SCUBAPRO
Repair Guide

G250HP
Second Stages

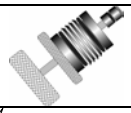
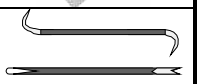
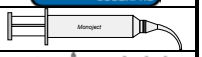
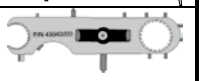
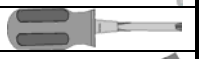
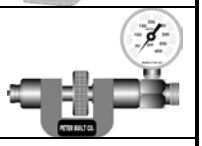
G250HP Configuration A

G250HP Configuration B

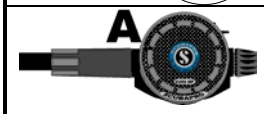
USE THIS GUIDE AS A REFERENCE WHEN SERVICING THE G250HP SECOND STAGES

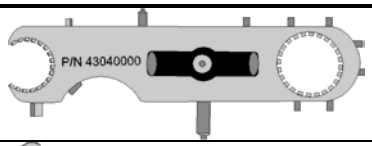
Important note: The following information is not designed to be a complete training guide for servicing the listed SCUBAPRO regulators. All SCUBAPRO technicians are required to attend an annual service training program to insure safe handling and servicing of SCUBAPRO products. All SCUBAPRO technicians must be employed by an authorized SCUBAPRO facility.

TOOLS NEEDED FOR REPAIR OF G250HP

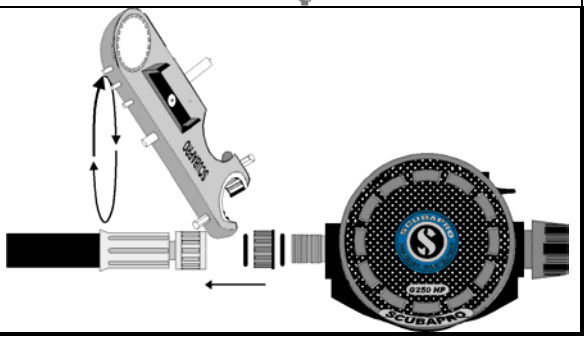
Quantity	Part Number	Description	
1	43.300.227	Balance Chamber Adjusting Tool	
1 set	10.102.100 (Peter Built)	Brass o'ring picks	
1 tube	41.047.000	Christo-Lube	
1	47.010.000	Counter Mat	
1	41.496.101	Lubricant syringe	
1	43.040.000 (Scubapro)	Universal Tool	
1		Jeweler's screwdriver (3mm)	
1		Philip's Screwdriver	
1	11.153.500 (Peter Built)	Ball-end Allen Wrench	
1	43.300.225 (Scubapro)	VIVA Flow Vane Removal Tool	
1	20.500.200 (Peter Built)	Pneumatic Adjusting tool	
1	18.300.500 (Peter Built)	Blow Gun/Air Nozzle	

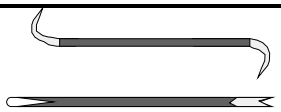
ICON LEGEND

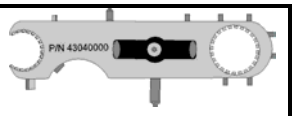
	Inspect carefully, replace if needed
	Lubricate properly
	Replace annually
	Dynamic o'ring, replace annually and lubricate properly
	No tools needed for this step
	 Indicates the regulators affected by this step



Remove hose and jam nut from the second stage.

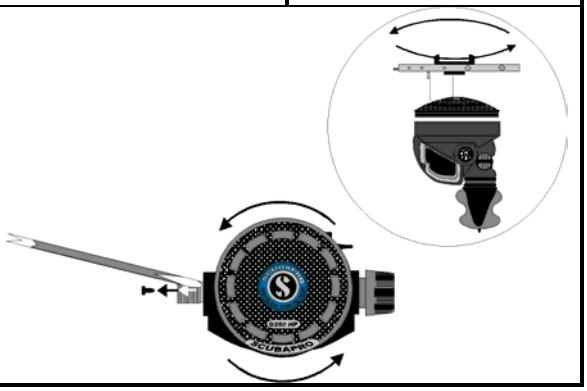






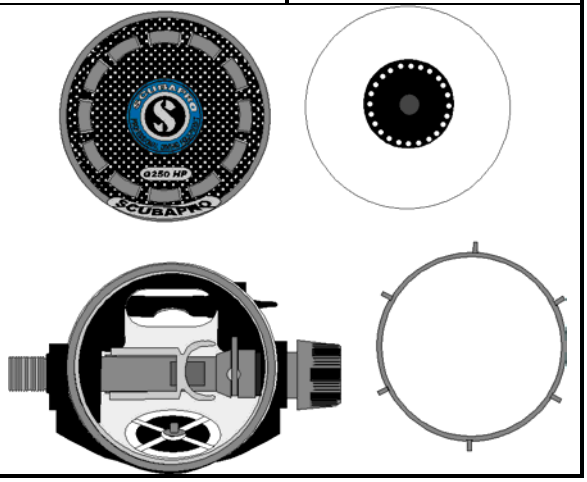
Remove the housing pin using the brass pick or similar tool.

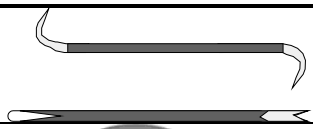
Use the universal tool to remove the second stage cover of the G250HP.



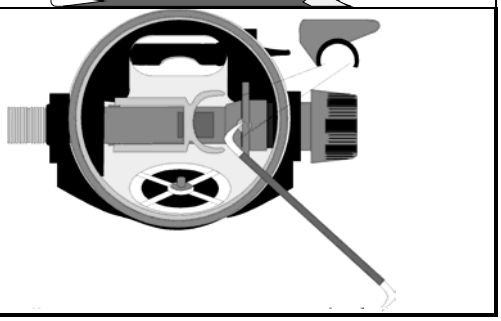
No tools needed this step

Remove the cover, friction washer and diaphragm from the second stage housing.



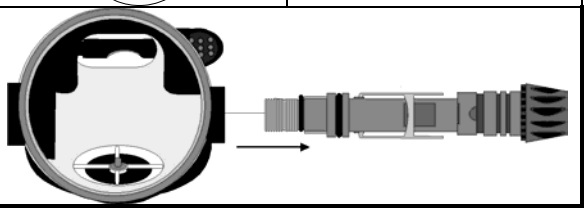


Turn the cracking effort adjustment knob inward a few turns. Remove the stop clip from the knob.



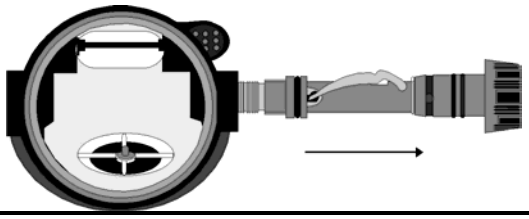
No tools needed this step

Hold down the lever and remove the air barrel from the case.



No tools needed this step

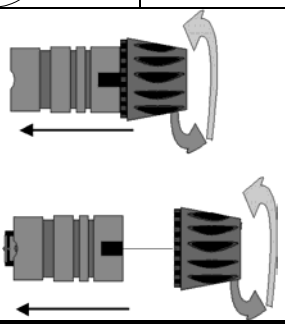
Hold down the lever and remove the air barrel from the case.

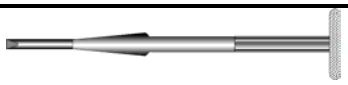


No tools needed this step

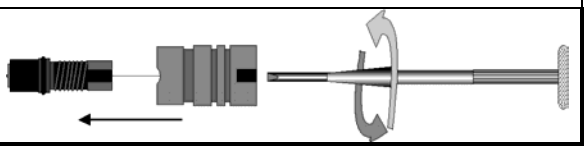
Turn the breathing effort adjustment knob clockwise until it is no longer in contact with the balance adjustment mechanism.

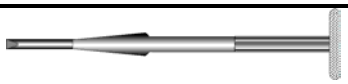
Remove the breathing effort adjustment knob.





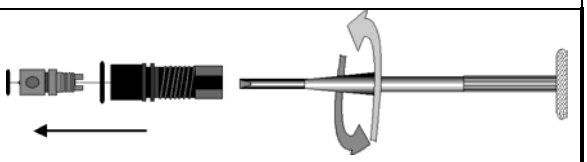
Using 3mm jeweler's screwdriver turn the balance adjustment mechanism clockwise and remove.

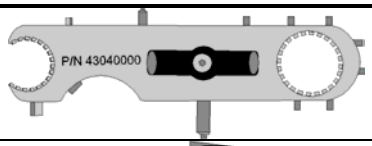




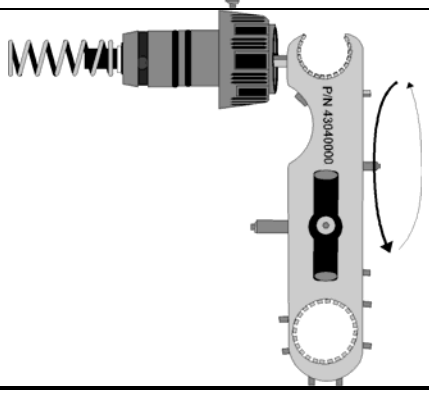
Turn the 3mm jeweler's screwdriver clockwise to disassemble the remainder of the balance adjustment mechanism.

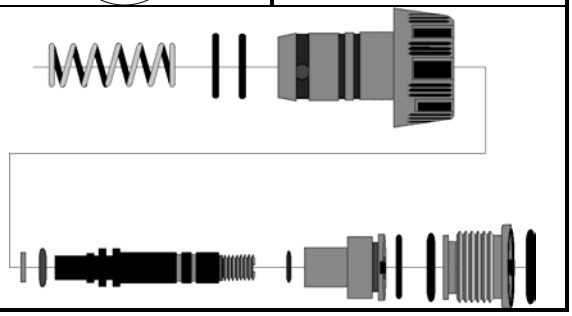
Remove all o'rings.



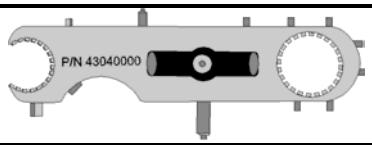
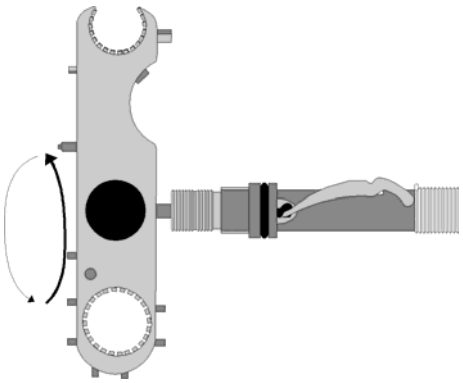


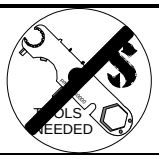
Remove the knob plug using the universal tool.



			No tools needed this step
Remove the balance chamber and disassemble. Use caution to avoid losing o'rings, spring, and spring pad.			

			No tools needed this step
Carefully remove the poppet. The poppet o'ring and seat will be replaced. It is usually <u>not</u> necessary to remove the lever from the air barrel.			

			
Use the universal tool to remove the adjustable orifice from the air barrel.			



No tools needed this step

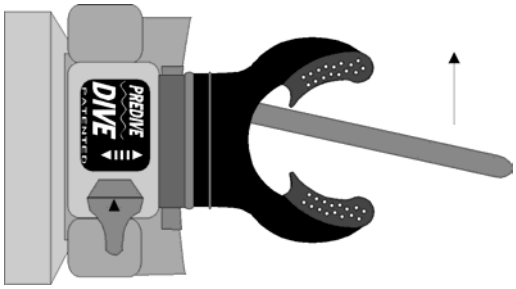
Remove the adjustable orifice. Take off the adjustable orifice o'ring, as it will be replaced. Remove the air barrel o'ring for inspection.

A wooden dowel or "chopstick" may be helpful in removing the orifice.

This Step Is Only Performed As Needed

When it is necessary to remove the VIVA flow vane, use the flow vane removal tool (p/n 43.300.225). Be certain to remove the diver breathing adjustment knob prior to use.

This step is seldom needed, unless the VIVA flow vane o'ring is worn or damaged.

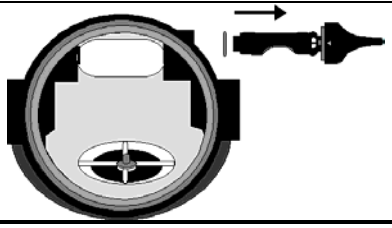


Top view

No tools needed this step

This Step Is Only Performed As Needed

If the VIVA flow vane is removed, it may be necessary to replace the entire VIVA assembly, including the o'ring.

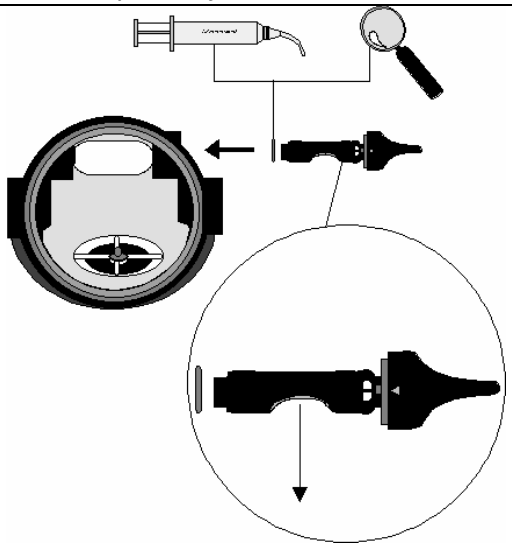


This Step Is Only Performed As Needed

Carefully inspect and lubricate the o'ring. The venturi vane is reversible.

<u>Maximum VIVA</u>:
Place the new knob and vane assembly back into the housing with the crescent-shaped notch facing forward toward the back of the diaphragm for maximum VIVA.
<u>Minimal VIVA:</u>
Place the new knob and vane assembly back into the housing with the crescent-shaped notch facing forward toward the mouthpiece opening for minimal VIVA (ie: for rental equipment).

Push the vane inward until it is locked in place.

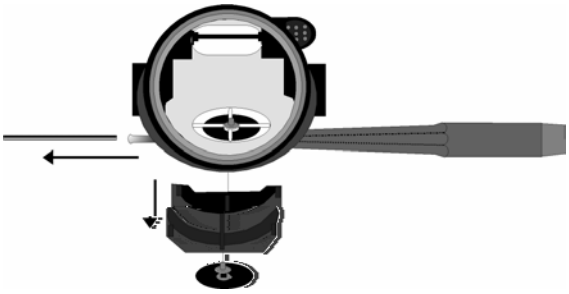


This Step Is Only Performed As Needed

If removal of the exhaust valve is necessary, use the ball-end allen wrench to push out the exhaust tee pin. Remove the center section of the exhaust tee.

To remove the exhaust valve, grasp with fingers and pull firmly out.

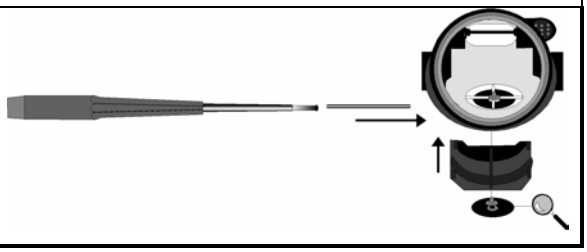
The exhaust valve will seldom need to be replaced. Careful inspection is usually all that is necessary. If the valve is removed during service, it may be damaged during the process, <u>requiring</u> replacement.

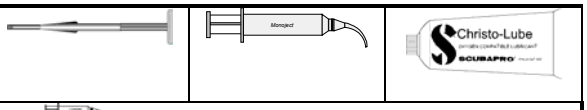


If the exhaust valve is removed, carefully inspect and replace if necessary.

Replace the exhaust tee center section and use the ball-end allen wrench to replace the exhaust tee pin.

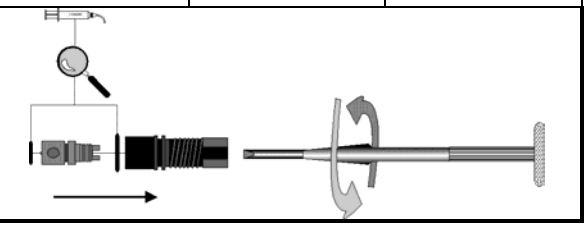
This Step Is Only Performed As Needed

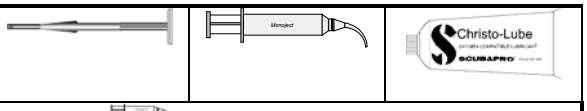




Turn the 3mm jeweler's screwdriver counterclockwise to assemble the balance adjustment mechanism.

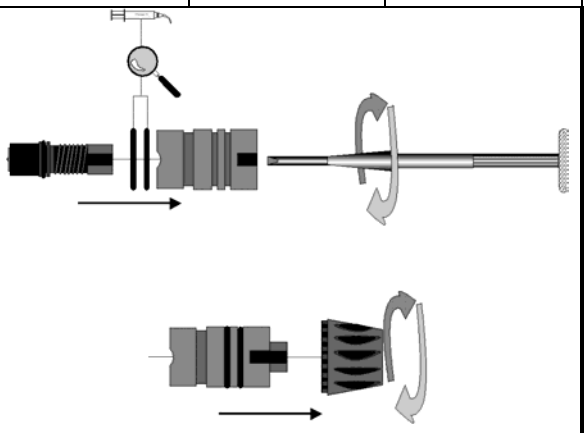
Inspect and lubricate all o'rings.

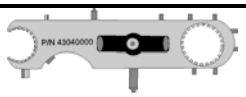




Thread the balance adjustment mechanism into the breathing adjustment knob assembly. Turn counterclockwise using the 3mm jeweler's screwdriver until enough of the mechanism is extended to permit contact with the external knob.

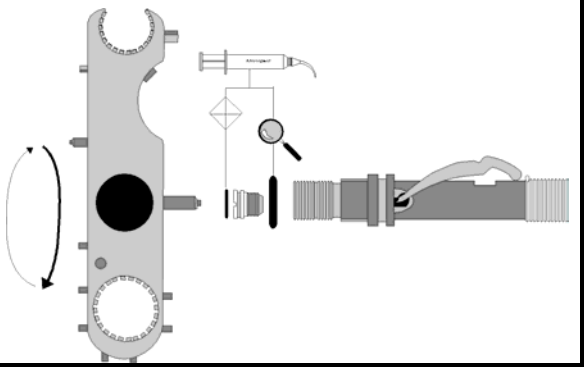
Slide the external knob on the stem and turn counterclockwise to "pull" the mechanism into the knob assembly.



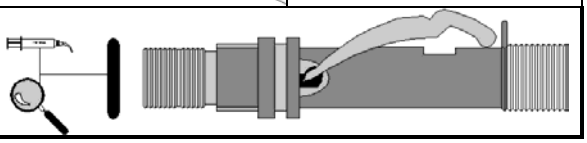


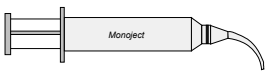
Replace the adjustable orifice o'ring and lubricate properly. Inspect the air barrel o'ring and replace if necessary. Lubricate properly.

Push the adjustable orifice in, and then use the universal tool to turn in the adjustable orifice one turn.



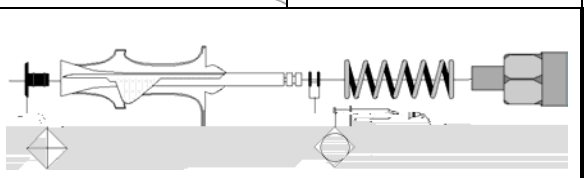
Inspect and lubricate the air barrel o'ring.



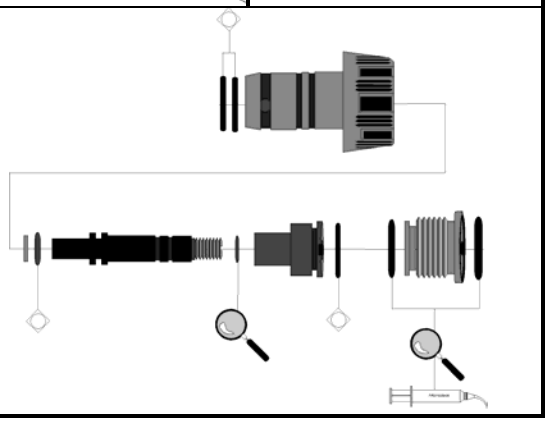


Prepare the poppet by replacing the seat and replacing/lubricating the dynamic o'rings.

NOTE: Do not install the poppet/spring or balance chamber into the air barrel at this time.



Lubricate all dynamic o'rings properly and replace. Carefully inspect and lubricate all static o'rings and replace where needed.

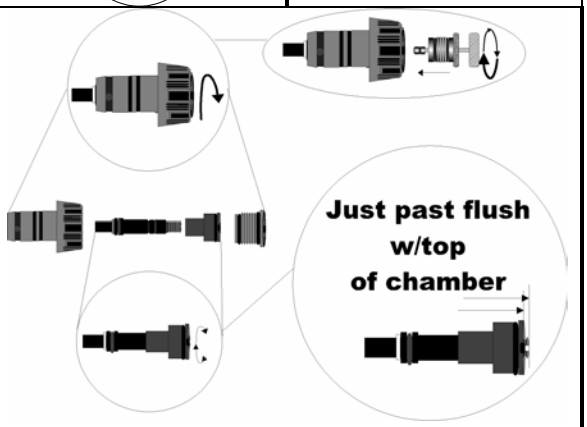


No tools needed this step

Assemble the two-piece balance chamber as shown and insert it into the cracking effort adjustment knob.

Do not install the "anti-set chamber" into the end of the assembly at this time. The balance chamber adjustment tool should be installed in preparation for final adjustments.

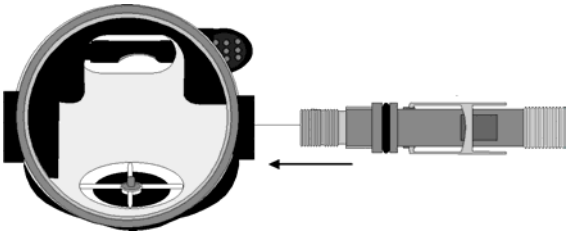
NOTE: The spring pad can be installed on the poppet or the balance chamber.

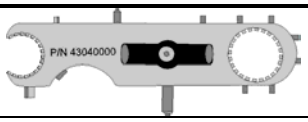


No tools needed this step

Insert the air barrel and breathing adjustment assembly (without the external knob) into the regulator body.

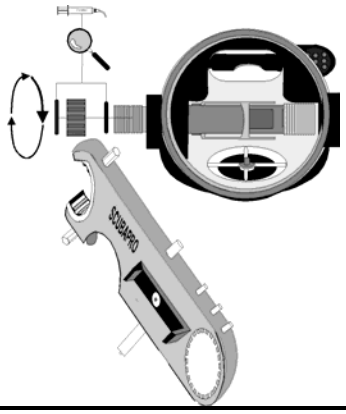
If necessary, use the universal tool and jam nut to assist in pulling the air barrel all the way through the regulator case.





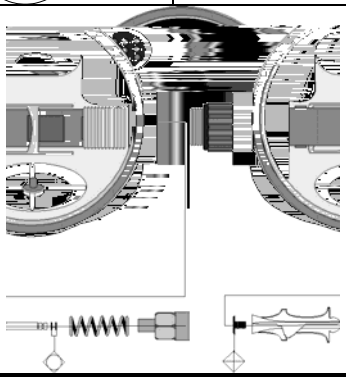
Inspect and lubricate static o'rings.

Attach jam nut and o'rings as shown. Tighten with universal tool.



No tools needed this step

Install the poppet so that the "feet" are engaged with the demand lever. Insert the spring, then the balance chamber.

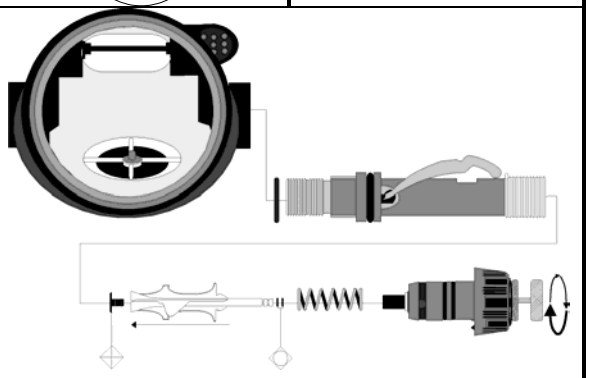


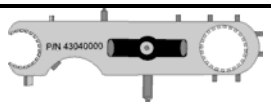
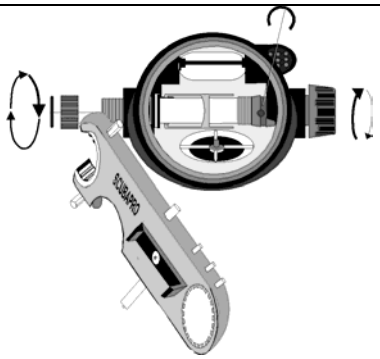
No tools needed this step

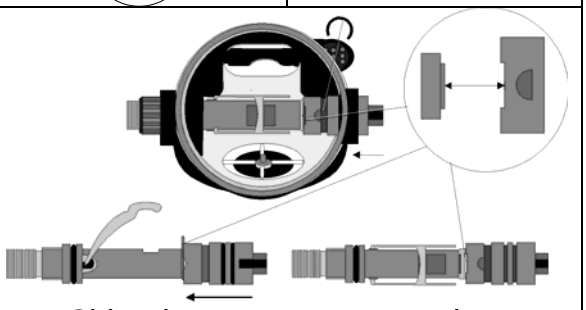
Replace the seat on the poppet, and replace and lubricate the poppet stem o'ring.

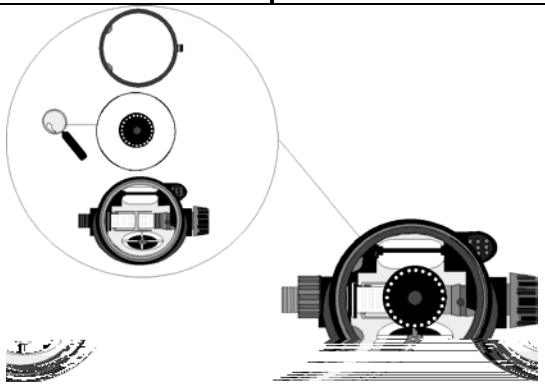
Install the poppet so that the "feet" are engaged with the demand lever. Insert the spring, and then insert the cracking effort adjustment knob assembly. Thread onto the air barrel.

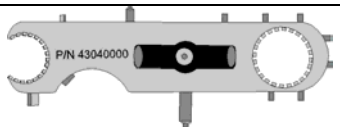
Holding the lever down, insert the air barrel into the case and push all the way through.



		
Attach the jam nut on the air barrel. Place the o'ring on the air barrel next to the jam nut if needed. Thread the cracking effort adjustment knob inward until there is enough clearance to install the stop clip. Press the stop clip carefully into place. Back the adjustment knob out against the clip ensuring that it stops.		

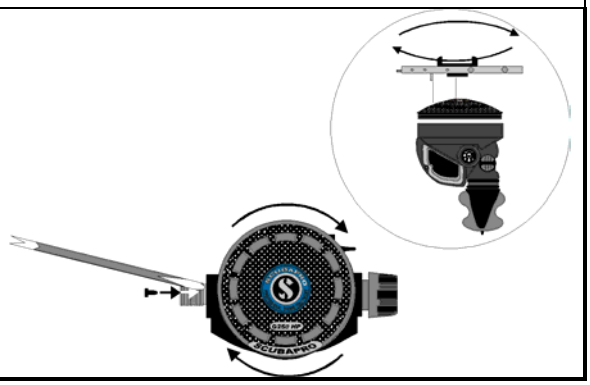
			No tools needed this step
Insert the breathing adjustment assembly without the external knob onto the air barrel. Push the assembly all the way onto the barrel, being sure to engage the notch on the assembly with the key on the air barrel as shown Install the stop clip.		 Side View Top View	

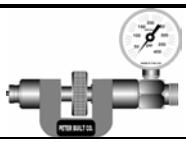
			No tools needed this step
Inspect the diaphragm for wear, and replace if necessary. Install the diaphragm and friction washer, being certain that the two pieces lay flat inside the second stage housing. Note that the friction washer uses an alignment tab to prevent movement once installed.			



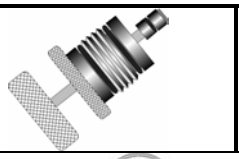
Use the universal tool to tighten the cover, being certain that the SCUBAPRO “S” is properly positioned.

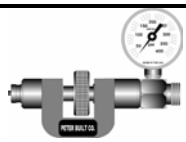
Install a new housing pin into the side of the housing.



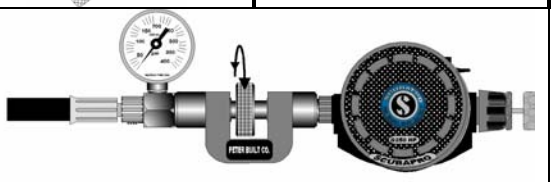


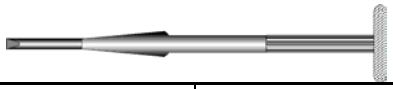
Use the pneumatic adjusting tool to make the initial air-on adjustments to the second stage. The 3mm screwdriver can be used to make course adjustments on the balance chamber and to stop free flows.





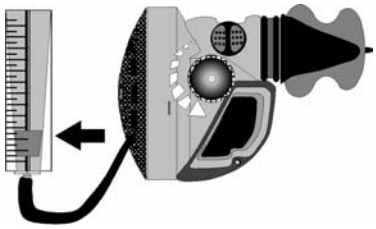
Use the pneumatic adjusting tool to make the initial air-on adjustments to the second stage, and to stop all free flowing. The balance chamber tool will be used to fine-tune the breathing effort (see the next step).

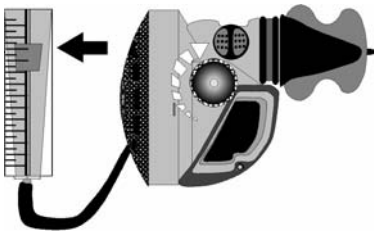


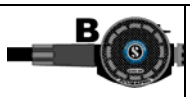


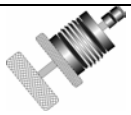
Adjusting the balance chamber counter clockwise reduces cracking effort.

Adjusting the balance chamber clockwise increases cracking effort.



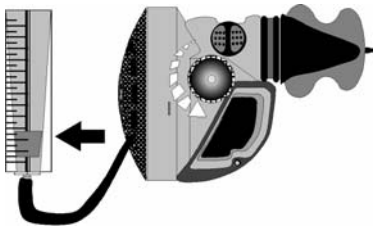


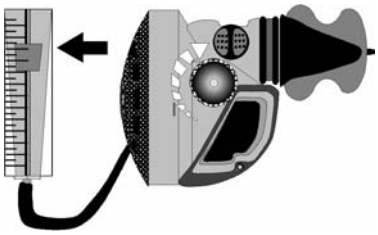


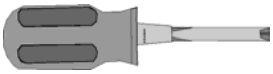


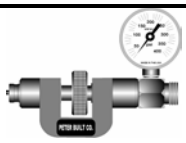
Adjusting the balance chamber counter clockwise reduces cracking effort.

Adjusting the balance chamber clockwise increases cracking effort.





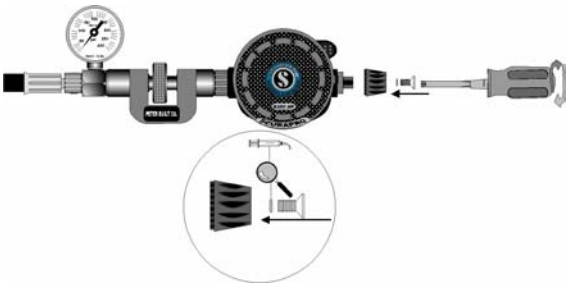


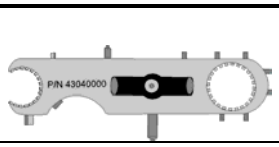
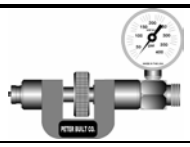


Inspect and lubricate the external adjustment knob o'ring.

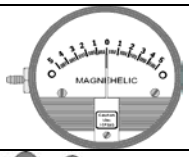
Re-install external breathing adjustment knob and tighten using the Philips screwdriver.

Make any additional adjustments using the pneumatic adjusting tool.



			
Re-install the “anti-set chamber” and tighten until it is flush with the outside of the cracking effort adjustment knob. Make any additional adjustments using the pneumatic adjusting tool and balance chamber adjusting tool.			

			No tools needed this step
Install a new “Dive” decal if appropriate.			

			
Check the cracking effort of the regulator. Inhalation effort range: 1.0 to 1.4 inches of water.