

## Lubricated Compressor Pumps

Please read and save these instructions. Read carefully before attempting to assemble, install, operate or maintain the product described. Protect yourself and others by observing all safety information. Failure to comply with instructions could result in personal injury and/or property damage! Retain instructions for future reference.

## Description

### GENERAL

The Powerex reciprocating air compressor has advanced compressor technology. The Powerex reciprocating compressor is available in single stage model. Individually precision machined cylinders and lap joint rings provide the lowest oil carryover in the industry.

### DRY TYPE INLET FILTER

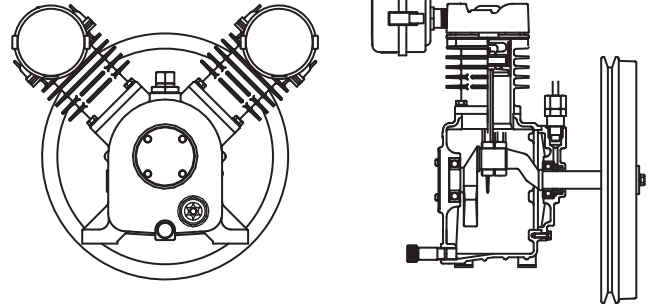
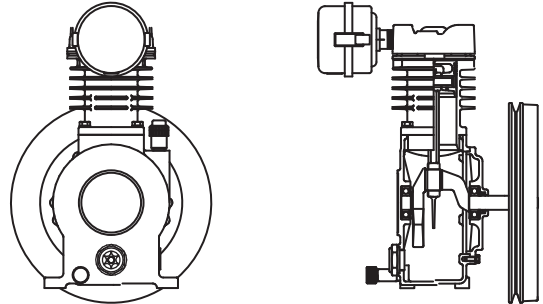
The inlet filter on the Powerex compressor assures 99% of particulate free air is admitted to the unit. Change every 2,500 hours or more often in dirty locations.

### PISTON RINGS AND CYLINDERS

The Powerex reciprocating compressor cylinder is made of cast iron, machined with the most advanced technology available. These heat reducing cylinders eliminate the effect of excessive ring and cylinder wear.

### VALVING

Low lift Swedish stainless steel valves resist carbon build-up and offer outstanding durability. The reduced number of valves lessens the risk of failure.



## Safety Guidelines

This manual contains information that is very important to know and understand. This information is provided for SAFETY and to PREVENT EQUIPMENT PROBLEMS. To help recognize this information, observe the following symbols.

### ⚠ DANGER

*Danger indicates an imminently hazardous situation which, if not avoided, WILL result in death or serious injury.*

### ⚠ WARNING

*Warning indicates a potentially hazardous situation which, if not avoided, COULD result in death or serious injury.*

### ⚠ CAUTION

*Caution indicates a potentially minor or moderate injury.*

### NOTICE

*Notice indicates important information, that if not followed, may cause damage to equipment.*

**NOTE:** Information that requires special attention.

### CALIFORNIA PROPOSITION 65

### ⚠ WARNING

*This product or its power cord may contain chemicals known to the State of California to cause cancer and birth defects or other reproductive harm. Wash hands after handling.*

### ⚠ DANGER

### Breathable Air Warning

*This compressor/pump is NOT equipped and should NOT be used "as is" to supply breathing quality air. For any application of air for human consumption, you must fit the air compressor/pump with suitable in-line safety and alarm equipment. This additional equipment is necessary to properly filter and purify the air to meet minimal specifications for Grade D breathing as described in Compressed Gas Association Commodity Specification G 7.1 - 1966, OSHA 29 CFR 1910. 134, ANSI and/or Canadian Standards Associations (CSA).*

### DISCLAIMER OF WARRANTIES

*IN THE EVENT THE COMPRESSOR IS USED FOR THE PURPOSE OF BREATHING AIR APPLICATION AND PROPER IN-LINE SAFETY AND ALARM EQUIPMENT IS NOT SIMULTANEOUSLY USED, EXISTING WARRANTIES ARE VOIDED, AND POWEREX DISCLAIMS ANY LIABILITY WHATSOEVER FOR ANY LOSS, PERSONAL INJURY OR DAMAGE.*

# Lubricated Compressor Pumps

## Installation

### INSTALLATION SITE

1. The compressor must be located in a clean, well lit and well ventilated area.
2. The area should be free of excessive dust, toxic or flammable gases, moisture, water, and direct sunlight.
3. Never install the compressor where the ambient temperature is higher than 104° F or where humidity is high.
4. Clearance must allow for safe, effective inspection and maintenance.
5. If necessary, use metal shims or leveling pads to level the compressor. Never use wood to shim the compressor.

### VENTILATION

1. If the compressor is located in a totally enclosed room, an exhaust fan with access to outside air must be installed.
2. Never restrict the cooling fan exhaust air.
3. Never locate the compressor where hot exhaust air from other heat generating units may be pulled into the unit.

MINIMUM CLEARANCES	
Above	24 inches
Drive belt side	12 inches
Other sides	20 inches

### WIRING

Refer to the general product manual. All electrical hook-ups must be performed by a qualified electrician. Installations must be in accordance with local and national electrical codes.

Use solderless terminals to connect the electric power source.

### PIPING

Refer to the general product manual.

1. Make sure the piping is lined up without being strained or twisted when assembling the piping for the compressor.
2. Appropriate expansion loops or bends should be installed at the compressor to avoid stresses caused by changes in hot and cold conditions.
3. Piping supports should be anchored separately from the compressor to reduce noise and vibration.

4. Never use any piping smaller than the compressor connection.
5. Use flexible hose to connect the outlet of the compressor to the piping so that the vibration of the compressor does not transfer to the piping.

### SAFETY VALVES

Tank mounted compressors are shipped from the factory with safety valves installed in the tank manifold. The flow capacity of the safety valve is equal to or greater than the capacity of the compressor.

1. The pressure setting of the safety valve must be no higher than the maximum working pressure of the tank.
2. Safety valves should be placed ahead of any possible blockage point in the system, i.e. shutoff valve.
3. Avoid connecting the safety valve with any tubing or piping.
4. Manually operate the safety valve every six months to avoid sticking or freezing.

## Operation

Powerex single stage compressors operate at a maximum pressure of 145 PSIG. Compressor RPM's are established by Powerex based on horsepower and operating pressure.

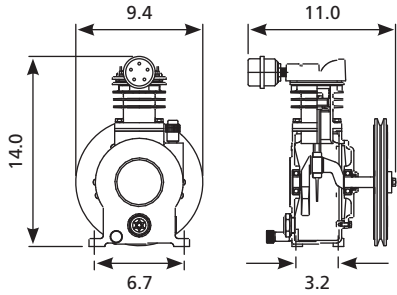
### BEFORE START UP

1. Make sure all safety warnings, labels and instructions have been read and understood before continuing.
2. Remove any shipping materials, brackets, etc.
3. Confirm that the electric power source and ground have been firmly connected.
4. Be sure all pressure connections are tight.
5. Check to be certain all safety relief valves, etc., are correctly installed.
6. Check that all fuses, circuit breakers, etc., are the proper size.
7. Make sure the inlet filter is properly installed.
8. Confirm that the tank drain valve is closed.
9. Visually check the rotation of the compressor pump. The rotation should be counter-clockwise when facing the pulley/flywheel side. If the rotation is incorrect, have a qualified electrician correct the motor wiring.

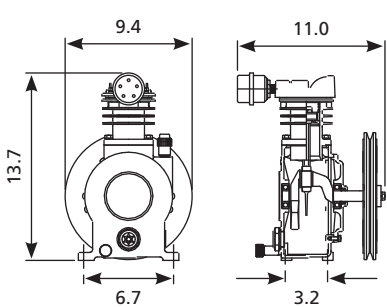
## Pump Specifications

Model	HP	Max psig	SCFM @ 100 psig	RPM @ 100 psig	Number / Cylinders	Bore	Stroke	Flywheel Outer Diameter	Drive
LPS007	0.75	145	2.1	980	1	1.97	2.56	9.45	1GR-A
LPS010A	1.0	145	3.4	1120	1	1.97	2.56	9.45	1GR-A
LPS020A	1.5/2	145	4.5/6.7	860/1250	1	2.56	2.56	11.2	1GR-A
LPS030A	3	145	10.1	1050	2	2.56	2.36	13.8	1GR-B
LPS050A	5	145	18.6	1150	2	2.95	2.76	14.6	1GR-B
LPS075A	7.5	145	28.0	950	2	3.54	3.35	16.9	2GR-B
LPS100A	10	145	37.0	880	2	4.13	3.35	18.3	2GR-B

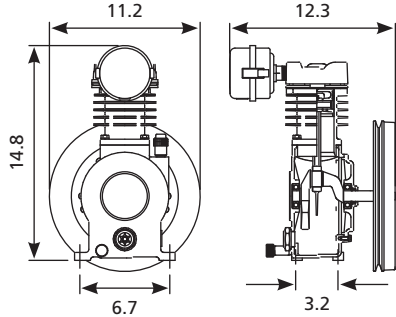
**NOTE:** 0.5 HP and 0.75 HP pumps must be used under altitudes of 5000 feet. Above 5000 feet, 1 HP pumps must be used.



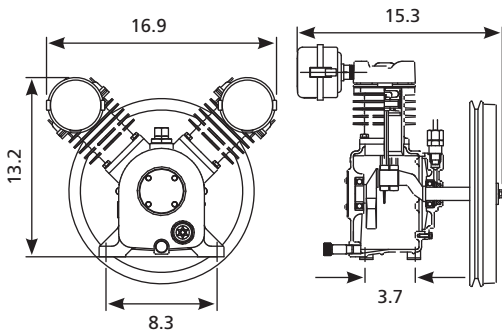
LPS007



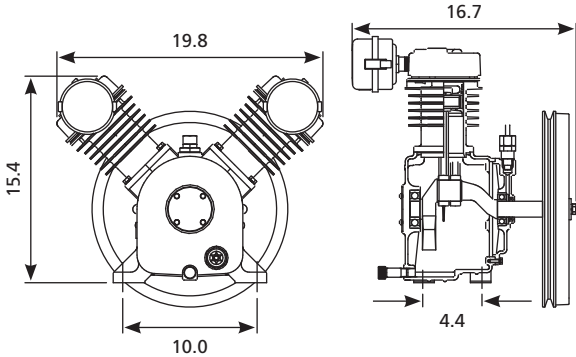
LPS010A



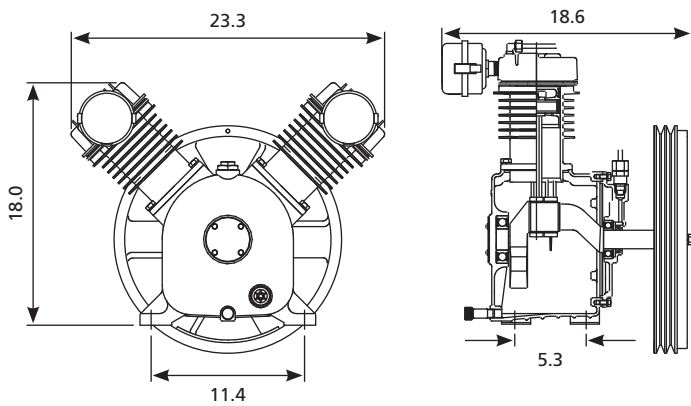
LPS020A



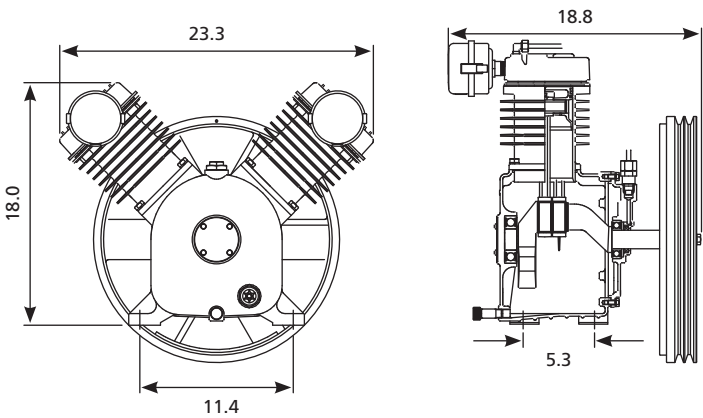
LPS030A



LPS050A



LPS075A



LPS100A

Figure 1 - Pump Dimensions

## Lubricated Compressor Pumps

### Operation (Continued)

#### START UP AND OPERATION

1. Follow all the procedures under "Before start-up" before attempting operation of the compressor.
2. Switch the electric source breaker on.
3. Open the tank discharge valve completely.
4. Check that the compressor operates without excessive vibration, unusual noises or leaks.
5. Close the discharge valve completely.
6. Check the discharge pressure by checking the discharge pressure gauge.
7. Check the operation of the pressure switch by opening the stop valve and confirming the compressor starts as the pressure drops.

Switch the breaker off if the compressor is not to be used for a long period of time.

### Maintenance

#### OIL LEVEL

To check lubricating oil, see oil gauge. Refill if necessary.

#### OIL CHANGE

Replace lubricating oil fully within designated time. Before draining oil, remove oil supply cap and then oil drain cap in order to release air.

#### Recommended oil

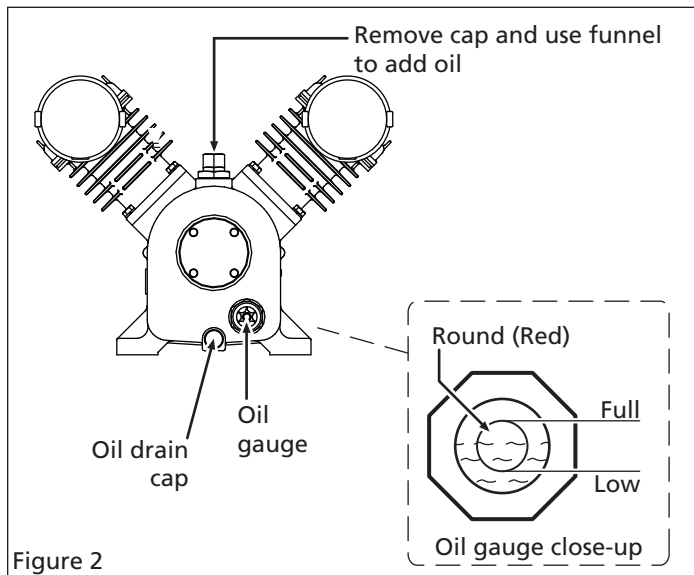
Mobil Rarus 427, Shell Turbo T68, Exxon Esstic T68 and Texaco Rando T68

#### Climate control applications

Mobil DTE Heavy and Mobil Rarus 427

#### **▲WARNING**

**Dispose of oil in accordance with state or local codes.**

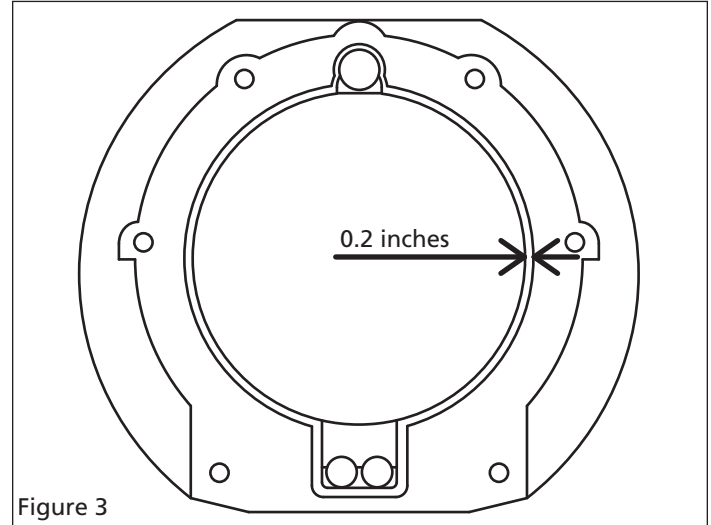


#### AIR FILTER REPLACEMENT

1. Remove filter cover.
2. Install new filter element (P/N 91348550).
3. Reassemble filter cover.

**Do not attempt to clean and reuse filter cartridge.**

#### LIQUID GASKET APPLICATION



## Maintenance (Continued)

### VALVE REPLACEMENT PROCEDURE

1. Remove cylinder head bolts on each cylinder. Remove head. Note original orientation.
2. Remove valve plate. Note original orientation.
3. Scrape head and cylinders of all gasket material without damaging the surfaces.
4. Apply thin, continuous layer of liquid gasket to the head and the top of the cylinder. Make sure not to apply liquid gasket on the area within 0.2 inches from inner surface of cylinder so that liquid gasket does not enter inside of cylinder (See Figure 3).
5. Install valve set. Note orientation of the top and bottom.
6. Install head bolts. Torque head bolts (See chart 1).
7. After assembly, rotate the pump at least one revolution by hand to ensure pump is properly assembled and not hitting internally.
8. Unit is ready for full operation. No break-in is required.

### RING REPLACEMENT PROCEDURE

1. Remove lower cylinder bolts and cylinder, leaving head and valve plate intact. Mark the cylinder location and orientation. Inspect for abnormal wear.
2. Remove old piston rings.
3. Replace rings. Make sure that the sides of all the rings that are marked "top" are facing upwards, towards the top of the piston. If the rings are installed upside down, the compressor will pass oil through the system (see Figure 5). Orientate ends 180° opposite from each other.
4. Scrape crankcase and bottom of cylinder of all gasket material without damaging the surface.
5. Apply thin continuous layer of liquid gasket to cylinder bottom flange. Install cylinder. Be careful of orientation. Torque cylinder bolts (See chart 2).
6. After assembly, rotate the pump at least one revolution by hand to ensure pump is properly assembled and not hitting internally.
7. Unit is ready for full operation. No break-in is required.

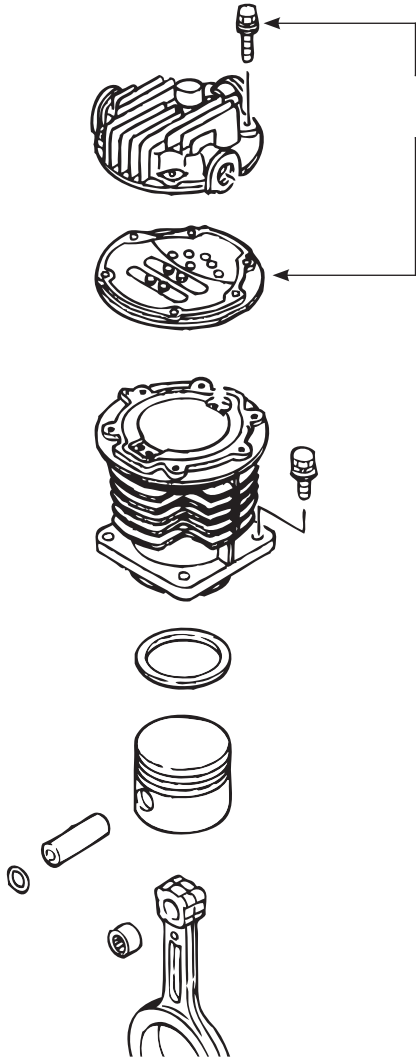


Figure 4

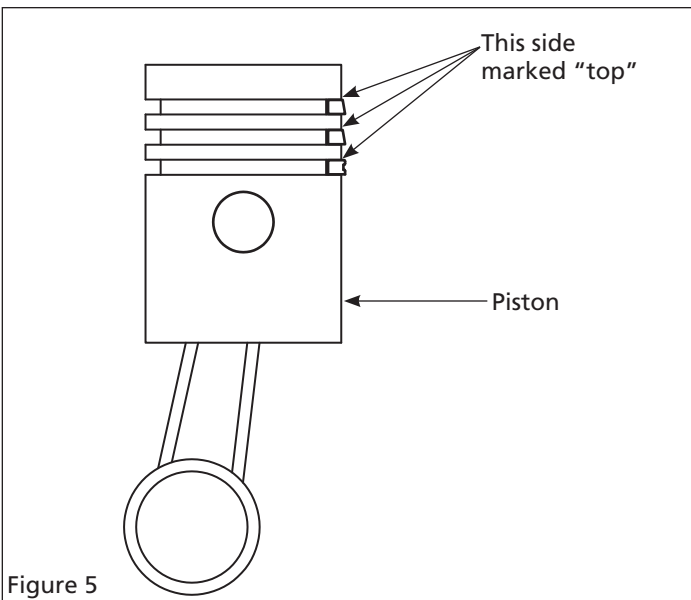


Figure 5

HEAD BOLT TORQUE	
Model	Torque (in. lb.)
LPS007	135
LPS010A	135
LPS020A	135
LPS030A	135
LPS050A	135
LPS075A	135
LPS100A	135

Chart 1

CYLINDER BOLT TORQUE	
Model	Torque (in. lb.)
LPS007	135
LPS010A	135
LPS020A	135
LPS030A	135
LPS050A	135
LPS075A	265
LPS100A	265

Chart 2

## Lubricated Compressor Pumps

### Maintenance Schedule

Item	Action needed	Operating Hours								Remarks
		Daily	500	1500	2500	5000	10,000	15,000	20,000	
Inlet air filter	Inspect / Replace		●		▲					Every 2500 hours or less
Pump Flywheel	Clean					●	●	●	●	
Compressor fins	Clean				●					Every 2500 hours or less
Oil change	Replace			▲						Every 1500 hours
Compression rings	Replace							▲		
Check oil	Inspect	●								

- Inspect
- ▲ Replace

#### NOTES:

1. Inspect and perform maintenance periodically according to maintenance schedule.
2. The maintenance schedule relates to the normal operating conditions. If the circumstances and load condition are adverse, shorten the cycle time and do maintenance accordingly.

### Oil Capacity Chart

Model	HP	Oil Capacity	
		0 to High (liters)	Oil Range Low to High (liters)
LPS007	0.75	0.44	0.12
LPS010A	1.0	0.44	0.12
LPS020A	1.5 / 2	0.44	0.12
LPS030A	3	0.70	0.20
LPS050A	5	1.03	0.35
LPS075A	7.5	1.70	0.45
LPS100A	10	1.70	0.45



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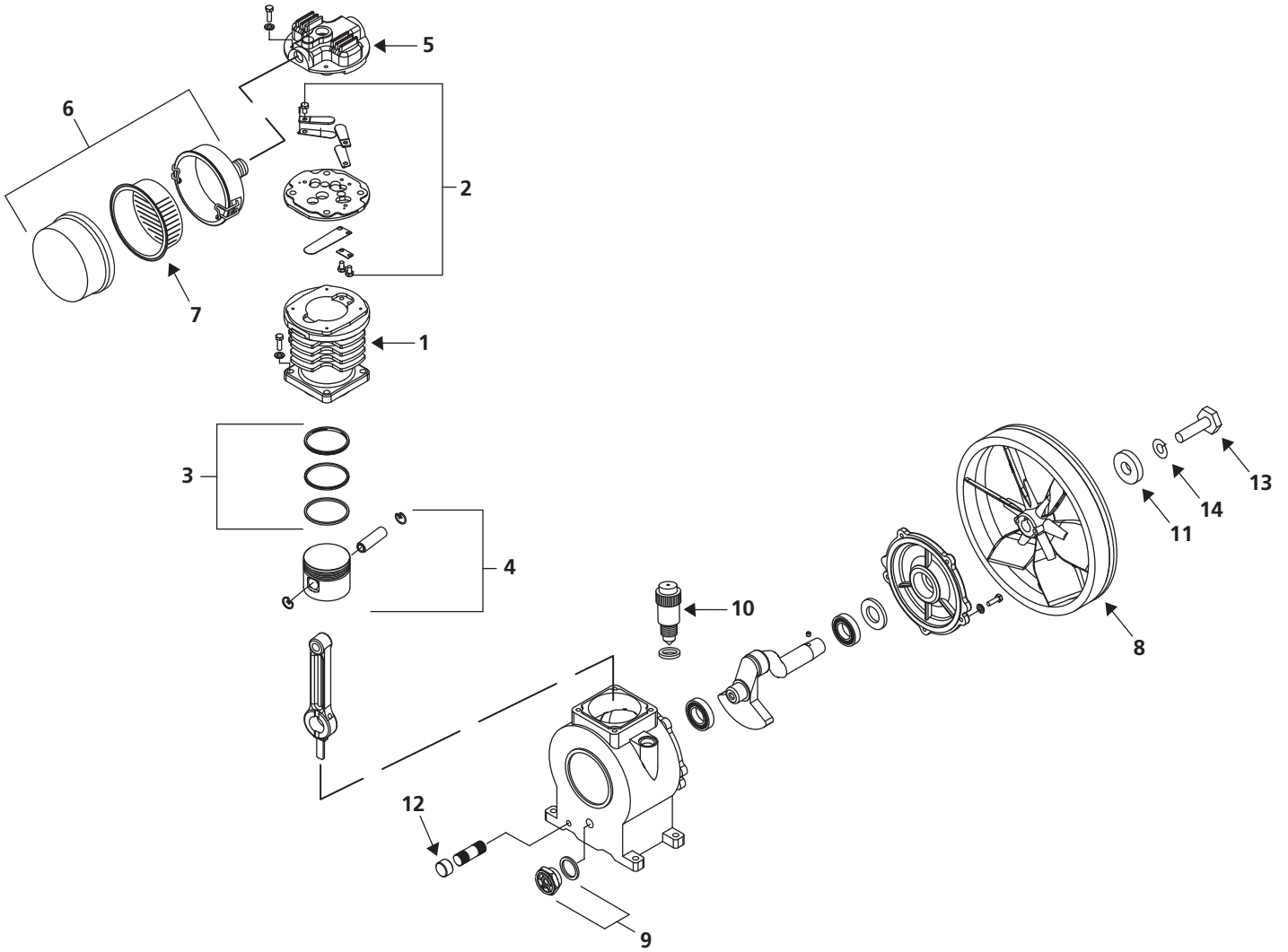


Figure 6 - Replacement Parts Illustration



## Replacement Parts List

Ref. No.	Description	Part Numbers for Models:		Qty.
		LPS007, LPS010A	LPS020A	
1	Cylinder	91002000	91044000	1
2	Valve set	91008000	91055000	1
3	Piston ring set	91020000	91072000	1
4	Piston set	91017000	91068000	1
5	Cylinder head	91022000	91076000	1
6	Intake filter set	WL011900AV	ST073924AV	1
7	Filter element	N/A	91348550	1
8	Flywheel pulley	91015000	91201552	1
9	Oil gage set (with gasket)	91281000	91281000	1
10	Breather set	IP002100AV	IP002100AV	1
11	Washer	91081000	91081000	1
12	Oil cap nut (with gasket)	91313000	91313000	1
13	Flywheel bolt	96992858	96992858	1
14	Lockwasher	96500806	96500806	1

\* Conversion kit may contain other parts

# Lubricated Compressor Pumps

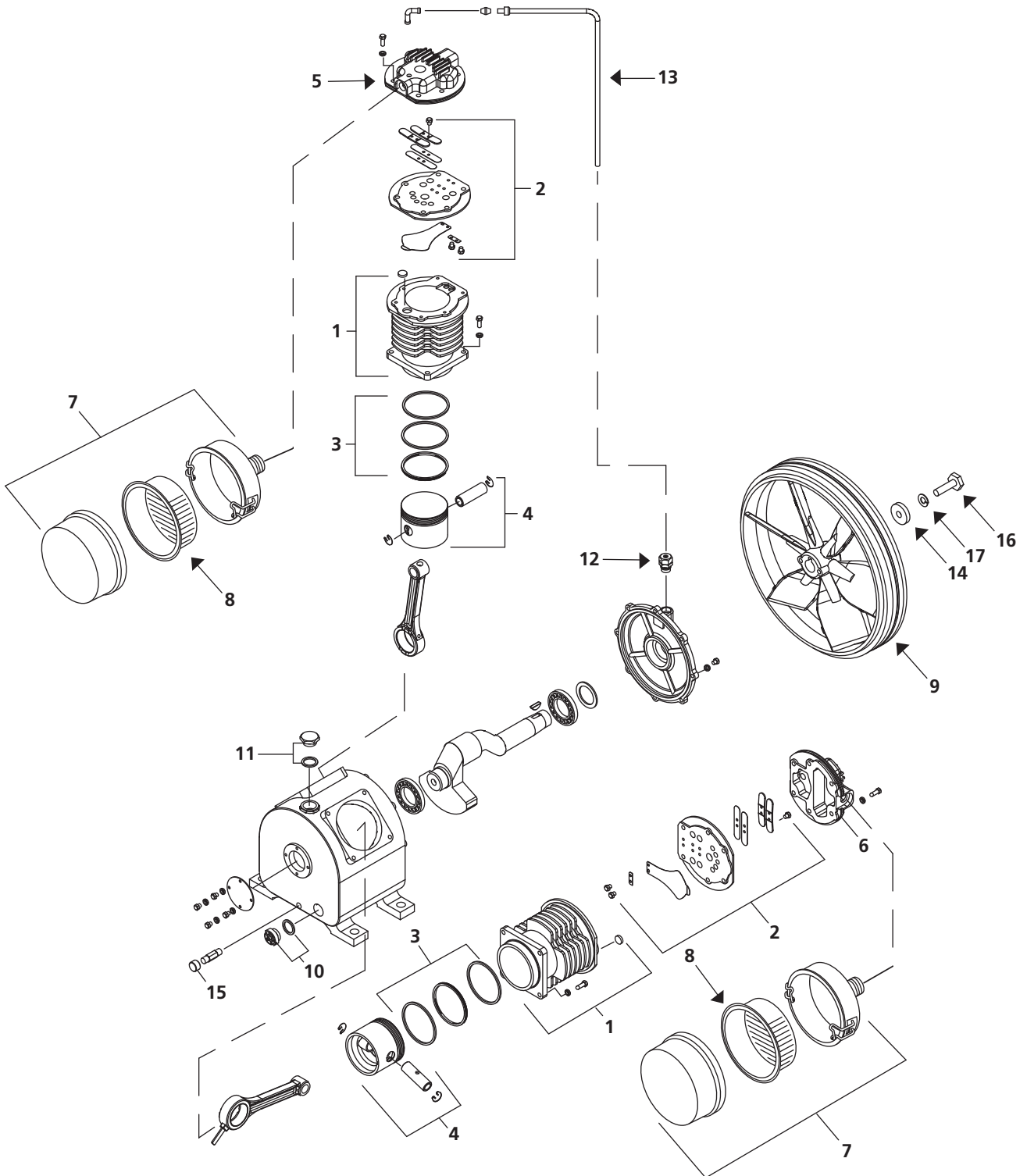


Figure 7 - Replacement Parts Illustration

## Replacement Parts List

Ref. No.	Part Numbers for Models: Description	Part Numbers for Models:		Qty.
		LPS030A	LPS050A	
1	Cylinder	91044000	91087000	2
2	Valve set	91055000	91239000	2
3	Piston ring set	91072000	91091000	2
4	Piston set	91068000	91261000	2
5	Cylinder head	91076000	91093000	1
6	Cylinder head	91078000	91271000	1
7	Intake filter set	ST073924AV	ST073924AV	2
8	Filter element	91348550	91348550	2
9	Flywheel pulley	91202560	91201570	1
10	Oil gauge set (with gasket)	91281000	91281000	1
11	Oil cap set (with gasket)	91284000	91284000	1
12	Breather set	91286001	91286001	1
13	Breather pipe	91079000	91124000	1
14	Washer	91081000	91176000	1
15	Oil cap nut (with gasket)	91313000	91313000	1
16	Flywheel bolt	96992858	96992860	1
17	Lockwasher	96500806	96501206	1

\* Conversion kit may contain other parts

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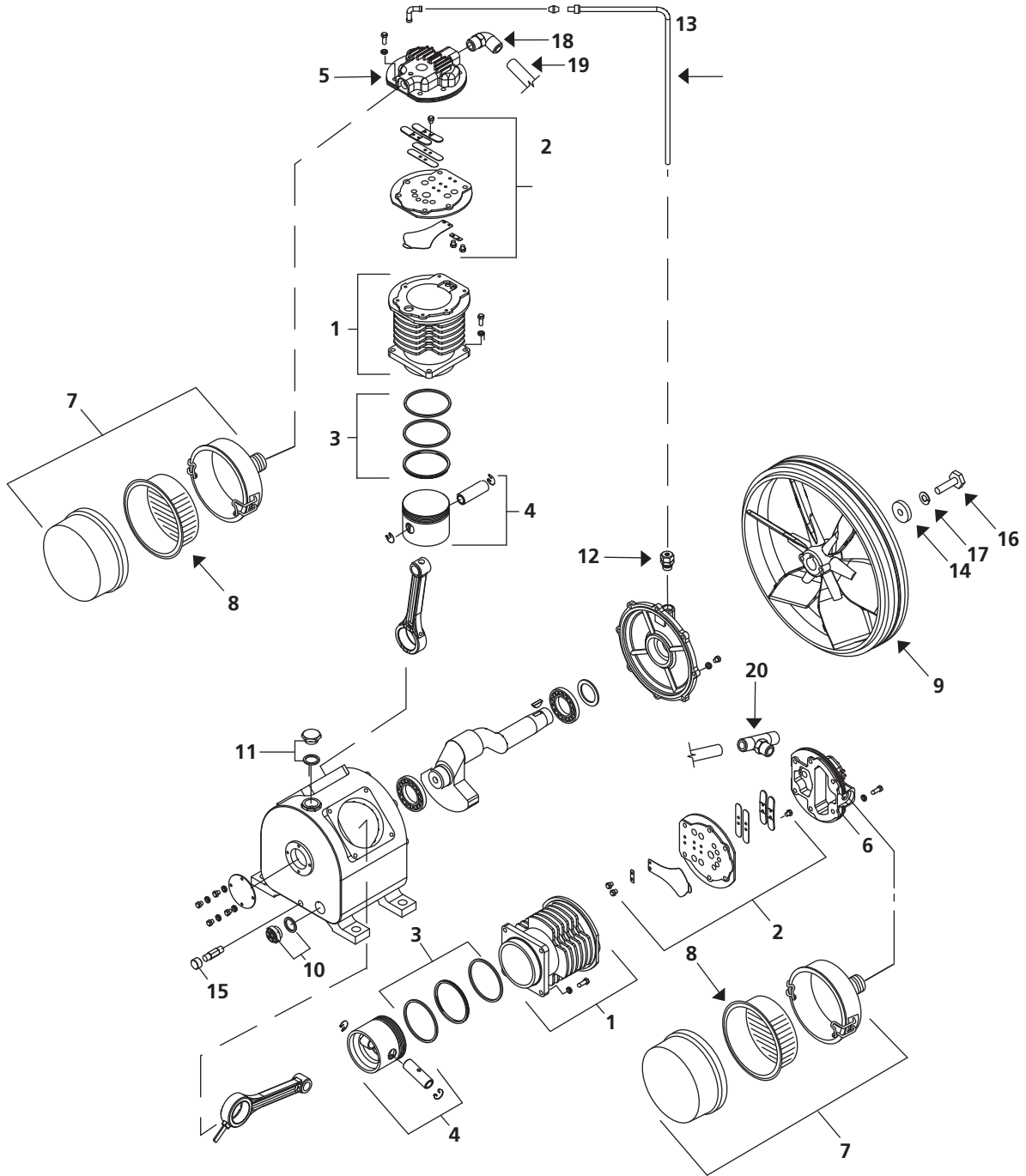


Figure 8 - Replacement Parts Illustration

## Replacement Parts List

Ref. No.	Part Numbers for Models: Description	Part Numbers for Models:		Qty.
		LPS075A	LPS100A	
1	Cylinder	91184000	91208000	2
2	Valve set	91187000	91125000	2
3	Piston ring set	91194000	91258000	2
4	Piston set	91191000	91253000	2
5	Cylinder head	91198000	91268000	1
6	Cylinder head	91201000	91270000	1
7	Intake filter set	ST073924AV	ST073924AV	2
8	Filter element	91348550	91348550	2
9	Flywheel pulley	91201580	91177000	1
10	Oil gauge set (with gasket)	91281000	91281000	1
11	Oil cap set (with gasket)	91284000	91284000	1
12	Breather set	91286001	91286001	1
13	Breather pipe	91175000	91175000	1
14	Washer	91176000	91176000	1
15	Oil cap nut (with gasket)	91313000	91313000	1
16	Flywheel bolt	96992860	96992860	1
17	Lockwasher	96501206	96501206	1
18	Flare elbow	ST126205AV	ST126205AV	1
19	Head to head tube	JP018000AJ	JP018100AJ	1
20	Flare tee	ST126231AV	ST126231AV	1



## Powerex Limited Warranty – Applicable to Non-OEM Customers in the U.S. & Canada Only

### Warranty and Remedies.

**(a) General.** Powerex warrants each Compressor System, Vacuum System, Vacuum Pump, Compressor Air-End, or Powerex branded Accessory (collectively “Products”, individually each a “Product”) to be free from defects in material and workmanship (“Defects”) at the date of shipment. This warranty shall apply only to Products that are purchased and used in the United States of America and in Canada. EXCEPT AS SET FORTH BELOW, NO OTHER WARRANTY, WHETHER EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, SHALL EXIST IN CONNECTION WITH THE SALE OR USE OF SUCH PRODUCTS. TO THE EXTENT PERMITTED BY LAW, ANY AND ALL IMPLIED WARRANTIES ARE EXCLUDED. All warranty claims must be made in writing and delivered to Powerex in accordance with the procedures set forth on its website (www.powerexinc.com), or such claim shall be barred. Upon timely receipt of a warranty claim, Powerex shall inspect the Product claimed to have a Defect, and Powerex shall repair, or, at its option, replace, free of charge, any Product which it determines to have had a Defect; provided, however, that if circumstances are such as to preclude the remedying of Defect by repair or replacement, Powerex shall, upon return of the Product, refund to buyer any part of the purchase price of such Products paid to Powerex. Freight for returning Products to Powerex for inspection shall be paid by buyer. The warranties and remedies herein are the sole and exclusive remedy for any breach of warranty or for any other claim based on any Defect, or non-performance of the Products, whether based upon contract, warranty or negligence.

**(b) (i) Standard Period of Warranty – Parts and Labor** - The purchase of any system includes our standard warranty. Powerex warrants and represents all Products shall be free from Defects for the first eighteen (18) months from the date of shipment by Powerex, or twelve (12) months from the documented date of startup, or five thousand (5,000) hours of use, whichever occurs first. During such warranty period, Powerex shall be fully liable for all Defects in the Products (the “Product Defects”), i.e., all costs of repair or replacement, which may include “in and out” charges, so long as the Products are located in the United States or Canada, and the Products are reasonably located and accessible by service personnel for removal. “In and out” charges include the costs of removing a Product from buyer’s equipment for repair or replacement.

**(ii) Premium Period of Warranty – Parts and Labor** - In order to be eligible for premium warranty coverage, a premium warranty for each system must be purchased when order is placed. Powerex warrants and represents all Products shall be free from Defects for the first thirty (30) months from the date of shipment by Powerex, or twenty-four (24) months from the documented date of startup, or seven thousand five hundred (7,500) hours of use, whichever occurs first. During such warranty period, Powerex shall be fully liable for all Defects in the Products (the “Product Defects”), i.e., all costs of repair or replacement, which may include “in and out” charges, so long as the Products are located in the United States or Canada, and the Products are reasonably located and accessible by service personnel for removal. “In and out” charges include the costs of removing a Product from buyer’s equipment for repair or replacement.

**(c) Additional Period of Warranty – Parts Only (No Labor).** In addition to the above, Powerex warrants each Powerex branded Compressor Air- End and Vacuum Pump shall be free of Defects for a period of forty-two (42) months from the date of shipment by Powerex, or thirty-six (36) months from the documented date of startup, or ten thousand (10,000) hours of use, whichever occurs first. Supplier’s repair or replacement of any Product shall not extend the period of any warranty of any Product. This warranty applies to the exchange of part(s) found to be defective by an Authorized Powerex Service Representative only.

**(d) Replacement Pumps – Parts Only (No Labor).** For any replacement Air-End or Vacuum Pumps installed on a Powerex manufactured system or unit after any initial warranty period has expired or where another warranty does not apply for any reason, Powerex warrants that the Air-End or Vacuum Pumps shall be free of Defects for a period of thirty-six (36) months from the date of shipment by Powerex or ten thousand (10,000) hours of use, whichever comes first. For any replacement Air-End or Vacuum Pumps installed on a system that was not manufactured by Powerex after any initial warranty period has expired or where another warranty does not apply for any reason, Powerex warrants that the Air-End or Vacuum Pumps shall be free of Defects for the first twelve (12) months from the date of shipment by Powerex. Supplier’s repair or replacement of any Product shall not extend the period of any warranty of any Product. This warranty applies to the exchange of part(s) found to be defective by an Authorized Powerex Service Representative only.

**(e) Replacement Motors – Parts Only (No Labor).** For any replacement motor installed on a Powerex manufactured system or unit after any initial warranty period has expired or where another warranty does not apply for any reason, Powerex warrants that the replacement motor shall be free of Defects for the first twelve (12) months from the date of shipment by Powerex. For any replacement motor installed on a system or unit that was not manufactured by Powerex after any initial warranty period has expired or where another warranty does not apply for any reason, Powerex warrants that the replacement motor shall be free of Defects for the first ninety (90) days from the date of shipment by Powerex. Supplier’s repair or replacement of any Product shall not extend the period of any warranty of any Product. This warranty applies to the exchange of part(s) found to be defective by an Authorized Powerex Service Representative only.

**(f) Replacement Parts – Parts Only (No Labor).** For other replacement parts besides motors, Air-End or Vacuum Pumps installed on a Powerex manufactured system or unit after any initial warranty period has expired or where another warranty does not apply for any reason, Powerex warrants that such replacement parts will be free from Defects for the first twelve (12) months from the date of shipment by Powerex. For other replacement parts besides motors, Air-End or Vacuum Pumps installed on a system or unit that was not manufactured by Powerex after any initial warranty period has expired or where another warranty does not apply for any reason, Powerex makes no warranties. Supplier’s repair or replacement of any Product shall not extend the period of any warranty of any Product. This warranty applies to the exchange of part(s) found to be defective by an Authorized Powerex Service Representative only.

**(g) Coverage.** The warranty provided herein applies to Powerex manufactured units or systems only.

**(h) Exceptions.** Notwithstanding anything to the contrary herein, Powerex shall have no warranty obligations with respect to Products:

- (i) that have not been installed in accordance with Powerex’s written specifications and instructions;
- (ii) that have not been maintained in accordance with Powerex’s written instructions;
- (iii) that have been materially modified without the prior written approval of Powerex; or
- (iv) that experience failures resulting from operation, either intentional or otherwise, in excess of rated capacities or in an otherwise improper manner.

## **Lubricated Compressor Pumps**

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(i) The warranty provided herein shall not apply to:

- (i) any defects arising from corrosion, abrasion, use of insoluble lubricants, or negligent attendance to or faulty operation of the Products;
- (ii) ordinary wear and tear of the Products;
- (iii) defects arising from abnormal conditions of temperature, dirt or corrosive matter; or
- (iv) any OEM component which is shipped by Powerex with the original manufacturer's warranty, which shall be the sole applicable warranty for such component.

**Limitation of Liability.** NOTWITHSTANDING ANYTHING TO THE CONTRARY HEREIN, TO THE EXTENT ALLOWABLE UNDER APPLICABLE LAW, UNDER NO CIRCUMSTANCES SHALL POWEREX BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL, PUNITIVE, SPECULATIVE OR INDIRECT LOSSES OR DAMAGES WHATSOEVER ARISING OUT OF OR IN ANY WAY RELATED TO ANY OF THE PRODUCTS OR GOODS SOLD OR AGREED TO BE SOLD BY POWEREX TO BUYER. TO THE EXTENT ALLOWABLE UNDER APPLICABLE LAW, POWEREX'S LIABILITY IN ALL EVENTS IS LIMITED TO, AND SHALL NOT EXCEED, THE PURCHASE PRICE PAID.

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**Product Suitability.** Many jurisdictions have codes and regulations governing sales, construction, installation, and/or use of Products for certain purposes, which may vary from those in neighboring areas. While Powerex attempts to assure that its Products comply with such codes, it cannot guarantee compliance, and cannot be responsible for how the product is installed or used. Before purchase and use of a Product, please review the Product applications, and national and local codes and regulations, and be sure that the Product, installation, and use will comply with them.

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