



## MEGR-1133 SERIES PRESSURE REGULATORS

### Instruction Manual- Look Inside For:

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## Applications

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Compressors  
Gas Engines  
Service Regulators

## Introduction

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The MEGR-1133 series pressure regulator is a manual, direct acting, self-operating, spring loaded, adjustable regulator. It is used in applications where pressure reduction is required. The regulator will reduce the risk of "shock" from abrupt changes of downstream conditions. This can help prevent safety equipment from shutting an operation down. The MEGR-1133 is equipped with external pressure registration; an external control line is needed to connect the output pressure port with the diaphragm chamber. The MEGR-1133 utilizes a balance diaphragm to reduce the effects of supply pressure changes on the output pressure. The external pressure registration of the standard MEGR-1133 also allows it to be used as a monitor regulator.

## Materials of Construction

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Body	Iron
Bonnet	Aluminum
Cage	Aluminum
Diaphragm	Nitrile
Housing	Aluminum
Valve disk	Neoprene

## How It Works

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When there is increased pressure under the diaphragm resulting from a decrease in the downstream requirement, the stem will move the valve disk so that it is closer to the orifice. This will reduce the gap between these two components and lower the gas flow. Conversely, when the downstream demand is increased and the pressure under the diaphragm is reduced, the valve disk is moved away from the orifice due to the force of the spring. This will increase the flow of gas through the valve disk/orifice gap.

## Specifications

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Maximum Operating Inlet	60 PSIG
Maximum Emergency Inlet	125 PSIG
Maximum Operating Outlet	
MEGR-1133L	2 PSIG
MEGR-1133H	10 PSIG
End Connections	2" NPT
Temperature Range	-40°F to 200°F
Approximate Weight	35 lbs

## Installation

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Qualified personnel should perform installation, operation and maintenance. The regulator can be

mounted in any position, however the flow through the body must be in the direction from inlet to outlet (as marked by the arrow on the body). A control line from the output pressure, downstream line, must be connected to the 1/2" NPT port in the Housing portion of the regulator. It is important that the bonnet vent remain unobstructed at all times. Also make sure to position the regulator to prevent any contamination, rain and debris from entering the bonnet vent. Prior to installation, inspect the regulator and the piping lines for any debris or contamination. Apply pipe compound to the male pipe threads prior to installation. After installation, periodically inspect the regulator for damage, especially after any overpressure condition.

### Warning!

If the MEGR-1133 series regulator operates beyond the listed specifications, it may cause damage to the internal parts, up to and including blowing a hole in the diaphragm. Please periodically check the bonnet vent to see if any sort of leakage is occurring. If so, safely remove the regulator from the line and inspect for damage.

## Start-Up and Adjustment

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### Warning!

The use of pressure gauges to prevent overpressure conditions, which might cause personal injury or equipment damage, is highly recommended. Before starting up the regulator, relieve the downstream pressure on the diaphragm. Failure to do so may result in personal injury or equipment damage.

When starting up the regulator, slowly open the upstream shutoff valve, and then slowly open the downstream shutoff valve. Check all piping and connections for leaks before making any final pressure adjustments. The nameplate provides the range of allowable pressure settings. For pressure settings outside the allowable range, change to the appropriate range spring and remember to change the nameplate accordingly. When changing the range spring, make sure that the diaphragm is properly installed and not damaged. Check the unit for external leakage after rebuilding.

Before applying pressure to the "In" port of the MEGR-1133 series regulator, make sure that some range spring force is established as the adjusting screw is rotated. Clockwise rotation of the adjusting screw will increase the output pressure set-point; counterclockwise rotation of the adjusting screw will decrease the output pressure set-point. Then, slowly apply pressure to the "In" port of the regulator and rotate the adjusting screw until the desired output pressure set-point is reached.

**Note:** The use of a pressure-measuring device is highly recommended when making any pressure adjustments with the regulator.

## **Maintenance**

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Severity of conditions and the requirement of both state and federal laws determine the frequency to which the regulators need to be inspected. Debris in the process line, exterior damage, and normal wear could require the replacement of parts such as the diaphragm. The procedures below will provide assistance when attempting to replace these parts.

### **Warning!**

When attempting any inspection or disassembly, relieve all pressure from the regulator and its adjacent piping so as to prevent personal injury or equipment damage as a result of an explosion or sudden pressure release.

#### **To Access the Range Spring and the Control Diaphragm:**

1. Remove the Closing Cap (Item #18) and Closing Cap Gasket (Item #19) from the Spring Case (Item #9). If the Gasket looks damaged, replace it.
2. Remove the Adjusting Screw (Item #20) from the Spring Case.
3. Remove the Range Spring (Item #21) from the Bonnet. Inspect the Range Spring for damage. If the output pressure range is being changed, place the new Range Spring on the Spring Seat (Item #22), change the Nameplate (Item #46) to call out the new pressure range and reassemble by reversing the above steps.
4. If the Control Diaphragm (Item #24) needs to be inspected, disassemble the top half of the regulator by performing the steps above. Remove the Cap Screws (Item #44) and Hex Nuts (Item #45). Lift the Spring Case off of the Diaphragm.
5. Carefully disassemble the Diaphragm Assembly by removing the Diaphragm Nut (Item #29). Remove the Spring Seat and the Diaphragm Plate (Item #23), to inspect the Diaphragm. If the Diaphragm is damaged, replace it and reassemble the unit in the reverse order of the above steps. Make sure to torque the Diaphragm Nut and Cap Screws to the torque specifications that are listed in Table 2.

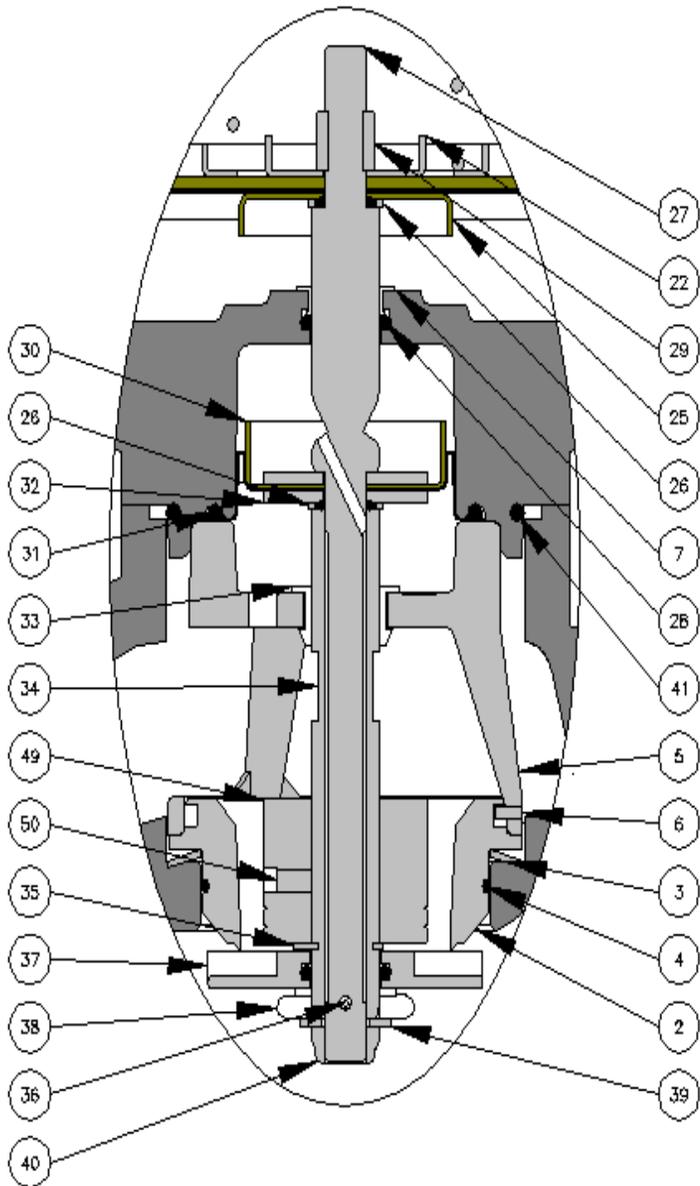
#### **To Access the Orifice and Valve Disk Assembly:**

1. Mount the Regulator with the Body (Item #1) facing upwards. Remove the Lock Nuts (Item #43) from the Studs (Item #42).
2. Carefully lift the Body off of the Lower Casing (Item #8), making sure not to jostle the Stem Assembly.
3. Inspect the O-Ring (Item #41). If damaged, replace.
4. Remove the Stem Nut (Item #40) and the Washer (Item #39). Inspect the Registration Disk (Item #38) for damage. If damaged, replace and reassemble the unit in the reverse order of the steps indicated above, being careful to torque the Diaphragm Nut and Lock Nuts to the appropriate torque as shown in Table 2.
5. If the Orifice (Item #2) and Valve Disk (Item #37) need to be inspected, lift the Registration Disk off of the Stem (Item #27). Remove the Valve Disk and inspect. If there is any damage to the Valve Disk or the Orifice sealing surface has a nick, replace the damaged part. Also, inspect the O-Ring (Item #28) on the inside of the Valve Disk to see that there are no nicks present. If so, replace. Reassemble and reapply the torque.

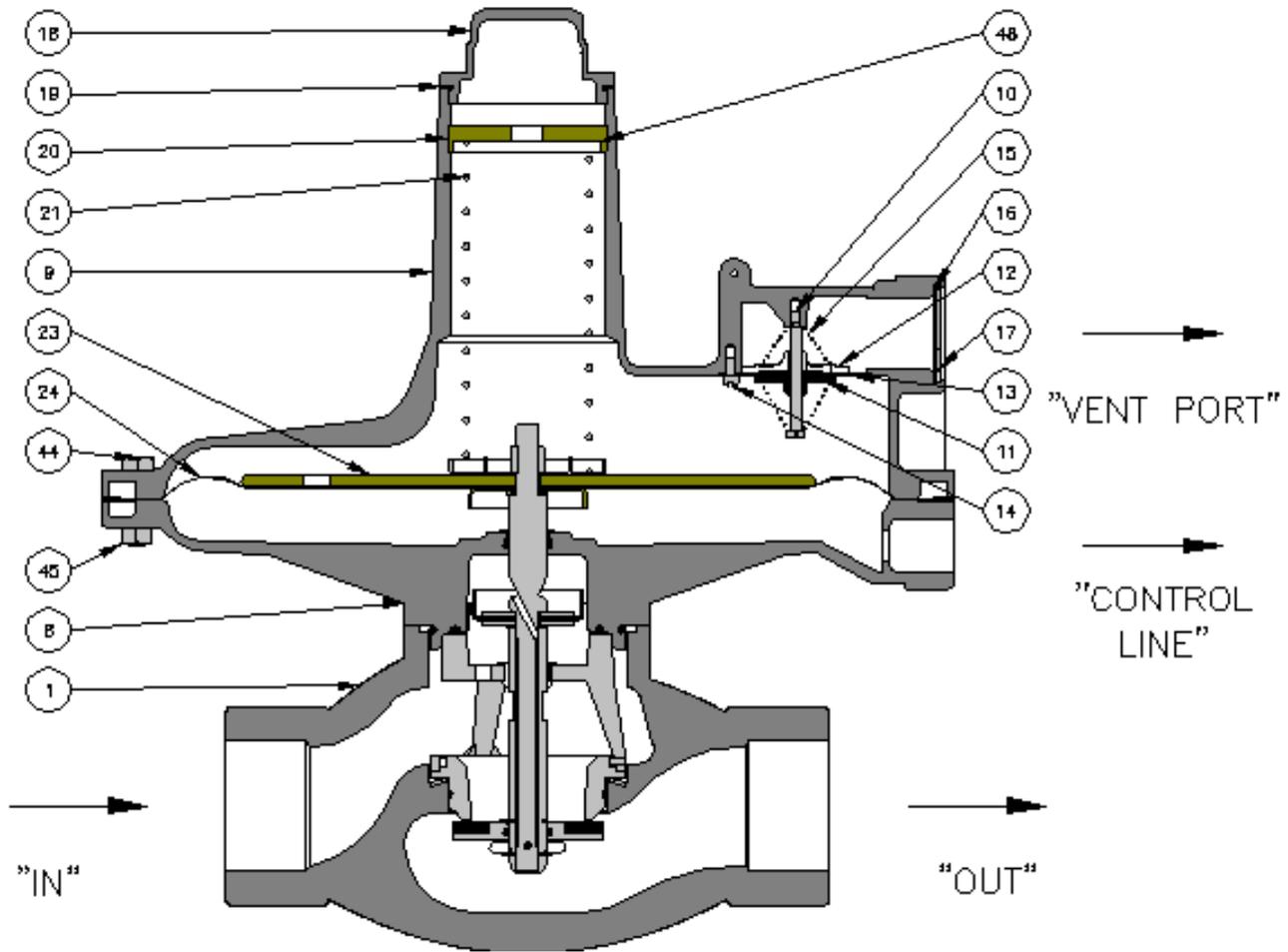
#### **To Access the Balance Diaphragm:**

1. Remove the top half of the regulator and follow the steps to disassemble the Diaphragm Assembly.
2. Mount the Regulator with the Body facing upwards. Remove the Lock Nuts from the Studs.
3. Carefully lift the Body off of the Lower Casing, making sure not to jostle the Stem Assembly.
4. Remove the Stem Assembly from the Lower Casing. Inspect the Balance Diaphragm (Item #31) for damage. If damaged, disassemble the Stem Assembly and replace. Make sure to reinstall the Balance Diaphragm with the convolution facing in the proper direction.
5. Remove the Lower Casing internal O-Ring (Item #28) and inspect for nicks or digs. If damaged, replace and properly reassemble the regulator.

## Stem Assembly



MEGR-1133 SERIES PARTS LIST		
ITEM	DESCRIPTION	QTY
1	BODY, IRON 2" NPT	1
2	ORIFICE	1
3	BELLEVILLE SPRING WASHER	1
4	O-RING, NITRILE	1
5	CAGE ASSEMBLY	1
7	BEARING	1
8	LOWER CASING	1
9	SPRING CASE	1
10	FLAPPER STEM	1
11	LOWER FLAPPER	1
12	UPPER FLAPPER	1
13	SEAT RING	1
14	SELF-TAPPING SCREW	1
15	SPRING	2
16	SCREEN	1
17	SNAP RING	1
18	CLOSING CAP	1
19	CLOSING CAP GASKET	1
20	ADJUSTMENT SCREW	1
21	RANGE SPRING	1
22	SPRING SEAT	1
23	DIAPHRAGM PLATE	1
24	CONTROL DIAPHRAGM, NITRILE	1
25	SEALING DIAPHRAGM PLATE	1
26	SEALING WASHER, NITRILE	2
27	STEM	1
28	O-RING, NITRILE	2
29	HEX NUT	1
30	DIAPHRAGM PLATE	1
31	BALANCE DIAPHRAGM, NITRILE	1
32	WASHER	2
33	GUIDE BUSHING	1
34	STEM SLEEVE	1
35	E-RING	1
36	ROLL PIN	1
37	VALVE DISK ASSEMBLY, NITRILE	1
38	REGISTRATION DISK	1
39	WASHER	1
40	HEX NUT	1
41	O-RING, NITRILE	1
42	STUD (NOT SHOWN)	4
43	LOCKNUT (NOT SHOWN)	4
44	CAP SCREW	12
45	HEX NUT	12
46	NAMEPLATE (NOT SHOWN)	1
47	SET SCREW (NOT SHOWN)	2
48	THRUST WASHER (H VERSION ONLY)	1
50	SET SCREW	1



**Table 1: MEGR-1133 Series Range Springs**

Version	Spring Range	Spring Color	Wire $\phi$
L	8.5"-18" WC	White	.162"
	0.75-2 PSI	Dark Blue	.225"
H	2-5 PSI	Yellow	.283"
	5-10 PSI	Blue	.375"

**Table 2: MEGR-1133 Torque Specs**

Cap Screws	15 ft-lbs
Diaphragm Nut	15 in-lbs
Stem Nut	15 in-lbs
Lock Nuts	25 ft-lbs