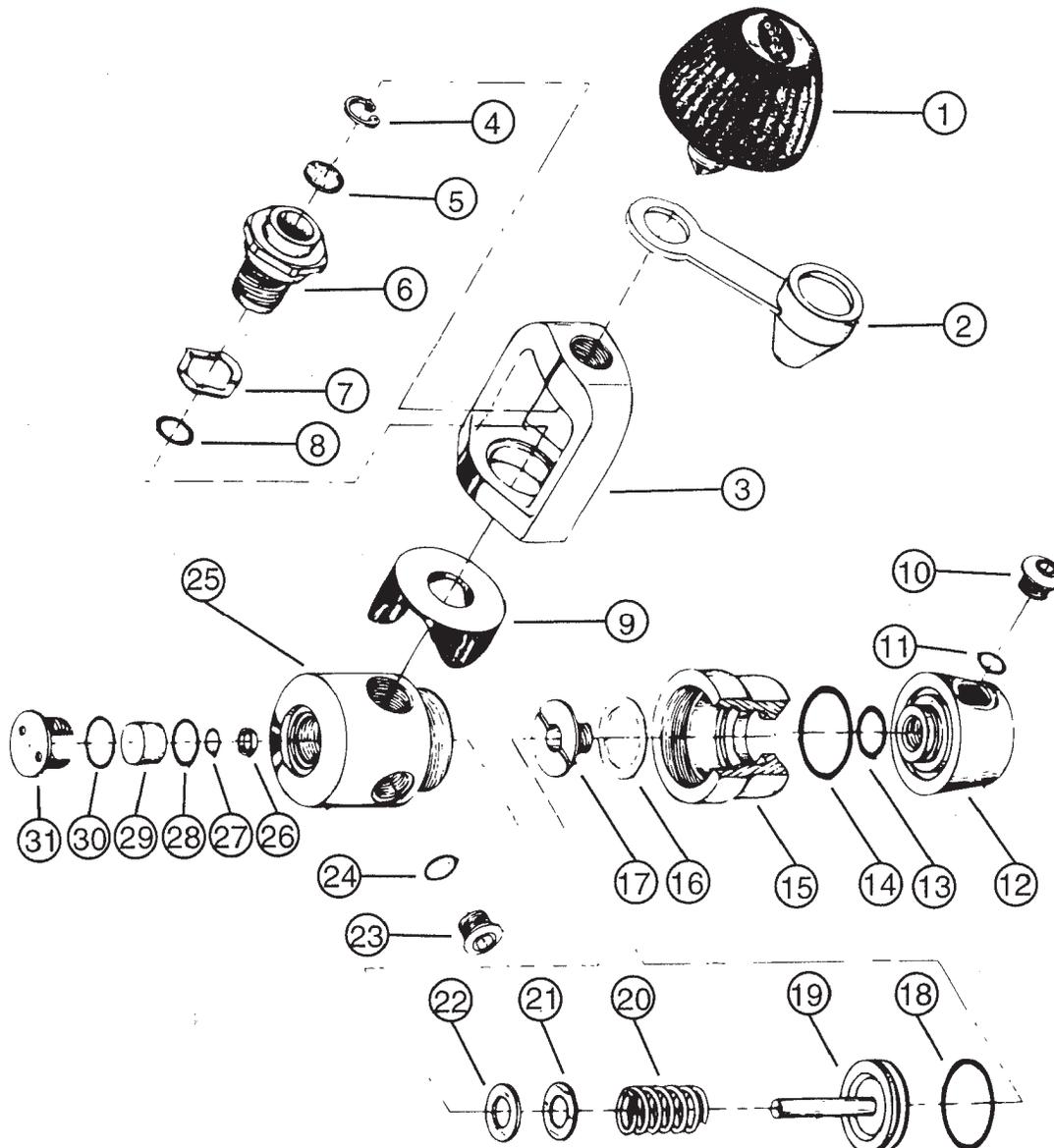


#	QTY	PART #	KEY	DESCRIPTION	#	QTY	PART #	KEY	DESCRIPTION
1	1	0100-90		YOKE SCREW ASSEMBLY	17	1	0130-43		SCREW
2	1	0510-42		DUST CAP	18	1	0060-06		O-RING
3	1	0390-08		YOKE	19	1	0830-02		PISTON
4	1	0250-10	①②	RETAINING RING	20	1	0040-57		SPRING
5	1	0110-00	①②	FILTER	21	1	0120-63		SHIM WASHER .020"
6	1	0181-55		YOKE STUD	22	1	0120-62		SHIM WASHER .010"
7	1	0120-58		WAVE WASHER	23	1	0410-24		PORT PLUG
8	1	0060-01	①②	O-RING	24	1	0060-43	①②	O-RING
9	1	0621-13		YOKE SUPPORT	25	1	0030-74		BODY
10	1	0410-24		PORT PLUG	26	1	0090-07	①②	BACK-UP RING
11	1	0060-51	①②	O-RING	27	1	0060-55	①②	O-RING
12	1	0030-75		SWIVEL	28	1	0060-51		O-RING
13	1	0060-17	①②	O-RING	29	1	0070-04	①	H.P. SEAT
14	1	0060-06	①②	O-RING	30	1	0060-17		O-RING
15	1	0181-48		ADAPTOR	31	1	0181-49		SEAT CARRIER
16	1	0120-55	①	WASHER					



PACER 760
FIRST STAGE

9/93

First Stage
Regulators

PAGE

1-28

KEY

- ① Included in annual overhaul kit #9680-07
- ② Included in annual service kit #9680-14

PACER 760 FIRST STAGE

Tools Needed:

1. 0980-15 Spanner Wrench
2. 0980-19 5/32" Allen Wrench
3. 0981-00 Set of 4 picks & tweezers
4. 0980-38 Regulator Tool Kit
5. 0980-61 "O" ring tool kit
6. 9803-00 Green Loc-tite ® #290
7. Vise
8. 1" Open end or adjustable wrench
9. 7/8" Open end or adjustable wrench
10. Retaining Ring Pliers (internal)

Disassembly:

Step 1: Remove all plugs (10 & 23) using 5/32" allen wrench.

Step 2: Screw 6" threaded rod from the regulator tool kit into a H.P. (7/16-20) port in the body (25).

Step 3: Fasten the threaded rod to a fixed point on the work bench. A bench vise will serve the purpose. You can also drill a 1/2" diameter hole through the table top and insert the rod into it.

Step 4: Using the spanner wrench, remove the swivel (12) by turning the adaptor (15) counter-clockwise. Pull away from the body and remove spring (20), piston (19), and any shims (21 & 22) from the underside of the spring.

Step 5: Remove the yoke (3) by turning the yoke stud (6) counter clockwise. Considerable resistance may be experienced when turning this part due to the locking compound on the threads of the yoke stud.

Step 6: Remove retaining ring (4) using retaining ring pliers. Remove and discard filter (5).

Step 7: Remove seat carrier (31) using hex wrench # 1 from the regulator tool kit. Use 7/8" Open end wrench, socket wrench, or adjustable wrench to work with the 7/8" hex wrench.

Step 8: Remove back-up ring (26), "O" rings (27, 28 & 30). Use appropriate tools from the tool kit. Be careful not to score the sealing surfaces of the metal parts when removing the "O" rings.

Step 9: Push H.P. seat (29) out of seat carrier (31) by inserting 1/16" diameter pin (Dacor Push Rod, 0350-13

or 0350-12) through the hole in the center of the seat carrier. Push or tap on the end of the pin to force the seat out.

Step 10: Remove the 6" threaded rod from the vise and unscrew from the body (25).

Step 11: Screw the opposite end of the rod (1/2-20 thread) into any of the L.P. ports in the swivel (12). Mount the pilot screwdriver hex wrench # 5, into the vise.

Mount vertically with approximately 2/3 of the length of the tool above the surface of the vise. Place the swivel (12) on the tool, so the pilot post slips into the hole in the center of the screw (17) and the screwdriver blade slips into the slot in the face of the screw. Turn the swivel (12) counter clockwise with use of the 6" rod. There may be considerable resistance since the thread locking compound was applied to the external screw (17). Remove "O" rings (13 & 14) and washer (16) using the "O" ring extracting tools.

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 old filter, and retaining clip. Replacements for these parts are included in the annual service kit. Replace all o-rings included in the annual overhaul kit if used.

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

Step 4: Inspect all parts for wear and replace the damaged parts.

Step 5: The H.P. seat (29) can be reused if it has one side without any seat impression or use new seat from the repair kit.

Step 6: Inspect the sharp end of the piston (19), for nicks and imperfections on the sealing edge. Damaged pistons will cause a pressure drift during the regulator test stage.

REPAIR PROCEDURE	PAGE	PACER 760 FIRST STAGE		
	1-29	First Stage Regulators	9/93	

Assembly:

Step 1: Lubricate all "O" rings with Dacor "O" ring lube.

Step 2: Install "O" rings (13 & 14) onto the swivel (12).

Step 3: Hold the swivel (12) with the post in an upright position. Slip adaptor (15) over the swivel post and press the two parts together.

Step 4: Install washer (16).

Step 5: Place less than one drop of Green Loc-Tite® #290 onto the external thread of the screw (17) and tighten using the reverse procedure described in step 11 of the disassembly procedure. Remove the 6" rod from the swivel. Test swivel (12) for free rotational movement.

Step 6: Install "O" ring (18) onto the piston (19). Place the same number of shims that were originally removed, over the stem of the piston and place the spring (20) on top of the shims. If either piston or spring were replaced, put one of each shims (22) 0120-62 - .010 thick and (21) 0120-63 - .020 thick under the spring.

Step 7: Insert the piston into the adaptor (15) and protect the edge of the piston by inserting the "O" ring tool (bullet) into the stem of the piston (19).

Step 8: Hold the swivel with the "brass bullet" pointing upward. At this time lubricate the internal threads of adaptor (15) with a thin film of Dacor grease. Slip body (25) over the "bullet" and the stem of the piston (19) and engage the threads of parts (25 & 15).

Step 9: Mount the 6" long rod in the vise in a horizontal position with 7/16-20 (smaller or red cap) thread sticking from the side of the vise.

Step 10: Screw the body (25) on the rod in vise. Use any one of the H.P. ports on the body.

Step 11: Turn the regulator vertically with the "brass bullet" facing upright.

Step 12: Slip back-up ring (26) over the "bullet." Notice that the back-up ring has one flat side and one concave side. The flat side should be installed against the main body.

Step 13: Slip "O" (27) over the "bullet" and press firmly into place with 3" long plastic tube from the tool kit. Remove the "bullet."

Step 14: Place "O" ring (28) in the body (15). "O" ring must sit properly.

Step 15: Press H.P. seat (30) into the seat carrier (31) with the concave side facing outward. The concave outer face of the seat must be without any nicks, scratches or any other imperfections.

Step 16: Slip "O" ring (30) onto the seat carrier (31) and screw the seat carrier into the body (15). Use the hex wrench # 1 from the tool kit to tighten.

Step 17: Turn the regulator 180° around on the holding rod and tighten the adaptor (15) with a spanner wrench.

Step 18: Install new filter (5) in the yoke stud (6) and secure with retaining ring (4). The coarser surface of the filter and the sharper side of the retaining ring should be facing outward (facing you).

Step 19: Insert yoke stud (6) through the large opening in the yoke (3). Slip wave washer (7) over the end of the yoke stud and install the plastic yoke support (9) over the yoke stud (6).

Step 20: Insert the "O" ring (8) into end of the yoke stud (6).

Step 21: Dispense less than one drop of Green Loc-Tite® #290 onto the external thread of the yoke stud (6) and fasten the assembly to the body (25). Tighten with an open end or adjustable wrench.

Step 22: Install dust cap (2) and the screw (1).

Step 23: Replace yoke screw decal if you wish. A new one is in the service kit.

Step 24: Install new "O" rings on all the H.P. and L.P. plugs and install all the available plugs. Leave one port in the swivel (12) open for second stage connection.

Intermediate Pressure Adjustment:

Step 1: Connect first stage to an air source (test board or scuba tank) with minimum of 1500 psi pressure.

Step 2: Connect Dacor Pressure Setting Gauge to the open L.P. port on the swivel (12). All remaining ports should be plugged at this time.

Step 3: Close the bleeder screw on the gauge (PSG) and slowly turn the supply of air. Open the valve fully.

	PACER 760 FIRST STAGE		PAGE 1-30	REPAIR PROCEDURE
	9/93	First Stage Regulators		

Step 4: Purge the regulator a few times by opening and closing the bleeder screw on the gauge; take a reading. The needle should be stationary between 135-145 psi.

Step 5: If the needle is slowly drifting, take a spanner wrench and turn the adaptor (15) counter clockwise while the regulator is under pressure. Turn 1/2 turn maximum and re-tighten the adaptor. Purge the regulator while turning the adaptor (15). This procedure helps to form a new sealing surface on the face of the Teflon seat (29). If the gauge is still drifting, re-inspect the sealing edge of the piston (19) and the face of the seat (29).

Step 6: If the gauge pressure is less than 135 psi, you must add a shim between the spring (20) and piston (19). Shim (22) is .010 thick and increases the intermediate pressure by approximately 5 psi. Shim (21) is .020 thick and increases the pressure by approximately 10 psi.

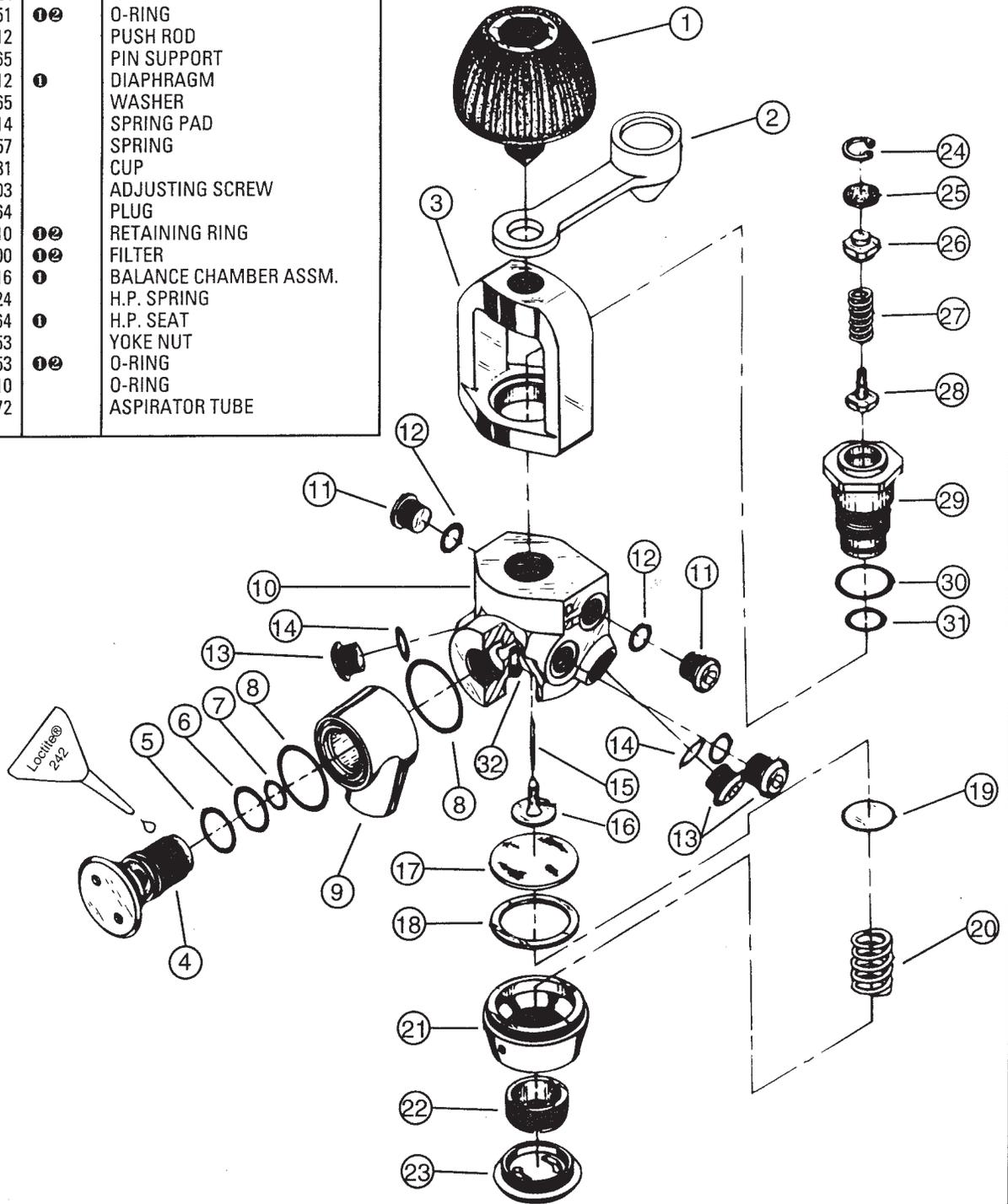
Step 7: If the gauge pressure is more than 145 psi, remove appropriate number of shims from the assembly.

CAUTION: Every time you remove the piston (19) from the body (25), you must remove the seat carrier (31) and re-install the piston with the use of the "brass bullet" as described in the re-assembly procedure numbers 7 through 16.

Step 8: Turn the supply of air off. Purge the regulator and remove it from the valve. Remove the PSG gauge and connect the second stage.

REPAIR PROCEDURE	PAGE	PACER 760 FIRST STAGE		
	1-31	First Stage Regulators	9/93	

#	QTY	PART #	KEY	DESCRIPTION
1	1	0104-52		YOKE SCREW ASSEMBLY
2	1	0510-42		DUST CAP
3	1	0390-08		YOKE
4	1	0181-52		SWIVEL POST
5	1	0060-54	①②	O-RING
6	1	0060-17	①②	O-RING
7	1	0060-05	①②	O-RING
8	2	0060-60	①②	O-RING
9	1	0030-66		SWIVEL
10	1	0030-77		BODY
11	2	0410-20		H.P. PLUG
12	2	0060-43	①②	O-RING
13	3	0410-24		L.P. PORT
14	3	0060-51	①②	O-RING
15	1	0350-12		PUSH ROD
16	1	0181-65		PIN SUPPORT
17	1	0050-12	①	DIAPHRAGM
18	1	0120-65		WASHER
19	1	0622-14		SPRING PAD
20	1	0040-57		SPRING
21	1	0180-31		CUP
22	1	0200-03		ADJUSTING SCREW
23	1	0621-64		PLUG
24	1	0250-10	①②	RETAINING RING
25	1	0110-00	①②	FILTER
26	1	0101-16	①	BALANCE CHAMBER ASSM.
27	1	0040-24		H.P. SPRING
28	1	0217-64	①	H.P. SEAT
29	1	0181-53		YOKE NUT
30	1	0060-53	①②	O-RING
31	1	0060-10		O-RING
32	1	0580-72		ASPIRATOR TUBE



PACER 960 (PRE 1991)
FIRST STAGE

9/93

First Stage
Regulators

PAGE

1-32

KEY

- ① Included in annual overhaul kit #9680-05
- ② Included in annual service kit #9680-12

PACER 960 (PRE 1991) FIRST STAGE

Tools Needed:

1. 0980-38 Regulator tool kit
2. 0980-61 O-ring Tool Kit
3. 0980-15 Spanner Wrench
4. 0980-19 5/32" Allen wrench
5. 9935-00 Intermediate Pressure Gauge
6. 9506-00 "O" ring lube
7. 9803-00 Blue Loc-Tite® #242
8. Retaining Ring Pliers (Internal)

Disassembly:

Step 1: Remove all plugs (11 and 13) using 5/32" allen wrench.

Step 2: Screw threaded rod, from regulator tool kit, into one of the ports in body (10).

Step 3: Fasten threaded rod in bench vise. Let regulator extend above or to the side of vise so you can rotate the whole assembly around rod.

Step 4: Turn regulator so plug (23) is upward. Remove plug (23) using hex wrench #3 from tool kit.

Step 5: Remove adjusting screw (22) using hex wrench # 4 from tool kit.

Step 6: Use spanner wrench to remove cup (21) (unscrew counter- clockwise).

Step 7: Using an appropriate o-ring pick, remove washer (18) and diaphragm (17). Do not scratch sealing surface on which diaphragm (17) sits (Use care not to tear or damage diaphragm).

Step 8: Remove pin support (16) and push rod (15).

Step 9: Turn body so yoke support (29) can be removed. Use open end wrench or adjusting wrench. If appropriate wrenches are not available, remove yoke screw (1) and dust cap (2). Place yoke support upside down firmly in a vise. Secure vise across yoke support flats and use threaded rod to turn body (10). Blue Loc-Tite® #242 was used to lock mating parts and prevent accidental turning. Considerable effort may be needed to disassemble these parts.

Step 10: Remove retaining ring (24) using internal retaining ring pliers.

Step 11: Remove filter (25), balance chamber assembly (26), spring (27), and H.P. seat (28). Remove "O" rings (30 & 31) using "O" ring extracting tools. Do not damage sealing surfaces for yoke support (29) when removing "O" rings.

Step 12: Turn body so swivel is upward. Use hex wrench #2 and unscrew swivel post (4). Blue Loc-Tite® #242 was applied to external thread of swivel post to prevent accidental loosening

Step 13: Pull swivel (9) off swivel post (4) and remove "O" rings (5, 6, 7 and 8).

Step 14: Aspirator tube is permanently installed and must not be removed from body.

Step 15: Remove body (10) from threaded rod.

Cleaning:

Step 1: All the metal parts (except H.P. seat (28) and balance chamber assembly (26)) can be cleaned in a solution of four parts vinegar (5% acid content) and one part household cleaner. All plastic and rubber parts should be cleaned in soap and water only.

Step 2: Blow dry parts with shop air pressure or air from scuba cylinder.

Step 3: Discard all rubber seals and replace with new parts supplied in annual service or overhaul kit. All seals made of various rubber compounds will deteriorate with age, depending on frequency of use and harshness of environment (ozone, salt, ultraviolet rays and rapid temperature changes have a negative influence on rubber).

Step 4: Inspect all parts for wear and replace damaged parts.

Step 5: Inspect seating cone inside H.P. Chamber (29). Scored or damaged cone will cause pressure drift during regulator adjustment.

Assembly:

Step 1: Lubricate all "O" rings with Dacor "O" ring lube, 9506-00.

Step 2: Lubricate stem of H.P. seat assembly (28) and insert seat into balance chamber assembly (26) a few times to lubricate "O" ring inside.

REPAIR PROCEDURE	PAGE	PACER 960 (PRE 1991) FIRST STAGE		
	1-33	First Stage Regulators	9/93	

Step 3: Mount threaded rod into vise. Fasten body (10) by screwing it onto rod. Use any straight 1/2" L.P. or 7/16" H.P. ports in body. Do not use angled ports since you cannot turn body around to fully assemble regulator.

Step 4: Slip "O" rings (5 and 6) over swivel post (4). Insert "O" ring (7) into the face of swivel post.

Step 5: Press "O" rings (8) into top and bottom grooves in swivel (9). Slip swivel (9) over swivel post (4) and place one drop Blue Loc-Tite® #242 onto external thread of swivel post (4).

Step 6: Turn body (10) upright to accept swivel post (4) and use hex wrench #2 to tighten assembly. Test swivel (9) for free movement around post.

Step 7: Pre-assemble yoke support (29) by placing H.P. seat (28), spring (27), balance chamber (26), filter (25) and retaining ring (24) into yoke support cavity (29). Place coarse side of filter (25) and sharp side of retaining ring (24) facing outside of assembly. Use a narrow blade screwdriver to press on top of filter (25) overriding the tension of spring (27). Slip retaining ring (24) over the screwdriver (sharp side up) and insert the ring into its groove in the internal wall of yoke support (29). Use internal type retaining ring pliers. After retaining ring (24) is in place, insert screwdriver and push ring into groove to assure proper seating.

Step 8: Place "O" ring (30 & 31) over yoke support. Then insert yoke support through opening in yoke (3) into body (10) and tighten with a wrench. Place one drop Blue Loc-Tite® #242 on external thread of yoke nut prior to assembly.

Step 9: Turn body around and drop push rod (15) into body (10) and into opening in seat assembly (29).

Step 10: Place pin support (16) over push rod (15) and press it down a few times to ensure proper engagement. The top of pin support (16) should be at the same height with flange on which diaphragm (17) will sit.

Step 11: Place diaphragm (17) into body and press on center to displace outer edge into retaining groove in body.(10).

Step 12: Place washer (18) (radius side) against diaphragm (17). Install spring pad (19) and spring (20). Screw cup (21) into body (10) and tighten with spanner wrench. Tighten snug. Do not over tighten.

Step 13: Install adjusting screw (22) and turn in three full

turns. Install plug (23) and leave loose for regulator final adjustment.

Step 14: Place "O" rings (12 & 14) on existing L.P. and H.P. plugs (11 & 13) and install in all ports. Leave the L.P. port in swivel open for connection of intermediate pressure gauge 9935-00.

Intermediate Pressure Adjustment:

Step 1: Connect First Stage to an air source (test board or scuba) with minimum of 1500 psi.

Step 2: Connect Dacor intermediate pressure gauge 9935-00 to the open L.P. port in swivel. All remaining ports should be plugged at this time.

Step 3: Close bleeder screw on gauge and slowly turn on air supply.

Step 4: Remove plug (23) from body (10). Adjust intermediate pressure by turning the adjusting screw (22). Set pressure between 138-142 psi.

Step 5: If needle is slowly drifting upward, let regulator sit under pressure for approximately 5-10 minutes, then purge and retest. If it still drifts, reinspect and replace H.P. seat (28) in H.P. chamber (29).

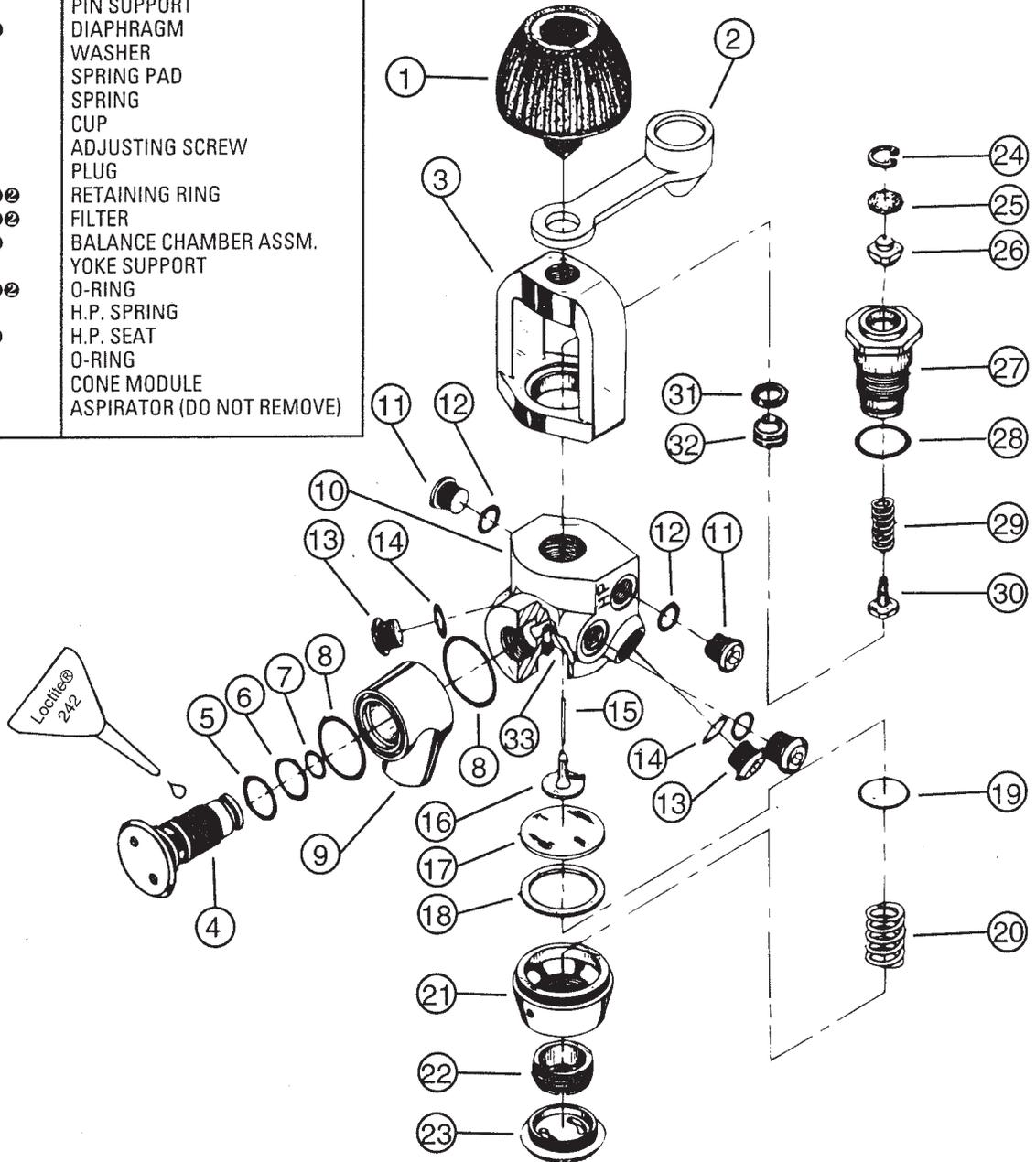
Step 6: If pressure is drifting downward there is an intermediate leak in the system. Re-examine all L.P. connections for cause of the leak.

Step 7: Turn air supply off and purge regulator. Remove intermediate pressure gauge and connect second stage via intermediate pressure hose to first stage.

Step 8: Install plug (23) and tighten with hex wrench #3.

	PACER 960 (PRE 1991) FIRST STAGE		PAGE 1-34	REPAIR PROCEDURE
	9/93	First Stage Regulators		

#	QTY	PART #	KEY	DESCRIPTION
1	1	0104-52		YOKE SCREW
2	1	0510-42		DUST CAP
3	1	0390-08		YOKE
4	1	0181-52		SWIVEL POST
5	1	0060-54	①②	O-RING
6	1	0060-17	①②	O-RING
7	1	0060-05	①②	O-RING
8	2	0060-60	①②	O-RING
9	1	0030-66		SWIVEL
10	1	0031-11		MAIN BODY
11	2	0410-20		H.P. PLUG
12	2	0060-43	①②	O-RING
13	3	0410-24		L.P. PLUG
14	3	0060-51	①②	O-RING
15	1	0350-12		PUSH ROD
16	1	0181-65		PIN SUPPORT
17	1	0050-12	①	DIAPHRAGM
18	1	0120-65		WASHER
19	1	0622-14		SPRING PAD
20	1	0040-57		SPRING
21	1	0180-31		CUP
22	1	0200-03		ADJUSTING SCREW
23	1	0621-64		PLUG
24	1	0250-10	①②	RETAINING RING
25	1	0110-00	①②	FILTER
26	1	0101-16	①	BALANCE CHAMBER ASSM.
27	1	0182-37		YOKE SUPPORT
28	1	0060-53	①②	O-RING
29	1	0040-24		H.P. SPRING
30	1	0217-64	①	H.P. SEAT
31	1	0060-05		O-RING
32	1	0182-05		CONE MODULE
33	1	0580-72		ASPIRATOR (DO NOT REMOVE)



PACER 960 (1991 & AFTER)
FIRST STAGE

9/93

First Stage
Regulators

PAGE

1-35

KEY

- ① Included in annual overhaul kit #9680-05
- ② Included in annual service kit #9680-12

PACER 960 (1991 & AFTER) FIRST STAGE

Tools Needed:

1. 0980-38 Regulator tool kit
2. 0980-61 O-ring Tool Kit
3. 0980-15 Spanner Wrench
4. 0980-19 5/32" Allen wrench
5. 9935-00 Intermediate Pressure Gauge
6. 9506-00 "O" ring lube
7. 9803-00 Green Loc-Tite® #290
8. 0217-66 Cone Tool Assembly
9. Retaining Ring Pliers (Internal)

Disassembly:

Step 1: Remove all plugs (11 and 13) using 5/32" allen wrench.

Step 2: Screw threaded rod, from regulator tool kit, into one of the ports in body (10).

Step 3: Fasten threaded rod in bench vise. Let regulator extend above or to the side of vise so you can rotate the whole assembly around rod.

Step 4: Turn regulator so plug (23) is upward. Remove plug (23) using hex wrench #3 from tool kit.

Step 5: Remove adjusting screw (22) using hex wrench # 4 from tool kit.

Step 6: Use spanner wrench to remove cup (21) (unscrew counter- clockwise).

Step 7: Using an appropriate o-ring pick, remove washer (18) and diaphragm (17). Do not scratch sealing surface on which diaphragm (17) sits (Use care not to tear or damage diaphragm).

Step 8: Remove pin support (16) and push rod (15).

Step 9: Turn body so yoke support (27) can be removed. Use open end wrench or adjusting wrench. If appropriate wrenches are not available, remove yoke screw (1) and dust cap (2). Place yoke support upside down firmly in a vise. Secure vise across yoke support flats and use threaded rod to turn body (10). Blue Loc-Tite® #242 was used to lock mating parts and prevent accidental turning. Considerable effort may be needed to disassemble these parts.

Step 10: Remove H.P. spring (29) and H.P. seat (30) from high pressure chamber in body (10).

Step 11: Remove retaining ring (24) using internal retaining ring pliers. Remove filter (25) and balance chamber assembly (26) from yoke support (27). Remove o-ring (28).

Step 12: Push brass pin of cone removal tool through the push rod hole in main body (10) and push cone module (32) out of H.P. chamber. Be careful not to damage cone module sealing surface (sharp side). Remove o-ring (31) from cone module.

Step 13: Turn body so swivel is upward. Use hex wrench #2 and unscrew swivel post (4). Blue Loc-Tite® #242 was applied to external thread of swivel post to prevent accidental loosening

Step 14: Pull swivel (9) off swivel post (4) and remove "O" rings (5, 6, 7 and 8). Note: Aspirator tube (33) is permanently installed and must not be removed from body.

Step 15: Remove body (10) from threaded rod.

Cleaning:

Step 1: All the metal parts (except H.P. seat (30) and balance chamber assembly (26)) can be cleaned in a solution of four parts vinegar (5% acid content) and one part household cleaner. All plastic and rubber parts should be cleaned in soap and water only.

Step 2: Blow dry parts with shop air pressure or air from scuba cylinder.

Step 3: Discard all rubber seals and replace with new parts supplied in annual service or overhaul kit. All seals made of various rubber compounds will deteriorate with age, depending on frequency of use and harshness of environment (ozone, salt, ultraviolet rays and rapid temperature changes have a negative influence on rubber).

Step 4: Inspect all parts for wear and replace damaged parts.

Step 5: Inspect seating cone module (32) for corrosion or damage. A scored or damaged cone will cause pressure drift during regulator adjustment.

Assembly:

Step 1: Lubricate all "O" rings with Dacor "O" ring lube, 9506-00.

REPAIR PROCEDURE	PAGE	PACER 960 (1991 & AFTER) FIRST STAGE		
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Step 2: Lubricate stem of H.P. seat assembly (30) and insert seat into balance chamber assembly (26) a few times to lubricate "O" ring inside.

Step 3: Mount threaded rod into vise. Fasten body (10) by screwing it onto rod. Use any straight 1/2" L.P. or 7/16" H.P. ports in body. Do not use angled ports since you cannot turn body around to fully assemble regulator.

Step 4: Slip "O" rings (5, 6 and 7) over swivel post (4).

Step 5: Press "O" rings (8) into top and bottom grooves in swivel (9). Slip swivel (9) over swivel post (4) and place one drop Blue Loc-Tite® #242 onto external thread of swivel post (4).

Step 6: Turn body (10) upright to accept swivel post (4) and use hex wrench #2 to tighten assembly. Test swivel (9) for free movement around post.

Step 7: Install o-ring (31) on cone module (32). Place cone module assembly, sharp side down, in groove on plastic handle end of cone insertion tool. Push cone module into high pressure chamber of regulator body (10) until properly seated.

Step 8: Place push rod (15) into pin support (16) and insert assembly into body from underneath. Keep assembly vertical to prevent pin from dropping out.

Step 9: Insert diaphragm (17) into body over pin support (16). This will hold pin support in position.

Step 10: Place finger in high pressure chamber of body to keep pin from falling out and turn body over so diaphragm (17) is facing upward. Place washer (18), spring pad (19), on diaphragm.

Step 11: Screw cup (21) in place hand tight. Insert ambient spring (20) into cup and install adjusting screw (22) but do not tighten yet.

Step 12: Turn regulator over so high pressure chamber is facing up. The push rod (15) should still be in position. Place high pressure seat (30) face down in chamber on push rod. This will hold the H.P. seat in proper position. Place H.P. spring (29) on seat stem and set body aside.

Step 13: Place o-ring (28) on yoke support (27). Install balance chamber assembly (26) open side down in top of yoke support (27). Install new filter (25) and secure with retaining ring (24) using retaining ring pliers.

Step 14: Insert yoke support assembly through opening in yoke (3) into body (10) and tighten with a wrench. Place one drop Blue Loc-Tite® #242 on external thread of yoke nut prior to assembly.

Step 15: Tighten cup (21) with spanner wrench.

Step 16: Place "O" rings (12 & 14) on existing L.P. and H.P. plugs (11 & 13) and install in all ports. Leave the L.P. port in swivel open for connection of intermediate pressure gauge 9935-00.

Intermediate Pressure Adjustment:

Step 1: Connect First Stage to an air source (test board or scuba) with minimum of 1500 psi.

Step 2: Connect Dacor intermediate pressure gauge 9935-00 to the open L.P. port in swivel. All remaining ports should be plugged at this time.

Step 3: Close bleeder screw on gauge and slowly turn on air supply.

Step 4: Remove plug (23) from body (10). Adjust intermediate pressure by turning the adjusting screw (22). Set pressure between 138-142 psi.

Step 5: If needle is slowly drifting upward, let regulator sit under pressure for approximately 5-10 minutes, then purge and retest. If it still drifts, reinspect and replace H.P. seat (30) in H.P. chamber.

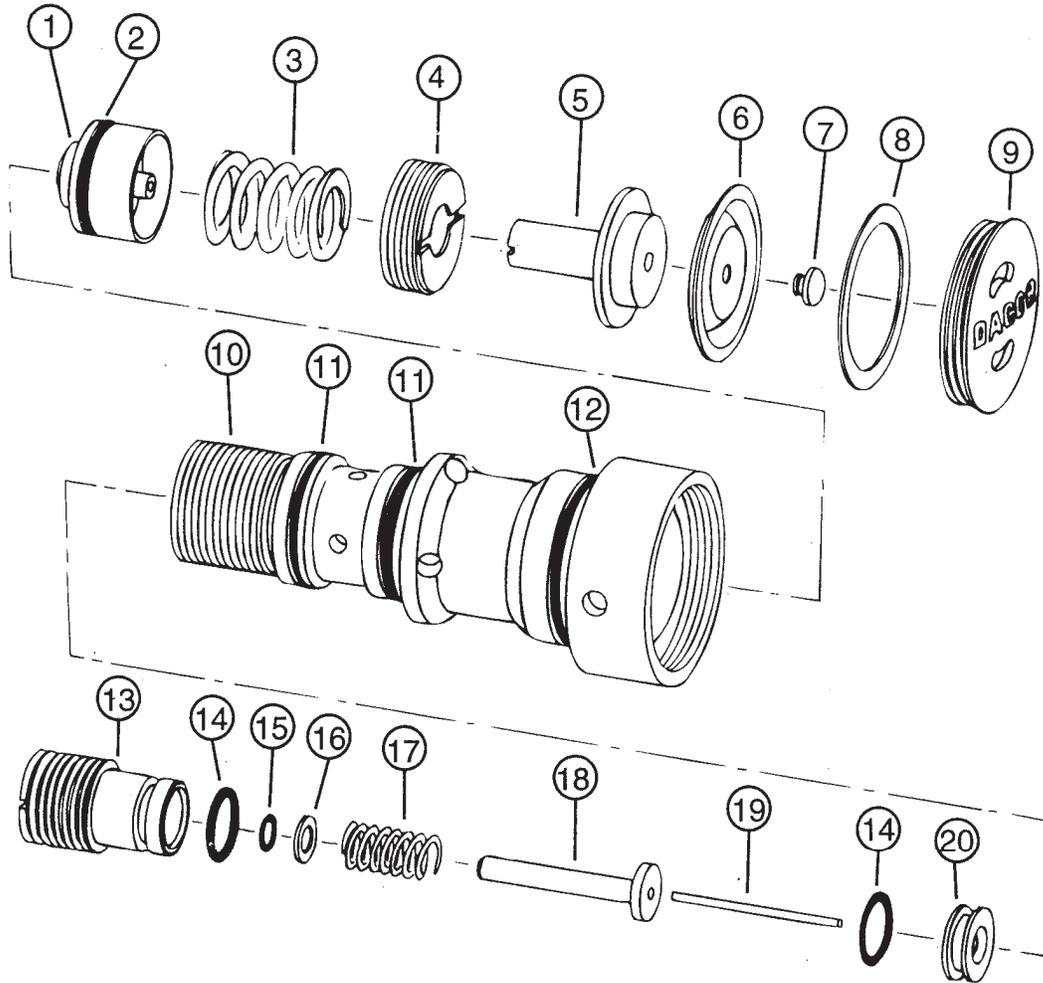
Step 6: If pressure is drifting downward there is an intermediate leak in the system. Re-examine all L.P. connections for cause of the leak.

Step 7: Turn air supply off and purge regulator. Remove intermediate pressure gauge and connect second stage via intermediate pressure hose to first stage.

Step 8: Install plug (23) and tighten with hex wrench #3.

	PACER 960 (1991 & AFTER) FIRST STAGE		PAGE 1-37	REPAIR PROCEDURE
	9/93	First Stage Regulators		

#	QTY	PART #	KEY	DESCRIPTION
1	1	0830-06		PISTON
2	1	0060-54	ⓐ	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	ⓐ	O-RING
12	1	0060-93	ⓐ	O-RING
13	1	0182-67		BALANCE CHAMBER
14	2	0060-05	ⓐⓑ	O-RING
15	1	0060-90	ⓐ	O-RING
16	1	0170-82		WASHER S.S.
17	1	0040-76		SPRING H.P.
18	1	0182-73	ⓐ	SEAT H.P.
19	1	0350-36		PUSH ROD
20	1	0182-74		CONE MODULE



**REGULATOR
MODULE**

9/93

First Stage
Regulators

PAGE

1-38

KEY

- ⓐ Included in annual overhaul kit
 - ⓑ 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 than 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

REPAIR PROCEDURE	PAGE	REGULATOR MODULE		
	1-39	First Stage Regulators	9/93	

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.

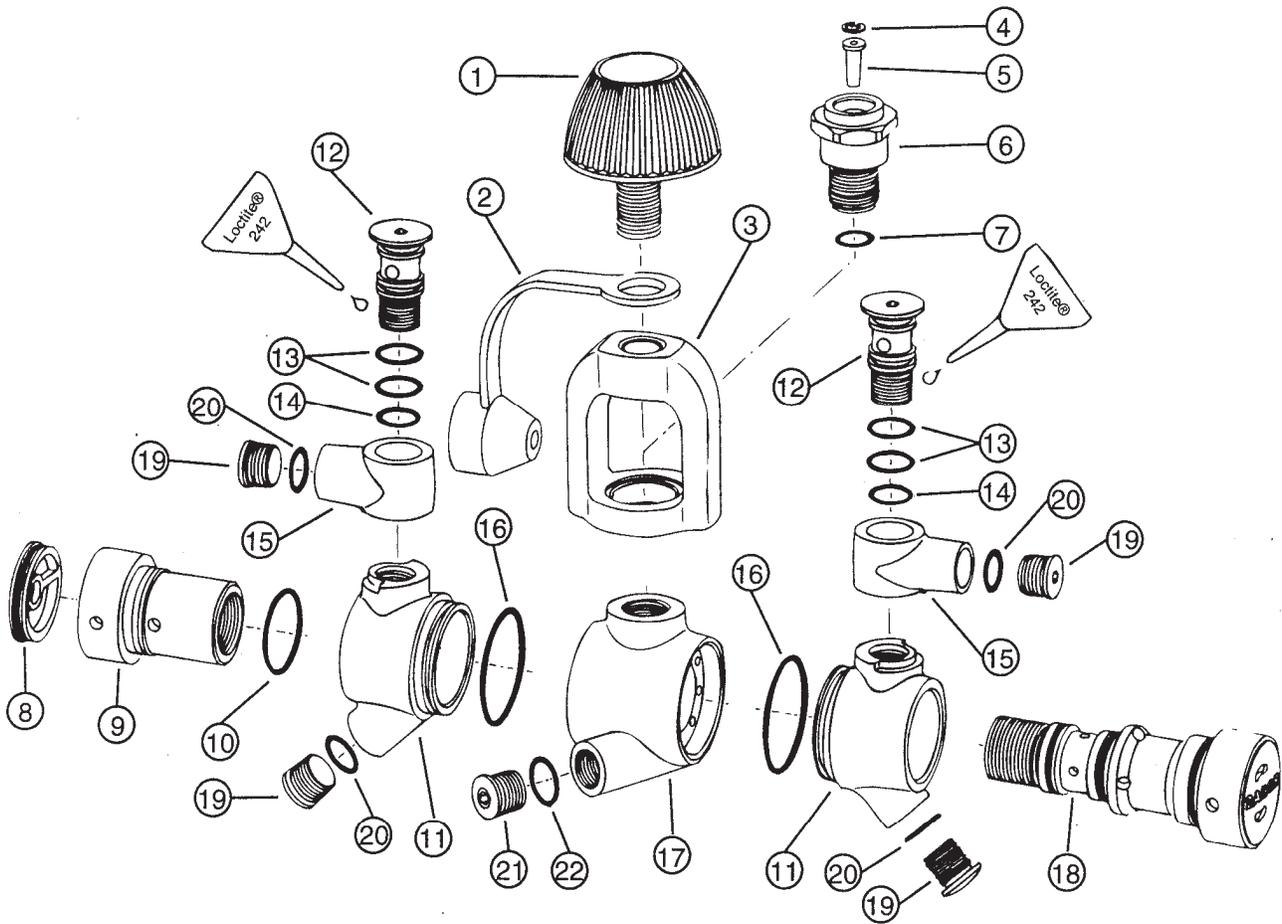
Step 8: Bleed the system once more; and service of the first stage is complete.

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.

	REGULATOR MODULE		PAGE 1-40	REPAIR PROCEDURE
	9/93	First Stage Regulators		

#	QTY	PART #	KEY	DESCRIPTION
1	1	0200-21		YOKE SCREW
2	1	0510-42		DUST CAP
3	1	0390-08		YOKE
4	1	0250-19	①②	RETAINING CLIP
5	1	0110-08	①②	FILTER
6	1	0182-65		YOKE SUPPORT
7	1	0060-01	①	O-RING
8	1	0625-65		PLUG
9	1	0031-22		CUP
10	1	0060-93	①	O-RING
11	2	0010-15		SWIVEL
12	2	0182-81		SWIVEL POST
13	4	0060-10	①	O-RING
14	2	0060-51	①	O-RING
15	2	0227-03		SWIVEL ASSEMBLY
16	2	0060-92	①	O-RING
17	1	0010-11		BODY
18	1	1119-00		REGULATOR MODULE ASSM.
19	3	0410-24		L.P. PORT PLUG
20	4	0060-51	①	O-RING
21	1	0410-20		H.P. PORT PLUG
22	1	0060-43		O-RING



EXTREME PLUS/EXTREME ICE
FIRST STAGE

9/93

First Stage
Regulators

PAGE

1-41

KEY

- ① Included in annual overhaul kit #9680-18
- ② Included in annual service kit #9680-16

EXTREME PLUS / EXTREME ICE FIRST STAGE

Custom Tools Supplied by Dacor

1. 0980-61 O-Ring Tool Kit
2. 9501-00 Light Silicone Spray
3. 0980-33 Threaded Rod
4. 0980-19 5/32" Allen Wrench
5. 0980-62 Spanner Wrench
6. 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. 1" Open-End Wrench or Adjustable Wrench

Disassembly:

Step 1: Remove all hoses and port plugs from the first stage. Remove all o-rings from hose fittings and port plugs using the o-ring removal tool.

Step 2: Install the threaded rod into the high pressure port of the first stage. Securely place the rod in a vise - creating a steady platform for servicing the unit.

Step 3: Remove the yoke support screw (6) using an open-end wrench or an adjustable wrench. If there is a D.I.N. adaptor, use an adjustable wrench. Remove the sealing o-ring (7) from the yoke support or D.I.N. adaptor.

Step 4: Remove the retaining clip (4) using an internal retaining ring pliers. Remove the filter (5).

Step 5: At this point, remove the port swivels (12) with a 5/32" allen wrench. Disassemble the port swivel assemblies. Remove all the o-rings from the swivel posts (12).

Step 6: A. Remove the module assembly (18). There are two ends of this assembly. You can tell which end is the module if you can look through the holes in the plastic cap and see a black diaphragm. (on the cup side you would see chrome) Remove the cup (9) from the module using the spanner wrench, to expose the threaded end of the module.

B. Remove the o-ring (10) located on the cup's outside diameter.

C. Next, remove the module (18) and swivels (11) by applying pressure on the balance chamber side. A wide blade screwdriver can be used, but if the regulator has been out in the field under heavy use, turning the

module with a drag link tool on a socket wrench will make removal easier.

D. Remove the external o-rings (16) from the swivels (11), using the o-ring removal tool.

Step 7: At this point, you are ready to disassemble the module. Refer to the repair procedure for the module assembly located in this manual.

Step 8: After removing the body from the threaded rod, the disassembly phase 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 than 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 filter, and retaining clip. Replacements for these parts are included in the regulator annual service kit. Replace all o-rings included in the annual overhaul kit if used.

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

Assembly:

Step 1: Install the hollow body (17) onto the vise secured threaded rod, using the high pressure port.

Step 2: Install a new filter (5) and retaining clip (4) into the yoke support (6) or D.I.N. adaptor, making sure that the sharp side of the ring is up. Install the sealing o-ring (7).

Step 3: Install the yoke support assembly (6), yoke (3), dust cap (2), and yoke screw (1) or equivalent D.I.N. components into the body. Place one drop of Blue Loctite® 242 onto the yoke support threads. Tighten the assemblies with the open end wrench or adjustable wrench to a torque specification of 16-18 foot pounds.

Step 4: Install the body swivel o-rings (16) and install one body swivel (11) into the high pressure side of the body (the end facing the H.P. port opening). Install the

REPAIR PROCEDURE	PAGE	EXTREME PLUS/EXTREME ICE FIRST STAGE		
	1-42	First Stage Regulators	9/93	

other body swivel onto the module.

Step 5: The module is now ready to be re-inserted into the first stage assembly of the Extreme Plus. First, install the cup o-ring (10).

Step 6: Insert the module/swivel assembly into the body from the side opposite the high pressure port opening. Manually push the module into the body until 1/2" of threads are visible on the opposite side of the body.

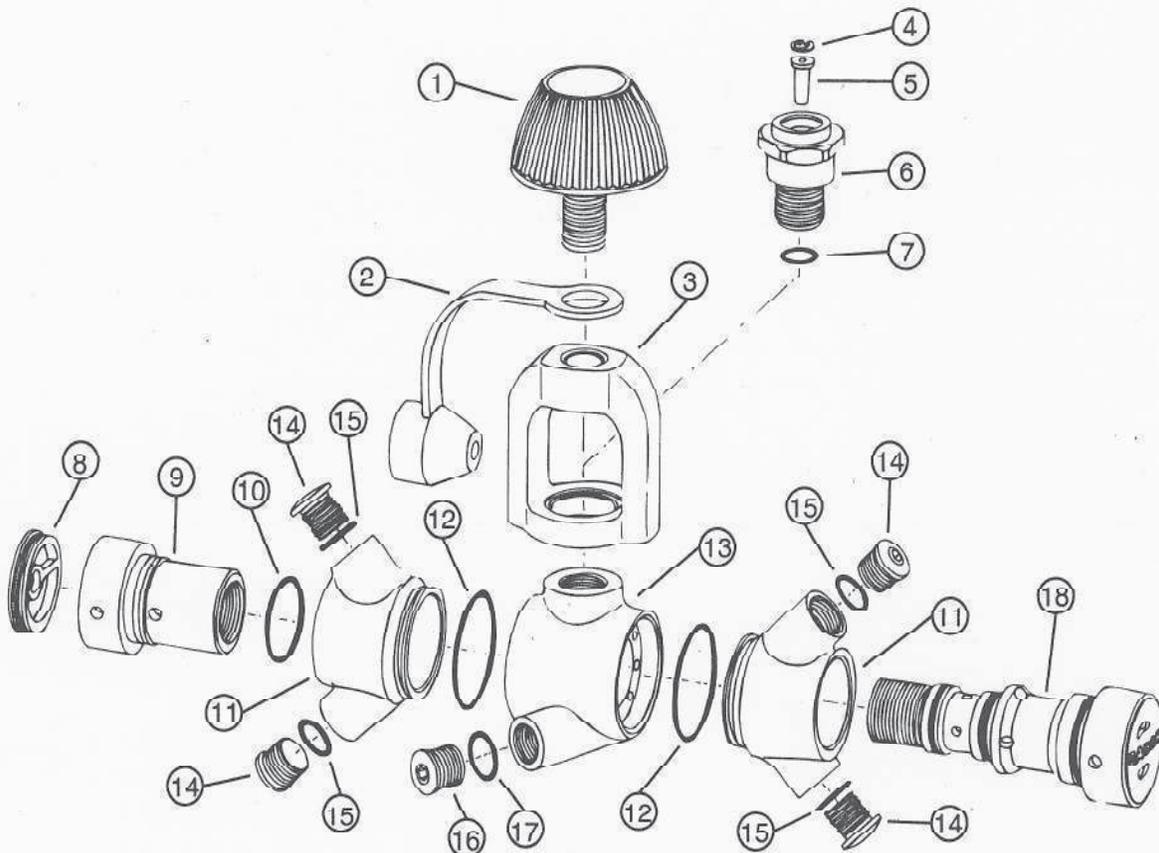
Step 7: Screw the cup (9) of cup/swivel assembly onto the module using the spanner wrench. The wrenching action will draw the assemblies together. Tighten to 16-18 ft. lbs.

Step 8: Install the o-rings onto both swivel posts (12). Place the 90° hose swivels (15) onto the swivel posts. Place a small drop of Blue Loctite® 242 on the swivel post threads. Install the swivel posts assemblies into the body swivels (11). Ensure that the stop pins are properly positioned within the body swivels. Tighten the swivel posts to a torque of 8 ft. lbs. **CAUTION:** too much Loctite may cause difficulty when removing the swivel posts at a later date.

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	EXTREME PLUS/EXTREME ICE FIRST STAGE		PAGE	REPAIR PROCEDURES
	9/93	First Stage Regulators	1-43	

#	QTY	PART #	KEY	DESCRIPTION
1	1	0200-20		YOKE SCREW
2	1	0510-42		DUST CAP
3	1	0390-08		YOKE
4	1	0250-19	ⓐ	RETAINING CLIP
5	1	0110-08	ⓐ	FILTER
6	1	0182-65		YOKE SUPPORT
7	1	0060-01	ⓐ	O-RING
8	1	0625-65		PLUG
9	1	0031-72		CLIP
10	1	0060-93	ⓐ	O-RING
11	2	0010-13		SWIVEL
12	2	0060-92	ⓐ	O-RING
13	1	0010-11		BODY
14	3	0410-24		L.P. PLUG
15	4	0060-51	ⓐ	O-RING
16	1	0410-20		H.P. PLUG
17	1	0060-43		O-RING
18	1	1119-00		REGULATOR MODULE ASSM.



EXTREME
FIRST STAGE

9/93

First Stage
Regulators

PAGE

1-44

KEY

- ⓐ Included in annual overhaul kit #9680-18
- ⓑ Included in annual service kit #9680-16

EXTREME FIRST STAGE

Custom Tools Supplied by Dacor

1. 0980-61 O-Ring Tool Kit
2. 9501-00 Light Silicone Spray
3. 0980-33 Threaded Rod
4. 0980-19 5/32" Allen Wrench
5. 0980-62 Spanner Wrench
6. 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. 1" Open-End Wrench or Adjustable Wrench

Disassembly:

Step 1: Remove all hoses and port plugs from the first stage. Remove all o-rings from hose fittings and port plugs using the o-ring removal tool.

Step 2: Install the threaded rod into the high pressure port of the first stage. Securely place the rod in a vise - creating a steady platform for servicing the unit.

Step 3: Remove the yoke support screw (6) using an open-end wrench or an adjustable wrench. If there is a D.I.N. adaptor, use an adjustable wrench. Remove the sealing o-ring (7) from the yoke support or D.I.N. adaptor.

Step 4: Remove the retaining clip (4) using internal retaining ring pliers. Remove the filter (5).

Step 5: A. Remove the module assembly (18). There are two ends of this assembly. You can tell which end is the module if you can look through the holes in the plastic cap and see a black diaphragm. (on the cup side you will see chrome) Remove the cup (9) from the module using the spanner wrench, to expose the threaded end of the module.

B. Remove the o-ring (10) that is located on the cup's outside diameter.

C. Next, remove the module (18) and swivels (11) by applying pressure on the balance chamber side. A wide blade screwdriver can be used, but if the regulator has been out in the field under heavy use, turning the module with a drag link tool on a socket wrench will make removal easier.

D. Remove the external o-rings (12) from the swivels (11) using the o-ring removal tool.

Step 6: At this point, you are ready to disassemble the module. Refer to the repair procedure for the module assembly located in this manual.

Step 7: After removing the body from the threaded rod, the disassembly phase 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 than 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 filter, and retaining clip. Replacements for these parts are included in the annual service kit. Replace all o-rings included in the annual overhaul kit if used.

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

Assembly:

Step 1: Install the hollow body (13) onto the vise secured threaded rod, using the high pressure port.

Step 2: Install a new filter (5) and retaining clip (4) into the yoke support (6) or D.I.N. adaptor, making sure that the sharp side of the ring is up. Install the sealing o-ring (7).

Step 3: Install the yoke support assembly (6), yoke (3), dust cap (2), and yoke screw (1) or equivalent D.I.N. components into body. Apply one drop of Blue Loctite® 242 to yoke support threads. Tighten assembly with open end wrench or adjustable wrench to a torque specification of 16-18 foot pounds.

Step 4: Install the body swivel o-rings (12) and install one body swivel (11) into the high pressure side of the body (the end facing the H.P. port). Install the other body swivel onto the module. Note: one port is raised (extended) this should be used for the primary.

Step 5: The module is now ready to be re-inserted into the first stage assembly of the Extreme. First, install the

REPAIR PROCEDURE	PAGE	EXTREME FIRST STAGE		
	1-45	First Stage Regulators	9/93	

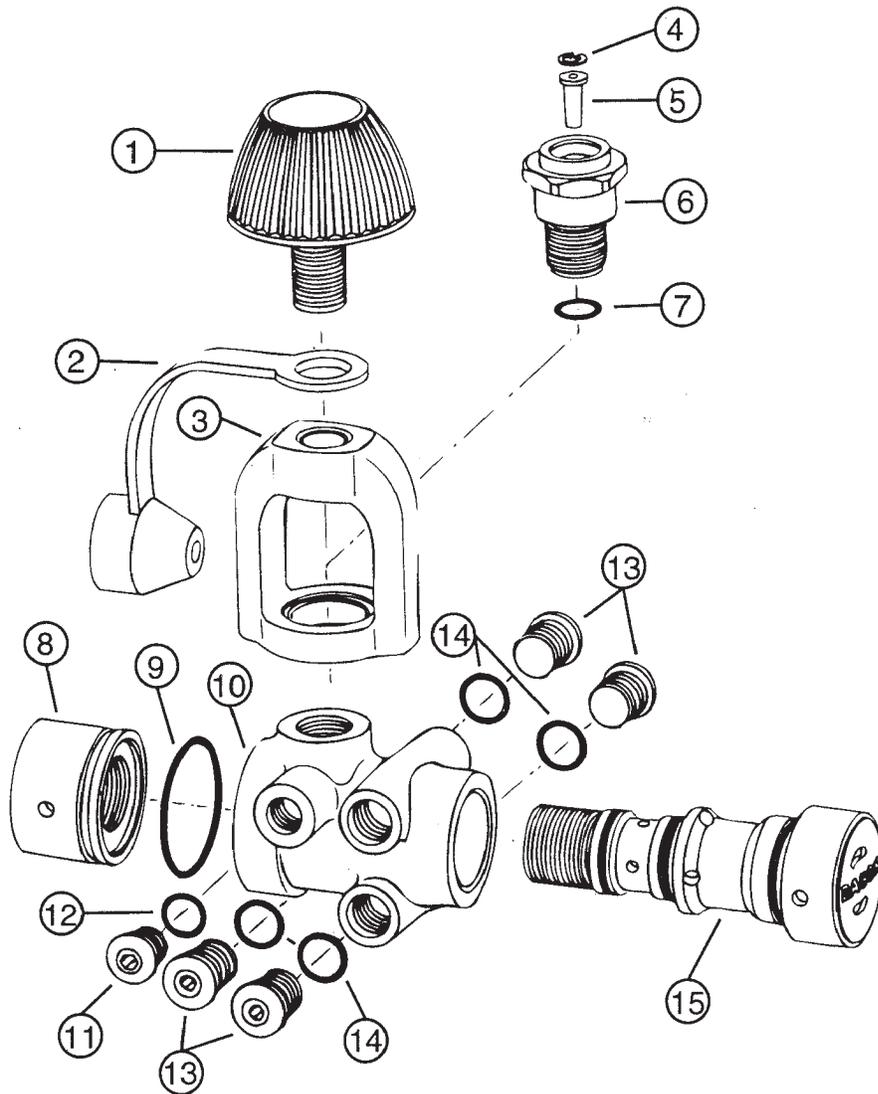
cup o-ring (10).

Step 6: Insert the module/swivel assembly into the body from the side opposite the high pressure port. Manually push the module into the body until 1/2" of threads are visible on the opposite side of the body.

Step 7: Screw the cup (9) of cup/swivel assembly onto the module using the spanner wrench. The wrenching action will draw the assemblies together. Tighten to 16-18 ft. lbs.

	EXTREME FIRST-STAGE		PAGE	REPAIR PROCEDURE
	9/93	First Stage Regulators	1-46	

#	QTY	PART #	KEY	DESCRIPTION
1	1	0200-22		YOKE SCREW- QUANTUM
1	1	0200-23		YOKE SCREW- DRY ICE
2	1	0510-42		DUST CAP
3	1	0390-08		YOKE
4	1	0250-19	ⓐ	RETAINING CLIP
5	1	0110-08	ⓐ	FILTER
6	1	0182-65		YOKE SUPPORT
7	1	0060-01	ⓑ	O-RING
8	1	0227-05		CUP- QUANTUM
8	1	0228-35		CUP- DRY ICE
9	1	0060-92	ⓑ	O-RING
10	1	0010-17		BODY
11	1	0410-20		H.P. PLUG
12	1	0060-43		O-RING
13	3	0410-24		L.P. PLUG
14	4	0060-51		O-RING
15	1	1119-00		REGULATOR MODULE ASSM.



QUANTUM/DRY ICE
FIRST STAGE

9/93

First Stage
Regulators

PAGE

1-47

KEY

- ⓑ Included in annual overhaul kit #9680-17
- ⓐ Included in annual service kit #9680-16

QUANTUM / DRY ICE FIRST STAGE

Custom Tools Supplied by Dacor

1. 0980-61 O-Ring Tool Kit
2. 9501-00 Light Silicone Spray
3. 0980-33 Threaded Rod
4. 0980-19 5/32" Allen Wrench
5. 0980-62 Spanner Wrench
6. 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. 1" Open-End Wrench or Adjustable Wrench

Disassembly:

Step 1: Remove all hoses and port plugs from the first stage. Remove all o-rings from hose fittings and port plugs using the o-ring removal tool.

Step 2: Install the threaded rod into the high pressure port of the first stage. Securely place the rod in a vise - creating a steady platform for servicing the unit.

Step 3: Remove the yoke support screw (6) using an open-end or adjustable wrench. If there is a D.I.N. adaptor, use an adjustable wrench. Remove the sealing o-ring (7) from the yoke support or D.I.N. adaptor.

Step 4: Remove the retaining clip (4) using internal retaining ring pliers. Remove the filter (5).

Step 5: A. Remove the module assembly (15). The module end is the part with the black plug. Remove the cup (8) from the module using the spanner wrench, to expose the threaded end of the module.

B. Remove the o-ring (9) that is located on the cup's outside diameter.

C. Next, remove the module (15) by applying pressure on the balance chamber side. A wide blade screwdriver can be used, but if the regulator has been out in the field under heavy use, turning the module with a drag link tool on a socket wrench will make removal easier.

Step 6: At this point, you are ready to disassemble the module. Refer to the repair procedure for the module assembly located in this manual.

Step 7: After removing the body from the threaded rod, the disassembly phase 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 than 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 filter, and retaining clip. Replacements for these parts are included in the annual service kit. Replace all o-rings in the annual overhaul kit if used.

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

Assembly:

Step 1: Install the hollow body (10) onto the vise secured threaded rod, using the high pressure port.

Step 2: Install a new filter (5) and retaining clip (4) into the yoke support (6) or D.I.N. adaptor, making sure that the sharp side of the ring is up. Install the sealing o-ring (7).

Step 3: Install the yoke support assembly (6), yoke (3), dust cap (2), and yoke screw (1) or equivalent D.I.N. components into body. Place one drop Blue Loctite® 242 on the yoke support threads. Tighten assembly with open end wrench or adjustable wrench to a torque specification of 16-18 foot pounds.

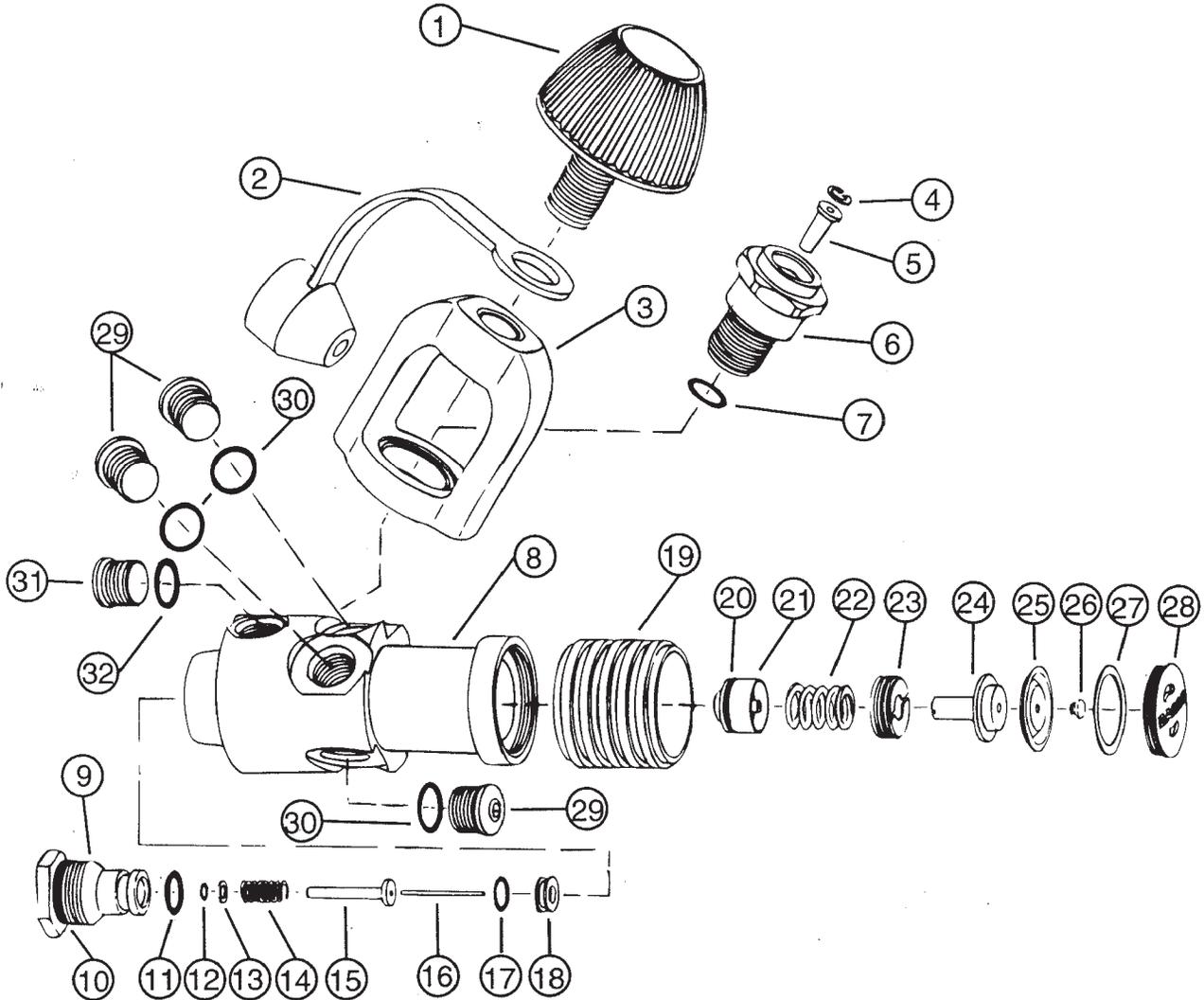
Step 4: The module is now ready to be re-inserted into the first stage assembly of the Quantum. First, install the cup o-ring (9).

Step 5: Insert the module assembly into the body from the side closest to the low pressure ports. Manually push the module into the body until 1/2" of threads are visible on the opposite side of the body.

Step 6: Screw the cup assembly (8) onto the module using the spanner wrench. Try to align the Dacor logo straight and reading away from the diver (cosmetic). The wrenching action will draw the assemblies together. Tighten to 16-18 ft. lbs.

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#	QTY	PART #	KEY	DESCRIPTION	#	QTY	PART #	KEY	DESCRIPTION
1	1	0200-24		YOKE SCREW	26	1	0240-13		UMBRELLA VALVE
2	1	0510-42		DUST CAP	27	1	0120-99		WASHER
3	1	0390-08		YOKE- CHROME	28	1	0625-65		PLUG
4	1	0250-19	①②	RETAINING CLIP	29	3	0410-24		L.P. PLUG
5	1	0110-08	①②	FILTER	30	4	0060-51	①	O-RING
6	1	0182-65		YOKE SUPPORT	31	1	0410-20		H.P. PLUG
7	1	0060-01	①	O-RING	32	1	0060-43	①	O-RING
8	1	0031-33		BODY- CHROME					
9	1	0227-60		CAP ASSEMBLY- CHROME					
10	1	0060-53	①	O-RING					
11	2	0060-05	①	O-RING					
12	1	0060-90	①②	O-RING					
13	1	0170-82		WASHER					
14	2	0040-76		H.P. SPRING					
15	1	0182-73	①	H.P. SEAT					
16	1	0350-38		PUSH ROD					
17	1	0060-05		O-RING					
18	1	0182-74		CONE MODULE					
19	1	0513-98		RIBBED SLEEVE					
20	1	0060-54	①②	O-RING					
21	1	0830-06		PISTON					
22	1	0040-75		SPRING, AMBIENT					
23	1	0182-76		ADJUSTING SCREW					
24	1	0830-08		BOOST PISTON					
25	1	0050-20		DIAPHRAGM					



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KEY

- ① Included in annual overhaul kit #9680-20
- ② Included in annual service kit #9680-16

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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. 9550-00 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. 1" Open-End Wrench or Adjustable Wrench

Disassembly:

Step 1: Remove all hoses and port plugs from the first stage. Remove all o-rings from hose fittings and port plugs using the o-ring removal tool.

Step 2: Install the threaded rod into the high pressure port of the first stage. Securely place the rod in a vise - creating a steady platform for servicing the unit.

Step 3: Remove the yoke support screw (6) using an open-end or adjustable wrench. If there is a D.I.N. adaptor, use an adjustable wrench. Remove the sealing o-ring (7) from the yoke support or D.I.N. adaptor.

Step 4: Remove the retaining clip (4) using internal retaining ring pliers. Remove the filter (5).

Step 5: At this point, you are ready to disassemble the body of the regulator. Remember, the Enduro does not have a removable module.

A. Remove the plastic plug (28) using the cap wrench (P/N 0980-13).

B. Remove the plastic washer (27), relief plug (26), sealing diaphragm (25) and the boost piston (24).

C. Remove the adjusting screw (23) using a wide blade screw driver or drag link socket. Remove the ambient spring(22).

D. Remove the balance chamber assembly using a spanner wrench (or 7/8" socket wrench on early units). This assembly includes the balance chamber (9), Balance chamber o-ring (12), washer (13), high pressure spring (14), high pressure seat (15), and push rod (16). Remove the o-rings (10 &11) from the balance chamber.

E. Disassemble the seat, high pressure spring, washer and o-ring from the balance chamber.

F. Remove the ambient piston (21) by using the piston removal tool. Then remove the o-ring (20).

G. Remove the stainless steel cone module (18) 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. Remove the o-ring (17).

Step 6: After removing the body from the threaded rod and removing the decorative sleeve (19) from the Enduro, the disassembly phase 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 than 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 (12), ambient piston o-ring (20), filter (5), and retaining clip (4). Replacements for these parts are included in the annual service kit. Replace the high pressure seat and o-rings included in the annual overhaul kit if used.

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 a polishing stick to remove it.

Assembly:

Step 1: Now you are ready to re-assemble the regulator body. Insert the cone module assembly into the narrow end of the of the Enduro 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: Lubricate and install the new ambient piston

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o-ring (20) onto the ambient piston (21). Insert the assembly into the wide end of the Enduro body with the "cone" side facing in.

Step 3: Insert the ambient spring (22) and the adjusting screw (23) into the body 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-rings (10&11), the seat (15), high pressure spring (14), washer (13), and a new internal balance chamber o-ring (12).

Step 5: While holding the balance chamber vertically, install the push rod (16) into the seat (15). Vertically screw the balance chamber assembly into the body by hand - until you feel a positive engagement. Then fully tighten to a torque specification of 16-18 ft. pounds with a spanner wrench (or 7/8" socket wrench on early models).

Step 6: Install the assembled Enduro body onto the vise secured threaded rod, using the high pressure port.

Step 7: Install a new filter (5) and retaining clip (4) into the yoke support (6) or D.I.N. adaptor, making sure that the sharp side of the clip is up. Install the sealing o-ring (7).

Step 8: Install the yoke support assembly (6), yoke (3), dust cap (2), and yoke screw (1) or equivalent D.I.N. components into body. Apply one drop Blue Loctite® 242 to yoke support threads. Tighten the assembly with an open end or adjustable wrench to a torque specification of 16-18 foot pounds. At this point, the Enduro body has been re-assembled.

Step 9: The next step is to install this intermediate pressure gauge into a low-pressure port.

On the Enduro, use the front right port. Plug all the remaining ports with their corresponding port plugs. The assembled regulator can now be removed from the threaded rod. It's ready for set-up.

Step 10: Place regulator on a tank or set-up board.

A. Slowly introduce high pressure air, preferably 3000 psi.

B. Set-up the intermediate pressure to 140 psi (+/- 4 psi) by turning the adjusting screw 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 11: Once a consistent 140 psi intermediate pressure had been established...

A. Assemble the components of the sealing and boosting mechanism: the relief plug, sealing diaphragm, and boost piston. Install the small end of the relief plug (26) through the hole on the raised center surface of the diaphragm (25). Install this assembly - bellows side down - onto the boost piston (24) 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.

B. Install the boost piston assembly into the body through the center of the adjusting screw. The stem of the boost piston will bottom out on the ambient piston*.

C. Install the plastic washer (27) and plastic plug (28). Torque the plug to a specification of 45-50 inch pounds.

D. Re-check the intermediate pressure for consistency.

E. Finally, install the decorative sleeve (19).

F. Bleed the system once more, and service of the first stage is complete.

* Refer to Repair Manual page on Boost Testing for instructions on testing regulator pressure boost feature.

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BOOST TESTING

Dacor's modular regulators have a unique feature that will boost intermediate pressure an additional 8 PSI above ambient per each 100 FSW of depth. This Boost Tester is designed to test the boost mechanism and verify that it is functional at the time of regulator service.

Step 1: Attach the Boost Tester to an air source adjusted to 44.5 PSI. This can be done by attaching the Boost Tester to any regulator with the intermediate pressure set at 44.5 PSI. The Boost Tester is threaded to accept the second stage end of a modular regulator hose (P/N 0228-39).

The Boost Tester does not have a bleed valve. Your pressure source must be capable of bleeding air from the Boost Tester when testing is finished.

Step 2: Following the instructions in Dacor's Repair Manual, set the intermediate pressure on the regulator to be tested at 140 PSI.

Step 3: Keep the intermediate pressure gauge attached to the regulator being tested and introduce a working pressure of 3000 PSI. The intermediate pressure should be 140 PSI as specified in the Repair Manual, if not, re-adjust the intermediate pressure.

Step 4: Attach the Boost Tester to the diaphragm end of the regulator being tested. The screws on the Boost Tester should be screwed into the spanner wrench

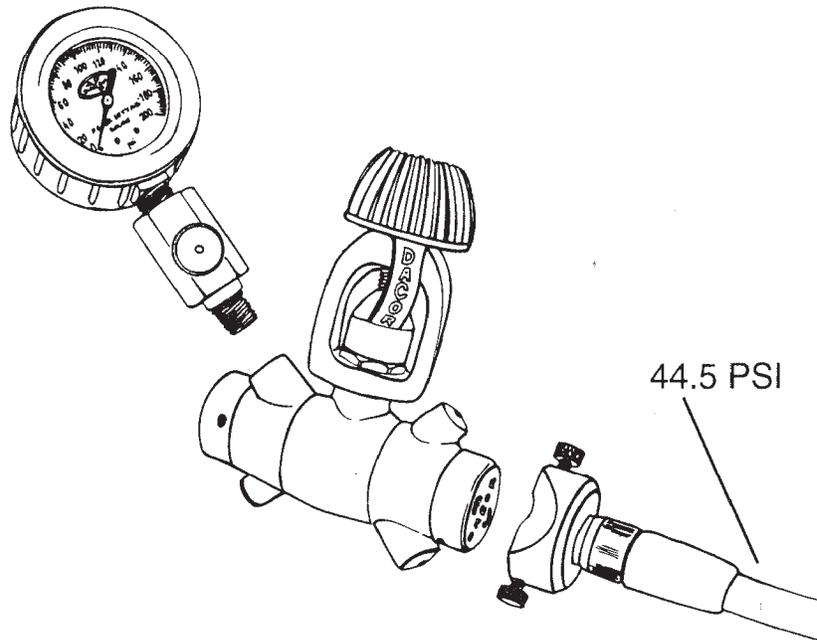
holes. On the Enduro, remove the rubber sleeve and tighten the screws so they protrude underneath the rim of the diaphragm end of the regulator. This step will hold the Boost Tester in place when pressure is introduced.

Step 5: When testing the regulators with mechanically balanced second stages, the increased absolute intermediate pressure will cause the mechanically balanced second stage valve to free flow. You must remove the second stages and plug the ports before testing. NOTE: Be sure your system is capable of bleeding the pressure from the first stage.

Step 6: Introduce 44.5 PSI of pressure to the Boost Tester. If the boost mechanism in the regulator is functioning, the intermediate pressure should be 192.5 PSI and no further adjustment is necessary.

If there is a malfunction in the boost mechanism, the intermediate pressure will read about 8 PSI less or 184.5 PSI. Check for a leak or bad seal on the regulator boost diaphragm or boost diaphragm sealing plug.

NOTE: The pressure specifications given in these instructions are exact; However, most intermediate pressure gauges will be operating at the upper end of their range and deviation may occur. There should be approximately an 8 PSI difference between testing a regulator with a working boost mechanism versus testing the same regulator with a malfunctioning diaphragm or the diaphragm removed.



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