INSTALLATION INSTRUCTIONS
for
SUNNEN PUMP RETROFIT KIT
(Sunnen CV-616 Vertical Honing Machine)

GENERAL
This kit replaces existing pump on CV-616 Vertical Honing Machine with a longer lasting pump. New pump is specifically designed for pumping abrasive material.

These instructions cover both the CV-2700 (60 Hz) and the CV-2701 (50 Hz) retrofit kits.

SUGGESTED TOOLS & MATERIALS
The following tools and materials are needed to install this kit:
- Channel lock pliers
- Flashlight
- Pipe wrenches (2)
- Terminal crimpers
- Utility knife
- Standard allen wrench set
- Standard head screwdrivers, medium & small
- Standard socket set, 1/4 & 3/8 inch
- Adjustable wrenches, medium & small
- Ratchets, 1/4 and 3/8 inch
- Phillips head screwdriver, small

REMOVAL
To remove old pump, proceed as follows (see Figure 1):

WARNING
As with any modification to a standard machine, serious personal injury or damage to machine may occur as a result of improper installation. All wiring should be performed by a qualified, licensed electrician in accordance with all local, state, and federal codes and regulations.

1. Turn OFF main power switch on electrical enclosure. Then disconnect machine from main power source and open door to enclosure.
2. Open air vents located on top filter canisters, located on rear of machine.
3. Open door (or remove access panel) on rear of machine.
4. Loosen Hose Clamp on By-Pass Hose at Low Pressure Relief Valve. Remove hose and let coolant drain into reservoir.
5. Loosen Hose Clamp on Dump Hose. Remove hose and place to side in reservoir, for reinstallation later.

FIGURE 1, Old Pump
6. Disconnect Outlet Hose from outlet Coupling on High Pressure Relief Valve.

7. Loosen two (2) Set Screws in Pump Collar and remove assembly from motor Shaft. Place assembly in a suitable container to drain.

8. Disassemble plumbing fixtures from old pump. Disconnect High Pressure Assembly from pump, by unscrewing assembly from Nipple at 90° Elbow. Place aside for reinstallation later. Disconnect Low Pressure Assembly from pump, by unscrewing assembly from Nipple as illustrated. Place aside for reinstallation later.

**NOTE:** Mark relief valves, inlet and outlet, so they can be installed correctly to new pump.


10. Note to which terminals wire are attached, then disconnect wires pump motor.

11. Disconnect other ends of wires from manual starter inside of electrical enclosure and note to which terminals these wires are connected.

12. Disconnect wiring conduit from motor and enclosure and remove conduit and wires from machine.

**INSTALLATION**
Install new pump as follows (see Figure 2):

**IMPORTANT**
Make sure inlet on new pump is facing down. If not; remove six (6) screws, rotate inlet 180°, align seal so it does not get pinched, and reinstall screws.

**IMPORTANT**
Coat threaded end coupling with a thread sealant.

1. Coat one of threaded ends of 1-1/2" Nipple (included in kit) with thread sealant and screw into outlet port on new pump.

2. Coat opposite end of 1-1/2" Nipple and screw 90° Elbow onto Nipple. Align Elbow as illustrated.

3. Screw 2-1/2" Nipple (included in kit) into 90° Elbow.

4. To opposite end of 2-1/2" Nipple, attach High Pressure Assembly removed from old pump (refer to step 8, above). Align assembly so outlet Coupling faces up and towards side of pump motor with electrical box.

5. Screw 1-1/2" Nipple (included in kit) into inlet port on new pump.

6. To opposite end of 1-1/2" Nipple, screw on Tee Fitting (included in kit). Align Tee as illustrated.

7. Screw 3" Nipple (included in kit) into bottom of Tee Fitting as illustrated.

8. To opposite end of 3" Nipple, screw on Suction Screen removed from old pump; being careful not to overtighten.

**NOTE:** 50 Hz pumps require an adapter to be placed in inlet and outlet ports of pump. The remaining plumbing is the same as described above except that a 2-1/2" nipple should be used in place of 3" nipple between tee and suction screen on inlet side of pump.

9. Screw second 3" Nipple (included in kit) into side of Tee Fitting as illustrated.

10. To opposite end of 3" Nipple, screw on a 90° Elbow (included in kit), so open end faces up as illustrated.

11. Screw third 3" Nipple (included in kit) into 90° Elbow as illustrated.

12. To opposite end of 3" Nipple, screw on Low Pressure Relief Valve removed from old pump. Align Valve with outlet facing towards back of motor as illustrated.

13. Remove cover from pump motor electrical enclosure.

14. Install 90 degree conduit fitting in pump motor electrical enclosure, being sure to include 'O' ring. Fitting should face towards pump side of motor.

15. Crimp small ring terminals to ends of motor wires. Connect motor wires as illustrated on motor label for specific voltage used. Use small screws and nuts provided to make connections; be sure to tape connections with electrical tape (see Figure 3).

16. Place pump assembly in CV-616 sideways so that access to electrical connections can be made.

**NOTE:** New electrical conduit and wires have been supplied with kit.

17. Cut black wire into three equal lengths. Length of wires will have to be determined and cut according to your machine, once it is installed.

18. Crimp small ring terminals on stripped ends of three black wires and large ring terminal on end of green wire.

**FIGURE 3, Connection**
19. Connect black wires to motor wires as illustrated on motor label and connect green wire to motor ground. Use small screws and nuts provided to make connections; be sure to tape connections with electrical tape (see Figure 3).

20. Put electrical conduit over wires and secure to 90 degree elbow on pump motor.

Insert conduit through hole in machine.

Insert wires through 90 degree elbow on machines electrical enclosure. And attach conduit to 90 degree elbow.

Determine length of wires and cut them accordingly and crimp ferrules on their stripped ends.

21. If required: A new motor starter or overload may have been ordered with kit according to voltage and serial number of your machine. If supplied:

Remove old parts and replace it with new starter or overload.

Connect wires from pump to starter/overload.

Set amperage rating on starter/overload (see Table 1).

22. Place pump into position and install four bolts securing pump stand to machine.

23. Pour a small amount of coolant into topmost fitting of pump. This is to ensure pump will be pre-lubricated.

23. Reconnect Outlet Hose to outlet Coupling on High Pressure Relief Valve.

24. Reconnect Dump Hose and place to side in reservoir.

25. Cut By-Pass Hose to length and reconnect to Low Pressure Relief Valve, using Hose Clamp, removed in step 4.

26. If required: Reconnect By-Pass Hose to bottom of filters.

27. Close air vents located on top filter canisters.

28. Check all that connections are securely tightened.

29. Reconnect machine to main power source.

30. Close doors to electrical enclosure and turn ON main power switch on electrical enclosure.

31. Have an assistant turn coolant (pump motor) ON and OFF quickly while observing direction of rotation at back of pump motor. Rotation should be clockwise as viewed from back of motor.

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**CAUTION**

If pump runs in reverse damage may result. A sign that pump is running in reverse is if air bubbles up from coolant where inlet is located.

To reverse pump rotation:

Turn OFF power to machine and disconnect power supply.

Open door to electrical enclosure and switch any two of three black wires at starter/overload.

Close door; reconnect power supply; and turn ON power.

Recheck rotation of pump.

32. Start motor and bleed coolant system as described in Instructions Manual packaged with your machine.

33. Close doors (or reattach access panel) on back of machine.

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**TABLE 1, Amperage Rating**

<table>
<thead>
<tr>
<th>MACHINE</th>
<th>VOLT.</th>
<th>FREQ.</th>
<th>AMP.</th>
</tr>
</thead>
<tbody>
<tr>
<td>CV-616D</td>
<td>230V</td>
<td>60 Hz</td>
<td>2.0 A</td>
</tr>
<tr>
<td>CV-616E</td>
<td>460V</td>
<td>60 Hz</td>
<td>1.0 A</td>
</tr>
<tr>
<td>CV-616F</td>
<td>220V</td>
<td>50 Hz</td>
<td>2.0 A</td>
</tr>
<tr>
<td>CV-616G</td>
<td>380V</td>
<td>50 Hz</td>
<td>1.2 A</td>
</tr>
<tr>
<td>CV-616H</td>
<td>440V</td>
<td>50 Hz</td>
<td>1.0 A</td>
</tr>
<tr>
<td>CV-616J</td>
<td>208V</td>
<td>60 Hz</td>
<td>2.1 A</td>
</tr>
</tbody>
</table>

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