

## Adjustment and maintenance of AVM-1M reducer

Some divers most likely still have AVM-1M scuba tanks, and most likely still sometimes have a desire to shake the old days. These devices are reliable, unpretentious, but like any other aqualungs require systematic service. I distinguish two types of maintenance of these aqualungs: 1. Service maintenance of the gearbox with the lung 2.

Pressurization of cylinders (not included in this article)

In the service we distinguish between complete and partial disassembly of the lung machine. Partial disassembly of the lung machine is performed in order to wipe off moisture and clean all internal parts from salts released as a result of moisture evaporation.



Disassembly of the lung dispenser is performed as follows: unscrew the tightening screws of the clamps fixing the cover on the body of the lung dispenser and remove the clamps.

After that, lift the lung dispenser body cover, remove the diaphragm and inspect the condition of the internal parts of the lung dispenser.

For the convenience of disassembly of the lung machine, we will remove it from the aqualung, for which we will unscrew the screw shown below, do not forget to close the valve of the cylinders beforehand.



The first inspection of the membrane showed its unsuitability for further use (a crack was found on the lumen, be careful).



Immediately we can see the signs of corrosion and salt released.



After wiping with a dry cloth and then with a light alcohol solution, proceed to further disassembly. To do this, unscrew the nuts shown in the figure below.







Next check the condition of the gearbox diaphragm. If necessary, replace it with a new one when reassembling. Also pay attention to the sealing metal ring, which has a groove, it is with this groove downwards that this ring should be installed during assembly.

The nut can be easily unscrewed without a special wrench using narrow-nosed pliers.

In order to remove the gearbox mechanism we will need to carry out further disassembly. To do this, unscrew the safety valve. Please note that the valve must be unscrewed without disturbing its adjustment. To do this, unscrew the valve in the place indicated below.



Next, unscrew the adjusting screw and remove the spring and tappet.



The internal structure of the gearbox is shown in the figure below.

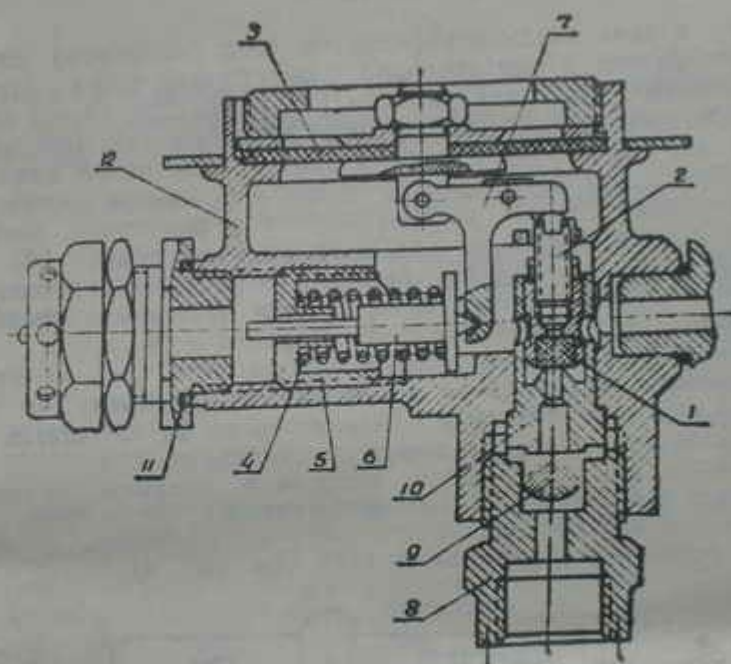


Рис. 4.  
Редуктор.  
1. Клапан. 2. Винт регулирующий. 3. Мембрана резиновая. 4. Пружина.  
5. Винт регулирующий. 6. Толкатель. 7. Рычаг. 8. Входной штуцер. 9. Фильтр.  
10. Корпус седла. 11. Резиновая прокладка. 12. Корпус.

The unlocked gearbox mechanism can now be removed. The four bolts must also be removed for this purpose.





Next, remove the valve with the adjusting screw. Having checked the condition of the valve seat (PTFE cushion), and having wiped all internal parts from salt, oil, traces of corrosion, proceed to reassembly of the reducer with subsequent adjustment.



It is also necessary to check the condition of the filter by unscrewing the inlet connection 8. There we will find the filter. After cleaning it or replacing it with a new one, screw the connector back on.





Reassemble the gearbox in reverse order, check all elements of the gearbox for cleanliness and absence of corrosion. Install a new gearbox diaphragm to replace the old one. Tighten the nuts.







Next, unscrew the plug of the lung machine. And through the gasket screw the pressure gauge to this place.





Next, we attach the gearbox to the scuba tank and start setting it up.





After screwing the safety relief valve back in place, check the pressure on the pressure gauge. This is the set pressure of the reducer. It should be within 5-7atm. If it is different, it is necessary to adjust it by turning the adjusting screw 5.



Screw in the safety relief valve again and check the set pressure.

If the stroke of the adjusting screw is not sufficient to set the required pressure, we have to disassemble the gearbox again and reach the valve with adjusting screw (1 and 2 respectively). According to the data sheet, the length of the valve with the adjusting screw should be 18mm. By adjusting the length of the valve we can adjust the required pressure of the reducer.





Having set the pressure of the reducer, proceed to setting the lung machine. For this purpose it is necessary to open the cylinder valve and, pressing with a finger on the upper lever of the lung dispenser, check the serviceability of its mechanisms. In good condition of the lung machine during the pressure on its upper lever is sufficient air flow through the valve. This is determined by the characteristic hissing of air. Supply of air quantity is made with the help of adjusting screw with lock nut.



As practice shows, the most optimal adjustment is the "ruler" adjustment. To do this, place a ruler on the walls of the gearbox housing. The end of the upper lever should be 1mm below the ruler.



After all adjustments, we put the pulmonary automatism diaphragm, cover and tighten everything with clamps.



After checking the setting pressure of the reducer and adjusting the lung machine, you should



check the pressure drop of the reducer set pressure during inhalation. In this case, proceed as follows: take the mouthpiece in the mouth and take a deep breath, simultaneously observing by the attached manometer how much the air pressure drops in the reducer. At normally working reducer pressure drop during inhalation should not be more than 2-2.5 atm (the less, the better). After this check, the air pressure gauge should be unscrewed and the plug should be screwed on.

When using this reducer on a daily basis, remember that after each use of this reducer you must remove the diaphragm and wipe the reducer dry, also untwist the hoses in the area of the reducer and dry.

Before use, it is also necessary to check the tightness of the exhalation valve, for which with the closed valve to make a breath, if the air is sucked, then there is a leak, so if you were diving, you would certainly get some water in your mouth (which I had to deal with).

Exhalation valve is petal type, replace with a new one if necessary.







I hope this little guide will help you in mastering this "exhibit" 23.01.2007.

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