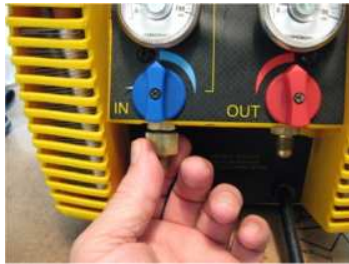


HBB Pro Sales Group Tech Note

G5 Twin Front Valve Seal Replacement

To determine when the seals and O rings on the front input and output valves need to be replaced, perform a 'bench test'



This is done by removing any refrigerant hoses **and checking the input screen to make sure it is clean.**



After opening both valves and turning the machine on, close the output valve and wait until the pressure reaches approximately 550psi and trips the high pressure switch (which should take less than a minute).



Turn the switch off (to prevent starting again when the pressure drops) and quickly close the inlet valve attempting to keep approximately 400psi of pressure in the machine. Once the input valve is closed, the pressures should equalize.

Note the pressure reading and time the pressure drop for 1 minute. Much more than a 35 psi drop suggests the front seals need to be replaced.



This machine lost around 100psi in a minute, more than twice the recommended amount of leakage.

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A quick field test can also be done by putting your fingers over the ports and see if you can feel pressure leaking out.

If it is determined that the front valve seals need maintenance, order Part# KTG535. Replacement of the front valve seals should take around 15 minutes.

Tools you may need include:

- Phillips head screwdriver
- 5/8" or 16mm (deep) socket
- 3/8" open end wrench
- 1/4" nutdriver (only to help seat the seals)
- Thread sealant
- A few drops of vacuum pump or mineral oil



You may want to set the G5 on its fan side to make working on it easier.



Remove the screws from the red and blue input and output knobs and set aside.

Remove the 1/4" flair fitting and screen on the input port.



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Probably the easiest way to remove the input and output fittings is with a 5/8" (or 16mm) deep well socket, keeping track which is the inlet and outlet fittings.



Use a 3/8 open end wrench to remove the valve stems. The valve stems are identical, set aside.

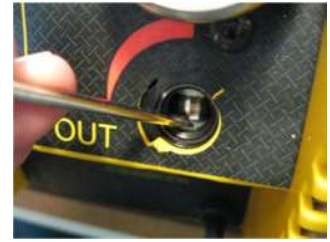


Carefully push the bottom gaskets out of the ports. **Note the orientation of the inlet ball valve to make certain it is replaced properly.** There are three holes in the ball, two large and one small with a groove the valve stem fits in. The smaller hole points to the left when reinstalled.



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The outlet ball valve has one hole straight through.



Using a small screwdriver or pick, remove the top gaskets.

Prepare to install the new gaskets and O rings. The kit contains 4:

- Large O rings
- Small O rings
- White Teflon Gaskets (Valve Seals)



To keep from mixing up old and new parts, set the removed parts in a different location as sometimes it is hard to tell the difference between the two.

Note that the new gaskets do not have beveled edges, this is very important to keep in mind when replacing them – here the old gasket is on the left hand side. When you tighten the 5/8" fittings in the input and output ports, make certain that the valves are closed. This allows the Teflon seal to shape to the exact form of the ball. If you put it in with the valve in the open position, the Teflon seals may be cut by the hole in the ball and ruin the seal.



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Install the Teflon seals into the top of both ports, a 1/4" nutdriver work nicely to push the seal in the proper position.



Each valve stem has 3 O rings; two small and one large. Push the core out of the housing to access the smaller O rings. Use a pick or small needle nose pliers to remove the old O rings.



Carefully replace the two smaller O rings; this can be a bit tricky!



Replace the larger O ring on the outer housing.

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Reassemble the valve stem, use a couple drops of good quality vacuum pump oil (here TEZOM Micro dry vacuum pump oil) on the O rings before inserting the stem in the housing.

We recommend Appion's oil as it is dryer and more refined but any good quality mineral oil will work.



Replace the O rings on the inlet and outlet port fittings.



At this point it helps to turn the machine upside down.



Insert the valve stems and tighten. Look into the input/output ports and turn the stems until the tabs are inline with port opening and will allow the ball valve to slide in freely.



Put the knobs on the stems so they are pointed towards the gauges and tighten the screws.

The output ball valve can go in either way, use a small screwdriver to help align the ball in the hole.

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Again, align the tab on the input valve stem to allow the ball valve to slide in and position the red knob so it is pointing directly at the gauge.

The inlet ball valve has to go in with the small hole pointed away from the output valve and one of the larger openings facing out. With the knob pointed towards the gauge the large hole will be visible.

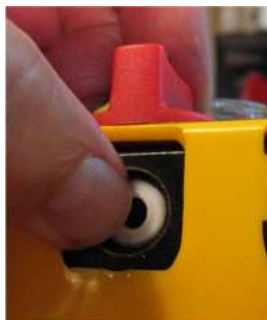


Again, use a small screwdriver to align the ball valve in position. Also remember to seat the handle it points towards the gauge.



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With the machine still upside down, install the bottom Teflon seals in both valves and drip a couple of drops of vacuum pump oil into the assembly.



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Turn the knobs to the closed position before fully tightening the ports.



Remember, you are trying to shape the Teflon seals against the ball. Seating the fittings with the valves open, may damage the seals.



It is recommended that you run a cap full of vacuum pump oil through the machine when finished (and any time you pull refrigerant out of a burn out). This helps lubricate seals/O rings and flushes out contaminants. Place a rag under the output fitting and slowly let the input fitting pull oil in a little bit at a time.



Redo the bench test to verify proper operation.