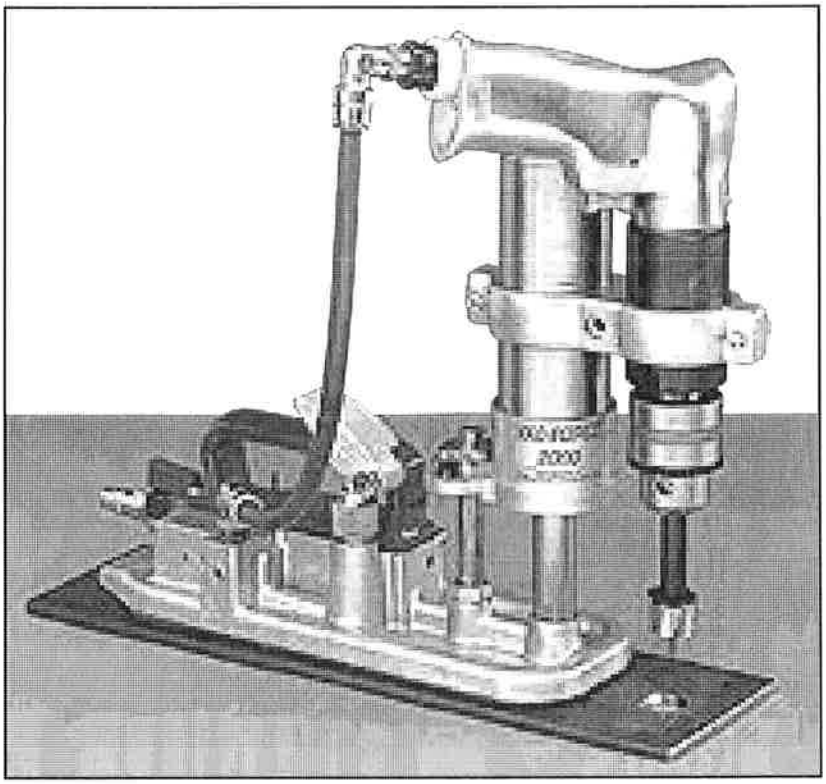
# VAC-FORCE 2000
# UNIVERSAL VACUUM BASED HOLE CUTTING MACHINE



- INTRODUCTION
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# INTRODUCTION

The VAC-FORCE universal vacuum based hole cutting machine is lightweight, weighing approx. 10 lbs (4.5 kg) including the air drill attached. Note: air drill must be purchased separately.

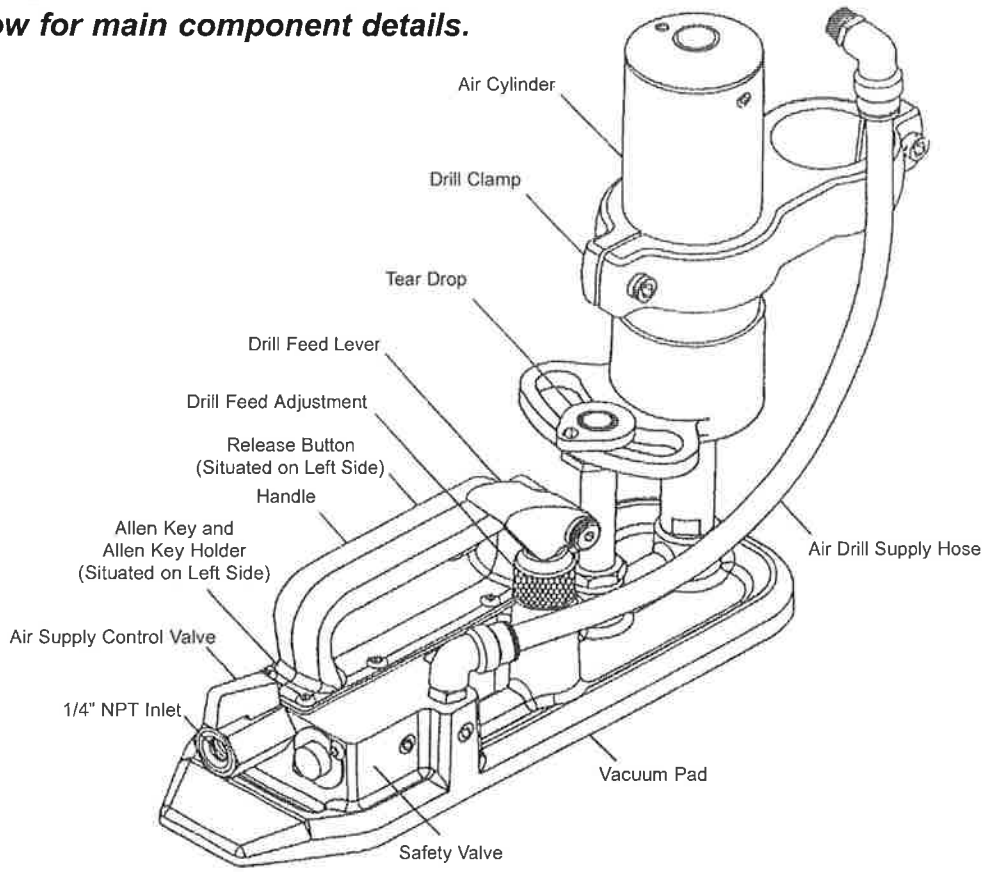
This unit consists of a vacuum base (to clamp the unit to the mounting surface), and an air feed cylinder (to push the cutter or drill through the material without any additional effort by the operator).

The VAC-FORCE unit also incorporates a safety valve which will not allow compressed air to be supplied to the drill motor unless it is firmly attached to the mounting surface.

## *SAFETY NOTICE*

Good safety habits are an important part of doing any job right. They are mostly common sense but a reminder is always helpful. Please refer to the safety section in the air drill manual for a complete list of safety tips related to general drilling. There are some additional safety issues specifically related to holecutting with these tools that should always be practiced, including: keeping both hands on the unit while drilling; work from a stable stance; pay attention to your work; and always wear safety glasses and gloves.

***Refer to Figure 1 below for main component details.***



# OPERATION

## NOTICE

The VAC-FORCE 2000 requires an operating pressure at the unit of 75-120 psi (5.2-8.3 bar). A pressure gauge should be install in the pneumatic air line, just before the drill unit to monitor the input air pressure.

Complete the following steps to prepare the VAC-FORCE 2000 for operation:

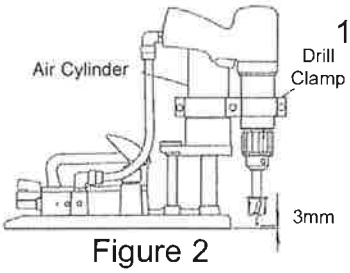


Figure 2

1. Place the pneumatic air drill (purchased separately) into the drill holder. When needed, use the supplied correct size sleeve to securely mount the drill. Note: If the purchased pneumatic drill has a chuck larger than the drill clamp hole, the chuck will have to be removed prior to installing the drill in the clamp. Place the drill in clamp and tight clamp screws securely. ***See Figure 2***.

2. Connect blue air line to drill. Note: depending on the brand of drill purchased, a fitting adaptor may be required between the fitting on the blue air line and the drill. ***See Figure 2***.

3. Select cutter of drill bit and securely tighten in drill chuck.

4. Using a center punch, mark center of hole on material surface to be drilled.

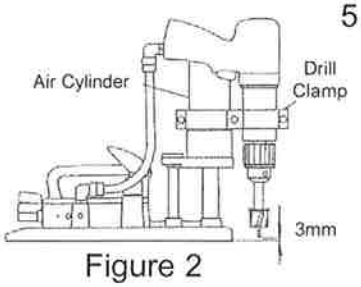


Figure 2

5. Using the 5mm allen wrench (attached on side of vacuum base), loosen both screws on each end of the drill clamp and adjust the vertical position of the drill to locate the tip of the cutter or drill bit approximately 1/8 in. (3 mm) above the material surface. See Figure 2. Tighten screws securely using the 5mm allen wrench. Note: Before tightening the clamp screws, make certain the horizontal position of the drill is in-line with the vacuum base. ***See Figure 2***.

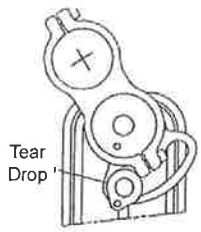


Figure 3

6. When cutting holes near the edge of the work surface, it may be necessary to move the drill bit/cutter closer to the edge of the vacuum base. Using the 5mm allen wrench, loosen the tear drop and rotate to the required position and then retighten the tear drop. ***See Figure 3***. Note: After the completion of these holes, return the position of the drill to be in-line with the vacuum base. ***See Figure 2***. This is the optimum position for maximum adherence.

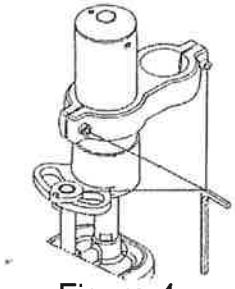


Figure 4

7. Before proceeding with the following steps, use the 5mm allen wrench and check to make sure all position screws are tightened securely. ***See Figure 4***.

8. Close the RED air supply control valve located on the air inlet of the vacuum base. ***See Figure 5***.

# OPERATION

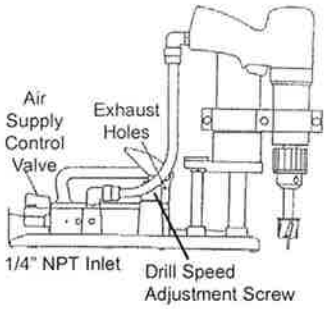


Figure 5

9. Connect a filtered air supply hose the 1/4in. NPT air inlet. ***See Figure 5***. Air supply hose should have a minimum I.D. of 5/16 in. (8 mm) and an operating air pressure range of 75-120 psi (5.2-8.3 bar). Note: An air pressure gauge can be installed between the air inlet of the vacuum base and the air line fitting. This will give a good indication of the inlet air pressure while using the unit.

10. If necessary, turn on air supply. Open air supply control valve located on vacuum base. Note: Small amount of air may be heard from the exhaust outlet located in the front of the handle. *See Figure 5*. This is normal. Do not block outlet.

11. **This step is a safety test to determine if safety valve is functioning**. Position your right hand on the air drill handle and your left hand on the VAC-FORCE 2000's red handle. Make certain that the unit's vacuum base and all moving air drill parts are clear from everything, including your person. Turn on the air drill. **If air drill operates normally, do not proceed. At this point, normal function of the air drill indicates that the safety valve is not functioning**. Refer to "Trouble Shooting" section in this manual.

If the air drill did not function normally (turn on), then the safety valve is working and has successfully disabled the drill until the unit's vacuum base is securely locked to the working surface.

11. To accurately drill in the desired location, press the drill feed lever with your left thumb until the drill has reached full travel. Place the center of the cutting point in the center punch mark. Hold the vacuum base level with the working surface and slowly release the left thumb pressure on the drill feed lever until the vacuum base rests evenly on the working surface. Firmly press the vacuum base unto the working surface to ensure a complete vacuum seal has taken effect.

12. The VAC-FORCE 2000 is now ready to operate. Turn on the air drill and slowly press the drill feed lever while making certain the center of the cutting tool is positioned exactly in the center of the punch mark. Continue to apply pressure to the drill fee lever until the drill is complete.

***IMPORTANT NOTE***

If the drill slows or stops, slowly lighten the left thumb pressure on the drill feed lever until the drill reaches normal operating speed. This is the optimum drilling force. The drill feed lever controls the amount of drilling force that the air cylinder applies to the drill. The more pressure applied to the drill feed lever, the more drilling force is indirectly given to the drill. When the drill feed adjustment knob (***See Figure 5***) is turned down (clockwise) fully, the thumb pressure on the drill feed lever has the ability to produce up to 154 lb (70 kg) of direct drilling force. In many cases, 154 lb (70 kg) is too great for obtaining the optimum drilling force. The drill feed adjustment knob allows the pressure of the drilling force to be reduced from 154 lb (70 kg) down to 0 lb (0 kg) by turning the knob completely to the up position (counterclockwise).

13. When the hole is complete, slowly lift the thumb off the drill feed lever until the cutter is clear of the hole and then stop the drill.

14. Press the vacuum release button, located on the left side of the vacuum base, below the red handle and just slightly ahead of the allen wrench holder. This will release the VAC-FORCE 2000 from the working surface.

15. Turn air supply valve to the off position to conserve air supply.

# TROUBLE SHOOTING

Before diagnosing problems from the following chart, check that any irregularities are prevented by ensuring that:

- Air supply pressure is above 75 psi (5.2 bar)
- Air supply control valve is open
- Drill feed adjustment knob is turned down (clockwise) enough to allow correct air supply pressure to fully operate the air cylinder, therefore, allowing the air cylinder to function, to travel the full 2 in. (50mm), and have enough force to complete the hole drilling.

### *PROBLEM-VACUUM BASE WILL NOT ADHERE TO SURFACE*

| CAUSE | SOLUTION |
|---|---|
| 1. No vacuum | Check if ON/OFF button is stuck in the "ON" position |
| 2. Vacuum filter blocked | Remove and clean sintered filter located under vacuum base |
| 3. Vacuum generator not working | Test for suction by placing thumb or piece of paper over vacuum filter |
| 4. Vacuum seal dirty, cut, damaged | Inspect seal and replace if necessary. Replacement instructions supplied with new seal |
| 5. Vacuum generator working but vacuum base won't adhere | Check for holes in working surface. Surface porous and deep grooves |
| 6. Air pressure coming from 2mm hole located under vacuum pad at rear | Replace both O-Rings on safety valve |
| 7. Air pressure from supply too low | Check compressor to make certain it is reaching its maximum pressure and check that reservoir has been drained of water and any residue |
| 8. Vacuum base just holding but breaking away when air drill is started | Move operation closer to air reservoir. Make certain air hose is not longer than 20 ft. (6 m) and air fitting at connection to unit is of the high flow type. Bore must be 5/16 in. (7mm) or larger |

### *PROBLEM-AIR CYLINDER WILL NOT WORK*

| CAUSE | SOLUTION |
|---|---|
| 1. Vacuum base not adhering to work surface | Check air pressure in line. Shorten air hose to 20 ft. (6m) |
| 2. Air drill not working | Test air drill with alternate air supply. Safety valve may be disabling to air drill until vacuum base is securely adhered |
| 3. Safety valve sticking | Disconnect 3/8 in. blue hose from air drill and check for air flow from hose when vacuum base is securely adhered to work surface. If air flow is not present, safety valve is sticking and requires cleaning. Refer to "Air Pressure Coming From 2mm Hole In Underside Of Base". Check air supply pressure. It must be above 75 psi (5.2 bar) at inlet to VAC-FORCE 2000 |
| 4. Drill feed pressure too high for drill capacity | Turn knob on drill feed adjustment up (counterclockwise) to decrease air cylinder supply pressure |
| 5. Drill feed pressure too low for drill capacity | Turn knob on drill adjustment down (clockwise) to increase air cylinder supply pressure |

# TROUBLE SHOOTING

### *PROBLEM-AIR DRILL WILL NOT WORK*

| CAUSE | SOLUTION |
|---|---|
| 1. Damaged O-Ring seal | Check for air leaking from drill feed adjustment |
| 2. Cylinder damaged | Check cylinder sleeve for dents.<br>Check seals for air leaks |
| 3. Check regulator adjustment feral | Adjust feral on regulator to allow maximum pressure output |
| 4. Tear drop nut over tightened | Using 5mm allen wrench, loosen tear drop nut. Check cylinder for smooth travel. Re-tighten tear drop. Do not overtighten. |
| 5. Air bypassing in cylinder | Check cap in top of cylinder. Determine if air is Coming from small cushioning valve located in top. If so, refer to "Replacing Cylinder Seals" in this manual |

### *PROBLEM-NOT ENOUGH AIR CYLINDER TRAVEL (STANDARD VAC-FORCE TRAVEL IS 2 IN. (50MM) MAXIMUM)*

| CAUSE | SOLUTION |
|---|---|
| 1. Drill clamps not in correct position on air drill and/or cylinder sleeve | Re-adjust drill clamp on air cylinder so cutter is approx. 1/8 in. (3mm) about work surface |
| 2. Cutter requires more than 2 in. (50mm) of travel | Reposition drill clamp to allow for an additional 2 in. (50mm) of travel |
| 3. Cutter is preventing air cylinder travel | Check cutting depth of to depth of work surface. Check that drill clamp is not interfering with tear drop nut at rear of cylinder |
| 4. Cylinder traveling only half-way | Check cap in top of cylinder and see if air is coming from small cushioning valve. If so, refer to "Replacing Cylinder Seals" in this manual |

### *PROBLEM-CANNOT COMPLETE HOLE CUTTING*

| CAUSE | SOLUTION |
|---|---|
| 1. Air drill not powerful enough | Consider reduction gearbox, lubrication, or a more powerful air drill |
| 2. Worn or improper cutting tools | Replace with new and appropriate tools |
| 3. Cutter is preventing completion of hole | Check cutting depth of cutter to thickness of material being drilled |
| 4. Cylinder at end of travel | Reposition drill clamp to allow for an additional 2 in. (50mm) of travel |
| 5. Low air pressure | Check air line length and available pressure |

# REPAIR

## *VACUUM FILTER BLOCKED-VACUUM BASE NOT ADHERING TO SURFACE*

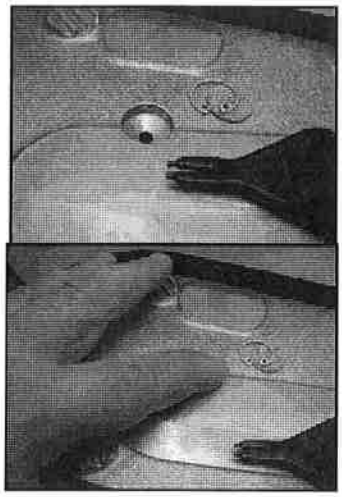


Figure 1

Complete the following steps to clean vacuum filter

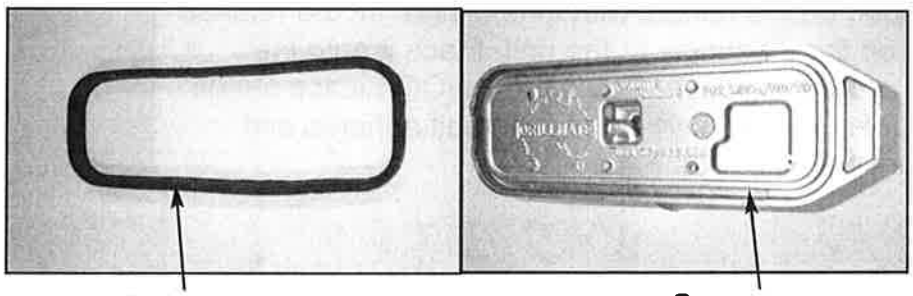
On bottom of vacuum base, remove 16mm snap ring. ***See Figure 1***.

1. Remove internal filter.
2. Wash filter in cleaning fluid and use an air gun to remove any foreign particles from filter.
3. Check to make certain cavity above filter area is clean.
4. Turn on air tap to allow air to run through unit.
5. Place thumb or finger over hole where the filter has been removed and check that a vacuum is being generated at this point.
6. If vacuum is flowing, turn off air, replace filter, and secure spring clip. NOTE: If vacuum is not available at this point, see "Vacuum Generator Repair" instructions listed in this section.

## *LOSS OF VACUUM TO BASE*

Complete the following steps to replace the base seal

1. Remove damaged seal from base.
2. Clean the bottom groove of base so that there is no visible signs of rubber glue.
3. Use *Bostick* or a good brand of rubber adhesive.
4. Place a very thin layer of adhesive in bottom of groove, taking care not to allow glue to be placed on the sides of the groove in the aluminum base.
5. Place the seal on a flat surface with the bottom side down (which is the wider side).
6. Place a thin layer glue only on the top of the seal only.
7. Allow the time required for the glue to dry prior to installing the seal.
8. Place the seal evenly in the groove and push down with thumb to ensure that bonding has taken place around the perimeter.
9. Place VAC-FORCE 2000 on a smooth surface, manually hold the unit down on the surface, and turn on air supply to unit.
10. Operate the "release" button on and off several times, allowing the unit to adhere to the mounting surface.



Rubber Seal

Figure 2

Groove

# REPAIR

### *VACUUM GENERATOR NOT PRODUCING VACUUM AT BASE*

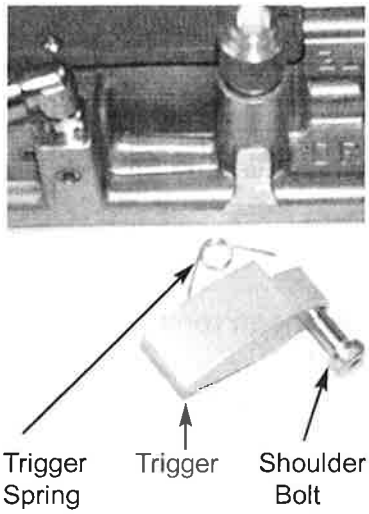



Figure 3a

Prior to completing the following repair step, first determine that the On/Off vacuum button is not stuck in the Off position.

Complete the following steps to repair the vacuum generator

1. Remove the trigger from the red handle by unscrewing shoulder bolt holding trigger to body of handle. Use a 4mm allen wrench. ***See Figure 3a***. Make certain not to lose the trigger spring located between trigger and handle.

2. Remove red handle from top of vacuum chamber by removing the 6 x 4mm screws. This will expose the three chambers. The first chamber at the inlet tap end is the high pressure chamber. The second chamber is the vacuum chamber and the third chamber is the exhaust chamber. The inlet filter is located before the high pressure chamber. ***See Figure 3b***.

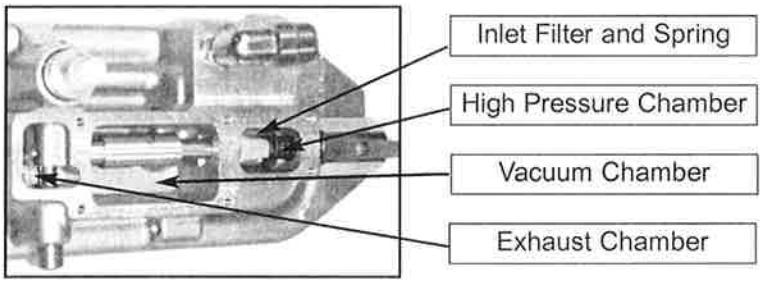



Figure 3b

3. To remove and clean the sintered filter, remove the red handle on/off pressure knob from the inlet fitting, and unscrew the inlet fitting from the base. This will allow the internal spring and sintered filter to be removed and cleaned. ***See Figure 3b***. If filter is damaged, replace with Part No. 997.

4. Before replacing filter, blow air through the connecting tube located between the high pressure and vacuum chambers.

5. Replace all items in reverse procedure, taking care that all parts fit back in the correct manner.

After reassembly, re-check that operation of vacuum is satisfactory. A quick way of testing is to place the unit over a smooth piece of plate, making sure that there are no holes in the plate to allow vacuum to escape. Place left hand on the handle with index finger on the release On/Off button. Turn on the air supply to the unit. Place it onto the mounting plate and allow it to attach. Press the On/Off release button in and out several times, making certain that the unit adheres and releases to the mounting plate. See Figure 3c.

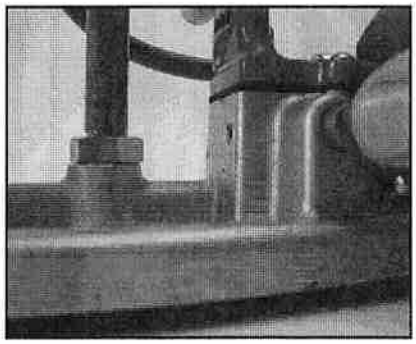


Figure 3c

## AIR PRESSURE COMING FROM 2MM HOLE IN UNDERSIDE OF BASE (NO VACUUM ON BASE)

Complete the following steps to replace or clean O-Ring on safety valve

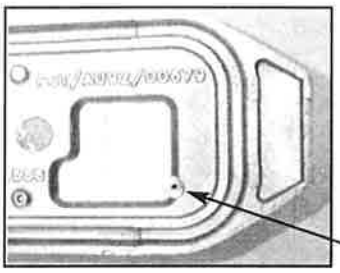



Figure 1

The 2mm hole is the air passage for the safety valve. See Figure 1. The function of the safety valve is to block air from traveling to the air drill while the VAC-FORCE unit is not attached to any surface. For the safety valve to operate, vacuum travels up the 2mm hole passage, sucks the safety valve to the rear of the base. This allows air to pass over the needle and up to the drill.

If air pressure is coming out of the 2mm hole in the base, ***see Figure 1***, then air is bypassing the O-Ring on the stem of the safety valve. To check or replace O-ring, complete the following steps:

1. Remove the two locking screws holding the safety valve in place. ***See Figure 2***. Use a 2.5mm allen wrench.
2. Remove safety valve from vacuum base.
3. Visually inspect O-Ring. If O-ring appears to be OK, lubricate and replace on stem.
4. If O-Ring appears damaged, replace with new O-ring, Part No. 956. Lubricate new O-Ring before placing on stem.
5. Replace safety valve back into body of vacuum base and tighten the two locking screws.
6. Re-check by testing to insure that no air is passing through the 2mm hole in underside of base.

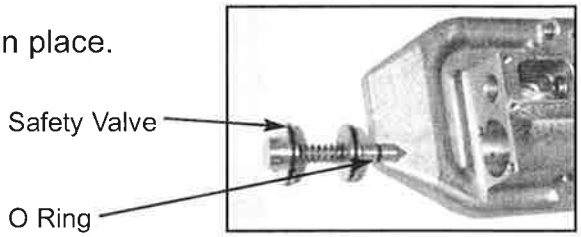



Figure 2

## AIR CYLINDER WILL NOT TRAVEL UP OR DOWN

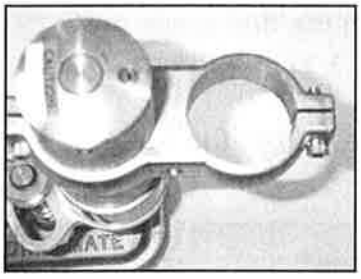


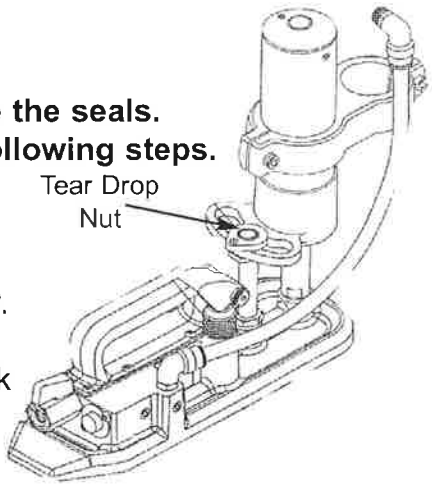
Figure 1

With the VAC-FORCE unit placed in the working position and the Drill Feed Lever in the down position, check if there is constant air being exhausted from the air cushion relief valve, ***See Figure 1***. If air is exhausting at this point, air is bypassing the main seal on the cylinder rod. This requires that the cylinder be dismantled and the seal replaced. Refer to "Cylinder Repair" in this section.

If no air is bypassing the air cushion relief valve shown in Figure 1, and the cylinder still fails to operate, the bottom seals of the cylinder may be leaking. Check the bottom of the cylinder for air leak. If air is bypassing the seals when the Drill Feed Lever is in the down position, the cylinder needs to be removed from the vacuum base and the seals replaced. Refer to "Cylinder Repair" in this section.

## Cylinder Repair

**Complete the following step to dismantle air cylinder and replace the seals.**
**Note: Remove drill clamp from cylinder prior to performing the following steps.**




1. Remove Tear Drop nut with 5mm allen wrench. ***See Figure 1***.

2. Loosen nut at base of stabilizer rod and remove rod. ***See Figure 2***.
   Note: If necessary, a small amount of heat may be applied to the nut to break the loctite coating on the threads.

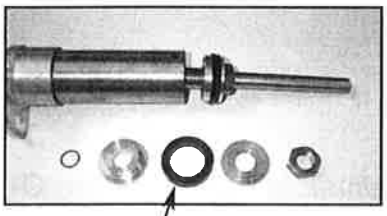


Figure 2

3. Warm the base of the main cylinder rod where it connects to the vacuum base. ***See Figure 2***.

4. Unscrew the main cylinder shaft from vacuum base.

***CAUTION***
***Care must be taken when removing the top cap from the air cylinder. Spring tension inside of cylinder can cause cap to discharge from cylinder body, causing property or personnel damage or injury.***

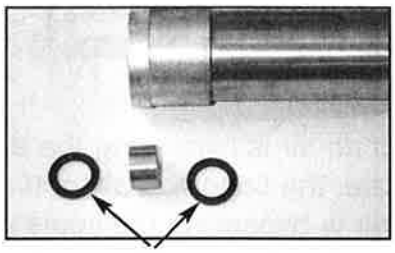

Figure 3

5. Using a pedestal drill press ***(See Figure 3)*** or other similar tool, apply tension to the top of the cylinder. With tension applied, unscrew the two 6mm screws on both sides of cylinder body.

6. Once screws are removed, pressure can be eased on the drill press and the cap will rise up from the cylinder body by approx. 1 ½ in. (38mm).

7. Remove the cap return spring and then remove the rod from the base of the cylinder.

If air leak was from area at bottom of cylinder, at this point replace bottom cylinder rod seals. ***See Figure 4***.


Bottom Cylinder Rod Seals
Figure 4

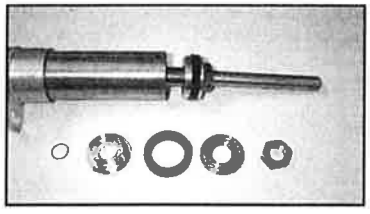


Figure 5

8. To replace piston seal, remove large nut and top washer. This will release the seal, and the bottom washer can be removed, exposing the O-Ring.
   ***See Figure 5***.

9. Replace O-Ring with Part No. 957, and seal with Part No. 969. Also replace both seals in bottom of air cylinder, using Part No. 967. When replacing seals in the bottom of the cylinder, make certain the lip of the seal is facing upward, toward the top of the cylinder. Silicon grease should be used on the internal walls of the cylinder to give lubrication at time of assembly.

*Note: Care must be taken when re-assembling the cylinder so as not to damage the seals in the base of the cylinder. It is a good practice to apply insulation tape or PVC tape to the large thread on the end pf the piston rod, which will protect the seals from being damaged by the threads.*

10. Reassemble the spring and cap utilizing the pedestal drill as a press. Make certain the cap screw holes line up with the two screw holes in the cylinder body for the two 6mm screws.

11. Screw the cylinder rod into the vacuum base. Use a small amount of loctite on rod threads.

12. Place the stabilizer rod through the bushing at the rear of cylinder. Screw stabilizer rod into vacuum base and then attach tear drop nut.

13. Before tightening lock nut on base of stabilizer rod and vacuum base, make certain the cylinder can be pressed to its maximum travel and return freely.

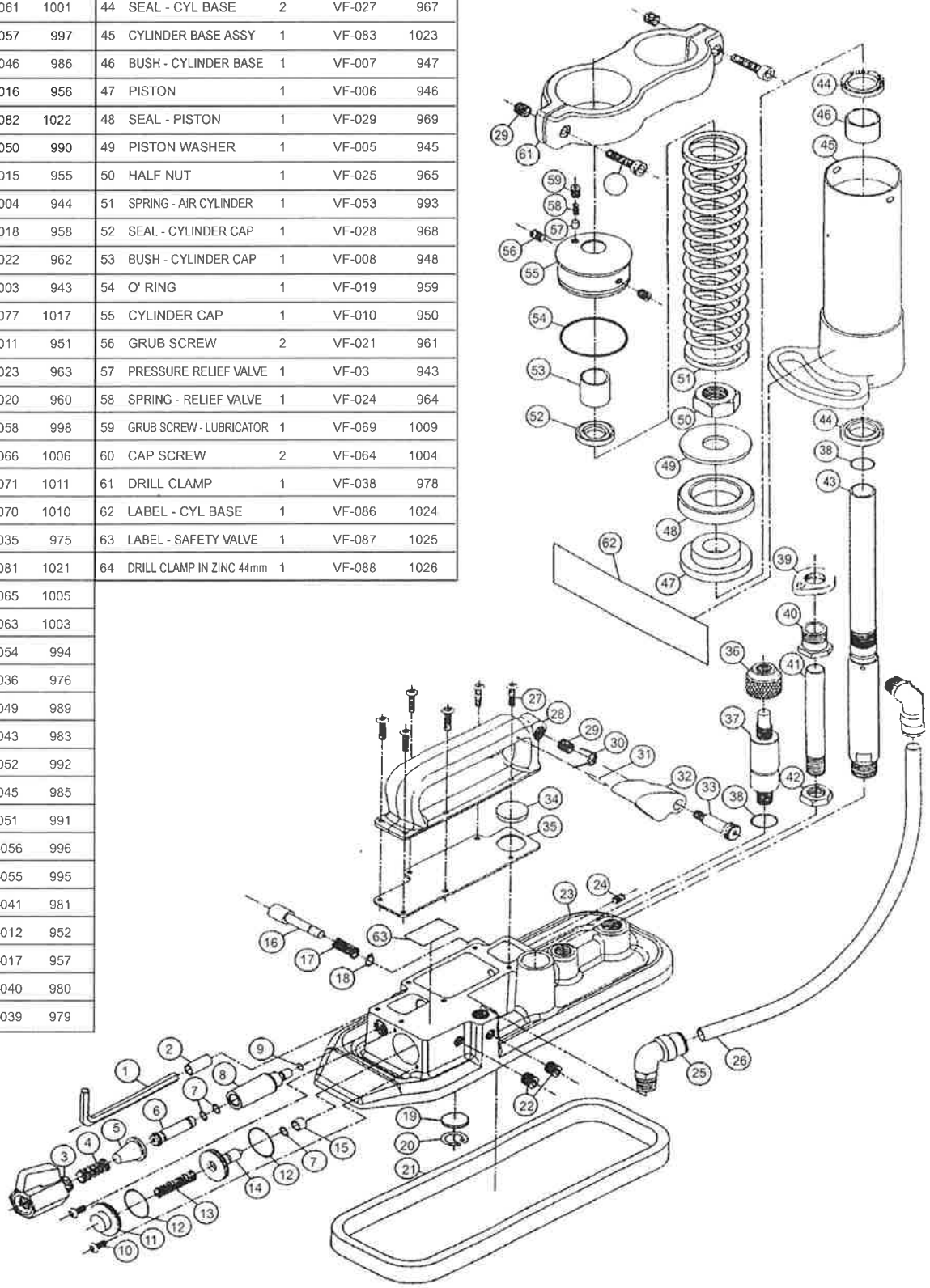
14. If cylinder moves freely, tight lock nut and check cylinder movement once again. Note: If resistance is felt, release tear drop nut. If cylinder then moves freely, re-tighten tear drop nut. ***DO NOT OVERTIGHTEN***.

15. Test unit to determine air does not bypass cushioning valve at top of cylinder and seals in the base of the cylinder.

# VAC-FORCE 2000 Spare Parts List

| | DESCRIPTION | QTY | ITEM # | PART# |
|---|---|---|---|---|
| 1 | ALLEN KEY | 1 | VF-067 | 1007 |
| 2 | ALLEN KEY HOLDER | 1 | VF-088 | 1008 |
| 3 | AIR SUPPLY CONTROL VALVE | 1 | VF-062 | 1002 |
| 4 | SPRING - AIR INLET | 1 | VF-061 | 1001 |
| 5 | FILTER - AIR INLET | 1 | VF-057 | 997 |
| 6 | CONNECTION TUBE | 1 | VF-046 | 986 |
| 7 | O-RING | 3 | VF-016 | 956 |
| 8 | VENTURI ASSEMBLY | 1 | VF-082 | 1022 |
| 9 | O-RING | 1 | VF-050 | 990 |
| 10 | BUTTON HEAD SCREW | 2 | VF-015 | 955 |
| 11 | SAFETY VALVE END CAP | 1 | VF-004 | 944 |
| 12 | O' RING | 2 | VF-018 | 958 |
| 13 | SPRING - SAFETY VALVE | 1 | VF-022 | 962 |
| 14 | SAFETY VALVE | 1 | VF-003 | 943 |
| 15 | SEAL - SAFETY VALVE | 1 | VF-077 | 1017 |
| 16 | RELEASE BUTTON | 1 | VF-011 | 951 |
| 17 | SPRING - RELEASE BUTTON | 1 | VF-023 | 963 |
| 18 | CIRCLIP - RELEASE BUTTON | 1 | VF-020 | 960 |
| 19 | FILTER - VACUUM | 1 | VF-058 | 998 |
| 20 | CIRCLIP - VACUUM | 1 | VF-066 | 1006 |
| 21 | SEAL - VACUUM | 1 | VF-071 | 1011 |
| 22 | GRUB SCREW - SAFETY VALVE | 2 | VF-070 | 1010 |
| 23 | VACUUM PAD | 1 | VF-035 | 975 |
| 24 | GRUB SCREW - LUBRICATOR | 1 | VF-081 | 1021 |
| 25 | ELBOW - MALE SWIVEL | 2 | VF-065 | 1005 |
| 26 | AIR DRILL SUPPLY HOSE | 1 | VF-063 | 1003 |
| 27 | BUTTON HEAD SCREW | 6 | VF-054 | 994 |
| 28 | HANDLE | 1 | VF-036 | 976 |
| 29 | RECOIL | 3 | VF-049 | 989 |
| 30 | SPRING - DRILL FEED LEVER | 1 | VF-043 | 983 |
| 31 | ROLL PIN | 1 | VF-052 | 992 |
| 33 | DRILL FEED LEVER | 1 | VF-045 | 985 |
| 33 | SHOULDER SCREW | 1 | VF-051 | 991 |
| 34 | FILTER - EXHAUST | 1 | VF-056 | 996 |
| 35 | SEAL - HANDLE | 1 | VF-055 | 995 |
| 36 | DRILL FEED ADJ. | 1 | VF-041 | 981 |
| 37 | DRILL FEED VALVE | 1 | VF-012 | 952 |
| 38 | O-RING | 2 | VF-017 | 957 |
| 39 | TEAR DROP | 1 | VF-040 | 980 |
| 40 | TUBE BOLT | 1 | VF-039 | 979 |

| | DESCRIPTION | QTY | ITEM # | PART# |
|---|---|---|---|---|
| 41 | LOCATION PIN | 1 | VF-014 | 954 |
| 42 | HALF NUT | 1 | VF-026 | 966 |
| 43 | PISTON ROD | 1 | VF-013 | 953 |
| 44 | SEAL - CYL BASE | 2 | VF-027 | 967 |
| 45 | CYLINDER BASE ASSY | 1 | VF-083 | 1023 |
| 46 | BUSH - CYLINDER BASE | 1 | VF-007 | 947 |
| 47 | PISTON | 1 | VF-006 | 946 |
| 48 | SEAL - PISTON | 1 | VF-029 | 969 |
| 49 | PISTON WASHER | 1 | VF-005 | 945 |
| 50 | HALF NUT | 1 | VF-025 | 965 |
| 51 | SPRING - AIR CYLINDER | 1 | VF-053 | 993 |
| 52 | SEAL - CYLINDER CAP | 1 | VF-028 | 968 |
| 53 | BUSH - CYLINDER CAP | 1 | VF-008 | 948 |
| 54 | O' RING | 1 | VF-019 | 959 |
| 55 | CYLINDER CAP | 1 | VF-010 | 950 |
| 56 | GRUB SCREW | 2 | VF-021 | 961 |
| 57 | PRESSURE RELIEF VALVE | 1 | VF-03 | 943 |
| 58 | SPRING - RELIEF VALVE | 1 | VF-024 | 964 |
| 59 | GRUB SCREW - LUBRICATOR | 1 | VF-069 | 1009 |
| 60 | CAP SCREW | 2 | VF-064 | 1004 |
| 61 | DRILL CLAMP | 1 | VF-038 | 978 |
| 62 | LABEL - CYL BASE | 1 | VF-086 | 1024 |
| 63 | LABEL - SAFETY VALVE | 1 | VF-087 | 1025 |
| 64 | DRILL CLAMP IN ZINC 44mm | 1 | VF-088 | 1026 |

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