

# HBB Pro Sales Tech Note

## Appion G5 Twin Rebuild Recommendation\*



After years of pumping liquid refrigerants, components wear. To check the performance of your G5 Twin, disconnect any hoses and **double check the inlet screen to be certain it is free of debris**. Open both valves wide open and turn on the machine. Close the output valve and time how long it takes to shut off on the high pressure switch (should be about 550psi).

A new machine will shut off in approximately 30 seconds, when it starts taking much over a minute, consider a rebuild to get it back to like new performance. For someone with experience turning a wrench, this process should take less than an hour.

What you will need:

- A rebuild kit (KTG520) includes 2 valve plates, 2 input valves, 2 output valves, 4 springs, 2 piston seals, 2 piston glide strips and 2 cylinder O rings.
- A 9/16<sup>th</sup> inch wrench (flair if available)
- A 5mm Allen wrench (or equivalent)
- Thread lock (Removable)
- Phillips head screwdriver
- Small straight slot screwdriver
- Utility knife
- About 45 minutes

## Disassembly

To facilitate getting the machine reassembled, do the rebuild one half at a time. One of the most time consuming parts of a rebuild can be getting it all back in the case. To facilitate reassembly, set it on its side do one piston, then put the case back together, flip it over on the other side and repeat the process. Remove the four bolts and nuts holding it together. You will notice that the bottom of the case is 'hinged' so spread the top while prying on the bottom tabs should help it to come apart.



## HBB Pro Sales Tech Note

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Remove both flair nuts on the piston head, and take out the four bolts holding the cylinder head on.



Carefully lift up the top of the cylinder head exposing the valve plate and base. If it is evident that the valve itself is melted (See photo below), be sure and check the fan and fan gear box assembly. If that failed, replace the gear box only (Part# AY0030) or the fan and gear box assembly (AY0030c).



Carefully lift the cylinder from the compressor block. Note the camber on the bottom of the cylinder, this end will need to go down when reassembling the machine. Also note the copper shim; this will also need to be in place for reassembly.



## HBB Pro Sales Tech Note

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The next step is to remove the piston guide strip and seal. The guide strip is on the lower end of the piston, it can be easily removed by inserting a small screwdriver between the sections and sliding it up and off of the piston.



Using a utility knife, cut through the top piston seal being careful not to score the piston and remove both the seal and the O ring underneath the seal.

Clean any debris from the piston and cylinder.



# HBB Pro Sales Tech Note

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## Reassembly

Make certain the copper shim is in place and slide the O ring over the top of the piston.



Then slide the seal into place over the O ring. This can be a little tricky as it is a very tight fit; it may help to use the handle of a screwdriver to nudge the seal into place.

Slide the new guide strip into position and carefully work the cylinder over the piston making certain the copper shim is aligned properly.



## HBB Pro Sales Tech Note

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Remove the two old O rings from the valve plate and install the new ones.



You can now install the new valves. Note the two different types of springs included in the rebuild kit.



The smooth side of the valve plate is inserted into the top of the cylinder head. Feed the valve with the head through the valve plate and thread the spring with the smaller opening over the head of the valve.



## HBB Pro Sales Tech Note

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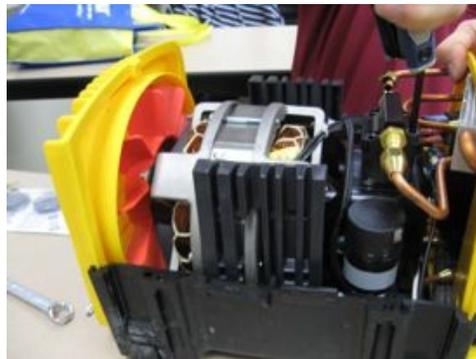
Then slide the remaining (straighter) spring over the other valve. Note the guide on the side of the valve plate; this is installed so it will be pointing up when the machine is upright.



Slide the cylinder head over the valve plate, insert the four Allen bolts and start to thread them in. Use the removable type thread sealant and tighten the bolts making sure the cylinder head is evenly secured. Reinstall and tighten the flair nuts.



Slide the case back together, flip it over and rebuild the other cylinder.



Once the other cylinder is rebuilt, reassemble the case. To insure the rebuild was successful perform the bench test and verify the pressure switch kicks out in around 30 seconds. If so, it's done!

# HBB Pro Sales Tech Note

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Thanks to Gary Camden from the Fortis College in Centerville, Ohio for actually doing this rebuild!

\*Disclaimer: this document is provided as a supplement to Appion's manufacturer's instructions. Carefully read and follow Appion's specific instructions manual and common sense safety measures.

## **G5 Twin Replacement Parts List** (available through your local Appion Distributor)

| <b>Part #</b> | <b>Description</b>  |
|---------------|---|
| KTG515        | Piston Seal Kit <i>((inc: 2 seals, 2 glide strips, 2 o-rings))</i>  |
| KTG520        | Compressor Rebuild Kit <i>((inc. 2 valve plates, 2 input valves, 2 output valves, 4 springs, 2 seals, 2 glide strips, 2 o-rings))</i> |
| KTG535        | Front Ball Valve Seal Kit <i>((inc: seals/o-rings for input/output))</i>  |
| AY0030        | Fan Gearbox Assembly WITHOUT Fan Blade  |
| AY0030c       | Fan Gearbox Assembly WITH Fan Blade   |
| AY0050        | Front Panel Assembly  |
| AY0171        | Inlet Screens Pack <i>((set of 4 screens))</i>  |
| CA1603        | Cylinder  |
| CA1607        | Valve Plate   |
| CA1608        | Piston  |
| CT1750        | Copper Tube   |
| CT1760(L/R)   | Condenser (Left or Right)   |
| EL5000        | 115v Motor <i>((includes Start Capacitor &amp; Start Relay))</i>  |
| EL5017        | Motor Start Relay - 115v  |
| EL5028        | Motor Start Capacitor - 115v  |
| EL5030        | High-Pressure Switch  |
| EL5120        | Power Switch w/Breaker  |
| GA0700        | Gauge (each)  |
| KT1000        | Valve/Spring Set <i>((inc: 2 springs, 1 input valve, 1 output valve))</i>   |
| KT1010        | Compressor Head O-Ring Set <i>((inc: 1 ea of 3 o-rings (026, 027, 013))</i>   |
| KT5303        | Ball Valve Seal Set <i>((set of 4 seals))</i>   |
| KT5401        | Rubber Feet Set <i>((set of 4 feet))</i>  |
| MF3612        | Inlet Filter Fitting  |
| PL7000        | Case Handle   |
| PL7010        | Input Knob (blue)   |
| PL7011        | Output Knob (red)   |
| PL7020        | Fan Blade   |
| PL7600        | G5 Twin Case Side Panel (each)  |
| PL7601s       | G5 Twin Front Panel <i>((includes labels))</i>  |
| PL7602        | G5 Twin Case Back Panel   |
| WR9000        | 115v Power Cord   |