

Boil-Out Procedures (Form E-146A) Must be Completed Prior to Start-Up

To Place SIMPLIPORT® 4000/4100 in Service:

NOTE: Bench torque all new Simpliport Gages before installing on to the boiler!

1. Shut off water and steam gage valves.
2. Make proper connection of SIMPLIPORT 4000/4100 end nipples or flanges to the water gage valves.

NOTE 1: Where end nipples are furnished, be sure that the red lug is at the top and that all SIMPLIPORT 4000/4100 window packing nuts point slightly to the **left** as observed by viewer, See Fig. 3

NOTE 2: Where expansion loops and flanges are furnished, the SIMPLIPORT 4000/4100 is installed with the loop on the top side.

3. With Cold Boiler:

- a) Open water and steam gage valves and allow SIMPLIPORT 4000/4100 to heat up along with boiler.
- b) Check each port window for leakage. A small mirror held opposite the leak-detector hole (drilled through one face of each window nut) is useful here. If leakage is observed, shut off water and steam gage valves and replace module of affected port, as described on reverse side under "Installing SIMPLIPORT 4000 Replacement Modules."

NOTE: If a mirror is used to detect leaks, a small wisp of steam may be seen on the surface of the mirror when held directly opposite of the leak detection hole. This is typical and should not be considered as a failure.

- c) Mounting the illuminator:
Traditional Illuminator models (PI or PIW Series): Mount illuminator and hood on side lugs of SIMPLIPORT 4000/4100, joining red slot in illuminator with red lug on SIMPLIPORT 4000/4100 (see Fig. 3).

LED Illuminator models (SI*-LED Series): Remove the four (4) Hex head screws from the gage, and install the four (4) socket-head cap screws (provided with the LED Illuminator), in order to install the LED Illuminator Mounting Bars (see Fig. 4). (Ref: IOM#R5400)

4. With Hot Boiler:

- a) Open drain valve. Open steam and water valves far enough to allow a small amount of water and steam to pass through the gage for about 5 minutes. This permits a gradual warm-up of the SIMPLIPORT 4000.
- b) Close the drain valve and finish opening the water and steam valves.
- c) Check each port window for leakage, as in procedure 3b) above.
- d) Mount Illuminator as described above in procedure 3c).

CAUTIONS:

1. **NEVER APPLY TORQUE TO SIMPLIPORT 4000 SERIES UNDER PRESSURE.**
2. **DO NOT HOT TORQUE ON SIMPLIPORT 4000 SERIES GAGES.**
3. **DO NOT TORQUE NUTS TO GREATER THAN 80 FT-LBS. TORQUE AS DESCRIBED.**
4. **EXCESSIVE BLOWDOWNS MAY SHORTEN GAGE SERVICE LIFE (Form E-156B).**

SIMPLIPORT 4000 SERIES

COMPONENTS (Fig. 1)

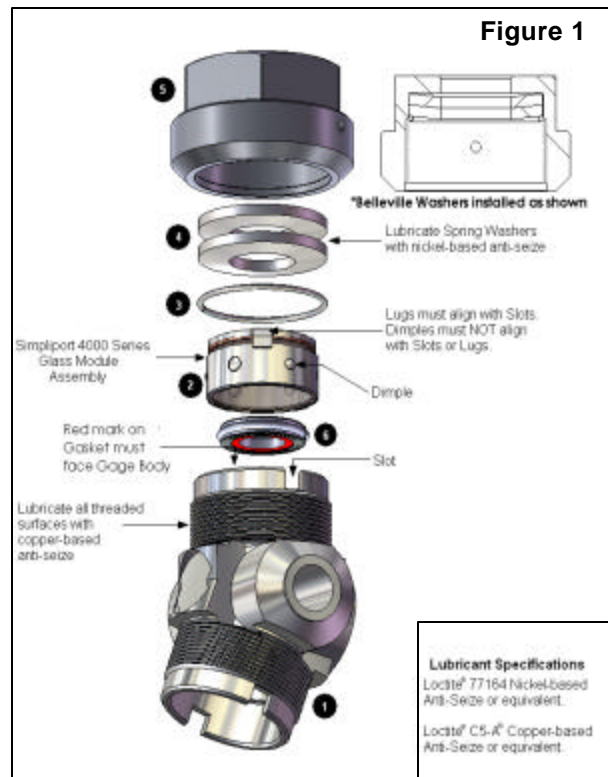
1. SIMPLIPORT 4000 Body (Single Window Unit)
2. Module (RPW-87)
3. Spring Retainer (RPW-40)
4. Spring Washers (RPW-66)
5. Packing Nut (RPW-65)
6. Spiral-Wound Gasket (RPW-90)

Note: Packing Nut Assembly (RPW-68) includes (1) Packing Nut (RPW-65), (2) - 0.125" edge thickness Spring Washers (RPW-66), and (1) Spring Retainer (RPW-40).

****DO NOT USE P/N RPW-39: 0.078" EDGE THICKNESS BELLEVILLE WASHERS****

Note 2: Use only OEM replacement modules to retain design and maintain performance safety standards. See page two for additional maintenance information.

Figure 1



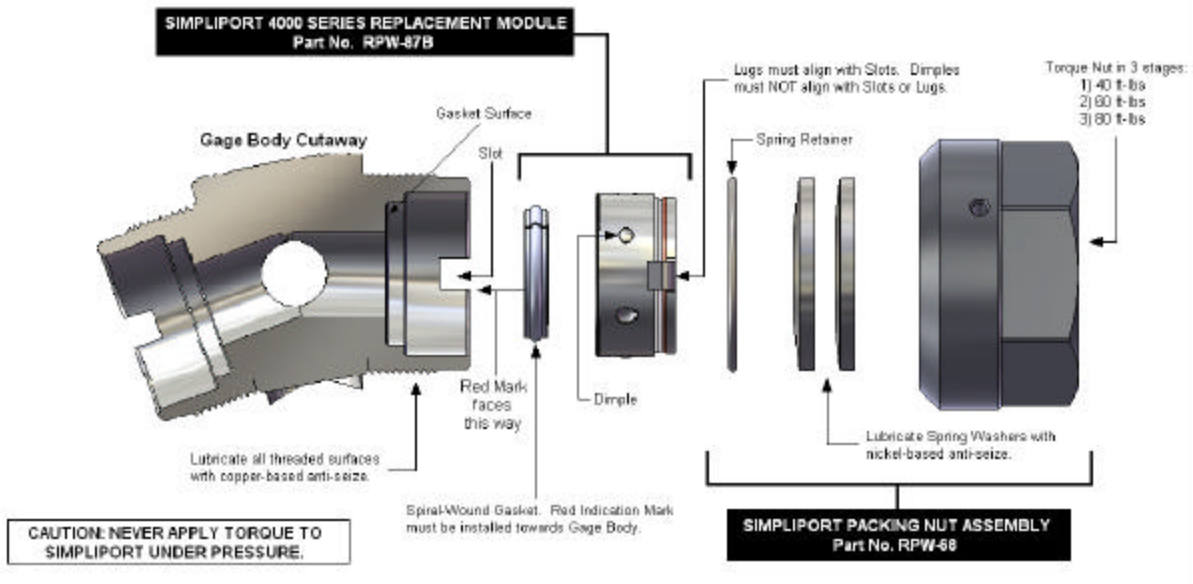
NOTE: Industrial Power Boilers are one of the most harsh environments for Level Gage Glasses. Actual service life will vary based on one or more of the following conditions: cycle frequency, temperature fluctuations, water quality, and other factors. Depending upon these factors, the average service life is from 6-18 months.

Complete gage rebuilds are suggested on an annual basis for personnel and plant safety. This can reduce the number of maintenance intervals caused by the need to replace individual glass modules.

INSTALLING SIMPLIPORT® 4000 SERIES REPLACEMENT MODULES

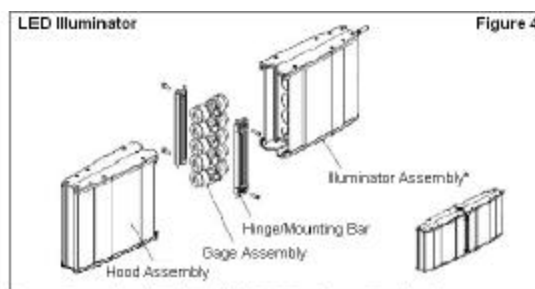
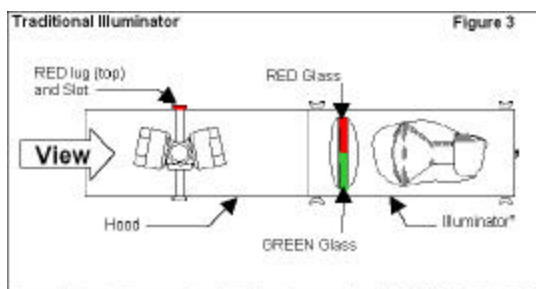
(required: Torque Wrench w/ 1-7/8" Socket, Special Pliers – P/N RPW-35, Lubricant – see steps 7 & 8)

1. Shut off the steam and water gage valves then open drain valve and drain the SIMPLIPORT 4000/4100 completely.
 2. Remove Packing Nut containing 0.125" edge thickness Spring Washers – save for re-use.
 3. Remove old module and discard. (use Special Pliers, P/N RPW35)
 4. Wipe recess in Gage Body with clean cloth; be sure that the gasket surface at bottom is perfectly clean and smooth. An electric drill with a medium grade 1" (25mm) diameter stainless steel wire brush may be used to polish the gasket surface, if necessary.
 5. Insert Spiral Wound Gasket into gasket seat in Gage Body. **IMPORTANT** – Make sure the Spiral Wound Gasket is installed with the red indication mark facing towards the Gage Body. The red indication mark should **NOT** be visible when the Spiral Wound Gasket is installed correctly.
- NOTE: A small amount of water applied to the red marked side of the Gasket will help hold the Gasket in place during installation.



6. Install Replacement Module. Lugs must align with Slots. Dimples must **NOT** align with Slots.
7. Remove Spring Retainer and Spring Washers from Packing Nut. Clean and inspect Spring Washers for cracks or pitting. Damaged Spring Washers must not be re-used. **IMPORTANT: If replacing spring washers, use part # RPW66 (.125" thick washers). Do not use part# RPW-39 (.078" thick washers).** Lubricate each Washer and Spring Retainer with Loctite® 77164 Nickel-based Anti-Seize or equivalent, and re-insert into the Packing Nut as shown above. Make sure Spring Retainer seats completely.
 - A). Do not sandblast Spring Washers. Clean with solvent only in order to prevent the removal of the nickel plating
 - B). Clean Packing Nut and Spring Retainer thoroughly with a soft wire brush. If excessive corrosion still exists or threads appear damaged, replace the Packing Nut assembly with a new one. Packing Nuts may be glass-bead cleaned to remove corrosion and dirt from threads.
8. Clean Gage Body threads with a soft wire brush and inspect for damage. Lubricate Gage Body threads and Packing Nut threads with Loctite® C5-A® Copper-based Anti-Seize or equivalent.
9.
 - A) Install Packing Nut Assembly and turn Nut "finger-tight".
 - B) Tighten Nuts in 3 stages: 40 ft-lbs first, 60 ft-lbs second, 80 ft-lbs last. Do NOT tighten Nuts completely from "fingertight" to 80 ft-lbs.

NOTE: After waiting about a minute, re-torque nuts at 80 ft-lbs.
10. Close the drain valve. Slowly open the steam and water valves and allow the SIMPLIPORT 4000/4100 to reach operating temp/pressure gradually (approximately five (5) minutes) and observe that no leakage is detected. Repair or installation of SIMPLIPORT 4000/4100 is now complete.



*Illuminator must be installed to comply with ASME Section I Requirements, and verify that the Illuminator is mounted as shown.



Notice to Plant Operators

The use of non-Original Equipment Manufacturer parts (such as glass, gaskets, probes, modules, etc.) will void the Agency Approval (FM, UL, CSA, CRN, ABS, etc.), pressure/temperature rating, and warranty of this equipment. Clark-Reliance requires the use of OEM parts for all repairs on this product in order to maintain plant and personnel safety, and reliable operation.

"PARTS-PLUS"
Critical spare parts for overnight
delivery, direct from the manufacturer.

clark-reliance.com/parts



Steel Valve Repair Kit



Replacement Probes



Gage Glass Repair Kit



Simpliport Module



Simpliport Packing Nut



Replacement Relays



Probe Repair Kit



Replacement EA100 Ass'y



Replacement Micro-switch



Bronze Valve Repair Kit



Valve Packing



Replacement Floats

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