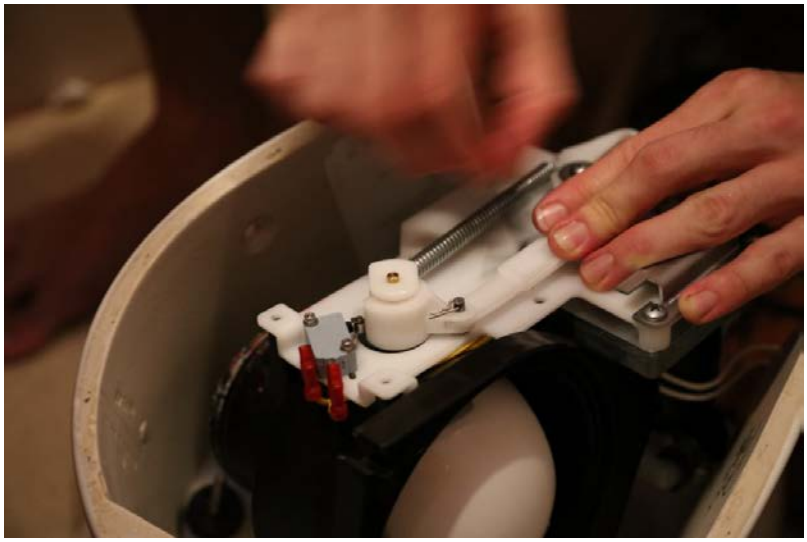
Vacuflush - Replacing Seals and Ball Flush



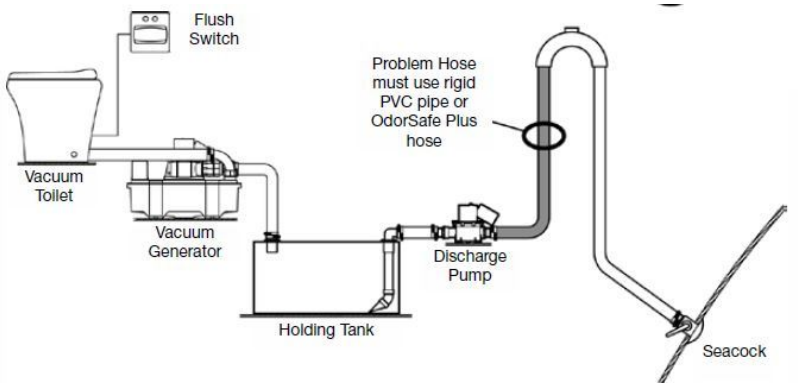
Sealand Vacuflush 4800 Series

Every now and then, more now than then at the moment, there are jobs that simply must be done. Jobs that test a man's courage, sense of smell and just about everything else imaginable. OK, ok, so it's not that bad but recently, after changing every single duckbill in every single location on the boat (8 x 2 inch Duckbills and 4 x 1.5 inch Duckbills in all) the good old M-Series vacuum pump was still cycling more than I would like, about once an hour. As such, I decided it was time to replace all bowl seals and flush balls. But how?

As is usual, I decided to go to the all-knowing YouTube for help but alas there was nothing there other than a single video of some chap with his back to the camera covering the most important details rendering the video totally useless. Urgh…… As such, I decided to document the following in the hope that it may be useful for those who find themselves in the same situation.

Before I start two things worth mentioning, 1./ Sealand suggest replacing seals and flush balls every three years but that does not apply to live-a-boards, as such ours will now be replaced annually and 2./ for those with the M-Series pump don't forget to change the diaphragm and oil in the pump annually – and yes the M-series does have oil in it!

HOW TO CHANGE THE BALL AND SEALS



Pendana's head system

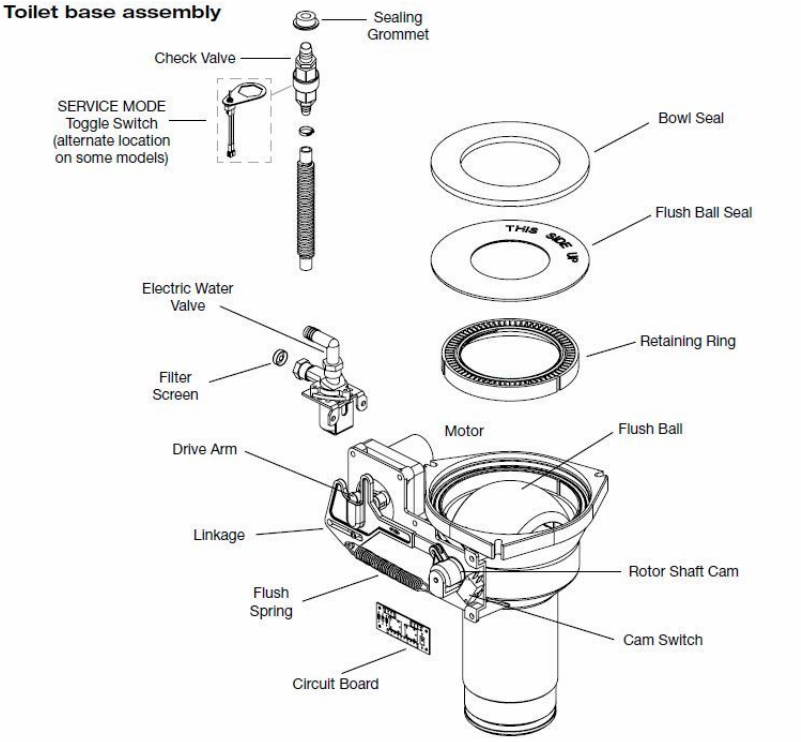


Diagram of head parts

If we go to the instruction manual all looks pretty simple and straight forward Sealand suggest the following steps below.

Replacing the flush ball seal and bowl seal

1. Turn off water and electrical power to toilet.
2. Remove water inlet hose from toilet.
3. Remove toilet from floor and turn it upside down. Disconnect Service Switch wires at in-line connectors.
4. Remove three nuts and flat washers securing base assembly to toilet bowl using a 1/4-inch drive ratchet wrench, 7/16-inch deep-well socket and extension.
5. Pull check valve out of the sealing grommet located in rear of toilet bowl.
6. Lift base assembly from toilet.
7. Replace old seals with a complete seal kit.
8. Reconnect base assembly to toilet with new mounting bolts (L-shaped) included with seal kit. Tighten nuts to 20-25 in.-lbs. torque.
9. Reconnect Service Switch wires. Reattach water inlet hose to toilet.
10. Reinstall toilet to floor.

Replacing the seals

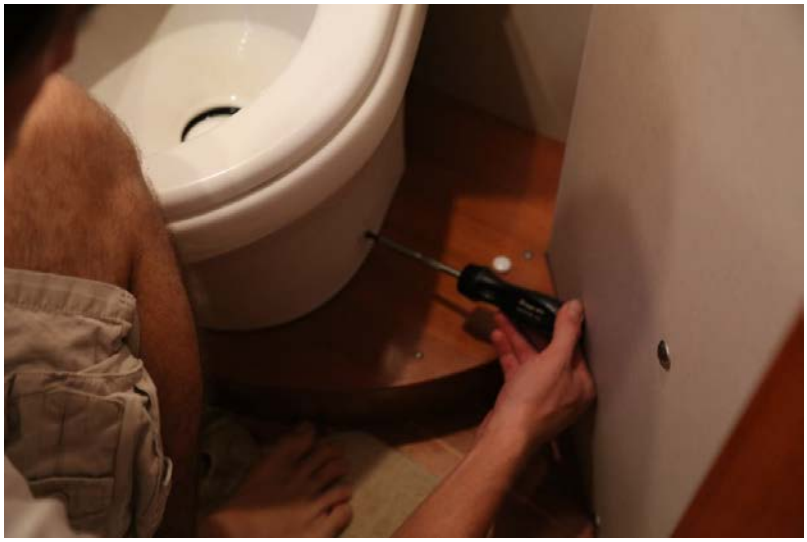
Replacing the flush ball

1. Turn off water to toilet.
2. Open flush ball in Service Mode, then turn off power to toilet.
3. Disconnect water inlet hose.
4. Remove toilet from floor and turn upside down, and disconnect Service Switch wires at in-line connectors.
5. Pull check valve out of sealing grommet located in rear of toilet bowl.
6. Remove three nuts and flat washers securing base assembly to ceramic toilet bowl using a 1/4-inch drive ratchet wrench, 7/16-inch deep-well socket and extension.
7. Lift base assembly from toilet.
8. Remove bowl seal, flush ball seal, and retainer plate to expose flush ball.
9. Loosen set screw in the rotor shaft cam using a 1/8-inch hex tool.
10. Remove the #8 x 1/4-inch long screw and flat washer from linkage slot.
11. Remove the four screws securing the mounting bracket to base.
12. Pull mounting bracket and rotor cam off base.
13. Rotate flush ball forward and remove flush ball retaining screw.
14. Replace flush ball and reverse disassembly through step 10.
15. Push rotor cam all the way onto rotor shaft. Tighten set screw.
16. Lubricate moving parts with silicone grease.
17. Before reassembling entire toilet, the cam switch may require adjustment. See “Adjusting The Cam Switch” on page 14.

Replacing the flush ball

So in pictorial form this is what it actually looks like. (NOTE: Do not forget you will need a 7/16in deep well socket to complete this job!)

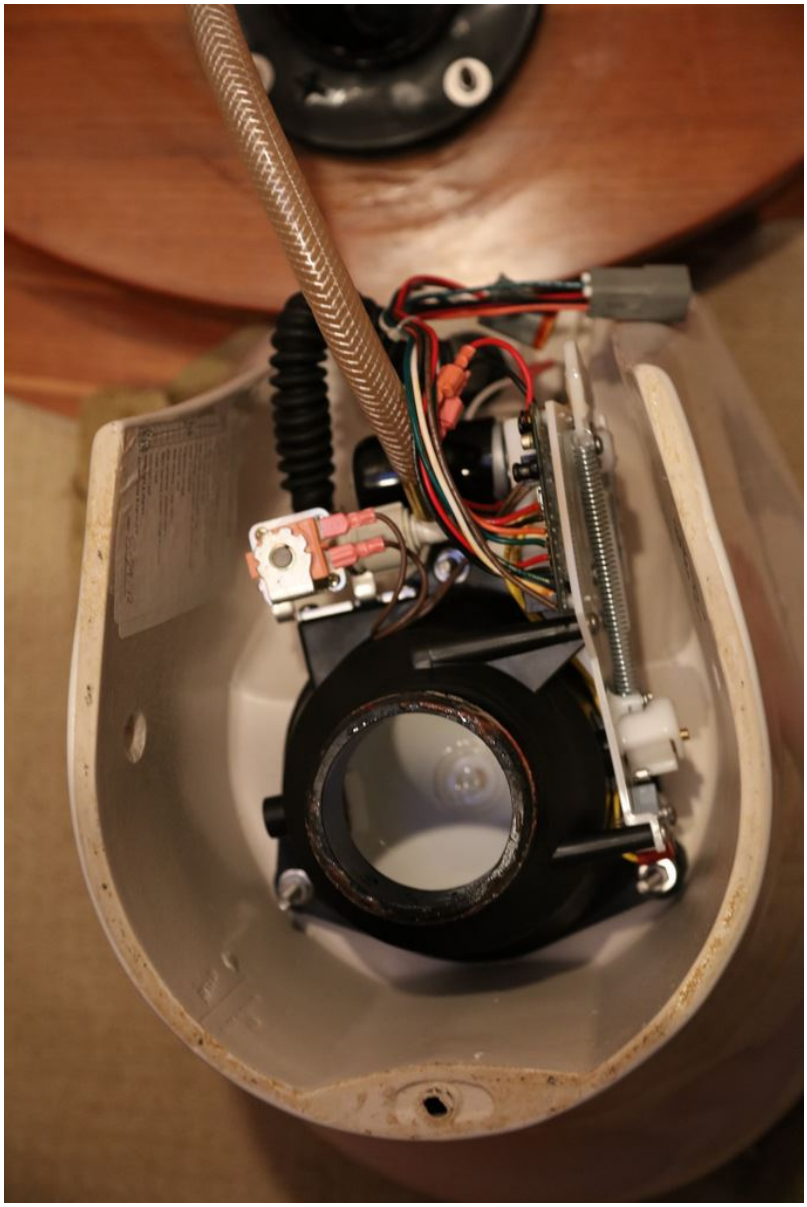
The job begins!



Loosen the two screws holding head to base

Carefully lift head off mounts

Check to see you have enough hose and cable before moving to far – if not, disconnect



Place head upside down

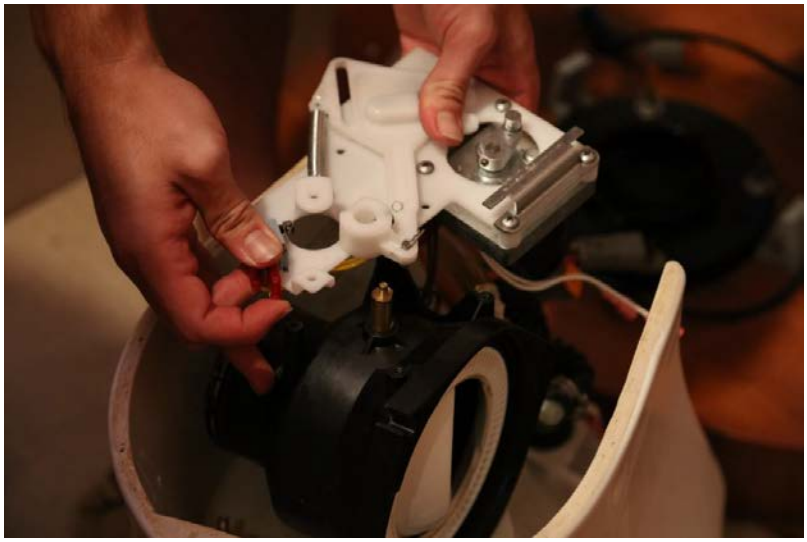
Remove main assembly – note 7/16in deep well socket

Carefully lift

Place sideways to allow access to drive-arm and undo four mounting screws

Loosen hex nut on rotor shaft cam (honestly who comes up with the names of these things)

Gently ease drive arm board from main assembly



Perfect, it’s off!

Rotate flush ball to gain access to locking screw and undo

Rotate flush ball back to remove

With slight pressure (pinch) remove flush ball

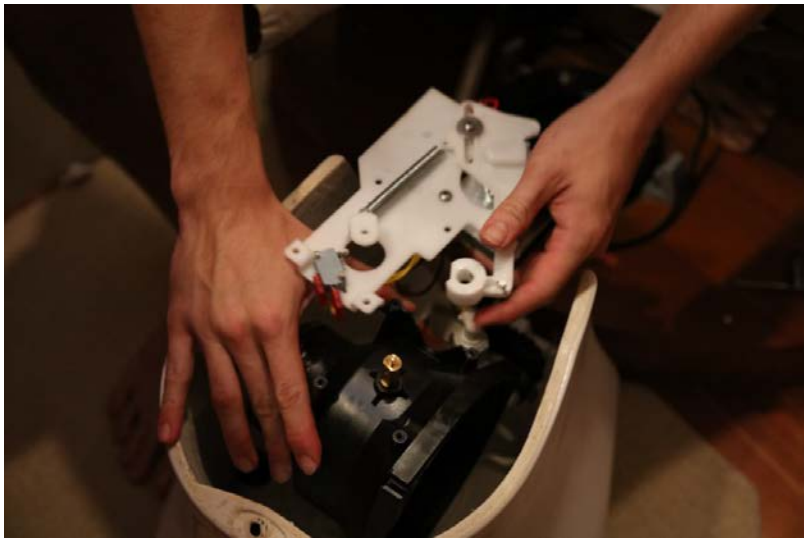
Remove old flush ball shaft

Its out! NOTE: the two O-rings. *IMPORTANT* Loss of system pressure without losing bowl water can occur at this junction

Place new shaft in hole and replace flush ball

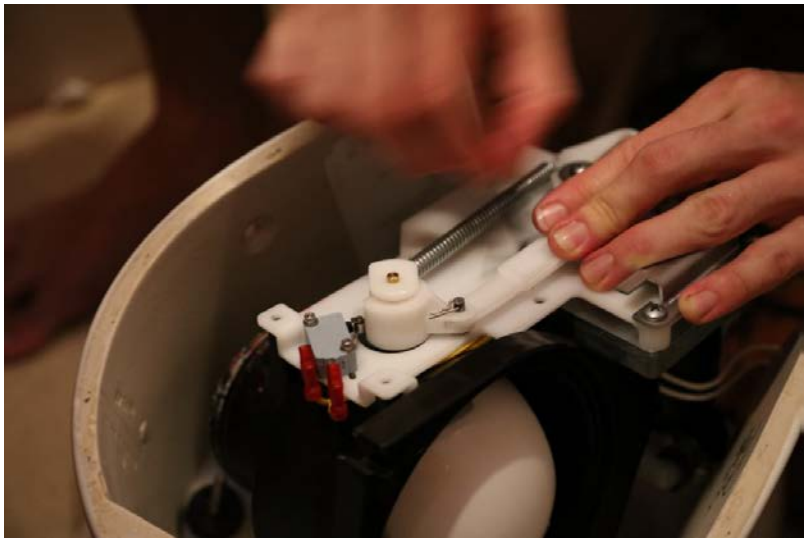
Rotate to gain access to locking screw

Tighten locking screw

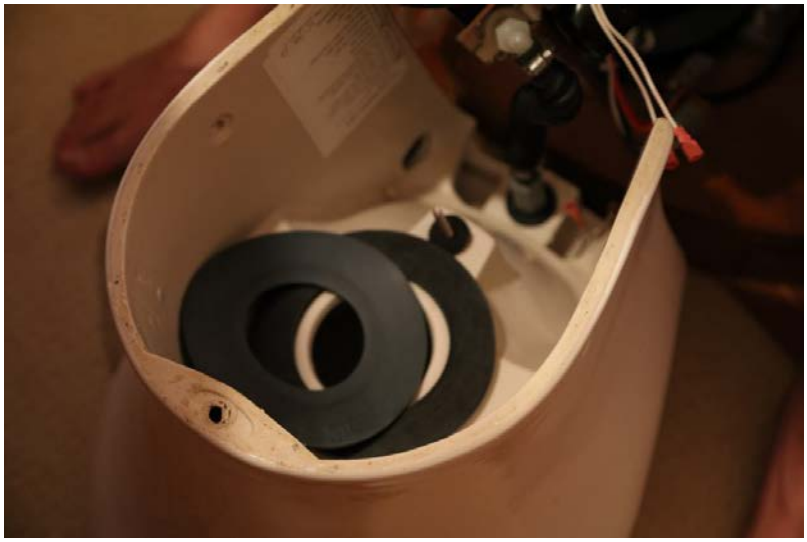


Carefully position main assembly unit back into position

Carefully move mechanism into place



Tighten rotor shaft cam hex nut

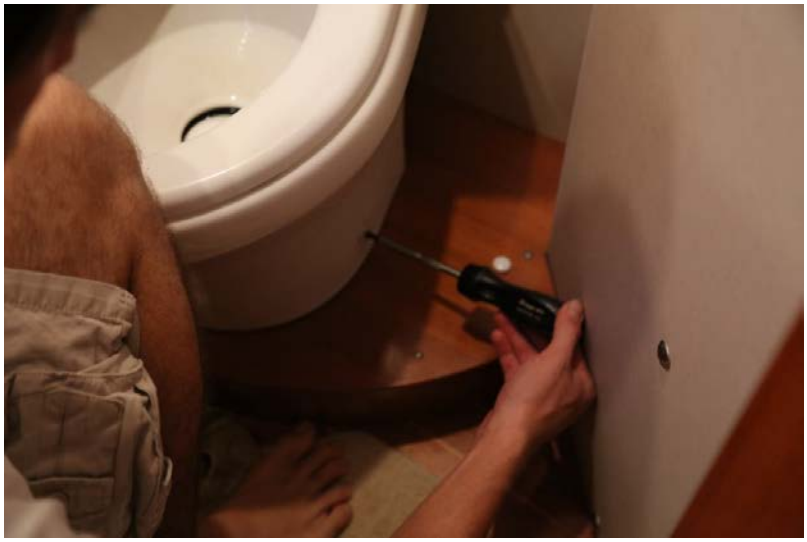


Place new seals into position – note make sure top seal is the right side up as marked

Place flush ball ring back into position (the white ring in photo)

Remove main assembly – note 7/16in deep well socket

Carefully lift head off mounts



Loosen the two screws holding head to base

Job finally complete and happy to report the M-Series only cycles now when the heads are flushed!

I am happy to report that the heads are all done and working perfectly. I am equally happy to report that Lance was around to give me a hand as there are times when two sets of hands are required. The first head took us around an hour to complete but with each head we became faster and faster. The last head was done in record time of 16 minutes from start to finish and that includes stopping to take these happy snaps.

Bottom line, if your vacuum pump is cycling too much and you have tried the usual duck bill replacement strategy then the fact is it's time to change your seals and flush ball. You will be glad you did!