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## Tech talk #2: “The service interval conundrum”

If I’d ask you the question “how often should you service your regulator”, the most likely response I’d get would be ‘once a year’. Most likely correct, but is it really that simple?

When we purchase a new unit, how many of us would even bother to read the user manual? I’ll plead guilty to the charge, in most scenarios not to bother. However, this manual will contain the answer for you.

Let’s have a look at some examples straight out of the user manuals of some common brands:

- A XXXXXXXXXXXX authorized technician must verify the correct operation of the regulator every year or every 100 dives, whichever comes first. Conducting an annual service is also mandatory in order to maintain the limited lifetime warranty.
- In order to maintain the product warranty and optimum performance your regulator must receive service from an authorized XXXXXXXXXXXX dealer every 24 months or 300 hours of use, whichever comes first.
- You must obtain factory prescribed service for your regulator at least once a year from an authorized XXXXXXXXXXXX dealer, regardless of the amount of use it has received. Your regulator may require this service more frequently, depending on the amount of use it receives and the environmental conditions in which it is used. If the regulator is used for rental or training purposes, it will require complete overhaul and factory prescribed service every three to six months.
- The correct functioning of the regulator is dependent upon proper maintenance. Therefore, your regulator should be submitted to a XXXXXXXXXXXX authorized service centre for inspection at least once a year. It is also recommended that the first stage valve be replaced every two years or every 200 diving hours.

You guessed it right, the answer is not that simple and really depends on the brand, conditions or environment you use your regulator in. Some food for thought...

- The harsh reality is: mankind is not a fish. So in order to enjoy the aquatic realm, mankind as opposed to fish need specialised equipment in order to breathe below the surface. This equipment will keep you alive. Let's face it; equipment failures under the surface easily could turn your dream dive into a nightmare.
- Most manufacturers prescribe a time based interval. Let's take an example of a 100 hours service interval. The typical respiratory rate for a healthy human at rest would be around 12-20 breaths per minute. So in one hour, we take on average 720 – 1,200 breaths. Over a 100 hour interval, this would be 72,000 to 120,000 breaths. How does that relate to our equipment? Regulators contain moving parts, so over that 100 hour interval, those parts will have moved 72,000 to 120,000 times. It's easy to understand that parts that move that often will be subjected to wear and tear – see pictures -. So manufacturers surely will take the life expectancy of parts into consideration when determining a service interval. Take the piston and soft seat of an unbalanced piston first stage, this 'valve' assembly will have closed 72,000 to 120,000 times over that 100 hour interval, surely you can expect some wear and tear on the soft seat. To put it in a different perspective if one takes 2 showers a day, you open and close the tap (valve) twice a day; to complete the comparison 72,000 cycles of opening and closing your shower is the equivalent of 36,000 days or 98.6 years.; 120,000 cycles would be the equivalent of 164.4 years. Do you expect your shower tap to last that long?
- Primarily the recreational diver is taken into account when considering service intervals. Let's take the example of a 100 dive interval. The avid recreational diver might for instance book 2 dive or live-aboard trips a year each lasting 6 dive days. That would account for 2 trips x 6 days x 3 dives a day or 36 dives, still leaving him/her a credit of 64 dives. If that diver then manages to dive twice every other weekend (around 50 weekends left excluding the dive trips), that would give him another 50 dives. Rather close to the service interval isn't it? So it's now easy to understand that if regulators are used in other circumstances, for instance rental equipment in a dive school, the service interval can be drastically reduced. Let's have a look at a busy dive centre renting out or using a regulator set 5 times a week for a 2 dive day. That would be the equivalent of 10 uses a week, so after 10 weeks or 2 ½ months that regulator is due for its service.
- Consider the fact that prolonged or improper storage can also result in internal corrosion and/or deterioration of O-ring seals. Hence it should not be assumed that a regulator is in good working order on the basis that it has received little use since it was last serviced. Would a continuous leak on you second stage not totally ruin your planned dive holiday in an exotic location which you have dreamt of for the last couple of months? Add to this that likely not all places in the world will be able to service your regulator as there might be neither facility nor spares available.
- Environmental conditions like for instance chlorinated water are an especially bad environment for regulators as the chlorine chemically deteriorates the neoprene rubber components (o-rings, diaphragms, exhaust valves).

- Why use an authorized technician or service centre? Every piece of equipment is unique. Therefore all authorized technicians and authorized service centres will be trained by the manufacturer. They likely stock the original parts for your regulator. They will have access to the (latest) schematics, latest products updates, follow manufacture's recommendations, restore and test your regulator to the recommended specifications. They will take the best care in maintaining your equipment.

Take care of your equipment and your equipment will take care of you. Early detection of minor problems can prevent expensive repairs. Maybe it is time for your regulator to have its 'health-check' done... Happy diving.

In the end, the choice is yours; parts will wear out and might suffer damage over time. We're not the 'Scuba Police', but each one of you can surely make informed decisions. This article does not favour any brands nor claims performance comparisons between brands or condemns brands, merely thoughts.







