

## MAINTENANCE PROCEDURE C 300



## MAINTENANCE PROCEDURE OF C 300 2<sup>nd</sup> STAGE

**WARNING: This maintenance procedure is only for appointed Scubapro technicians that have completed a course on equipment repair and in no case can replace a technical repair course delivered by a SCUBAPRO UWATEC appointed staff.**

### Tools needed:

- |                                 |                |
|---------------------------------|----------------|
| 1. Universal tool               | P/N 43.040.000 |
| 2. Adjustment tool              | P/N 41.043.000 |
| 3. O ring extractor             | P/N 43.300.107 |
| 4. C 200 / C 300 cover tool     | P/N 43.403.001 |
| 5. 4 mm Allen key               |                |
| 6. Small flat blade screwdriver |                |
| 7. Wooden chop stick            |                |
| 8. Small pliers                 |                |
| 9. Cristolube MGG 111 lubricant | P/N 41.493.125 |

### DISSAMBLY

1. Unscrew the interstage pressure hose from the 1<sup>st</sup> and 2<sup>nd</sup> stage and remove the o rings with the o ring extractor tool.
2. Remove the mouthpiece clip or strap and remove the mouthpiece.
3. Remove the pin with the flat blade screwdriver.
4. With the cover tool, unscrew the front cover, remove the ring and the diaphragm assy.
5. Remove the clip from the flow deflector with the small screwdriver.
6. Pull gently on the flow deflector and remove it from the housing. Remove the 2 o rings P/N 01.050.160 with the o ring extractor.
7. Remove the decal on the tip of the knob using the o ring extractor tool.
8. Unscrew the screw with the 4 mm Allen key.
9. Remove the o ring P/N 01.050.126 from that screw and pull off the knob from the adjustment shaft.
10. Push the adjustment shaft and sleeve assembly out of the flow deflector.

11. Remove the o ring P/N 01.050 351 from the sleeve with the o ring extractor tool.
12. Hold the sleeve between 2 fingers and screw the adjustment shaft out of the sleeve.
13. With the o ring extractor tool remove the o ring P/N 01.050.293 from the adjustment shaft.
14. Hold the adjustment shaft between 2 fingers and use the flat blade screwdriver to remove the fine adjustment screw from the adjustment shaft.
15. Remove the o ring P/N 01.050 126 from the fine adjustment screw with the o ring extractor tool.
16. Remove the o ring P/N 01.050.347 with the o ring extractor tool from the housing male threads.
17. With the multi tool, unscrew the jam nut from the housing and remove the ring.
18. Push the housing halfway inside the case to free the lever.
19. Remove the lever with care.
20. Remove the poppet assembly, the spring and the spring pad out of the housing.
21. Now push the housing completely out of the case.
22. Remove the o rings P/N 01.050.347 and 01.050.160 from the housing with the o ring extractor tool.
23. With the o ring extractor tool, remove the seat P/N 11.250.221 from the poppet.
24. With the multi tool, unscrew the orifice and remove it carefully using the chopstick to push it outside.
25. Remove the o ring P/N 01.050.132 from the orifice with the o ring extractor tool.
26. To remove the exhaust tee, push the pin with the screwdriver and pull the other side with the small pliers.
27. It is not compulsory to remove annually the exhaust valve, only if the valve requires replacement. Pull on the valve to remove it.

### **PARTS CLEANING**

**WARNING: Refer to the Parts Cleaning procedure.**

## ASSEMBLY

After careful inspection of the cleaned parts and the static o rings that do not need to be changed, prepare all the parts that need to be changed at every annual service.

- |    |                             |                |
|----|-----------------------------|----------------|
| a. | Seat                        | P/N 11.250.221 |
| b. | The hose o-rings (2x)       | P/N 01.050.132 |
| c. | The adjustment shaft o ring | P/N 01.050.293 |
| d. | The decal                   | P/N 01.008.719 |
| e. | Or the repair kit           | P/N 11.361.045 |

- **If the exhaust valve has been removed, it must be replaced with a new valve P/N 11.250.103.**

1. Insert the new exhaust valve and use the small pliers to pull it from the inside of the case. Make sure that the valve is correctly fitted, the shoulder on the nipple should stick out of the retainer and the lip of the valve should rest properly on the regulator case. Check the valve by pulling slightly on the lip at several places. Trim the top of the nipple away leaving 1mm of nipple above the remaining shoulder.
2. Place the exhaust tee and secure with the pin. Check that the pin is well centred both sides of the case.
3. Assemble the o ring P/N 01.050.132 on the orifice and lubricate slightly the threads.
4. Screw the orifice 3 to 4 turns inside the housing using the multi tool.
5. Assemble the o rings P/N 01.050.347 and 01.050.160 on the housing and place the housing midway inside the case. **Make sure that the injection hole is facing the mouthpiece tube.**
6. Take the poppet and assemble on it the new seat P/N 11.250.221. Place the spring on the poppet and the spring holder on the other side of the spring.
7. Insert the poppet, spring and spring holder assembly inside the housing taking care to align the 2 tabs on the end of the poppet shaft inside the 2 groves inside the housing.
8. Now insert the lever inside the housing. This can only be performed when the housing is midway inside the case. Maintain a slight pressure with 1 finger on the spring holder to keep the lever in position.

- **Warning: Make sure that the injection hole of the housing is facing the mouthpiece tube.**

9. Insert the ring on the housing threads. Enter the smaller diameter of the ring on the housing threads first.
10. Slightly lubricate the male threads of the housing before screwing lightly the jam nut with the multi tool. Place the o ring P/N 01.050.347 on the male threads of the housing.
11. Assemble the o ring P/N 01.050.126 on the fine adjustment screw.
12. Assemble the fine adjustment screw inside the adjustment shaft by unscrewing with the flat blade screwdriver until the shoulder of the fine adjustment screw sticks out of the rim of the sleeve by 1 mm. **The inner thread and o-ring of that fine adjustment screw should not be lubricated.**
  - **Warning: If the fine adjustment screw is totally unscrewed inside the adjustment shaft, the final adjustment of the orifice will be wrong. If the shoulder is sticking out more than 2 mm out of the adjustment shaft, the inhalation resistance will be too high.**
13. Place the new o-ring P/N 01.050.293 on the adjustment shaft and lubricate both the threads and o-ring. Assemble this into the sleeve by totally unscrewing until the stem is completely sticking out.
14. Fit the 2 o-rings P/N 01.050.160 on the flow deflector and slightly lubricate.
15. Assemble the adjustment shaft and sleeve assembly inside the flow deflector.
16. Insert the flow deflector inside the case with a rotation movement to engage the 2 tabs on the sleeve inside the groves of the housing. Now push to position the flow deflector lever inside the notch of the case.
  - This will go easier if the 2 tabs on the sleeve are aligned before with the lever on the flow deflector
17. Place the clip to lock the system. Make sure that the clip is well secured in its grove.
18. Check the diaphragm for punctures or distortions. Follow the cleaning procedure or use a new one if necessary.
19. Place the diaphragm assembly, make sure that it should rest perfectly on its periphery.
20. Place the ring on the diaphragm and screw the front cover using the cover tool until the safety pin holes are aligned. Place the pin.
21. Assemble the 2 o rings P/N 01.050.132 on the interstage pressure hose and lubricate slightly and connect the interstage pressure hose to a 1<sup>st</sup> stage.

## THE 2ND STAGE IS NOW READY FOR ADJUSTMENT

**WARNING: DO NOT ATTEMPT TO ADJUST A 2<sup>nd</sup> STAGE, IF THE INTERSTAGE PRESSURE OF THE 1<sup>st</sup> STAGE IS NOT CORRECTLY ADJUSTED.**

1. Before connecting the adjustment tool to the 2<sup>nd</sup> stage, and without pushing on the purge, slowly blow through the inlet tube to detect a leak. This information will indicate if the orifice is in contact (no leak) or not (leak) with the seat. If a leak is detected, screw the 2<sup>nd</sup> stage adjustment tool to the 2<sup>nd</sup> stage and slowly screw the orifice about one or two turns to stop any leak.
2. Make sure that the adjustment shaft is **totally unscrewed** before making any orifice adjustment by placing the knob on the adjustment shaft and remove the knob after totally unscrewing.
3. Connect an appropriate and well adjusted 1<sup>st</sup> stage to a full tank, connect the 1<sup>st</sup> stage to the adjustment tool with the interstage pressure hose and slowly open the tank valve.
4. Push slowly on the tool adjustment knob to counteract the thrust of the inter stage pressure. Turn the knob slowly to look for the groove of the orifice.

As soon as the groove is found, slowly **unscrew** the orifice until a small leak is detected, then turn the orifice **clockwise** to just stop the leak without having to turn more than 1/8<sup>th</sup> of a turn on the orifice.

**Note: 1/8<sup>th</sup> of a clockwise turn of the adjustment tool acting on the orifice should stop the leak. If more than 1/4 of a turn is required to stop the leak, it means that the spring compression is too light and the fine adjustment screw has to be screwed as follows: (This procedure must only be applied to stop the leak described above)**

With the small screwdriver, (proceed by steps of 1/4 of a turn at a time) screw the internal fine spring tension adjustment in order to obtain a sharp stop of the leak (1/8<sup>th</sup> of a turn) when adjusting the orifice with the adjustment tool. Do not exceed more than 2 turns of clockwise adjustment on the fine adjustment screw. Proceed as in paragraph 3.

5. Cycle the 2<sup>nd</sup> stage about 10 to 15 times by pushing on the purge, then finalise the adjustment as indicated in paragraph 5.
6. Close the tank valve and purge the 2<sup>nd</sup> stage. Remove the adjustment tool from the 2<sup>nd</sup> stage and assemble the interstage pressure hose with the universal tool with moderate tightening torque. Do not over tighten.
7. Place back the hose sleeve.

8. Put the o ring P/N 01.050.126 on the screw, fix the knob using the 4mm Allen key. Place a new decal on the knob.
9. Fit back the mouthpiece with the clip or strap.

