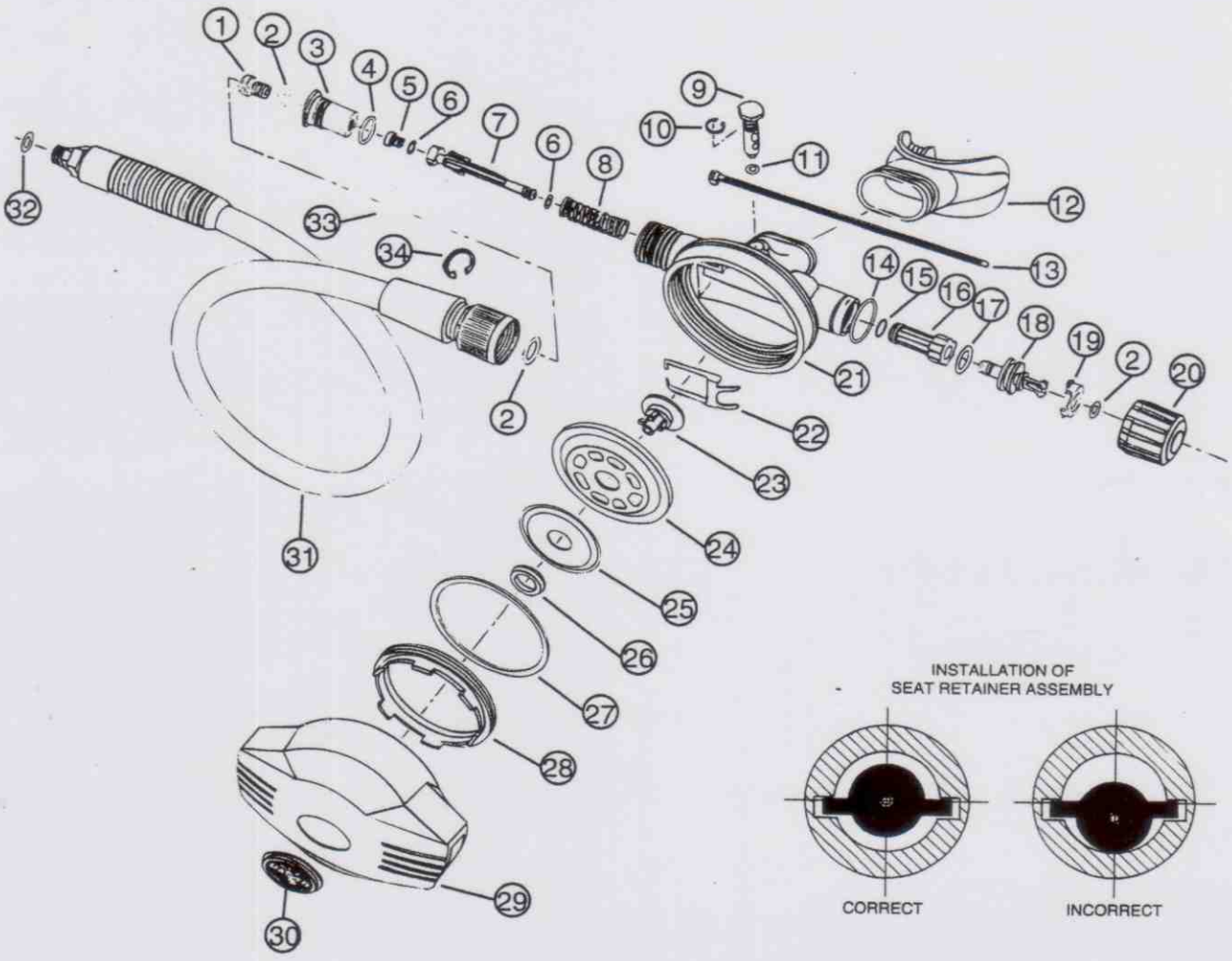
#	QTY	PART #	KEY	DESCRIPTION
1	1	0182-87		VALVE SEAT
2	3	0060-02	❶	O-RING
3	1	0182-88		ADAPTOR, VALVE SEAT
4	1	0060-22	❶	O-RING
5	1	0226-01	❶	L.P. SEAT
6	2	0060-61	❶	O-RING
7	1	0624-97		SEAT CARRIER
8	1	0040-77		SPRING, PNEUMATIC
9	1	0624-98		FLOW TUBE, ADJUSTABLE
	1	0625-78		FLOW TUBE, NON-ADJ. OCTO
10	1	0250-22	❶	RETAINING RING
11	1	0060-16	❶	O-RING
12	1	0300-67		MOUTHPIECE
13	1	0310-11	❶	CLAMP
14	1	0061-11	❶	O-RING
15	1	0061-02	❶	O-RING
16	1	0626-81		BALANCE CHAMBER
17	1	0060-96	❶	O-RING
18	1	0624-95		SHAFT, ADJUSTING
19	1	0625-61	❶	CLIP, RETAINER
20	1	0624-99		KNOB
21	1	0614-59		BOTTOM BOX
22	1	0170-91		LEVER S.S.
23	1	0624-91		CORE, DIAPHRAGM
24	1	0050-18		DIAPHRAGM ASSM.

#	QTY	PART #	KEY	DESCRIPTION
25	1	0240-14		EXHAUST VALVE
26	1	0624-92		RETAINER, DIAPHRAGM CORE
27	1	0120-98		FRICTION WASHER
28	1	0624-93		RETAINER, DIAPHRAGM
29	1	0513-65		TOP COVER, EXTREME BLACK
	1	0514-15		TOP COVER, EXTREME NEON
30	1	0232-25		DECAL/INSERT ASSM BLACK
	1	0232-26		DECAL/INSERT ASSM BLUE
31	1	0229-39		HOSE ASSM. 29"IN-LINE ADJ.
	1	0229-40		HOSE ASSM. 39" IN-LINE ADJ.
32	1	0060-51		O-RING
33	1	0121-02		FRICTION WASHER
34	1	0250-24		RETAINING RING, L.P. HOSE



KEY
❶ Included in annual service kit #9680-22

EXTREME / EXTREME PLUS SECOND STAGE

Custom Tools Supplied by Dacor:
1. 0980-20 Cone Adjusting Tool
2. 0980-54 In-Line Adjusting Tool
3. 0980-61 O-Ring Removal Tool
4. 0624-93 Diaphragm Retaining Ring
5. 9508-00 Polishing Stick

Standard Tools Needed:
1. Small Needle-Nose Pliers
2. Diagonal Cutters
3. 5/8" Open-End Wrench
4. Narrow-Blade Screwdriver
5. 1/4" Diameter Wood or Plastic Dowel (a 3" minimum length is required)

Disassembly:

Step 1: The disassembly process starts the same way for all models (note that the second stage is the same for both the Extreme and Extreme Plus). Remove the hose from the second stage using the 5/8" open-ended wrench. Remove the two o-rings from the hose. Remove the plastic washer (33) from the hose coupling. (early models did not have this washer, but it may be added).

Step 2: Peel off the flexible cover, and then remove the mouthpiece by cutting off the clamp with the small diagonal cutter, taking care to prevent damage to the mouthpiece. Then use the inverted diaphragm retainer as a tool to remove the diaphragm retainer (28).

Step 3: Next, remove the friction washer (27), diaphragm assembly and lever (22). To remove the lever, spread the engagement legs of the lever with your thumb and forefinger. Be careful not to over bend the lever. Inspect the lever for deformation.

Step 4: Remove the valve seat adaptor (3) by inserting a narrow blade screwdriver into the slot located on the main body and wedging the valve seat adaptor out. The valve seat (1) is now accessible. Remove it by using the cone adjusting tool. Turn the tool counter-clockwise until the threads disengage. The valve seat now can be pushed out of the adaptor with the 1/4" diameter dowel. Be careful to not damage the seat. Remove the o-rings from the adaptor and valve seat.

Step 5: Remove the seat carrier (7) and spring (8) Use a 1/16" Allen wrench to remove the seat (5) from the carrier. Then remove the o-rings (6) from the seat carrier and seat. Note how small the seat is in comparison with other models.

Step 6: Remove the small retaining ring (10) from the flow tube (9) using the small needle-nose pliers. Push on the ends of the ring with the tips of the pliers. The flow tube can now be pulled out of the body. Remove the flow tube's o-ring (11).

Step 7: The Extreme has an adjustment knob (20) that should be removed using the needle-nose pliers. Squeeze the two plastic retainers together that are located within the knob's center. Remove the knob/body o-ring (14) from the body (not on 1992 models, but can be retrofitted).

Step 8: Remove the o-ring (2) and internal retaining clip (19) with a thin blade screwdriver. Insert the blade into one of the slots located on the body and push on the clip until the center of the clip bows out. Do not try to pry, you will damage the body. Insert the blade in the gap that now exists between the center of the clip and the body. As you wedge the clip out, don't worry if it gets damaged. It will be replaced.

Step 9: Remove the adjusting shaft (18) and the balance chamber (16).
On the Extreme, pull on the shaft with your fingers to remove the parts.

Step 10: Separate the shaft and the balance chamber by turning the shaft clockwise. *Note: these are left handed threads.* Remove the shaft o-ring (17) and balance chamber o-ring. (Balance chamber o-ring is not on 1992 models. A new balance chamber and o-ring can be retrofitted). Be careful not to scratch or gouge the o-ring surface. Disassembly of the second stage is now complete.

Cleaning:

Step 1: Cleaning is the same as for the first stage parts. All metal parts should be cleaned using a solution made of 1 gallon of white vinegar (5% acid content) and a quart of any general purpose household cleaner. Soak parts no longer than 15 minutes or 5 minutes, if using an ultrasonic cleaner. All plastic and rubber items should be cleaned with fresh water only. Air dry all parts with an air gun, if possible.

Step 2: Replace all o-rings, the seat and the plastic and metal retaining clips. These parts are provided in the annual service kit. Do not re-use the old parts.

Step 3: Visually inspect the diaphragm-exhaust valve

assembly. Disassembly of these parts is not required unless they are damaged, in which case they should be replaced.

Step 4: Inspect the top surface of the valve seat's sealing area for nicks or scratches. Take care not to damage this delicate part. If scratches are present, they can be removed by polishing the cone surface with a polishing stick in a circular motion. Cleaning and inspection is now complete.

Assembly:

Step 1: Now you are ready to re-assemble the second stage. Install a new knob/body o-ring (14). Install the new large o-ring (17) onto the adjusting shaft (18). Thread the balance chamber (16) onto the shaft by turning the shaft counter-clockwise, using just light hand pressure, until the assembly is fully threaded. Install o-ring (15) on to balance chamber (if equipped).

Step 2: Insert the shaft and balance chamber assembly into the proper side of the body. A slight twisting action will ease the installation. Apply light pressure and twist until the assembly fully seats itself. The large flat surface of the shaft should be below the level of the retaining clip slots when the unit is properly seated.

Step 3: Install a new plastic retaining clip (19). Engage one of the clip's legs into its slot within the body. Flex and push the other leg into its slot, while holding the pre-installed end in position with your fingers, using light pressure. The ring will bow-out during installation, but should be pushed in flat when properly installed.

Step 4: Install the new small o-ring (2) onto the adjusting shaft. Then re-install the adjusting knob (20) onto the shaft, using light hand pressure to snap it in place. To avoid breakage, be sure the retaining tabs line up with the slot.

Step 5: Install the new o-ring (11) onto the flow tube. Insert the flow tube into the body. Ensure that the flow tube's end has fully engaged into the opening in the air chamber of the body. Lock the flow tube in place by installing the retaining ring (10), using the needle-nose pliers.

Step 6: Install the new seat (5), with its o-ring (6) into the seat carrier (7). Start threading by hand and lightly snug-up with the 1/16 " Allen wrench. Install the new o-ring (6) on the end of the seat carrier assembly.

Step 7: The next step can be tricky, so take particular care. Insert the spring and seat carrier assembly into the body's air chamber, following the diagram. Note the off-center "ears" on the front sides of the seat carrier. The seat carrier will go into the air chamber in any direction, but it must only be installed with the off center "ears" on the carrier matching the off center slots within the body's air chamber. When properly installed the seat face will be centered.

Step 8: Install the new o-rings on the valve seat (1) and valve adaptor (3). Using the cone adjusting tool, thread the valve seat into the adaptor until the cone surface is fully visible with about 1/2 thread exposed. Insert the assembly into the body's air chamber, using hand pressure only. If lubrication is necessary, wet the o-ring with water. Do not use silicone for this application. The two flats should align between the guides on the main body.

Step 9: Reinstall the plastic washer (33) onto the hose coupling and install the new hose o-rings. Install the in-line adjusting hose on the body, and tighten to 45-50 in. lbs. with an 5/8" crows foot on a torque wrench. Slide back the hose protector and remove the retaining ring (34). Early models did not have an in-line adjusting hose. In this case, install the regulator hose onto an in-line adjusting tool and tighten securely.

Step 10: Install the lever (22) into the assembly. Spread the legs apart and push the lever down. Ensure that it has properly engaged the seat carrier by manually testing for spring resistance. If the lever does not engage, turn the cone in clockwise until it does.

Step 11: Turn the knob counter-clockwise until it stops (do not over tighten) and turn the knob back clockwise 2-1/2 turns. Slowly introduce 140 PSI to the second stage. Engage the adjustment portion of the in-line adjusting hose (or tool). Turn counter-clockwise until the lever reaches its maximum height. Now turn the adjustment clockwise until a slight downward movement of the lever occurs. There should be some amount of play in the lever, but as little as possible.

Step 12: Now, install the diaphragm-exhaust valve assembly, the friction washer (27) and the diaphragm retainer (28). Using an inverted retainer, hand-tighten the diaphragm retainer until it's snug.

Adjustment:

To check the inhalation effort of the second stage, a test board with a manometer is preferred. If no test board is

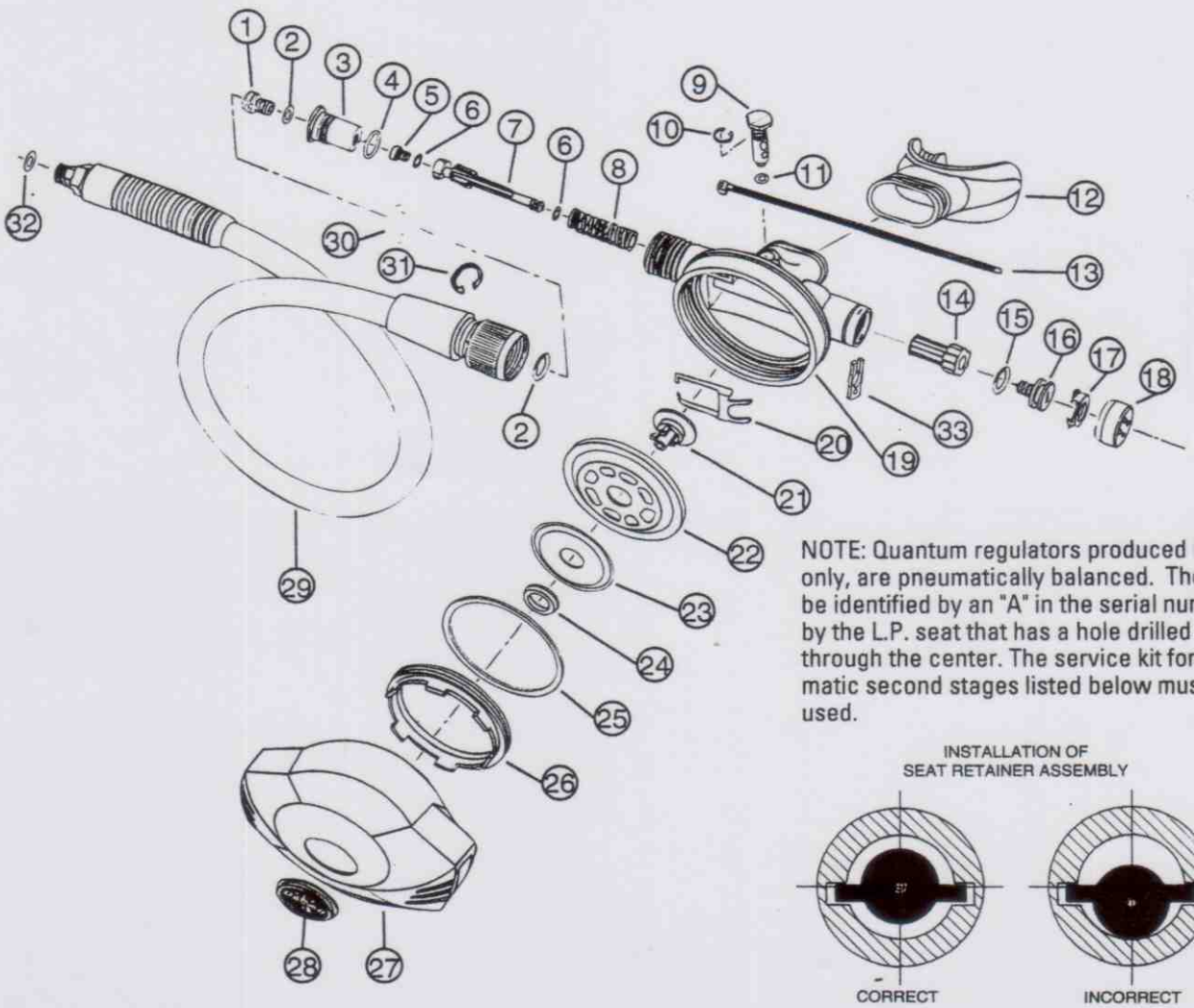
available, use a tray of water and lower the second stage, diaphragm down, into the water to the appropriate depth.

Step 1: Turn the knob clockwise until an initial opening effort of 1.0-1.1" of water is achieved. Remove supply pressure from second stage.

Step 2: Then, re-install the retaining ring (34) on the in-line adjusting hose or detach the in-line adjustment tool and connect the hose directly onto the second stage. Tighten the hose with the 5/8" wrench to a torque specification of 45-50 inch pounds.

Step 3: Finally, replace the flexible cover and the mouthpiece with a new clamp. Service of the second stage is now complete.

1	1	0182-87		VALVE SEAT
2	2	0060-02	❶	O-RING
3	1	0182-88		ADAPTOR- VALVE SEAT
4	1	0060-22	❶	O-RING
5	1	0226-01	❶	L.P. SEAT
6	2	0060-61	❶	O-RING
7	1	0624-97		SEAT CARRIER
8	1	0040-77		SPRING
9	1	0624-98		FLOW TUBE
	1	0625-78		FLOW TUBE NON-ADJUSTABLE
10	1	0250-22	❶	RETAINING RING
11	1	0060-95		O-RING
12	1	0300-67		MOUTHPIECE
13	1	0310-11	❶	CLAMP
14	1	0624-96		BALANCE CHAMBER
15	1	0060-96	❶	O-RING
16	1	0625-05		SHAFT
17	1	0625-61	❶❷	CLIP, RETAINER
18	1	0625-04		CAP
19	1	0612-80		BOTTOM BOX
20	1	0170-91		LEVER S.S.
21	1	0624-91		CORE, DIAPHRAGM
22	1	0050-18		DIAPHRAGM ASSEMBLY
23	1	0240-14		EXHAUST VALVE
24	1	0624-92		RETAINER, DIAPHRAGM CORE
25	1	0120-98		WASHER
26	1	0624-93		RETAINER, DIAPHRAGM
27	1	0513-94		TOP COVER, QUANT. BLACK
	1	0513-95		TOP COVER, QUANT. YELLOW
28	1	0232-26		DECAL/INSERT ASSM BLUE
	1	0232-25		DECAL/INSERT ASSM. BLACK
29	1	0229-39		HOSE ASSM. 29" IN-LINE ADJ.
	1	0229-40		HOSE ASSM. 39" IN-LINE ADJ.
30	1	0121-02		FRICTION WASHER
31	1	0250-24		RETAINING RING L.P. HOSE
32	1	0060-51		O-RING
33	1	0628-02	❷	RETAINING CLIP



NOTE: Quantum regulators produced in 1992 only, are pneumatically balanced. They can be identified by an "A" in the serial number or by the L.P. seat that has a hole drilled through the center. The service kit for pneumatic second stages listed below must be used.

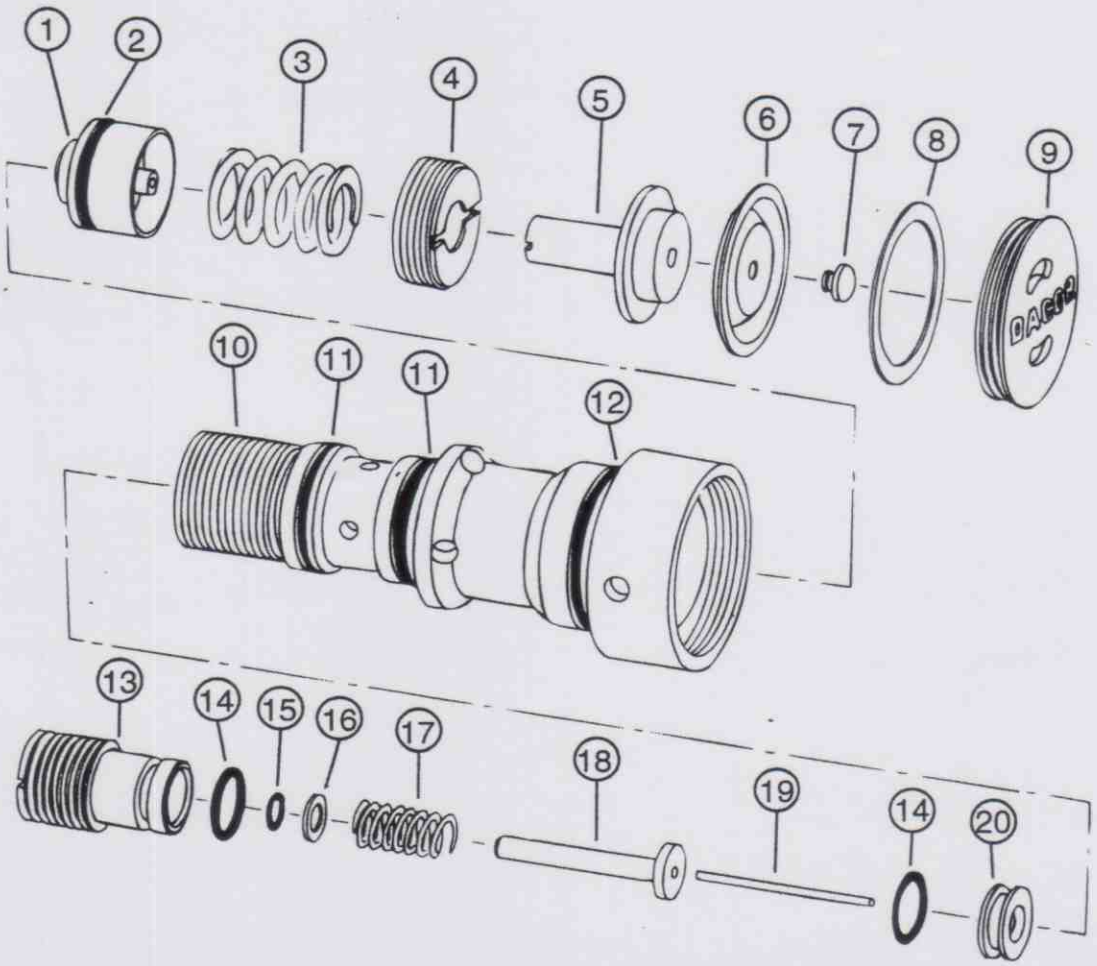
INSTALLATION OF SEAT RETAINER ASSEMBLY

KEY

❶ Included in annual service kit #9680-22

❷ 0628-02 Clip retainer (33) replaces 0625-61 retainer, clip (17).

#	QTY	PART #	KEY	DESCRIPTION
1	1	0830-06		PISTON
2	1	0060-54	❶❷	O-RING
3	1	0040-75		SPRING, AMBIENT
4	1	0182-76		ADJUSTING SCREW
5	1	0830-08		BOOST PISTON
6	1	0050-20		DIAPHRAGM
7	1	0240-13		UMBRELLA VALVE
8	1	0120-99		WASHER
9	1	0625-65		PLUG
10	1	0031-23		BODY MODULE
11	2	0060-91	❶	O-RING
12	1	0060-93	❶	O-RING
13	1	0182-67		BALANCE CHAMBER
14	2	0060-05	❶❷	O-RING
15	1	0060-90	❶	O-RING
16	1	0170-82		WASHER S.S.
17	1	0040-76		SPRING H.P.
18	1	0182-73	❶	SEAT H.P.
19	1	0350-36		PUSH ROD
20	1	0182-74		CONE MODULE



KEY
❶ Included in annual overhaul kit
❷ Included in annual service kit
Part kits are listed by regulator names.

REGULATOR MODULE

Custom Tools Supplied by Dacor
1. 0980-61 O-Ring Tool Kit
2. 9508-00 Polishing Stick
3. 0980-56 Piston/Cone Removal Tool
4. 9915-00 Intermediate Pressure Gauge
5. 9501-00 Light Silicone Spray
6. 0980-33 Threaded Rod
7. 0980-19 5/32" Allen Wrench
8. 0980-62 Spanner Wrench
9. 0980-13 Cap Wrench

Standard Tools Needed:
1. Vise
2. Socket Wrench
3. Wide-Blade Screwdriver or Drag Link Tool
4. Retaining Clip Pliers
5. Open-End Wrench or Adjustable Wrench

Disassembly:

Step 1: Remove the plastic plug (9) using the cap wrench (P/N 0980-13). If the unit is corroded, the spanner wrench can be used to steady the module.

Step 2: Remove the plastic washer (8), relief plug (7), sealing diaphragm (6) and the boost piston (5).

Step 3: Remove the adjusting screw (4) using a wide blade screw driver or drag link socket. Remove the ambient spring (3).

Step 4: Remove the balance chamber (13), seat (18), high pressure spring (17) and push rod (19), using a wide blade screwdriver or drag link socket.

Step 5: Disassemble the seat, high pressure spring, washer and all the o-rings from the balance chamber.

Step 6: Remove the ambient piston (1) by using the piston removal tool. Then remove the o-ring (2).

Step 7: Remove the stainless steel cone module (20) with two pushes of the cone removal tool, making sure to catch the cone in your hand. This sensitive part must not be nicked or damaged.

Step 8: Remove the external o-rings from the module using the o-ring removal tool.
At this point the module disassembly is complete.

Cleaning:

Step 1: The next phase is cleaning and inspection. All metal parts should be cleaned using a solution made from 1 gallon of white vinegar (with 5% acid content) and a quart of any general purpose household cleaner. If you need less solution, use a 4:1 ratio of vinegar to household cleaner. Soak the parts no longer that 15 minutes or 5 minutes if using an ultrasonic cleaner. All plastic and rubber items (including o-rings) should be cleaned with fresh water only. Then air dry all parts, preferably using an air gun.

Step 2: Discard the old internal balance chamber o-ring (15), ambient piston o-ring (2). Replacements for these parts are included in the annual service kit. Replace the other o-rings and high pressure seat if using an overhaul kit.

Step 3: Clean and inspect all other o-rings and lubricate them with a light silicone spray. Replace any questionable o-rings.

Step 4: Visually inspect the seat's sealing surface and cone module sealing surface for cuts and nicks. Also inspect the sealing diaphragm, and relief plug for damage. Replace any of these parts if necessary. If mild corrosion or mildew is evident on the cone module, use the polishing stick to remove it.

Assembly:

Step 1: Now you are ready to re-assemble the module. Install the cone module o-ring (14) onto the cone module (20). Insert the cone module assembly into the narrow end of the module body using the cone installation tool. The sharp edge of the cone should be facing out. Visually check to make sure the cone is properly seated.

Step 2: Silicone lubricate and install the new ambient piston o-ring (2) onto the ambient piston (1). Insert the assembly into the wide end of the module with the "cone" side facing in.

Step 3: Insert the ambient spring (3) and the adjusting screw (4) into the module using a wide blade screwdriver or drag link socket. Turn the adjusting screw clockwise until the top of the screw is flush with the start of the threaded area within the module.

Step 4: Next reassemble the balance chamber assembly. This consists of the external o-ring (14), the seat (18), high pressure spring (17), washer (16), and a new internal balance chamber o-ring (15) that has been

lubricated with silicone.

Step 5: While holding the balance chamber assembly vertical, install the push rod (19) into the seat (18). Vertically screw the balance chamber assembly into the module by hand - until you feel a positive engagement. Then fully tighten to a torque specification of 45-50 inch pounds with a drag link socket. Be careful not to force the balance chamber. If it jams, the push rod may not have evenly engaged the ambient piston. It is normal for some balance chamber threads to show when properly seated.

Step 6: Install the three external o-rings on the module and lubricate them with a light silicone spray.

Set Intermediate Pressure:

Step 1: Place the module assembly in regulator body. Install any swivels and tighten the cup assembly over the exposed threads of the module. Install the intermediate pressure gauge into the primary low pressure port. Install plugs into all other ports.

Step 2: Place the regulator on a tank or set-up board. Slowly introduce high pressure air, preferably 3000 psi.

Step 3: Set-up the intermediate pressure to 140 psi (+/- 4 PSI) by turning the adjusting screw (4) clockwise to increase pressure or counter-clockwise to reduce the pressure setting. During this process, purge the intermediate pressure. If you are not using a set-up board, open and close the bleeder knob on the intermediate pressure gauge to simulate second stage purging and ensure a proper reading.

Step 4: Once a consistent 140 psi intermediate pressure has been established, assemble the components of the sealing and boosting mechanism: the relief plug (7), sealing diaphragm (6), and boost piston (5). Install the small end of the relief plug through the hole on the raised center surface of the diaphragm. Install this assembly - bellows side down - onto the boost piston by pushing the small end of the relief plug through the center hole of the piston head. Rotating the piston while installing the plug will ease installation.

Step 5: Install the boost piston assembly into the module through the center of the adjusting screw. The stem of the boost piston will bottom out on the ambient piston*.

Step 6: Install the plastic washer (8) and plastic plug (9). Torque the plug to a specification of 45-50 inch pounds.

Step 7: Re-check the intermediate pressure for consistency.

Step 8: Bleed the system once more, and service of the first stage is complete.

Step 9: If you would like to have extra modules stored pre-set and ready to replace modules that require service on consumer or rental units, you can use a Quantum body with port plugs installed. Many dealers service a number of spare modules at once for convenience and efficiency. These modules can be instantly available as replacement modules.

*Refer to repair manual page on boost testing for instructions on testing regulator pressure boost feature.