

Integra[®] Manually Operated Diaphragm Valves

1/4" orifice, 2-way, and sampling valves

REPAIR INSTRUCTIONS

For models:

201-43, 201-44, 201-46, 201-47, 201-48, 201-49, 201-51, 201-52, 201-43-01, 201-44-01, 201-46-01, and 201-47-01

REPAIR PROCEDURE – DISASSEMBLY

1. Refer to Figure 1 and begin disassembly by turning the adjustment nut counter-clockwise two turns with the $5/8"$ open-end wrench (S5).
2. Remove the outer cap (P2) with the outer cap wrench (T1) by slowly turning it counterclockwise.
3. Remove the inner cap assembly (P3) and outer cap (P2) together.
4. Refer to Figure 2 and remove the retainer nut (P4) with the alignment tool (T2) by inserting the end into the nut and turning the external hex on the tool counterclockwise with an adjustable wrench (S6).
5. Remove the diaphragm/retainer assembly (P1) by holding the lower stem with a pliers (S3) and pulling it up out of the body (P5).
6. Discard the diaphragm/retainer assembly (P1).

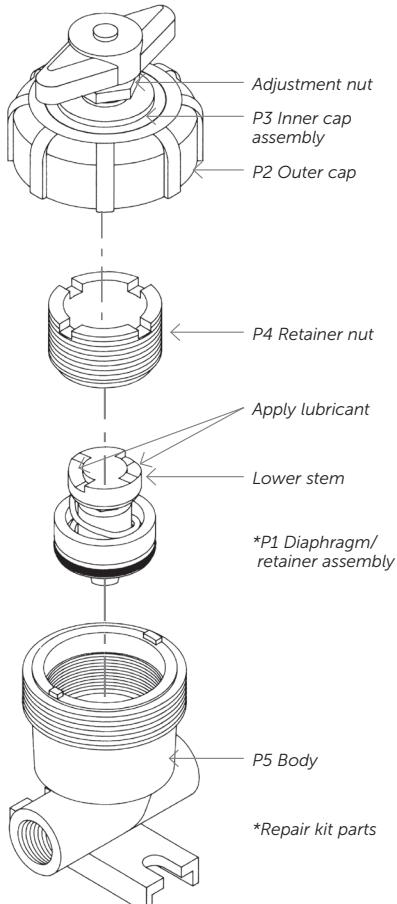


Figure 1.

REPAIR PROCEDURE—ASSEMBLY

1. Before beginning assembly, clean the internal body surfaces (P5) and the parts not supplied in the kit with isopropyl alcohol (S4).
2. Refer to Figure 3 and begin assembly by making sure the O-ring between the diaphragm and retainer is evenly in place and then drop the diaphragm/retainer assembly (P1) into the body (P5) (see Figure 2).
3. Thread the retainer nut (P4) into the body (P5) with the alignment tool (T2) by turning the external hex on the the alignment tool by hand in a clockwise position. Tighten the retainer nut (P4) until it just contacts the retainer.
4. With the alignment tool (T2) on the retainer nut (P4), rotate the alignment tool handle counterclockwise two times, ending up with the pin of the alignment tool parallel to the body ports (see Figure 2).
5. While holding the alignment tool handle (T2), tighten the hex portion of the tool 2.83 N·m (25 in·lb) torque with the torque wrench (S2) and a 1 1/8" crow's foot wrench (S7). While tightening, keep the alignment tool pin parallel to the body parts.
6. Apply lubricant (S1) to the lower stem (see Figure 3).
7. Place the inner cap assembly (P3) on the lower stem of the diaphragm/retainer assembly (P1) with the handle aligned with the fluid ports.
8. Rotate the inner cap so that the wide groove on the inner cap lines up with the wide boss on the body.
9. While holding the inner cap (P3) securely on the bosses of the body (P5), install the outer cap (P2). Torque to 9.0 N·m (80 in·lb) with the outer cap wrench (T1) and torque wrench (S2).
10. Adjust the inlet to outlet seal in the following way:
11. Close the valve and connect 690 kPa (100 psi) air pressure to the valve outlet port.
12. Apply pressure to the outlet port and turn the adjustment nut clockwise until leakage stops from the inlet. Turn the adjustment nut an additional 1/8 turn.
13. Assembly is now complete. See testing procedures.

T2 Alignment Tool

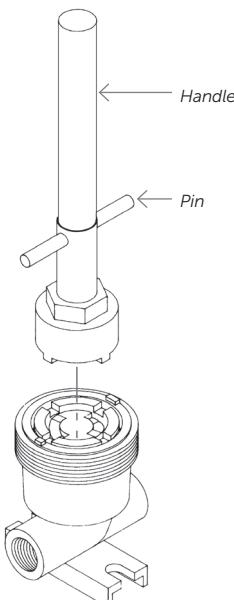


Figure 2.

TESTING

The valve must always be tested in the following ways:

Outlet to Inlet Leakage

1. With the valve in the closed position, apply 690 kPa (100 psi) air pressure to the outlet, no leakage at the inlet should be seen when the inlet port is submerged in water.
2. If leakage occurs, turn the adjustment nut an additional $\frac{1}{8}$ turn. Repeat submerging the inlet while 690 kPa (100 psi) is applied to the outlet.

External Media Leakage

Plug the inlet with a tapered pipe plug or Flaretek® fitting cap and apply 690 kPa (100 psi) air pressure to the outlet. No leakage should be observed from around the outer cap.

P1 Diaphragm/Retainer Assembly

Lower stem

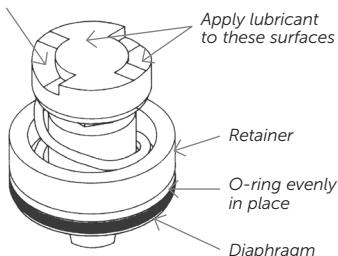


Figure 3.

ORDERING INFORMATION

Repair Parts Kit

ITEM	DESCRIPTION	QUANTITY
P1	Diaphragm/retainer assembly	1

Repair Tool Kit (Ordering number 213-102)

ITEM	DESCRIPTION
T1	Outer cap wrench
T2	Alignment tool

Customer Supplied Items

ITEM	DESCRIPTION
S1	Lubricant and brush for applying
S2	Torque wrench, 1/2" drive (11.3 N·m [100 in·lb])
S3	Pliers
S4	Isopropyl alcohol
S5	5/8" open-end wrench
S6	Adjustable wrench
S7	1 1/8" crows foot wrench, 1/2" drive

Repair Parts Kits

VALVE ORDERING NUMBER	REPAIR PARTS KIT ORDERING NUMBER
201-43	201-71
201-44	201-71
201-46	201-71
201-47	201-71
201-48	201-71
201-49	201-71
201-51	201-71
201-52	201-71
201-43-01	201-71
201-44-01	201-71
201-46-01	201-71
201-47-01	201-71

FOR MORE INFORMATION

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