CMS-0025-A

SM-2302
2303

INSTRUCTION MANUAL

FOR

REGULATOR

MODEL NO. 2302
2303

Please read this operation manual carefully before using this product, particularly the section describing safety.

Retain this operation manual with the product for further consultation whenever necessary.

CKD Corporation

For Safety Use

To use this product safely, basic knowledge of pneumatic equipment, including materials, piping, electrical system and mechanism, is required (to the level pursuant to JIS B 8370 Pneumatic System Rules).

We do not bear any responsibility for accidents caused by any person without such knowledge or arising from improper operation.

Our customers use this product for a very wide range of applications, and we cannot keep track of all of them. Depending on operating conditions, the product may fail to operate to maximum performance, or cause an accident. Thus, before placing an order, examine whether the product meets your application, requirements, and how to use it.

This product incorporates many functions and mechanisms to ensure safety. However, improper operation could result in an accident. To prevent such accidents, read this operation manual carefully for proper operation.

INSTALLATION

1. Refer to above "Caution."
2. Maximum inlet pressure is 2.06 MPa Maximum operating air and ambient temperature is 65°C.
3. Install as close as possible to where regulated air is needed.
4. Install the unit with the air flowing through the body in the direction indicated by the arrow.
5. Install the same pipe size unit as the pipe line in use. Avoid using fittings, couplings, etc., that restrict the airflow, unless maximum flow is not needed.
6. Regulator may be installed in any position. The pressure scale can be turned 360° to read in any position by firmly turning the adjustment knob hard, counterclockwise, through the "OFF" position. This can be done only when the unit is not under pressure. (See other side for details on how to adjust regulator.)
7. A pressure gauge is not required; however, a gauge may be attached to one of the 1/4" NPT female cross ports. These ports may also be used as regulated outlets; otherwise, plug both cross ports.
8. Panel mounting requires a 2-11/16" (69 mm) diameter hole. Units can be mounted on panels up to 1-1/4" (32 mm) thick. Before mounting the unit, remove the adjustment knob. Replace adjustment knob after regulator is mounted.

MAINTENANCE

1. Occasionally remove bottom plug and clean plug, body, valve seat, and main valve. Relubricate O-ring★ with Dow Corning Silicone Grease 55M whenever regulator is cleaned. (See other side for lubrication instructions.)
2. TO DISASSEMBLE: Shut off air supply and vent air lines on both sides of the regulator. Remove lock knob, adjustment knob, and retaining ring. Leave Dial Screw in position. It is not necessary to remove this screw to service unit. Lift bonnet assembly out of the body and remove pistons, support washer, and Belleville Spring. Remove the bottom plug and pull out the main valve and pilot valve. (See "4" and "5" below.)
3. TO ASSEMBLE: Relubricate all seals and sealing surfaces with Dow Corning Silicone Grease 55M. Assemble main valve, pilot valve spring, pilot valve, main valve spring, and bottom plug. Lay bottom piston, with flat surface down, on assembly table. Slip upper piston assembly on bottom piston. Add support washer and two Belleville springs with inside diameters contacting. Place bonnet on assembled pistons and press down firmly. Place O-ring★★ in body. Place assembled bonnet and pistons in body and install retaining ring. Turn on the air supply to regulator, then turn plastic coupling (See other side.) until the keyway in coupling faces the location on the scale which corresponds with the outlet pressure from the regulator. Install the adjustment knob and then the lock knob. (See other side for details on how to adjust regulator.)
4. IF UNIT WILL NOT REGULATE TO PRESSURE NEEDED, OR IF PRESSURE DROP BECOMES EXCESSIVE: Remove bottom plug, main valve, and pilot valve. Clean and check o-rings, valves, and valve seats for wear or damage. Relubricate o-rings with Dow Corning Silicone Grease 55M. If pilot valve or mating main valve is worn or damaged, return unit to factory for repair and recalibration.
5. IF UNIT LEAKS UNDER ADJUSTMENT KNOB: The cause may be a dirty or worn main valve seat. Install Repair Kit No. RRP-95-152. A small, constant bleed is permissible.

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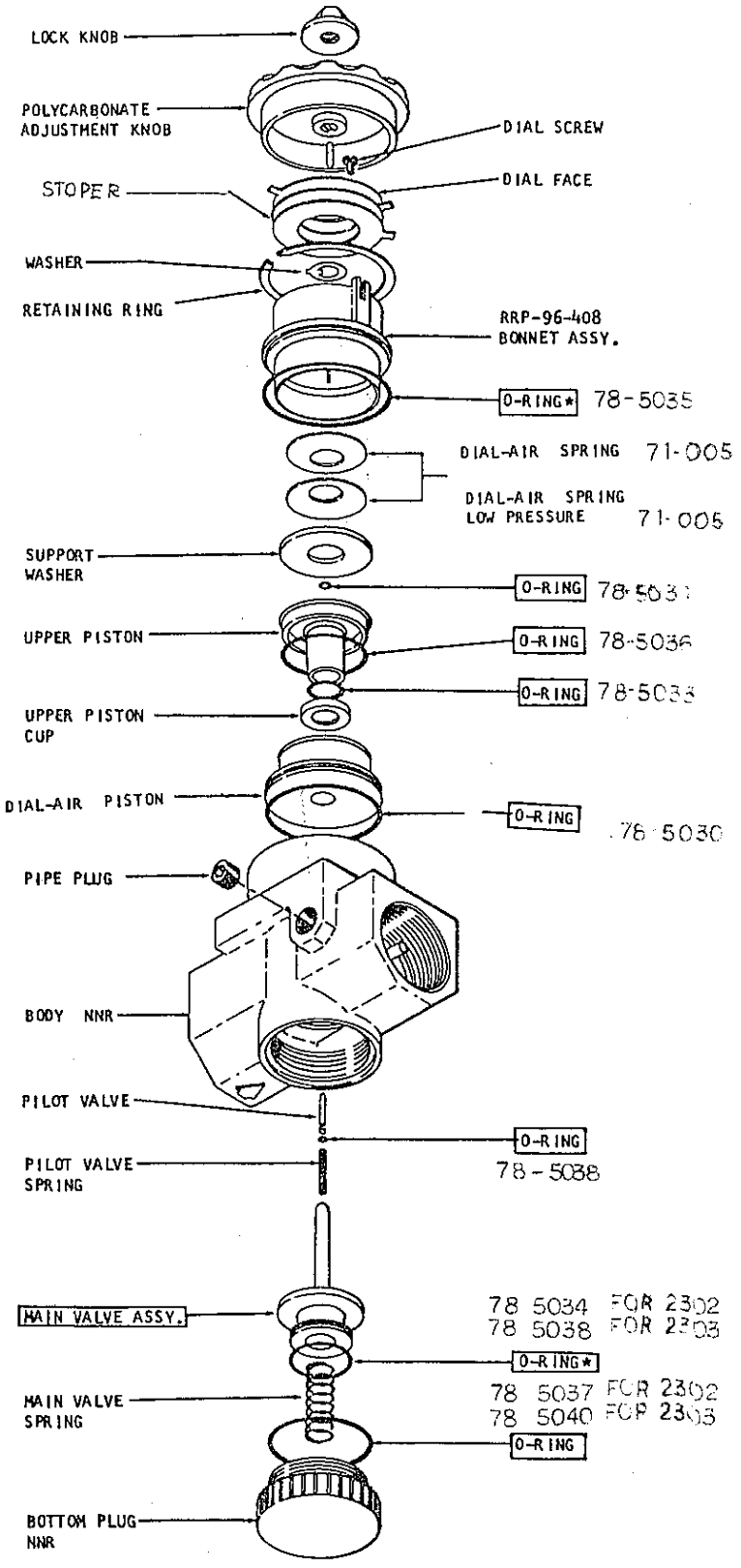
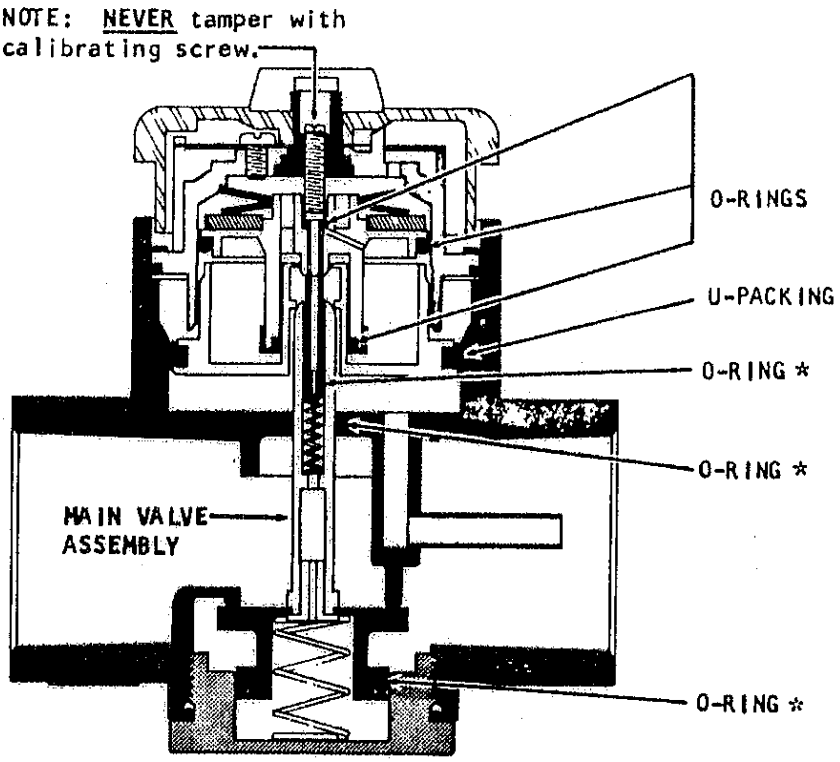


NNR = NOT NORMALLY REPLACED

LUBRICATION OF DIAL-AIR™ REGULATORS



The factory packs all moving seals with a heavy lubricating grease. Under normal conditions this will last through millions of cycles. However, under conditions of wet air, unusually high flows, or if light oil from a lubricator somewhere in the circuit gets into the Dial-Air™ regulator, the original lubricant can be washed out in a relatively short time.

Proper lubrication in our Dial-Air™ series regulators is absolutely essential.

Symptoms of a dry regulator:

1. Excessive leaking through the relief vent.
2. Loss of calibration.
3. Regulator cannot attain high secondary pressures.
4. Erratic secondary pressures.
5. Excessive hysteresis.

Remedy:

Disassemble regulator and lubricate o-rings with Dow Corning Silicone Grease 55M. Those rings indicated with an asterisk are usually the first to go dry, and many times the problems can be remedied by relubricating only these rings, which are easily accessible by removing the bottom plug and the main valve assembly.

1. To set adjustment to a maximum pressure stop, an adjustment tab is provided so that regulator adjustment cannot be turned past a pre-set maximum pressure. To pre-set this tab, remove clear plastic knob by first taking off white plastic lock knob. Loosen dial screw and rotate tab stop to the desired pressure limit. Set groove of white plastic coupling anywhere between zero and the tab stop. Line up the inner key on the clear plastic adjustment knob with the groove and drop in place. Outer key on the adjustment knob must now be to the left of the tab stop. Tighten screw and replace knobs. Now adjustment knob can only be rotated between zero and the tab stop.

2. To set adjustment to a minimum pressure stop, repeat the process above, but set the groove of the white plastic coupling anywhere between the pressure desired and the maximum pressure number, 160. When adjustment knob is replaced, its outer key should now be to the right of the tab stop. Adjustment can now only be made between tab and maximum pressure.

3. Adjustment can be fixed at a set pressure by purchasing Tamper-Resistant Kit No. RRP-95-585. This is just an additional tab stop ring. Remove the dial screw and the white dial face, place the additional ring on top of the original one and replace the white dial face and dial screw. Set one of the tab stops on one side of the pressure desired; set the other to the opposite side of the pressure figure, as shown, leaving about 1/8" between the stops, and tighten screw. Set groove of white plastic coupling in line with desired number.and replace adjustment knob so that key on inside of the outer edge of the clear plastic knob is located between the two tabs. Replace lock knob. The locked adjustment is now also tamper-proof, because the operator would have to remove both knobs to change it.

4. To locate tabs so that adjustment can be made only between a predetermined minimum and a maximum, follow same procedure above but spread the tabs further apart, to the minimum and maximum pressures desired, and locate outer key of adjustment knob between the two tabs.

WARNING: If dial screw & washer have been removed, do not rotate key-way of plastic coupling through the "off" position on the scale of the dial face. This can offset the calibration so that the reading on the dial would not match a pressure gauge.

VARIOUS ADJUSTMENTS MADE WITH AIR PRESSURE ON OR OFF