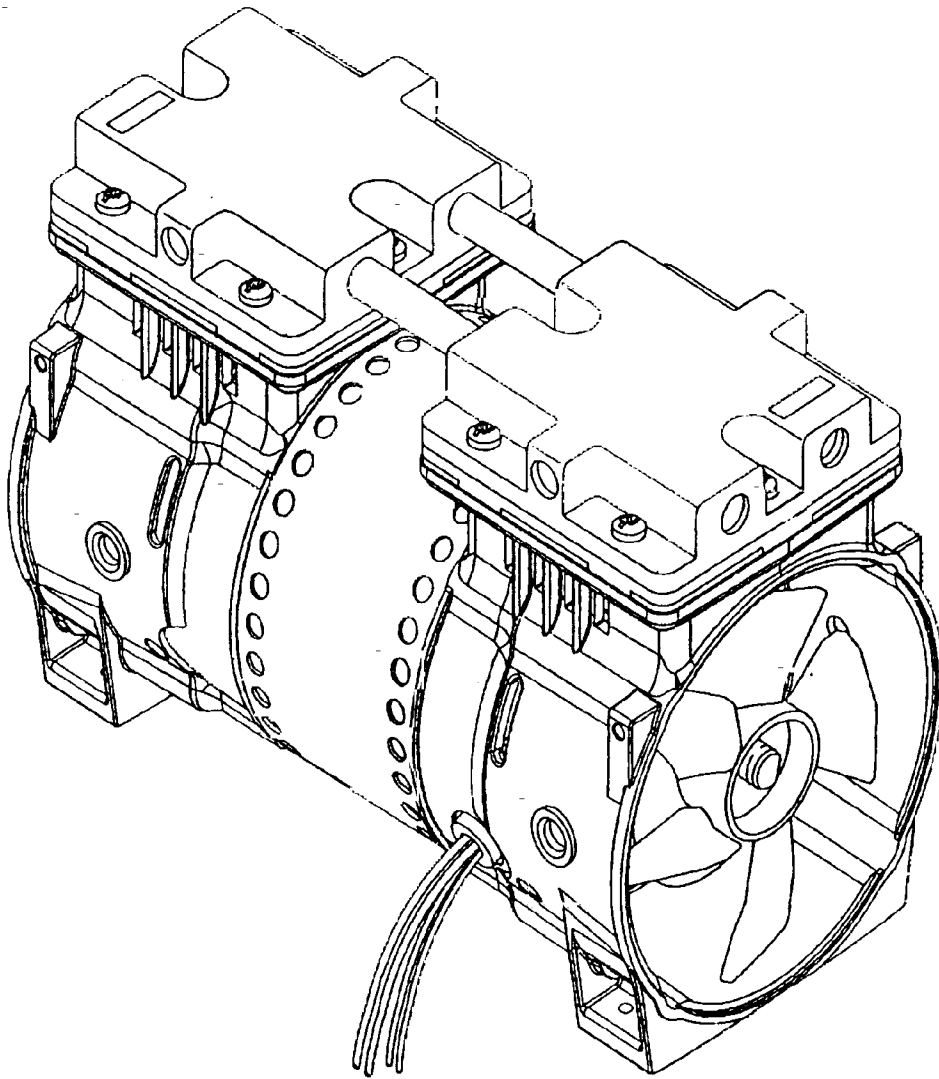




THOMAS[®]
PUMPS & COMPRESSORS

2638CHI38-190
Compressor
Field Service Manual





Thomas 2638CHI38-190 Compressor Field Service Manual

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Introduction

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

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

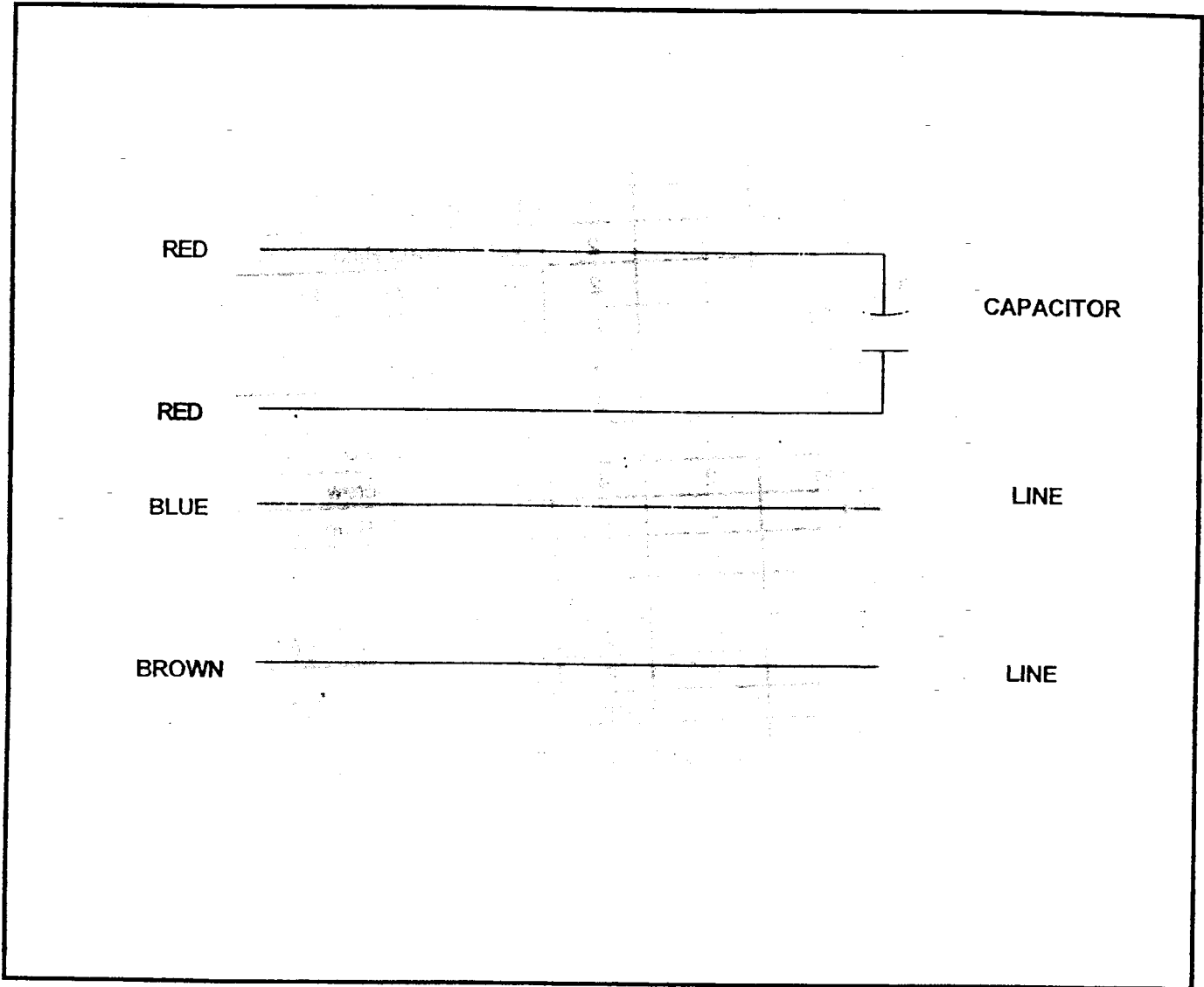
To avoid property damage or personal injury, always try rotating the fan by **HAND** prior to connecting the unit to the power source. Check for suction at the air inlet port by placing your finger over the port as you turn the fan. You should feel a slight suction with each rotation of the fan. If you 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.

Field Service Parts List for Thomas 2638CHI38-190 Compressor

Item No.	Part No.	Qty. per Assembly	Qty. per Unit	Description
1	607664	-	2	Connecting Rod Assembly
1A	670011	1	2	Cylinder Sleeve
2	625114	-	2	Rod Clamping Screw
3	667077	-	2	Eccentric and Bearing Assembly
4	633780	-	1	Fan - Gray
4A	633797	-	1	Fan - Black
5	623539	-	2	Valve Plate O-Ring
6	621277	-	2	Valve Plate Assembly
7	662163	1	2	Valve Plate
8	621102	2	4	Flapper Valve
9	617145	1	2	Valve Restraint
10	617045	2	4	Valve Keeper Strip
11	625446	2	4	Flapper Valve Screw
12	633629	-	2	Head Gasket O-Ring
13	664321	-	1	Head
14	664428	-	1	Head
15	623627	-	4	Connector Tube O-Ring (Quad-X®)
16	615642	-	2	Connector Tube
17	625646	-	12	Head Screw (Torx® T-25 Drive)
18	638581	-	1	Safety Relief Valve

Wiring Diagram

Use this wiring diagram to connect your compressor to the power source.



Troubleshooting Guide

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

		Problem			Possible Cause	Corrective Action
Low Flow	Low Pressure	Unit Will Not Start	Motor Overheats	Loud Unit		
			x		High voltage at compressor	Reduce voltage to 100 VAC ± 10%
x	x	x	x		Low voltage at compressor	Increase voltage to 100 VAC ± 10%
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
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 bearing	Replace eccentric and bearing assembly
x	x				Leak at connector tubes	Replace connector tube O-Rings
				x	Loose rod clamping screw	Apply Loctite® 242 and retighten

Required Tools and Materials

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

- Torque wrench that has an inch-pound scale (for head screws, setscrews, flapper valve screw, and pipe plugs)

- Torx® T-25 drive for torque wrench (for head screws)

1/8" Allen wrench attachment for torque wrench (for eccentric setscrew)

5/32" Allen wrench attachment for torque wrench (for rod clamping screw)

- 1/4" Allen wrench attachment for torque wrench (for head pipe plugs)

Flat blade screwdriver attachment for torque wrench (for flapper valve screw)

- Loctite® 680, or equivalent (for connecting rod bearing bore)

- Loctite® 242, or equivalent (for connecting rod clamping screw)

- Loctite® 592, or equivalent (for pipe plug threads)

Component Repair

Servicing the Head Assembly

NOTE: Removal of the head precludes any other repair to the compressor.

You will only need to replace the head or connecting tubes if they are visibly damaged. You may need to replace the connector tube O-rings if there is low flow and/or low pressure and you have tried all of the other remedies.

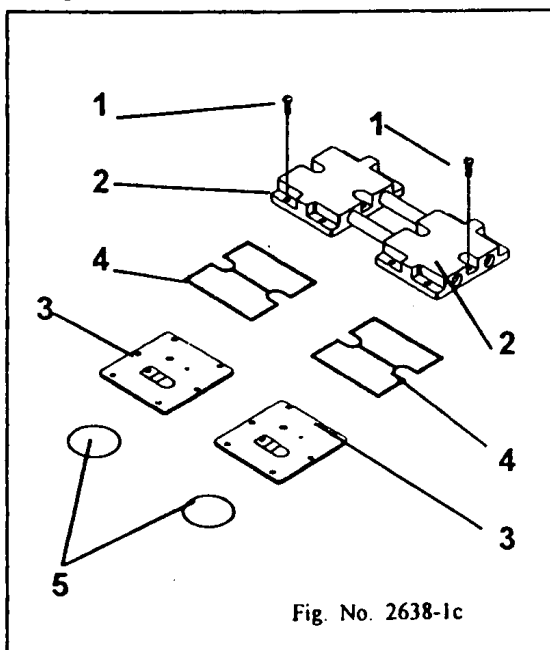
Component Parts Required

You will need:

- Head (if damaged)
- Connector tubes (if damaged)
- Connector tube O-rings
- Head gasket O-ring
- Valve plate O-ring
- Pipe plugs (if heads are being replaced)
- Loctite ® 592 or equivalent (sealant for pipe plugs)

Removing the Head

1. Disconnect the power.
2. Disconnect all air lines and remove compressor from the enclosure.
3. Remove the twelve 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 plates (3) from the head.
6. Remove the head gasket O-rings (4) and discard.
7. Turn the valve plates over. Remove and discard the o-rings (5).

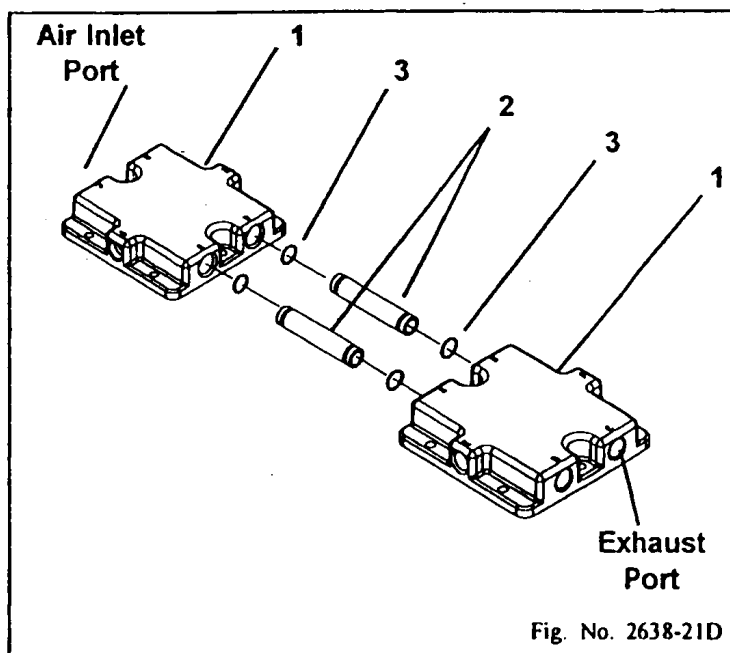
Removing the Connector Tubes

1. Separate both heads (1) by pulling them apart.
2. Pull each connector tube (2) out of the heads.
3. Remove the connector tube O-rings (3).

⚠ Caution

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

4. Insert new O-rings into the grooves on each end of the connector tubes.
5. Push the connector tubes into the "D" and "C" ports on one head.
6. Push the other end of the connector tubes into the "A" and "B" ports on the other head.

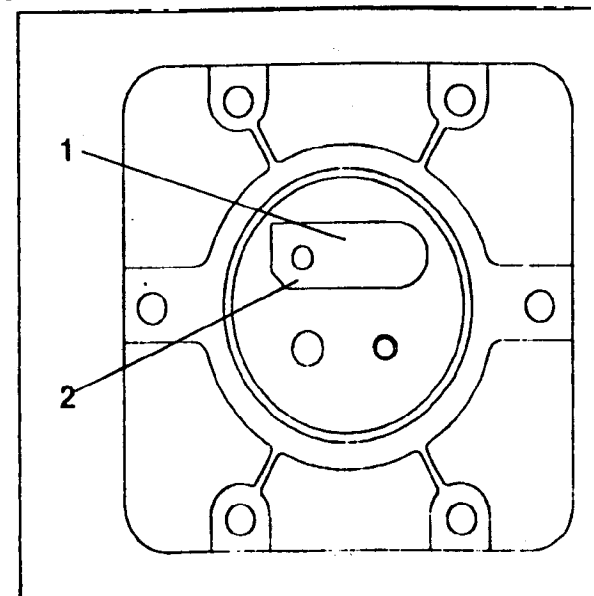
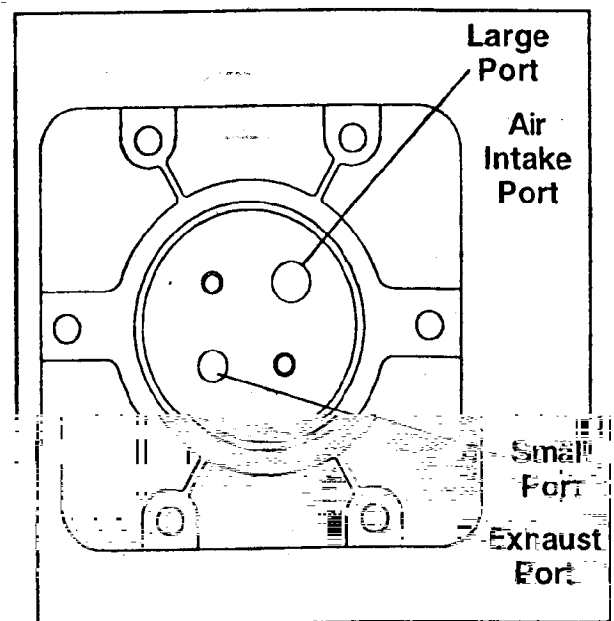
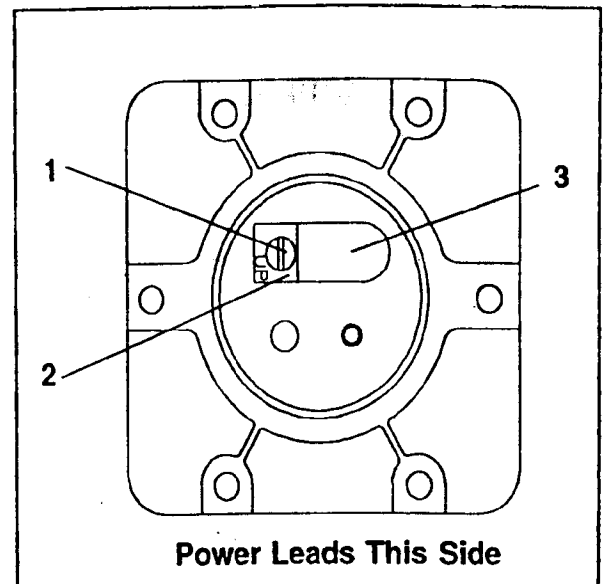


Replacing Flapper Valve on the Bottom of the Valve Plate

To replace a flapper valve on the bottom side of the valve plate (side facing the connecting rod), loosen the flapper valve screw (1), lift off the valve keeper strip (2), and lift off the flapper valve (3).

2. Turn the compressor head upside down and place the valve plate on the compressor head as illustrated. Note the orientation of the valve ports and the location of the exhaust and air intake ports.

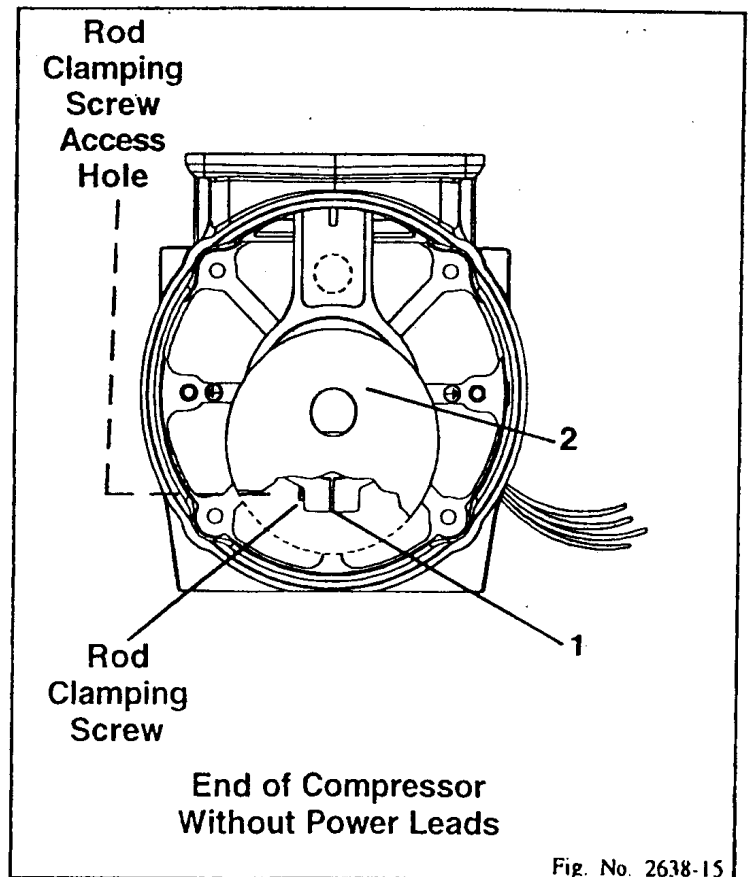
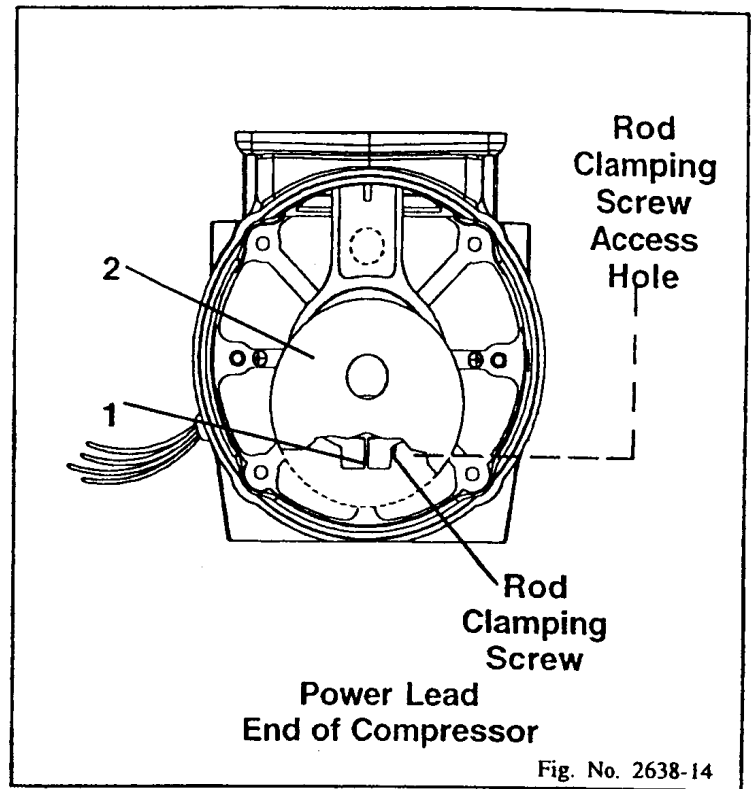
3. Place a flapper valve (1) over the large port, observing the location of the notch (2) at the end of the valve.



10. Turn the motor shaft to align the rod clamping screw with its access hole and use the 5/32" Allen wrench to loosen and remove the rod clamping screw (see illustrations for location of access hole).

11. Carefully pry the two halves of the connecting rod bearing bore (1) apart with a flat blade screwdriver until the Loctite® seal is broken.

12. Slide the eccentric (2) off the motor shaft and set it aside for reassembly (unless you are replacing it).



6. Apply a light film of Loctite® 680 (or equivalent) around the outer race of the eccentric bearing where shown on the illustration. Wipe off excess Loctite®.

Note: Too much Loctite® may cause problems with compressor operation.

7. Turn the motor shaft so the flat faces the bottom of the housing.
8. Slide the eccentric onto the motor shaft orienting the eccentric bearing (1) as shown in the illustration and keeping the eccentric setscrew in line with the flat on the motor shaft.
9. Slide the eccentric bearing (1) into the connecting rod bearing bore (2) and center the bearing bore over the bearing.

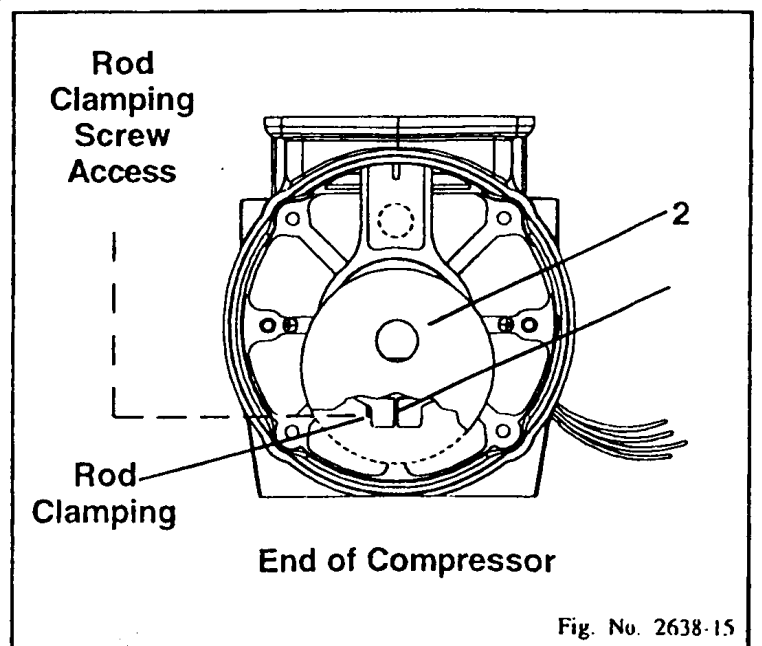
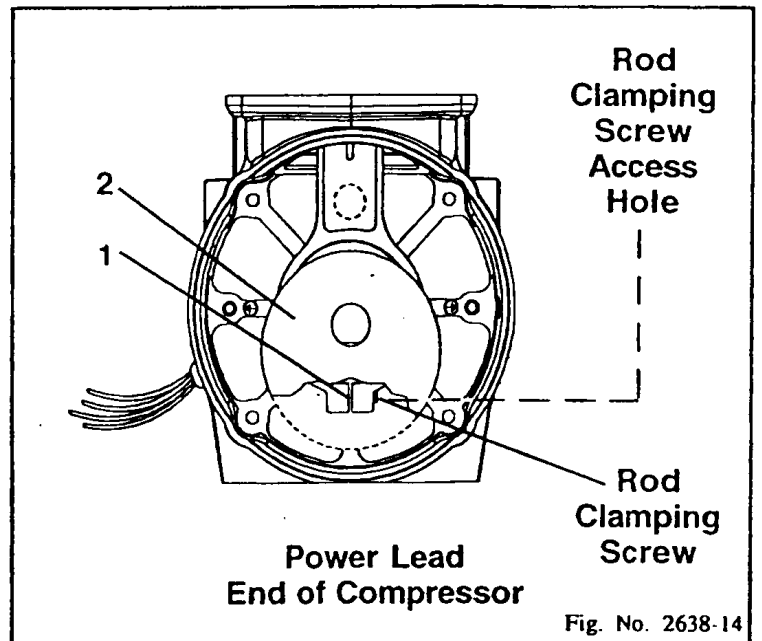
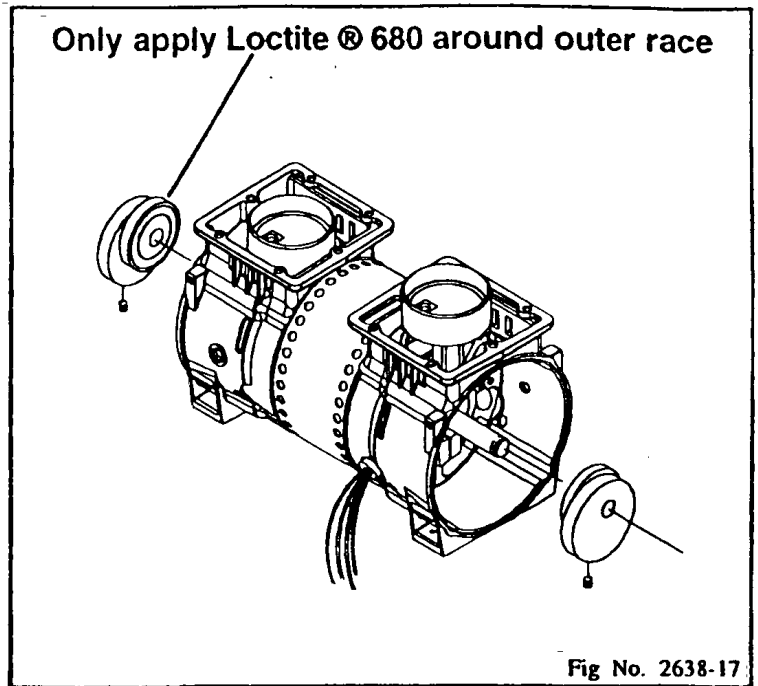
10. Align rod clamping screw with its access hole (see Illustration).

⚠ Caution

Do not tighten rod clamping screw to more than 15 inch-pounds. If the screw is too tight, bearing damage may occur.

Use a 5/32 " Allen wrench drive and your torque wrench to tighten the rod clamp screw to 15 inch-pounds.

Note: Make sure that the connecting rod bearing bore stays centered around the eccentric bearing as you tighten the rod clamping screw.

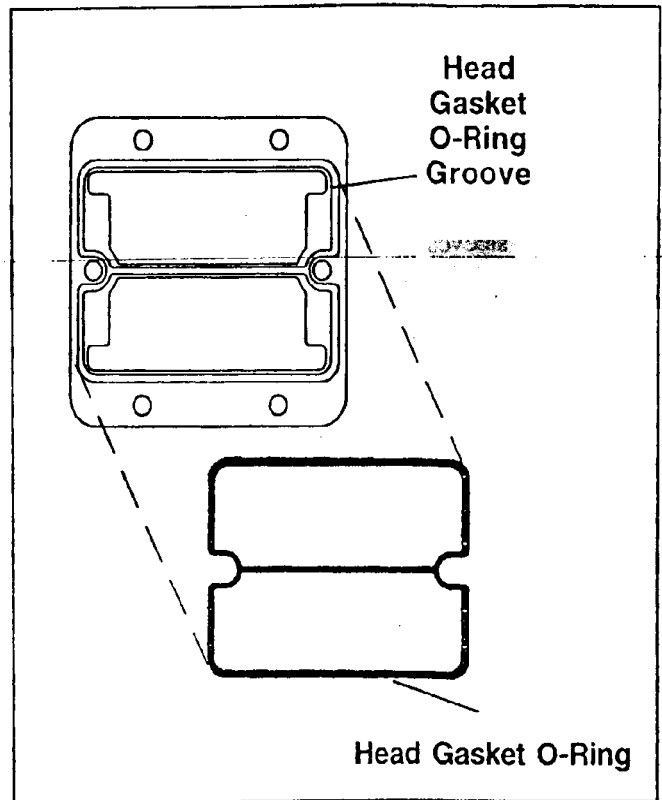


Reassembling the Compressor

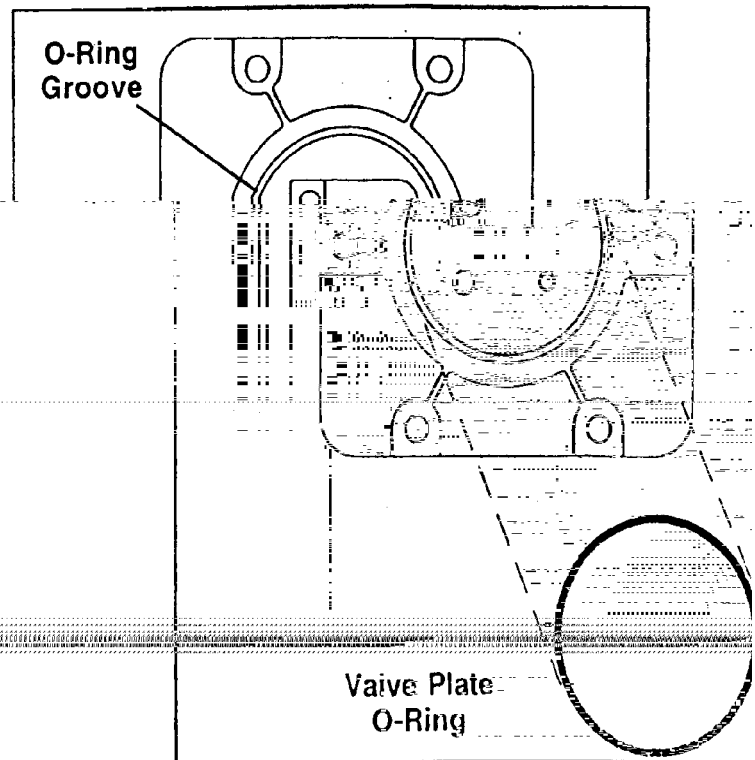
⚠ Caution

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

1. Insert the new head gasket O-ring into the groove located on the inside of the head.

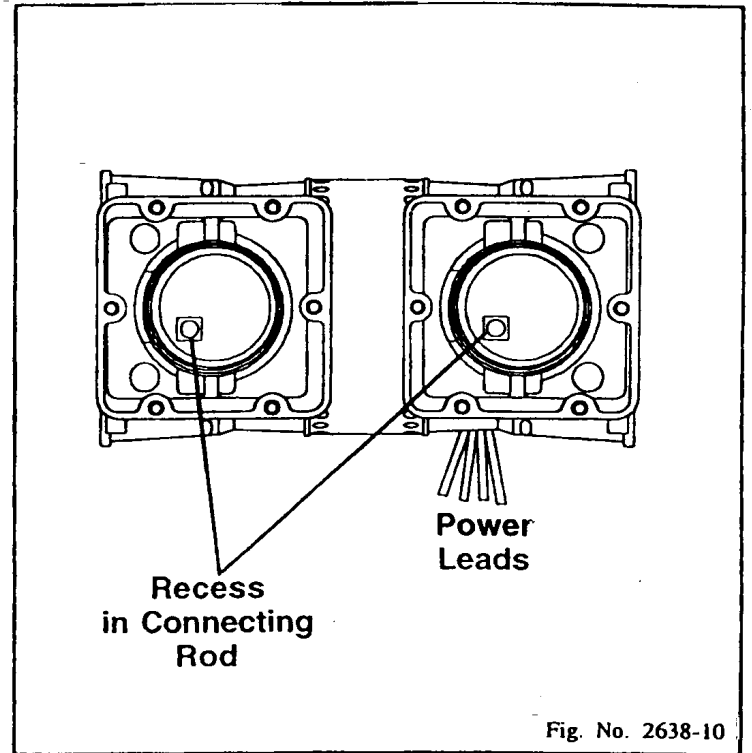


2. Insert the valve plate O-ring into the groove located on the back of each valve plate.

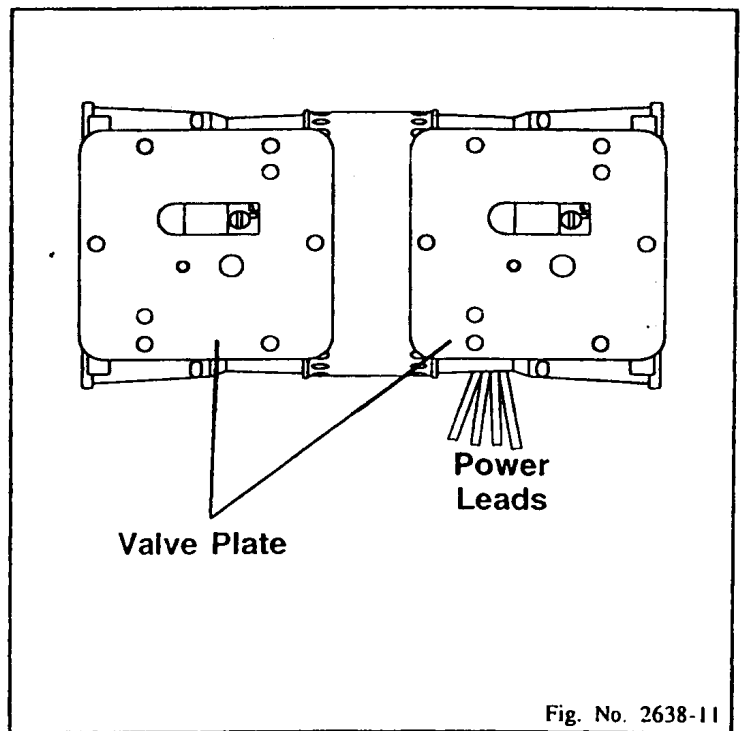


3. Position the compressor housing as shown in the illustration. Notice the orientation of the power leads and recess in the connecting rod.

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



4. Observe the orientation of the valve plate assemblies in the illustration and place them on the compressor housing.





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