

# Integra<sup>®</sup> Manually Operated Diaphragm Valves

*¼" Orifice, 2-way multi-turn designs*

## REPAIR INSTRUCTIONS

### For models:

201-81, 201-85, 201-87, 201-92,  
201-81-01, 201-85-01, 201-87-01,  
201-92-01

## REPAIR PROCEDURE – DISASSEMBLY

**NOTE:** For additional tools required to repair the valve, refer to "Customer Supplied Items" listing on page 3.

1. Begin disassembly by referring to Figure 1.
2. Remove the two screws (P1) on top of the handle (P8) with a screwdriver (S1). Discard screws.
3. Remove the handle (P8) by pulling up on it.
4. Remove the stop nut (P2) by rotating it counterclockwise, then discard it.
5. Remove the collar halves (P9) by inserting a screwdriver (S1) into the slot and separating them as shown in Figure 2.
6. Remove the panel mount nut (P10).
7. Remove the outer cap (P11) with the outer cap wrench (T1) by turning it slowly counterclockwise.
8. Remove and discard the thrust washer (P3) and O-ring (P4).
9. Remove the inner cap (P12).
10. Remove and discard the thrust washer (P5).
11. Remove the actuator nut (P6) by rotating it clockwise. Discard this part.
12. Use the retainer nut adapter (T2) and an adjustable wrench (S2) to remove the retainer nut (P13). See Figure 3.
13. Remove the diaphragm/retainer/stem assembly (P7) by pulling up on it. Discard this assembly along with the spacer (P15).

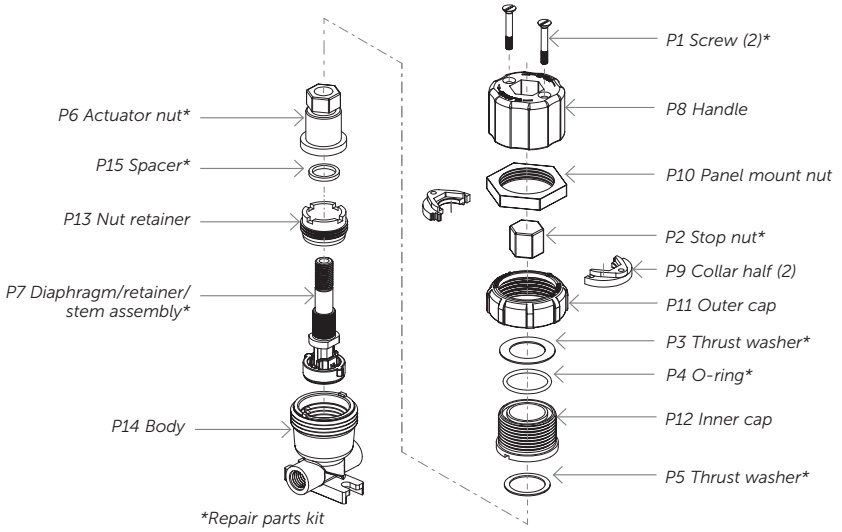


Figure 1.

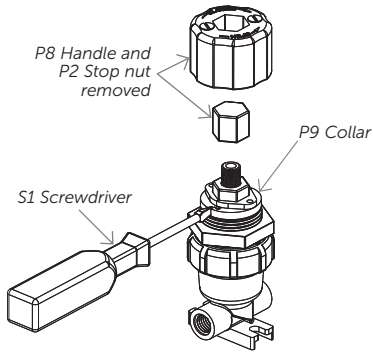


Figure 2.

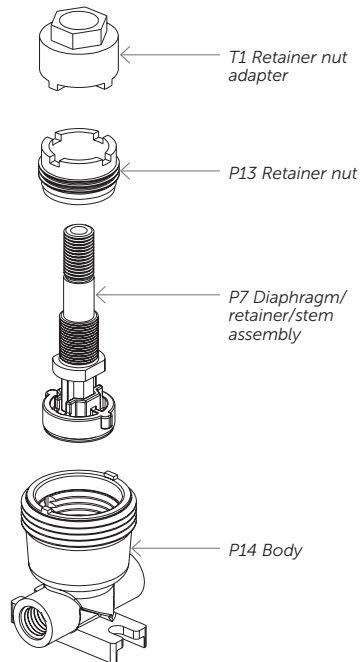


Figure 3.

## REPAIR PROCEDURE—ASSEMBLY

1. Before beginning assembly, clean the internal body surfaces (P14) and the parts not supplied in the kit with isopropyl alcohol (S3).
2. Begin assembly by making sure the O-ring between the diaphragm and retainer is evenly in place. Then position the diaphragm/retainer/stem assembly (P7) into the body (P14), lining up the tabs on the retainer with the slots on the body (P14).

**NOTE: Pushing down on the retainer with two fingers while applying a slight upward pull on the stem will keep the O-ring in place.**

3. Thread the retainer nut (P13) into the body (P14) until the retainer nut (P13) just contacts the retainer. See Figure 3.
4. With the retainer nut adapter (T2), tighten the hex portion of the adapter to 2.25 N•m (20 in•lbs) using the torque wrench (S4) and 3/4" crow's foot (S5).
5. Place spacer (P15) onto stem.
6. Thread the actuator nut (P6) by rotating it counterclockwise onto the stem until it bottoms out.
7. Place the thrust washer (P5) onto the actuator nut.
8. Place the inner cap (P12) onto the valve body, aligning the bosses on the body with the slots in the cap.
9. Install the outer cap (P11) and slowly torque to 9.0 N•m (80 in•lbs) using the torque T2 Retainer nut adapter wrench (S4), 3/4" crow's foot (S5) and outer cap wrench (T1).
10. Turn actuator nut (P6) clockwise until it contacts the inner cap (P12).
11. Place O-ring (P4) then the thrust washer (P3) into the groove on the inner cap (P12).
12. Thread on the panel mount nut (P10).
13. Install collar halves (P9) onto the stem as shown in Figure 5.

14. Set up valve so that 690 kPa (100 psi) can be applied to the outlet port.
15. Place the handle (P8) onto the actuator nut (P6) and slowly close the valve until a seal is just made. Remove the valve handle without disturbing the stem position, thread the stop nut (P2) onto stem and turn clockwise until it first contacts the actuator nut (P6). Then turn the stop nut (P2) counterclockwise less than 1/8 of a turn so the hex on the actuator nut (P6) first lines up with the hex on the stop nut (P2).
16. Install the handle (P8) so that the holes in the handle line up with the holes in the collar halves (P9).
17. Insert two screws (P1). Do not overtighten
18. Proceed to test the valve.

### P7 Diaphragm/Retainer/Stem Assembly

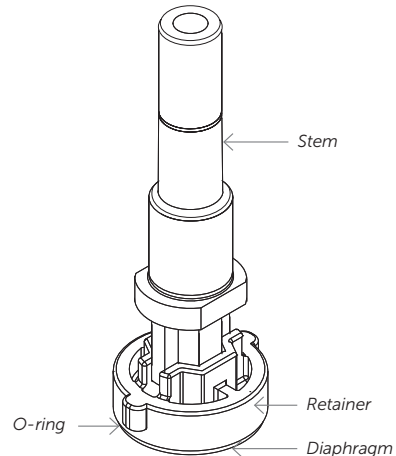


Figure 4.

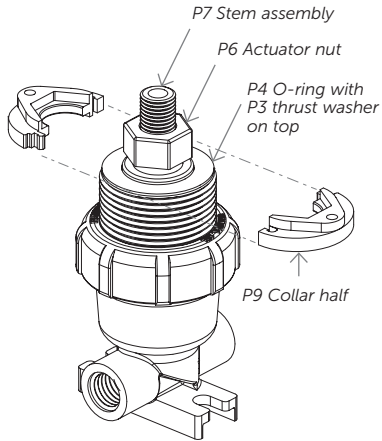


Figure 5.

## ORDERING INFORMATION

### Repair parts kit

ITEM	DESCRIPTION	QUANTITY
P1	Screw	2
P2	Stop nut	1
P3	Thrust washer	1
P4	O-ring	1
P5	Thrust washer	1
P6	Actuator nut	1
P7	Diaphragm/retainer/ stem assembly	1
P15	Spacer	1

### Repair parts kit

#### REPAIR PARTS

KIT PART NUMBER	VALVE PART NUMBER
201-88	201-81, 201-85, 201-87, 201-92, 201-81-01, 201-85-01, 201-87-01, 201-92-01

### Repair tool kit (part number 213-102)

#### ITEM DESCRIPTION

T1	Outer cap wrench
T2	Retainer nut adapter

### Customer supplied items

#### ITEM DESCRIPTION

S1	Screwdriver
S2	Adjustable wrench
S3	Isopropyl alcohol
S4	Torque wrench 22 N•m (200 in•lbs) scale
S5	3/4" Crow's foot

## TESTING

---

The valve must be tested in the following ways:

### Outlet to Inlet Leakage

Close valve fully and apply 690 kPa (100 psi) air pressure to the outlet. No leakage should be seen at the inlet when the inlet port is submerged in water. If leakage occurs, back off the stop an additional ¼ turn. If this does not correct the leakage, disassemble and inspect the valve seat for a defect.

### External Media Leakage

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

## FOR MORE INFORMATION

Please call your Regional Customer Service Center today to learn what Entegris can do for you. Visit [entegris.com](http://entegris.com) and select the [Contact Us](#) link to find the customer service center nearest you.

## TERMS AND CONDITIONS OF SALE

All purchases are subject to Entegris' Terms and Conditions of Sale. To view and print this information, visit [entegris.com](http://entegris.com) and select the [Terms & Conditions](#) link in the footer.



PURE ADVANTAGE

Corporate Headquarters  
129 Concord Road  
Billerica, MA 01821  
USA

Customer Service  
Tel +1 952 556 4181  
Fax +1 952 556 8022  
Toll Free 800 394 4083

Entegris®, the Entegris Rings Design®, Pure Advantage™, and other product names are trademarks of Entegris, Inc. as listed on [entegris.com/trademarks](http://entegris.com/trademarks). All third-party product names, logos, and company names are trademarks or registered trademarks of their respective owners. Use of them does not imply any affiliation, sponsorship, or endorsement by the trademark owner.

©2003-2018 Entegris, Inc. | All rights reserved. | Printed in the USA | 3220-1420ENT-0518