

73, 75, 77 and 79 Series Manifolded Fuel Filter / Water Separators for Marine Diesel or Gasoline* Powered Engines

MARINE



LISTED
168Y

RACOR®

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Filtration

The Racor 73, 75, 77 and 79 Series Manifolded Fuel Filter/Water Separators protect the precision components of your engine from dirt, rust, algae, asphaltines, varnishes and especially water which is prevalent in today's fuel tanks simply due to condensation. Racor removes contaminants using a patented three stage process:

1. **Separation:** Using the fuel flow, the turbine separates large solids and 'free' water through enhanced centrifugal force.
2. **Coalescing:** Smaller water droplets and solids coalesce on the conical baffle and fall to the collection bowl.
3. **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 75 and 79 Series units have the ability to isolate one filter at a time for servicing, even during engine operation, if needed.

The see-thru contaminant collection bowls on 'MA' models allow the operator to check water and solid contamination at a glance.

The 'MAM' models are recommended for gasoline or severe service applications.

These models are all UL Marine Listed and USCG Accepted for use aboard inspected vessels.

OPTIONAL FEATURES: See Accessories.

Water probes alert the operator when it's time to drain water from the collection bowls. This feature must be used with a water detection kit.

Metal bowls are recommended for gasoline or severe diesel service applications. (Water probes are not for use with gasoline applications).

*Gasoline applications should specify metal bowls.

Die-cast aluminum lid, body and brackets are coated with electrostatic epoxy paint for excellent corrosion resistance.

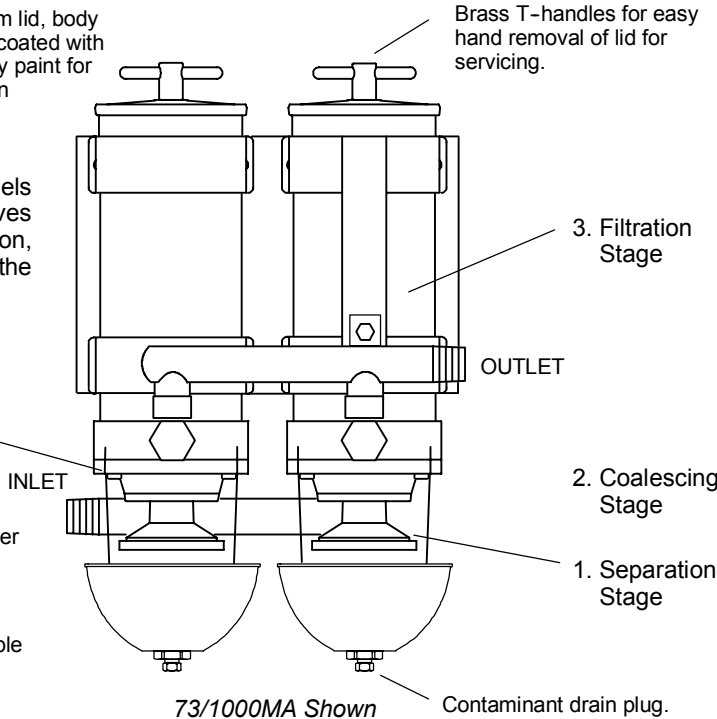
75 and 79 models feature ball valves for filter isolation, even with the engine running.

Internal flow check valves are standard.

High-impact engineered polymer collection bowl.

Optional water probes are available for all bowls.

Brass T-handles for easy hand removal of lid for servicing.



73/1000MA Shown

PART NUMBER IDENTIFICATION:

The example below illustrates how the part numbers are constructed.

75/900MA (180 GPH)	P	10
73,75/1000MA (360 GPH) 77,79/1000MA (540 GPH) Specify metal bowls for gasoline/ severe diesel service applications. Example: 75/1000MAM	<u>Water Probe Option.</u> Add 'P'. Must be used with Water Detection Module. See Accessories.	<u>Element Filtration Rating.</u> Specify: 2, 10 or 30 micron.

SPECIFICATIONS	75/900	73,75/1000	77,79/1000
Flow Rate, GPH / LPH	180 / 681	360 / 1363	540 / 2044
Replacement Element	2040 Series	2020 Series	2020 Series
Fuel Ports, SAE J476	3/4"-14 NPT	3/4"-14 NPT	3/4"-14 NPT
Height, inches / mm	22 / 559	22 / 559	22 / 559
Depth, inches / mm	12.5 / 318	12.5 / 318	12.5 / 318
Width, inches / mm	15 / 381 mm	15 / 381 mm	22 / 559 mm
Weight, Dry, lbs./ kgs.	25 / 11.3	30 / 13.6	53 / 24
Clean Pressure Drop* PSI	1.7	1.7	2.5
kpa	11.7	11.7	17.2
Overhead space required	5" / 127 mm	10" / 254 mm	10" / 254 mm
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

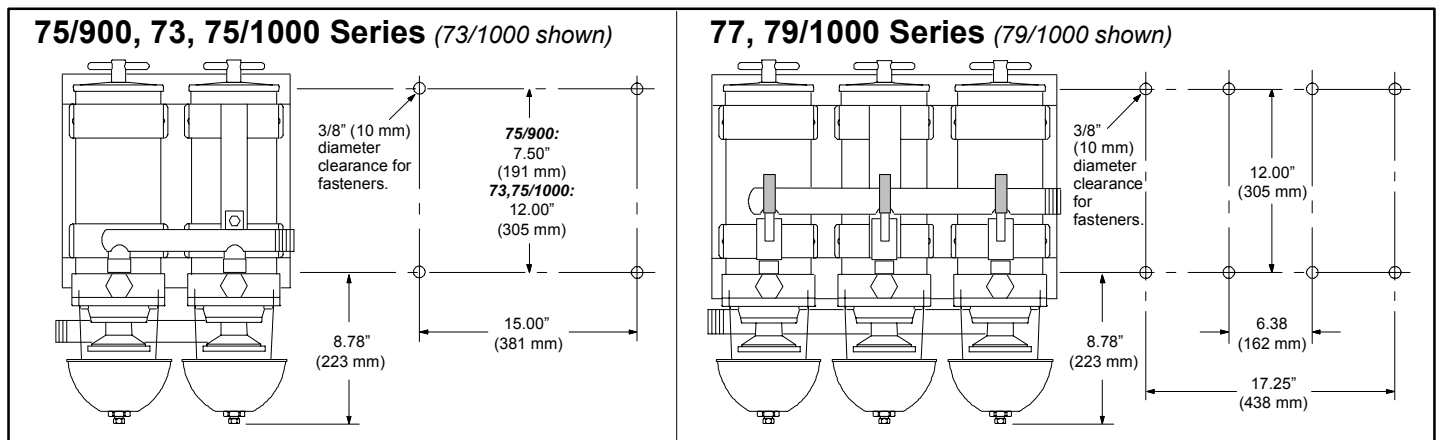
WHEN POSITIONING THE UNIT:

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. For element servicing, maintain an overhead clearance of 5" (127mm) for the 75/900 and 10" (254mm) for all other models.

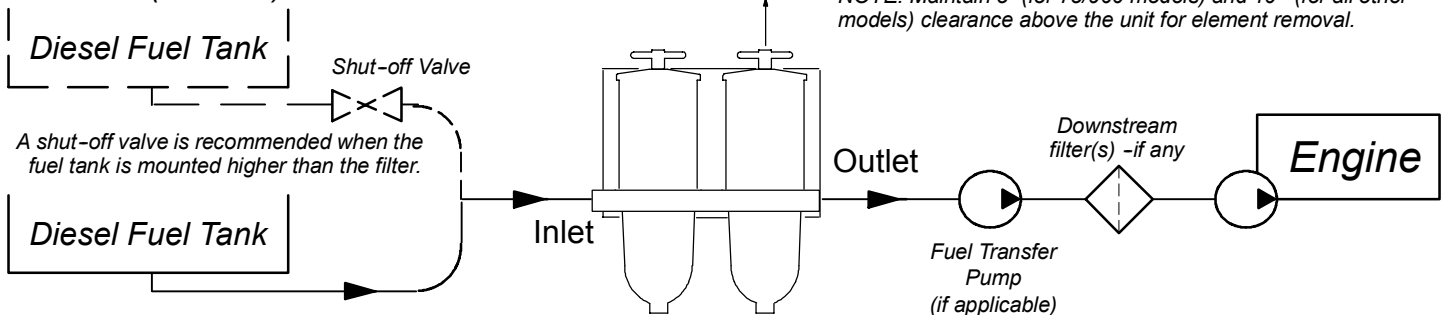
BEFORE INSTALLING THE UNIT:

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.

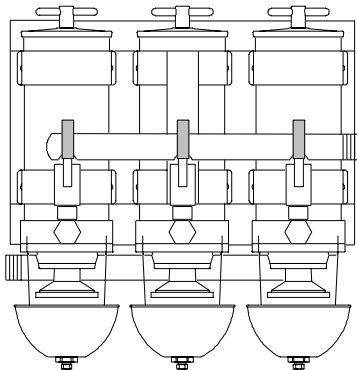
SERVICE

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

FILTER BALL VALVES: 75/900, 75/1000 and 79/1000 Series

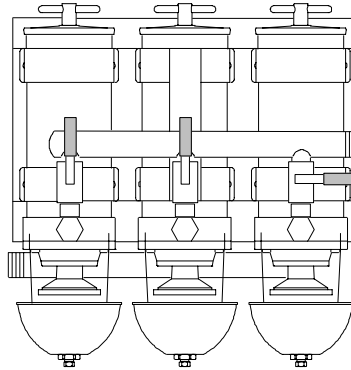
These Racor units allow the operator to isolate one filter at a time for servicing –*even while the engine is running!*

To take one filter off-line for servicing while the engine is still running, close the outlet valve associated with the filter requiring service. Note: Isolate only one filter at a time and reduce engine RPM, if possible.



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

79/1000 shown



RIGHT UNIT OFF.
Front valve handle
is perpendicular to
valve body. (Reduce
engine RPM).

**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. Remove the drain plug 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 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 motor oil 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.

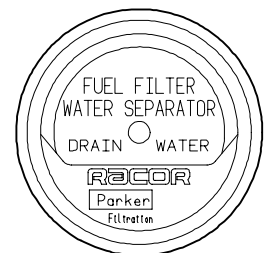
ACCESSORIES

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

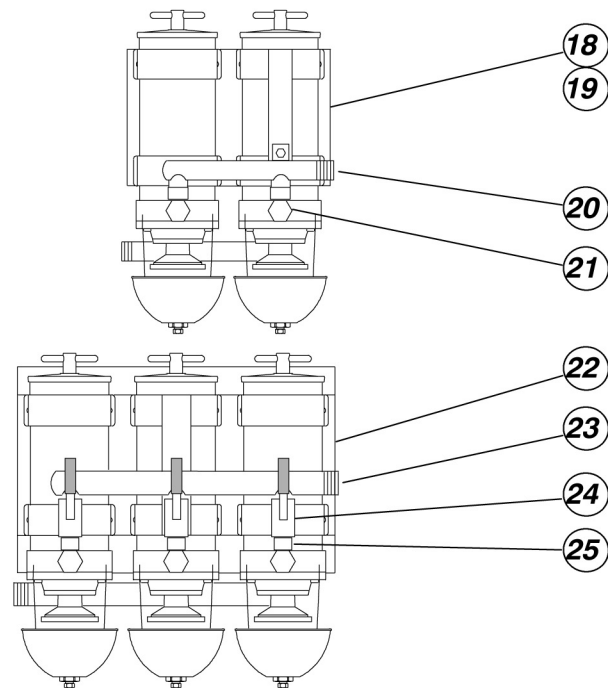
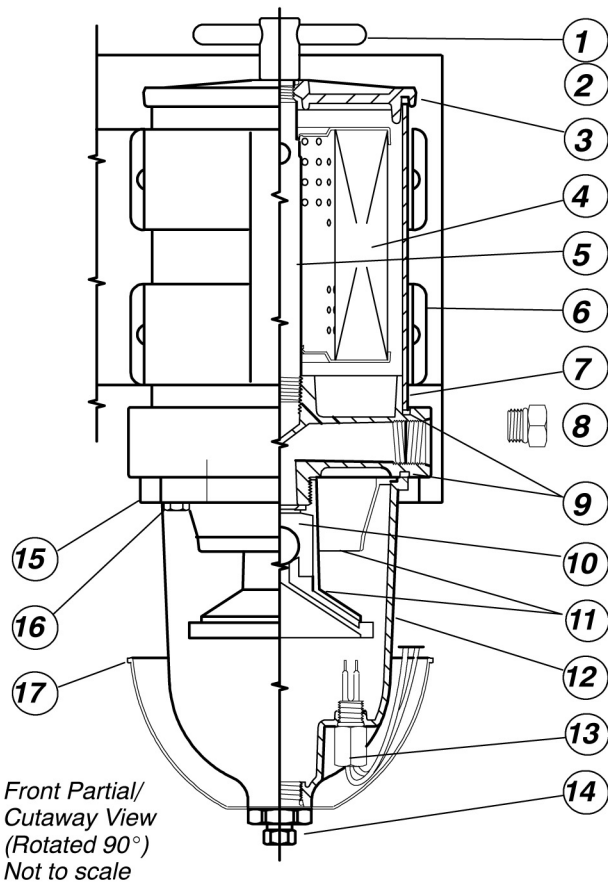
Water Probe. Racor units (except for those in gasoline applications) can be specified with a water probe in the collection bowls. The probe senses continuity values and **must** be used with a special electronic detector to function properly. Due to the various models available, these electronic detectors are sold separately and installation instructions are supplied with each kit. Only one detector is needed for each filter assembly (up to 3 probes). Order kits from your Racor Dealer.

Water Detection Kit #RK20726

is a 12 or 24 vdc gauge type module which illuminates an LED and sounds a momentary horn when water is detected. The face is hermetically sealed and corrosion resistant with non-glare black dial with white characters. The backside has three #8–32 threaded posts for terminal attachment. Fits 2 1/16" diameter panel openings. Hardware & instructions included. Wire & terminals are customer supplied. U.L. approved circuitry for marine diesel applications.



Replacement Parts List - all models



Item	Part No.	Description (quantity is one each)
1	RK11888	T-handle
2	11350	T-handle O-ring
3	RK11005B	Lid
	11007	Square-cut Lid Gasket
<i>75/900 Replacement Elements with Seals</i>		
4	2040SMOR	2 micron
	2040TMOR	10 micron
	2040PMOR	30 micron
<i>73, 75, 77 & 79/1000 Replacement Elements with Seals</i>		
	2020SMOR	2 micron
	2020TMOR	10 micron
	2020PMOR	30 micron
5	RK19474	900 Return Tube (w/ straight threads)
	RK11-1775	1000 Return Tube (w/ straight threads)
6	RK11-1639	900 Body Clamp Bracket
	RK11895	1000 Body Clamp Bracket
7	RK19002	900 Outer Cylinder Housing
	RK11021	1000 Outer Cylinder Housing
8	RK11-1679	Body Plug
9	11007	Square-cut Gasket
10	RK11028B	Check Ball and Rubber Seal
11	RK11026D	Turbine and Coalescing Centrifuge
12	RK11-1606-01	See-thru Bowl w/Water Probe Port
	RK11734	Metal Bowl (MAM -not shown)
13	RK21069**	Water Probe
	RK20126	Plastic Water Port Plug
14	11040	Bowl Drain Adapter Fitting
	RK12041	Bowl Drain Plug, 1/4"NPT
	RK11341	Bowl Drain Gasket Kit
15	RK11037A	Bowl Ring, (for see-thru bowl only)
16	RK11542	Capscrew, 1/4"-20 X 1" (4)
17	RK11868	Heat Deflector Shield
18	RK11-1628	75/900 Dual Main Bracket
19	RK11-1629	73,75/1000 Dual Main Bracket
20	RK11892	73,75 Inlet or Outlet Manifold Pipe
21	RK11072	75, 79 Elbow Fitting
22	RK11-1632	77,79/1000 Triple Main Bracket
23	RK11076	77,79 Inlet or Outlet Manifold Pipe
24	RK11073	Ball Valve Assembly
25	RK11074	75, 79 Straight Fitting
	RK11-1404	Seal Service Kit (Not shown-all models)

**Must be used with a Water Detection Module.
See Accessories on previous page.

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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