## AUA66 Brass Base Pump Rebuild

The bass base pumps were used from the 1930s until late in the 1940s. Their construction uses a single brass base as opposed to the later aluminum based pumps which use a two piece base.



My frustration when building a very nice brass-based pump was when I discovered that the diaphragm that came with the rebuild kit (Burlen EPK700) would not work. the difference is in the plate at the bottom of the diaphragm. The later pumps have a base plate with a raised ridge around the circumference, while the earlier brass-based pumps are perfectly flat and do not have the raised edge.



Using a later diaphragm in the early pump will restrict the movement of the diaphragm so the pump will either jam or will reduce the pumping action.

My inquiries to the SU parts suppliers were met with the comment that they do not make the flatbottomed diaphragms. This despite the fact that new brass-bottomed pumps are still occasionally manufactured. I suspect that they must deepen the recess in the brass bases so as to allow use of the later diaphragms.

Finding no suitable diaphragms, I decided to investigate further. What I discovered led me to a solution.

The diaphragm is constructed of several parts:



- 1) the brass stem. This connects the diaphragm to the points set. It is threaded 4BA at the top (and here is the surprise: ) 4BA at the bottom where it is screwed into the pieces at the bottom
- 2) a small rubber piece inserted into recess in part 3. This is there to cushion and damped the sound when the coil is energized and piece 3 is attracted to the pump body.
- 3) the steel magnetic piece. This is the heavy disc which is attracted to the electromagnetic coil
- 4) a thin fiber piece with the same diameter as the smaller center diameter of part 2
- 5) the base plate, the center of which has a 4BA threaded hole and two opposing holes across the diameter,
- 6) The nitrile rubber diaphragm

Sometimes, the brass stem is swaged over at the bottom to lock it all together.

By unscrewing part 5 from the part 1, all the diaphragm parts may then be disassembled.

Cut two 2-7/8 inch diameter sheets of 0.030" thick nitrile rubber sheets. Mark the exact center and cut or punch a 5/16" hole. And using the brass base as a template, mark and punch the six screw holes around the circumference.

Reassemble all the parts in the order they were disassembled and reassemble the pump. Most manuals that cover the adjustment of the SU pumps will reveal the subtle tricks for correct adjustment.