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INSTALLATION INSTRUCTIONS

**RPI PART #SDK090
INJECTOR ASSEMBLY
REBUILD KIT**

**RPI PART #SDK091
INJECTOR ASSEMBLY
TOOL KIT**

TOOLS & SUPPLIES REQUIRED

- Metric Hex wrenches
- Distilled water
- Compressed or canned air
- Clean surface covered with lint free cloth or paper to contain dust for disposal

OPTIONAL TOOLS

- Injector Assembly Tool Kit (RPI Part #SDK091)

PERSONAL PROTECTIVE EQUIPMENT REQUIRED

- Gloves
- Dust Mask
- Goggles

ELECTRICAL WARNING

Dangerous AC voltages are present and exposed when the covers are removed and the power is turned on – disconnect from power before servicing.

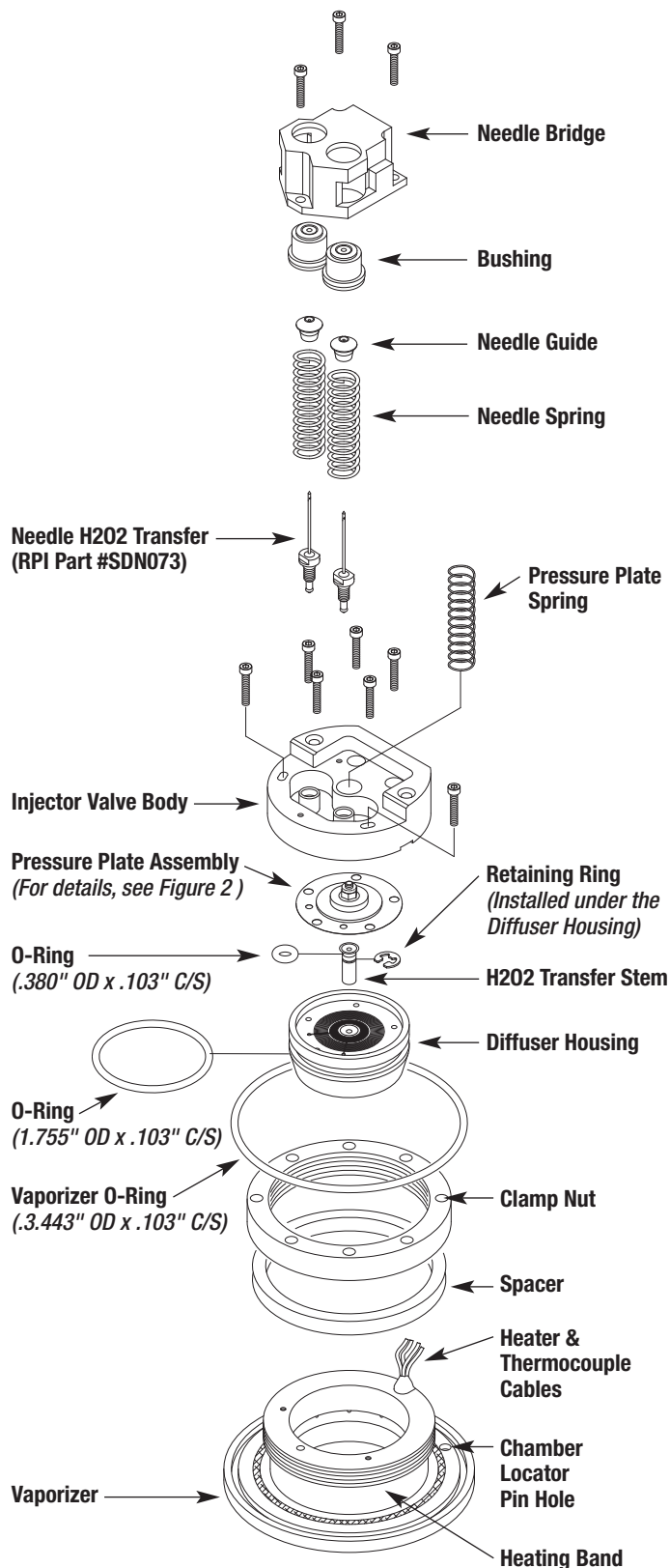
HAZARDOUS MATERIAL WARNING

All dust, and any salts collected during the cleaning process should be handled as hazardous waste and be disposed of per local regulations.

REMOVING THE VAPORIZER/INJECTOR VALVE ASSEMBLY

- 1) Separate the Injector Pump Assembly from the Vaporizer/Injector Valve Assembly by removing the four mounting screws, and removing the Rear Cassette Collection Shoot. Do not disconnect any cables or tubing, and set the assembly to the side where it will not be in the way. (Note: This step is not illustrated.)
- 2) Disconnect the Vaporizer Heater Cable and Thermocouple cable (see Figure 1 - Vaporizer/Injector Valve Assembly).
- 3) Insert the Spanner Wrench (RPI Part #RXT044) included in the Injector Assembly Tool Kit (RPI Part #SDK091) into the Clamp Nut holes, and loosen counter-clockwise.
- 4) Place your hand inside the Chamber to prevent the Vaporizer/Injector Valve Assembly from falling, and carefully remove the Clamp Nut and the Spacer underneath it. Push the Vaporizer/Injector Valve Assembly into the Chamber being careful not to damage the attached wires.
- 5) Place the removed Vaporizer Injector Valve Assembly on a covered, clean flat surface for further disassembly.
- 6) Remove the two 2.5 mm socket head cap screws holding the Injector Valve Assembly to the Vaporizer and pull the Injector Valve Assembly out of the Vaporizer. Set the Vaporizer aside for cleaning later.
- 7) Carefully remove the three 2.5mm socket head cap screws holding the Needle Bridge onto the Injector Valve Assembly. Use caution as this is spring loaded. Remove the Needle Bridge and set aside for reuse later. Remove the Bushings, Needle Guides, and all Springs from the Injector Valve Assembly and discard.
- 8) Remove the Needles by unscrewing them from the Injector Valve Body. (Note: Each Needle has two O-rings that should be attached to it – one larger O-ring at the top of the threaded fitting, and one smaller O-ring at the bottom of the threaded fitting on the exposed end of the cannula.)
- 9) Remove five 2.5 mm socket head cap screws, separate the Diffuser Housing from the body of the Injector Valve Assembly, and set the body aside for reuse later.
- 10) Remove the Pressure Plate Assembly from the Diffuser Housing, and set aside for later processing. Remove the O-ring from the exterior of the Diffuser Housing, and discard. Using a lint free cloth or wipe, carefully clean the O-ring groove.
- 11) Remove the retaining ring holding the H2O2 Transfer Stem to the face of the Diffuser Housing. Remove the Stem and O-ring by pressing the Stem out of the Diffuser Housing. Retain the Stem. Remove and discard the O-ring and the Retaining Ring.
- 12) Use the .067" Cleanout Tool (RPI Part #RXT061) included in the Needle Installation Tool Kit (RPI Part #SDK091) to ream out the

FIGURE 1
VAPORIZER/INJECTOR VALVE ASSEMBLY



central channel of the H2O2 Transfer Stem. Use distilled water to clean any remaining salt deposits, and dust from the Stem. Use canned or compressed air to thoroughly dry the Stem. Set aside for reuse later.

- 13) Using nothing but distilled water and canned or compressed air, clean the exposed surfaces of the Diffuser Housing. Do not attempt to remove all discoloration – just the accumulated salts. Be very careful to avoid scratching or damaging the Diffusion Channels.
- 14) Using the included O-ring lubricant (RPI Part #RPL090), lightly coat the .380" OD x .103" C/S O-ring. Install the O-ring onto the H2O2 Transfer Stem ensuring that the O-ring is completely seated in the groove. Remove any excess O-ring lubricant.
- 15) Reinstall the H2O2 Transfer Stem and O-ring assembly into the center of the cleaned and dried Diffuser Housing ensuring that the Stem is fully inserted and that the O-ring is fully seated in its groove. Install the new Retaining Ring onto the Stem.

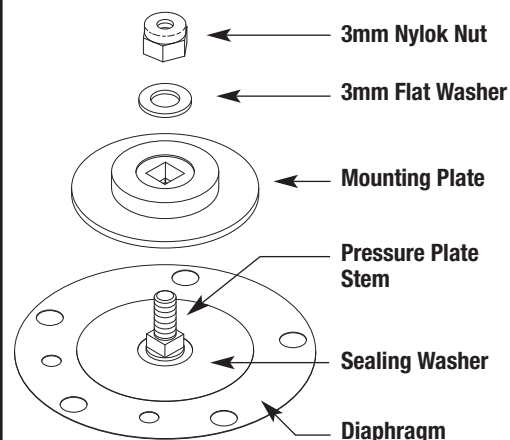
- 16) Recover the Pressure Plate Assembly set aside earlier. Remove the 3mm Nylock® Nut, and 3mm Flat Washer from the Pressure Plate Stem. Disassemble the Pressure Plate and retain the Stem, Mounting Plate, Nut and Flat Washer (*see Figure 2 - Pressure Plate Assembly*). Discard the Diaphragm and Sealing Washer. Use the cleaning pad included in the kit to lightly buff the flat face of the Pressure Plate Stem to remove any salt deposits. Do not attempt to remove all discoloration – just the accumulated salts. Use distilled water and canned or compressed air to clean and dry the Pressure Plate Stem.

Install the new Diaphragm (included in the Kit) onto the Pressure Plate Stem ensuring that the Diaphragm is fully seated onto the shoulder, and install the new Sealing Washer (also included in the Kit) ensuring that it is also fully seated and concentric to the shoulder. Install the retained Mounting Plate ensuring that it is properly aligned and that the square section of the Pressure Plate Stem is fully inserted into the Mounting Plate. Replace the 3 mm Flat Washer along with the 3mm Nylock Nut and tighten until all parts are seated. (*See Figure 2 - Pressure Plate Assembly*) (Note: Avoid overtightening this nut.)

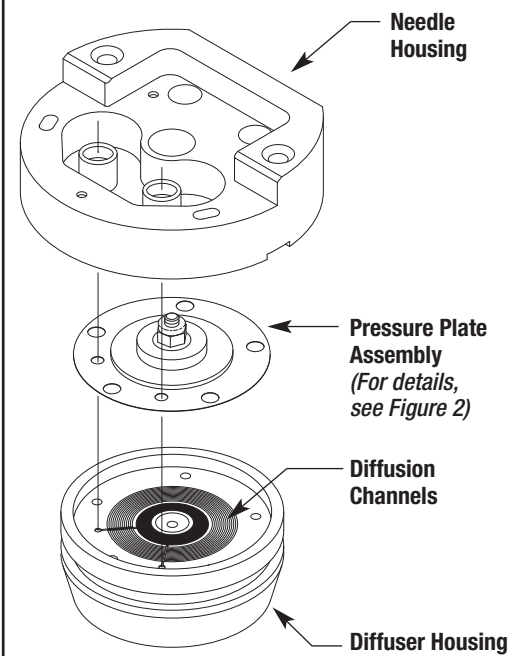
Place the rebuilt Pressure Plate Assembly onto the cleaned Diffusion Housing ensuring that the Diaphragm is correctly oriented as shown in **Figure 3 - Needle Hole Alignment**. Recover the Injector Valve Body retained earlier, and using a lint free cloth or wipe, and canned or compressed air, clean the exposed surfaces of the Injector Valve Body and place it onto the Diffusion Housing and Pressure Plate Assembly retaining the connect orientation as shown in **Figure 3 - Needle Hole Alignment**. Start threading in all five 2.5 mm socket head cap screws (retained earlier). Once all five screws are successful started, tighten using a star pattern.

- 17) Before installing the new Needles ensure that all O-rings have been removed from the needle wells. Use the O-ring Removal Tool (RPI Part #RXT082) included in the Needle Installation Tool Kit (RPI Part #SDK091) to check the needle well for an O-ring by using the flat end of the gage tool (*see Figure 4 - O-ring Gage Usage*). If the gage fits all the way into the well, and bottoms out at the top of the well, then it indicates that no O-ring is left in that well. However, if the tool does not go into the well completely, then it indicates that there is an O-ring remaining in that well. Use the barbed end of the tool to pull out the retained O-ring and dispose. Install both Needles ensuring that all O-rings are correctly placed and seated, and the Needles are completely screwed in.

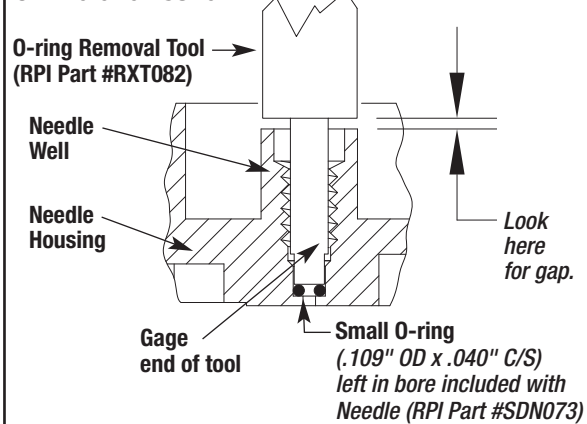
**FIGURE 2
PRESSURE PLATE ASSEMBLY**



**FIGURE 3
NEEDLE HOLE ALIGNMENT**



**FIGURE 4
O-RING GAGE USAGE**

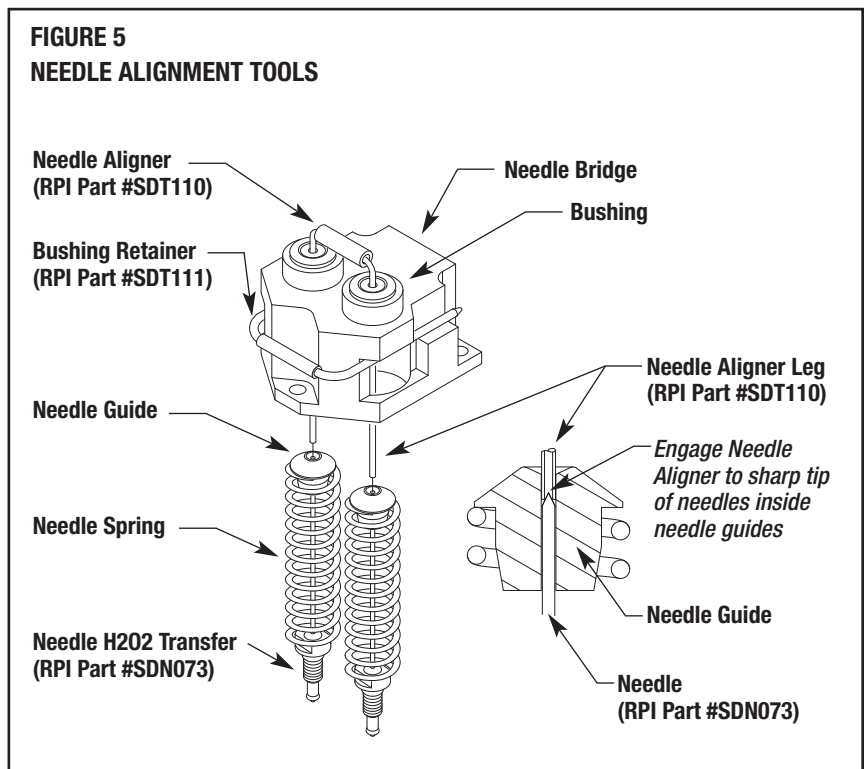


Install the new Springs included in the Kit. (Note: Two of the Springs are of a heavier gauge, and are installed over the Needles with the third Spring holding the Pressure Plate Assembly tightly in place.)

Install the new Needle Guides included in the Kit ensuring that the tip of the Needle is inside the guide, and that the guide is correctly seated in the end of each spring.

- 18) Install the new Bushings into the retained Needle Bridge, and use the Bushing Retainer Tool (RPI Part #SDT111) included in the Needle Installation Tool Kit (RPI Part #SDK091) to lock the bushings in place at the top of the bridge (see **Figure 5 - Needle Alignment Tools**). Insert the Needle Aligner (RPI Part #SDT110) into the bushings, and use your finger to keep the Aligner completely inserted into the bushings.

Install the ends of the needle Aligner into the Needle Guides ensuring that the tip of the Needle is located inside the end of each Needle Aligner leg (see **Figure 5 - Needle Alignment Tools**).



While keeping the Needle Aligner in place, lower the Needle Bridge and Bushing assembly until you can start threading in the three 2.5 mm socket head cap screws (retained earlier) that mount the Needle Bridge in place. Once all three screws are hand tightened, remove the Bushing Retainer Tool as well as the Needle Aligner. Once all three screws are completely tightened, verify that the needles are correctly threaded through the Needle Bushings by carefully pressing the edge of each Needle Bushing down, and verifying that the tip of the Needle exits the Needle Bushing correctly. Set the completed Injector Valve Assembly aside for reuse later.

- 19) Recover the Vaporizer set aside earlier. Remove the O-ring from the Vaporizer and discard. Use the 0.067" Cleanout Tool (RPI Part #RXT061) included in the Needle Installation Tool Kit (RPI Part #SDK091) to ream out the twelve holes located in the face of the Vaporizer. Use the Brush and the Cleaning Pad (included in the Kit) to clean out any salt deposits within the Vaporizer. Do not attempt to remove all discoloration – just the accumulated salts. Use distiller water, and canned or compressed air to clean and dry the Vaporizer. Avoid getting water on the Heating Band and on the Thermocouple.

- 20) Recover the Injector Valve Assembly, and use O-ring lubricant to lightly coat the 1.755" OD x .130" C/S O-ring. Install the O-ring in the groove on the outside of the Diffuser Housing ensuring that the O-ring is completely seated in the groove and that the lubricant is keeping the O-ring in place.

Orient the Injector Valve Assembly as illustrated (see Figure 1 on page 1), and install it into the Vaporizer. Use the two 2.5 mm socket head cap screws (retained earlier) to attach the Injector Valve Assembly to the Vaporizer.

- 21) Using O-ring lubricant, lightly coat the 3.443" OD X .130" C/S O-ring. Install the O-ring in the groove on the outside of the Vaporizer ensuring that the O-ring is completely seated in the groove, and that the lubricant is keeping the O-ring in place.

- 22) Reinstall the fully assembled Vaporizer/Injector Valve Assembly, ensuring that the locator pin on the surface of the chamber engages fully with the hole in the surface of the Vaporizer (see **Figure 1 - Vaporizer/Injector Valve Assembly, on page 1**). Hand start the Spacer and Clamp Nut onto the Vaporizer/Injector Valve Assembly. Use the Spanner Wrench (RPI Part #RXT044) included in the Injector Assembly Tool Kit (RPI Part #SDK091) to tighten the Clamp Nut.

Reconnect the Heater Connector and the Thermocouple Connector.

- 23) Reinstall the Injector Pump Assembly on to the Vaporizer/Injector Valve Assembly by replacing four mounting screws, and reattaching the Rear Cassette Collection Shoot. (Note: This step is not illustrated.)

- 24) Run a test cycle to ensure functionality.