PULSE DAMPER REPAIR PROCEDURE

Repair kit part no. 120139

FILLING PROCEDURE

**CAUTION:** For the pulse damper to function properly, the temperature of the isopropanol, at the time of filling, must be slightly higher than that of the pulse damper. A large beaker of water with a small beaker of isopropanol inside it works well.

A. Put one or two drops of food coloring in the 40 mL of isopropanol. Use a water bath to heat the isopropanol.

B. Clamp the pulse damper in a vise with the seal screw opening straight up. This insures that air bubbles will not be trapped inside the reservoir and interfere with the operation of the pulse damper. Immediately pour the isopropanol into the reservoir until the level of the isopropanol is above the seal seat.

C. Place the seal screw, with the seal already on it, into the seal screw port. Turn it quickly into place with a 1/4’ hex wrench. Tighten to 120 inch-pounds or as tight as possible by hand using the wrench. Use a paper towel to soak up the excess isopropanol mixture.

**CAUTION:** Do not let water get on the pressure transducer, if present.

F. 1. For stainless steel pulse dampers with seal retainer only
   Place the O-ring (90-1016) on top of the groove created by the seal screw opening and the seal screw. Place the seal retainer on top of the O-ring. Insert the screws and carefully tighten them alternately, one-half turn at a time, until the O-ring is in place and the retainer is seated.

2. For Bioclean ™ (inert polymer flow-path) and stainless steel without seal retainer pulse dampers only
   Place the plastic hole plug in the hex recess in the seal screw.

G. Hook up the pulse damper to the pump and a restrictor coil to produce 6000 PSI. If a pressure transducer is present, connect it to the pump it came from, if that is the source of the pressure. If a restrictor coil is not available, dead-end the flow path and carefully run the pressure up to 6000 PSI. Check for leaks by looking for the blue (or mixture color you used) dye external to the pulse damper.

**CAUTION:** Rapidly releasing the pressure on the pulse damper can cause the diaphragm to burst and leak.

H. Bleed the pressure slowly (2-5 seconds) to zero.
MATERIALS REQUIRED

From the Kit:
A. 1 Diaphragm
B. 1 O-ring Teflon®, size 011 (smaller)
C. 1* O-ring Teflon®, size 013 (larger)
D. 1 Diaphragm Seal
E. 1 Seal Removal Tool
F. 1 1/4” Hex Wrench
G.*1 5/16” Hex Wrench
H.*1** 7/64” Hex Wrench
I. 1 Instructions

*These tools are not supplied in the 12-0136 Pulse Damper Repair Kit
**These parts are not used when rebuilding Bioclean™ and stainless steel without seal retainer Pulse Dampers

From the Lab:
J. 40 mL of HPLC or reagent grade isopropanol (IPA)
K. food coloring for isopropanol (optional - preferably blue)
L. Vise to hold pulse damper
M. torque wrench (optional)

SEAL REPLACEMENT

**CAUTION: Use care to avoid damage if an optional pressure transducer (cylindrical device with wires, opposite the seal screw) is present. Jarring of the transducer or damage to the wires could require pump recalibration or transducer replacement.**

A. Remove the seal screw with a 1/4” hex wrench. With some of the older models, this may involve first removing the seal retaining block.
B. Drain the old solvent from the reservoir. Dispose of this solvent properly.
C. Clamp reservoir in a vise horizontally, leaving the cover plate free above the vise jaws. Remove the six cap screws with a 5/16” wrench.
D. Remove all old seals, using the seal removal tool provided. Clean the reservoir and cover plate, using caution to avoid scratching the sealing surfaces.
E. Install the new diaphragm seal in the recess in the reservoir. Lay the new diaphragm on the reservoir and carefully align the holes with those in the reservoir.
F. Place the cover plate on the reservoir. Replace the cap screws and washers and tighten them finger tight. Place the reservoir in a vise and gradually tighten the screws, moving around the perimeter. The cap screws should be tightened to 200 inch-pounds, or, if a torque wrench is not available, as tight as possible by hand.
G. Place the smaller O-ring on the seal screw. The pulse damper is now ready to be filled with Isopropanol.

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