

75/791000FHV and 75/791000MAV Series Fuel Filter / Water Separators for Gasoline or Diesel Powered Engines

RACOR®

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Filtration

The Racor 75/ and 79/1000FHV/MAV Series Fuel Filter/Water Separators protect the precision components of your engine from dirt, rust, algae, asphaltines, varnishes and especially water which is prevalent in diesel fuel tanks simply due to condensation. Racor removes contaminants using a patented three stage process:

- Separation:** Using the fuel flow, the turbine separates large solids and 'free' water through enhanced centrifugal force.
- Coalescing:** Smaller water droplets and solids coalesce on the conical baffle and fall to the collection bowl.
- Filtration:** Engines will benefit from near 100% water separation and fuel filtration with Racor's proprietary **Aquabloc™** water repelling media. The replaceable filter elements are available in 2, 10 and 30 micron ratings.

These units are designed for installation on the suction (vacuum) side of the fuel transfer pump for best efficiency.

The heart of the Racor FHV/MAV is the ability to isolate one filter at a time for servicing, even during engine operation, if needed.

The FHV is recommended for most applications however the MAV/MAVM models should be specified for Marine Applications requiring UL Listing / USCG Acceptance for inspected vessels.

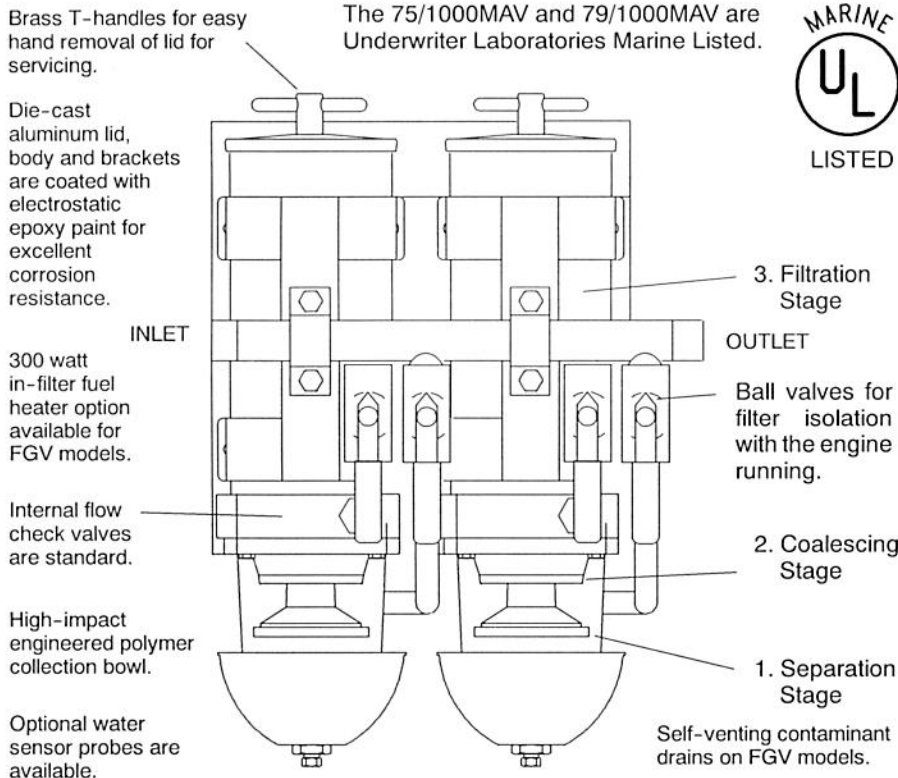
The see-thru contaminant collection bowl on FHV and MAV models allow the operator to check water and solid contamination at a glance.

OPTIONAL FEATURES: See Accessories.

Water sensor probes alert the operator when it's time to drain water from the see-thru bowls. Must be used with a water detection kit. Not available with MAVM models.

300 watt diesel fuel heaters keep engines running even in the coldest climates. Not available with MAV/MAVM models.

Metal bowls are recommended for gasoline or diesel severe service applications.



75/1000MAV with heat deflector shields shown.

PART NUMBER IDENTIFICATION:

The example below illustrates how the part numbers are constructed.

75/1000FHV (360 GPH)			
79/1000FHV (540 GPH)	-P	-324	-10
Order FHV for see-thru bowls & MAVM for metal bowls, example: 75/1000MAVM or 79/1000MAVM	Water Sensor Probe Option*. Add P	Heater**. 312=12 vdc 324=24 vdc	Element Micron Rating. Add: 2, 10 or 30
* Not available on MAVM ** Not available on MAV/MAVM			

SPECIFICATIONS	75/1000 Series	79/1000 Series
Flow Rate, maximum	360 GPH / 1363 LPH	540 GPH / 2044 LPH
Replacement Element	2020 Series	
Fuel Ports, SAE J476	3/4" - 14 NPT	
Height	22" / 559 mm	
Depth	12" / 305 mm	
Width	15" / 381 mm	22" / 559 mm
Weight, Dry	30 lbs. / 11.3 kgs	53 lbs. / 24 kgs
Clean Pressure Drop*	1.7 PSI / 11.7 kPa	2.5 PSI / 17.2 kPa
Overhead space required	10" / 254 mm, min.	
Vacuum (Pump), maximum	28.5 inHg./ 96.5 kPa	
Pressure (Head), maximum	15 PSIG / 103 kPa	
Temperature Rating	- 40° / +255° F / - 40° / +121° C	

* Specifications result from tests conducted at the maximum flow rate. Simplified Flow Rate Formula for Medium & Heavy Duty Engines: Horsepower X .36 = Approximate (GPH) fuel pump flow rate. Consult your engine manufacturer for exact specifications.

INSTALLATION INSTRUCTIONS

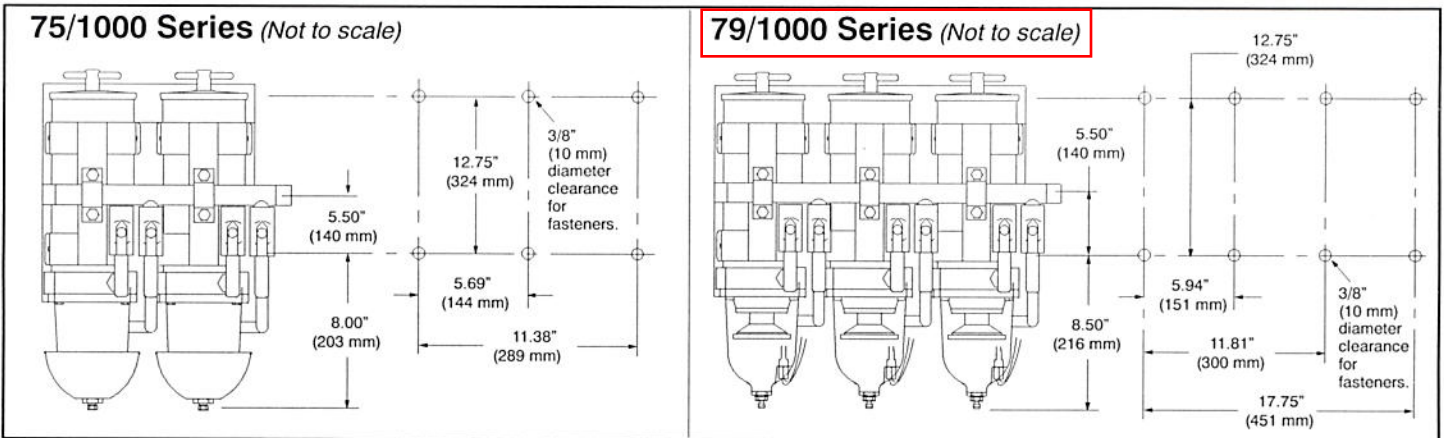
WHEN POSITIONING THE UNIT:

1. The Racor unit should be installed on the suction (vacuum) side of the fuel transfer pump for optimum water separating efficiency. See the illustration below.
2. To keep fuel line restriction to a minimum, locate the unit *between* the horizontal planes of the bottom of the fuel tank and the inlet of the fuel pump, if at all possible.
Note: If the Racor unit is mounted lower than the fuel tank, head pressure will be placed on the unit. In these applications a valve should be installed at the fuel tank outlet. This is a necessary precaution for fuel system plumbing.
3. Maintain 10" (254mm) clearance above the unit for element servicing.

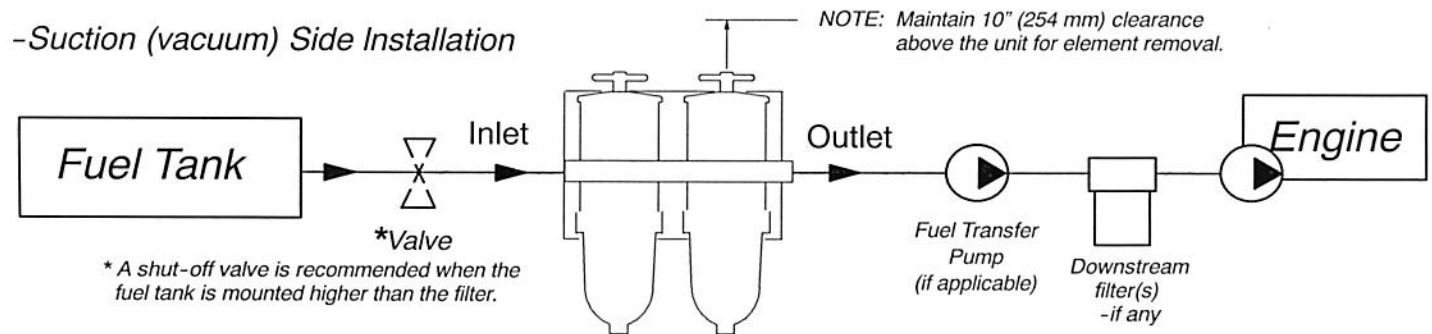
BEFORE INSTALLING THE UNIT:

1. Ensure fuel port fittings are in hand along with fuel line and all needed installation tools and materials.
2. Maintain a safe working environment. Obtain good ventilation, lighting and **Do not** smoke or allow open flame near the installation. The engine must be off.

MOUNTING HOLE PATTERNS: Use the dimensions below when drilling holes or positioning the unit.



-Suction (vacuum) Side Installation



INSTALLING THE UNIT:

1. Completely remove any suction side filter(s) in the fuel line between the fuel tank and fuel pump, if possible. Leaving these filters in place will only add to fuel line restriction. Filter heads cast into the engine block or that are non-removable should be serviced with a new element and left in place.
2. Use maximum size fuel line where possible to reduce potential fuel line restriction. Avoid making sharp bends with flexible fuel line as kinks may occur.
3. To keep fuel flow restriction values to a minimum, avoid the use of two 45° fittings where one 90° elbow fitting will work.
4. When routing fuel hose, avoid moving surfaces, sharp edges and hot surfaces such as exhaust piping.

FUEL SYSTEM PRIMING:

Remove the lid and T-handle. Fill the unit with clean fuel and coat the lid seal with fuel as well. Replace the lid and snugly tighten the T-handle by hand ONLY. If applicable, refer to the equipment operator's service manual to complete the fuel priming / bleeding procedure. Start the engine and check the installation for potential leaks.

TROUBLESHOOTING PROCEDURES:

A major cause of poor starting or power loss is the result of a fuel system air leak or a clogged filter element. If your unit will not prime, fails to hold a prime or if air bubbles are visible in the see-thru bowl, first check that the lid T-handle and drain are properly tightened. Next, check all fitting connections and ensure none of the fuel lines are pinched or clogged with contaminants. If your fuel tank is equipped with an in-tank strainer, check it for potential clogging. If problems persist and the filter element is new, call your Racor dealer or Racor Customer Service for assistance at 800/344-3286, PST.

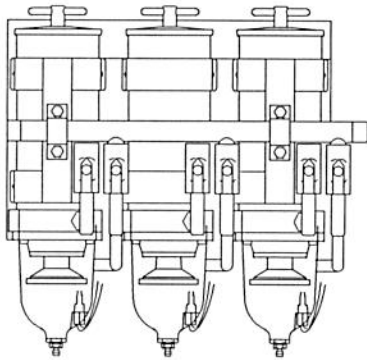
SERVICE

Frequency of water draining or element replacement is determined by the contamination level of the fuel.

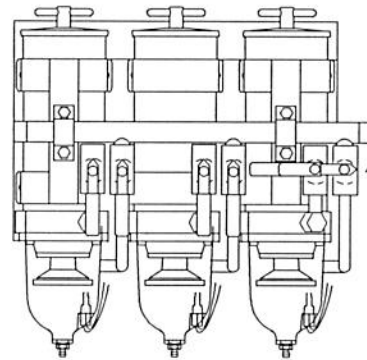
FILTER BALL VALVES:

These Racor units allow the operator to isolate one filter at a time for servicing *-even while the engine is running!*

To take one filter off-line for servicing while the engine is still running, close the outlet and the inlet valve associated with the filter requiring service. Note: When the engine is running, service (isolate) only one filter at a time. See illustrations below.



ALL ON.
All valve handles
in-line with valve
bodies.



RIGHT UNIT OFF.
Valve handles are
perpendicular to
valve body,

*Service only one
unit at a time
when the engine
is running.*

TO DRAIN WATER:

Inspect or drain the collection bowl of water daily. The collection bowl must be drained before contaminants reach the bottom of the turbine or when the Water Detector (*optional*) indicates it's time to 'drain water'.

Note: If the engine must stay on, isolate the filter for servicing first.

1. Open the drain (*remove drain plug on MAV/MAVM*) to evacuate contaminants with a suitable collection container in place.
2. Prime the unit by removing the lid and filling the unit with clean fuel.
3. Replace the Lid and snugly tighten the T-handle by hand ONLY.

TO REPLACE ELEMENT:

Replace the element at the interval which applies to you: **Every** 10,000 miles, **500 hours** every other oil change, annually or if a power loss is noticed, *whichever comes first*. A power loss is an indication that the element is becoming restrictive. As a rule, when restriction reaches between 3 to 5 PSI (6-10 in.Hg. or 21-34 kPa) it may be time for service. *The actual measurement varies in different fuel systems.* Always carry extra elements as one tankful of excessively contaminated fuel can plug a filter. Use only genuine Racor water-repelling **Aquabloc™** replacement filter elements for maximum efficiency.

Note: If the engine must stay on, isolate the filter for servicing first.

1. Remove the lid. Remove the element by holding the molded handle and slowly pulling upward with a twisting motion.
2. Replace the lid gasket with the one supplied with the new element. Apply a coating of clean fuel or grease to this seal prior to reassembly. Insert the new element with a slow downward twisting motion.
3. Fill the unit with clean fuel, then replace the lid. Snugly tighten the T-handle by hand ONLY.
4. Start the engine and check for leaks. Correct any leaks with the engine off.

ACCESSORIES

NOTE: RACOR ELECTRICAL OPTIONS ARE RECOMMENDED FOR USE WITH DIESEL FUEL APPLICATIONS.

WATER SENSOR PROBES. Racor units (except for MAVM models) can be specified with a water sensor probe in the collection bowls. The probe senses continuity values and **must** be used with a special electronic detector to function properly. These electronic detectors are sold separately and installation instructions are supplied with each kit. Order one of the below kits from your Racor Dealer.

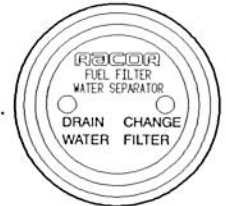
Water Detection Kit # RK20726

- *12 or 24 vdc gauge type module
- *Hermetically sealed face.
- *Corrosion resistant plastic case.
- *LED/momentary horn at water detection.
- *Three #8-32 terminal attachment studs.
- *Fits 2 1/16" diameter panel openings.
- *Instructions & most hardware included.



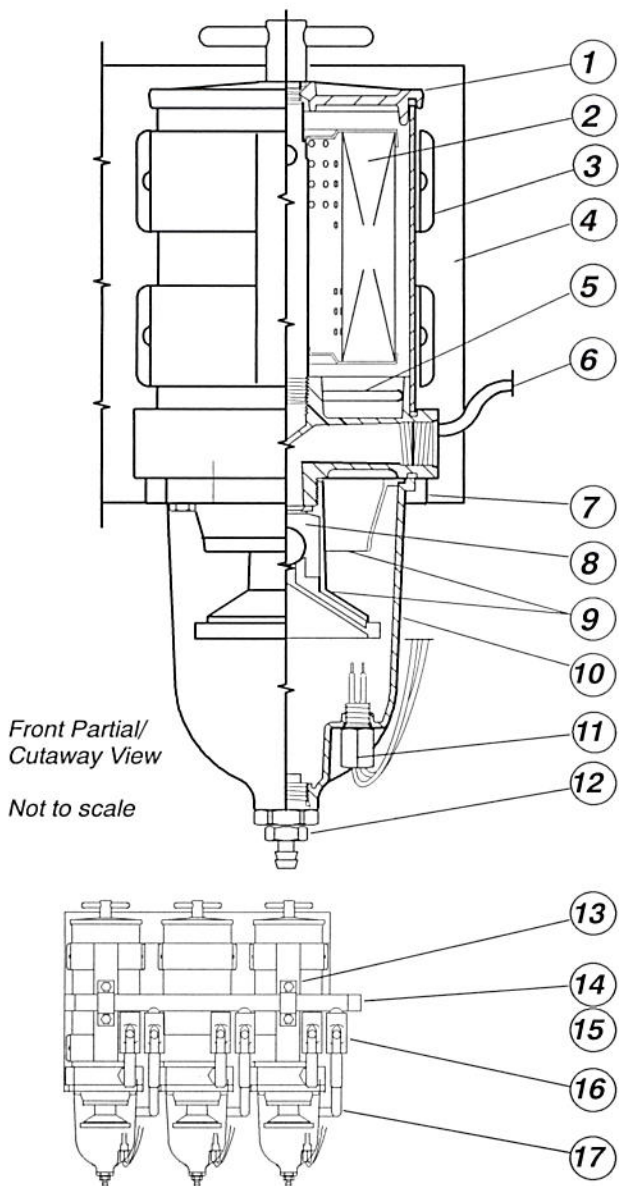
Water Detection and Element Restriction Kit # RK11-1570

- *12 or 24 vdc gauge type module.
- *LED/momentary horn upon detection.
- *Preset vacuum switch to 3.5 PSI (7 in.Hg).
- *Corrosion resistant construction.
- *Fits 2 1/16" diameter panel openings.
- *Instructions & hardware included.
- *Exiting wires are 24" long.



FUEL HEATERS. Racor units (except for MAV/MAVM models) can be specified with 300 watt in-filter fuel heaters to keep diesel fuel flowing in cold weather applications. The wire harness exiting the filter bodies **must** be attached to a relay unit. The dual 12 vdc unit may use Racor Relay Kit #RK19490-12. The dual and triple 24 vdc units may use Racor Relay Kit #RK19490-24. *Note: The triple 12 vdc unit can draw as much as 75 amps, therefore, a commercial heavy-duty relay capable of at least 80 amps is recommended.* The under dash module measures 5 1/4" wide by 3" deep by 1 1/2" in height and includes an ON/OFF switch and integral circuit breaker. Most hardware and instructions included for proper installation and attachment.

75/1000, 79/1000 Series Replacement Parts List



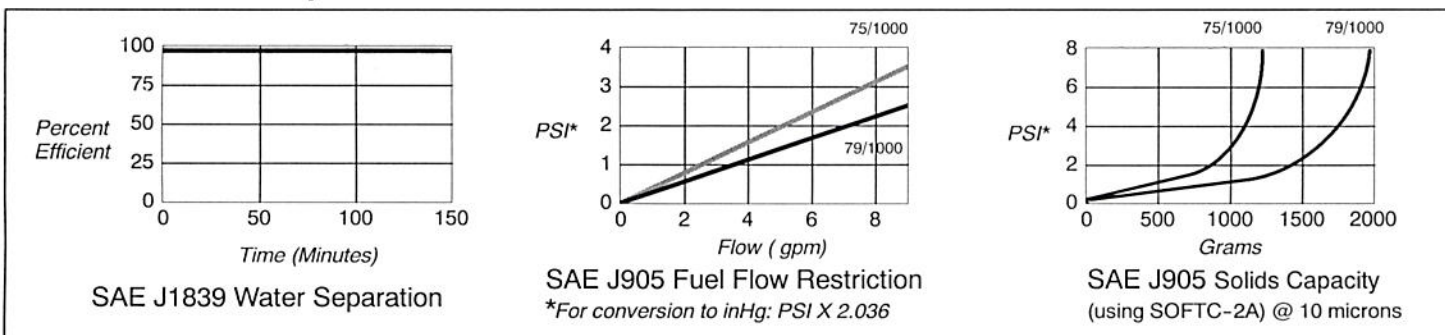
Item	Part No.	Description (quantity is one each)
1	RK11005/A	T-handle / Lid Assembly
	RK11-1779	One-piece Lid Assembly (not shown)
2	2020SMOR	Replacement Element, 2 micron
	2020TMOR	Replacement Element, 10 micron
	2020PMOR	Replacement Element, 30 micron
3	RK11895	Body Clamp Bracket (all models)
4	RK11-1629	75/1000 Dual Main Bracket
	RK11-1632	79/1000 Triple Main Bracket
5	RK11-1767-01*	Heater, 12 vdc, 300 watt, optional
	RK11-1767-02*	Heater, 24 vdc, 300 watt, optional
6	RK21067*	Feed-thru wire Assembly, optional
	RK11-1679	Heater Feed-thru port Plug
7	RK11037A	Bowl Ring, (for see-thru bowl only)
8	RK11028B	Check Ball and Rubber Seal
9	RK11026D	Turbine and Coalescing Centrifuge
10	RK11-1606	See-thru Bowl w/Water Sensor Port
	RK11734	Metal Bowl (MAVM)
11	RK21069**	Water Sensor Probe, (FGV/MAV)
	RK20126	Plastic Water Sensor Probe Plug
12	RK30488	Drain Valve Assembly (FGV only)
	RK11040	Bowl Drain Fitting (MAV only)
	RK11868	Heat Deflector Shield (MAV only)
13	RK11-1761	'U' Bracket
14	RK11-1634	75/1000 Inlet Manifold Pipe
	RK19460	79/1000 Inlet Manifold Pipe
15	RK11-1633	75/1000 Outlet Manifold Pipe
	RK19461	79/1000 Outlet Manifold Pipe
16	RK11073	Ball Valve Assembly
17	RK11-1626	Rigid Tubing Assembly
	RK11-1404	Seal Service Kit (all models)

* Do not use on MAV/MAVM configurations.

**Must be used with Water Detection Module. See Accessories.

Performance Graphs

These results are from controlled laboratory tests. Field results may vary by application.



WARNING The following statement is required pursuant to Proposition 65 applicable in the State of California: "This product may contain a chemical known to the State of California to cause cancer."
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