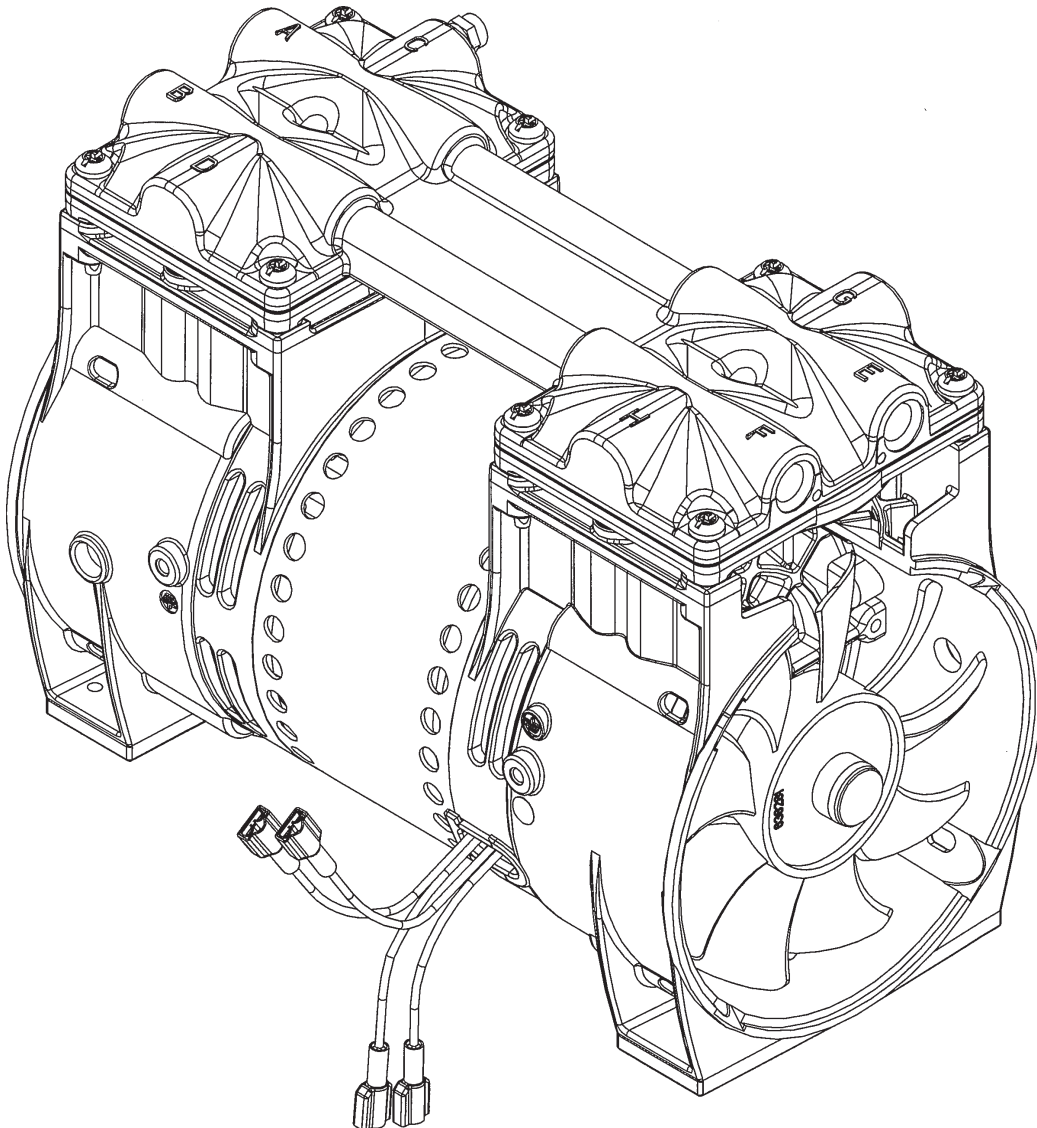


# **2660CE37-807 & 2660CGHI42-807**

## **Compressor Field Service Manual**



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A Field Service Manual  
Prepared by



# **Thomas Compressor 2660CE37-807 & 2660CGHI42-807 Field Service Manual**

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# Introduction

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This Field Service Manual is intended for use ONLY by properly trained and experienced repair personnel employed by an authorized service center. THIS SERVICE MANUAL SHOULD NOT BE USED BY OR DISTRIBUTED TO THE PUBLIC. THE INSTRUCTIONS AND WARNINGS HEREIN PRESUME EXISTING FAMILIARITY WITH THE DESIGN AND FUNCTION OF THESE AND SIMILAR PRODUCTS, AND THEIR COMPONENTS.

## **Please Note:**

The model(s) represented in this manual may have additions and/or modifications made at any time. Pictures represent a standard unit series and an actual unit may vary slightly. This manual is based on the latest technical information available at the time of creation or last revision. It is believed to be generally accurate and reliable. Consult the factory if additional detailed information is desired, or whenever there is a question about a given unit's configuration or performance specifications.

# Safety First

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It is recommended that you thoroughly read and understand this manual before you attempt to service the Thomas series of compressors to which this applies. **PLEASE NOTE THE FOLLOWING CAUTIONS AND WARNINGS FOR YOUR OWN SAFETY.**



## Caution

To avoid personal injury and/or property damage, only authorized service personnel should service this unit.



## Warning

To avoid the risk of electrical shock, personal injury, or death, disconnect power before servicing this unit.



## Caution

To avoid personal injury, do not remove fan guards while unit is connected to power.



## Caution

To avoid personal injury, especially to eyes and face, use eye and face protection when servicing this unit.



## Caution

To avoid personal injury, especially to eyes and face, never point the exhaust air flow at yourself or other people in the area. Unit is capable of pressures of 100 psig.



## Caution

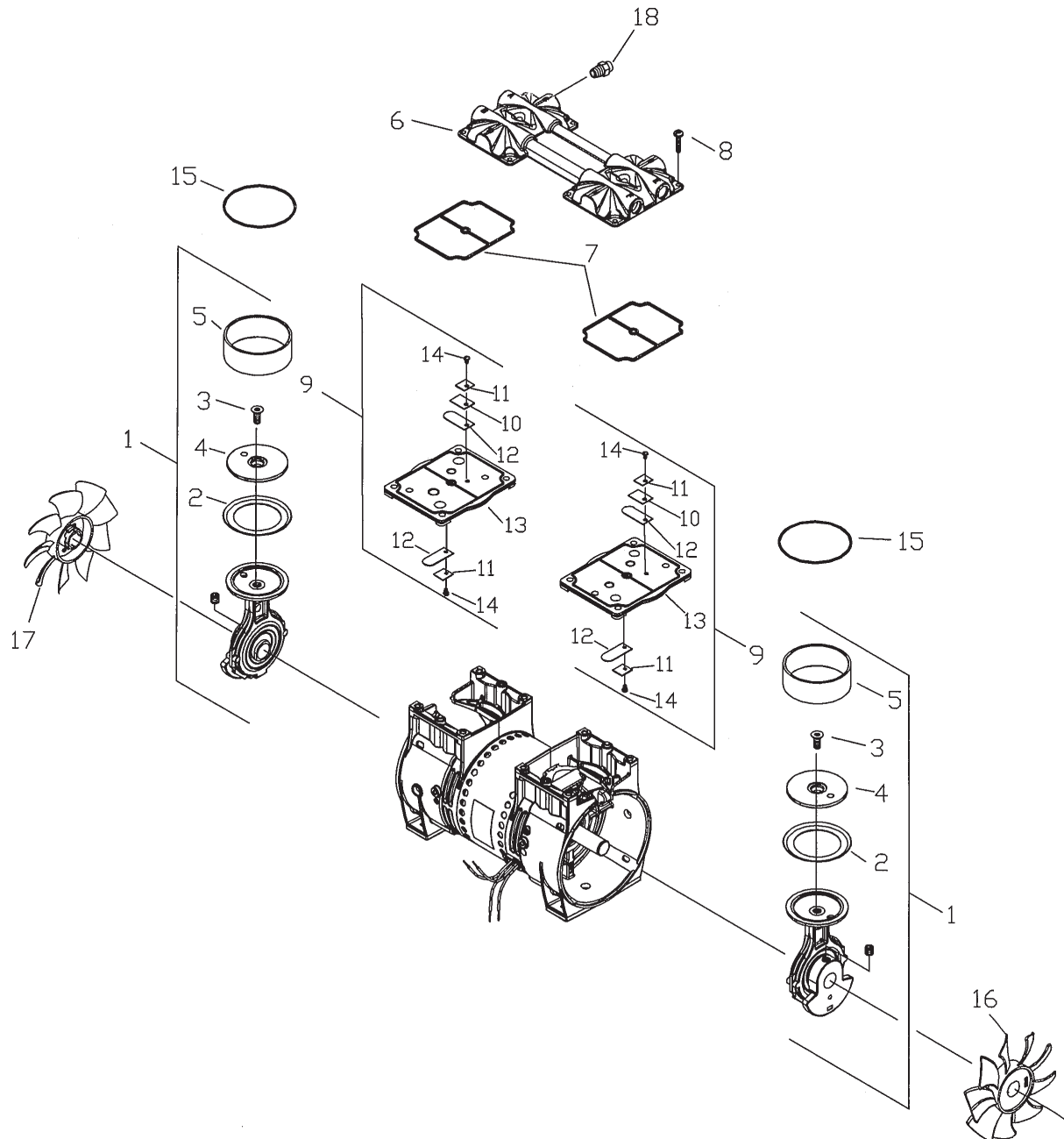
To avoid damage, never lubricate any component in your compressor. All moving parts are permanently lubricated.



## Caution

To avoid property damage or personal injury, always try rotating the fan by HAND prior to connecting the unit to the power source. Check for suction at the air inlet port by placing your finger over the port as you turn the fan. You should feel a slight suction with each rotation of the fan. If you don't feel suction, or if you feel or hear a thump as you turn the fan, **DO NOT CONNECT THE UNIT TO A POWER SOURCE.** Review the assembly procedure for possible error.

## Exploded View of the Thomas 2660CE37-807 & 2660CGH42-807 Series Compressor



## Field Service Parts List for Thomas 2660CE37-807 & 2660CGHI42-807 Compressor

Item No.	Part No.	Qty. Per Ass'y	Qty. Per Unit	Description
1	See Chart	–	2	Connecting Rod, Eccentric & Bearing Assembly
2	624677	1	2	Piston Cup
3	625776	1	2	Screw - Piston Cup Retainer
4	626392	1	2	Piston Cup Retainer
5	618114	1	2	Cylinder Sleeve
6	610880	–	1	Head
7	623143	–	2	O-Ring - Head Gasket
8	625175	–	8	Screw - Head
9	621591	–	2	Valve Plate Assembly
10	617177	1	2	Valve Restraint
11	617562	2	4	Valve Keeper Strip
12	621485	2	4	Valve Flapper - Intake & Exhaust
13	621461	1	2	Valve Plate
14	625094	2	4	Screw - Valve Flapper
15	623137	–	2	O-Ring Valve Plate
16	638282	–	1	Fan - Black
17	638281	–	1	Fan - Gray
18	638702	–	1	Pressure Relief Valve

### Connecting Rod, Eccentric & Bearing Assembly Chart

1	666660	–	2	For 2660CE37-807
1	666702	–	2	For 2660CGHI42-807

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## Preventive Maintenance and Troubleshooting Guide

Thomas Industries recommends that you perform the following service to minimize unexpected downtime for your compressor:

- Replace the connecting rods or piston cups and sleeves
- Replace the flapper valves
- Replace the head gasket O-rings
- Replace the valve plate O-rings



# Troubleshooting Guide

If you are having a problem with your compressor, use this table to help determine the cause(s):

Low Flow	Low Pressure	Problem		Loud Unit	Possible Cause	Corrective Action
		Unit Will Not Start	Motor <sup>①</sup> Overheats			
			x		High voltage at compressor	Reduce voltage
x	x	x	x		Low voltage at compressor	Increase voltage
x	x			x	Damaged valves	Replace flapper valves
x	x			x	Debris in valves	Remove debris and check for valve damage
x	x			x	Damaged gaskets	Replace gaskets
x	x			x	Worn Cup	Replace connecting rod assembly or cup
x	x			x	Loose head screws	Tighten head screws
			x		Broken fan	Replace fan
		x	x	x	Bent motor shaft	Replace entire unit
		x	x		Damaged capacitor	Replace capacitor
x					Loose fittings	Tighten fittings
x			x		Insufficient ventilation in enclosure	Increase air circulation to enclosure
		x		x	Worn bearings	Replace Conn Rod Eccentric and Bearing assembly

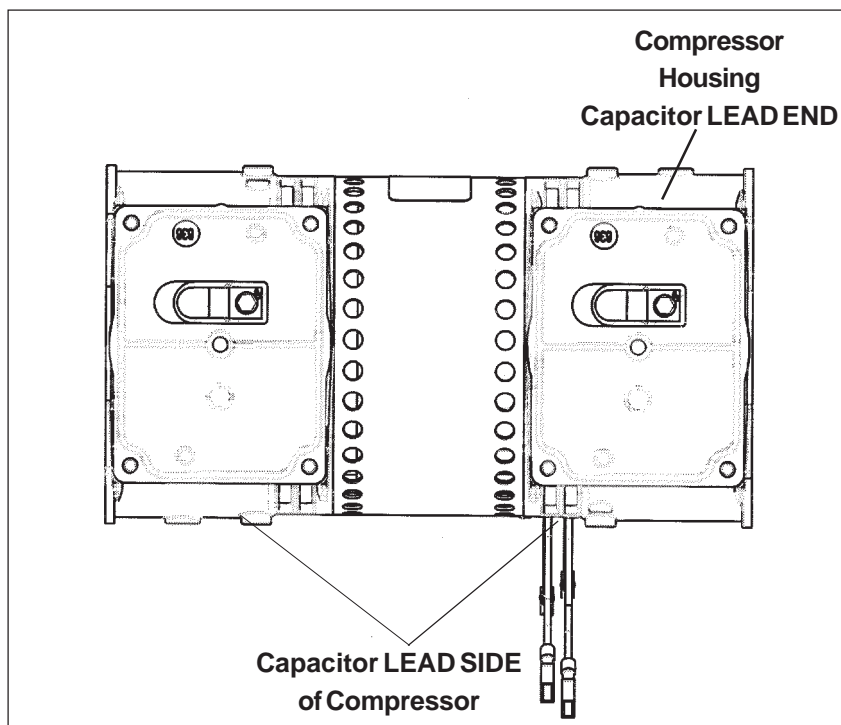
① Thermal protector in motor will interrupt current when motor overheats.

## Required Tools and Materials

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To disassemble and reassemble your compressor, you need the following tools and materials:

- Torque wrench that has an inch-pound scale (for head screws, set screws, flapper valve screw, and pipe plugs).
- Torx® T-25 driver (for head screws).
- 1/8" Allen wrench attachment for torque wrench (for eccentric set screw).
- 1/2" Hex Socket attachment for torque wrench (for flapper valve screw).
- Torx® T-27 driver (for retainer screws).
- Soft, clean cloths



**Reference Drawing:** Terminology to assist with the following instructions.

# Component Repair

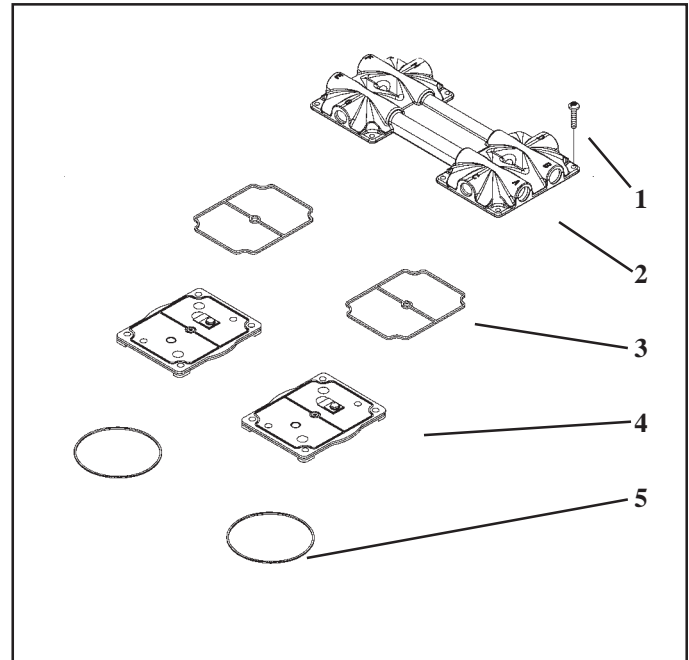
## Servicing the Head, Valve Plate Assembly and Connecting Rod and Bearing Assembly

The head would only need to be replaced if it is visibly damaged.

### Component Parts Required

You will need:

- Head (if damaged)
- Head gasket O-ring
- Valve plate O-ring
- Complete valve plate assembly or individual flapper valves.
- Flapper valve screw(s) if replacing individual flapper valve(s).



### Removing the Head

1. Disconnect the power.
2. Disconnect all air lines and remove compressor from the enclosure.
3. Remove all screws (1) that fasten the head (2) to the compressor housing.
4. Carefully separate the head from the compressor body.
5. Carefully separate the valve plate assemblies (4) from the heads.
6. Remove the head gasket O-rings (3) and replace.
7. Turn the valve plates over and replace the valve plate gasket O-rings (5).



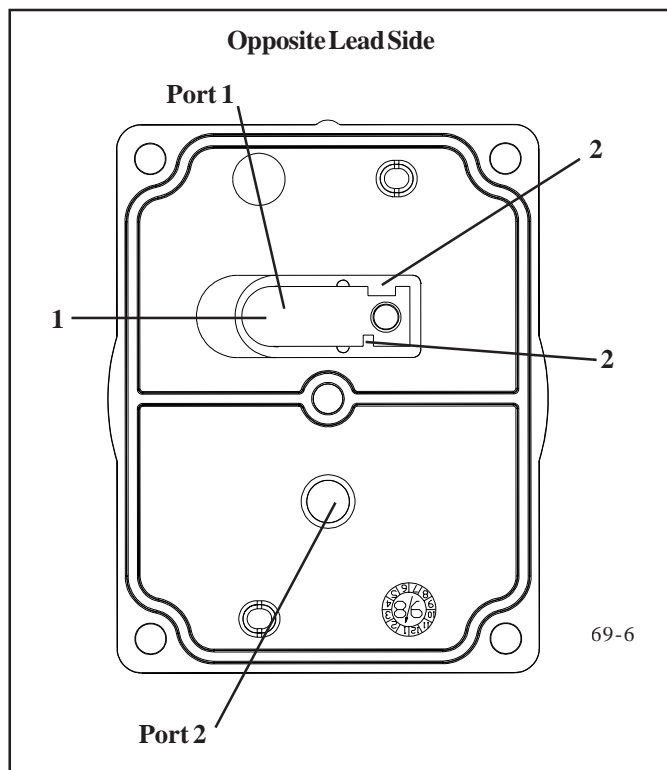
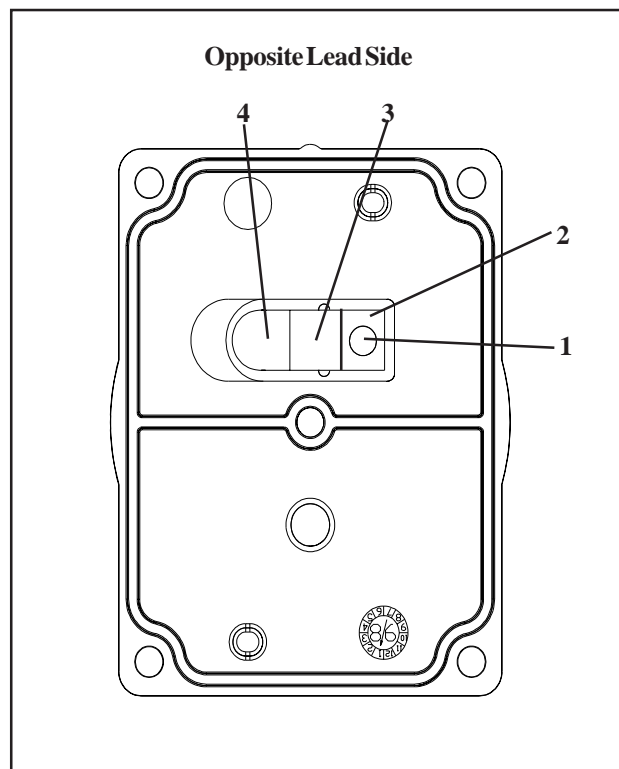
### Attention

**If you are replacing the head and gaskets only, see the assembly instructions on page 20. To replace the valve flappers and connecting rod assembly, continue to page 12.**

## Removing the Flapper Valves

**Note:** We recommend you remove and replace one flapper valve at a time. This will help to simplify the repair process and orient the flapper valve correctly on the valve plate.

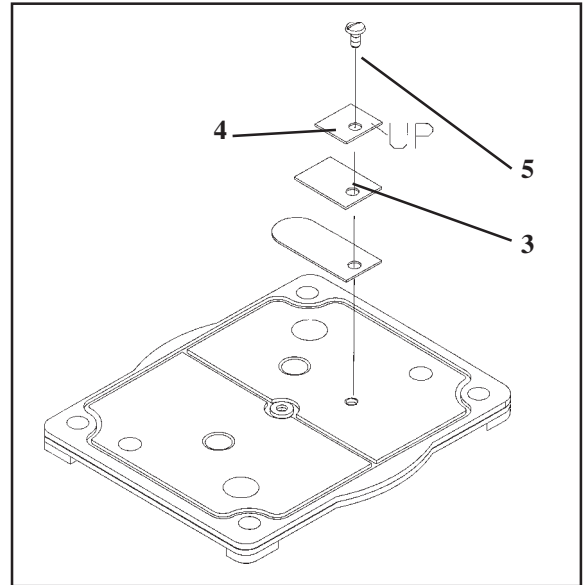
1. If you are replacing a flapper valve on the top side of the valve plate (side facing the head), remove the flapper valve screw (1) with a 1/4" hex socket, lift off the valve keeper strip (2), lift off the valve restraint (3), and lift off the flapper valve (4).
2. Remove any debris from the valve plate with a damp, lint free cloth. (Soaps and detergents should not be used due to the potential for corrosion from soap residue.)
3. Place the valve plate on the compressor housing and orient it as illustrated. Note the orientation of the valve ports.
4. Orient a new flapper valve (1) over Port 1. Observe the location of the notches (2) at the end of the flapper valve.



5. Place a valve restraint (3) over the flapper valve.
6. Place a valve keeper strip (4) over the valve restraint observing that the word “UP” is facing you and oriented as shown in the illustration.
7. Line up the screw holes in all of the valve components and insert the flapper valve screw (5) into the valve plate.
8. Make sure the flapper valve is centered over the port and that all of the other components line up with the flapper valve.

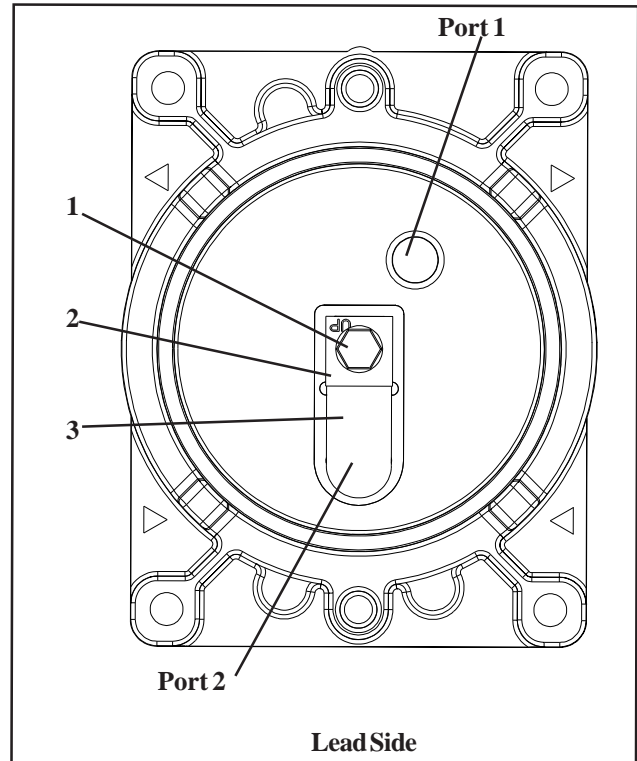
**⚠ Caution**

**Do not overtighten the flapper valve screw or it will shear off in the valve plate.**

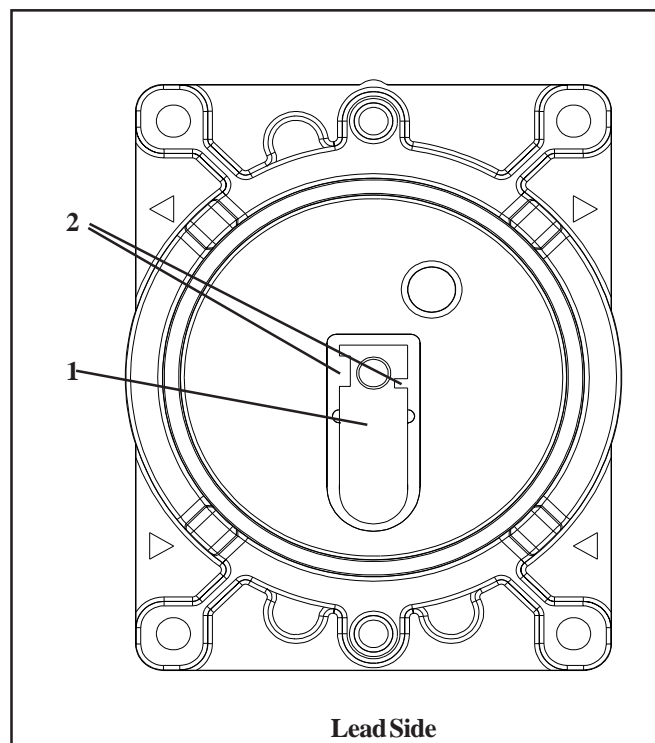


9. Tighten the flapper valve screw to 18 inch-pounds, using a torque wrench with a 1/4" hex socket attachment.

1. If you are replacing a flapper valve on the bottom side of the valve plate (side facing the compressor housing), remove the flapper valve screw (1) with a 1/4" hex socket, lift off the valve keeper strip (2),
2. Clean any debris with a soft, damp cloth. Turn the compressor head upside down and place the valve plate on the compressor head and orient it as illustrated. Note the position of the valve ports and the location of the power leads on the compressor housing.



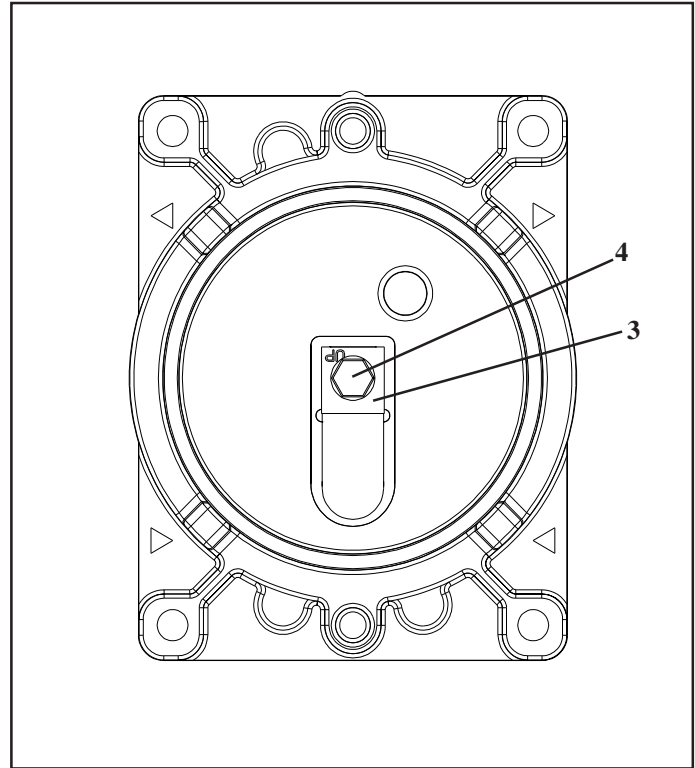
3. Orient a flapper valve (1) over Port 2. Observe the location of the notches (2) at the end of the flapper valve.



3. Place a valve keeper strip (3) over the flapper valve, observing that the word “UP” is facing you, not the valve plate, and oriented as shown in the illustration.
4. Line up the screw holes in all of the valve components and insert the flapper valve screw (4) into the valve plate.
5. Make sure the flapper valve is centered over the Port and that the valve keeper strip lines up with the flapper valve.

**⚠ Caution**

**Do not overtighten the flapper valve screw or it will shear off in the valve plate.**



6. Tighten the flapper valve screw to 18 inch-pounds, using a torque wrench with a 1/4" hex socket attachment.

**⚠ Attention**

**If you are only replacing the valve flappers, see the assembly instructions on page 20.**

**If you are replacing the cup and sleeve turn to the Rebuilding Connecting Rod Assemblies Section found on page 17.**

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## Servicing the Connecting Rod Assembly and Eccentric Assembly

Refer to the Preventive Maintenance and Troubleshooting Guide in this manual to determine whether a complete connecting rod assembly, or its component parts, or an eccentric needs to be serviced.

### Component Parts Required

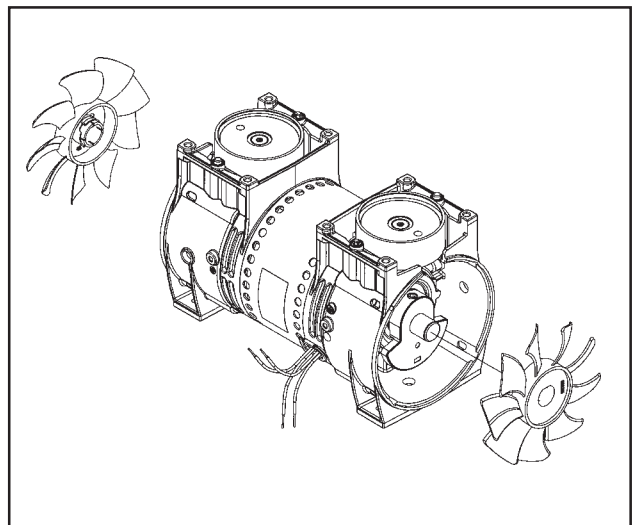
You will need:

- Connecting rod assembly(ies) or piston cups and sleeves
- Valve plate gasket O-ring(s)
- Head gasket O-ring(s) (if defective)

### Removing the Connecting Rod Assembly and Eccentric

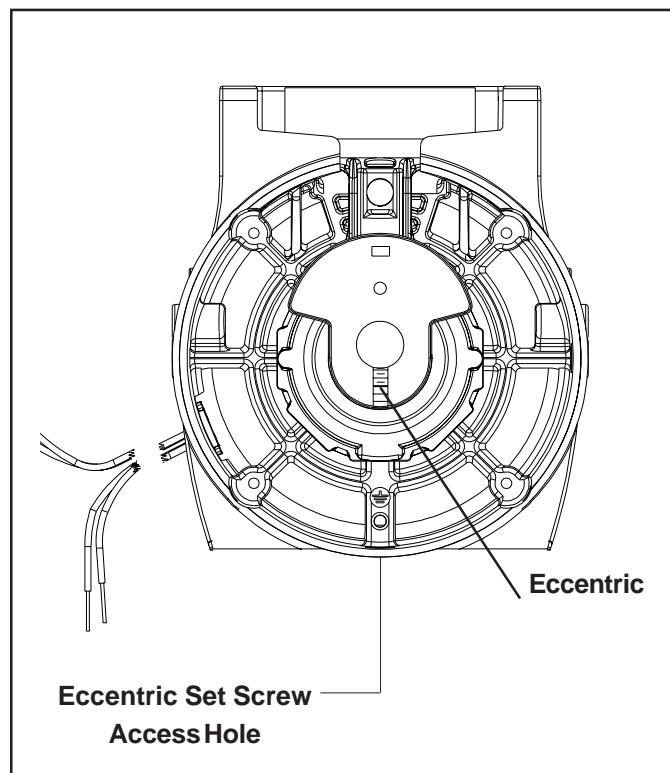
NOTE: ONLY REMOVE ONE CONNECTING ROD ASSEMBLY AT A TIME.

1. Carefully remove the fan by pulling it straight off the motor shaft. Do not pull the fan blades.

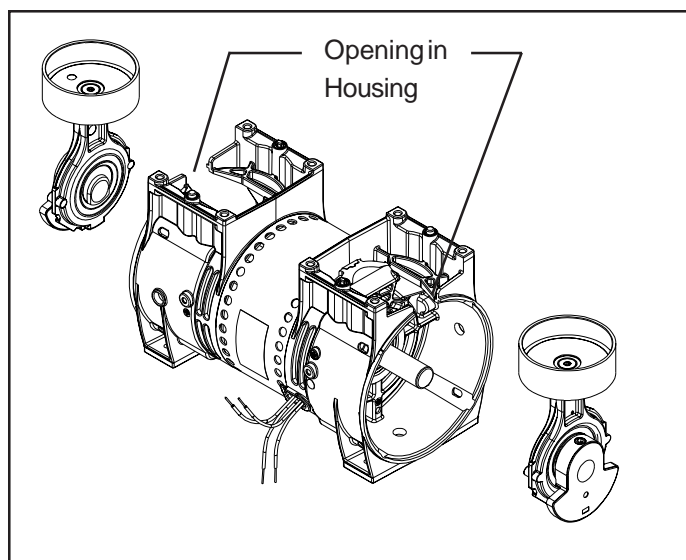




2. Turn the motor shaft to align the eccentric set screw with its access hole and use an Allen wrench to loosen the eccentric set screw (see illustration for location of access hole).



3. Make sure the connecting rod is at "Top Dead Center". Slide the connecting rod assembly straight off the shaft through the opening in the housing.



## **⚠ Caution**

**Do not crimp the piston cup (4) when you remove the connecting rod assembly from the compressor housing. If the cup is crimped, you must replace it.**

## **Rebuilding Connecting Rod Assemblies**

If you are rebuilding the connecting rod assembly using component parts, follow this procedure:

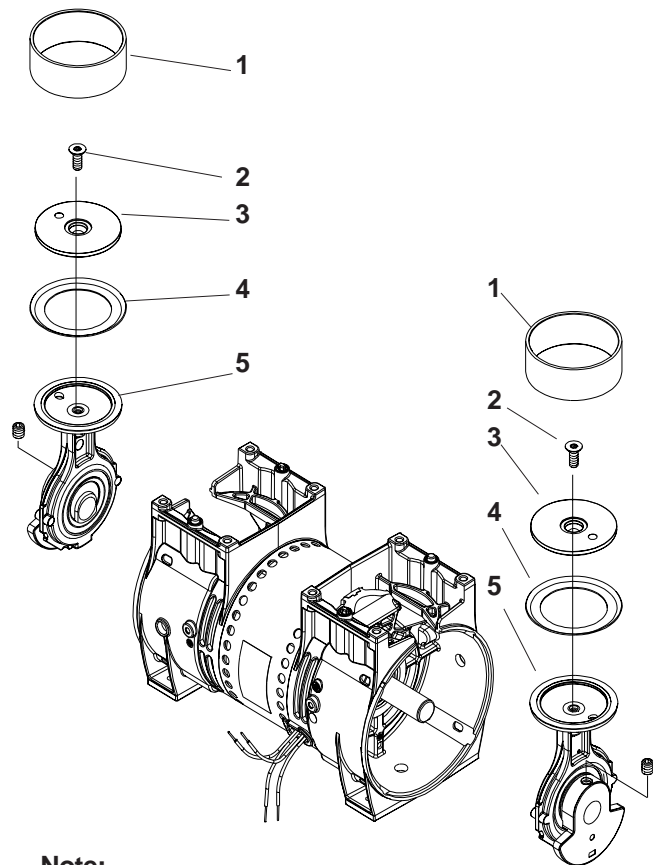
When replacing the piston cup (4), be sure to replace the sleeve (1) at the same time. Place the con rod shaft in a fixture before attempting to remove the retainer screw. Heat will help to dissolve the loctite bond.

1. Remove the retainer screw (2) from the cup retainer.
2. Remove the retainer (3) from the connecting rod.
3. Remove the cup (4) and discard.
4. Place the new piston cup (4) on the connecting rod.
5. Place a piston cup retainer (3) on the cup/connecting rod making sure the boss of the retainer is seated in the pilot of the rod.
6. Insert the retainer screw (2) into the connecting rod (5) and tighten to 95-105 inch-pounds.



## **Attention**

**To replace the connecting rod and bearing assembly continue to page 19.**

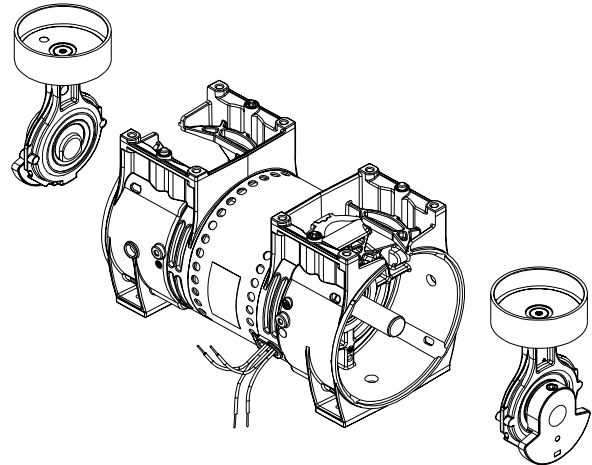


### **Note:**

**Both Connecting Rods shown for orientation, DO NOT remove both at once.**

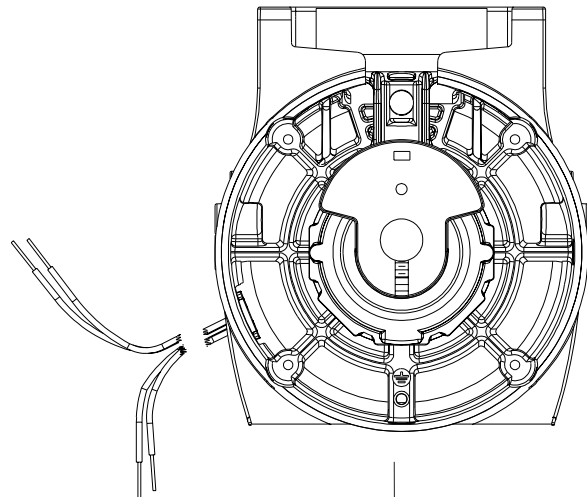
## Assembly of the Connecting Rod to the Compressor

1. Line up eccentric set screw with flat on shaft. Slide connecting rod assembly over shaft through front of housing with eccentric toward end of shaft. Push connecting rod assembly tight against housing bearing.



**Note: Both connecting rod assemblies shown for orientation.  
DO NOT remove both at once.**

2. Rotate eccentric to line up set screw with access hole in bottom of housing. Tighten screw to 125 in. lbs. Make sure the eccentric set screw is seated perpendicular on the shaft flat.



**Set Screw  
Access Hole**

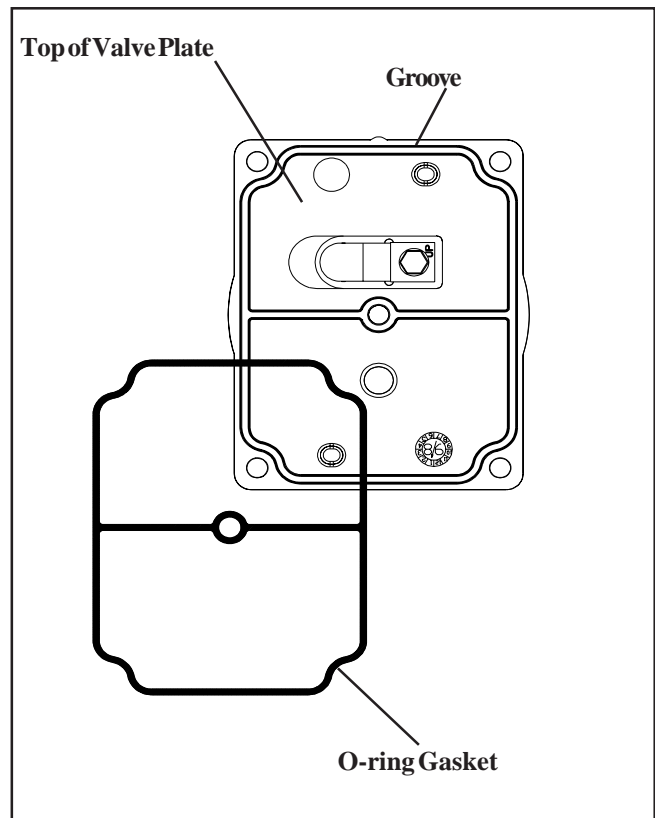
## Reassembling the Compressor

After the connecting rod assembly and eccentric are correctly assembled, you can assemble the valve plates and head to the compressor.

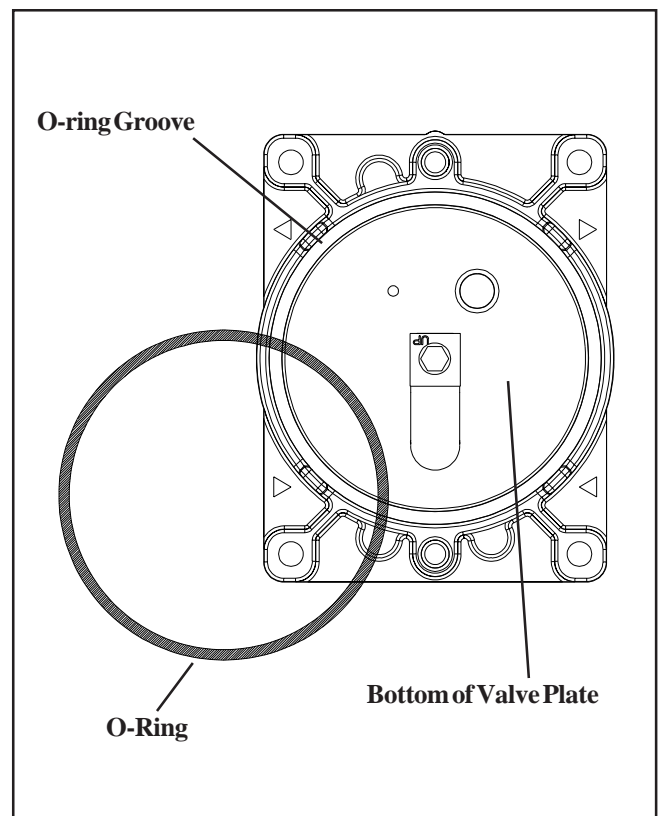
### **⚠ Caution**

**To prevent damage to the compressor, never apply any sealant or lubrication to the O-rings.**

1. Insert a new head gasket O-ring into the groove located on the top of the valve plate.

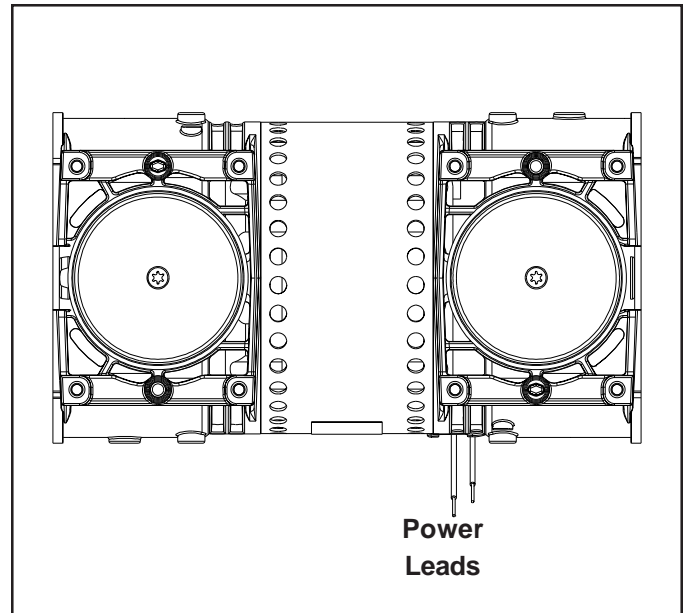


2. Insert the valve plate gasket O-ring into the O-ring groove located on the bottom of the valve plate.



3. Position the compressor housing as shown in the illustration. Notice the orientation of the power leads.

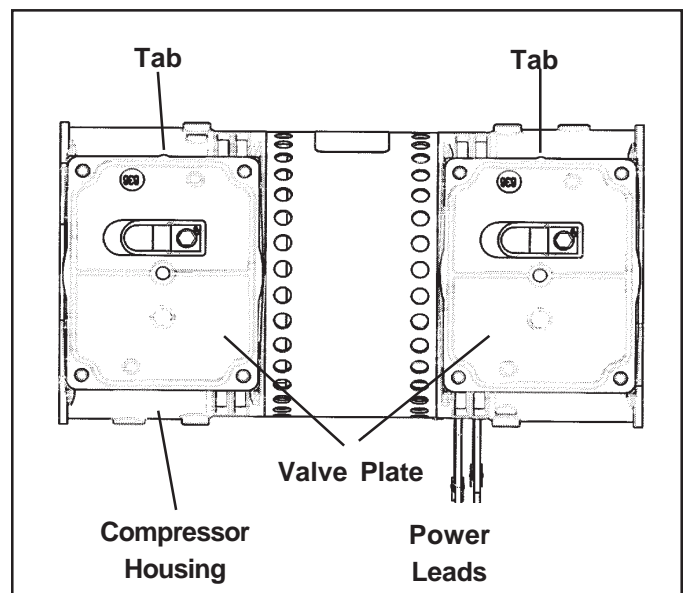
Note: Make sure that the connecting rod sleeves are seated against the compressor housing.



4. Observe the orientation of the valve plate assemblies. The tabs on the valve plate indicate exhaust side. Place them on the compressor housing as shown.

Note: Ensure the valve plate is properly engaged to housing locators.

Note: Ensure that O-Rings are fully assembled in grooves and not pinched.



- Place the head on the valve plate assemblies observing the position of the air intake and exhaust ports.

Note: Make sure the head gasket O-rings are not pinched.

- Insert the head screws and finger tighten each screw until it is snug. Use a Torx® T-25 driver to tighten each head screw to 55 inch-pounds, in the sequence shown.

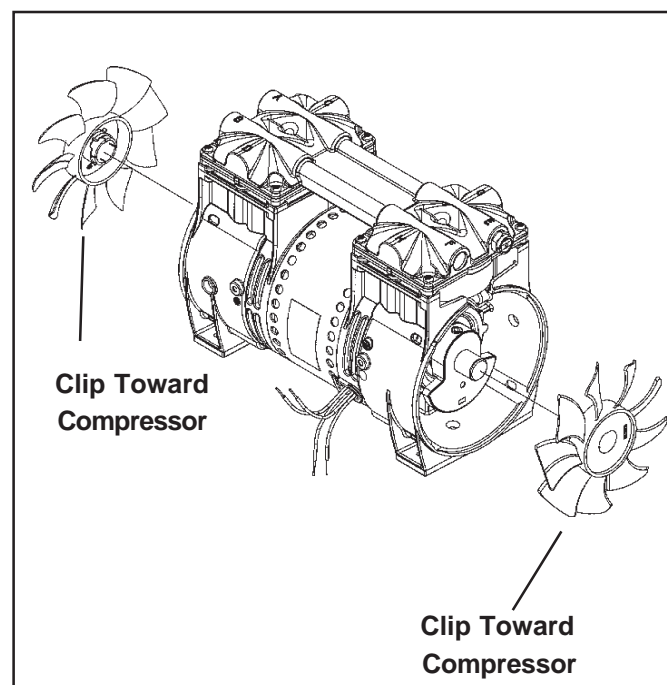
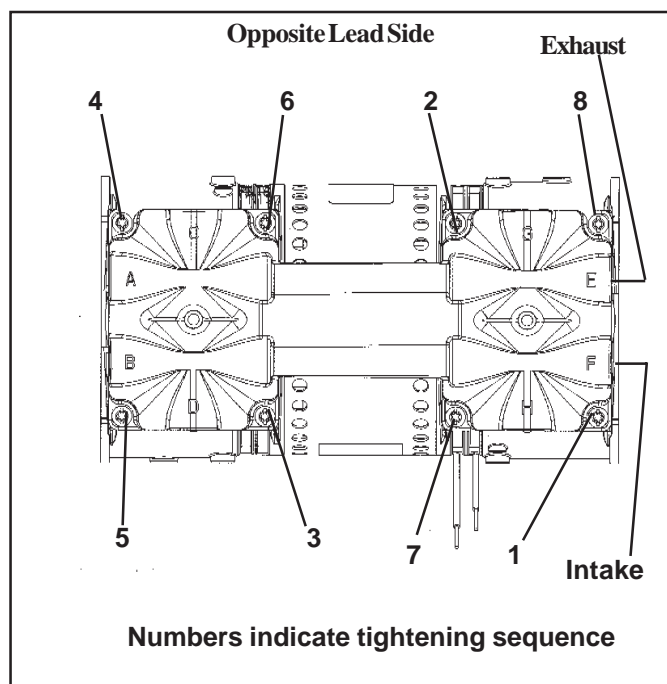
### **⚠ Caution**

To avoid property damage or personal injury, always try rotating the fan by **HAND**, prior to connecting the unit to the power source. Check for suction at the air inlet port by placing your finger over the port as you turn the fan. You should feel a slight suction with each rotation of the fan. If you don't feel suction, or if you feel or hear a thump as you turn the fan, **DO NOT CONNECT THE UNIT TO A POWER SOURCE**; review the assembly procedure for possible error.

### **Servicing the Fan**

If one or both of the fans break, use the following procedure:

- Carefully remove the fan by pulling it straight off the motor shaft.
- Align the flat on the motor shaft with the flat on the fan and slide the fan back onto the motor shaft, making sure the fan clip (1) faces as shown.



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## NOTES

