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Technical Guideline

Installing a Compressor Rebuild Kit

TG-95-0069

Rev C | 24 Mar 2016 | Page 1 of 6

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WARNING! Only qualified personnel should service or repair this device. This device should only be serviced/ repaired by a qualified service technician who is proficient in the repair of electromechanical dental equipment and who understands the complexities and risks of working within the device and observes proper safety precautions.



WARNING – Compressed Air. The compressed air system that operates this unit is under pressure. Compressed air can propel dust or loose particles and can cause bodily injury or damage. Always turn the system off and bleed off air pressure before attaching or removing air lines or accessories or servicing this unit. All air lines should be periodically inspected and replaced if worn or damaged. If an outside compressed air supply is used to power this unit, the air supply must be regulated to 80 psi or below. Excessive air pressure could cause certain components to rupture.



WARNING – Electrical Voltage. This system is powered by high voltage electricity. Like any other electrically powered device, if it is not used properly, it can cause electrical shock. Always plug the power cord into an electrical outlet with adequate fuse protection and proper grounding. In the event of a short circuit, grounding reduces the risk of shock by providing an escape wire for the electric current. Improper grounding of the unit can result in a risk of electric shock. Always unplug the unit before doing any service or repair to the unit.

PARTS INCLUDED

- Compressor Rebuild Kit

TOOLS REQUIRED

- Crescent wrench
- Phillips head screwdriver
- Flat head screwdriver
- 5/32" nut driver
- 3/16" nut driver
- 1/8" nut driver



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IMPORTANT NOTES

- During the repair procedure, refer to the exploded view page 7.6 of the booklet sent with the kit.
- The air compressor is a two stage design in which the first head compresses the air and then the second head compresses the air further. The first stage is a larger diameter with a thin wall sleeve.
- There are four leaf valves (thin metal straps). Two are located on top of the valve plates and the other two are underneath. The square-ended leaf valves are used on the first stage side and the two round-ended ones are used on the second stage side with a valve limiter placed on top.

INSTRUCTIONS

Disassembly

1. Turn off the main power and unplug the unit from power outlet.
2. Open back door of the unit using a flat head screwdriver.
3. Remove the compressor; refer to ASI Technical Guideline TG-95-0159, "Removing/Replacing the Air Compressor".
4. **IMPORTANT STEP:** Note the orientation of the ports so that the head covers are reassembled correctly. Label them if necessary. (Fig. 1)

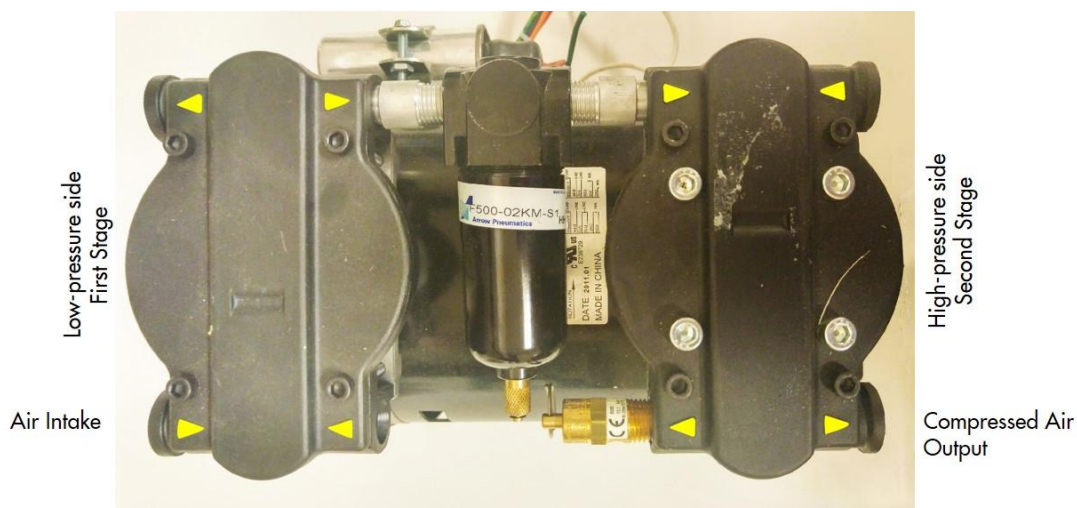


Fig. 1

There are directional arrows embossed in the compressor. This figure highlights them in yellow.



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5. Remove the head bolts and remove the head covers; set aside.
6. Remove the valve plate with the valve and note the position of the valve on intake or exhaust sides of plate (mark them if necessary); remove valve. Also, note the direction of the leaf valves. (Fig. 2; Fig. 3)

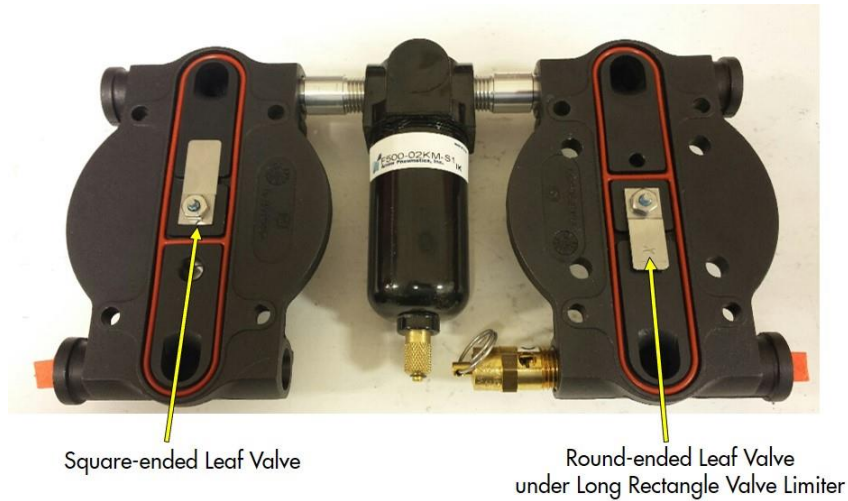


Fig. 2 Top of Valve Plate

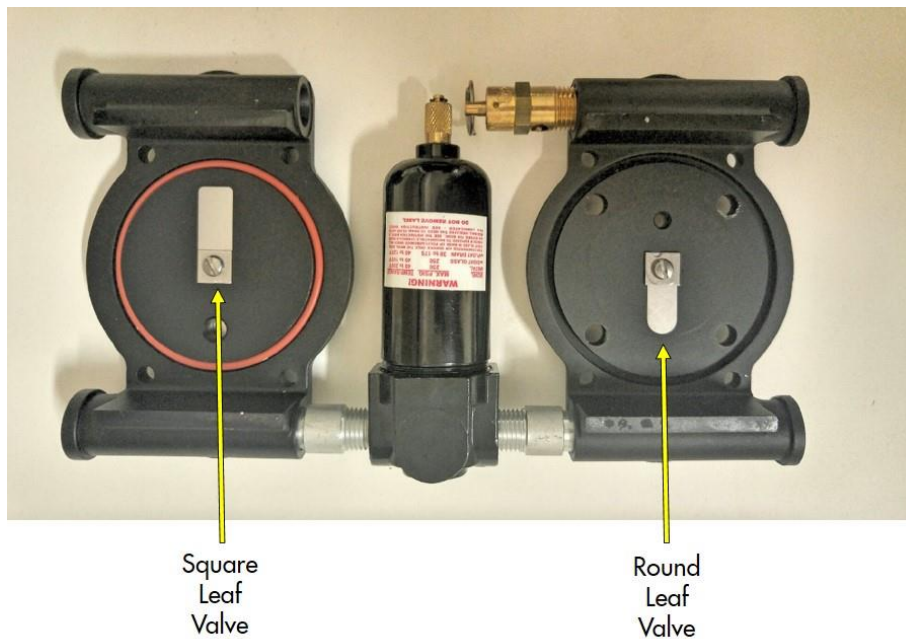


Fig. 3 Bottom of Valve Plate



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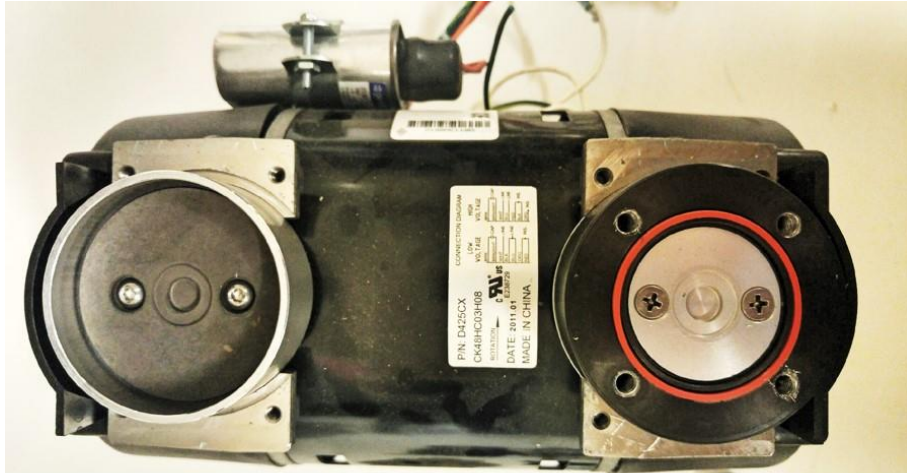
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7. Remove the tube with the filter from the valve plate.

Locate the cylinders and note the differences between the low-pressure side and the high-pressure side. (Fig. 4)



Low-pressure
First Stage Cylinder

High-pressure
Second Stage Cylinder

Fig. 4

8. Remove the retainer plate (1/8" Allen head, two screws), the piston cup, and the cylinder. (Fig. 5)

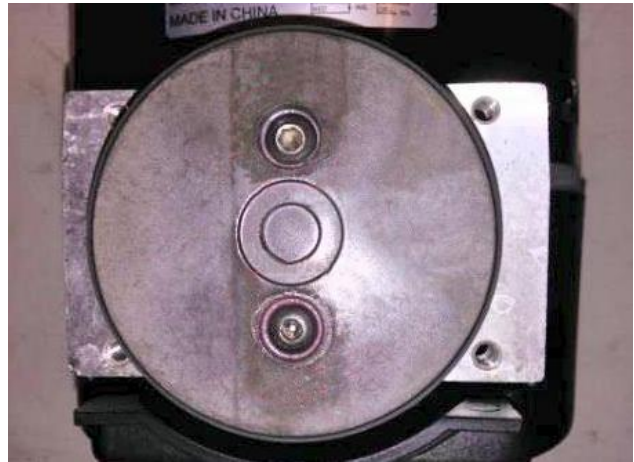


Fig. 5



9. Discard the following items as these will be replaced with new parts in the kit:

- Piston cup, cylinder, and 1/8" Allen head screws for the retainer plate
- O-rings on the tube
- O-ring for the cylinder
- O-ring for the head, valves, and valve retainers
- Leaf valves

Re-assembly

10. Place the new piston cup on the rod (facing up).

Reinstall the retainer plate. Apply thread locking compound (LOCTITE® 222) to new screws. Torque screws to 34-38 in lbs.

NOTE: Apply equal pressure onto the retainer plate using both thumbs. (Fig. 6)



Fig. 6

11. Carefully install the cylinder (place over the piston cup by placing the cylinder at a slight angle to the cup, sliding on then carefully rotating the cylinder around the cup to avoid damaging the Teflon cups.

12. Clean valve plates with water based solvent if necessary but avoid scratching the valve seats.



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13. Next, you will install the new leaf valves and retainers in their original positions onto the valve plate. Note the location of the low-pressure cylinder side and the high-pressure side.

Install the low-pressure side of the valve plate by using the two square-ended leaf valves on the top and bottom. Ensure that the square retainer is placed onto the leaf valve and is aligned with it and not angled.

IMPORTANT: If the retainer is not aligned and squared with the leaf valve, it can impede the function and may cause the leaf valve to break. Use the new screws provided along with thread-locking compound (LOCTITE 222) and torque to 11-13 in lbs.

Repeat the above for the high-pressure side by using the two round-ended leaf valves on the top and bottom. For the top side, a longer valve limiter must be placed over the leaf valve instead of the small square retainer.

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14. Install new tube O-ring and install tube to valve plate.

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15. Install the new cylinder O-ring in the bottom of the valve plate and position over the cylinder. Make sure they are aligned.

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16. Make sure the port orientation is correct (as noted earlier and marked).

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17. Place the head O-ring in the O-ring groove on top of the valve plate.

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18. Place the head covers over the valve plate and check for correct port orientation. Torque head bolts to 50 in lbs.

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19. Restore power to unit and turn on the compressor. Verify that the system is operating correctly. The Master Air Regulator has a recommended 75-80 psi.
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