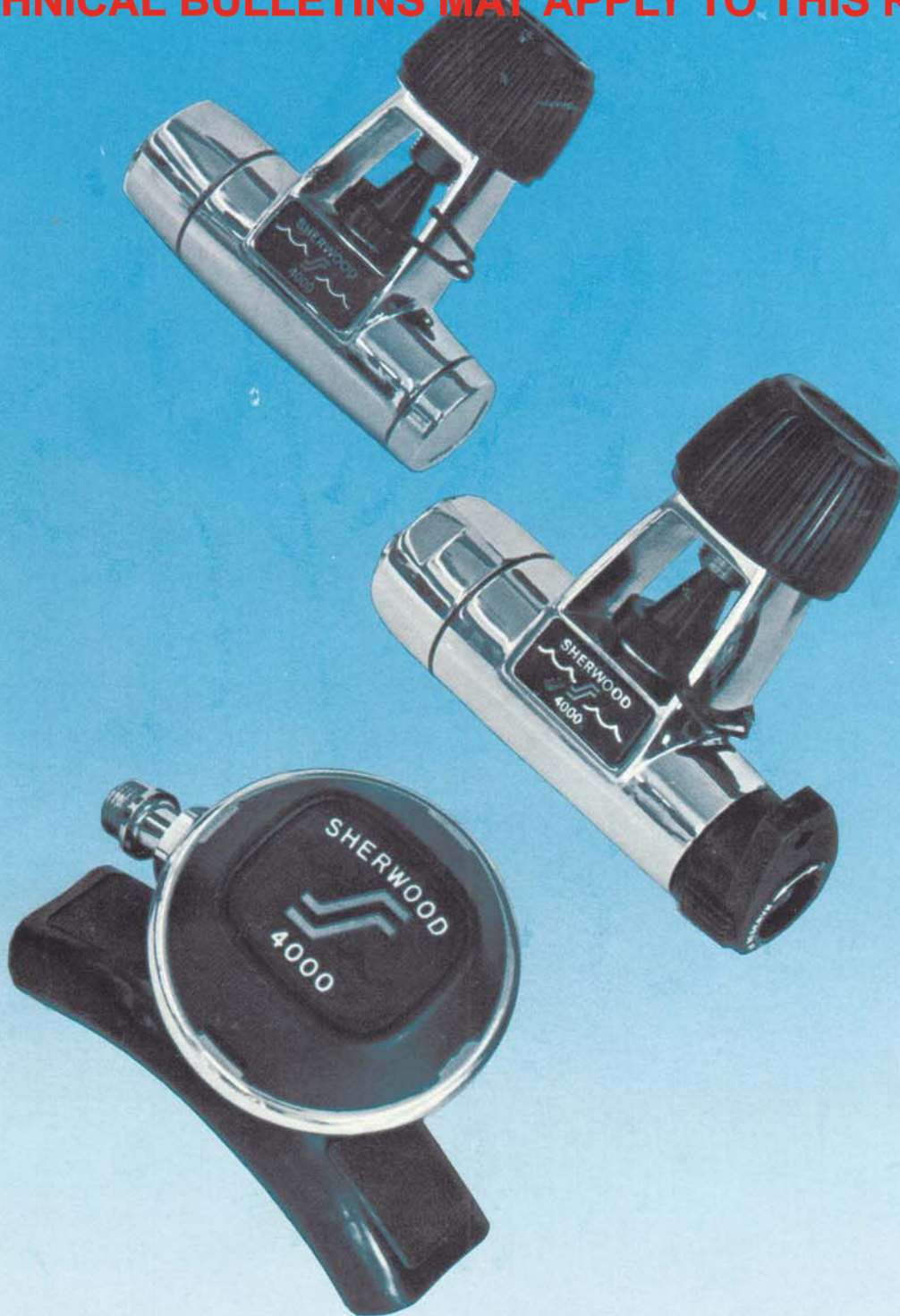
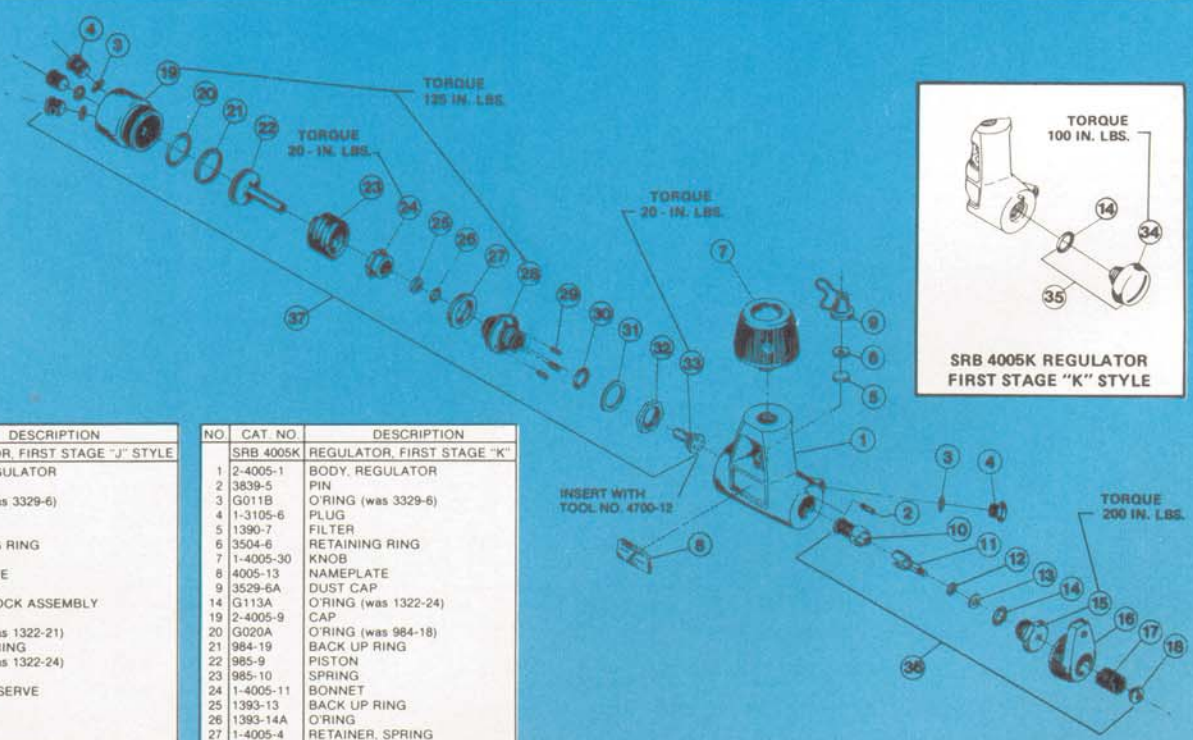


ASSEMBLY AND MAINTENANCE GUIDE

**FOR REFERENCE ONLY
SOME PARTS MAY NO LONGER BE AVAILABLE
SOME TECHNICAL BULLETINS MAY APPLY TO THIS REGULATOR**



SHERWOOD
3007-4000 REGULATORS



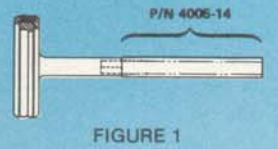
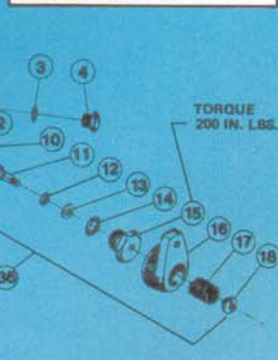
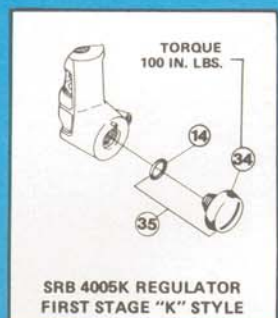
NO	CAT. NO.	DESCRIPTION
1	2-4005-1	BODY, REGULATOR
2	3839-5	PIN
3	G011B	O'RING (was 3329-6)
4	1-3105-6	PLUG
5	1390-7	FILTER
6	3504-6	RETAINING RING
7	1-4005-30	KNOB
8	4005-13	NAMEPLATE
9	3529-6A	DUST CAP
10	4000-90M	CAM & BLOCK ASSEMBLY
11	1322-14	STEM
12	G010D	O'RING (was 1322-21)
13	3506-7	BACK UP RING
14	G113A	O'RING (was 1322-24)
15	1-1322-16	BONNET
16	4005-12	LEVER, RESERVE
17	3506-11	SPRING
18	1-3506-8	NUT
19	2-4005-9	CAP
20	G020A	O'RING (was 984-18)
21	984-19	BACK UP RING
22	985-9	PISTON
23	985-10	SPRING
24	1-4005-11	BONNET
25	1393-13	BACK UP RING
26	1393-14A	O'RING
27	1-4005-4	RETAINER, SPRING
28	1-4005-2	HOUSING
29	4005-7	PIN
30	3791-8	O'RING
31	19-4005-5	WASHER
32	1-4005-6	NUT, ADJUSTING
33	4005-80	RETAINER & SEAT ASSEMBLY

NO	CAT. NO.	DESCRIPTION
1	2-4005-1	BODY, REGULATOR
2	3839-5	PIN
3	G011B	O'RING (was 3329-6)
4	1-3105-6	PLUG
5	1390-7	FILTER
6	3504-6	RETAINING RING
7	1-4005-30	KNOB
8	4005-13	NAMEPLATE
9	3529-6A	DUST CAP
14	G113A	O'RING (was 1322-24)
19	2-4005-9	CAP
20	G020A	O'RING (was 984-18)
21	984-19	BACK UP RING
22	985-9	PISTON
23	985-10	SPRING
24	1-4005-11	BONNET
25	1393-13	BACK UP RING
26	1393-14A	O'RING
27	1-4005-4	RETAINER, SPRING
28	1-4005-2	HOUSING
29	4005-7	PIN
30	G014L	O'RING (was 3791-8)
31	19-4005-5	WASHER
32	1-4005-6	NUT, ADJUSTING
33	4005-80	RETAINER & SEAT ASSEMBLY
34	2-4004-1	PLUG - RESERVE CHAMBER

NO	CAT. NO.	DESCRIPTION
36	4007	CONVERSION KIT "K" TO "J"
10	4000-90M	CAM & BLOCK ASSEMBLY
11	1322-14	STEM
12	G010D	O'RING (was 1322-21)
13	3506-7	BACK UP RING
14	G113A	O'RING (was 1322-24)
15	1-1322-16	BONNET
16	4005-12	LEVER, RESERVE
17	3506-11	SPRING
18	1-3506-8	NUT

NO	CAT. NO.	DESCRIPTION
35	4008	CONVERSION KIT "J" TO "K"
34	2-4004-1	PLUG, RESERVE CHAMBER
14	G113A	O'RING (was 1322-24)

NO	CAT. NO.	DESCRIPTION
37	4005-50R	MODULE, REPLACEMENT
3	G011B	O'RING (was 3329-6)
4	1-3105-6	PLUG
19	2-4005-9	CAP
20	G020A	O'RING (was 984-18)
21	984-19	BACK UP RING
22	985-9	PISTON
23	985-10	SPRING
24	1-4005-11	BONNET
25	1393-13	BACK UP RING
26	1393-14A	O'RING
27	1-4005-4	RETAINER, SPRING
28	1-4005-2	HOUSING
29	4005-7	PIN
30	G014L	O'RING (was 3791-8)
31	19-4005-5	WASHER
32	1-4005-6	NUT, ADJUSTING
33	4005-80	RETAINER & SEAT ASSEMBLY



ASSEMBLY AND MAINTENANCE SRB4005 FIRST STAGE REGULATOR

DISASSEMBLY . . .

- Using a wrench on the flats of the end cap (19), remove it from the first stage body (1).
NOTE: You now have the working components of the regulator out where you can get to them.
- Remove high pressure seat assembly (33) and discard.
- Remove 1st stage pressure adjusting nut (32), washer (31) and pins (29). This removes tension from high pressure spring and makes disassembly of the regulator much easier.

- Remove regulator module housing (28) from end cap (19).
- Remove piston (22) and spring (23) from end cap (19).
NOTE: You can use piston insertion tool (4005-14) in end of piston to improve grip and leverage when removing piston from end cap.
- Remove O-ring (20) and teflon backup ring (21) from piston and discard.
- Remove O-ring bonnet nut (24) from regulator module housing (28).
- Remove teflon backup ring (25) and O-ring (26) and discard.
- Remove spring retainer (27).
NOTE: Protect the sharp cutting edge of the

- Remove the yoke screw (7), inlet filter (5), star washer (6) from the regulator body. Discard filter and star washer.
- Remove the J-valve assembly (36) or the end cap (34) depending on Model from the regulator body.
- Remove any port plugs from the body and clean the assembly in an ultrasonic bath with a suitable solution such as white vinegar.
NOTE: Excessive time in white vinegar can cause peeling of the chrome. Use the weak acid solution only long enough to remove corrosion from the parts.

ASSEMBLY . . .

1. Lubricate a new piston shaft O-ring (26) with Dow Corning III.
2. Place it in the recess in the regulator module housing (28).
3. Insert the teflon backup ring (25) on top of the O-ring.
4. Place the spring retainer (27) lip side up in the body.
5. Torque the O-ring retaining bonnet nut (24) to 20 inch/pounds. (Do not over torque.)
6. Spiral the teflon back up ring (21) onto the piston.
7. Install new lubricated O-ring (20) onto the piston.
8. Install the spring retainer (27) and the spring (23) onto the regulator housing (28).
9. Using a lubricated piston insertion tool (4005-14), as shown in Figure 1, insert the piston into the regulator housing.
10. Screw the end cap (19) onto the regulator module housing and torque to 125 inch/pounds. Remove piston insertion tool.

NOTE: Do not pull on the piston insertion tool until the piston is seated firmly into the regulator housing.

11. Place the three inner stage adjusting pins (29) into the holes in the body, add the washer (31) and 1st stage adjusting nut (32).
 12. Screw the adjusting nut down finger tight against the pins and washer.
 13. Tighten the inner stage adjusting nut one full turn. This should give between 140 and 160 PSI 1st stage pressure.
 14. Install a new high pressure seat assembly (33) in the regulator module housing. Tighten to 20 inch/pounds.
 15. Install new filter screen (5), rough side up, and star washer (6).
- ★ If the regulator is an SRB 4005J, continue as follows:
16. Inspect the cam and block assembly (10) for corrosion or damage that may affect its operation.
 17. Insert the cam and block assembly (10) into the appropriate end of the regulator body.

18. Lubricate new O-ring (12) and install it onto the shaft of the stem.

19. Place the teflon back up ring (13) on the shaft.

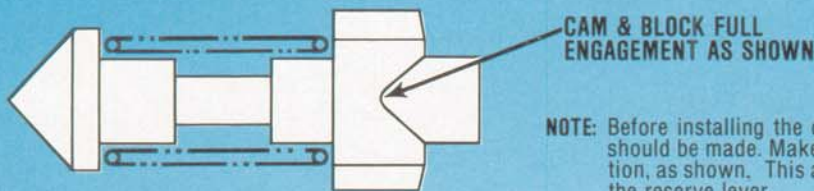
20. Install the stem (11) on the cam and block assembly.

21. Lubricate and place the O-ring (14) on the bonnet (15) and reassemble the bonnet into the regulator body.

CAUTION: Without turning the stem, position the lever (item 16) over the stem so the lever arm is in the UP or DIVE position. Place lever onto the stem. Install spring (item 17) and tighten stem nut (item 18) until flush with top of stem.

22. Introduce 0-100 PSIG breathing air into a low pressure port. When the reserve lever position is in the DIVE or UP position, NO air should flow through the regulator. This test will confirm that the reserve lever and cam and block assembly are installed correctly. (The air flow can be accomplished by blowing into a low pressure port.)

23. Install any remaining parts.



NOTE: Before installing the cam and block assembly, one very important observation should be made. Make sure that the cam and block assembly is in the DIVE position, as shown. This allows correct positioning between the cam and block and the reserve lever.

TEST AND TROUBLE SHOOTING

1. Connect a pressure gauge with relief valve to one of the four low pressure ports with the other outlet ports suitably plugged.
2. Introduce 250 PSIG pressure to the inlet port and submerge the regulator in water. NOTE: Move the regulator several times in the water to dislodge any trapped air that might be in the spring cavity. Trapped air can give a false indication of an O-ring leak.
3. Actuate the regulator several times and check the space between the cap and body for leakage. If bubbles appear, the leak is at one of three O-rings.
4. Remove module from body and replace O-ring (item 30).
5. Re-assemble and retest.
6. If leak continues, replace O-rings (item 20 and item 26). If no leak is observed,

repeat test at 2700 PSIG inlet pressure.

7. Lock up pressure shall be 140-160 PSIG at 2700 PSIG inlet pressure.

8. If 1st stage pressure is too high, it can be lowered by removing the entire first stage module (37) and backing off the 1st stage pressure adjusting nut (32) a maximum of 3/4 of a turn.

9. If inner stage pressure is too low, it can be raised by turning the 1st stage adjusting nut (32) clockwise.

10. If 1st stage pressure comes up to a given value and then continues to creep further, a sealing problem with either the piston or the high pressure seat is indicated. Disassemble the regulator and inspect the cutting edge of the piston. There should be no burrs or perceptible nicks. If there are, replace the piston. Inspect the high pressure seat. If there

are two overlapping circles cut into the high pressure seat, replace it. Replace also if there are any foreign particles embedded in the seat.

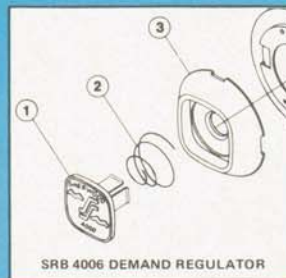
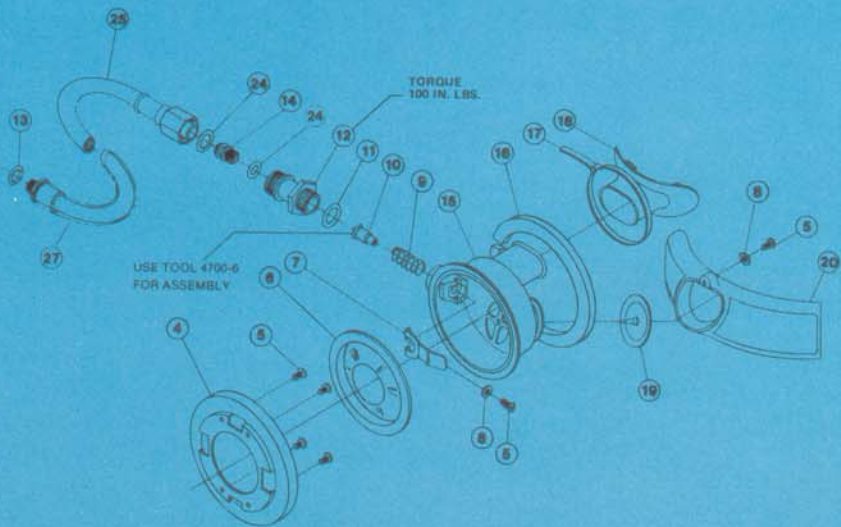
NOTE: If you replace the piston, you must replace the high pressure seat.

11. Bubbles coming from holes in the end cap are caused by a bad O-ring seal either on the piston shaft or the big end of the piston. Generally, the piston shaft O-ring is mechanically damaged due to improper insertion of the piston. Replace the O-ring and use the piston insertion tool (4005-14) to reinstall the piston through the O-ring. The large piston O-ring should be inspected for damage and the walls of the end cap should be inspected for imperfections and mechanical damage. Replace if necessary.

SHERWOOD
3007-4000 REGULATORS

NO	CAT NO	DESCRIPTION
	SRB 3007, 4006	DEMAND REGULATOR
1	4006-10	PURGE BUTTON
2	4006-12	SPRING, PURGE BUTTON
3	4006-11	BEZEL, PURGE BUTTON
4	2-4006-1	COVER
5	4000-9	SCREW
6	4006-13	DIAPHRAGM
7	19-4006-9	LEVER, DEMAND VALVE
8	9-4006-17	WASHER
9	978-10	SPRING
10	4006-21	STEM ASSY
11	G906A	O'RING (was 4006-14)
12	1-4006-19	HOUSING, DEMAND VALVE
13	G011B	O'RING (was 3329-6)
14	29-4006-20	VALVE SEAT
15	2-4006-5	CASE ASSY
16	3840-3B	RING, RETAINING
17	3786-9	CLIP
18	3786-7	MOUTH BIT
19	4006-15	VALVE, EXHALATION
20	4006-8	EXHAUST TEE
21	G010D	O'RING (was 1322-21)

NO	CAT NO	DESCRIPTION
	SRB3007	OCTOPUS REGULATOR
XX	SRB4006	DEMAND REGULATOR
24	G010D	O'RING (was 1322-21)
25	3809-50-36	HOSE
13	G011B	O'RING (was 3329-6)
27	3809-5	HOSE GUARD



ASSEMBLY AND MAINTENANCE SRB 3007 AND 4006 DEMAND REGULATORS

DISASSEMBLY . . .

1. Remove the bezel retaining ring (16) by inserting a screw driver in the groove provided and gently prying down and out.
2. Remove the front cover (4) and the diaphragm (6).
3. While depressing the lever (7) unscrew the demand valve housing (12).

4. Remove the exhaust Tee (20) and mouth bit (18).
5. Using the demand valve stem socket (4700-6), remove the Phillips head screw (5) from the end of the poppet assembly (10). Discard poppet assembly.
6. Remove the adjustable orifice (14) from the demand valve housing (12).

7. Clean all the metal components in the ultrasonic bath with a mild solution of white vinegar or equivalent.

NOTE: Excessive time in white vinegar can cause peeling of chrome. Use the mild acid solution only enough to remove corrosion from the parts.

8. Wash with fresh water and dry.

ASSEMBLY . . .

1. Start 2 threads in the poppet stem assembly (10) using the self-tapping screw (5).
2. Place the poppet assembly face down on your clean workbench.
3. Place the spring (9) on the poppet.
4. Place the washer (8) on the screw (5) and place it in the hole in the lever support.

5. Push the entire assembly down over the poppet stem and start to screw a couple of turns into the shaft of the poppet.
6. Compare the lever with a known good lever. If the geometry is bad, replace the lever.
7. Turn the assembly upside down and press on the poppet (10) with your thumb, insert the lever under the washer and screw.
8. Using tool 4700-6 and Phillips screw driver, completely tighten screw (5) until it

bottoms on poppet assembly.

9. Lubricate and install O-ring (11) onto the demand valve housing (12).
 10. Install the demand valve housing (12) onto the case assembly (15).
 11. Lubricate the O-ring (24) with Dow Corning III and install it onto the adjustable orifice (14).
 12. Push the adjustable orifice (14) into the demand valve housing (12).
- NOTE: At this point, do not engage threads.

SHERWOOD

3007-4000 REGULATORS



FIGURE 2

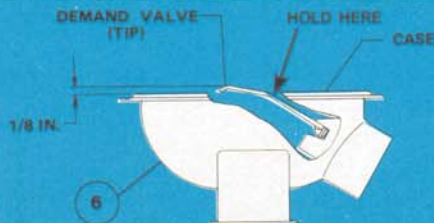


FIGURE 3

TEST AND TROUBLE SHOOTING

1. Using tool 4005-16, (See Figure 2), check the lever height.
2. To change the lever height, insert the slot on the tool onto the lever just below the bend point (See Figure 3).
3. Move the lever off of the stop ears of the lever support and bend the lever with the thumb using the adjusting tool to hold the lever.
4. Check the lever height.
5. Continue to bend with the thumb and tool and check the lever height until the lever is the same height as the tool.
6. Rotate the adjustable orifice (14) until it just touches poppet assembly (10). This can be accomplished by alternately blowing into the hose connection and adjusting the seat. Advance seat in clockwise direction until you can no longer blow air thru valve assembly.
7. Adjustable orifice should be turned inward or outward only when the lever (7) is depressed to prevent damaging the poppet seat with the sharp cutting edge of the adjustable orifice.
8. Place a properly adjusted first stage on a tank containing a minimum of 2700 PSI. You are now ready to do the final adjustments on

- the second stage. Adjustments should be made with that 1st stage which will ultimately be mated to the demand regulator.
9. With regulator pressurized (Supply pressure 2700 PSIG). Submerge demand regulator into water. Bubbling should be noted.
10. If unit does not bubble when submerged, shut off air, disconnect hose, depress lever and turn adjustable orifice in counterclockwise direction, then reassemble hose and pressurize.
11. When bubbling is noted shut off air supply, disconnect hose, and carefully adjust orifice in clockwise direction. It should only require a fraction of a turn.
12. Reassemble hose and pressurize. Check for bubbles. Proper adjustment is that point at which bubbles just stop.
- NOTE: Whenever orifice is adjusted, depress lever to prevent orifice from cutting into rubber seat. Airfoil is formed in the case to give an aerodynamic assist during periods of high demand. This is not a dent due to damage.
13. After adjusting the orifice, the lever height should be rechecked to assure that it just touches the diaphragm when assembly of the second stage is completed. If the lever

is too high, a potential free flow problem exists. If the lever is too low, there will be a hesitation in the breathing performance of the regulator and an increase in breathing resistance.

14. Insert new exhaust valve (19) from the outside of second stage body.
15. Install the diaphragm (6), the front cover assembly (1, 2, 3, 4) and the retaining ring (16).
16. Place your thumb in the opening in the exhaust T and stretch it over the boss on the second stage body. Secure it with either a screw (5) and washer (8) or snap it into place, depending on model.
17. Check the inhalation resistance of the regulator by slowly submerging it in water, purge downward. Air should start to flow before water level reaches the mouth piece.
18. Turn off the air and purge the regulator.
19. With the regulator still on the tank, try to inhale on the regulator. No air should enter the second stage.
20. If air enters the second stage, check for leaks around the purge valve and diaphragm.

TROUBLE SHOOTING SECOND STAGE

AIR LEAKING FROM SECOND STAGE . . .

1. Check 1st stage pressure for the given first stage. If proper continue.
2. Check adjustment of the second stage movable orifice using tool.
3. If unable to adjust orifice, disassemble second stage and inspect the seat for mechanical damage or foreign particles embedded in sealing surface.
4. Inspect the orifice cutting edge for mechanical damage and corrosion. Clean or replace as necessary. Readjust. Check lever height. Adjust if necessary.

HIGH INHALATION RESISTANCE . . .

1. Check 1st stage pressure.
2. Check adjustment of orifice.
- NOTE: If second stage poppet is dirty or worn, orifice may have to be adjusted to such a point to stop bubbling that inhalation resistance is beyond acceptable range.
3. Check lever height.
4. Inspect diaphragm for stiffness. Replace if necessary.

STICKY EXHALATION . . .

1. Replace exhalation valve.
2. Clean mating areas.

NOISY EXHALATION . . .

1. Check spider flatness.
2. Replace exhalation valve.

WATER IN SECOND STAGE OR MIST IN SECOND STAGE IN USE IS GENERALLY CAUSED BY:

1. A deteriorating exhalation valve on damaged sealing surface.
2. A damaged diaphragm or sealing surface.
3. Leaks in housing.
4. Defective mouth bit.

SHERWOOD
3007-4000 REGULATORS



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A HILL ACME COMPANY

**PRECISION VALVES AND
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