SCUBAPRO®

#266

Engineering Bulletin

December 15, 1999

G250/G250 HP Compatibility of Upgrade Kit

The SCUBAPRO G250 HP is a marked improvement on the proven G250 second stage design. So much so that issues have arisen for converting the older model G250s to the newer G250 HP configuration. A kit is now available to accomplish this upgrade (p/n 11.261.050)

Some of the original G250 versions cannot be converted. The purpose of this Engineering Bulletin is to outline the differences in the various generations of G250s and provide guidelines for the technician to do the upgrade where possible. In order to add value to the customer's regulator purchase, all owners of those G250 versions that can be upgraded should be encouraged to get the upgrade done by their qualified Professional SCUBAPRO Technician and Dealer.

Compatibility of Units

The original style of G250 cannot be upgraded. The case for these units will not accept the larger inhalation resistance adjustment knob found in thenG250 HP. These units can be identified by the lack of a "CE" designation on the regulator case.



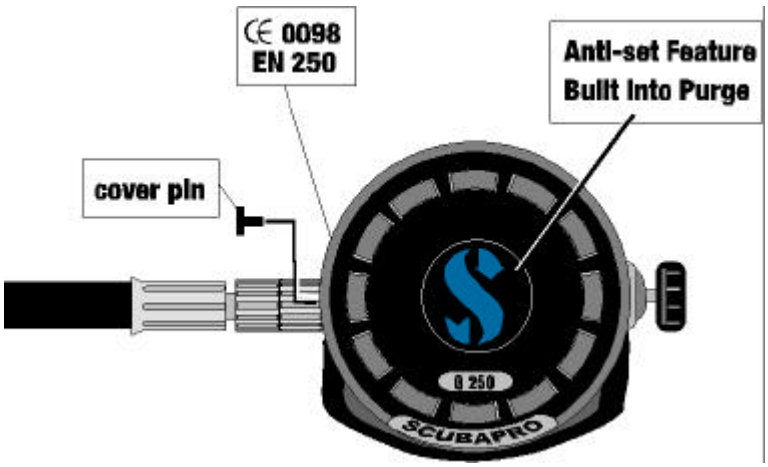
WARNING!

DO NOT ATTEMPT TO UPGRADE THESE MODELS. O'RINGS ON THE LARGER INHALATION RESISTANCE KNOB MAY ACCIDENTALLY BECOME DISLODGED DURING USE, CAUSING WATER TO ENTER THE REGULATOR. THIS IS A POTENTIALLY DANGEROUS SITUATION!

These original units may be identified in the following manner:

- No "CE" marking on the case
- No cover retention pin
- The housing on the original G250 (11.250.200) is slightly smaller than the G250HP (11.400.025).
- Although the G250 HP air barrel fits in the original G250 second stage housing, the adjusting knob assembly can not be attached properly. The outermost o'ring (01.050.160) remains exposed even after threading the adjusting knob completely inward.
- The internal design of the original G250 does not permit the new stop clip (Retaining knob #11.250.031) to be installed properly.

Identifying a G250 that can be converted:
G250s that can be converted are distinguished by the fact that the case and front cover will have the cover retention pin hole and pin placed on the side opposite the inhalation adjustment knob. In addition, there will be a "CE" mark on the second stage body, and a built-in anti-set feature in the purge button.



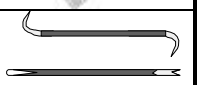
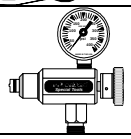
G250s with cover pins and CE markings can be converted to a G250 HP using the update kit p/n 11.261.050

Procedure for Converting a G250 into a G250 HP

Note: This procedure is only applicable to G250s fitting the description above.

TOOLS NEEDED FOR CONVERTING A G250 INTO A G250 HP



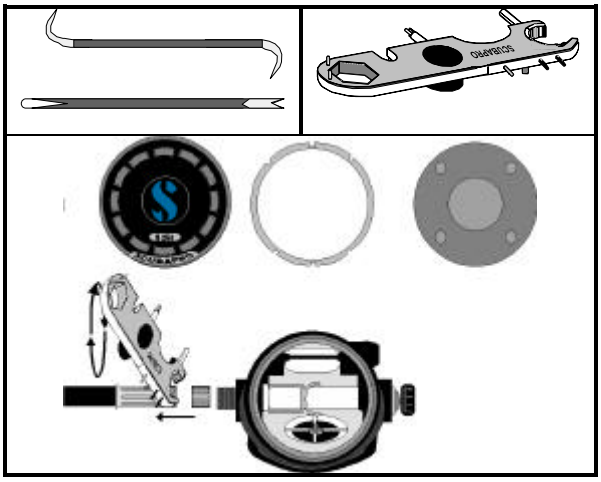
Quantity	Part Number	Description	
1	43.300.227	Balance Chamber Adjusting Tool	
1 set	43.300.017	Brass o'ring picks	
1 tube	41.047.000	Christo-Lube	
1	47.010.000	Counter Mat	
1	41.496.101	Lubricant syringe	
1	43.040.000	Universal Tool	
1	43.300.112	Pneumatic Adjusting tool	
1	11.261.050	G250Hp Upgrade Kit	
1	11.254.041	G250 Annual Service Kit	

Important note: The following information is not designed to be a complete training guide for servicing of the SCUBAPRO G250 HP regulator. 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.



Remove the cover retention pin and front cover. Also remove the frictionless washer and diaphragm, exposing the air barrel.

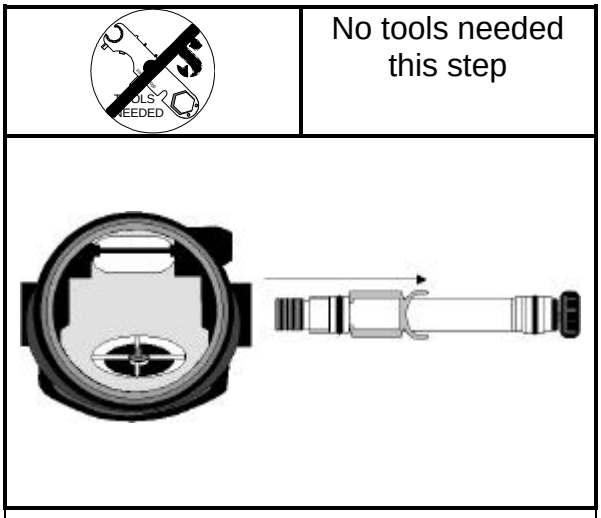
Using the Universal Tool, remove the low-pressure hose and jam nut from the second stage.





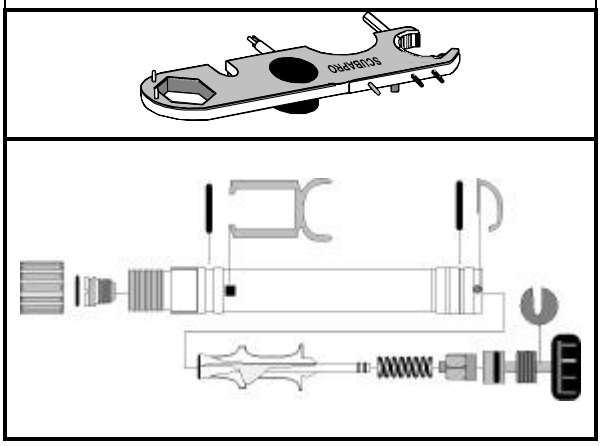
Remove the air barrel from the second stage housing. This is most easily accomplished by pressing on the lever and moving the barrel through the opening in the second stage body while holding the lever down.

Note: It may be necessary to rotate the air barrel slightly to remove it from the housing.



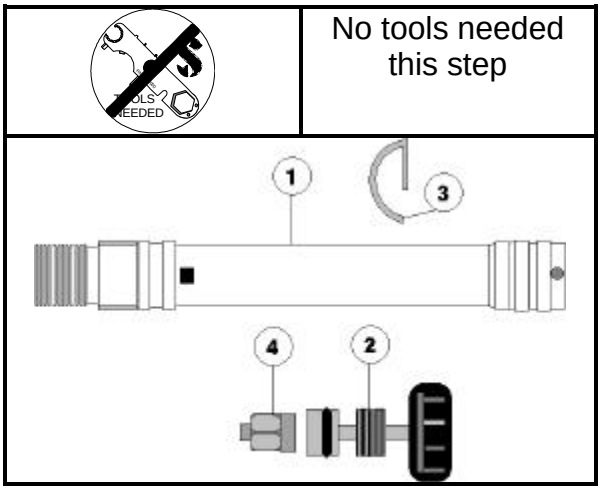


Remove the stop clip from the G250 air barrel. Remove all components. Some will be retained while others will be discarded.



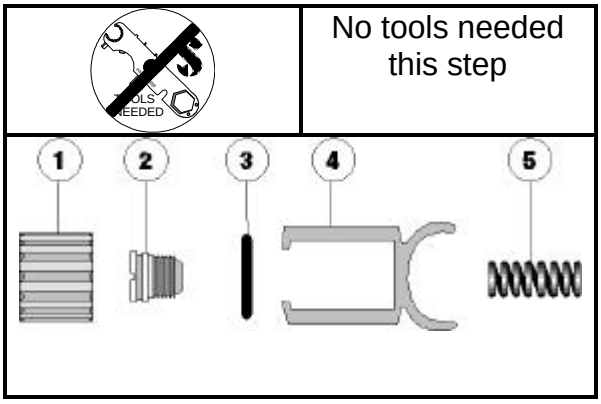


Discard the following hardware from the original G250:
1 - 11.250.102 - Air barrel
2 - 11.250.009 - Adjustment knob
3 - 11.109.121 - Stop pin
4 - 11.150.102 - Balance Chamber



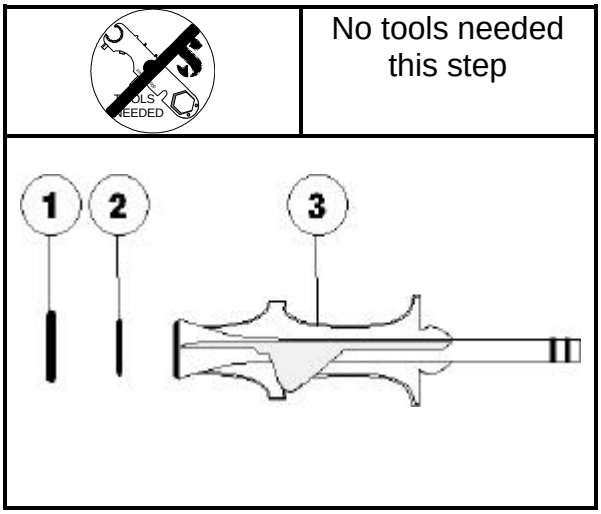


Retain the following parts to be used with the G250 HP:
1 - 11.250.106 - Jam Nut
2 - 11.500.109 - Orifice
3 - 01.050.160 - O'ring (one only)
4 - 11.250.141 - Lever
5 - 01.020.216 - Spring





In addition to the parts retained from the original-style G250, it is necessary to use a G250 annual service kit (11.250.041) to complete the G250 HP upgrade. The following parts will be utilized from this kit:
1 - 01.050.293 - o'ring (orifice)
2 - 01.050.132 - o'ring (for LP hose OR orifice)
3 - 11.250.220 - poppet assembly





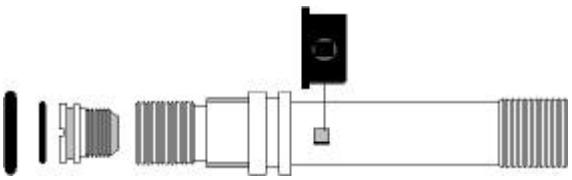
Inspect the o'ring (01.050.160) from the G250 air barrel. Replace only if there is damage or if there is a loss of flexibility. Lubricate to static o'ring specifications.

Replace the orifice o'ring (01.050.293) with the o'ring in the annual service kit. Lubricate to dynamic o'ring specifications.

Install the insulating sleeve (comes in the upgrade kit) on the air barrel. Be certain to turn the sleeve so that the orientation is as shown.



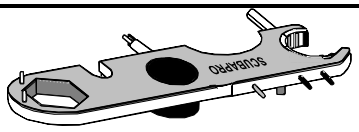
No tools needed this step

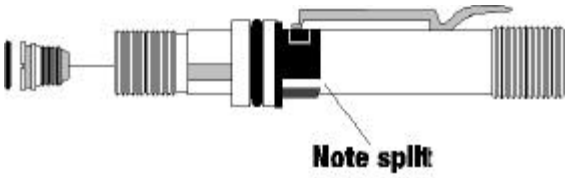




Install the lever into the air barrel. Note the orientation of the insulating sleeve in relation to the lever.

Install the orifice into the air barrel. Thread the orifice clockwise into the air barrel until it stops. Then back out the orifice counterclockwise 1.5 to 1.75 turns.





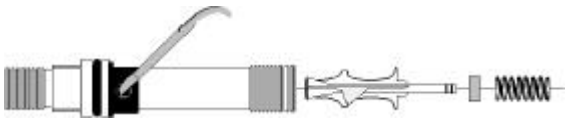


Install the bushing onto the poppet assembly. Insert the poppet into the air barrel, being certain to turn the "feet" so that they will engage with the lever.

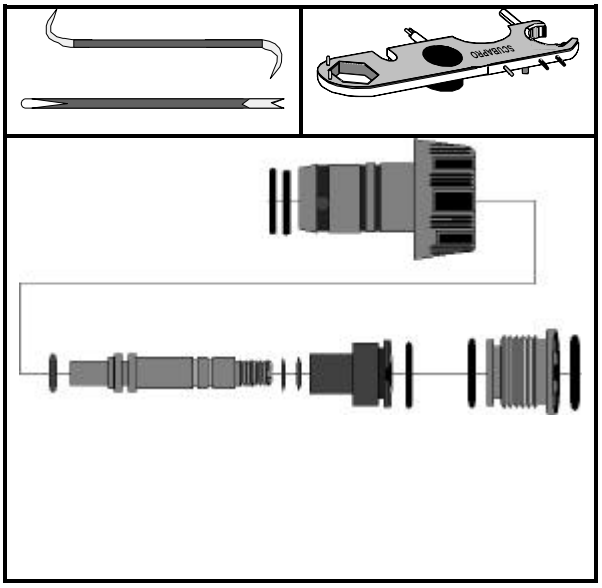
Install the demand spring onto the poppet.



No tools needed this step



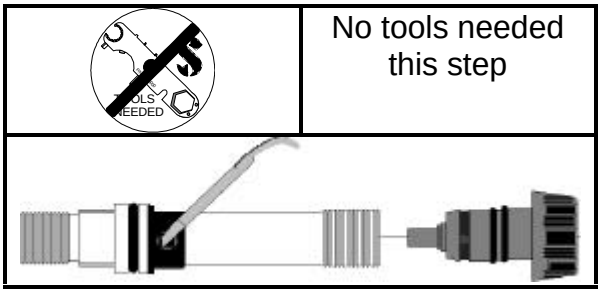




The Inhalation Adjustment knob comes pre-assembled. Do not disassemble unless necessary for adjustment purposes.

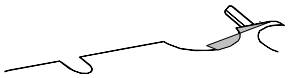
Note: Do not lubricate the threads on the balance chamber assembly. Doing so can cause the chamber adjustment to "drift" when the diver adjusts the breathing effort on the inhalation adjustment knob. This may cause the inhalation effort to change during use.





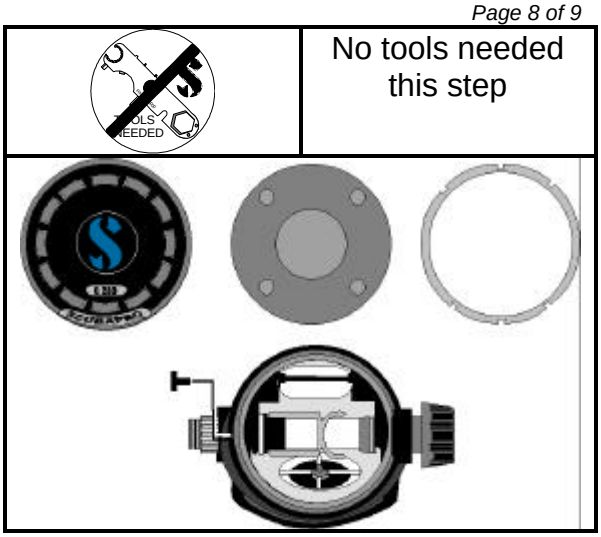
Install the inhalation adjustment knob onto the end of the air barrel, being certain to align the balance chamber so that it slides onto the end of the poppet.







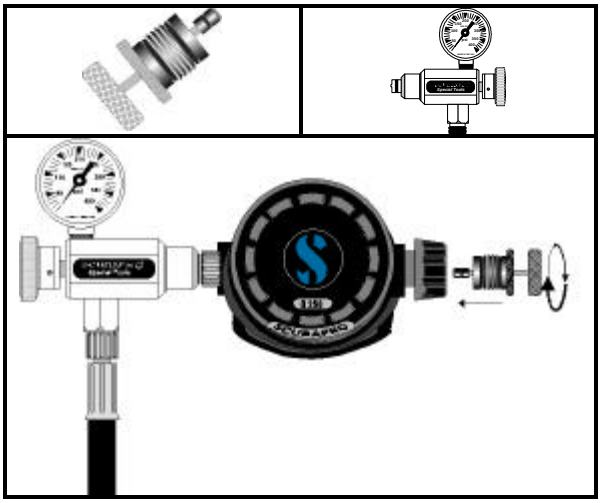
Replace the diaphragm, friction washer and cover onto the second stage body. Insert the cover pin.





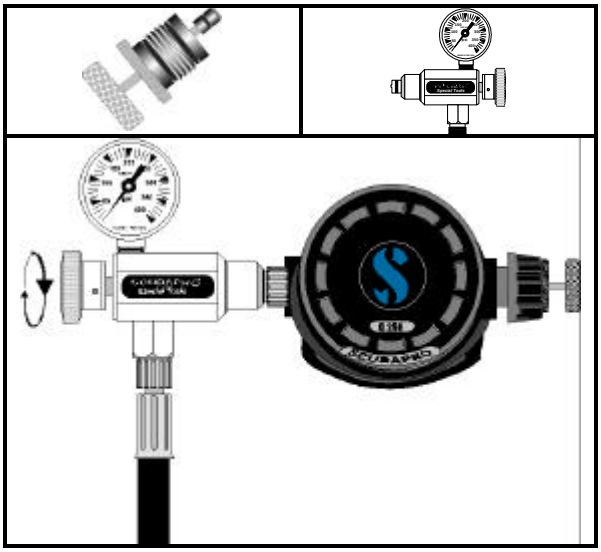
Thread out (counterclockwise) the knob plug. Install the balance chamber adjustment tool.

Attach the pneumatic adjusting tool into the second stage body and thread on the second stage low-pressure hose.

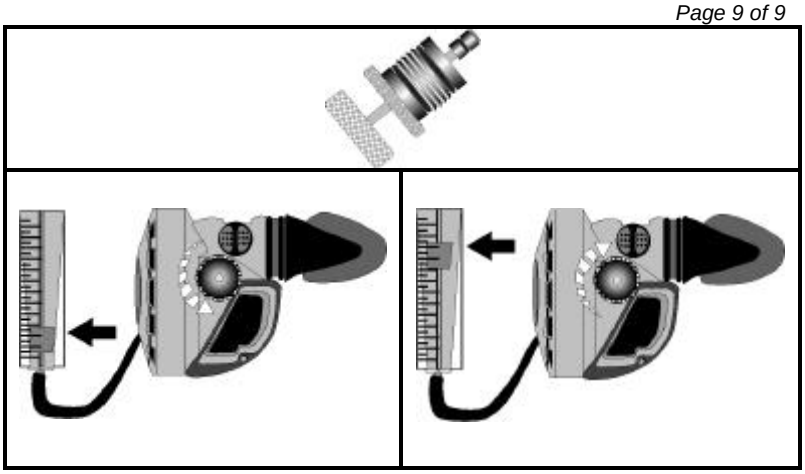




Use the pneumatic adjusting tool to make the initial air-on adjustments to the second stage, and to stop all free-flowing. The balance chamber adjustment tool will be used to fine-tune the breathing effort (next step).



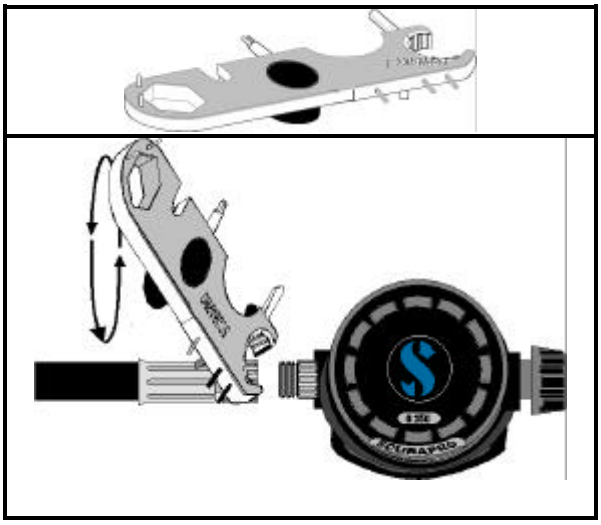




Adjusting the balance chamber counter clockwise reduces cracking effort.

Adjusting the balance chamber clockwise increases cracking effort.

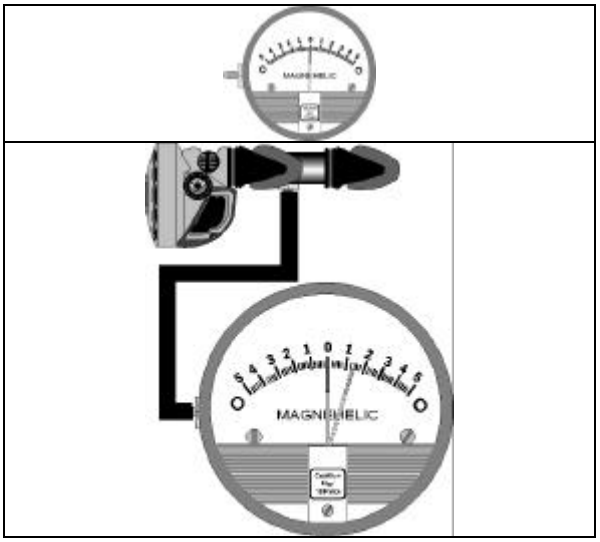




Re-install the inhalation adjustment knob plug and tighten until it is flush with the outside of the cracking effort adjustment knob.

Attach the second stage low-pressure hose and insert the cover pin.





Check the cracking effort of the regulator.

Inhalation effort range: 1.2 to 1.5 inches of water.

Exhalation range: 0.5 – 0.8 inches of water

If you have any additional questions, please contact:	***SCUBAPRO Technical Services 1-800-382-2211***