210 & 220 Series Regulators

Valve, Valve Seat, and Diaphragm Assembly Installation Instructions

READ CAREFULLY BEFORE ATTEMPTING REPAIRS

WARNING - Only qualified personnel with knowledge of gas pressure regulator servicing should attempt repairs. Repairs made by untrained personnel could result in performance difficulties or in gas leaks.

IMPORTANT SAFETY PRECAUTIONS - After assembly and installation of regulator, check carefully for gas leaks with rich soap solution (or other accepted leak tester) around flanges, bottom plate, vent opening, pipe connections, seal cap, and other joints.

Absolutely no leakage should occur, otherwise there is a danger of fire or explosion depending on conditions.

Regulators must be installed and maintained in accordance with federal, state and local codes as these are enacted to ensure safe operation.

- When regulator is repaired while connected to gas, be sure the gas is turned off before disassembly.
- When regulator is connected to piping, be sure to install in the proper direction as indicated by the flow arrow on regulator.
- When regulator is reconnected to piping, do not apply wrench or vise pressure to any part of it except the first flat area surrounding the pipe tappings at the end being threaded to pipe. This will avoid fracture of body and possible leakage.
- Make sure regulator is properly vented.
- In case of any questions, contact Service Manager, Maxitrol Company, 248-356-1400.

INSTRUCTIONS FOR REPLACING VALVE OR VALVE SEAT:

1. Remove bottom plate, cotter pin, hex nut, washer, valve, and "O" ring. A screwdriver slot is provided in bottom stem to prevent assembly from rotating while nut is being removed. *NOTE: If regulator was manufactured prior to October 1980, the valve will be attached to the stem with a truarc retaining ring (one has been included for this possibility).*
2. If internal metal parts are dirty or sticky, clean with a suitable solvent. Be careful not to get solvent on diaphragm or rubber parts. Use kerosene or alcohol for rubber parts, **do not soak**.
3. Remove and replace seat. Use new gasket if applicable.
4. Replace "O" ring, valve (new valve if provided), washer, hex nut, and cotter pin. Hex nut should be snug against washer. Do not use excessive torque. Use screwdriver slot to prevent rotation during reassembly. **Important - make sure that hole alignment of main diaphragm is maintained during replacement of valve so that rotation of diaphragm after replacement of valve is not necessary.**
5. Using new gasket, replace bottom plate.
6. Close manual firing valve downstream from 210 or 220 valve and open automatic valve(s). (If no firing valve is present, bring heater to high fire setting). Check reassembled connections for leaks with rich soap solution. **Absolutely no leakage should occur. Discontinue operation immediately if leakage is detected.**
7. Adjust outlet pressure of regulator to equipment manufacturer's specifications, if necessary.

PARTS LIST

Valve Kits -
KR210D03, E03, G03, J03 for 210D, E, G, J.

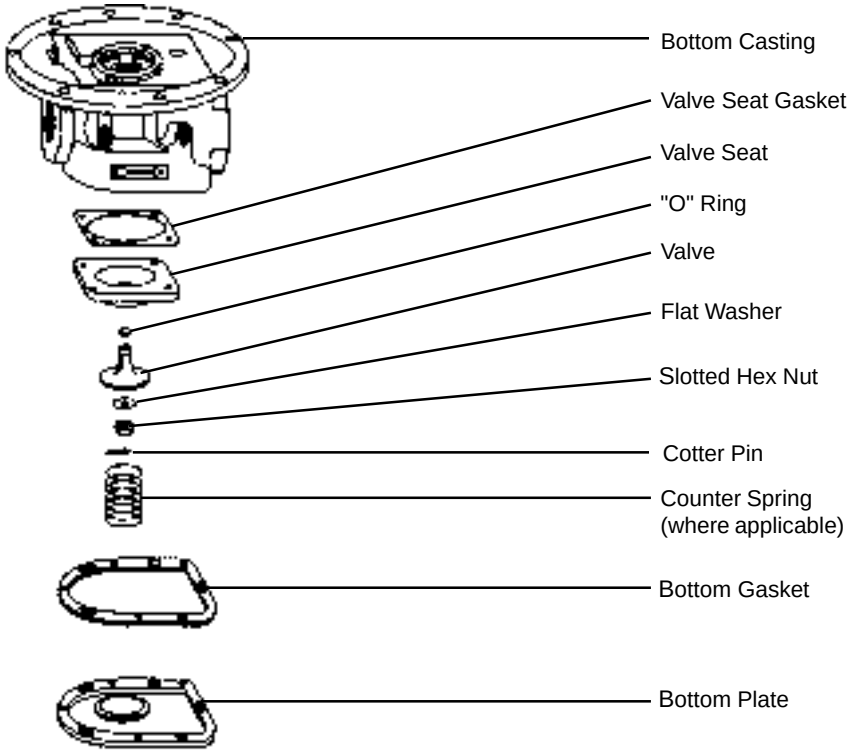
KR210D03Z, E03Z, G03Z, J03Z for 210DZ, EZ, GZ, JZ, and 220D, E, G, J.

Kit consists of valve, valve fasteners, and gaskets.

Valve Seat Kits -
KR210D15, E15, G15, J15 for 210D, E, G, J.

KMR212D15, E15, G15, J15 for 220D, E, G, J.

Kit consists of valve seat, valve fasteners, and gaskets.



CAUTION: Operation of combustion equipment can be hazardous resulting in bodily injury or equipment damage. Each burner should be supervised by a combustion safeguard and only qualified personnel should install, make system adjustments and perform any required service.

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IMPORTANT SAFETY PRECAUTIONS - After assembly and installation of regulator, check carefully for gas leaks with rich soap solution (or other accepted leak tester) around flanges, bottom plate, vent opening, pipe connections, seal cap, and other joints.
Absolutely no leakage should occur, otherwise there is a danger of fire or explosion depending on conditions.
Regulators must be installed and maintained in accordance with federal, state and local codes as these are enacted to ensure safe operation.

- When regulator is repaired while connected to gas, be sure the gas is turned off before disassembly.
- When regulator is connected to piping, be sure to install in the proper direction as indicated by the flow arrow on regulator.
- When regulator is reconnected to piping, do not apply wrench or vise pressure to any part of it except the first flat area surrounding the pipe tappings at the end being threaded to pipe. This will avoid fracture of body and possible leakage.
- Make sure regulator is properly vented.
- In case of any questions, contact Service Manager, Maxitrol Company, 248-356-1400.

INSTRUCTIONS FOR REPLACING REGULATING DIAPHRAGM ASSEMBLY:

1. Remove seal cap, adjusting screw and spring (210 only). Remove shroud covering top loading mechanism (220 only).
2. Remove top casting flange screws, top casting and diaphragm gasket.
3. Remove bottom plate, counter spring (where applicable), cotter pin, hex nut, washer, valve, and valve "O" ring. A screw driver slot is provided in bottom of stem to prevent assembly from rotating while nut is being removed. *NOTE: If regulator was manufactured prior to Oct. 1980, the valve will be attached to the stem with a truarc retaining ring (one has been included for this possibility).*
4. Remove regulating diaphragm assembly.
5. If internal parts are dirty or sticky, clean with a petroleum based solvent. Be careful not to get solvent on diaphragms or rubber parts. Use kerosene or alcohol on rubber parts **do not soak**.
6. Insert regulating diaphragm assembly so that diaphragm lays flat across flange of bottom casting with holes in line with screw holes in flange. Make sure that it is completely flat with no wrinkles or creases that might cause leakage. Be sure that bleed hole (220 only), which is centered between 2 of the screw holes, is positioned over bleed hole in bottom casting flange.
7. Replace valve "O" ring, valve, washer, hex nut, and cotter pin. Hex nut should be snug against washer. Do not use excessive torque. Use screwdriver slot to prevent rotation during reassembly. **Important - make sure that hole alignment of main diaphragm is maintained during replacement of valve so that rotation of diaphragm after replacement of valve is not necessary.**
8. Place new flange gasket over diaphragm and be sure that all holes, including the bleed hole (220 only), are aligned.
9. Place top casting on gasket with screw holes lined up. Be sure top is in same position as when it was removed.
10. Insert screw driver through adjusting stack (210 only) and push lightly on top diaphragm plate to full diaphragm travel. The outer edge of the diaphragm will be drawn inward so its holes will line up with screw holes in flanges. Be sure it is flat with no wrinkles or folds that might cause leakage.
11. Replace flange screws (being sure valve is down in full open position) and alternately tighten on opposite sides of regulator.
12. Using new gasket, replace counter spring (where applicable) and bottom plate.
13. Replace shroud (220 only).
14. Close manual firing valve downstream from 210 and 220 valve and open automatic valve(s). (If no firing valve is present, bring heater to high fire setting). Check reassembled connections for leaks with rich soap solution. **Absolutely no leakage should occur. Discontinue operation immediately if leakage is detected.**
15. Adjust outlet pressure of 210 or 220 valve to equipment manufacturer's specifications, if necessary.

PARTS LIST

Regulating Diaphragm Kits - KR210D3, E3, G3, or J3 for 210D, E, G, J. KMR212D3, E3, G3 for 220D, E, G, J. Kits consist of regulating diaphragm assembly, valve fasteners, and gaskets.

INSTRUCTIONS FOR REPLACING BALANCING DIAPHRAGM ASSEMBLY:

1. Remove seal cap, adjusting screw and spring (210 only). Remove shroud covering top loading mechanism (220 only).
2. Remove top casting flange screws, top casting, and diaphragm gasket.
3. Remove bottom plate, counter spring (where applicable), cotter pin, hex nut, washer, valve, and valve "O" ring. A screw driver slot is provided in bottom of stem to prevent assembly from rotating while nut is being removed. *NOTE: If regulator was manufactured prior to Oct. 1980, the valve will be attached to the stem with a truarc retaining ring (one has been included for this possibility).*
4. Remove regulating diaphragm assembly.
5. If internal metal parts are dirty or sticky, clean with a suitable solvent. Be careful not to get solvent on diaphragm or rubber parts. Use kerosene or alcohol for rubber parts, **do not soak**.
6. Remove balancing diaphragm seal ring, gasket, and diaphragm assembly.
7. Place new balancing diaphragm assembly in position with screw holes lined up.
8. Using new balancing diaphragm seal ring gasket, replace seal ring. Be sure that all screw holes are properly aligned and that outer edges of diaphragm lays flat with no creases or wrinkles that might cause leakage.
9. Insert regulating diaphragm assembly so that diaphragm lays flat across flange of bottom casting with holes in line with screw holes in flange. Be sure that bleed hole (220 only), which is centered between 2 of the screw holes, is positioned over bleed hole in bottom casting flange.
10. Replace valve "O" ring, valve, washer, hex nut, and cotter pin. Hex nut should be snug against washer. Do not use excessive torque. Use screwdriver slot to prevent rotation during reassembly. **Important - make sure that hole alignment of main diaphragm is maintained during replacement of valve so that rotation of diaphragm after replacement of valve is not necessary.**
11. Place new flange gasket over diaphragm and be sure that all holes, including the bleed hole (220 only), are aligned.
12. Place top housing on gasket with screw holes lined up. Be sure top is in same position as when it was removed.
13. Replace flange screws (being sure valve is down in full open position) and alternately tighten on opposite sides of the regulator.
14. Using new gasket, replace counter spring (where applicable), and bottom plate.
15. Replace shroud (220 only).
16. Close manual firing valve downstream from 210 and 220 valve and open automatic valve(s). (If no firing valve is present, bring heater to high fire setting). Check reassembled connections for leaks with rich soap solution. **Absolutely no leakage should occur. Discontinue operation immediately if leakage is detected.**
17. Adjust outlet pressure of 210 or 220 valve to equipment manufacturer's specifications, if necessary.

PARTS LIST

Balancing Diaphragm Assembly Kits - KR210D4, E4, G4, J4 for 210D, E, G, J and 220D, E, G, J. Kits consist of balancing diaphragm assembly, valve fasteners, and gaskets.

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