ASSEMBLY AND MAINTENANCE GUIDE

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





SHERWOOD

SRB 3100 REGULATOR

SRB 3105 FIRST STAGE REGULATOR

NO.	CAT. NO.	DESCRIPTION
	SRB 3105	REGULATOR, FIRST STAGE
1	1-4005-30	KNOB ASSEMBLY (MOLDED)
2	3504-6	RETAINER RING
3	1390-7	FILTER
4	3529-6A	CAP & CORD ASSEMBLY
5	1-1665-17	RETAINING NUT
6	2-2005-10	YOKE
7	25-3105-30	RETAINER & SEAT ASSY
8	1-3105-4	RING, COMPRESSION
9	4005-5	WASHER
10	2-3105-1	BODY
11	3105-5	PIN, ADJUSTING
12	G011B	O-RING (Was 3329-6)
13	1-3105-6	PLUG
14	1-4005-4	RETAINER, SPRING
15	1393-14A	O—RING
16	1393-13	BACK UP RING
17	3837-4	WASHER
18	1-4005-11	BONNET
19	985-10	SPRING
20	985-9	PISTON
21	984-19	BACK UP RING
22	G020A	O-RING (Was 984-18)
23	2-3105-2	CAP

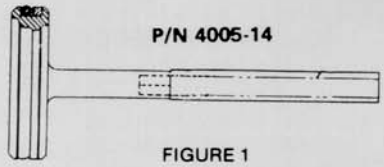
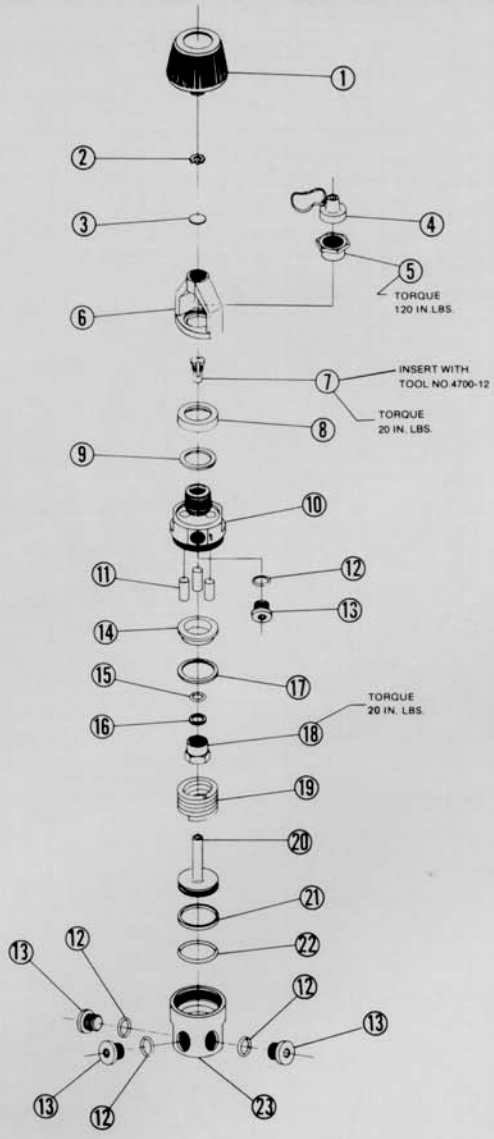


FIGURE 1



MAINTENANCE OF SRB 3105 FIRST STAGE REGULATOR

DISASSEMBLY

Note: Standard inspection of components shall be performed during disassembly of the regulator.

1. Remove knob (1) retaining nut (5) yoke (6), compression ring (8), and washer (9) form body (10).

2. Remove the inlet filter (3) and star washer (2) from the regulator body. Discard filter and star washer.

3. Remove high pressure seat assembly (7) and discard.

4. Using a wrench on the flats of the end cap (23) remove it from the body (10).

5. Remove piston (20) and spring (19) from end cap.

NOTE: You can use piston insertion tool (4005-14) in end of piston to improve grip and leverage when removing piston from end cap.

6. Remove O-ring (22) and teflon backup ring (21) from piston and discard.

NOTE: Protect the sharp cutting edge of the piston stem. Do not damage the edge in any way.

7. Remove O-ring bonnet nut (18) from regulator body (10).

8. Remove teflon backup ring (16) and O-ring (15) and discard.

9. Remove spring retainer (14) washer (17) and pins (11).

10. 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 (15) with Dow Corning III.
2. Place it in the recess in the regulator body (10).
3. Insert the teflon backup ring (16) on top of the O-ring.
4. Place the three pressure adjusting pins (11) in the body. Place the spring retainer (14) lip side up in the body and washer (17) on top of it.
5. Torque the O-ring retaining bonnet nut to 20 inch/pounds. (Do not over torque).
6. Spiral the teflon backup ring (21) onto the piston.
7. Install new lubricated O-ring (22) onto the piston (20).
8. Install spring (19) onto the regulator body (10).
9. Using a lubricated piston insertion tool (4005-14), insert the piston into the regulator housing.
10. Screw the end cap (23) onto the regulator body (10) 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. Install a new high pressure seat assembly (7) in the regulator module housing. Tighten to 20 inch/pounds. Install new filter screen (3) rought side up and star washer (2).
12. Install any spacers (9) (maximum 2) with compression ring (8) cupped over them on to body (10).
13. Install knob (1) and yoke (6) with retaining nut (5).

14 Torque retaining nut to 120 inch/pounds.

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 (SYA 4700).
2. Introduce 250 PSIG Pressure to the inlet 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.

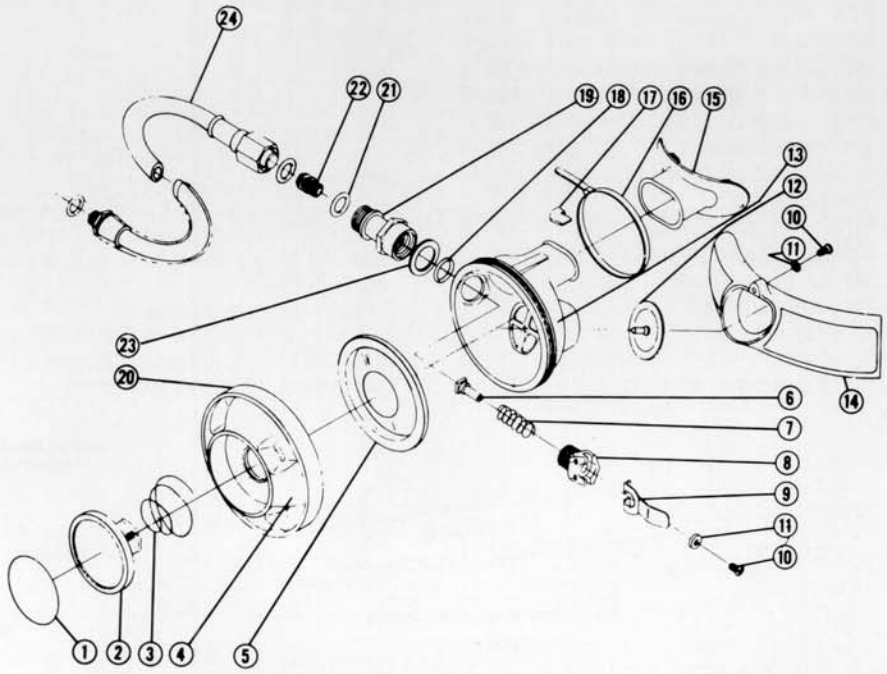
3. Actuate the regulator several times and check the ambient pressure ports for bubbles. If bubbles appear, the leak is at one of two O-rings.
4. Remove the cap from body and replace O-rings (15) and (22).
5. Re-assemble and retest.
6. If leak continues, replace cap (item 23). If no leak is observed, 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 a pressure adjusting washer (9), (maximum of two).
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.

LEXAN DEMAND REGULATOR

NO.	CAT. NO.	DESCRIPTION
1	3004-7	Decal
2	3004-1	Purge button
3	19-4006-12	Spring, purge button
4	3004P-2	Bezel
5	4006-13	Diaphragm
6	4006-21	Poppet Assy.
7	19-978-10	Spring, low pressure
8	1-3004-8RH	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	3004P-1	Case
14	4006-8	Exhaust Tee
15	3786-7	Mouthbit
16	3786-9	Tie
17	19-3004-9	Lock
18	G907A	O-ring (was 3004-6)
19	1-3004-4	Housing, demand valve
20	19-3004-5	Ring, reinforcing
21	G010D	O-ring (was 1322-21)
22	29-4006-20	Adjustable orifice
23	1-3004-12	Washer
24	3809-50-31	Hose assembly, includes o-rings



SHERWOOD

SR 3004P REGULATOR

LEXAN SECOND STAGE DEMAND REGULATOR
SR 3004P

DISASSEMBLY

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

1. Remove the protecting lock (17).
2. Remove the bezel (4) and the diaphragm (5).
3. Remove screw (10) and the exhaust tee (14).
4. With a 3/4 inch wrench on the lever support (8) in the interior of lexan case (13), remove the demand valve housing (19), using a 13/16 inch wrench. NOTE: Do not put any strain on lexan body during this operation.
5. Remove the adjustable orifice (22) from demand valve housing (19) by unscrewing orifice and pushing out.
6. To remove worn low pressure poppet assembly (6), place socket (4700-6) over square head of assembly (6). While holding socket firmly in hand, remove philips screw (10). Discard stem assembly (6) and save all other parts.
7. Clean all metal parts in white vinegar.
8. Inspect all parts for damage or cracking. Pay special attention to case in area of hose penetration.

ASSEMBLY

1. Using self-tapping screw (10), prethread the new low pressure seat stem assembly (6) two or three turns.
2. Place the low-pressure spring (7) over the poppet assembly (6) and place it seat side down on a clean workbench.
3. Place washer (11) over self-tapping screw (10) and place the screw in the hole in the lever support (8).
4. Lower the lever support (8) onto the spring (7) and poppet assembly (6) and start the screw into the stem. Turn it one or two turns.
5. Compare the lever (9) to a new lever. If the lever is deformed, replace it.
6. Turn the resulting assembly up side down and slip the demand valve lever (9) under the washer.
7. Tighten the screw (10) down tight, holding the stem assembly with the demand valve stem socket (4700-6).
8. Place the resulting assembly in the recess in the second stage case (13).
9. Install the o-ring (18) from the outside of the case, over the threads of the lever support assembly.
10. Place the washer (23) with outer flange cupped outwards around the o-ring (18).
11. Install the demand valve housing (19) 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 (21) and install it on the adjustable orifice (22).
14. Screw the adjustable orifice (22) into the demand valve housing. Depress lever (9), while turning orifice to avoid cutting seat.
15. 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.
16. Place a properly adjusted first stage on a tank containg a **mininum** of 2700 PSI. You are now ready to do the final adjustments on the second stage.

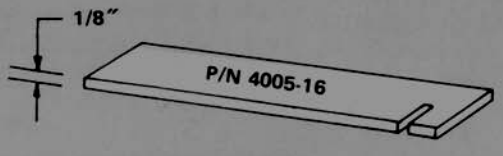
ADJUSTING

NOTE: The finest adjustments can be made using a pail 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 (22) should be turned only when lever (9) is depressed to prevent damaging the poppet face (6) with the sharp cutting edge of the orifice (22).

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. Use tool 4005.16 to check the lever height. (See figure 2).
4. To change the lever height, insert the [illegible] 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 pivot 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 thickness.
8. Insert new 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 screw (10) and washer (11).
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.



ADJUSTING TOOL AND GAUGE

FIGURE 2

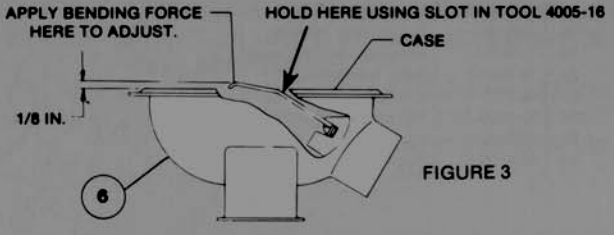


FIGURE 3

SHERWOOD
a division of HARSCO corporation
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SHERWOOD
SR 3004P REGULATOR

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