

ASSEMBLY AND MAINTENANCE GUIDE

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



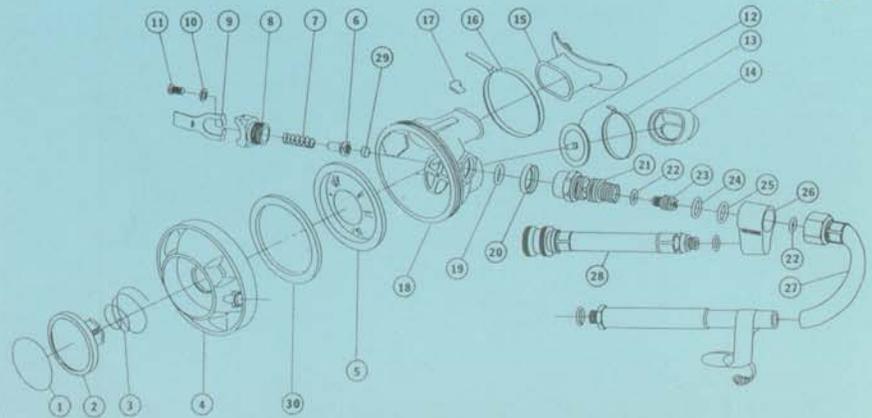
SHERWOOD

SR 3208 REGULATORS

ASSEMBLY AND MAINTENANCE

SR 3208 SHADOW DEMAND REGULATORS

NO.	CAT. NO.	DESCRIPTION
1	3208-6	Decal
2	3004-1	Purge Button
3	19-4006-12	Spring, Purge Button
4	3208-10BK	Bezel with lock button - black
4A	3208-10BU	Bezel with lock button - blue
4B	3208-10RG	Bezel with lock button - orange
4C	3208-10Y	Bezel with lock button - yellow
5	4006-13	Diaphragm
6	4006-21	Poppet Assy.
7	19-978-12	Spring, Low Pressure
8	1-3004-8LH	Lever Support
9	19-4006-9	Lever, Demand Valve
10	19-4000-9	Screw
11	19-4006-17	Washer
12	4006-15	Valve, Exhalation
13	3786-9L	Tie
14	3208-7	Exhaust Tee
15	3208-9	Mouthbit
16	3786-9	Tie
17	19-3004-9	Lock
18	3004PL-1	Case - Black
18A	3208-1BU	Case - Blue
18B	3207PL-1	Case - Orange
18C	3208-1Y	Case - Yellow
19	G-907A	O-Ring
20	1-3004-12	Washer
21	1-3208-11	Housing, Demand Valve
22	G-010D	O-Ring
23	29-4006-20	Adjustable Orifice
24	G-015A	O-Ring
25	G-014A	O-Ring
26	1-3208-12	Swivel Fitting
27	3208-30	Hose Assy. with strap
28	3208-40	Hose Assy. (Quick Disconnect)
29	978-9B	Poppet Seat
30	SP-1	Bezel Spacer



- SR3208BK Black, left hand, with quick disconnect
- SR3208BU Blue, left hand, with quick disconnect
- SR3208RG Orange, left hand, with quick disconnect
- SR3208Y Yellow, left hand, with quick disconnect

DISASSEMBLY

Any time hose fittings are loosened or two tightened, wrenches should be used to prevent cracking the plastic housing.

1. Remove hose assembly (27).
2. Slide off quick disconnect hose assembly (28) and swivel fitting (26) as a unit.
3. Remove o-rings (24) and (25).
4. Remove the protecting lock (17).
5. Remove the bezel (4), the diaphragm (5) and the bezel spacer (30).
6. Remove tie (13) and the exhaust tee (14).
7. With a 3/4 inch deep socket or box end wrench on the lever support (8) in the interior of lexan case (18), remove the demand valve housing (21), using a 13/16 inch wrench.

NOTE: Do not put any strain on lexan body during this operation.

8. Remove the adjustable orifice (23) from demand valve housing (21) by unscrewing orifice (23) and pushing it out with a soft object such as a toothpick or Q-tip.
9. If worn, the poppet seat (29) can be removed with a sharp pick. Clean residual adhesive from poppet stem.
10. Compare the lever (9) to a new lever. If the lever is deformed and needs replacement, perform Step 11. If no lever replacement is necessary, proceed to Step 12.
11. To remove damaged lever (9), place socket tool (P/N 4700-6) in vise. Place

square head of poppet assembly into square socket end. Remove phillips screw (11). Discard bent lever assembly and save all other parts.*

12. Clean all metal parts in white vinegar.
13. Inspect all parts for damage or cracking. Pay special attention to case in area of hose penetration.

ASSEMBLY

1. If lever (9) or spring (7) is being replaced, proceed to Step 2. If not, go to Step 7.
2. Place poppet (6) in socket tool (P/N 4700-6). Place spring (7) over poppet (6).
3. Place washer (10) over self-tapping screw (11) and place the screw in the hole in the lever support (8).
4. Lower the lever support (8) onto the spring (7) and stem assembly (6) and start the screw into the stem. Turn it one or two turns.
5. Push lever support (8) down firmly and slip the demand valve lever (9) under the washer.
6. Tighten the screw (11) down tight holding the stem assembly with the demand valve stem socket (4700-6).
7. Place new poppet seat (29) on clean flat surface. Apply small drop of Perma Bond 910 adhesive or equivalent "super glue" to top surface of the seat material. Lower the assembly over the seat (29) and press firmly. Check for and remove excess glue.
8. Place the resulting assembly in the recess in the second stage case (18).

9. Install the o-ring (19) from the outside of the case, over the threads of the lever support assembly.

10. Place the washer (20) with outer flange cupped outwards around the o-ring (19).

11. Install the demand valve housing (21) onto the lever support assembly.

12. Holding the lever support assembly with a 3/4 inch socket from the inside, torque the demand valve housing to 70 in. lbs. max. Be sure no strain is placed on lexan body during torquing.

13. Lubricate the o-ring (22) and install it on the adjustable orifice (23).

14. Screw the adjustable orifice (23) into the demand valve housing. Depress lever (9), while turning orifice to avoid cutting seat.

15. Clean, lubricate, and install o-rings (24) and (25).

16. Slide quick disconnect hose assembly (28) and swivel fitting (26) onto demand housing (21).

17. Alternately screw the adjustable orifice into the housing and blow into the housing until you can no longer blow through the second stage. This tells you that the poppet is just touching the orifice.

18. 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.

*poppet seat (29) only may be replaced.

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TEST AND TROUBLE SHOOTING

NOTE: The finest adjustments can be made using a container of water on the repair bench and adjusting the second stage using bubbles as visual air flow indicator at the lever support assembly (8).

1. Using second stage adjusting tool, (P/N SYA 4701), adjust the second stage adjustable orifice inward until no air escapes from the second stage. How far in the orifice is adjusted depends on second stage use. Just barely stop the bubbles for a primary regulator, but adjust further in on an octopus second stage to prevent free flows.

NOTE: Adjustable orifice (23) should be turned only when lever (9) is depressed to prevent damaging the poppet seat (29) with the sharp cutting edge of the orifice (23).

2. After setting the spring tension, the lever should be set so 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.

3. Using tool 4005-16, check the lever height. (see figure 2).

4. To change the lever height, insert the slot on the tool onto the lever just below the bend point. (see figure 3).

5. 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. Apply all bending force on the lever outboard of the adjusting tool towards lever tip. Never bend lever at the lever support.

6. Check the lever height.

7. Continue to bend with the thumb and check the lever height until the lever is the

same height as the tool.

8. Insert exhaust valve (12) from the outside of second stage body.

9. Install the diaphragm, (5) the front cover (4) and the lock (17).

10. Place your thumb in the opening in the exhaust Tee (14) and stretch it over the boss on the second stage body. Secure it with a tie (13).

11. 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.

12. Turn off the air and purge the regulator.

13. With the regulator still on the tank, try to inhale on the regulator. No air should enter the second stage.

14. If air enters the second stage, check for leaks around the exhaust valve and diaphragm.



FIGURE 2

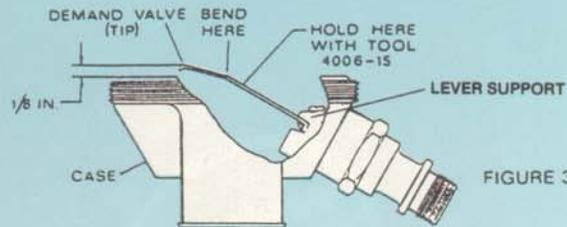


FIGURE 3

SMALL FREE FLOW FROM SECOND STAGE

A. Check first stage output pressure; if proper, continue.

B. Check adjustment of the second stage using adjustable orifice tool (SYA4701).

1. If unable to stop flow by adjusting orifice spring tension, disassemble second stage and inspect the seat for mechanical damage or foreign particles embedded in sealing surface.

2. Inspect the orifice cutting edge for mechanical damage and corrosion.

3. Clean or replace as necessary.

4. Readjust orifice.

C. Check lever height.

1. If lever drops limply before flow can be stopped, either new poppet and seat are needed or hose pressure is too high (160+).

HIGH INHALATION RESISTANCE

A. Check first stage pressure.

B. 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.

C. Check lever height using tool (4005-16).

D. Inspect diaphragm for stiffness. Replace if necessary.

STICKY EXHALATION

A. Replace exhalation valve.

WATER IN SECOND STAGE

A. A deteriorating exhalation valve.

B. A damaged diaphragm.

NOTE: The sealing surface in the lexan housing at the exhalation valve or diaphragm can be damaged also and should be inspected.

C. Cracks in housing.

HIGH INHALATION RESISTANCE ONLY AT GREATER DEPTHS OR LOW TANK PRESSURE.

A. Replace first stage inlet filter.

NOISY INHALATION (HUMMING OR BUZZING)

Caused by spring mass resonance. Depending on what parts are resonating one or more of the following actions will stop the buzzing.

A. If in first stage — Rotate main spring end to end and reinstall.

— Install a new piston.

— Install new spring.

B. If in second stage — Rotate poppet spring end to end.

— Install new poppet and orifice.

— Install new spring.

SEMINARS

Sherwood conducts repair seminars on a regular basis throughout North America. Because of many unique features found only in Sherwood regulators, we strongly recommend that our authorized dealers attend them. For details, contact your Sherwood distributor.

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