. und ihren Niederlassungen geändert werden.

(DE) ⚠ BITTE BEACHTEN

Transparente und robuste Behälter aus Polycarbonat eignen sich bestens für Filter und Schmiergeräte. Sie sind für den Einsatz unter normalen Industriebedingungen vorgesehen, sollten jedoch nicht direkter Sonneneinstrahlung oder Stößen ausgesetzt und nur innerhalb des angegebenen Temperaturbereichs benutzt werden. Wie alle Kunststoffe können sie durch gewisse Chemikalien beschädigt werden. Behälter aus Polycarbonat sollten weder Chlorkohlenwasserstoffen noch Ketonen, Estern oder gewissen Alkoholen ausgesetzt werden. Sie sollten auch nicht in Drucklufsystemen eingesetzt werden, deren Kompressoren mit feuerfesten Flüssigkeiten wie z.B. Phosphatester oder Di-Ester geschmiert werden.

Metallbehälter werden empfohlen, wenn Polycarbonatbehälter aufgrund der Umgebungsbedingungen und der verwendeten Medien nicht verwendet werden dürfen. Metallbehälter widerstehen den meisten dieser Lösungsmittel, sollten jedoch keinen starken Säuren oder Basen ausgesetzt oder in salzhaltigen Umgebungen eingesetzt werden. Setzen Sie sich bei Einsätzen unter diesen Umgebungsbedingungen bitte mit dem Hersteller in Verbindung.

ZUR REINIGUNG VON POLYCARBONAT-BEHÄLTERN DÜRFEN AUSSCHLIESSLICH MILDE SEIFENLÖSUNGEN UND WASSER VERWENDET WERDEN! KEINE Reinigungsmittel wie Azeton, Benzol, Tetrachlorkohlenstoff, Benzin, Methylbenzol und dgl. verwenden, da diese den Kunststoff angreifen.

(DE) Sicherheitshinweise

Ausführlichere Informationen über Richtlinien in Bezug auf die empfohlenen Einsatzbereiche siehe Sicherheitshinweise der Kataloge der Pneumatic Division, die hier auch heruntergeladen werden können: www.parker.com/safety

(DE) ⚠ WARNUNG

Damit der Polycarbonatbehälter nicht platzt und Verletzungen oder Sachbeschädigungen verursacht, sind die Richtwerte für Behälterdruck und Temperatureinstellung nicht zu überschreiten. Polycarbonatbehälter sind für einen Nenndruck von 10 bar und eine Höchsttemperatur von 52°C ausgelegt.

DES EXEMPLAIRES DE CES INSTRUCTIONS SONT DISPONIBLES POUR INSERTION DANS LE MATÉRIEL OU LES MANUELS D'ENTRETIEN QUI UTILISENT CES PRODUITS. VEUILLEZ CONTACTER VOTRE REPRÉSENTANT LOCAL.

(IT) ⚠ ATTENZIONE

Per evitare comportamenti imprevedibili del sistema che possono provocare lesioni personali e danni alle cose:

- **Scollegare l'alimentazione elettrica (se necessario) prima di installazione, manutenzione o conversione.**
- **Scollegare l'alimentazione dell'aria e depressurizzare tutte le condutture collegate al prodotto prima di installazione, manutenzione o conversione.**
- **Utilizzare il prodotto alla pressione, alla temperatura e alle altre condizioni specificate in queste istruzioni.**
- **Il mezzo deve essere privo di condensa se la temperatura ambiente è inferiore al punto di congelamento.**
- **Effettuare la manutenzione secondo le procedure specificate in queste istruzioni.**
- **Installazione, manutenzione e conversione di questi prodotti devono essere effettuate da personale competente relativamente al funzionamento dei prodotti pneumatici.**
- **Dopo installazione, manutenzione o conversione, ricollegare le alimentazioni dell'aria ed elettrica (se necessario) e verificare che il prodotto funzioni correttamente e non vi siano perdite. In caso di perdita o funzionamento anomalo del prodotto, non utilizzarlo.**
- **Le avvertenze e le specifiche sul prodotto non devono essere coperte da vernice ecc. Qualora siano illeggibili, contattare il proprio rappresentante locale per le targhette di ricambio.**

(IT) ⚠ ATTENZIONE

LA SCELTA OPPURE L'UTILIZZO ERRATO DEI PRODOTTI E/O SISTEMI IVI DESCRITTI OPPURE DEGLI ARTICOLI CORRELATI PUÒ PROVOCARE GRAVI LESIONI PERSONALI, MORTE E DANNI ALLE COSE.

Il presente documento ed altre informazioni fornite dall'azienda, relative affiliate e distributori autorizzati propongono opzioni di prodotti e/o sistemi il cui utilizzo deve essere valutato da utenti in possesso delle competenze tecniche necessarie. E' importante analizzare ogni aspetto della propria applicazione, comprese le conseguenze in caso di guasto, nonché valutare le informazioni relative al prodotto o sistema contenute nel presente catalogo di prodotti. In seguito alla varietà di condizioni di esercizio ed applicazioni per questi prodotti o sistemi, l'utente, con le proprie valutazioni ed i propri test, è l'unico responsabile della scelta finale di prodotti e sistemi nonché di accertarsi che tutti i requisiti di prestazioni, sicurezza e normativi dell'applicazione siano soddisfatti.

I prodotti ivi descritti, inclusi ma non limitati a, caratteristiche dei prodotti, specifiche, design, disponibilità e prezzo, sono soggetti a modifiche senza preavviso da parte dell'azienda e delle relative affiliate.

(IT) ⚠ ATTENZIONE

Le vaschette in policarbonato, trasparenti e robuste, sono ideali per l'uso con filtri e lubrificatori. Sono indicate per l'uso in normali ambienti industriali, ma non devono essere collocate in aree esposte a luce solare diretta, urti o temperature al di fuori del range indicato. Come molte plastiche, alcune sostanze chimiche possono provocare danni. Le vaschette in policarbonato non devono essere esposte a idrocarburi, chetoni, esteri e determinati alcool. Non devono essere utilizzate in impianti pneumatici con compressori lubrificati con fluidi ignifughi come esteri e diesteri di fosfati.

Qualora le condizioni ambientali e/o il mezzo non siano compatibili con le vaschette in policarbonato, si raccomanda l'uso di vaschette metalliche. Le vaschette metalliche resistono alla maggior parte di questi solventi, ma non devono essere utilizzate in presenza di acidi o basi forti oppure in ambienti estremamente salini. Consultare la fabbrica per le eventuali raccomandazioni specifiche.

PER LA PULIZIA DELLE VASCHETTE IN POLICARBONATO, UTILIZZARE ESCLUSIVAMENTE ACQUA E SAPONE NEUTRO! NON utilizzare detergenti quali acetone, benzene, tetracloruro di carbonio, benzina, toluene ecc. che possono danneggiare la plastica.

(IT) Guida alla sicurezza

Per informazioni più complete sulle linee guida di applicazione raccomandate, consultare la sezione Guida alla sicurezza dei cataloghi Pneumatic Division o scaricare la guida all'indirizzo: www.parker.com/safety

(IT) ⚠ ATTENZIONE

Per evitare la rottura delle vaschette in policarbonato e conseguenti lesioni personali o danni alle cose, non superare la pressione o la temperatura nominale della vaschetta. Le vaschette in policarbonato hanno una pressione nominale di 150 PSIG (10 bar) e una temperatura massima di 125°F (52°C).

ULTERIORI COPIE DI QUESTE ISTRUZIONI SONO DISPONIBILI A INTEGRAZIONE DEI MANUALI DI USO / MANUTENZIONE PER GLI UTENTI DI QUESTI PRODOTTI. CONTATTARE IL PROPRIO RAPPRESENTANTE LOCALE.

(JA) ⚠ 警告

人が障害を負う危険が生じる、また物的障害が起こりうる予想外のシステム障害を避けるために：

- 機器の取り付け、取り扱いもしくは交換の前に電源を落としてください。
- 機器の取り付け、取り扱いもしくは交換前に全ラインの圧縮空気の供給を止め、ライン内の圧縮空気を排出してください。
- 圧力、使用温度やコネクション等が説明書に記載されている範囲で機器を使用ください。
- 外気が0度以下の場合、完全に乾燥した空気を供給してください。
- 説明書の記載通りに機器の操作を行ってください。
- 機器の取り付け、取り扱い、交換は空気圧機器の十分な知識と経験を持った人が行ってください。
- 機器の取り付け、取り扱い、交換後に電源、圧縮空気を入れ機器が正しく作動するか、空気漏れがないかを確認してください。もし空気漏れが聞こえる場合や機器が適切に作動しない場合、電源、圧縮空気を止めてください。
- "警告" や仕様の詳細は機器に記載されていません。もし必要な場合は最寄りの Parker、当社子会社にラベルを依頼してください。

(JA) ⚠ 警告

本文書に記載した製品、あるいは関連した物品を、正しく選定しなかったり、使い方を誤ったりすれば死亡事故や、怪我、そして物的損害を引き起こす可能性があります。

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この商品はこの文書で説明されている商品の特徴、仕様、デザイン、入手の可能性、価格は Parker、そして当社の子会社や正規販売業者からの通達なく変更される場合があります。

(JA) ⚠ 注意

透明で頑丈なポリカーボネート製ボウルはフィルタとルブリケータとの使用が理想です。プラスチックボウルは一般的な工業環境に適していますが、直射日光が当たる環境、強風の環境、仕様範囲外の温度での使用は避けてください。多くのプラスチックと同じようにいくつかの化学物質はボウルの損傷させます。ポリカーボネイトボウルは塩素化炭化水素、ケトン、エステル、いくつかのアルコール物質の環境では使用できません。ボウルはホスファターゼエステルやジェステルタイプの耐火性潤滑油を使用したコンプレッサからの供給エアを使用ください。

メタルボウルはポリカーボネイト製ボウルと使用温度、使用流体状況が同じでないことを奨励します。メタルボウルは大概の溶剤に耐性がありますが、強酸や塩の環境での使用は避けてください。そのような環境がある場合当社までお問合せください。

ポリカーボネートボウルの洗浄には中性石鹸や水を使用ください。アセトン、ベンジン、炭素四塩化物、ガソリン、トルエン等の洗浄液の使用はしないでください。プラスチック不具合発生の可能性があります。

(JA) 注意事項

より詳細の奨励されるアプリケーションの指針は当社カタログの注意事項をご参照ください。もしくは以下から空気圧機器注意事項がダウンロードできます。www.parker.com/safety

(JA) ⚠ 警告

人が障害を負う、また物的損害の可能性があるポリカーボネートボウルの破損を避ける為に、使用範囲圧力、温度範囲以上での使用はしないでください。 ポリカーボネートボウルの最高使用圧力は1MPa、最高使用温度は52℃です。

上記以外のメンテナンスマニュアルを含む説明書が必要な場合最寄の Parker 、そして当社の子会社や正規販売業者に連絡してください。

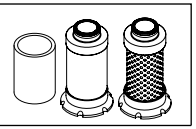
(UK) Kits (CN) 维修包 (FR) Kits (DE) Sätze (IT) Kit (JP) キット (KR) 킷트 (ES) Juegos (SE) Satser

(UK) Filter Element Kits (CN) 滤芯维修包 (FR) Kits élément filtrant (DE) Filtersätze (IT) Kit elementi filtranti (JP) フィルタエレメントキット (KR) 필터 엘리먼트 (ES) Juegos de elementos de filtro (SE) Filterelementsatser

	P31 Mini	P32 Compact	P33 Standard
(UK) 5 micron Particle Filter (CN) 5 微米 颗粒过滤 (FR) 5 microns Filtre à particules (DE) 5 µ Partikelfilter (IT) 5 micron Filtro antiparticolato (JP) 5 ミクロン 粒子フィルタ (KR) 5 마이크론 분진 필터 (ES) 5 micras Filtro de partículas (SE) 5 mikron Partikelfilter	P31KA00ESE	P32KA00ESE	P33KA00ESE
(UK) 1 micron Coalescing Filter (CN) 1 微米 絵结式过滤 (FR) 1 microns Filtre coalescent (DE) 1 µ Sinterfilter (IT) 1 micron Filtro a coalescenza (JA) 1 ミクロン コアレッシングフィルタ (KR) 1 마이크론 콜렉싱 필터 (ES) 1 micras Filtro coalescente (SE) 1 mikron Coalescingfilter	P31KA00ES9	P32KA00ES9	P33KA00ES9
(UK) 0.01 micron Coalescing Filter (CN) 0.01 微米 絵结式过滤 (FR) 0.01 microns Filtre coalescent (DE) 0.01 µ Sinterfilter (IT) 0.01 micron Filtro a coalescenza (JP) 0.01 ミクロン コアレッシングフィルタ (KR) 0.01 마이크론 콜렉싱 필터 (ES) 0.01 micras Filtro coalescente (SE) 0.01 mikron Coalescingfilter	P31KA00ESC	P32KA00ESC	P33KA00ESC
(UK) Adsorber Filter (CN) 吸附式过滤 (FR) Filtre adsorbant (DE) Adsorberfilter (IT) Filtro ad assorbimento (JP) アブソーバフィルタ (KR) 흡입재 필터 (ES) Filtro absorbente (SE) Adsorptionsfilter	P31KA00ESA	P32KA00ESA	P33KA00ESA

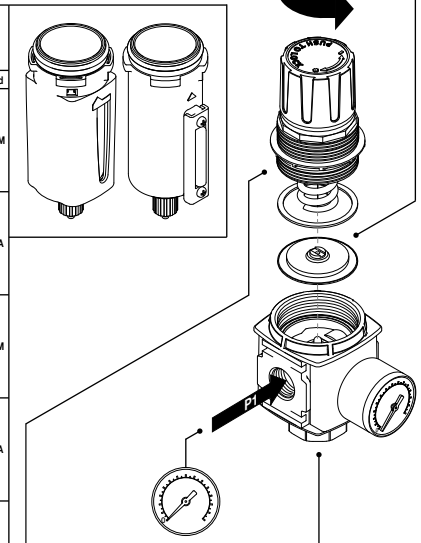
(UK) Regulator + Filter/Regulator Repair Kits (CN) 调压阀+过滤器/调压阀维修包 (FR) Kits de réparation Régulateur + Filtre/Régulateur (DE) Reparatursätze Regler + Filter/Regler (IT) Kit di riparazione regolatore + filtro/regolatore (JP) レギュレータ+フィルタ/レギュレータリペアキット (KR) 레귤레이터/필터-레귤레이터 교환부품 (ES) Juegos de reparación de regulador + filtro/regulador (SE) Regulator + repsats för filter/regulator

	(UK) Relieving (ZH) 溢流型 (FR) Décompression (DE) mit Entlüftung (IT) Con scarico (JA) リリーフタイプ (KO) 릴리프 타입 (ES) Con descarga (SE) Avlastning	(UK) Non-Relieving (ZH) 非溢流型 (FR) Sans décompression (DE) ohne Entlüftung (IT) Senza scarico (JA) ノンリリーフタイプ (KO) 논-릴리프 타입 (ES) Sin descarga (SE) Ingen avlastning
P31 Mini	P31KA00RC	P31KA00RH
P32 Compact	P32KA00RC	P32KA00RH
P33 Standard	P33KA00RC	P33KA00RH



(UK) Bowl/Drain Kits (CN) 水杯/排水包 (FR) Kits cuve/purge (DE) Behälter-/Entleerungssätze (IT) Kit vaschetta/drenaggio (JP) ボウル/ドレンキット (KR) 보울/드레인 킷트 (ES) Juegos de recipiente/drenaje (SE) Kärl/dräneringsatser

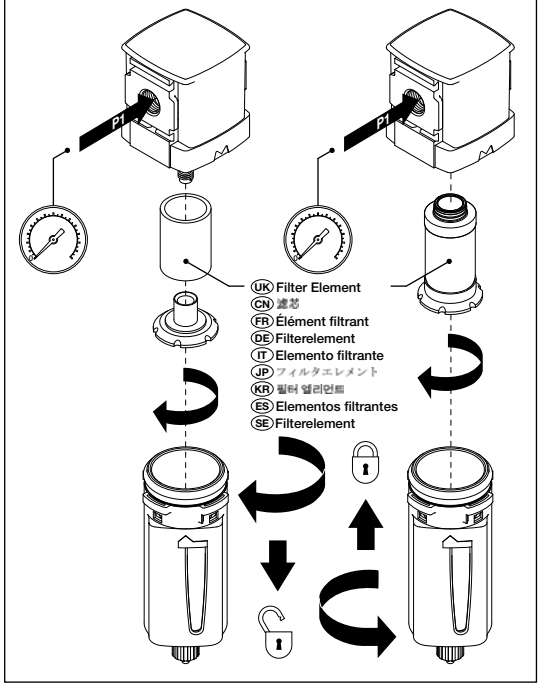
	P31 Mini	P32 Compact	P33 Standard
(UK) Plastic Bowl / Bowl Guard Manual Drain (CN) 塑料水杯 水杯保护装置 手动排水 (FR) Cuve en plastique / Enveloppe protectrice de cuve Purge manuelle (DE) Kunststoffbehälter / Schalenschutz Manuelle Entleerung (IT) Vaschetta in plastica / Protezione vaschetta Drenaggio manuale (JP) プラスチックボウル/ボウルガード マニュアルドレン (KR) 플라스틱 보울/ 보울가이드 수동 드레인 (ES) Recipiente plástico / Protector de recipiente Drenaje manual (SE) Plastkärl / Kärlskydd Manuell dränering	P31KA00BGM	P32KA00BGM	P33KA00BGM
(UK) Plastic Bowl / Bowl Guard Auto Drain (CN) 塑料水杯 水杯保护装置 自动排水 (FR) Cuve en plastique / Enveloppe protectrice de cuve Purge automatique (DE) Kunststoffbehälter / Schalenschutz Automatische Entleerung (IT) Vaschetta in plastica / Protezione vaschetta Drenaggio automatico (JP) プラスチックボウル/ボウルガード オートドレン (KR) 플라스틱 보울/ 보울가이드 자동 드레인 (ES) Recipiente plástico / Protector de recipiente Drenaje automático (SE) Plastkärl / Kärlskydd Automatisk dränering	-	P32KA00BGA	P33KA00BGA
(UK) Metal Bowl / Sight Gauge Manual Drain (CN) 金属水杯 带观测计 手动排水 (FR) Cuve métallique / Visualisation de niveau Purge manuelle (DE) Metallbehälter / Schauglas Manuelle Entleerung (IT) Vaschetta metallica / Indicatore Drenaggio manuale (JP) メタルボウル/レベルゲージ マニュアルドレン (KR) 메탈 보울/ 관측지 수동 드레인 (ES) Recipiente de metal / Mirilla Drenaje manual (SE) Metallkärl / Synglas Manuell dränering	-	P32KA00BSM	P33KA00BSM
(UK) Metal Bowl / Sight Gauge Auto Drain (CN) 金属水杯 带观测计 自动排水 (FR) Cuve métallique / Visualisation de niveau Purge automatique (DE) Metallbehälter / Schauglas Automatische Entleerung (IT) Vaschetta metallica / Indicatore Drenaggio automatico (JP) メタルボウル/レベルゲージ オートドレン (KR) 메탈 보울/ 관측지 자동 드레인 (ES) Recipiente de metal / Mirilla Drenaje automático (SE) Metallkärl / Synglas Automatisk dränering	-	P32KA00BSA	P33KA00BSA
(UK) Plastic Bowl / Bowl Guard No Drain (CN) 塑料水杯 水杯保护装置 无排水 (FR) Cuve en plastique / Enveloppe protectrice de cuve Sans purge (DE) Kunststoffbehälter / Schalenschutz Kein Abfluss (IT) Vaschetta in plastica / Protezione vaschetta Senza drenaggio (JP) プラスチックボウル/ボウルガード ノードレン (KR) 플라스틱 보울/ 보울가이드 드레인 없음 (ES) Recipiente plástico / Protector de recipiente Sin drenaje (SE) Plastkärl / Kärlskydd Ingen dränering	-	P32KA00BGN	P33KA00BGN
(UK) Plastic Bowl / Bowl Guard Pulse Drain (CN) 塑料水杯 水杯保护装置 半自动排水 (FR) Cuve en plastique / Enveloppe protectrice de cuve Purge à impulsions (DE) Kunststoffbehälter / Schalenschutz Impulsentleerung (IT) Vaschetta in plastica / Protezione vaschetta Drenaggio ad impulso (JP) プラスチックボウル/ボウルガード パルスドレン (KR) 플라스틱 보울/ 보울가이드 펄스 드레인 (ES) Recipiente plástico / Protector de recipiente Drenaje pulsado (SE) Plastkärl / Kärlskydd Pulsdränering	P31KA00BGB	-	-
(UK) Metal Bowl / without Sight Gauge Manual Drain (CN) 金属水杯 不带观测计 手动排水 (FR) Cuve métallique / Sans visualisation de niveau Purge manuelle (DE) Metallbehälter / Ohne Schauglas Manuelle Entleerung (IT) Vaschetta metallica / Senza indicatore Drenaggio manuale (JP) メタルボウル/レベルゲージ無し マニュアルドレン (KR) 메탈 보울/ 관측지 없이 수동 드레인 (ES) Recipiente de metal / Sin mirilla Drenaje manual (SE) Metallkärl / Utan synglas Manuell dränering	P31KA00BMM	P32KA00BMM	P33KA00BMM
(UK) Metal Bowl / without Sight Gauge Pulse Drain (CN) 金属水杯 不带观测计 半自动排水 (FR) Cuve métallique / Sans visualisation de niveau Purge à impulsions (DE) Metallbehälter/ Ohne Schauglas Impulsentleerung (IT) Vaschetta metallica / Senza indicatore Drenaggio ad impulso (JP) メタルボウル/レベルゲージ無し パルスドレン (KR) 메탈 보울/ 관측지 없이 펄스 드레인 (ES) Recipiente de metal /Sin mirilla Drenaje pulsado (SE) Metallkärl/ Utan synglas Pulsdränering	P31KA00SGM	-	-
(UK) Auto Drain (CN) 自动排水 (FR) Purge automatique (DE) Automatische Entleerung (IT) Drenaggio automatico (JP) オートドレン (KR) 자동 드레인 (ES) Drenaje automático (SE) Automatisk dränering	-	P32KA00DA	P32KA00DA



(UK) Torque Values (CN) 扭矩值 (FR) Couples (DE) Drehmomentwerte (IT) Coppie di serraggio (JP) 奨励トルク (KR) 조임 토르크 (ES) Valores del par de torsión (SE) Åtdragningsmoment

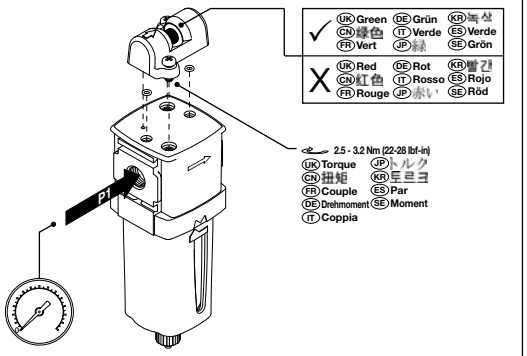
	P31 Mini	P32 Compact	P33 Standard
(UK) Bottom Plug (CN) 底部堵头 (FR) Bouchon de fond (DE) Bodenstopfen (IT) Tappo inferiore (JP) 底プラグ (KR) 하부 플러그 (ES) Tapón de fondo (SE) Bottenplugg	1/4 Turn	6.8 Nm 60 in. lbs.	6.8 Nm 60 in. lbs.
(UK) Bonnet (CN) 调节螺母 (FR) Capotage (DE) Ventilhals (IT) Involucro (JP) 盾 (KR) 본넷 (ES) Caperuza (SE) Bröst	13.6 Nm 120 in. lbs.	54.2 Nm 480 in. lbs.	54.2 Nm 480 in. lbs.

(UK) Filter Element Replacement (JP) フィルタエレメント交換
(CN) 替换滤芯 (KR) 필터 엘리먼트 교환
(DE) Austausch des Filterelements (ES) Recambio del elemento filtrante
(FR) Élément filtrant de remplacement (SE) Utbyteselement
(IT) Elemento filtrante di ricambio



P32 Compact + P33 Standard

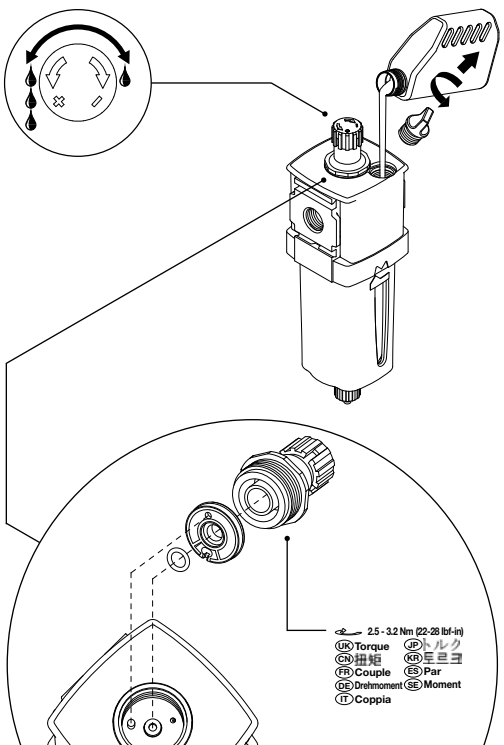
(UK) Filter DPI (DE) Filter DPI (KR) 필터 차압표시기
(CN) 过滤器压差显示器 (IT) FPI per filtro (ES) Filtro DPI
(FR) DPI filtre (JP) まりインジケータ (SE) Dp-indikator



(UK) DPI must be read under flow condition. Replace element when indicator is red under flow.
(CN) 压差指示器必须在有流量的情况下读出
指示器显示红色时替换滤芯
(FR) L'indicateur de différence de pression (DPI) doit être relevé quand l'air circule.
Remplacer l'élément filtrant lorsque l'indicateur est rouge sous le débit.
(DE) Der DPI-Wert ist unter Betriebsbedingungen abzulesen. Das Element austauschen, wenn die Anzeige im Betrieb rot ist.
(IT) Il DPI deve essere misurato sotto portata. Sostituire l'elemento quando l'indicatore è rosso sotto portata.
(JP) DPI は規定値以下にしてください。
表示が赤になり次第エレメントを交換してください。
(KR) DPI(차압표시기)는 에어가 공급되고 있는 상태에서 확인하야주십시요.
DPI(차압표시기)에 적색이 표시되면 필터 엘리먼트를교체하여 주십시요.
(ES) DPI debe ser leído con el caudal activo. Cambiar el elemento cuando el indicador está rojo.
(SE) Difftryckindikatorn skall avläsas i drift. Filtret skall bytas när indikatorn visar rött vid drift.

(UK) DPI Repair Kit	(FR) Kit de réparation d'indicateur de différence de pression	(IT) Kit di riparazione DPI	(ES) Juego de reparación DPI
(CN) 压差指示器维修包	(DE) DPI-Reparatursatz	(JP) DPI リペアキット	(SE) Reparationssats
		(KR) DPI 교환부품	P32KA00DM

(UK) Lubricator (DE) Schmiergerät (KR) 루브리게이터
(CN) 油雾器 (IT) Lubrificatore (ES) Lubricador
(FR) Lubrificateur (JP) ルブリケータ (SE) Dimsmörjare



(UK) Sight Dome Assembly (CN) 视窗安装包 (FR) Dôme de visualisation (DE) Einbau der Sichtkuppel (IT) Gruppo vetro spia (JP) サイトドームアッセンブリ (KR) 관측자 교환부품	(ES) Montaje de mirilla	(SE) Synglas
	(UK) Polycarbonate (CN) 聚碳酸酯 (FR) Polycarbonate (DE) Polycarbonat (IT) Policarbonato (JP) ポリカーボネィ (KR) 폴리카보네이트 (ES) Policarbonato (SE) Polykarbonat	(UK) Nylon (CN) 尼龙 (FR) Nylon (DE) Nylon (IT) Nylon (JP) ナイロン (KR) 나일론 (ES) Nailon (SE) Nylon
P31 Mini	P31KA00PG	P31KA00PH
P32 Compact	P32KA00PG	P32KA00PH
P33 Standard	P32KA00PG	P32KA00PH

(UK) Do not use oils with additives, compounds, oils containing solvents, graphite, detergents or synthetic oils.
(CN) 不能使用含添加剂，混合物，溶解剂，石墨，清洁剂的油或者合成油。
(FR) Ne pas utiliser d'huiles avec des additifs, contenant des solvants, du graphite, des détergents ou de l'huile synthétique.
(DE) Die nicht zusammen mit Additiven, Verbundstoffen lösungsmittelhaltigen Ölsorten, Graphit, Waschmitteln oder Synthetikölen benutzen.
(IT) Non utilizzare oli con additivi, oli compositi contenenti solventi, grafite, detergenti oppure oli sintetici.
(JP) 混合、合成、溶剤、黒鉛、洗浄剤を含んだオイルは使用しないでください。
(KR) 첨가제, 합성유, 세척액과 함께 사용하거나 솔벤트를 함유한 오일과 유사용할유를 사용하지 마십시요
(ES) No usar aceites con aditivos, compuestos, aceites con disolventes, grafito, detergentes ni aceites sintéticos.
(SE) Använd inte olja med tillsatser, kemiska föreningar, olja med lösningsmedel, grafit, rengöringsmedel eller syntetoljor.

(KR) ⚠ 경고

예상하지 못한 인체의 위해나 제품의 치명적인 손상을 미연에 방지하기 위한 목적입니다 :

- 필요에 의해 조립이나 수리 또는 개조를 할 때는 공급전원을 차단하여 주십시요.
- 필요에 의해 조립이나 수리 또는 개조를 할 때는 에어공급을 차단하여 주십시요.
- 동결을 방지하기 위해 완전 건조된 공기를 사용하여 주십시요.
- 동결을 방지하기 위해 완전 건조된 공기를 사용하여 주십시요..
- 수리를 위해 분해를 할 경우 취급설명서에 따라 주십시요..
- 조립이나 수리 또는 개조는 공기압에 대한 충분한 지식과 경험을 가진 사람이 해 주십시요.
- 조립이나 수리 또는 개조 후에는 압축공기와 전기를 접속하여 적절한 기능 검사 및 누설검사를 행해 주십시요. 만약 소리가 들릴 정도의 누설이 발생하거나 기기가 올바르게 작동하지 않는 경우는 사용하지 말고 바르게 조립되어 있는지 확인해 주십시요.
- 제품에 명시된 경고나 사양은 훼손되거나 가려져서는 안됩니다. 만약 불가피한 경우 담당 책임자에게 연락하여 주십시요.

(KR) ⚠ 경고

적절하지 못한 제품의 선정이나 사용으로 치명적인 손상을 주거나 인체에 위해 할 수 있으며 사망에 이를 수도 있습니다.

취급설명서에 게재되어 있는 제품은 사용 조건이 다양하므로 그 시스템에서의 적합성의 결정은 시스템의 설계자 또는 사양을 결정하는 사람이 필요에 따라 분석과 테스트를 행한 후 결정해 주십시요. 이 시스템의 소기 성능, 안전성의 보증은 시스템의 적합성을 결정한 사람의 책임이 됩니다. 앞으로도 최신의 제품 카탈로그와 자료에 따라 모든 사양 내용을 검토하여 기기의 고장 가능성에 대한 상황을 고려하여 시스템을 구성하여 주십시요.
취급설명서에 게재되어 있는 제품의 특성, 사양, 디자인, 성능 그리고 가격은 예고 없이 언제라도 변경될 수 있습니다.

(KR) ⚠ 주의

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메탈 보울은 폴리카보네이트 보울을 적용할 수 없는 환경에 권장됩니다. 메탈 보울은 대부분의 솔벤트에 대해 견딜 수 있지만 강산성이나 염도가 높은 환경은 피해 주십시요. 이런 환경에서 사용할 경우 공장 설비담당자와 권장 사양에 대해 상의하여 주십시요.

폴리카보네이트 보울의 세척은 약 알칼리성 세제나 물을 사용하시고 절대 플라스틱에 손상을 줄 수 있는 아세톤, 벤젠, 카본 염화물, 가솔린, 톨루엔 등은 사용하지 말아 주십시요.

(KR) 안전지침

보다 많은 제품정보와 올바른 취급 사례에 대해서는 공압사업부 카탈로그의 "안전한 사용을 위한 안내"나 Parker 홈페이지에서 자료를 다운 받을 수 있습니다. www.parker.com/safety

(KR) ⚠ 경고

인체에 위해나 제품의 손상을 가져올 수 있는 폴리카보네이트 보울의 파손을 피하기 위해 과도한 압력이나 온도범위에서 사용하지 마십시요.

폴리카보네이트 보울은 150 PSIG (10bar)의 압력범위와 최대 125℉ (52℃)에서 사용 가능합니다.

이 취급설명서를 장비에 첨가하거나 보전 매뉴얼을 위해 복사하여 사용하십시요. 필요한 경우 제품 취급점에 문의해 주십시요.

(ES) ⚠ ADVERTENCIA

Para evitar comportamientos del sistema que puedan causar accidentes y daños materiales:

- **Cuando proceda, desconectar la electricidad antes de la instalación, servicio o modificación.**
- **Desconectar el aire y despresurizar todas las líneas conectadas a este producto antes de la instalación, servicio o modificación.**
- **Trabajar con la presión, temperatura y demás condiciones recomendadas aquí por el fabricante.**
- **El aire no debe ser húmedo si la temp. ambiente es inferior a 0º C.**
- **Servicio según se indicada en estas instrucciones.**
- **La instalación, el servicio y la modificación de estos productos deben ser realizados por personal calificado con conocimientos de los productos neumáticos.**
- **Después de realizada la instalación, el servicio o la modificación, se debe conectar el aire y la electricidad (cuando proceda) y el producto probado para verificar un funcionamiento correcto sin fugas. Si se escucha una fuga o si el producto no funciona normalmente, no incorporar al uso normal.**
- **Las advertencias y especificaciones no deben ser tapadas con pintura o similar. Si no es posible protegerlas, contacte con el representante local para cambiar las etiquetas.**

(ES) ⚠ ADVERTENCIA

LA SELECCIÓN ERRÓNEA O INCORRECTA O EL USO INCORRECTO DE LOS PRODUCTOS Y/O SISTEMAS O DE OBJETOS RELACIONADOS, PUEDE CAUSAR MUERTES, HERIDAS Y AVERÍAS.

Este documento y demás información de La Compañía, sus filiales y distribuidores autorizados ofrece opciones de productos y sistemas para que los usuarios con los conocimientos técnicos necesarios profundicen sus análisis. Es importante que Ud. analice todos los aspectos de su aplicación, inclusive las posibles consecuencias de cualquier fallo y revise la información del producto o sistemas en el catálogo de productos correspondiente. Debido a la variedad de condiciones de funcionamiento y aplicaciones de estos productos y sistemas, el usuario, mediante sus propios análisis y pruebas, es el único responsable de realizar la selección final de los productos y sistemas y de garantizar el rendimiento, la seguridad y las advertencias necesarias de la aplicación.

La Compañía y sus subsidiarias se reservan el derecho de modificar en cualquier momento y sin previo aviso los productos descritos aquí, incluyendo sin limitación sus características y especificaciones, diseños, disponibilidad y precios.

(ES) ⚠ PRECAUCIÓN

Los recipientes de policarbonato, transparentes y robustos, son ideales para el uso con filtros y lubricadores. Son especiales para el uso en entornos industriales pero no deben ser colocados en lugares en que reciban luz solar directa, golpes de aire ni temperaturas fuera del rango estipulado. Como con la mayoría de los plásticos, algunos productos químicos pueden ser nocivos. Los recipientes de policarbonato no deben ser expuestos a hidrocarburos clorinados, ketones (cetonas), ésteres y ciertos alcoholes. No deben ser usados en sistemas de aire donde los compresores son lubricados con fluidos antiinflamables como por ejemplo ésteres de fosfato y diésteres. Usar recipientes de metal cuando las condiciones del entorno o del medio utilizado no sean compatibles con los de policarbonato. Los recipientes de metal resisten a la mayoría de los disolventes, pero no deben ser usados con ácidos ni álcalis fuertes o en atmósferas cargadas de sal. En estas condiciones consulte con la fábrica para recomendaciones especiales.

¡PARA LIMPIAR RECIPIENTES DE POLICARBONATO USAR SOLAMENTE AGUA Y JABÓN SUAVE! NO USAR agentes limpiadores como acetona, benceno, tetracloruro de carbono, gasolina, tolueno, etc. que afectan este plástico.

(ES) Guía de Seguridad

Para una información más detallada consultar la sección Guía de Seguridad de los catálogos de la Pneumatic Division o descargue la guía desde: www.parker.com/safety

(ES) ⚠ ADVERTENCIA

Evite la rotura de los recipientes de policarbonato que pueden causar heridas o averías respetando los límites de presión y temperatura. Los recipientes de policarbonato tienen un límite de presión de 10 bar (150 PSIG) y de temperatura de 52°C (125°F)

SE PUEDEN OBTENER COPIAS EXTRAS DE ESTAS INSTRUCCIONES PARA ADJUNTAR AL EQUIPO Y/O MANUALES DE MANTENIMIENTO QUE UTILIZAN ESTOS PRODUCTOS. TOME CONTACTO CON EL REPRESENTANTE LOCAL.

(SE) ⚠ VARNING!

Undvika oförutsett systembeteende som kan leda till person- och sakskada:

- **Koppla vid behov ur strömförsörjningen innan installations-, service- eller ombyggnadsarbete påbörjas.**
- **Koppla ur tryckluftförsörjningen och tryckavlasta alla luftledningar som är anslutna till den här produkten innan installations-, service- eller ombyggnadsarbete påbörjas.**
- **Se till att tillverkarens föreskrivna tryck, temperatur och andra förhållanden som definieras i de här instruktionerna följs.**
- **Mediet måste vara fuktfritt om omgivningstemperaturen är lägre än noll grader.**
- **Service skall utföras på det sätt som beskrivs i de här instruktionerna.**
- **Installation, service och ombyggnad av dessa produkter skall utförs av kunnig personal som förstår hur pneumatiska produkter används.**
- **När installations-, service- eller ombyggnadsarbetet är klart skall tryckluft- och strömförsörjning (när sådan krävs) kopplas in och produkten funktionsprovas och läcksökas. Produkten får inte tas i drift vid hörbart läckage eller om den inte fungerar korrekt.**
- **Varningar och specifikationer på produkten får inte målas över. Om det inte är möjligt att maskera sådan märkning vid målning, bör du kontakta vår lokale representant för att få nya skyltar.**

(SE) ⚠ VARNING!

FELAKTIGT ELLER OLÄMPLIGT VAL OCH OLÄMPLIG ANVÄNDNING AV PRODUKTER OCH/ELLER SYSTEM SOM BESKRIVS HÄRI ELLER AV KRINGUTRUSTNING, KAN ORSAKA PERSON- OCH SAKSKADA OCH T O M DÖDSFALL.

Detta dokument och annan information från företaget, dess dotterbolag och auktoriserade återförsäljare innehåller förslag på produkter och system, för närmare analys av användare med tekniska specialkunskaper. Det är viktigt att analysera alla aspekter på din applikation, inklusive konsekvenserna av ett maskinfel, och noggrant läsa informationen om produkten eller systemet i aktuell produktkatalog. Beroende på de olika driftförhållandena och tillämpningarnaför dessa produkter och system, så ansvarar användaren helt själv, genom egna analyser och provning, för det slutgiltiga valet av system och komponenter, och för att förvissa sig om att uppfylla alla krav på funktion, hållbarhet, underhåll, säkerhet och varningstexter för den avsedda tillämpningen.

De produkter som beskrivs häri, inklusive, dock utan att begränsas därtill, samtliga produktfunktioner, specifikationer och konstruktioner samt alla uppgifter om tillgänglighet och prissättning kan när som helst komma att ändras av företaget eller dess dotterbolag, utan föregående meddelande därom.

(SE) ⚠ OBSERVERA!

Behållare och synglas av polykarbonat, som är både genomskinligt och starkt, är idealiska för användning på filter och dimsmörjare. De är lämpliga för användning i vanlig industrimiljö, men bör inte placeras på platser där de kan utsättas för direkt solljus, slag eller temperaturer utanför föreskrivet temperaturområde. Polykarbonat kan ta skada vid kontakt med vissa kemikalier, precis om de flesta andra plaster. Kärl och synglas av polykarbonat bör inte exponeras för klorerade kolväten, ketoner, estrar eller alkoholer. De bör inte användas i luftsystem där kompressorerna smörjs med brandbeständig vätska, t ex fosfatestrar eller diestrar.

Vi rekommenderar metallkärl när miljön och/eller mediet är sådant att kärl av polykarbonat kan ta skada. Metallkärl klarar de flesta sådana lösningsmedel, men bör inte användas vid förekomst av starka syror eller baser och inte i atmosfär med hög salthalt. Rekommendationer för sådana förhållanden kan fås från fabriken.

ANVÄND BARA MILD TVÅLLÖSNING MED VATTEN VID RENGÖRING AV KÄRL AV POLYKARBONAT! Använd INTE sådana rengöringsmedel som aceton, benzen, koltetraklorid, bensin, toluen eller liknande, som är skadliga för den här typen av plast.

(SE) Säkerhetsguide

I avsnitten om säkerhet i pneumatikdivisionens kataloger hittar du mer information och riktlinjer. Denna information och dessa riktlinjer finns även på vår webbsida på adressen: www.parker.com/safety

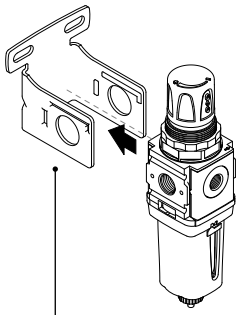
(SE) ⚠ VARNING!

Förhindra polykarbonatkärl att gå sönder och orsaka person- eller sakskada genom att se till att föreskrivna tryck och temperaturer inte överskrids. Polykarbonatkärl är tryckklassade för 10 bar och en maxtemperatur på 52 °C.

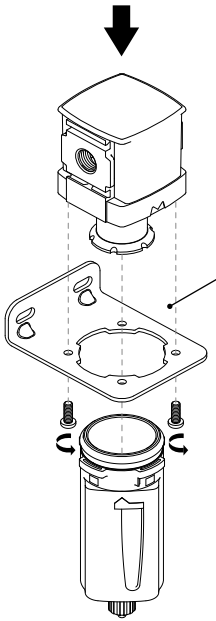
DESSA INSTRUKTIONER KAN FÅS I SÄRTRYCK, FÖR ATT BIFOGAS DRIFT- OCH UNDERHÅLLSINSTRUKTIONER. KONTAKTA I SÅ FALL DIN LOKALE PARKERREPRESENTANT.

(UK) Product Connection + Mounting (FR) Raccordement + Montage du produit (IT) Collegamento e montaggio del prodotto (KR) 제품의 조합과 취부 (SE) Montering och inkoppling
(CN) 产品接头+安装 (DE) Produktanschluss und -einbau (JP) 機器の接合＋取り付け (ES) Montaje y conexión del producto

(UK) Individual Product Brackets (JP) 機器個別ブラケット
(CN) 单个产品支架 (KR) 유니트 개별 취부 브라켓
(FR) Éléments de fixation pour produits isolés (ES) Sujeciones producto individual
(IT) Staffe separate (SE) Separata klammor
(DE) Spezielle Produkthalterungen



P31 Mini
(UK) Mounting Bracket (CN) 安装支架 (FR) Console (DE) Einbauhalterung (IT) Staffa di montaggio (JP) 取り付けブラケット (KR) ㄷ형 취부 브라켓 (ES) Sujeción de montaje (SE) Monteringskonsol
P31KA00MW



(UK) L-Bracket (CN) 角架 (FR) Équerre (DE) Winkelhalterung (IT) Staffa angolare (JP) 角ブラケット (KR) L 형 취부 브라켓 (ES) Sujeción angulada (SE) Vinkelklamma	
P32 Compact	P32KA00ML
P33 Standard	P33KA00ML

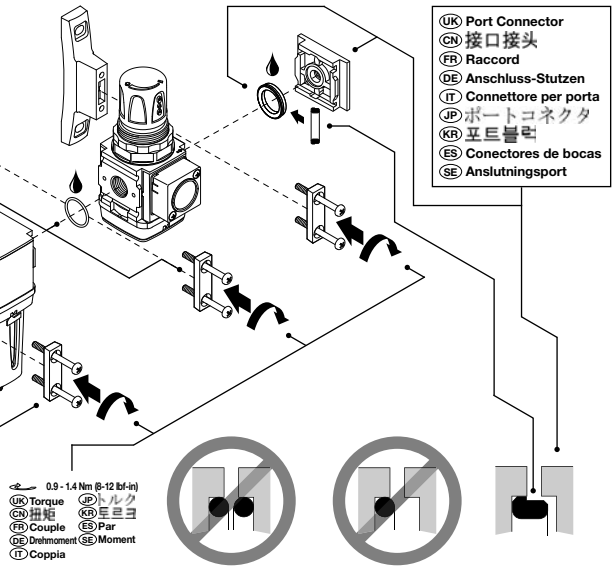
P31 Mini

(UK) Body Connector (CN) 主体接头 (FR) Élément de liaison (DE) Gehäusestecker (IT) Connettore del corpo	(JP) ボディコネクタ (KR) 바디 컨넥터 (ES) Conector de cuerpo (SE) Husanslutning
P31KA00CB	

(UK) Body Connector + Wall Mounting Bracket (CN) 主体接头＋墙壁安装支架 (FR) Élément de liaison + Équerre de fixation murale (DE) Gehäusestecker und Wandhalterung (IT) Connettore del corpo + staffa di montaggio a muro (JP) ボディコネクタ＋壁取り付けブラケット (KR) 바디 컨넥터＋취부 브라켓 (ES) Conector de cuerpo + Sujeción de muro (SE) Husanslutning + väggfäste
P31KA00MT

(UK) Port Connector (CN) 接口接头 (FR) Raccord (DE) Anschluss-Stutzen (IT) Connettore per porta (JP) ポートコネクタ (KR) 포트블럭 (ES) Conectores de bocas (SE) Anslutningsport

(UK) Port Connector (CN) 接口接头 (FR) Raccord (DE) Anschluss-Stutzen (IT) Connettore per porta (JP) ポートコネクタ (KR) 포트블럭 (ES) Conectores de bocas (SE) Anslutningsport



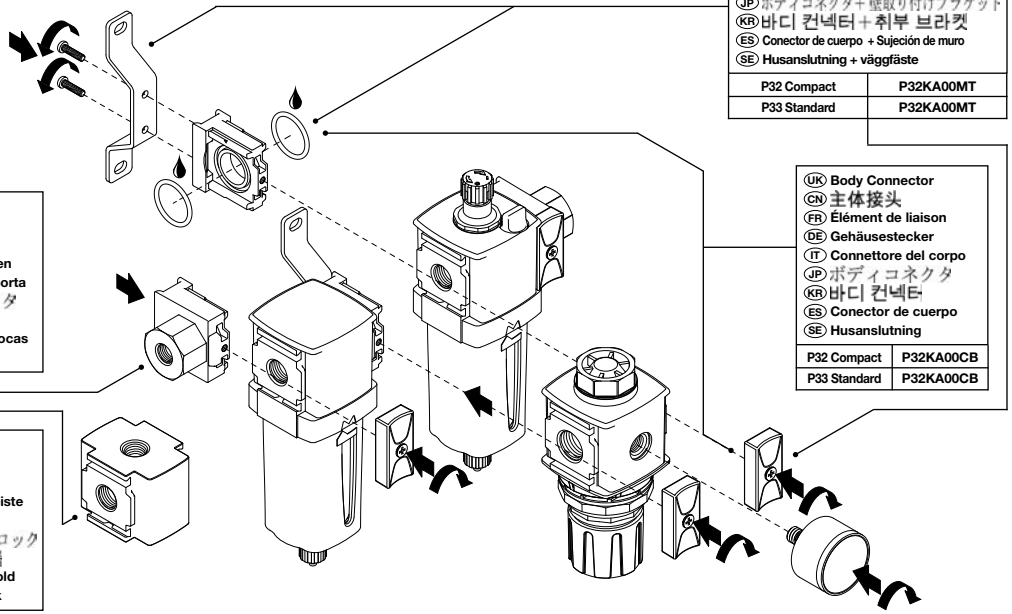
P32 Compact + P33 Standard

(UK) Body Connector + Wall Mounting Bracket (CN) 主体接头＋墙壁安装支架 (FR) Élément de liaison + Équerre de fixation murale (DE) Gehäusestecker und Wandhalterung (IT) Connettore del corpo + staffa di montaggio a muro (JP) ボディコネクタ＋壁取り付けブラケット (KR) 바디 컨넥터＋취부 브라켓 (ES) Conector de cuerpo + Sujeción de muro (SE) Husanslutning + väggfäste	
P32 Compact	P32KA00MT
P33 Standard	P32KA00MT

(UK) Body Connector (CN) 主体接头 (FR) Élément de liaison (DE) Gehäusestecker (IT) Connettore del corpo (JP) ボディコネクタ (KR) 바디 컨넥터 (ES) Conector de cuerpo (SE) Husanslutning	
P32 Compact	P32KA00CB
P33 Standard	P32KA00CB

(UK) Port Connector (CN) 接口接头 (FR) Raccord (DE) Anschluss-Stutzen (IT) Connettore per porta (JP) ポートコネクタ (KR) 포트블럭 (ES) Conectores de bocas (SE) Anslutningsport

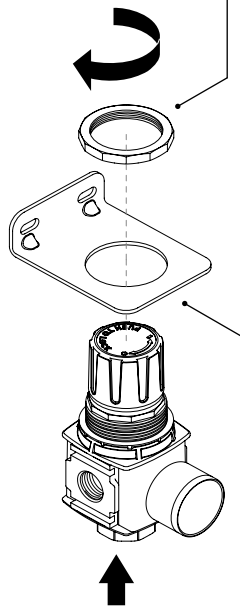
(UK) Manifold Block (CN) 分气块 (FR) Bloc d'ilots (DE) Sammelsystemleiste (IT) Blocco manifold (JP) マニホールドブロック (KR) 매니폴드 블록 (ES) Bloque de manifold (SE) Anslutningsblock



(UK) Regulator + Filter/Regulator Angle Bracket
(CN) 调压阀+过滤器/调压阀角架
(FR) Équerre pour Régulateur + Filtre/Régulateur
(DE) Winkelhalterung für Regler + Filter/Regler
(IT) Staffa angolare per regolatore + filtro/regolatore
(JP) レギュレータ＋フィルタ/レギュレータ角ブラケット
(KR) 레귤레이터＋필터-레귤레이터 개별 취부 브라켓
(ES) Sujeción angulada Regulador + Filtro/Regulador
(SE) Regulator + vinkelklamma för filter/regulator

(UK) Panel Mounting Ring (JP) パネル取り付けリング
(CN) 面板安装螺母 (KR) 판넬 마운팅 넛트
(FR) Écrou pour montage sur panneau (ES) Aro de montaje en panel
(DE) Schalttafel-Schraubring (SE) Ring för panelmontering
(IT) Anello di montaggio su pannello

	(UK) Plastic Nut (CN) 塑料螺母 (FR) Écrou en plastique (DE) Kunststoffmutter (IT) Dado in plastica (JP) プラスチックナット (KR) 플라스틱 넛트 (ES) Tuerca plástica (SE) Plastmutter	(UK) Metal Nut (CN) 金属螺母 (FR) Écrou métallique (DE) Metallmutter (IT) Dado in metallo (JP) メタルナット (KR) 네탈 넛트 (ES) Tuerca metálica (SE) Metallmutter
P31 Mini	P31KA00MP	P31KA00MM
P32 Compact	P32KA00MP	P32KA00MM
P33 Standard	P33KA00MP	P33KA00MM



(UK) Angle Bracket (CN) 角架 (FR) Équerre (DE) Winkelhalterung (IT) Staffa angolare (JP) 角ブラケット (KR) L 형 취부 브라켓 (ES) Sujeción angulada (SE) Vinkelklamma	
P31 Mini	P31KA00MR
P32 Compact	P32KA00MR
P33 Standard	P33KA00MR

L50 Injection Lubricator

Installation, Operating and Maintenance Instructions

⚠ WARNING

To avoid unpredictable system behavior that can cause personal injury and property damage:

- **Disconnect electrical supply (when necessary) before installation, servicing, or conversion.**
- **Disconnect air supply and depressurize all air lines connected to this product before installation, servicing, or conversion.**
- **Operate within the manufacturer's specified pressure, temperature, and other conditions listed in these instructions.**
- **Medium must be moisture-free if ambient temperature is below freezing.**
- **Service according to procedures listed in these instructions.**
- **Installation, service, and conversion of these products must be performed by knowledgeable personnel who understand how pneumatic products are to be applied.**
- **After installation, servicing, or conversion, air and electrical supplies (when necessary) should be connected and the product tested for proper function and leakage. If audible leakage is present, or the product does not operate properly, do not put into use.**
- **Warnings and specifications on the product should not be covered by paint, etc. If masking is not possible, contact your local representative for replacement labels.**

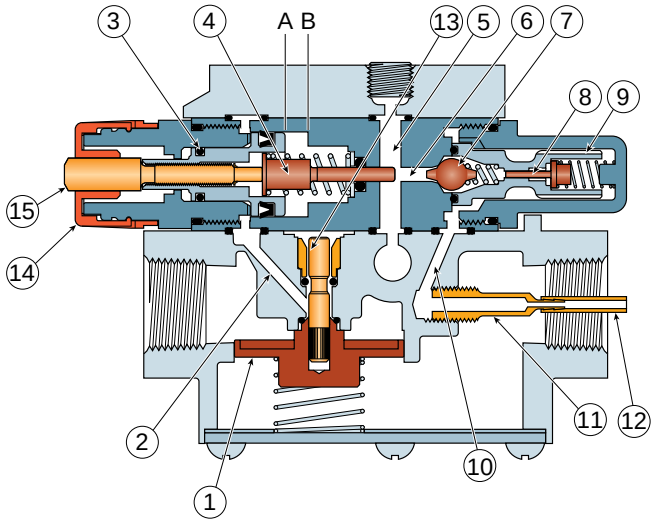
Introduction:

The Watts L50 Injection Lubricator is specifically designed to lubricate air tools, cylinders, valves and other pneumatic equipment. It is a positive feed device that delivers a precisely metered amount of oil to the tool, via a capillary tube, every time the tool is turned on. The L50 has a built-in air flow sensor which, when activated, causes a pressurized piston to fire oil into the capillary tube. Therefore, it is completely self contained and requires no outside power source, time, etc. *Note: If the L50 is to be used in a continuous air flow application, it should be equipped with the pulse generator option to ensure adequate oil delivery.*

Operation:

Every time air flow starts, the sensor piston (1) (see Figure A) is pushed down and allows a pilot pressure to flow through port (2) which drives the module piston (3) and the metering plunger (4) to the right. As the plunger passes by the oil supply port (5), it forces oil into the metering tube (6) which in turn lifts the check valve (7) and forces the same quantity of oil into the inner sight glass, it drives the flow indicator (8) to the right (a positive indication of oil flow) and then flows up through the annular area between the inner and outer sight glass (9). It next flows down through the out port (10) and the capillary adapter (11) to the capillary (12) adapted for internal feed. When air flow stops, the sensor piston is returned by its spring to the initial no-flow position, and the pilot pressure behind the metering piston is exhausted to atmosphere through the exhaust valve (13) and exhaust port. When air is exhausted, the metering piston spring returns the piston and plunger to initial position. As can be seen by referring to Figure A, the amount of oil injected into the system is determined by the distance the metering plunger (4) travels into the metering tube (6). The distance it travels to the right (into the tube) determines the quantity of oil that is forced out through the check valve (7) and into the system. Since the module piston always travels a set distance from point (A) to (B), oil feed rate is adjusted by varying the protruded length of the metering plunger. The longer the plunger, the greater the travel and the greater the oil feed per cycle. An adjusting knob (14) is provided to adjust the plunger length. To operate, the knob must first be pulled into the unlocked position. Then, as the knob is turned in a clockwise direction, the adjusting screw (15) moves to the right and extends the metering plunger (4). Since the module/air piston (3) remains stationary, the extended length of the metering plunger is increased. Therefore, the next time the module is fired (pressurized), the metering plunger will travel a longer distance into the metering tube (6) so more oil will be forced through the check valve and into the system. Conversely, counter-clockwise rotation of the adjustment knob (14) will shorten the extended length of the plunger and decrease the amount of oil feed.

Figure A: L50 Section View



⚠ WARNING

FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS AND/OR SYSTEMS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.

This document and other information from The Company, its subsidiaries and authorized distributors provide product and/or system options for further investigation by users having technical expertise. It is important that you analyze all aspects of your application, including consequences of any failure and review the information concerning the product or systems in the current product catalog. Due to the variety of operating conditions and applications for these products or systems, the user, through its own analysis and testing, is solely responsible for making the final selection of the products and systems and assuring that all performance, safety and warning requirements of the application are met.

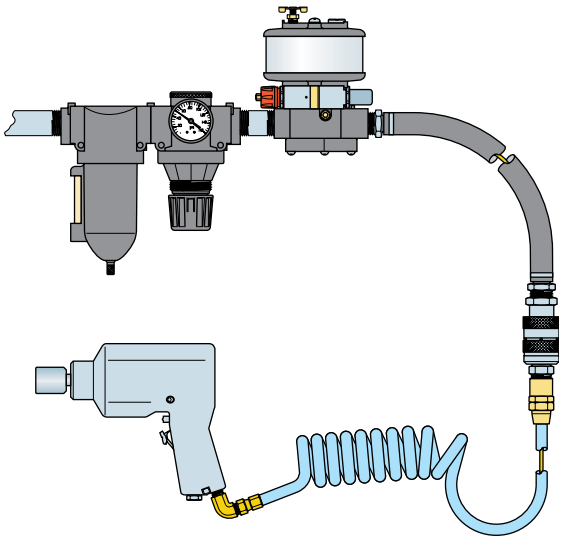
The products described herein, including without limitation, product features, specifications, designs, availability and pricing, are subject to change by The Company and its subsidiaries at any time without notice.

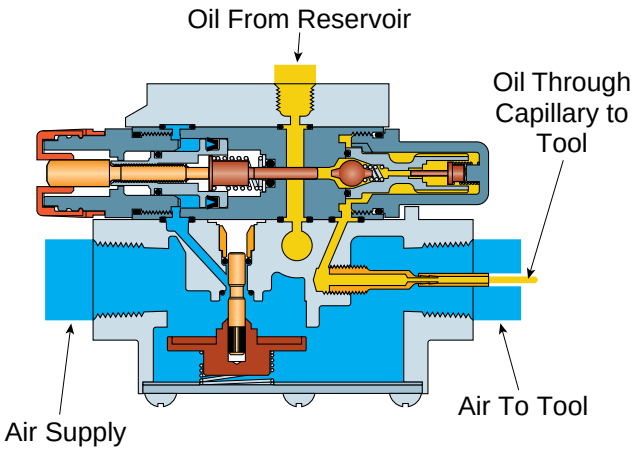
EXTRA COPIES OF THESE INSTRUCTIONS ARE AVAILABLE FOR INCLUSION IN EQUIPMENT / MAINTENANCE MANUALS THAT UTILIZE THESE PRODUCTS. CONTACT YOUR LOCAL REPRESENTATIVE.

Installation:
General Installation

Oil Supply & Reservoir Options

It is recommended that the L50 be installed immediately downstream of a particulate/moisture removal air line filter, and a pressure regulator, in order to insure long life and trouble-free performance. In most cases, it is desirable to use the 1/8" diameter nylon capillary tubing to deliver oil down the inside of the air supply pipe, or hose, to the point of use. In these cases, thread the capillary tubing into the pipe prior to assembling to the outlet port of the lubricator. If the capillary tubing is inserted into standard pipe, cut the capillary tubing so that it is approximately 6" from the inlet port of the air device. If the tube is inserted into a flexible hose, cut the capillary approximately 10% shorter than the hose to allow for diameter expansion and resultant shortening of air hose length. After the capillary tube is installed, connect the lubricator inlet port to the air supply line, connect the capillary tube to the lubricator barbed oil outlet, and then connect downstream air piping.





Integral Reservoir ("R" option)
The L50 is available with an integral 10 oz. reservoir. The unit must be oriented so that the reservoir remains in the vertical position, with the vent and fill plugs on the top. To fill the unit, remove the large fill plug with a screwdriver and pour oil into the unit. The petcock style vent, on top of the reservoir, must be in the open position for the unit to work. If using with a pressurized or gravity feed external oil supply, the vent must remain closed.

External Reservoir (non-pressurized)
When installing a lubricator for use with an external reservoir, the lubricator may be oriented in any position. The plumbing from the reservoir must be connected to the oil port on the lubricator closest to the top (ceiling). The plumbing from the reservoir must not have any loops or bends that would allow air to be trapped.

External Oil Supply (pressurized)
When installing a lubricator for use with an external reservoir, the lubricator may be oriented in any position. The plumbing from the reservoir must be connected to the port on the lubricator closest to the bottom (floor). A vent, or petcock, must be placed in the port closest to the top (ceiling) to allow purging of air from the oil supply. It is recommended that a small reservoir capable of handling 3 or 4 cubic inches be connected to the port closest to the top (ceiling) to trap any air bubbles from the oil supply. It is recommended that a shut-off valve and strainer be installed in the oil supply line as close to the L50 as possible.

⚠ CAUTION

Polycarbonate bowls, being transparent and tough, are ideal for use with Filters and Lubricators. They are suitable for use in normal industrial environments, but should not be located in areas where they could be subjected to direct sunlight, an impact blow, nor temperatures outside of the rated range. As with most plastics, some chemicals can cause damage. Polycarbonate bowls should not be exposed to chlorinated hydrocarbons, ketones, esters and certain alcohols. They should not be used in air systems where compressors are lubricated with fire-resistant fluids such as phosphate ester and di-ester types.

Metal bowls are recommended where ambient and/or media conditions are not compatible with polycarbonate bowls. Metal bowls resist the action of most such solvents, but should not be used where strong acids or bases are present or in salt laden atmospheres. Consult the factory for specific recommendations where these conditions exist.

TO CLEAN POLYCARBONATE BOWLS USE MILD SOAP AND WATER ONLY! DO NOT use cleansing agents such as acetone, benzene, carbon tetrachloride, gasoline, toluene, etc., which are damaging to this plastic.

Bowl guards are recommended for added protection of polycarbonate bowls where chemical attack may occur.

Installation (cont'd):
Start-Up and Bleed Air

Oil Priming:
The L50 and PL50 lubricators are shipped from the factory essentially free of oil. Therefore, it is imperative, particularly on installations with long capillary tubing lengths, that the lubricator be primed after installation prior to start-up. The reason for priming the lubricators is to evacuate all air from the oil passages and metering tubes in the lubricator. Each module in these lubricators is a small air operated hydraulic pump. Due to the small displacement of the piston/bore in these modules, it is imperative that all air be evacuated because each module must force the oil through an internal check valve. If air is present, the modules will not build up enough pressure to overcome the internal check valve due to the compressibility of air. There are two methods of priming – using a bucket pump, or manual priming:

Manual Priming:
To manually prime the lubricators, the oil supply should be connected and/or filled.

With Integral Reservoir:
The reservoir should be filled with oil and the vent cock should be left open.

With External Reservoir or Oil Supply:
The plug in the "Supply" port, on the plate atop the injector, should be removed until oil starts to flow from the hole. The plug should then be replaced.

The red, module adjustment knob should be pulled out and turned clockwise until it stops. At that point manually pump the adjustment stem (sticking out of the center of the adjusting knob) until oil can be seen flowing through either the sight dome or the capillary tube. It is not necessary for all air to be evacuated from the sight dome, as long as oil can be seen flowing through it while pumping.

Bucket Pump Priming:
The easiest method of priming an injection lubricator is with the use of a Button Head Fill Fitting and a bucket pump. Models with the "Q" option use an SA606Y107 Button Head Fill Fitting (which can also be purchased separately). The bucket pump is a small, manually operated, hydraulic pump with an oil reservoir. It is equipped with a hose and a fitting that will mate to the button head fill fitting, and is used to force oil into the oil passages, through the metering tubes, internal check valve, and out through the sight dome (if so equipped) and capillary tubes, purging all of the air from the injectors. To prime with this method, simply connect the pump to the button head fill fitting and operate the bucket pump until oil is forced through the capillary line.

Oil Delivery Adjustment

Oil Module Adjustment:
The adjustment knob has two positions. All the way in is locked, and one stop out is to adjust. For maximum oil feed adjustment, turn the adjustment knob clockwise until it stops, and then out two turns (16 clicks). To shut off oil feed rate, turn the adjustment knob a minimum of six counter-clockwise turns from the stop. (There is no stop on counter-clockwise rotation of the adjustment knob so do not turn it more than ten turns, except when disassembling the plunger for cleaning or replacement.) If the unit is equipped with a Cycle Counter, you may turn the selector to the "Off" position to turn the lubricator off.

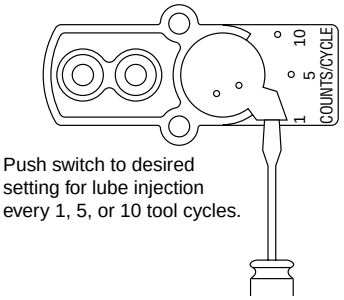
See page 4 for detailed setting instructions.

There is an arrow on the adjustment knob to assist in determining fractional turn settings. **Once oil feed is adjusted to desired level, push the knob in to lock it in place. Do not remove the knob for operation, as the adjusting screw will lose its adjustment.**

Note: The red indicator piston on the outlet side of the lubricator is designed to operate in the upper half of the oil adjustment range i.e., ¼ to ½ drop per cycle. If the module is adjusted for minimal oil delivery, the indicator may not show movement.

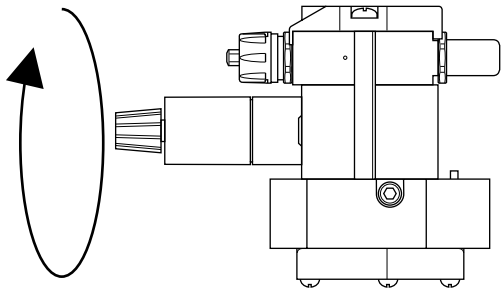
Cycle Counter Adjustment:
The cycle counter has four positions:

Off: Oil injector module will not operate
1: Oil Injector module operates with every cycle
5: Oil injector module operates every fifth cycle
10: Oil injector module operates every tenth cycle



Push switch to desired setting for lube injection every 1, 5, or 10 tool cycles.

Pulse Generator Adjustment:
The pulse generator is adjustable to operate the oil injector module every 1 to 20 seconds. This option is generally used where the flow per cycle exceeds 10 SCFM (see table to calculate).



Installation (cont'd):
Determining Lubrication Rates — Oil Delivery Adjustment

In order to adjust the oil injector module, cycle counter and/or pulse generator, the following steps must be followed:

1.) Determine the air flow consumption in SCFM (Standard Cubic Feet per Minute) of the tool or application to be lubricated. This information should be available from the tool or application's instruction sheet, or by contacting the manufacturer.

2.) Measure the cycle "ON" time for which the tool/application is actually energized by using a stopwatch to measure the time when the tool/ application is running with air flowing through it.

3.) Calculate the flow in SCF (Standard Cubic Feet) per cycle with the following formula:

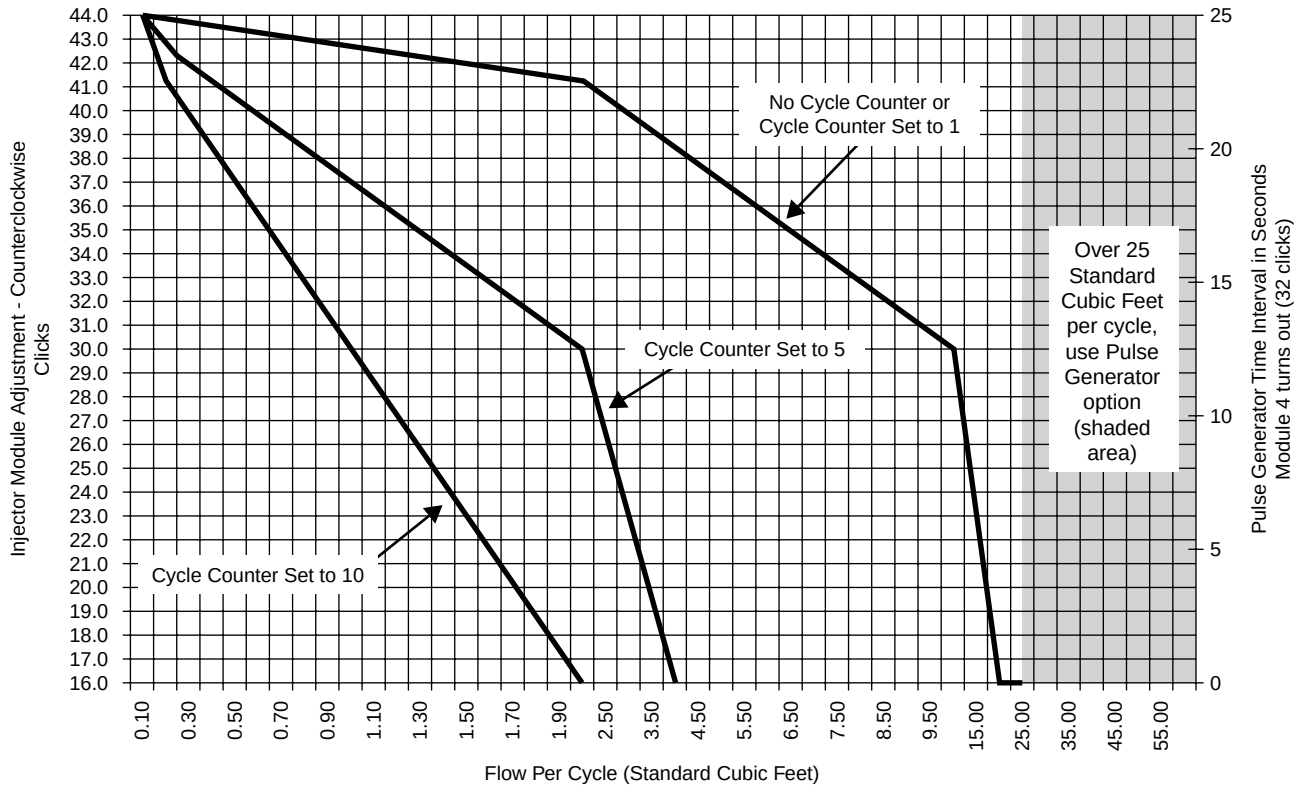
$$\text{Flow per cycle (SCF)} = \frac{\text{Application Flow Rating (SCFM)} * 60}{60}$$

4.) Set injector module and cycle counter , or pulse generator (if equipped) using the chart below:

Oil Delivery Chart

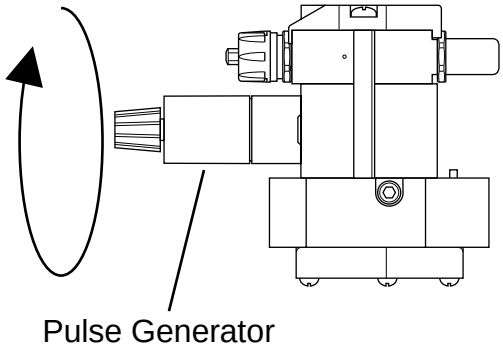
Injector Module Setting: Clicks Counter-clockwise	Turns Counter-clockwise		Cycle Counter Setting: Off	1 (or w/o counter)	5	10
0	0	►	0	Prime		
8	1	►	0			
16	2	►	0	0.024 cc	0.005 cc	0.002 cc
24	3	►	0	0.018 cc	0.003 cc	0.002 cc
32	4	►	0	0.012 cc	0.002 cc	0.001 cc
40	5	►	0	0.006 cc	0.001 cc	—
48	6	►	0	—	—	—

Injector Lubricator Adjustment Chart



Installation (cont'd):
Injection Lubricator Options

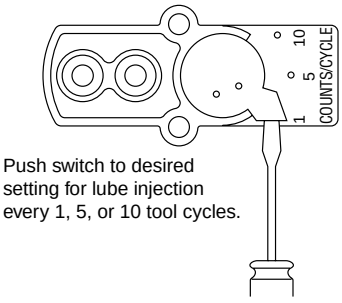
Pulse Generator:
In those applications where the maximum amount of oil delivery is not enough, or flow is continuous, the L50 is available with an optional Pulse Generator ("G" option). The pulse generator fires the injector module at the start of each cycle, and then at specified intervals (adjustable between 1 sec. and 20 sec.) within the cycle. The unit will not fire if the tool is not in use. The Pulse Generator assembly may be ordered separately as RKL50G.



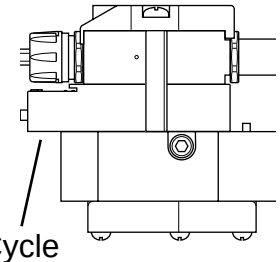
Cycle Counter:
For those applications where the minimum oil delivery per cycle is too much, the L50 is available with an optional cycle counter. Located below the injector module, it counts the number of equipment cycles. With a counter installed, the injectors will not fire until the counter has reached the desired number of cycles.

Cycle Counter Adjustment:
The cycle counter has four positions:

- **Off**: Oil injector module will not operate
- **1**: Oil Injector module operates with every cycle
- **5**: Oil injector module operates every fifth cycle
- **10**: Oil injector module operates every tenth cycle



Push switch to desired setting for lube injection every 1, 5, or 10 tool cycles.



Injection Lubricator Troubleshooting

Problem	Probable Cause
1.) Injector actuates when tool/equipment is activated, but no oil is dispensed.	Check to make sure oil supply is adequate and that injector has been properly primed and purged of all air in oil supply (see priming instructions).
2.) Injector module does not actuate when tool/ equipment is activated.	The minimum airflow through the lubricator must be at least 5 SCFM or injector module will not fire.
3.) Air leaks constantly from grooves in sensor body under the injector module.	This is generally caused by foreign material being caught in the flow sensor piston bore in the sensor body preventing it from closing.
4.) Air and/or oil leaks from top or bottom of injector module, cycle counter, or pulse generator.	O-ring seals are either cut or misaligned or two Phillips head screws holding the top-plate are loose.
5.) Cycle counter does not make injector fire at the pre-determined 12, 24, 48, 96 or 192 cycle count.	The two Phillips head screws holding the top-plate are over-torqued (should be 30-40 in. lbs.) or internal counter problem.
6.) Cycle counter allows injector to fire all the time (or more than it should).	The two Phillips head screws holding the top plate are under-torqued (should be 30-40 in. lbs.) or internal counter problem.
7.) Pulse generator not timing consistently.	The air logic timer has become contaminated with either liquid or particulate matter.

Dependable Oil Delivery

L50 In-Line Injection Lubricators provide positive oil displacement lubrication ensuring the predetermined amount of oil is delivered to the tool each and every cycle regardless of pressure or flow.

For best results unit must be used with capillary line inside air outlet or with coaxial tool hoses (see accessories).

Features:

- **Air Flow Sensor**
  Single point injection lubricators are installed between a filtered, regulated air source and an air supply hose going to a pneumatic tool. The body of the unit is designed to sense air flow when the tool is being used and signal the oil injector module to lubricate.
- **Oil Injector Module**
  The oil injector module provides adjustable oil delivery in amounts up to 1 drop per cycle. Oil delivery adjustment is made by turning the adjusting knob increasing or decreasing the oil piston travel in the module. Unit comes standard with oil delivery indicator.
- **Cycle Counter - 4 Position - Optional**
  With the adjustable cycle counter, the lubricator can be set to dispense oil in the following manner:

Setting:		
	Off	No oil dispensed
	1	Every cycle of the application
	5	Every fifth cycle of the application
	10	Every tenth cycle of the application

- **Pulse Generator - Optional**
  For long cycle time applications the pulse generator makes the lubricator dispense a pre-determined amount of oil multiple times during a single tool cycle.

Ordering Information

L50	—	04	R	NO	Q

Threads

—	NPT
G	BSP

Port Size

04	1/2"
06	3/4"

Reservoir

Blank	No Reservoir
R	10 oz. Integral Reservoir

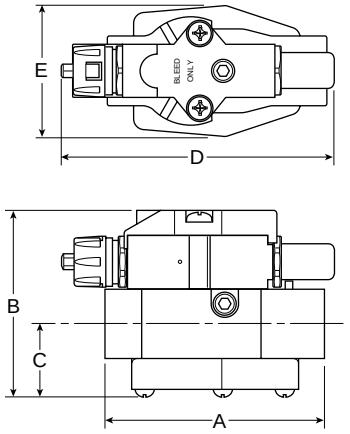
Counter / Generator Options

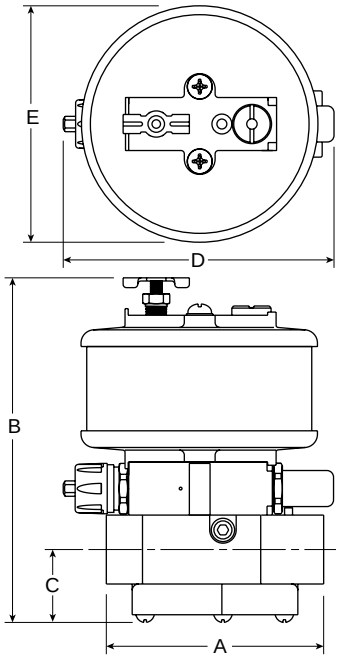
Blank	No Cycle Counter or Pulse Generator
NO	4 Position Adjustable Counter
G	Adjustable Pulse Generator

Options

Q	Button Head Fill Fitting
X64	Fluorocarbon Elastomers in Injector Module

Dimensions





Amount Of Oil Injected Per Machine (Tool) Cycle With Cycle Counter

Injector Module Setting	Clicks Counter-clockwise	Turns Counter-clockwise		Cycle Counter Setting			
				Off	1 (or w/o counter)	5	10
	0	0	►	0	Prime		
	8	1	►	0			
	16	2	►	0	0.024 cc	0.005 cc	0.002 cc
	24	3	►	0	0.018 cc	0.003 cc	0.002 cc
	32	4	►	0	0.012 cc	0.002 cc	0.001 cc
	40	5	►	0	0.006 cc	0.001 cc	—
	48	6	►	0	—	—	—

Repair Kits and Accessories

Injector Module
- **Sight Dome End Repair Kit** RKL50SD
- **Module Kit** KL50M

Sensor Body
- **Sensor Piston** SAL50-0472

Button Head Fill Fitting SA606Y107
Integral 10 oz. Reservoir BKL50R
Cycle Counter Kit RKL50NO
Pulse Generator Kit RKL50G

Specifications

Oil Supply Pressure Range ..... Gravity Feed to 30 PSIG Max.
Oil Viscosity Range ..... 150-1200 S.S.U.
Minimum Airflow for Operation ..... 5 SCFM
Oil Delivery Range ..... 0-1 Drop per Cycle of Injector
Pressure Drop ..... Less than 5 PSIG @ 100 SCFM
Oil Fill Port ..... 1/8" NPT
Maximum Pressure ..... 150 PSI

L50 Dimensions

	A	B	C	D	E
Standard Unit	4.13 (104,8)	3.48 (88,4)	1.38 (35)	5.09 (129,3)	2.44 (61,9)
For Integral Reservoir Add:		3.0 (76,2)			2.01 (51)
For Cycle Counter Add:		0.88 (22,4)			
For Pulse Generator Add:		1.75 (44,5)		2.06 (52,3)	

Materials of Construction

Injector Module
- **Body** ..... Aluminum
- **Oil Piston** ..... Steel
- **Air Piston** ..... Ultem
- **Sight Dome** ..... Polyurethane
- **Springs** ..... Steel
- **End Plug** ..... Brass
- **Seals** ..... Buna-N (Fluorocarbon Optional)

Flow Sensor Body
- **Body** ..... Zinc
- **Bottom Plate** ..... Steel
- **Sensor Piston** ..... Aluminum / Brass
- **Spring** ..... Steel
- **Top Plate** ..... Zinc

Reservoir
- **Top & Bottom Plate** ..... Zinc
- **Reservoir Cylinder** ..... Polycarbonate
- **Seals** ..... Buna-N

Cycle Counter
- **Body** ..... Nylon
- **Seals** ..... Buna-N

Pulse Generator
- **Body** ..... Aluminum
- **Timer** ..... Acetal / Steel / Buna-N

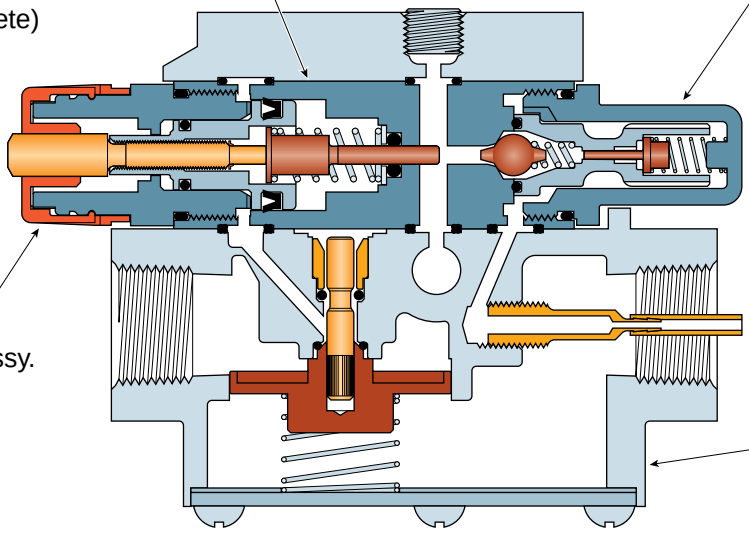
Repair Kits and Accessories

KL50M

Module Kit (Complete)
- Injector Module
- Spacers (2)
- Quad Seals

RKL50MA

Adjusting/Piston Assy.
- Adjusting Assy.
- Air Piston
- Oil Piston
- Adj. Knob
- O-Rings



RKL50SD

Sight Dome Repair Kit
- Sight Glass
- Indicator Cylinder
- Indicator Piston
- Indicator Piston Spring
- Check Ball
- Spring
- O-Rings

Flow Sensor Body:
- 1/2" SAL50-04-0013
- 3/4" SAL50-06-0013

Accessories

Oil Reservoirs

(All units come with mounting bracket)

BKL50A

9 oz. Polycarbonate Bowl

BKL50B

1 Qt. Polycarbonate Bowl

BKL50C

2 Qt. Polycarbonate Bowl

Button Head Fill Fitting

SA606Y107

1/8" NPT Male

Oil Filled Capillary Line

SA606X71-1 25 ft.

SA606Y71-1 50 ft.

Capillary Line Connectors

SAL50Y139

1/8" OD Compression X
1/8" NPT Male Connector

SA606Z26

1/8" OD Compression X
1/8" NPT Male Check Valve

Parker Pneumatic

Parker Hannifin Corporation
Pneumatic Division
8676 E. M89
P.O. Box 901
Richland, MI 49083 USA
Tel: (269) 629-5000
Fax: (269) 629-5385

WATTS Watts FluidAir

Watts FluidAir
Parker Hannifin Corporation
Pneumatic Division
9 Cutts Road
Kittery, ME 03904 USA
Tel: (207) 439-9511
Fax: (207) 475-4013

IS L50/M7 9406

Doc. #ISL50, ECN #051180, Rev. 1 11/05 IGS Printed in U.S.A.

Pneumatic Division
Richland, Michigan 49083
269-629-5000

Installation & Service Instructions
IS-L606

L606 Lubricator

ISSUED: April, 2008
Supersedes: September, 2007

Doc. #ISL606, EN #080254, Rev. 4

⚠ WARNING

To avoid unpredictable system behavior that can cause personal injury and property damage:

- **Disconnect electrical supply (when necessary) before installation, servicing, or conversion.**
- **Disconnect air supply and depressurize all air lines connected to this product before installation, servicing, or conversion.**
- **Operate within the manufacturer's specified pressure, temperature, and other conditions listed in these instructions.**
- **Medium must be moisture-free if ambient temperature is below freezing.**
- **Service according to procedures listed in these instructions.**
- **Installation, service, and conversion of these products must be performed by knowledgeable personnel who understand how pneumatic products are to be applied.**
- **After installation, servicing, or conversion, air and electrical supplies (when necessary) should be connected and the product tested for proper function and leakage. If audible leakage is present, or the product does not operate properly, do not put into use.**
- **Warnings and specifications on the product should not be covered by paint, etc. If masking is not possible, contact your local representative for replacement labels.**

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Bowl guards are recommended for added protection of polyurethane bowls where chemical attack may occur.

Safety Guide

For more complete information on recommended application guidelines, see the Safety Guide section of Pneumatic Division catalogs or you can download the **Pneumatic Division Safety Guide** at: www.wattsfluidair.com

Introduction

Follow these instructions when installing, operating, or servicing the product.

Application Limits

These products are intended for use in general purpose compressed air systems only.

With Polycarbonate Bowl

	kPa	PSIG	bar
Operating Pressure Maximum	1034	150	10
Operating Temperature Range		40°F to 125°F (4°C to 52°C)	

With Zinc Bowl with Sight Gauge

	kPa	PSIG	bar
Operating Pressure Maximum	1723	250	17.0
Operating Temperature Range		40°F to 150°F (4°C to 66°C)	

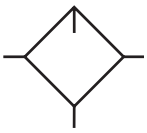
With Aluminum Bowl

	kPa	PSIG	bar
Operating Pressure Maximum	2068	300	21
Operating Temperature Range		40°F to 180°F (4°C to 82°C)	

With Aluminum Bowl with Sight Gauge

	kPa	PSIG	bar
Operating Pressure Maximum	1034	150	10
Operating Temperature Range		40°F to 125°F (4°C to 52°C)	

ANSI Symbols



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Installation

1. The lubricator should be installed with reasonable accessibility for service whenever possible – repair service kits are available. Keep pipe or tubing lengths to a minimum with inside clean and free of dirt and chips. Pipe joint compound should be used sparingly and applied only to the male pipe – never into the female port. Do not use PTFE tape to seal pipe joints – pieces have a tendency to break off and lodge inside the unit, possibly causing malfunction. Also, new pipe or hose should be installed between the lubricator and equipment being lubricated.
2. The upstream pipe work must be clear of accumulated dirt and liquids.
3. Select a lubricator location as close as possible to the equipment being lubricated and downstream of any pressure regulator.
4. Install lubricator so that air flows in the direction of arrow on body.
5. Install lubricator vertically with bowl drain mechanism (if supplied) at the bottom.

Operation and Service

1. Filling — Lubricators can be filled while under pressure and without shutting down equipment. Slowly remove either fill plug and fill to 1/4" to top of bowl using correct oil. For proper automatic fill operation, the oil inlet pressure to lubricator must be maintained between 10 and 200 PSI above air pressure to lubricator.

   Suggested Lubricant: F442

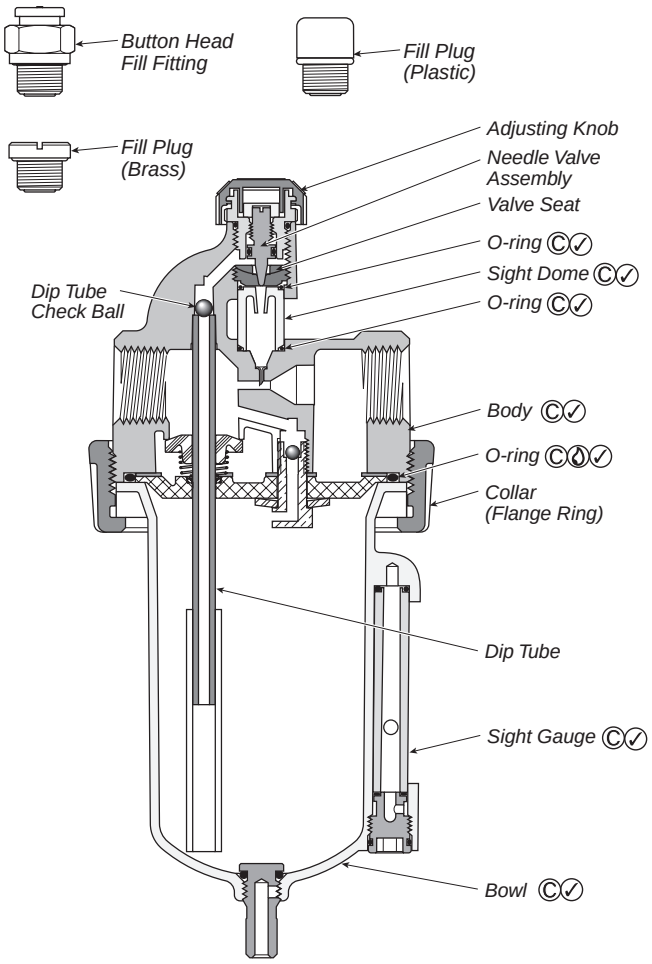
   Petroleum based oil of 100 to 200 SSU viscosity at 100°F and an aniline point greater than 200°F. (Mobil DTE24 and Sun Company Sunvis 932 are good examples). Do not use oils with adhesives, compound oils containing solvents, graphite, detergents or synthetic oils.
2. Replace the Fill Plug (by turning clockwise) and seat firmly. Excessive torque is not required. Turn on air supply, if leakage occurs, **DO NOT OPERATE** — conduct repairs again. The lubricator is now ready for setting.
3. Oil Delivery Adjustment — To adjust oil delivery, turn Adjustment Knob on top of the lubricator.

   Leaner — Clockwise

   Richer — Counterclockwise

   By counting the number of drops per minute in the Sight Dome, you can adjust to your requirements. Generally, one drop per minute downstream for every 10 - 15 SCFM flow is satisfactory. 25 drops per minute equals one (1) ounce per hour - volume of oil passing through the Sight Dome.

   NOTE: This is a constant density type lubricator which delivers a constant ratio of oil air flow. Therefore, if air flow increases or decreases, oil delivery will be adjusted proportionately. ONLY IF A DIFFERENT RATIO IS DESIRED SHOULD YOUR ADJUSTMENT KNOB SETTING BE CHANGED AFTER YOUR INITIAL SETTING.
4. Cleaning — Erratic lubricator operation or loss of lubrication is almost always due to dirt (rust, pipe tape, etc.) in the needle valve or venturi area. To clean, shut off and vent all air line pressure to the unit being cleaned. In most cases cleaning is needed only in the oil metering area. Pull off Adjusting Knob and remove Needle Valve Assembly by turning out large hex nut. Remove Needle Valve Seat and clean removed parts with alcohol making sure hole in seat is clear. With a #57 drill, make sure hole in bottom of sight gauge area is open. Remove Bowl. Clean parts with soapy water or denatured alcohol **but do not use denatured alcohol on plastic bowl, sight dome or sight gauge**. If using compressed air to blow dry, be sure to wear appropriate eye protection.
5. After servicing, apply system pressure and check for air leaks. If leakage occurs, **Do Not Operate** — conduct servicing again.



💧 Lightly grease with provided lubricant.

✓ Inspect for nicks, scratches, and surface imperfections. If present, reduced service life is probable and future replacement should be planned.

Ⓒ Clean with lint-free cloth.

Kits Available

Description	Product Number	Bowl Type	Port Size
Bowl			
Polycarbonate	BK606Y	B	1/4", 3/8"
Zinc with Sight Gauge	BK605WY	W	1/4", 3/8"
Polycarbonate	BK606A	B	1/2"
Aluminum	BK603A	E	1/2"
Zinc with Sight Gauge	BK605WA	W	1/2"
Aluminum with Sight Gauge	BK606X30A	G	1/2"
Aluminum	BK603B	E	3/4" thru 1-1/2"
Zinc with Sight Gauge	BK605WB	W	3/4" thru 1-1/2"
Aluminum with Sight Gauge	BK606X30B	G	3/4" thru 1-1/2"
Repair Kit			
Dip Tube Replacement Kit	DTK606	All	All Sizes
Needle Valve Assembly	RK606Y	All	All Sizes
Sight Dome Repair Kit	RK606SY	All	All Sizes
Sight Gauge Bowl Repair Kit	RBK605WY	W	1/4", 3/8"
Sight Gauge Bowl Repair Kit	RKB605WA	W	1/2"
Sight Gauge Bowl Repair Kit	RKB606X30A	G	1/2"
Sight Gauge Bowl Repair Kit	RKB606WB	W	3/4" thru 1-1/2"
Sight Gauge Bowl Repair Kit	RKB606X30B	G	3/4" thru 1-1/2"
Button Head Fill Fitting (3/4 Hex.)	SAA606C109-1	—	—
Button Head Fill Fitting (11/16 Hex.)	L606C14	—	—
Fill Plug (Brass)	SA606B4	—	—
Fill Plug (Plastic)	SAP04113	—	—

Pneumatic Division
Richland, Michigan 49083
269-629-5000

Installation and Service Instructions
IS-PL50

Multi-Point Injection Lubricator

ISSUED: November, 2009
Supersedes: None

Doc. #ISPL50, EN #090904, Rev. 2

⚠ WARNING

To avoid unpredictable system behavior that can cause personal injury and property damage:

- **Disconnect electrical supply (when necessary) before installation, servicing, or conversion.**
- **Disconnect air supply and depressurize all air lines connected to this product before installation, servicing, or conversion.**
- **Operate within the manufacturer's specified pressure, temperature, and other conditions listed in these instructions.**
- **Medium must be moisture-free if ambient temperature is below freezing.**
- **Service according to procedures listed in these instructions.**
- **Installation, service, and conversion of these products must be performed by knowledgeable personnel who understand how pneumatic products are to be applied.**
- **After installation, servicing, or conversion, air and electrical supplies (when necessary) should be connected and the product tested for proper function and leakage. If audible leakage is present, or the product does not operate properly, do not put into use.**
- **Warnings and specifications on the product should not be covered by paint, etc. If masking is not possible, contact your local representative for replacement labels.**

⚠ WARNING

Product rupture can cause serious injury.
Do not connect regulator to bottled gas.
Do not exceed maximum primary pressure rating.

Safety Guide

For more complete information on recommended application guidelines, see the Safety Guide section of Pneumatic Division catalogs or you can download the **Pneumatic Division Safety Guide** at: www.parker.com/pneumatics

Installation

The PL50 Multi-Point Injection Lubricator is specifically designed to lubricate intermittently operated air rotary tools, cylinders and valves. If equipment operates continuously, the PL50 must be triggered by a separate signal such as from a timer and solenoid valve arrangement or Pulse Generator (see Fig. 10). Unlike conventional mist type lubricators, the PL50 delivers, via capillary tubes, small, precisely controlled amounts of lubricant right to the end lubrication points in the system every time the equipment is cycle (operated). The PL50 consists of a pressure plate (pilot), one to ten injector modules, support plate as described below, and oil reservoir (see Fig. 1).

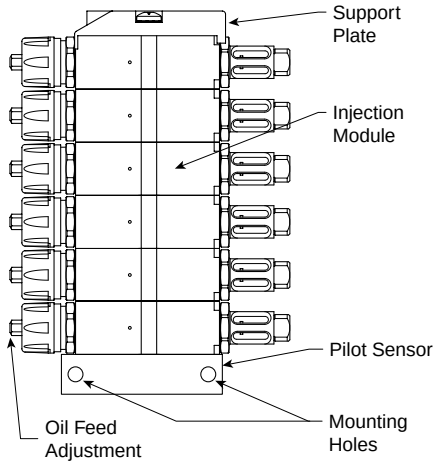


Figure 1

Sensor:

The pressure plate is a pilot sensor (Fig. 1). The pilot sensor receives a pressure pulse (signal) from an external source and transmits it to all the injector modules in the stack. The pilot sensor is normally used on multiple spindle rotary air tools. As shown in Typical Installation (A), the pilot signal is tapped off at a point downstream of the control valve so that injector is fired during the "ON" cycle. Also, it is essential that the pilot signal be removed (vented to atmosphere through the tool) during the "OFF" cycle. The pilot sensor is also used on cylinder and valve circuits by taking the pilot signal from the downstream side of the valve. A separate three-way solenoid operated or air pilot operated valve may be used if it is not convenient or possible to obtain pilot signal directly from the operating circuit. If it is desirable to lubricate one group of point during one portion of the machine (circuit) operating cycle, and another group at a different time, two PL50's must be used. (see Fig. 2).

Note: Install filter and regulator, upstream of PL50.

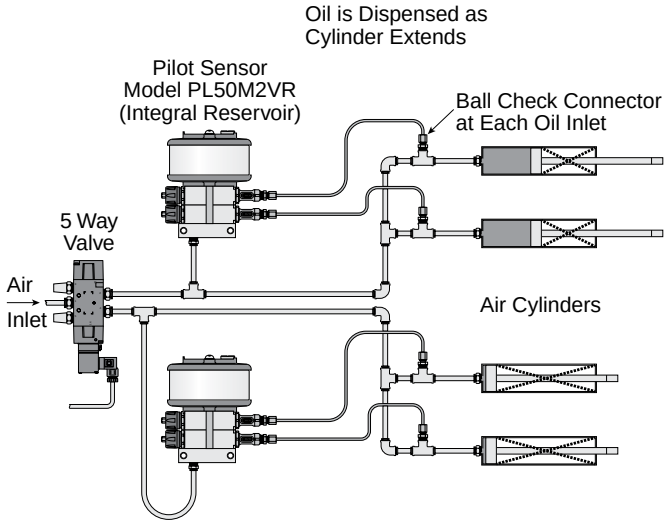


Figure 2

⚠ WARNING

FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS AND/OR SYSTEMS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.

This document and other information from The Company, its subsidiaries and authorized distributors provide product and/or system options for further investigation by users having technical expertise. It is important that you analyze all aspects of your application, including consequences of any failure and review the information concerning the product or systems in the current product catalog. Due to the variety of operating conditions and applications for these products or systems, the user, through its own analysis and testing, is solely responsible for making the final selection of the products and systems and assuring that all performance, safety and warning requirements of the application are met.

The products described herein, including without limitation, product features, specifications, designs, availability and pricing, are subject to change by The Company and its subsidiaries at any time without notice.

EXTRA COPIES OF THESE INSTRUCTIONS ARE AVAILABLE FOR INCLUSION IN EQUIPMENT / MAINTENANCE MANUALS THAT UTILIZE THESE PRODUCTS. CONTACT YOUR LOCAL REPRESENTATIVE.

Injector Modules

The injector modules are basically air operated, positive displacement, adjustable delivery oil pumps. The oil feed rate is adjustable from 0-1 drop (0-.03 cc's) per pulse. Air signal and oil supply passes through each injector module to the next one in the stack. Sight glass, tamperproof oil feed adjustment and manual override pump are provided for ease of operation. (see Fig. 3)

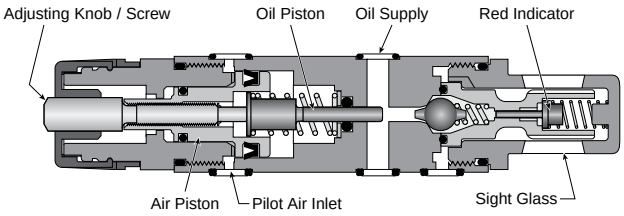


Figure 3

Reservoir

Any reservoir may be used to store and supply oil to the PL50 injector module stack. It can be gravity fed or pressurized (up to 100 PSI)*. Normally, the 9 ounce (BLK50A)**, one quart (BKL50B)** or two quart (BKL50C)** reservoir is used. Where there are many PL50's, oil can be supplied from a central fill system which is supplied by a 55-gallon drum as the reservoir.

*With "R" option only 30 PSI

**Must be remote mount, and can not be pressurized

Installation

Install PL50 Injector Module stack in a convenient location on or close to operating equipment. It is preferable that machine operator can observe movement of red indicator inside sight glass (see Fig. 3) and be able to make changes to oil feed adjustment as may be desired.

Normally the stack is installed in a vertical position primarily so that air bubbles in the oil will rise to the top. Mount PL50 rigidly to equipment or to separate support via two mounting holes in pilot sensor (see Fig. 1).

Connect oil feed capillary tubing to each injector sight glass outlet, utilizing 1/8" NPT male to 1/8" O.D. tube compression fitting adapter (Part No. SAL50Y139). Grip wrench flats on outer sight glass housing to prevent it from rotating when installing tubing adapter (see Fig. 4).

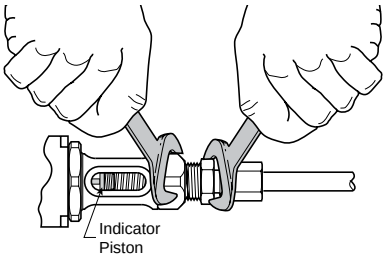


Figure 4

Next, run capillary tubing to point of use, appropriately securing tubing to supporting member (pipeline, column, machine frame, etc.) along the way. Since the injector is a positive displacement device, capillary may be run for hundreds of feet, uphill, downhill without jeopardizing PL50's performance. Do not pass tubing next to extremely hot (steam lines) or cold (refrigeration units) points for it will impair capillary's strength and change oil's viscosity. At point of use, which is as close to inlet port of air operated equipment as possible, cut capillary and install ball check connector (Part No. SA606Z26) (see Fig. 5).

Next, place oil reservoir in location where it will be convenient to observe oil level and refill when necessary. (Do not let reservoir run dry.) It is preferable to locate reservoir so the oil may flow by gravity to the top or bottom (or both) supply connection in the support plate of the stack. If reservoir must be located below the top of injector module stack, provide means for delivering oil (via pump or pressurized reservoir - up to 100 psi max) to PL50. It is preferable to install a shut-off valve in oil supply line between reservoir and injector so that maintenance may be performed on one without having to disturb the other.

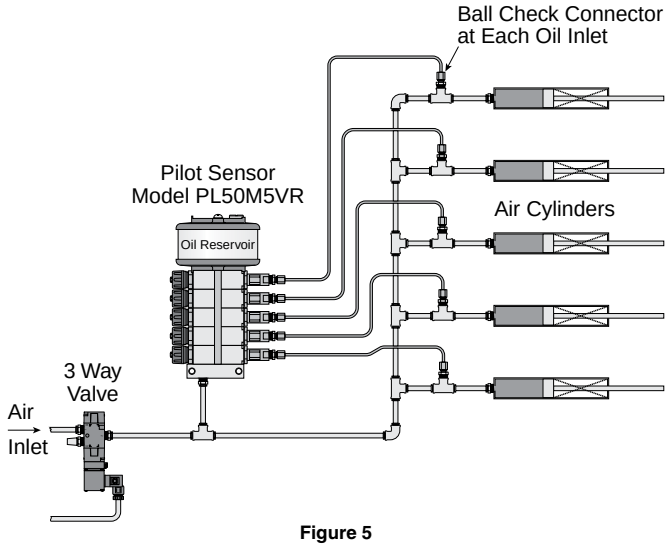


Figure 5

Priming Systems

Once system is completely piped in, the next step is to fill the reservoir, purge air from system and fill capillary tubing. The simplest way is to install a button head fill fitting (Part No. SA606Y107) on one of the oil supply ports in the support plate or pressure plate. Open vent on reservoir, then, with the aid of a bucket pump, pump oil back up into the reservoir (see Fig. 6). Once reservoir is full, close vent and continue to pump. (If reservoir is not pressure type, close shut off valve in supply line.) The bucket pump will overcome check valve in injector and oil will be forced down each injector's capillary tube. Once longest tube is filled, disconnect bucket pump and open reservoir vent (open oil supply shut-off valve if previously closed).

Manual filling is more time-consuming. Reservoir is first filled, and air is purged from stack by removing lower-most plug. Then, each injector is adjusted to maximum setting (see "Oil Feed Adjustment") and cycled manually be repeatedly pushing and releasing manual pump or automatically by cycling equipment. Approximately 50 cycles are required to pure each foot of capillary tube.

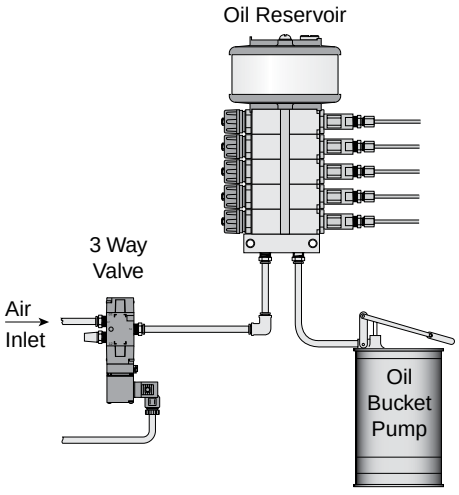


Figure 6

Oil Feed Adjustment

Push in red adjustment knob (see Fig. 7) to unlock. Turn knob clockwise to stop. The injector is now adjusted for maximum oil output - approximately 1 drop per cycle (.03 cc).

Operate downstream equipment until all wetted surfaces are coated with oil and excessive oil mist is discharging from operating equipment exhaust ports. Next, reduce oil adjustment by turning red knob counter-clockwise. Each counter-clockwise turn reduces oil rate by 0.1 drop/cycle. A normal setting is 2-1/2 to 3-1/2 turns counter-clockwise (i.e. 0.3-0.2 drops/cycle). Operate equipment for a few cycles and re-adjust to a higher (clockwise) or lower (counter-clockwise) oil delivery setting as may be required. When set, pull knob out one click to lock setting.

Remove knob to make tamper resistant. To completely shut off oil feed, turn knob 6-8 turns counter-clockwise. Repeat procedures for each injector in the stack.

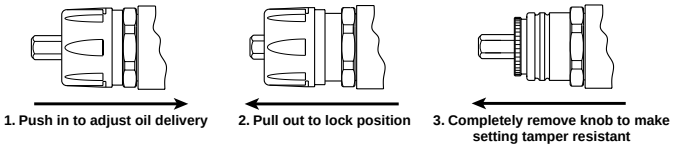


Figure 7

Troubleshooting

First indication of malfunction is the red indicator in the sight glass (see Fig. 3) is not moving when injector is cycled and all other parts, such as manual pump, sensor, etc. function normally. To correct the problem, first re-adjust oil feed setting to maximum by turning red oil feed adjustment knob all the way clockwise and observing number of turns and location of arrow on the end of the knob. If the red indicator now moves when injector is cycled, it is functioning properly and can be re-adjusted back to lower setting. However, continue to observe if red indicator does move as knob is turned counter-clockwise. Normally motion will not be noticeable below 3-1/2 to 4 turns back and lubricator will be completely shut off at 5-1/2 to 6 turns back. If indicator still does not move after oil delivery is at maximum, the malfunction may be caused by an air pocked in injector oil passages. To remedy, purge the injector module stack by removing the 1/8" pipe oil plug in plate (see Fig. 9). Recycle injector. If injector was air-bound, normally a few small air bubbles will now emerge in the sight glass and be purged out through capillary tubing. Prevent the formation of air pockets by not allowing reservoir to run out of oil.

If neither of the above simple procedures correct problem, it is normally good practice to replace the malfunctioning module with a new one and put equipment back into operation. Then, the malfunctioning module can be disassembled, cleaned and repaired at leisure (see Fig. 8).

If manual pump is not moving when equipment is cycled, the air signal is not reaching injector(s), or is too weak.

First determine if signal is being delivered to modules. If not, check air circuit and/or control valve for proper operation.

Maintenance

With clean, dry air and with clean oil (free of air bubbles), the PL50 will operate indefinitely for millions of cycles with only a minimum of maintenance. Normal maintenance consists of disassembling the stack of modules and periodically cleaning air and oil passages with solvents on metal parts, but only use household soap or detergent on plastic parts. Reassemble using (Fig. 9) as a guide.

Repair Kits (see Fig. 8)

Module Kit - Visable Indicator KPL50MV

Consists of:
RKL50MA
RKL50MD
Module Body Sub-Assembly

Adjustment End Only RKL50MA

Consists of:
Oil Piston Spring
Oil Piston
Adjustment Knob
Adjustment Assembly

Visable Indicator End Repair Kit RKL50MD

Consists of:
Indicator Cylinder
Indicator Cylinder O-ring
Indicator Piston
Indicator Piston Spring
Check Ball
Check Ball Spring
Housing Retainer
Sight Glass Housing
Sight Glass Housing O-ring

Module Kit - Non-Visable Indicator KPL50M

Consists of:
RKL50MA
Check Ball
Check Ball Spring
Standard End Feed Plug
Standard End Feed Plug O-Ring
Module Body Sub-Assembly

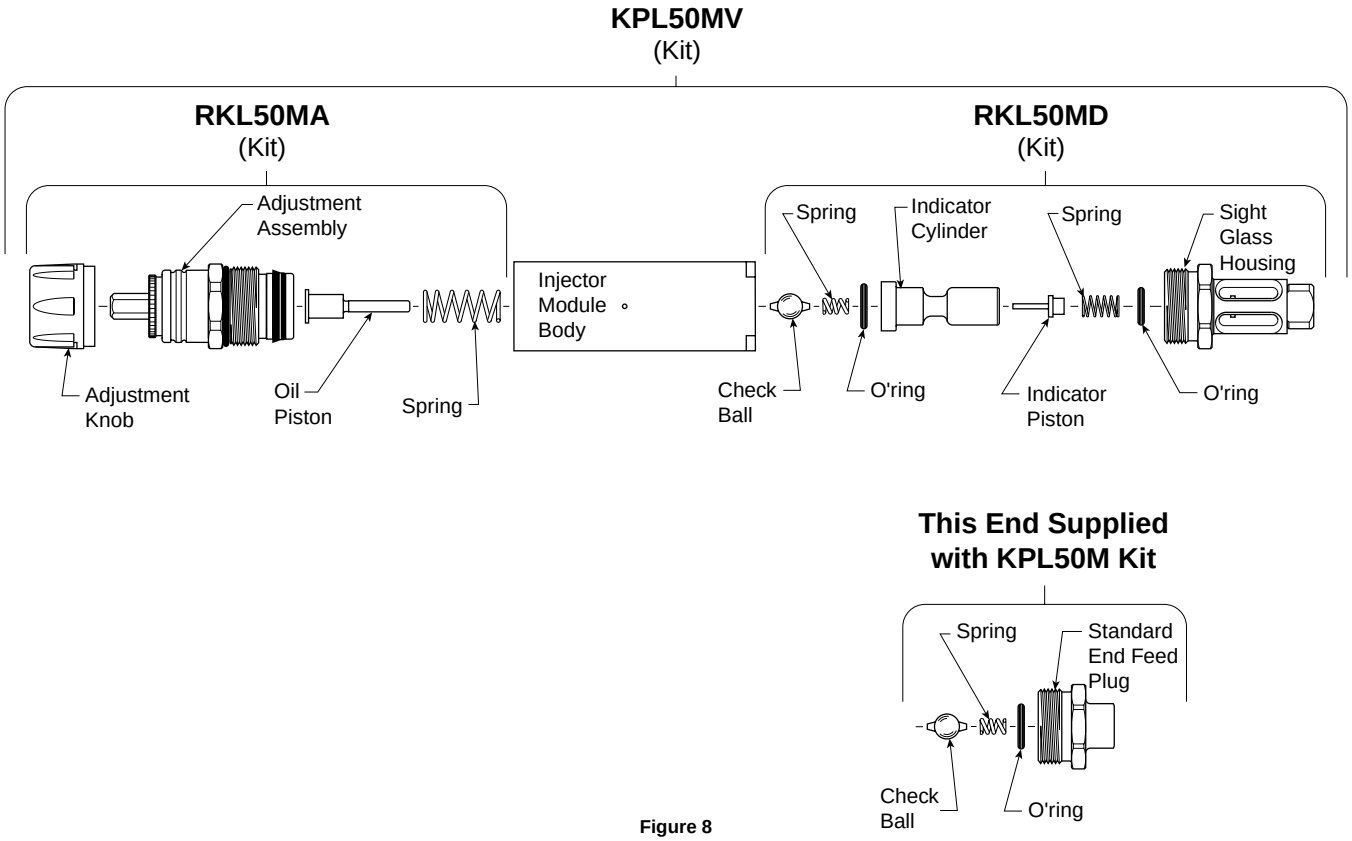


Figure 8

Field Assembly

PL50 can be obtained with the desired number of modules (1 - 10) completely assembled to sensor. They also can be assembled in the field from kits. Use (Fig. 9) as a guide and proceed as follows:

1. Unpack pressure plate and first module kit.

2. Screw two spacer stud tie bolts in place - note drawing. (Use spacer stud tie bolts supplied with module kit.)

3. Install one set of multi-lobed seals in sensor recesses.

4. Slip module into position making sure oil and air holes line up with corresponding holes in plate.

5. Open second module package. Screw in two spacer studs. Install multi-lobed seals.

6. Repeat for 3 through 10 modules.

7. Install set of multi-lobed seals in support plate and place on top of module stack and insert two retainer screws. Hand tighten screws and the PL50 is ready for installation.

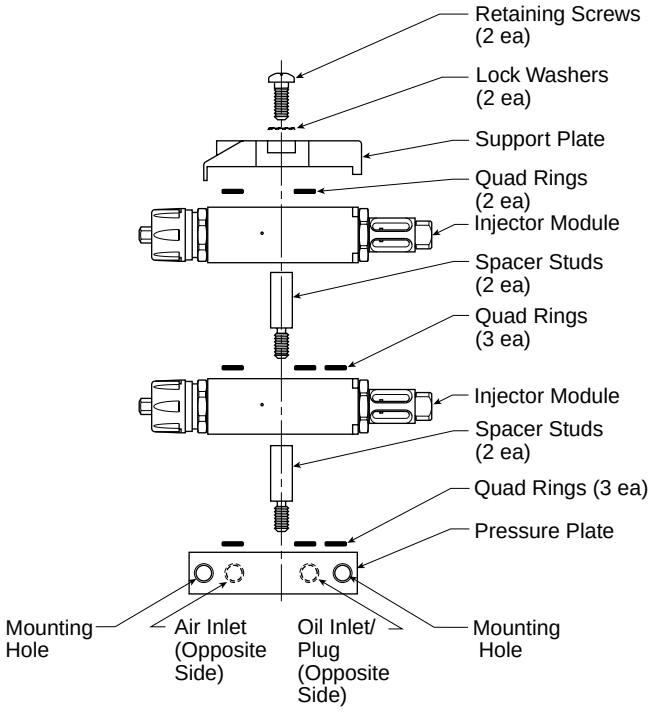


Figure 9

Direct Application Configuration

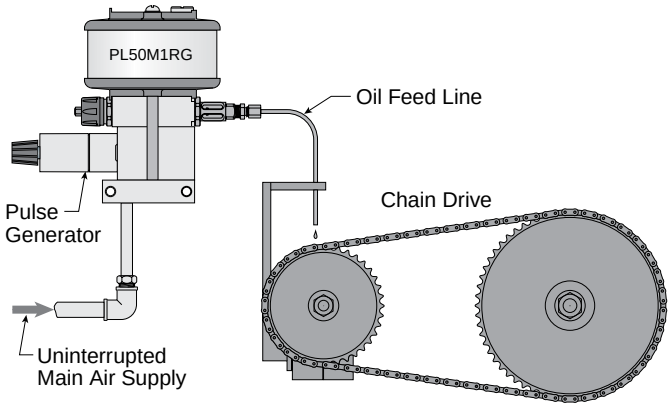


Figure 10

Installation & Service Instructions:
IS-RKL50G

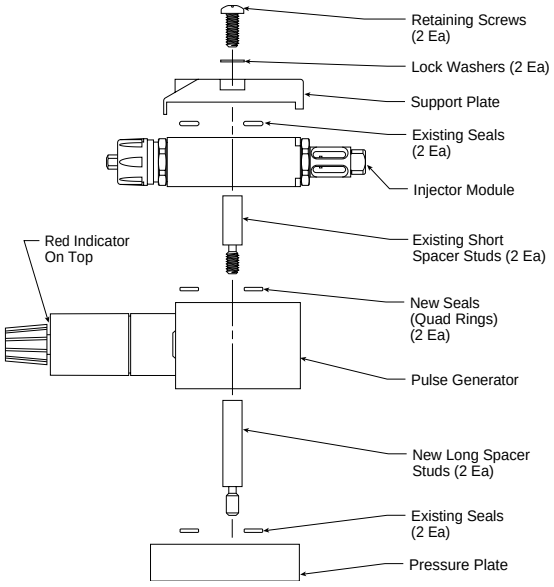
Pulse Generator

ISSUED: July, 2004
Supersedes: None
Doc.# ISRKL50G, ECN# 030499, Rev.1

⚠ WARNING

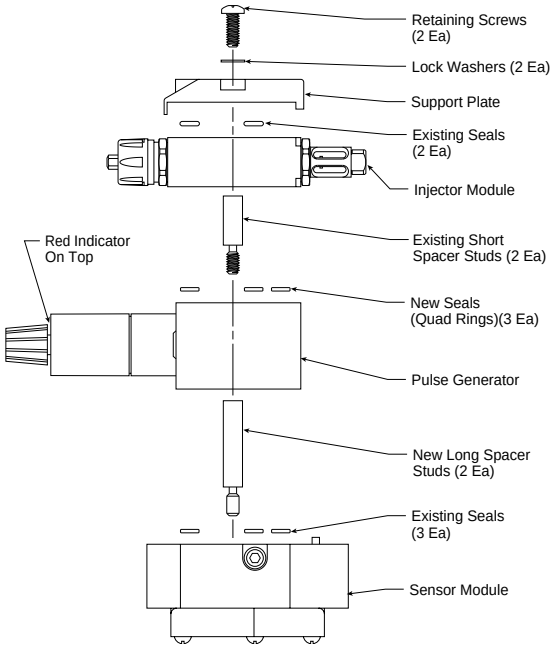
To avoid unpredictable system behavior that can cause personal injury and property damage:

- **Disconnect electrical supply (when necessary) before installation, servicing, or conversion.**
- **Disconnect air supply and depressurize all air lines connected to this product before installation, servicing, or conversion.**
- **Operate within the manufacturer's specified pressure, temperature, and other conditions listed in these instructions.**
- **Medium must be moisture-free if ambient temperature is below freezing.**
- **Service according to procedures listed in these instructions.**
- **Installation, service, and conversion of these products must be performed by knowledgeable personnel who understand how pneumatic products are to be applied.**
- **After installation, servicing, or conversion, air and electrical supplies (when necessary) should be connected and the product tested for proper function and leakage. If audible leakage is present, or the product does not operate properly, do not put into use.**
- **Warnings and specifications on the product should not be covered by paint, etc. If masking is not possible, contact your local representative for replacement labels.**



PL50

1. Remove Retaining Screws, Support Plate, Injection Module and Short Spacer Studs, (Option is to leave short spacer studs in plate and add long studs to top of short ones).
2. Install long studs then short ones on top.
3. Make sure 2 Quad Rings are in place on Pressure Plate and install Pulse Generator.
4. Place 2 Quad Rings on top of Pulse Generator.
5. Reinstall Injection Module, Existing Seasl, Support Plate and Screws and torque screws to 35 in./lb.



L50

1. Remove Retaining Screws, Support Plate, Injection Module and Short Spacer Studs, (Option is to leave short spacer studs in plate and add long studs to top of short ones).
2. Install long studs then short ones on top.
3. Make sure 3 Quad Rings are in place on Sensor Module and install Pulse Generator.
4. Place 3 Quad Rings on top of Pulse Generator.
5. Reinstall Injection Module, Existing Seals, Support Plate and Screws and torque screws to 35 in./lb.

⚠ WARNING

FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS AND/OR SYSTEMS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.

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Pneumatic Division
Richland, Michigan 49083
269-629-5000

PDNSG-1
Pneumatic Division Safety Guide
ISSUED: August 1 , 2006
Supersedes: June 1, 2006

Safety Guide For Selecting And Using Pneumatic Division Products And Related Accessories

⚠ WARNING:

FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF PNEUMATIC DIVISION PRODUCTS, ASSEMBLIES OR RELATED ITEMS ("PRODUCTS") CAN CAUSE DEATH, PERSONAL INJURY, AND PROPERTY DAMAGE. POSSIBLE CONSEQUENCES OF FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THESE PRODUCTS INCLUDE BUT ARE NOT LIMITED TO:

- Unintended or mistimed cycling or motion of machine members or failure to cycle
- Work pieces or component parts being thrown off at high speeds.
- Failure of a device to function properly for example, failure to clamp or unclamp an associated item or device.
- Explosion
- Suddenly moving or falling objects.
- Release of toxic or otherwise injurious liquids or gasses.

Before selecting or using any of these Products, it is important that you read and follow the instructions below.

1. GENERAL INSTRUCTIONS

1.1. Scope: This safety guide is designed to cover general guidelines on the installation, use, and maintenance of Pneumatic Division Valves, FRLs (Filters, Pressure Regulators, and Lubricators), Vacuum products and related accessory components.

1.2. Fail-Safe: Valves, FRLs, Vacuum products and their related components can and do fail without warning for many reasons. Design all systems and equipment in a fail-safe mode, so that failure of associated valves, FRLs or Vacuum products will not endanger persons or property.

1.3 Relevant International Standards: For a good guide to the application of a broad spectrum of pneumatic fluid power devices see: ISO 4414:1998, Pneumatic Fluid Power – General Rules Relating to Systems. See www.iso.org for ordering information.

1.4. Distribution: Provide a copy of this safety guide to each person that is responsible for selection, installation, or use of Valves, FRLs or Vacuum products. Do not select, or use Parker valves, FRLs or vacuum products without thoroughly reading and understanding this safety guide as well as the specific Parker publications for the products considered or selected.

1.5. User Responsibility: Due to the wide variety of operating conditions and applications for valves, FRLs, and vacuum products Parker and its distributors do not represent or warrant that any particular valve, FRL or vacuum product is suitable for any specific end use system. This safety guide does not analyze all technical parameters that must be considered in selecting a product. The user, through its own analysis and testing, is solely responsible for:

- Making the final selection of the appropriate valve, FRL, Vacuum component, or accessory.
- Assuring that all user's performance, endurance, maintenance, safety, and warning requirements are met and that the application presents no health or safety hazards.
- Complying with all existing warning labels and / or providing all appropriate health and safety warnings on the equipment on which the valves, FRLs or Vacuum products are used; and,
- Assuring compliance with all applicable government and industry standards.

1.6. Safety Devices: Safety devices should not be removed, or defeated.

1.7. Warning Labels: Warning labels should not be removed, painted over or otherwise obscured.

1.8. Additional Questions: Call the appropriate Parker technical service department if you have any questions or require any additional information. See the Parker publication for the product being considered or used, or call 1-800-CPARKER, or go to www.parker.com, for telephone numbers of the appropriate technical service department.

2. PRODUCT SELECTION INSTRUCTIONS

2.1. Flow Rate: The flow rate requirements of a system are frequently the primary consideration when designing any pneumatic system. System components need to be able to provide adequate flow and pressure for the desired application.

2.2. Pressure Rating: Never exceed the rated pressure of a product. Consult product labeling, Pneumatic Division catalogs or the instruction sheets supplied for maximum pressure ratings.

2.3. Temperature Rating: Never exceed the temperature rating of a product. Excessive heat can shorten the life expectancy of a product and result in complete product failure.

2.4. Environment: Many environmental conditions can affect the integrity and suitability of a product for a given application. Pneumatic Division products are designed for use in general purpose industrial applications. If these products are to be used in unusual circumstances such as direct sunlight and/or corrosive or caustic environments, such use can shorten the useful life and lead to premature failure of a product.

2.5. Lubrication and Compressor Carryover: Some modern synthetic oils can and will attack nitrile seals. If there is any possibility of synthetic oils or greases migrating into the pneumatic components check for compatibility with the seal materials used. Consult the factory or product literature for materials of construction.

2.6. Polycarbonate Bowls and Sight Glasses: To avoid potential polycarbonate bowl failures:

- Do not locate polycarbonate bowls or sight glasses in areas where they could be subject to direct sunlight, impact blow, or temperatures outside of the rated range.
- Do not expose or clean polycarbonate bowls with detergents, chlorinated hydro-carbons, keytones, esters or certain alcohols.
- Do not use polycarbonate bowls or sight glasses in air systems where compressors are lubricated with fire resistant fluids such as phosphate ester and di-ester lubricants.

2.7. Chemical Compatibility: For more information on plastic component chemical compatibility see Pneumatic Division technical bulletins Tec-3, Tec-4, and Tec-5

2.8. Product Rupture: Product rupture can cause death, serious personal injury, and property damage.
- Do not connect pressure regulators or other Pneumatic Division products to bottled gas cylinders.
- Do not exceed the maximum primary pressure rating of any pressure regulator or any system component.
- Consult product labeling or product literature for pressure rating limitations.

3. PRODUCT ASSEMBLY AND INSTALLATION INSTRUCTIONS

3.1. Component Inspection: Prior to assembly or installation a careful examination of the valves, FRLs or vacuum products must be performed. All components must be checked for correct style, size, and catalog number. DO NOT use any component that displays any signs of nonconformance.

3.2. Installation Instructions: Parker published Installation Instructions must be followed for installation of Parker valves, FRLs and vacuum components. These instructions are provided with every Parker valve or FRL sold, or by calling 1-800-CPARKER, or at www.parker.com.

3.3. Air Supply: The air supply or control medium supplied to Valves, FRLs and Vacuum components must be moisture-free if ambient temperature can drop below freezing

4. VALVE AND FRL MAINTENANCE AND REPLACEMENT INSTRUCTIONS

4.1. Maintenance: Even with proper selection and installation, valve, FRL and vacuum products service life may be significantly reduced without a continuing maintenance program. The severity of the application, risk potential from a component failure, and experience with any known failures in the application or in similar applications should determine the frequency of inspections and the servicing or replacement of Pneumatic Division products so that products are replaced before any failure occurs. A maintenance program must be established and followed by the user and, at minimum, must include instructions 4.2 through 4.10.

4.2. Installation and Service Instructions: Before attempting to service or replace any worn or damaged parts consult the appropriate Service Bulletin for the valve or FRL in question for the appropriate practices to service the unit in question. These Service and Installation Instructions are provided with every Parker valve and FRL sold, or are available by calling 1-800-CPARKER, or by accessing the Parker web site at www.parker.com.

4.3. Lockout / Tagout Procedures: Be sure to follow all required lockout and tagout procedures when servicing equipment. For more information see: OSHA Standard – 29 CFR, Part 1910.147, Appendix A, The Control of Hazardous Energy – (Lockout / Tagout)

4.4. Visual Inspection: Any of the following conditions requires immediate system shut down and replacement of worn or damaged components:
- Air leakage: Look and listen to see if there are any signs of visual damage to any of the components in the system. Leakage is an indication of worn or damaged components.
- Damaged or degraded components: Look to see if there are any visible signs of wear or component degradation.
- Kinked, crushed, or damaged hoses. Kinked hoses can result in restricted air flow and lead to unpredictable system behavior.
- Any observed improper system or component function: Immediately shut down the system and correct malfunction.
- Excessive dirt build-up: Dirt and clutter can mask potentially hazardous situations.

Caution: Leak detection solutions should be rinsed off after use.

4.5. Routine Maintenance Issues:
- Remove excessive dirt, grime and clutter from work areas.
- Make sure all required guards and shields are in place.

4.6. Functional Test: Before initiating automatic operation, operate the system manually to make sure all required functions operate properly and safely.

4.7. Service or Replacement Intervals: It is the user's responsibility to establish appropriate service intervals. Valves, FRLs and vacuum products contain components that age, harden, wear, and otherwise deteriorate over time. Environmental conditions can significantly accelerate this process. Valves, FRLs and vacuum components need to be serviced or replaced on routine intervals. Service intervals need to be established based on:
- Previous performance experiences.
- Government and / or industrial standards.
- When failures could result in unacceptable down time, equipment damage or personal injury risk.

4.8. Servicing or Replacing of any Worn or Damaged Parts: To avoid unpredictable system behavior that can cause death, personal injury and property damage:
- Follow all government, state and local safety and servicing practices prior to service including but not limited to all OSHA Lockout Tagout procedures (OSHA Standard – 29 CFR, Part 1910.147, Appendix A, The Control of Hazardous Energy – Lockout / Tagout).
- Disconnect electrical supply (when necessary) before installation, servicing, or conversion.
- Disconnect air supply and depressurize all air lines connected to system and Pneumatic Division products before installation, service, or conversion.
- Installation, servicing, and / or conversion of these products must be performed by knowledgeable personnel who understand how pneumatic products are to be applied.
- After installation, servicing, or conversions air and electrical supplies (when necessary) should be connected and the product tested for proper function and leakage. If audible leakage is present, or if the product does not operate properly, do not put product or system into use.
- Warnings and specifications on the product should not be covered or painted over. If masking is not possible, contact your local representative for replacement labels.

4.9. Putting Serviced System Back into Operation: Follow the guidelines above and all relevant Installation and Maintenance Instructions supplied with the valve FRL or vacuum component to insure proper function of the system.