Changing a Regulator Orifice: B34 IM, IMRV, and IMN Model Regulators

This document applies to all ROOTS B34 IMR, IMRV, and IMN regulators.

Warning Follow your company's standard operating procedures regarding the use of personal protection equipment (PPE). Adhere to guidelines issued by your company in addition to those contained in this document when installing or repairing natural gas regulators.

This product, as of the date of manufacture, is designed and tested to conform to all governmental and industry safety standards as they may apply to the manufacturer. The purchaser/user of this product must comply with all fire control, building codes, and other safety regulations governing the application, installation, operation, and general use of this regulator to avoid leaking gas hazards resulting from improper installation, startup or use of this product.

To ensure safe and efficient operation of this product, ROOTS strongly recommends installation by a qualified professional.

Recommended Tools and Materials

Tool Description	Part Number	Part Description	Part Number
1 7/16-inch regulator orifice socket	799021	Orifice	As required
Socket wrench	N/A	Loading ring	761753
Valve body gasket	765753	Pipe dope	N/A

B34 Internal Monitor Orifice

B34 Loading Ring

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To change the orifice

1. Locate and remove the two bolts holding the diaphragm case to the valve body. Remove the bolts using a 7/16-inch thin-walled socket.
2. Carefully pull the diaphragm case away from the valve body. Inspect the valve seat, valve body, and the valve body gasket for any debris or damage. Replace the valve body gasket.
3. Note the loading ring's position. You must replace the loading ring in the same position. Use a marker to note the loading ring's notch position on the valve body.

4. Place your thumbs in the loading ring's neck. As you gently open and remove the loading ring, take note of the indentations in the bottom of the loading ring.

5. Remove the orifice using a 7/8-inch thin wall socket wrench.
6. Apply pipe dope to the stationary orifice threads.

7. Begin threading the orifice by hand, using the ratchet to finish tightening. Torque to 450-500 inch-pounds for standard orifices. Torque to 300 inch-pounds for internal monitor orifices. Do not over-tighten the orifice.

Warning Torque to the proper inch-pounds. Over-tightening the orifice can cause irreparable damage.

8. Replace the loading ring in the original position. Verify the orifice ridge seats against the orifice (see the Loading Ring Position Table).

9. Reattach the diaphragm case to the valve body. Tighten the bolts in an alternating fashion, tightening each bolt one-half way. Tighten both bolts completely. Torque the bolts to 85-115 inch-pounds.
10. Slowly pressurize the system. Verify the regulator locks up and regulates properly.

Loading Ring Position Table

Inlet Pressure	Outlet Pressure	Setting
<50 PSIG	<1PSIG	18 degrees
>50 PSIG	<1 PSIG	21 degrees
Any	1 PSIG > Set Point > 2 PSIG	12.5 degrees
Any	>2 PSIG	0 degrees

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