

90-405* (revised 06/05)

Questions regarding this form should be directed to one of the following:

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MINIATURE SERIES INTEGRAL FILTER / REGULATOR

Installation Instructions, Operating Instructions and Parts List

Application:

The Miniature Series Integral Filter / Regulator is designed for applications where space is limited such as compact control panels and miniaturized circuits. These integral filter / regulator units feature tough zinc body construction with either 1/8" or 1/4" in/out ports and two (2) full flow 1/8" gauge ports.

Features and Benefits:

- 20 micron or 5 micron filter element available.
- Available with 0-125 PSI, 0-50 PSI or 0-20 PSI pressure ranges.
- Nonrising adjusting knob locks and maintains required pressure setting.

Technical Data:

Maximum Supply Pressure:

Plastic Bowl150 PSI
 Metal Bowl250 PSI

Maximum Operating Temperature:

Plastic Bowl120° F
 Metal Bowl250° F

Filter Element:

Standard20 micron
 Option5 micron

Pressure Range:

Standard0 - 125 PSI
 Option0 - 50 PSI
 Option0 - 20 PSI

Material:

BodyDie-cast zinc
 Adjusting KnobHigh-impact plastic
 Standard BowlTransparent polycarbonate
 Optional BowlDie-cast zinc
 Filter ElementPorous polypropylene

Dimensions and Weights:

Height6 1/8"
 Width1 1/2"
 Weight1/3 lb.

Bowl Volume:

Standard1.5 oz.



Options and Accessories:

Options*: **Suffix**

Filter-
 Metal BowlM
 Filter Element (5 Micron)X

Regulator-
 GaugeG
 Extra Low Pressure Spring (0 - 25 PSI)J
 Low Pressure Spring (0 - 50 PSI)L

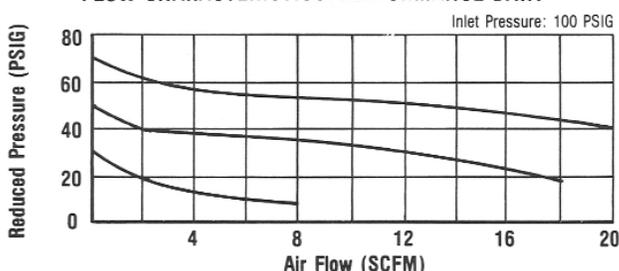
*Add a dash followed by the suffix(es) in alphabetical order to the model number.

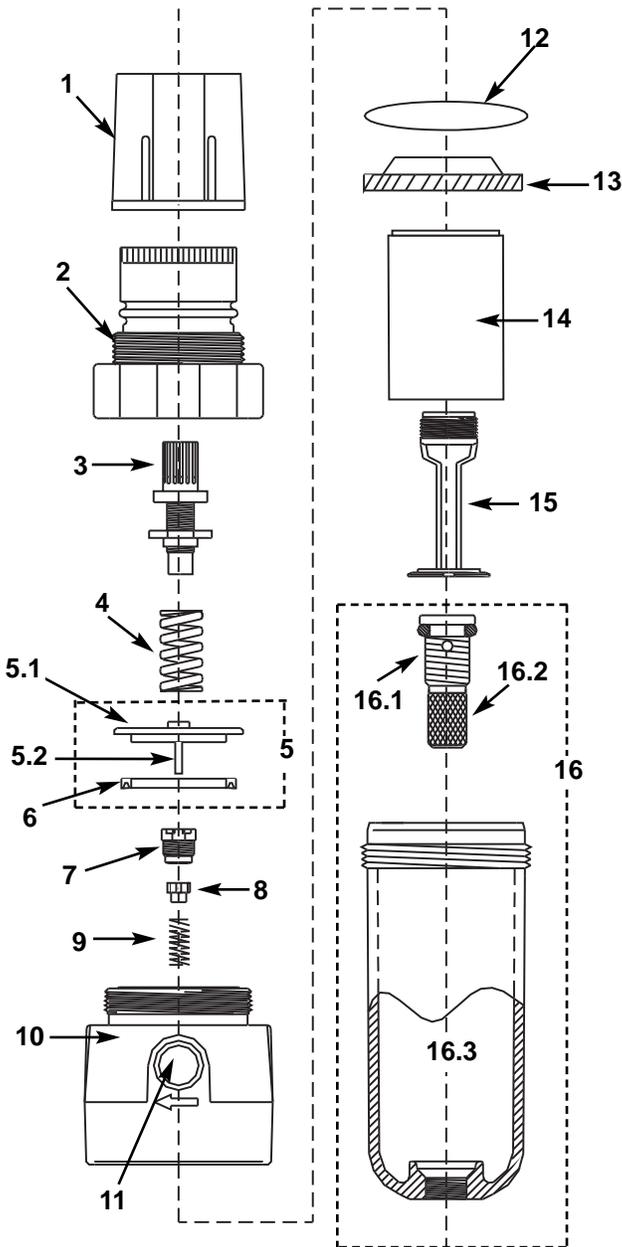
Accessories: **Model No.**

Metal BowlMF140-41M
 Mounting Bracket and Panel NutMR140MB
 Recommended Standard Pressure Gauge*
 0 - 160 PSI (1 1/2" dial)26G-160
 Recommended Optional Gauge*
 0 - 60 PSI (1 1/2" dial)26G-60
 Diaphragm Design (Relieving)17-851553
 Diaphragm Assembly17-851552
 Polycarbonate Bowl (2 oz.)F722-41L

*When specifying low pressure spring and gauge options, 0-60 psi gauge (8700-60) will be supplied.

FLOW CHARACTERISTICS/PERFORMANCE DATA





Description of Operation:

Filter

Pressurized air enters the inlet port and flows through the deflector vane plate (13) directing the air in a downward swirling pattern. Centrifugal force pushes the dense particles and liquid drops outward where they collect on the interior wall of the filter bowl (16.3). The retainer baffle (15) separates the lower portion of the bowl (16.3) into a "quiet" zone and prevents the collected contaminants from being carried downstream. After the large particles and liquids are removed in the first stage of filtration, the air flows through the filter element (14) where the finer particles are retained. Clean, dry air is then passed to Regulator portion of unit.

Regulator

Pressure enters and flows through poppet valve (8) orifice toward the outlet. Downstream pressure is connected through an orifice to the bottom of the piston (5.1). As downstream pressure increases, the piston (5.1) is forced upward, compressing the adjustment spring (4). When the piston (5.1) moves, the return spring (9) pushes the poppet valve (8) upward to throttle the orifice. If downstream pressure exhausts, the mechanical sequence reverses and the poppet valve (8) opens the orifice until the set pressure is reached again.

Some circuits may be subject to downstream-generated high pressure resulting from situations such as high temperature or heavy vertical loads or cylinders. This high pressure is reduced by the self-relieving orifice in the center of the piston (5.1). When excessive pressure lifts the valve stem (5.2), air is allowed to release through the piston (5.1) orifice and out the bonnet vent until the system returns to the set pressure.

Pressure Adjustment:

Regulator

To adjust pressure setting, pull up the black adjusting knob. Turning the adjusting knob in a clockwise direction will increase the pressure setting and counterclockwise will decrease the pressure setting. The downstream pressure should always be adjusted above the required working pressure, up to 10 PSI based on the the application, even in the event of pressure fluctuations. It is advisable to adjust the settings under constant pressure conditions (unit not operating), as a changing flow rate affects the set valve.

To avoid readjustment after making a change in pressure setting, we recommend approaching the required setting from a lower pressure. When adjusting from a higher to a lower setting, reduce the pressure to a point below what is required, then adjust upward to the desired pressure setting. Once the desired pressure setting is reached, push in the black adjusting knob to lock and maintain the proper setting.

Cleaning and Maintenance:

Filter

It is necessary to keep the filter clean in order to sustain peak filtering efficiency and avoid excessive pressure drop. A coating of dirt or condensation build-up on the filter element or pressure drop of 10 PSID or more indicates that cleaning is required.

Removal of the filter from the line for cleaning is not necessary. Disassembly requires no tools and the parts drawing on this page can be used as a guide. *Air supply must be shut off and the filter must be depressurized prior to disassembly.* The filter element should be replaced and *all other parts should be cleaned with nothing stronger than household detergent.* Before reassembly, the body should be blown out to remove any remaining debris.

To drain off any accumulations in the bowl, the draincock can be opened by turning it in a clockwise direction. This should be done before the collected fluid reaches the lower baffle

Regulator

If air supply is kept clean the regulator should provide long periods of uninterrupted service. *When cleaning becomes necessary, the air line should be shut off and depressurized.* Erratic regulator operation or loss of regulation is almost always due to dirt between the poppet valve and the valve seat (refer to the drawing as a guide to disassembly and subsequent reassembly). *Clean parts with household soap and blow out body with compressed air.*

When reassembling, tighten valve seat hand tight being careful not to break the plastic alignment tabs. Relubricate the "U" cup seal using a silicone-based grease and tighten adjusting knob assembly slightly more than hand tight (10 foot pounds).

Rebuilding Kits

Filter Bowl Repair Kit
(Includes items 12 and 16) **MF2RK**

Regulator Repair Kit
(Includes items 5, 6, 7, 8 and 9) **MR140RK**

Components:

Chart No.	Description	Part No.	Chart No.	Description	Part No.
1	Adjusting knob	26R-12A	10	1/8" NPT Body	MFRC180-1
2	Top Cap	8702-14	-	1/4" NPT Body	MFRC140-1
3	Adjusting Screw	8702-13	11	Gauge Port Plug	17-462078
4	Adjusting spring - (0 - 125 PSI)	8702-15	12	Bowl Gasket	8722-31
-	Adjusting spring - (0 - 50 PSI)	8702-15L	13	Deflector Vane Plate	8722-32
-	Adjusting spring - (0 - 20 PSI)	8702-15J	14	20 Micron Element	MF140-7
5*	Piston Assembly	17-851552	-	5 Micron Element	MF140-7X
5.1	Piston	17-858188	15	Retainer Baffle	8722-34
5.2	Valve Stem	17-452349	16	Poly Bowl and Draincock	MF140-41L
6	U-Cup Seal	17-855159	16.1	Draincock O-Ring	26F-17
7	Valve Seat	17-858189	16.2	Brass Draincock	26F-18
8	Poppet Valve	17-858191	16.3	Polycarbonate Bowl	MF140-40L
9	Return Spring	8762A-31			

We reserve the right to make engineering changes in design or materials without notification.

*Factory assembled and should be purchased as an assembly.

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