



Technical Manual



Connection ACD Legend (Din & Yoke)

index

COPYRIGHT.....	3
INTRODUCTION.....	3
WARNINGS, ATTENTION, NOTE	3
MAINTENANCE.....	3
GENERAL INSTRUCTIONS	3
GENERAL CONVENTIONS.....	4
Disassembly / reassembly yoke connexion.....	5
Disassembly / reassembly Din Connexion	7
List of tools and service kits	10
Cleaning and lubricating	
Exploded views	

COPYRIGHT

This manual is the property of Aqualung France. Any copying, photocopying, reproduction, translation, electronic distribution (email, Internet...), even partial, and in whatever format, is expressly forbidden without the written consent of Aqualung France.

©2005 Aqua Lung France.

INTRODUCTION

This manual gives the instructions and the recommendations for the disassembly, the cleaning, the checking, the reassembly and the adjustment of an Aqualung regulator. This manual is not an instruction manual for unqualified personnel. The procedures described in this manual are intended only for qualified personnel who have been trained in the servicing of Aqualung equipment during a specialised course.

If you do not understand certain procedures in this manual you should contact an Aqualung service consultant before undertaking any operation.

WARNINGS, ATTENTION, NOTES

Certain icons have been used to facilitate the reading and understanding of this manual. They have the following meanings :



WARNING: Indicates situations that could result in serious or fatal accidents if the advice given is not followed correctly.



ATTENTION: Indicates a situation or action that could cause serious damage to the product, making it dangerous if the advice given is not followed correctly.



NOTE : Notes are used to emphasize important points as well as information which needs to be remembered.

MAINTENANCE



Attention: Whatever the number of dives carried out during a year, the regulator should receive a complete service each year. If the regulator is used in a chlorinated or aggressive environment the service period should be reduced to six months.

In order to conform with the Aqualung Regulator Lifetime Guarantee, all servicing (inspection, servicing and repairs) should be recorded in the Service Record incorporated in the regulator User Manual.

GENERAL INSTRUCTIONS

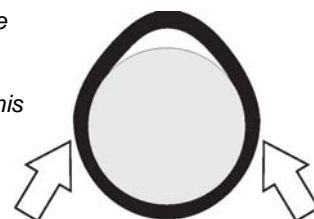
1. In order to carry out the procedures described in this manual correctly it is important that you follow the steps in the exact order indicated. Read the manual through completely so that you become familiar with all the procedures, the special tools and the replacement parts, before starting to disassemble the product. Keep this manual open near to you so that you can refer to it step by step. Do not rely on your memory..
2. All servicing and repair procedures should be carried out in a workshop that is clean, well lit, easy to access and specially fitted for the purpose.
3. The regulator body should never be directly held in the jaws of a vice. To hold the body, screw the tool 006230 into the HP port and then grip the tool with the vice.
4. Once the regulator has been disassembled, the re-usable components should be separated from the components that need to be replaced. Fragile items with seats or crowns with critical sealing surfaces should be separated and protected during servicing in order to prevent any damage.
5. Use only spare parts from Aqualung service kits. Never replace an Aqualung part with one from another manufacturer, even if it appears similar.
6. Never re-use regulator parts which should be replaced on the pretext that the regulator has seen little use since its manufacture or since its last service.
7. When reassembling, check that the torque used conforms with that shown in Table 4, Torque. Some parts can be irretrievably damaged if the acceptable torque is exceeded.

GENERAL CONVENTIONS

The conventions described below define the actions to be carried out when an instruction is given.

1. **Unscrew:** to unscrew a threaded part, turn it anti-clockwise.
2. **Screw:** to screw a threaded part, turn it clockwise.
3. **Remove the O-ring:** To remove an O-ring follow the method below, using the special tool provided for this purpose. Any tool that could damage the O-ring should be avoided. In every case, replace the O-ring removed with a new one.

Press simultaneously on the two sides of the O-ring in order to form an 'eye'. Insert the special tool into this eye to remove the O-ring.



LP: Low Pressure
MP: Medium Pressure
HP: High Pressure

4. Numbers in brackets indicate the part number of the component shown on the exploded view attached.

DISASSEMBLY PROCEDURE



Note: Before commencing disassembly, consult the exploded view to check the reference numbers of all parts requiring replacement. These parts should all be replaced by new parts and should not be re-used on the pretext that the regulator has seen little use since its manufacture or since its last service.



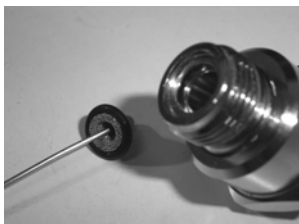
Attention: Use only the special tool when removing O-rings in order to avoid damaging the seal recess. The slightest scratch on a sealing surface could cause a leak. If a surface should be damaged then this part should be replaced with a new one. Do not use any pointed instrument or metal tool to remove O-rings.

Yoke Connection (see Exploded view : 129220)

1. Thread a vise-mounting tool into one of the ports. Securely clamp tool into vise with yoke connection facing up. Remove the yoke screw and dust cap. Using a large crescent wrench, remove the inlet fitting. Remove the body from the vise. Remove the tool from the body.



2. remove the filter and the o-ring (35) with the seat extraction tool



3. With the yoke retainer (35) placed into the yoke, compress the plastic dust cap between the yoke retainer and the yoke screw, carefully clamp the yoke retainer in a vise by the wrench flats. With a 3 mm Allen key, turn **clockwise** to unscrew the yoke shutter valve (32).



4. Remove the yoke screw and the dust cap to disassemble the ACD valve. Remove the spring (34), the o-ring (33), the shutter valve (32), and the o-ring (28), inside the groove of the shutter crown.



End of the disassembly of the yoke connection



Before starting to re-assemble the regulator, make sure that all replacement parts have been cleaned and lubricated in accordance with **Procedure A : Cleaning and Lubricating**.

Re-assembly procedure (Yoke connection)



1. Fit a new o-ring into the groove, (use the plastic end of the seat fitting tool to help) and lubricated it.



2. Install the shutter valve (32) inside the shutter crown (31), then fit in a lubricated o-ring (33).



3. Install the spring (34) into the yoke retainer (35)



4. Place the shutter crown (31) onto the spring, put the sub-assembly into the yoke.



5. Install the dust cap between the yoke and the shutter crown, then tighten the yoke screw (30) so that the spring is compressed.



6. Stop tightening when the crown is set in this position. In this position the yoke screw becomes hard to turn.

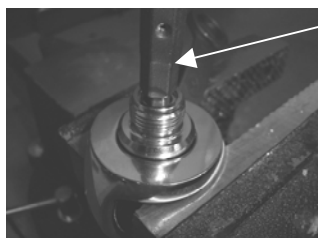


7. Position the yoke retainer with threads facing upward, using a 3mm allen key, turn counter-clockwise 3 full turns.

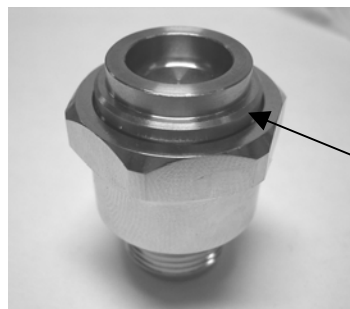


Tighten the yoke screw again, so that dust cap is snug against the yoke retainer

Clamp the yoke retainer (35) by the two wrench flats into a vise.



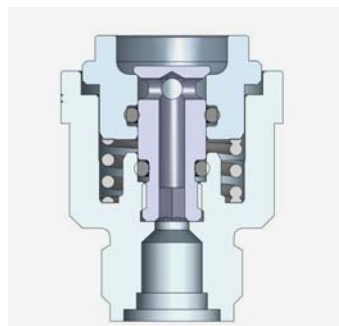
Using a torque wrench and a 3mm allen key adapter, torque the yoke shutter valve (32) to 18 in.lbs (or 0.2 m.daN).



8. remove the assembly from the vise, remove the yoke screw (30)

Check that the shutter crown shoulder is about 1.5 mm (0.4 inches) above the retainer.

Push down with your finger against the Crown shutter to confirm the ACD works.



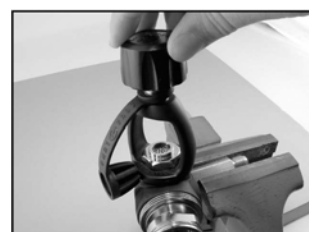
9. Turn over the sub assembly and fit in a new o-ring (28) and a new filter (36).

10. While holding the body in an inverted position, thread the yoke / retainer subassembly up, into the body until snug.

Using a vise-mounting tool, install the regulator into a bench vise. Using a torque wrench with the Aqua Lung A11001 socket, tighten the inlet fitting to 18 ft/lbs (2.5m.kg).



11. Install the dust cap on to the yoke screw so that the Aqua Lung logo faces outward. Thread the yoke screw into the yoke.



End of the assembly ACD yoke
For the rest of the first stage assembly,
see the Legend technical manual.

Din Connection

(see exploded view P/N 129225)



1. Take a Din / Yoke adapter (p/n 125237) and thread it onto the hand wheel . Thread a vise-mounting tool into one of the ports. Securely clamp tool in vise with DIN hand wheel facing up .



2. Using a 3 or 4mm allen key, remove the DIN shutter valve (38)



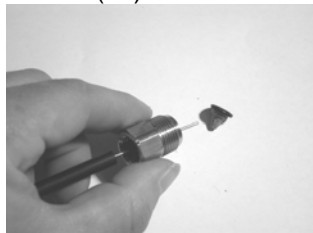
3. Unscrew the adapter.
remove the
spring (34) and
the shutter
crown (35)



4. Using a 7/16 socket, remove the DIN screw (32)



5. Remove the DIN Handwheel, then unscrew the filter holder. (29)



6. Using a seat extraction tool, push out the filter (30) and the o-ring (28), remove the o-rings (36),(37) and (33)

End of the disassembly of the Din ACD connection



Before starting to re-assemble the regulator, make sure that all replacement parts have been cleaned and lubricated in accordance with **Procedure A : Cleaning and Lubricating** .

Re-assembly procedure (Din connection)



1. Fit in a new and lubricated o-ring (37) and (36) into the grooves of shutter crown (35) .



2. Fit in a new and lubricated o-ring (33) on the DIN screw (32)



3. Screw the Din screw (32), through the handwheel (31), into the filter holder (29). help with a 7/16" socket, if you cannot screw it with your finger.



4. on top of the filter holder(29), install a new o-ring (28) , then insert a new filter (30).



5. Hold the body with the entry downwards, thread the subassembly into the body with a 7/16 socket.

Using a vise-mounting tool, install the regulator into a bench vise.

Using a torque wrench with a 7/16" socket, tighten the hand wheel subassembly to 2.5 m.daN. (or 18 ft.lbs)



6. Place the spring (34) into the hand wheel, set the shutter crown (35) with its associated o-ring onto the spring.



7. Thread a Din / yoke adapter on to the hand wheel so that the spring gets compressed.



8. Using an allen key, install the Din screw. Use a torque screwdriver to tighten it to 0.2 m.kg.(18 in.lbs)




9. Remove the adapter. Remove the regulator from the vise. Remove the vise-mounting tool.

End of Assembly of the ACD Din connection



For the rest of the first stage assembly, see the Legend technical manual.

Table 2. List of tools and service kits

REF	DESCRIPTION	APPLICATION	US PART NO.
N/C	O-ring tool	Fitting and removing o-rings	944022
116236	Seat fitting tool 	Filter disassembly / o-ring assembly	109436
116230	Holding tool 	For holding first stage in vice	100395
A11001	Socket wrench 	Socket wrench tightening seat	111001
122154	Torque wrench (2.5 m.kg)	Seat	n/a
122153	Torque screwdriver	Shutter valve	n/a
N/C	3 and 4mm allen keys for torque screwdriver	Shutter valve	
N/C	Adjustable wrench	Disassembly	n/a
N/C	4 mm and 3 mm allen keys.	Disassembly	n/a
N/C	7/16 Socket	Din connexion	n/a
125237	Din /Yoke adapter	Din connexion	n/a

129231	Service kit HP Legend / LX ACD	For HP Legend ACD (yoke or Din)	
129229	Service kit Legend / LX ACD	For Legend ACD (yoke or Din) First and second stage (all versions ... LX, Supreme/ Glacia ...)	

Table 3. Recommended cleaners and lubricants

LUBRICANT / CLEANER	APPLICATION	SOURCE
Christolube MCG 111	All O-rings	Aqualung, ref. 480025
<div>  <p>Attention: Silicone parts do not require lubrication. Do not grease them. Greasing silicone parts can change their molecular construction and cause premature degradation of the material.</p> </div>		
Oakite #31	Acid bath for cleaning brass and stainless steel parts.	Oakite Products, Inc.
NETALU	Acid bath for cleaning brass and stainless steel parts.	Aqualung, ref. 455001
Diluted white vinegar	Acid bath for cleaning brass and stainless steel parts.	Household stores
<div>  <p>Attention: Do not use hydrochloric acid for cleaning parts. Hydrochloric acid, even when well diluted, attacks the coating of metal parts and leaves a corrosive deposit that damages plastic parts and O-rings.</p> </div>		
Washing-up liquid (diluted with hot water)	Degreases brass and stainless steel parts; general cleaning of plastic and rubber parts.	Household stores

Procedure A

Cleaning and Lubricating

(All Aqualung Regulators)

Cleaning brass and stainless steel parts.

1. Pre-clean by soaking in NETALU diluted to 25%.
2. Cleaning in an ultra-sonic bath filled with a mixture of washing-up liquid + hot water. If some resistant deposits remain then fill the ultrasonic bath with white vinegar and repeat. DO NOT put plastic, rubber, silicone or anodised aluminium parts in contact with vinegar.
3. Rinse in demineralised or fresh water to avoid calcium deposits. Soak for 10 minutes. Dry with filtered low pressure air and then check that their condition is now suitable for re-use.

Cleaning plastic, rubber and anodised aluminium parts.

For anodised aluminium parts : soak in a « NETALU diluted to 25% ». Rinse in fresh water and dry with low-pressure filtered air.
For plastic parts. (casings, plugs..) : clean in an ultrasonic bath containing a mixture of washing-up liquid and hot water. Use only a toothbrush with nylon bristles to remove any deposits. Rinse in fresh water and dry with low-pressure filtered air



Attention: Do not place plastic and rubber parts in contact with acid solutions. This could alter their physical properties and cause degradation and premature breakdown.

Cleaning parts for Nitrox/O2 use.

1. Metal parts : Pre-clean by soaking in NETALU diluted to 25%.
2. Ultrasonic cleaning in Promoclean TP108 diluted at 5% .
3. Rinse in demineralised water. Soak for 10 min.
4. Dry in the open air in a clean and dust-free atmosphere. Place the parts on a white cloth, allow to dry and check after drying that the cloth shows no grease deposits and that the condition of the parts is appropriate for re-use with Nitrox/O2.

Cleaning hoses.

If there is significant corrosion then it is permissible to soak only the ends in an ultrasonic bath, avoiding any possibility of the solution entering the hose. Rinse in fresh water and allow to dry with the connections hanging down. Dry the inside with filtered compressed air before reconnecting the hose to the regulator.

Wiping.

To wipe parts, use a white filter paper, a pure cotton cloth or any other material that **does not produce fluff.**

Inspection.

Visually check under a white light (day light or artificial light).
The parts are completely free of any traces of :

1. organic materials (oil, grease, paint, rust...)
2. cleaning agents
3. dust
4. humidity

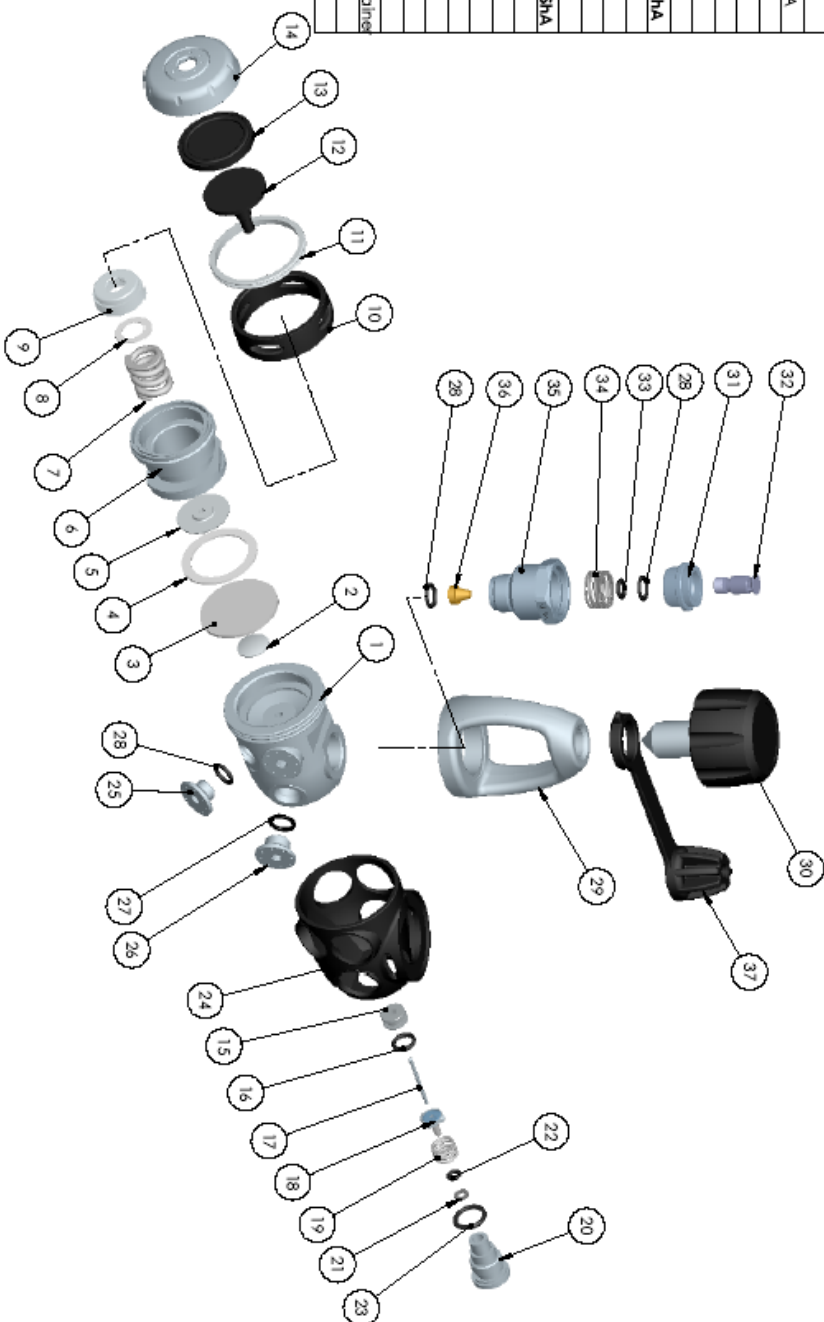
Lubrication.

When handling O-rings wear unpowdered latex gloves. It is important not to allow contact between the internal components and the skin or any other source of contamination when the regulator is being prepared for Nitrox use. All seals should be lubricated with Christolube MCG111. Cover the seals with a light film of grease and remove any excess by rolling the seal between finger and thumb. Do not use an excess of grease, this can have the effect of accumulating particles which could damage the O-rings.

Exploded view : yoke ACD Legend

No	Reference	Clé	Désignation	Description
1	129111	1	Corps	Body
2	129121	1	Poussoir	Pn support
3	119159	1	Diaphragme	Diaphragm
4	119143	1	Rondelle	Washer
5	124560	1	Embase ressort	Spring pad
6	129122	1	Chambre sèche	Dry chamber
7	119156	1	Ressort	Spring
8	H45057	1	Rondelle	Washer
9	122805	1	Vis de réglage	Adjusting screw
10	129128	1	En tretoise	Spacer
11	129127	1	Bague à olivette	Ribbed washer
12	129123	1	Pétion	Petion
13	129126	1	Membrane	Diaphragm
14	129196	1	Bouchon chromé brillant	Bright plated plug
15	122224	1	Sidje	Crown
16	124704	1	JT 1,9x7,2 EPDM 80SHA	OR 1,9x7,2 EPDM 80SHA
17	A02002	1	Anguille	Pn
18	124674	1	Clapet HP	HP seat
19	122244	1	Ressort	Spring
20	129120	1	Bouchon	Plug
21	119129	1	Bague anti extrusion	Anti extrusion washer
22	124612	1	JT 1,78x2,9 EPDM 90SHA	OR 1,78x2,9 EPDM 90SHA
23	213714	1	JT 2x11 EPDM 80SHA	OR 2x11 EPDM 80SHA
24	129112	1	Protecteur	Housing
25	129119	3	Bouchon MP	HP plug
26	129118	2	Bouchon HP	HP plug
27	124701	2	JT 1,78x7,4 EPDM 80SHA	OR 1,78x7,4 EPDM 80SHA
28	124703	5	Bague	O-ring
29	124611	1	Ether chromé brillant	Bright plated yoke
30	124148	1	Vis d'ether	Yoke screw
31	129205	1	Sidje Obstruteur Ether	Yoke Shutter Crown
32	129207	1	Nez Obstruteur Ether	Yoke Shutter V dive
33	473056	1	Bague	O-ring
34	129204	1	Ressort ACD	ACD spring
35	129212	1	Sidje d'filter Legend ACD	ACD legend Yoke retaining
36	129209	1	Filter Legend ACD	ACD legend filter
37	124555	1	Bouchon d'ether	Dust cap

Les composants notés en gras sont inclus dans le kit d'entretien
Part numbers in bold are included in the service kit



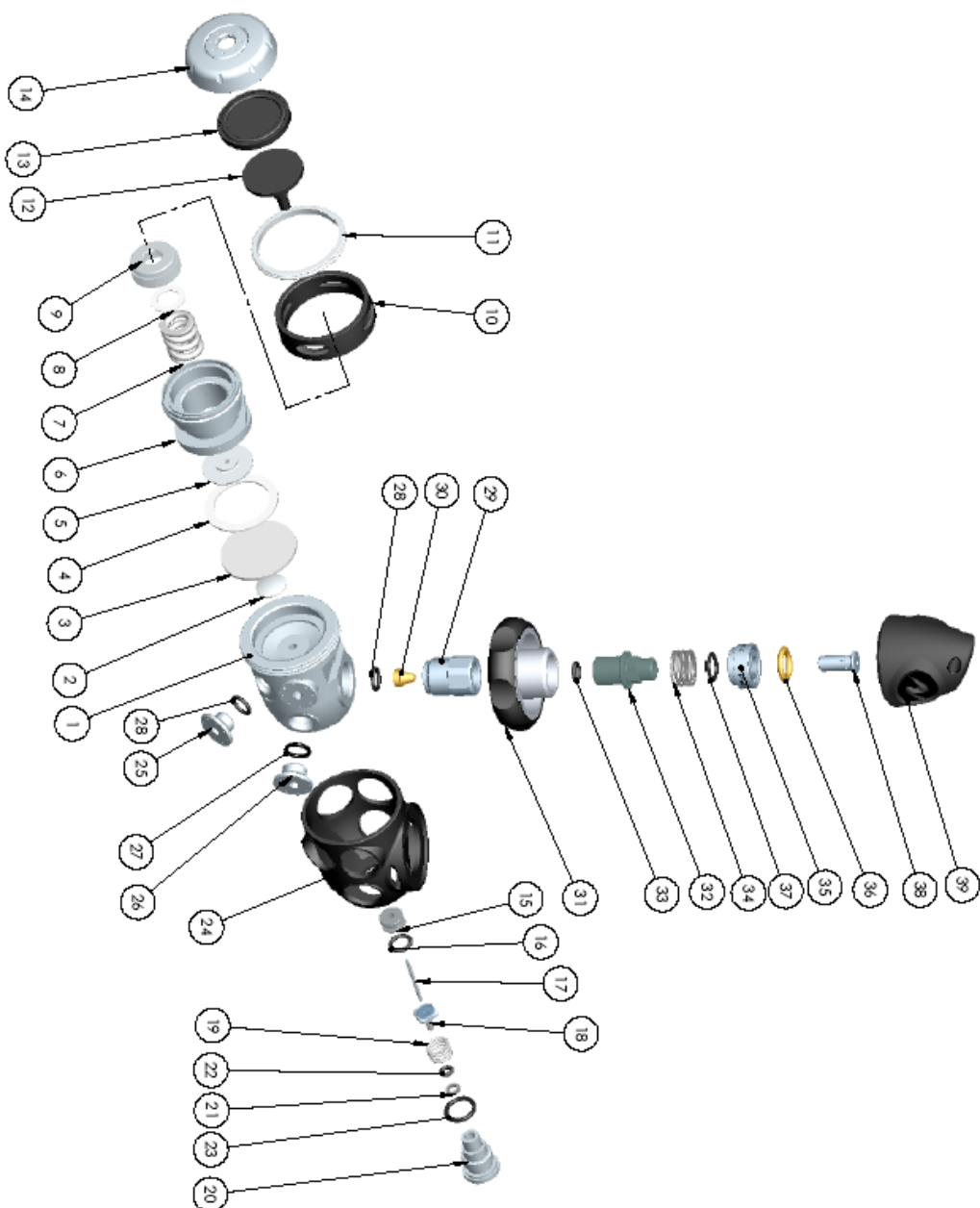
Can plan will be profitable of Aquadung. I me don't like ni copie ni illud some cautionation dectile of Aquadung. This drawing is confidential. It shall not be copied or disclosed without the written consent of Aquadung.

[illegible]

Exploded view : Din ACD Legend

No	Reference	Q6	Désignation	Description
1	129 11	1	Corps	Body
2	129 21	1	Poussoir	Pin support
3	119 159	1	Diaphragme	Diaphragm
4	119 143	1	Rondelle	Washer
5	124 5 60	1	Embase ressort	Spring pad
6	129 22	1	Chambre sèche	Dry chamber
7	119 1 56	1	Ressort	Spring
8	H45 097	1	Rondelle	Washer
9	122 805	1	V de réglage	Adjusting screw
10	129 1 28	1	Entroîse	Spacer
11	129 1 27	1	Bague à aléthes	Ribbed washer
12	129 23	1	Piston	Piston
13	129 126	1	Membrane	Diaphragm
14	129 196	1	Bouchon chromé brillant	Bright plated plug
15	122 224	1	Séage	Crown
16	124 704	1	JT 1,9x7,2 EPDM 80SH A	OR 1,9x7,2 EPDM 80SH A
17	A02002	1	Anguille	Pin
18	124 624	1	Clopet HP	HP seal
19	122 244	1	Ressort	Spring
20	129 1 20	1	Bouchon	Plug
21	119 129	1	Bague anti extrusion	Anti extrusion washer
22	124 612	1	JT 1,78x2,9 EPDM 90SH A	OR 1,78x2,9 EPDM 90SH A
23	213 714	1	JT 2x11 EPDM 80SH A	OR 2x11 EPDM 80SH A
24	129 1 12	1	Protecteur	Hoisting
25	129 1 19	3	Bouchon MP	HP plug
26	129 1 18	2	Bouchon HP	HP plug
27	124 703	2	JT 1,78x8,74 EPDM 80SH A	OR 1,78x8,74 EPDM 80SH A
28	124 703	4	Bague	O-ring
29	129 2 14	1	Porte filtre Legend ACD	ACD Din filter holder
30	129 209	1	Filtre Legend ACD	ACD Legend filter
31	129 2 15	1	Valant DIN Legend ACD	Din Legend ACD handwyne
32	129 2 13	1	Vs DIN ACD Legend	DIN screw ACD Legend
33	444 243	1	JT 1,78x 07 EPDM 80SH A	OR 1,78x 07 EPDM 80SH A
34	129 204	1	Ressort ACD	ACD spring
35	129 203	1	Séage d'Obturbateur Din	Din shutter crown
36	124 709	1	Bague	O-ring
37	473 5057	1	Bague	O-ring
38	129 202	1	Néiz Obturbateur DIN	DIN Shutter Valve
39	129 2 16	1	Bouchon ACD DIN	Din ACD Cap

Les composants notés en gras sont inclus dans le kit d'entretien
Part numbers in bold are included in the service kit



Ce plan est propriété d'Aquarius. Il ne doit être ni copié ni diffusé sans autorisation écrite d'Aquarius. This drawing is confidential. It shall not be copied or disclosed without the written consent of Aquarius.

			Dilution	HP LEGEND ACID DIN	Value: HP	Unit:
			Description	LEGEND DIN ACID 1 st STAGE	DOE E.C. LABOR'S Laboratory - BP LAB DOE E.C. LABOR'S Laboratory - BPOHCE Phone: (03) 69 8822199	
			Notice	-----		
			Date	18/07/05		
No	Date Modified	Invd			AQUA LUNG	129224



1ere Avenue – 14^e rue – BP 148
06513 CARROS cedex – France
☎ 00.33.(0)4.92.08.28.88
FAX 00.33.(0)4.92.08.28.99