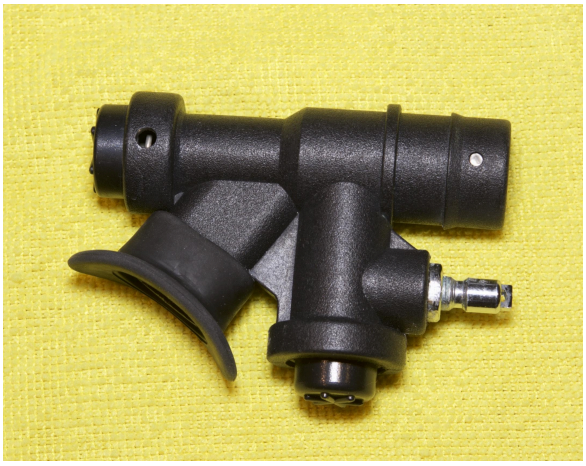
# Anatomy of a Power Inflator Failure

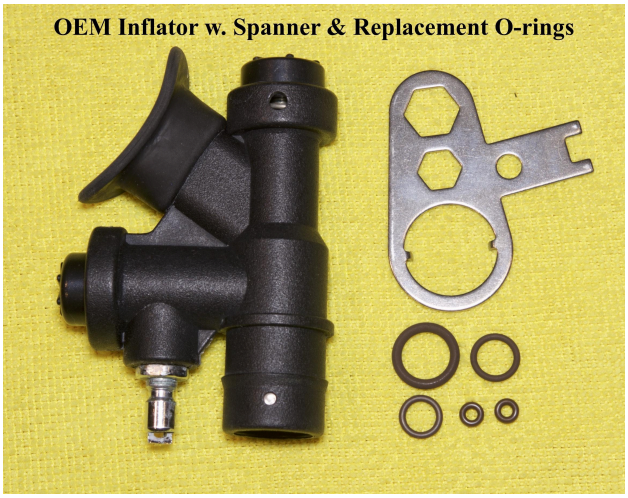
by Philip Bonds

So, a power inflator failure set the stage for several mistakes that led to my flooded camera housing during a recent live aboard trip. Since a couple of people have asked me how this could happen, I thought it might be good to encourage members to think about regular power inflator maintenance. Frankly, I did not and I wish I had.



Here is my failed power inflator. It is a commonly used type of inflator on many different brands of buoyancy compensators and wings, and it is sometimes recommended as a replacement power inflator when OEM inflators need to be replaced. I cannot even guess how many years I used this inflator before it failed due to lack of maintenance. Some of you might recognize the model. It is simple and very reliable. Like most equipment, it is very reliable as long as it is not neglected.

While the inflation valve in my power inflator failed, the air dump valve continued to function very well. As a matter of fact, the manufacturer of this particular power inflator has never received a report of a dump valve failure on this model. My inflator valve was leaking air into my wing (BCD) at a fairly constant and rapid rate. The leak was filling my wing about every five to eight minutes. I was dealing with the leak by dumping air. Needless to say, this resulted in me burning through my air much more quickly than normal. An accurate assessment of the problem did not occur until we noticed my wing filling to the maximum on its own in one of the dive tenders after a dive.



**OEM Inflator w. Spanner & Replacement O-rings**

So, what exactly was the problem with the valve? The best way to assess this is to take a look at the working parts of the inflator. Keep in mind, your BCD or wing may not use this particular model valve, but it shares some commonalities. Your inflator has a valve that lets air in and a valve that lets air out. Odds are pretty good that these valves use O-rings.

Removing the valves on this model requires a special spanner type wrench. Disassembly of your inflator valve may require some kind of specialized tools as well.

**Valve core disassembled. The inner parts control the air flow into the BCD or wing. Corrosion and bad o-rings are present.**

**Here's the inflator valve completely disassembled**

All of the internal working parts of my failed power inflator could have been cleaned-up and new O-rings could have been installed. And, I could have done it myself rather than paying an equipment technician at a dive shop to do it for me. But, would it surprise you to learn that the company that makes my wing does not recommend servicing its power inflators? The company recommends replacement rather than service.

Recommendation of replacement is really no surprise since replacement may actually be more economical than service work. The new replacement power inflator on the right only costs $17.00 and it is exactly the same inflator as the failed inflator on the left. A service kit for my power inflator with all of the necessary O-rings and a spanner multi-tool can be purchased for $8.00. Of course, if one chooses service work over replacement, an equipment technician is going to charge for the service kit and the time it takes to do the service work. The bill for a service job is probably going to be more than the cost of a replacement.

Recently, I mentioned my defective power inflator experience to a dive instructor. He responded that he had encountered the same issue. Following his issue, a service technician disassembled his power inflator. His had so much corrosion and gunk inside that it had to be replaced. I have little doubt that this particular dive instructor and I are not the only experienced divers who have forgotten about having our power inflators serviced or replaced.