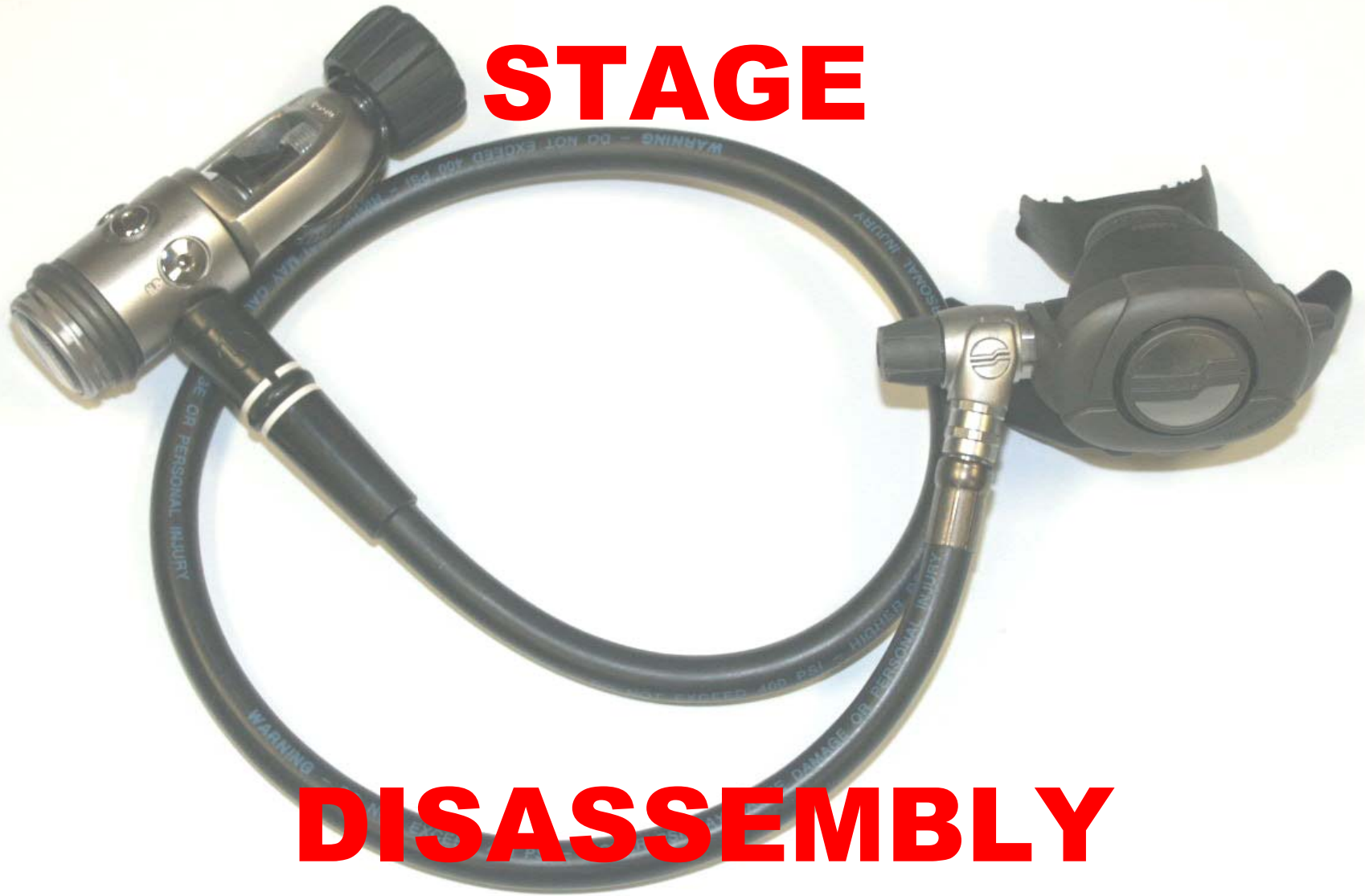


# SRB5600 SECOND STAGE

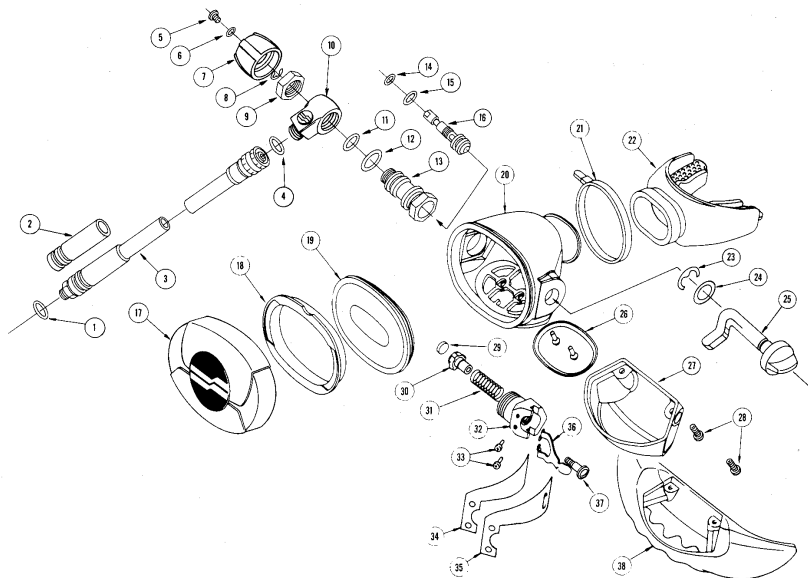


# DISASSEMBLY

## SECOND STAGE REGULATOR - MAXIMUS™ SRB5600

**NOTE:** Labels (Item 1 below) in white, purple, pink, green, blue and yellow are available.

ITEM #	CATALOG #	DESCRIPTION
1	G011B	O-ring (hose inlet end)
2	.5100-27	Hose Protector
3	.5016-20-41A	Hose Assembly (41"-84cm), includes hose protector & o-rings
4	G010A	O-ring (for hose outlet end)
5	J12C04045B	Screw (for adjuster knob)
6	.19-4600-17	Washer (for adjuster knob)
7	.5602-16	Adjuster Knob
8	.3602-35	Retaining Ring
9	1-3602-15	Nut
10	.70-5602-14	Swivel Fitting
11	G014C	O-ring (smaller o-ring for orifice housing)
12	G015C	O-ring (larger o-ring for orifice housing)
13	.71-5602-13	Orifice Housing
14	G006B	O-ring (smaller o-ring for orifice)
15	G011B	O-ring (larger o-ring for orifice)
16	.29-5602-12	Orifice
17	.5602-80	Cover Assembly
18	.5100-6	Retainer Ring
19	.3108-13	Diaphragm (blue Tufel®)
20	.5602-1	Case
21	.3786-9W	Mouthpiece Tie
22	.5602-3LS	Mouthpiece (special Wisdom® style mouthpiece for Maximus only)
23	.5602-3	Retainer Clip (for adjusting lever)
24	G106B	O-ring
25	.5602-5	Adjusting Lever
26	.3602-6A	Exhaust Valve
27	.5700-9	Exhaust Tee (black)
28	.3702-5	Screw (for exhaust tee, combination #10 Torx/slot drive)
29	.978-9BN	Seat Insert (for Stem)
30	.29-5700-1	Stem (no seat insert installed)
31	.5100-29	Spring
32	9-5100-3A	Lever Support
33	J113481874BACR	Screws (for Heat Transfer Fins)
34	.25-5700-21	Heat Transfer Fin (flat end)
35	.25-5700-22	Heat Transfer Fin (dimpled end)
36	.29-3108-3	Lever (black Teflon® coated)
37	G010A	Screw (green color Teflon® coated, with friction adhesive on threads)
38	.5700-9BK	Exhaust Tee (black)



# REMOVE AND INSPECT HOSE



Remember to inspect and replace if necessary the hose o-rings.

# REMOVE THE MOUTHPIECE



The mouthpiece is the most common cause of a wet breathing regulator.

Pay particular attention to the tie strap area of the mouthpiece when inspecting it.

This is a stress point that can develop holes and leaks.



**REMOVE THE EXHAUST  
TEE #10 TORX SCREWS**

# **REMOVE THE EXHAUST TEE**



**If the customer prefers, you can change this exhaust tee to the short exhaust tee  
part number 5100-9.**

**REMOVE THE ADJUSTMENT  
KNOB SCREW, WASHER & KNOB**



**SIZE 0 SQUARE  
DRIVE OR  
SMALL PHILLIPS**



# Orifice Recall

- A black washer is present under the adjustment knob screw indicates that this regulator has been serviced in accordance with technical bulletin number SRB56-01 and had the new orifice installed.
- Be sure to reinstall this black washer during reassembly
- A copy of this technical bulletin can be obtained at: [www.splash.co.nz](http://www.splash.co.nz) in the dealer zone



# REMOVE THE ADJUSTABLE ORIFICE C-CLIP



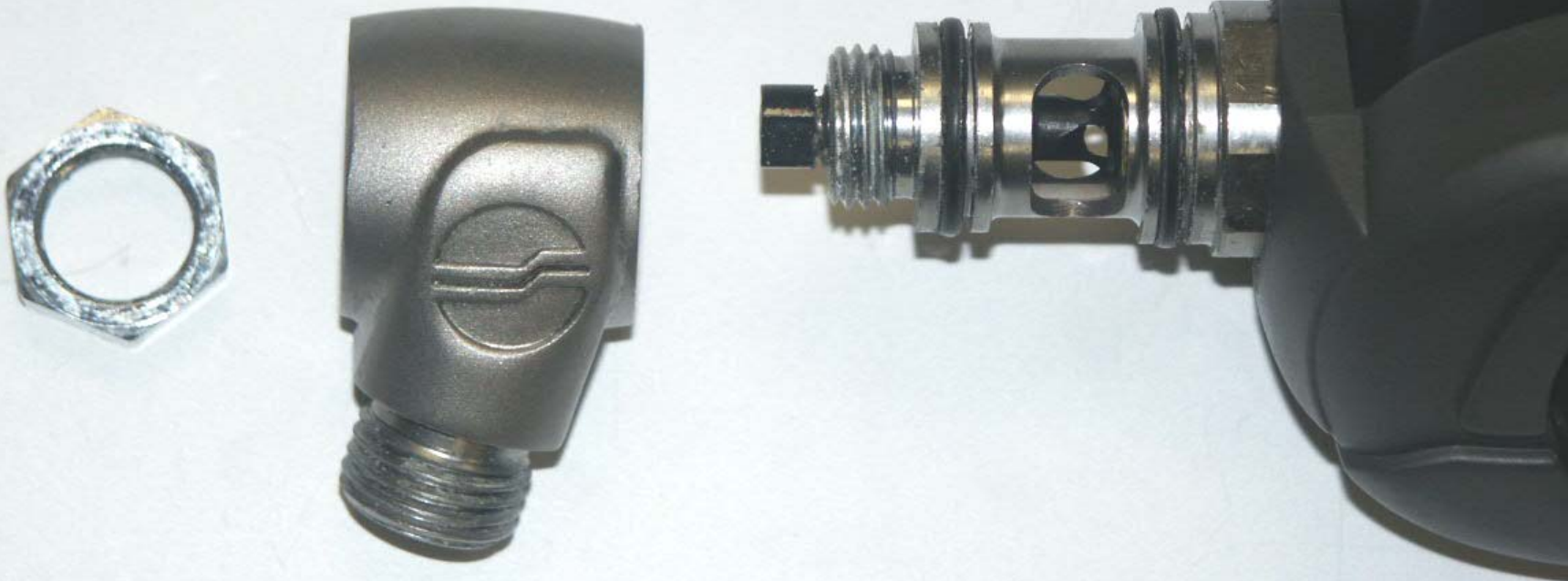
**REMOVE THE RETAINER NUT**

**Two wrenches are recommended to prevent damage to the housing.**



# **REMOVE AND INSPECT THE SWIVEL FITTING**

**Inspect the internal bore of the swivel for damage or scoring that could cause a leakage problem.**



# REMOVE THE FRONT COVER



Pinching the sides of the front cover will allow you to get a grasp of the edge and peel off the cover.

# REMOVE THE DIAPHRAGM RETAINING RING



# REMOVE AND INSPECT THE DIAPHRAGM



Lightly stretch the diaphragm between your fingers to inspect for holes.



## **2<sup>nd</sup> Stage DIAPHRAGM**

- The new blue diaphragms are made of a Tufel material.
- This material resists tearing and runs much better than the old black diaphragms.
- We have had hardly any returns of these new diaphragms. Any replacement diaphragms will be of the blue Tufel material.
- The black diaphragms are no longer available.

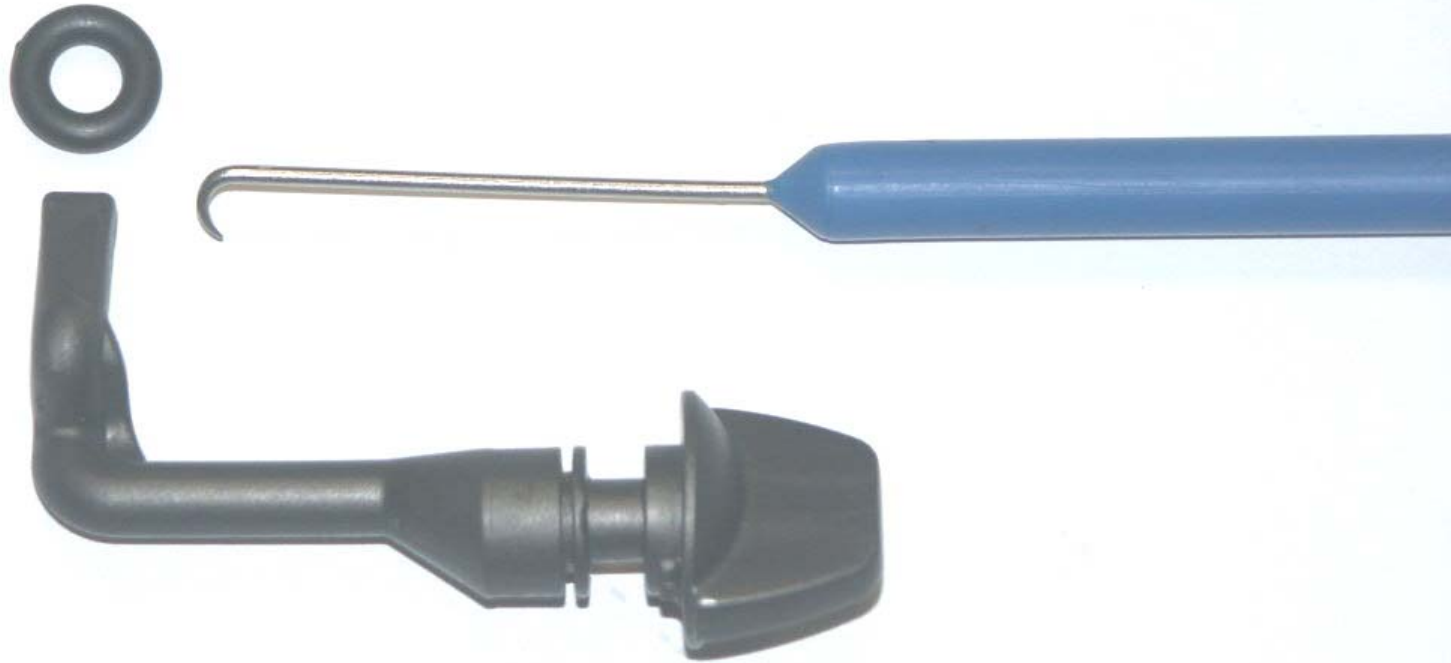
# REMOVE THE ADJUSTING LEVER AND C-CLIP





***ONLY IF NEEDED***  
**REMOVE THE ADJUSTING  
LEVER O-RING**

It is not necessary to remove the o-ring during an annual service.  
It can be cleaned, inspected and relubricated while still on the adjusting lever.



# REMOVE THE ORIFICE HOUSING



# Loctite

- The orifice housing has Loctite applied to it during assembly
- If too much Loctite was previously applied, you could damage the second stage case and heat retention fins by twisting the demand lever support inside of the case
- If you encounter this problem, you can use a  $\frac{3}{4}$  inch open end wrench to hold the demand lever support while you unscrew the orifice housing
- Be sure to clean off all of the old Loctite and only apply a small drop during reassembly.

# REMOVE THE LEVER ASSEMBLY



Be sure to closely inspect the second stage case around the lever support area for cracks. This is a high stress area and can be damaged if the regulator becomes snagged during entry or exit from the water.

**REMOVE THE LP SEAT**



# LP Seat

- During a normal annual service you do not need to completely disassemble the demand lever assembly
- If cleaning is needed, you can clean the demand lever assembly while it is still assembled, less the seat of course.
- Inspect the end of the poppet where the seat is positioned. There is a small hole designed to release any pressure from behind the seat should air become trapped during a dive. Make sure that this hole is not plugged and clean if necessary.

***ONLY IF NEEDED***  
**DISASSEMBLE THE DEMAND  
LEVER HOUSING ASSEMBLY**

Should you need to disassemble the demand lever assembly,  
this can be done with the use of the orifice housing.

Be sure that the OLD LP seat is still in the poppet and the orifice is in the housing.



***ONLY IF NEEDED***

**USING THE OLD LP SEAT,  
TIGHTEN THE ORIFICE HOUSING  
ASSEMBLY TO THE LEVER  
SUPPORT ASSEMBLY AND  
REMOVE THE DEMAND LEVER.**





***ONLY IF NEEDED***  
**REMOVE THE POPPET SCREW**

If the poppet and spring need to be removed, unscrew the poppet screw with a number 10 torx. Once this screw is removed the manufacturer recommends replacing it with a new one.



***ONLY IF NEEDED***  
**REMOVE THE ORIFICE  
HOUSING, POPPET & SPRING**

The poppet spring should last the life of the regulator and never need changing.



***ONLY IF NEEDED***  
**DISASSEMBLE THE HEAT /  
MOISTURE RETENTION FINS**



The moisture retention fins should last the life of the regulator and never need to be replaced. If they do become damaged, they can be removed with a phillips head screw driver.

***ONLY IF NEEDED***  
**USING THE OLD LP SEAT,  
REVERSE THE PROCEEDURE  
TO REASSEMBLE. REPLACE  
THE POPPET SCREW,  
P/N 73-5602-4, WITH  
A NEW ONE.**



**REINSTALL THE ADJUSTER KNOB  
AND TURN THE ORIFICE IN  
CLOCKWISE UNTIL THE THREADS  
DISENGAGE COMPLETELY.**



**PUSH THE ORIFICE OUT OF THE HOUSING. USE A SOFT INSTRUMENT IF NECESSARY.**



# REMOVE AND DISCARD THE O-RINGS

These o-rings are all included in the annual service kit.



# **INSPECT & POLISH THE ORIFICE**





**INSPECT THE EXHAUST VALVE  
SEAL**



**REMOVE AND INSPECT  
THE EXHAUST VALVE**



# **INSPECT THE CASE**

**Pay particular attention to the demand lever support area as this is a high stress area.**



# **INSPECTION & CLEANING**

***Only if necessary, clean all metal parts of the second stage in an ultrasonic cleaner or cleaning solution. See section 6.3 on page 22 of the SRB 5600 Assembly & Maintenance Guide for recommended cleaning solutions.***

***Clean the orifice separately from other parts.***

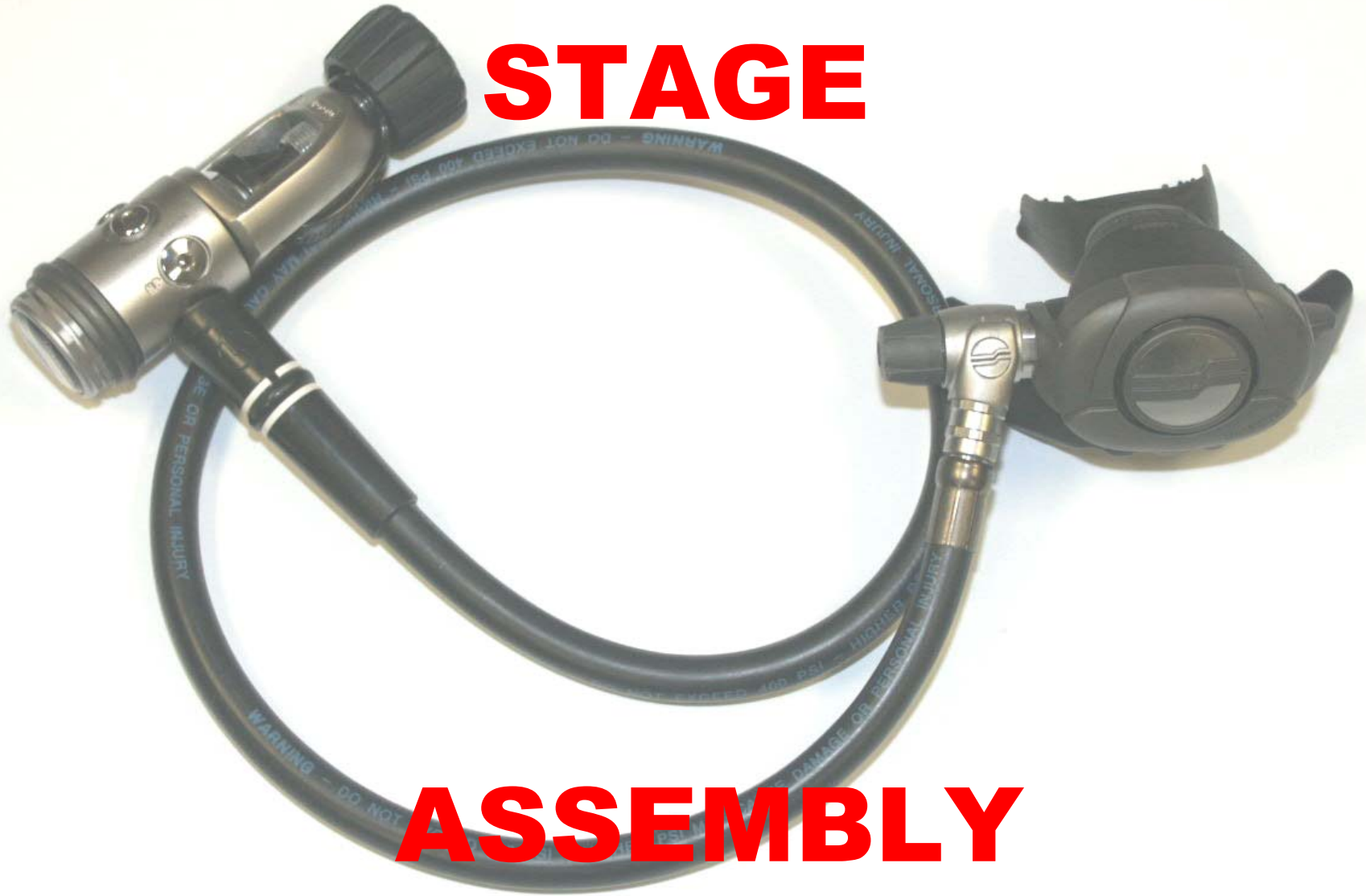
***Inspect the second stage case for any cracks. Pay particular attention to the lever support area.***

***Clean all plastic parts in warm soapy water.***

***Inspect all bores and parts for damage, corrosion, or wear and replace if necessary.***

***Replace all parts provided in the annual service kit.***

# SRB5600 SECOND STAGE



# ASSEMBLY

**INSTALL THE EXHAUST VALVE**



# **INSTALL THE NEW LP SEAT WITH THE LOGO FACING OUT**



**The 978-9BN LP seat replaces all previous seats.  
Unlike the older seats, which were cookie cut out of a sheet,  
these seats are injection molded to maintain consistency.**

**INSTALL THE NEW LP SEAT  
WITH THE LOGO FACING OUT**





# **INSTALL THE LEVER SUPPORT ASSEMBLY**



# **LUBRICATE AND INSTALL NEW ORIFICE O-RINGS**



# **INSTALL THE ORIFICE INTO IT'S HOUSING**



**Use your finger tip to install the orifice into the housing to prevent damage to the knife edge.**

**ADJUST THE ORIFICE OUT  
COUNTER-CLOCKWISE UNTIL  
IT STOPS**



**This will completely engage the threads of the orifice into the orifice housing.**

**INSTALL THE ORIFICE ASSEMBLY.  
USE A SMALL DROP OF LOCTITE  
242 ON THE ORIFICE HOUSING  
THREADS.**



**LUBRICATE AND  
INSTALL NEW ORIFICE  
HOUSING O-RINGS**



**INSTALL THE COVER ONTO THE  
CASE AND ROTATE IT OUT OF THE  
WAY**



# **LUBRICATE AND INSTALL THE SWIVEL FITTING**



**Inspect and lubricate the internal sealing surface  
of the swivel before installation.**



# **INSTALL THE RETAINER NUT**

**The use of two wrenches is recommended to prevent damage to the housing.**



A close-up photograph of a mechanical assembly. The central part is a dark, cylindrical component with a hexagonal base. A C-clip is visible, partially inserted into a groove on the side of the component. The surrounding area is a lighter, metallic surface.

**INSTALL THE C-CLIP**

**INSTALL THE ADJUSTING  
KNOB**



**INSTALL THE WASHER & SCREW  
AND USE A SMALL SMALL DROP  
OF LOCTITE 242 ON THE SCREW  
THREADS**

If the regulator had a black washer under the screw be sure to reinstall it.





**INSTALL THE  
ADJUSTING  
LEVER INTO  
THE CASE**

A close-up photograph of a mechanical assembly. The main component is a dark, possibly black, plastic or metal housing. In the center, there is a silver-colored metal shaft or pin that is partially inserted into a hole. To the left, there are blue plastic components, including a small blue pin or clip. The lighting is bright, creating highlights on the metallic surfaces and the edges of the housing. The background is plain white.

**INSTALL THE C-CLIP**

A close-up photograph of a mechanical assembly. The central focus is a circular opening with a dark, metallic-looking interior. A thin, vertical metal rod or lever is positioned inside this opening. The surrounding structure is made of dark, possibly black, plastic or metal. The lighting is bright, creating highlights on the edges of the components.

# **CYCLE THE ADJUSTING LEVER AND CHECK IT'S MOVEMENT OF THE FINS**

**The fins should move freely from side to side when the lever is turned.  
If the fins are hanging up on the bore of the mouth tube,  
remove the demand lever support  
and bend the fins sufficiently in the proper direction to correct the problem.**

**INSTALL THE DIAPHRAGM**





# **INSTALL THE RETAINING RING**

**Check for proper seating of the diaphragm.  
There should be no ripples in the diaphragm when properly installed.**



**MOVE THE COVER INTO PLACE**



# INSTALL THE EXHAUST TEE

Do not over tighten these screws.

These stainless steel screws can easily strip the thermoplastic second stage case.



**INSTALL THE MOUTHPIECE**



SHERWOOD

**390023**

# Maximus Mouthpiece

- The unique shape of the 5602-3LS mouthpiece bore works in conjunction with the adjusting lever to control the flow of air
- The diver can use another mouthpiece on the Maximus, but they must understand that the adjusting lever will no longer provide a minus function
- It will be as if the adjusting lever is always in the plus position.

# CONNECT THE HOSE



# SET-UP OF SRB5600 SECOND STAGE



**TURN THE ADJUSTER KNOB  
OUT COUNTER-CLOCKWISE  
ALL THE WAY**



**You need to have the orifice in this position to properly adjust the poppet screw.**





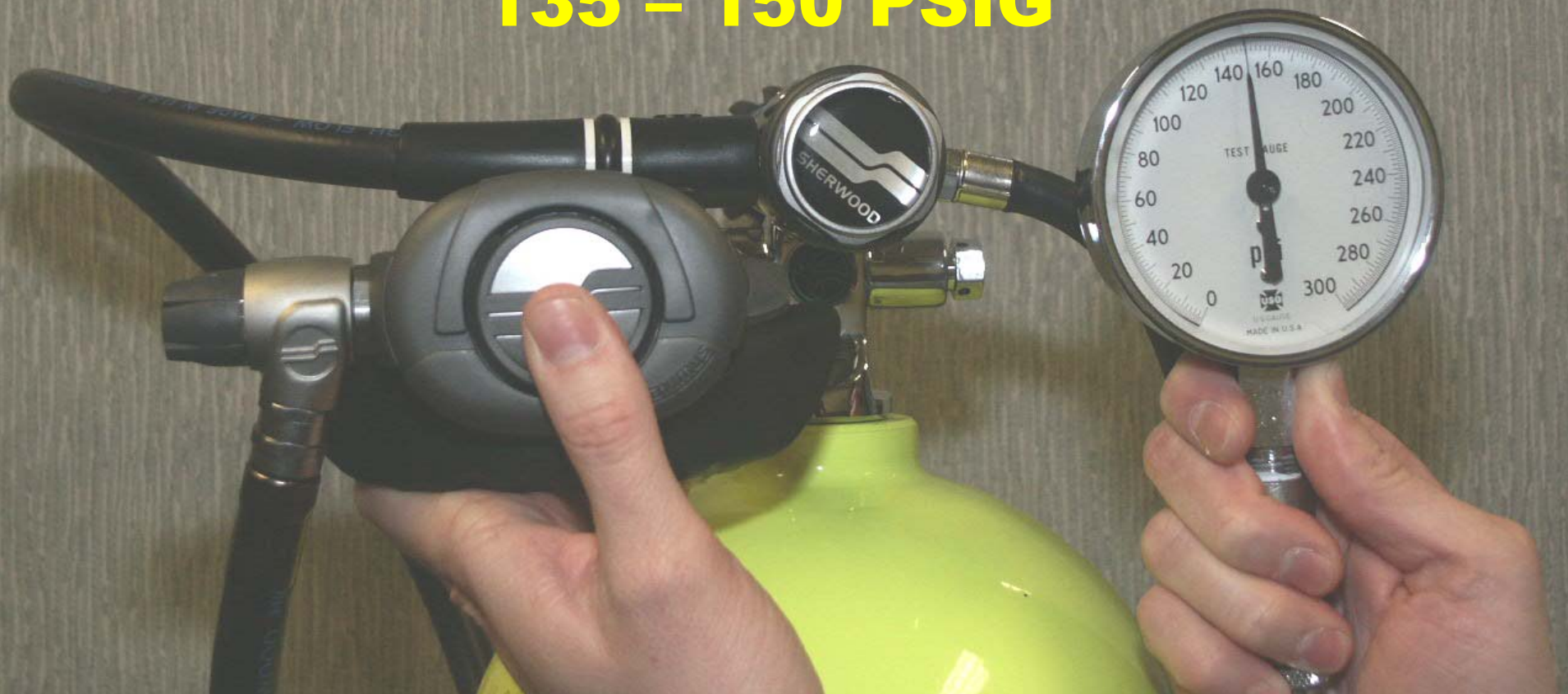
**LOOSEN THE POPPET SCREW  
UNTIL THE DEMAND LEVER HAS  
1/16" OF FREE MOVEMENT**

1/16" of free movement of the demand lever means  
that the poppet seat is fully against the orifice.  
This way when the air is turned on there will not be an instant free flow.

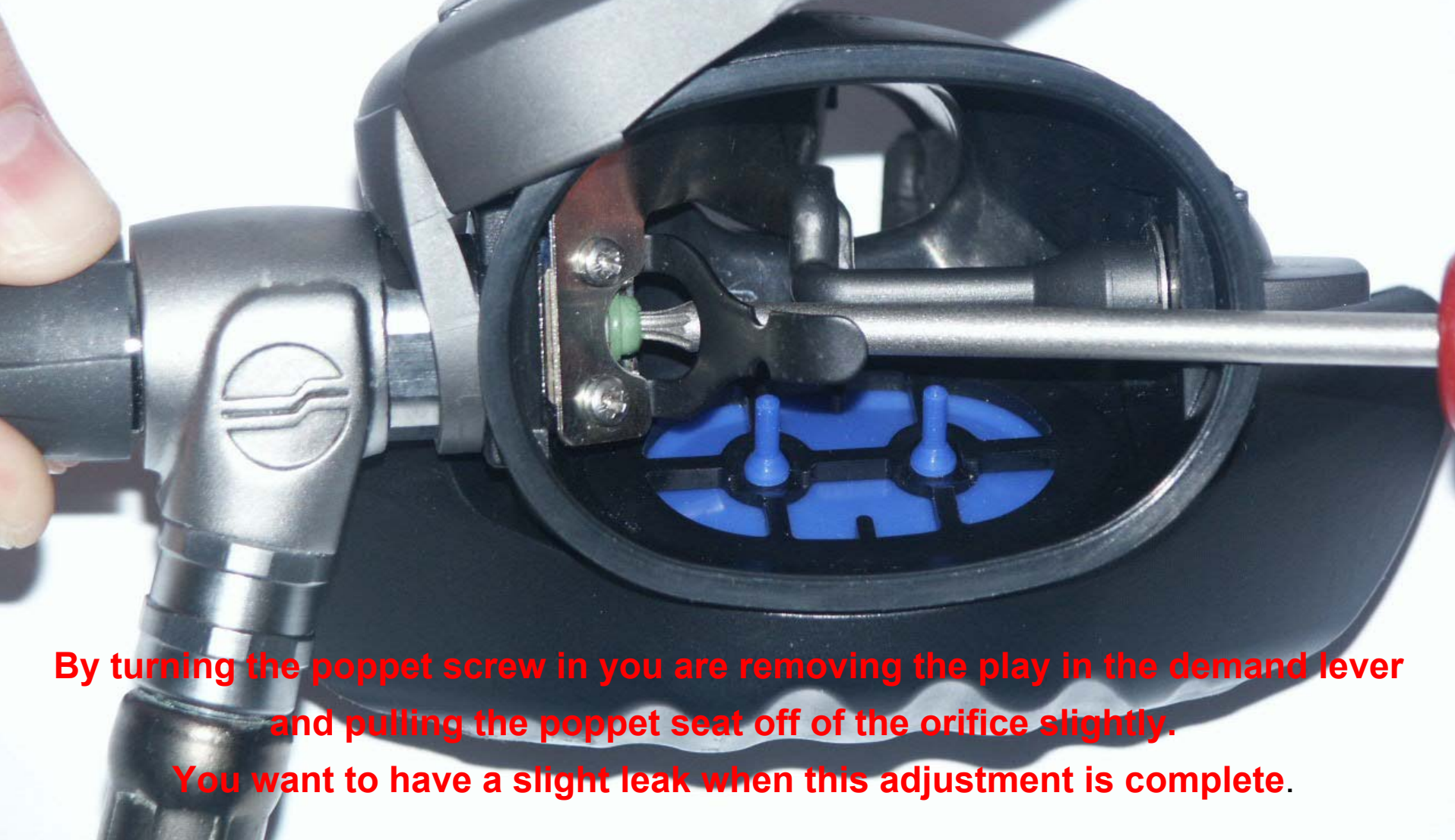
**CONNECT THE SERVICE FIRST  
STAGE TO A CYLINDER  
CONTAINING 2700 TO 3500 PSIG**



**INSTALL AN INTERMEDIATE  
PRESSURE GAUGE, SLOWLY  
TURN ON THE AIR AND VERIFY  
THE INTERMEDIATE PRESSURE  
135 – 150 PSIG**



# **ADJUST THE POPPET SCREW IN UNTIL A SLIGHT LEAK IS HEARD**



**By turning the poppet screw in you are removing the play in the demand lever  
and pulling the poppet seat off of the orifice slightly.**

**You want to have a slight leak when this adjustment is complete.**

**SLOWLY TURN THE ADJUSTER  
KNOB CLOCKWISE. THE HISSING  
SHOULD STOP BETWEEN 1/8 AND  
1/4 TURN.**

**With the regulator adjusted to this setting the diver  
will have a full range of adjustment.**

**The diver can adjust from a slight free flow to  
difficult to breathe but not impossible.**



**TURN THE ADJUSTER KNOB IN  
COMPLETELY AND TEST THE  
BREATHING**



**With the adjustment knob turned all of the way in completely clockwise,  
it should be difficult to breathe but not impossible**

**TEST THE PURGE AND  
LEVER HEIGHT**



# Purge and Lever Height

- Using the diaphragm as the measurement tool, there should be a slight gap between the lever and the diaphragm
- If you install the diaphragm after the initial set up and the regulator begins to free flow, the lever is too high
- If the gap is too big, you hear a clicking when you breathe on the regulator, and there is little or no purge, the lever is too low



**IF LEVER BENDING IS  
NEEDED, USE THE LEVER  
BENDING TOOL, P/N TL123**



# Bending the Lever

- It is important that you hold the mid-section of the lever when bending to prevent damage to the lever feet
- If the feet are bent the lever should be changed because this affects the variable fulcrum
- The proper bending point is at the two indentations just below the lever tip

## 2.0 SPECIFICATIONS

### 2.1 SPECIFICATIONS FOR THE SRB5600 MAXIMUS

# BENCH TEST THE SECOND STAGE AND / OR RETEST THE BREATHING

REGULATOR MODEL: Sherwood SRB5600 Maximus  
AIR FLOW: 33 cu. ft. (935 liters)/min. @ 1 atmosphere  
INHALATION RESISTANCE: .9" - 1.5" (2.3 - 3.8 cm) w/c @ 1 atmosphere (adjustable)  
EXHALATION RESISTANCE: 0.7" (1.8 cm) w/c maximum  
RECOMMENDED LUBRICANT: Christo-Lube MCG111 (Sherwood p/n SW-MS150)

#### A. First Stage Regulator:

TYPE: Flow-by piston with Moving Orifice Balancing, Dry Air Bleed, and Air Sensing Channel Boost – **U.S. Pat. # 4,226,257, U.S. Pat. #5,662,100**

WEIGHT: 1 lb. 11 oz. (.77kg)

INTERSTAGE PRESSURE: 135 -150 psi (9-10 bar)

MAXIMUM INLET PRESSURE: 300 bar ( with 300 bar DIN adapter )

POSITIVE AIR PURGE

FLOW RATE: 13-27 cc/minute

# LOW PRESSURE PORTS: 5 (3/8"-24 UNF)

# HIGH PRESSURE PORTS: 2 (7/16"-20 UNF)

MATERIALS: Body – CDA-36000 Brass  
O-rings – Buna-N (Viton Nitrox o-ring kit available)  
Bleed Valve – Ethylene Propylene  
Piston Seat – Teflon®

#### B. Second Stage Regulator:

# SEE PAGE 3 OF THE REPAIR MANUAL FOR SPECIFICATIONS

TYPE: Downstream valve diaphragm, variable volume  
**U.S. Pat. #3,917,676** (other Pat. pending)

WEIGHT: 7.1 oz. (.22 kg) ( w/o hose)

HOSE LENGTH: 36 in. (91 cm)

MATERIALS: Case – Thermoplastic  
Poppet Seat – Buna-N  
O-Rings – Buna-N  
Diaphragm – Tufel® (clear blue)  
Exhaust Valve – Thermoplastic elastomer (blue)  
Mouthpiece – Liquid Silicone

**FINALLY, ATTACH A SMALL  
PONY BOTTLE OR WHIP WITH A  
SCUBA BLOCK TO THE REGULATOR  
AND TEST FOR LEAKS**

