

# 804MA Series

## Marine Fuel Filter/Water Separators

Instruction Part Number 14378 Rev B



804MA Series fuel filter/water separators are designed to filter water and solid contaminants from diesel fuel and offer diesel engine operators ease of maintenance.

These assemblies feature legendary Racor Aquabloc® technology that protects high-tolerance injection components, keeps engines running at peak performance, and lowers maintenance costs. All 804 Series assemblies feature large inlet and outlet ports for improved flow capacity with less filter restriction. Multiple-filter unit design is simplified by a new valve arrangement while providing greater access. Replacement filter servicing is accomplished by accessing the T-handle by hand. A large capacity water sump requires less frequent servicing while including a large drain plug to facilitate draining or cleaning operations.

This heavy-duty design is 100% steel construction for robustness, and meets ABS Rules for classified vessel machinery spaces.



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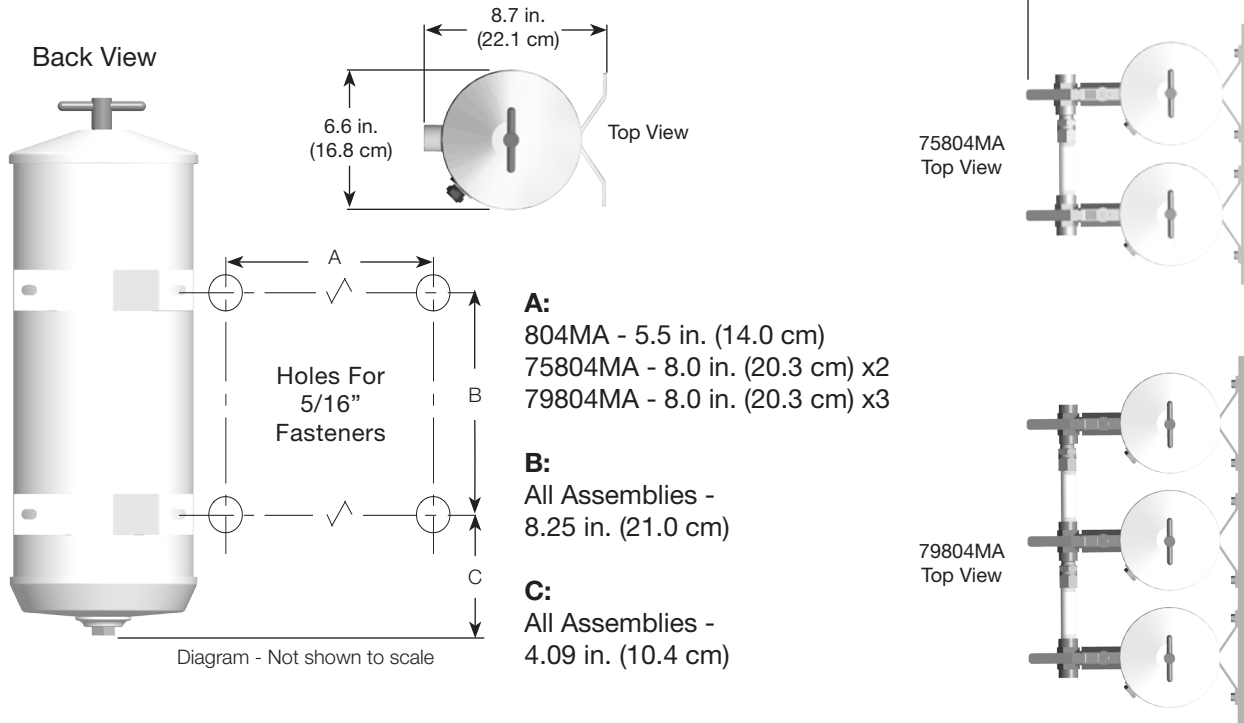
### Product Features:

- 100% all steel construction meets ABS Rules for classed vessels
- Removes 99% of free water
- Flow rates up to 720 GPH (2,725 LPH)
- Large diameter inlet and outlet for high flow rate capability
- Optional sight glass and filter restriction gauges available

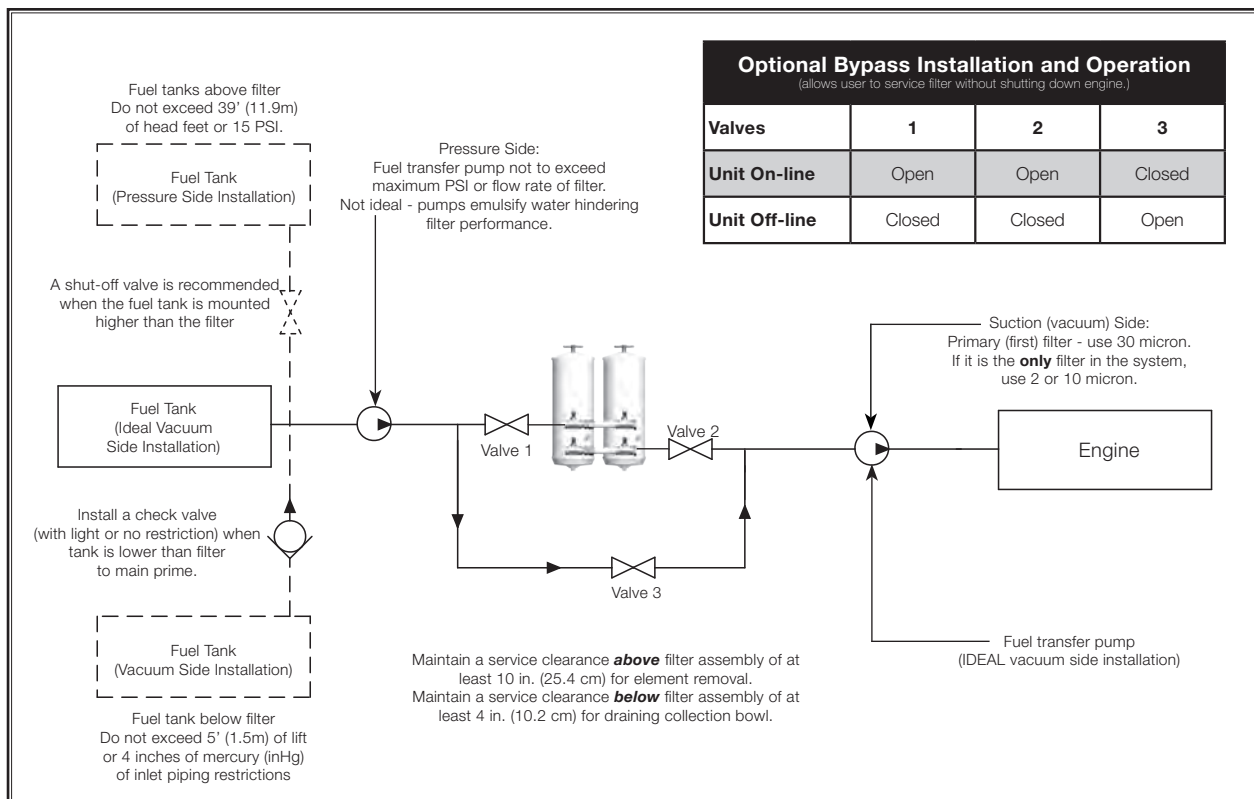


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# Mounting Instructions



# Installation Diagram



## Installation Guidelines

1. Obtain good ventilation and lighting.
2. Engine must be off for installation.
3. DO NOT smoke or allow open flames near installation.
4. Filter assemblies should be installed on vacuum side of fuel transfer pump for optimum water separating efficiency. See Installation Diagram.
5. Locate filter assembly between horizontal planes of bottom of fuel tank and inlet of fuel pump, if possible. If filter assembly is installed in an application where fuel tank is higher than filter, a shut-off valve must be installed between tank and filter assembly INLET. This will be used when servicing replacement filters.
6. Install assembly in a location which provides accessibility and protection from heat, flames, or accidental impacts. Always adhere to applicable piping regulations and codes. Use maximum fuel line size possible and avoid reducers and elbows in order to keep restriction values as low as possible.
7. Apply thread sealant (no thread tapes) to inlet and outlet fittings prior to installing onto filter assembly.
8. When routing hose or piping, avoid surfaces that move, have sharp edges, or get hot (such as exhaust piping).

## Priming The Unit

1. Close inlet fuel valve, if applicable.
2. Remove T-handle and lid from top of tank assembly.
3. Fill tank with clean fuel.
4. Lubricate lid gasket and T-handle O-ring with clean fuel or motor oil.
5. Replace lid and T-handle and tighten snugly by hand only - do not use tools. Max torque is 100 in.lbs.
6. Open inlet fuel valve, if applicable.
7. Start engine and check for leaks. Correct as necessary with engine off and pressure relieved from tank by loosening T-handle.

## Service

### Draining The Tank Sump

Check for water daily by visually inspecting the sight glass, if equipped (the ball in the sight glass will float in water but not in diesel). It may be convenient to loosen the T-handle to allow the tank to vent and drain faster.

Note: Racor recommends installing a steel ball valve with a provision for a pipe plug such as Parker Series XV500CS-12.

See priming instructions, otherwise start engine and allow air to purge from system prior to operating equipment at normal loads.

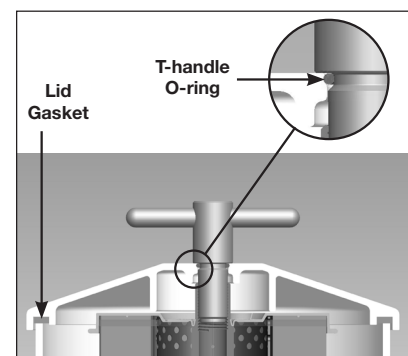
### Filter Replacement

This unit is supplied with a complementary top lid and T-handle gasket kit (#RK22609) as spares. You will need to source these gaskets on future changeouts. The Racor 2020

replacement filters are supplied with a gasket kit, but those are intended for Racor Turbine Series use (only the small o-ring may be used on the 804MA T-handle).

Frequency of filter replacement is determined by the contamination level in fuel. Recommended service intervals are as follows: every 500 hours, annually, or at the first indication of powerloss, whichever comes first. Note: foul smelling fuel is an indication of microbiological contamination. A change in fuel source and Racor fuel additives are recommended. *Always carry extra replacement filters as one tankful of excessively contaminated fuel can plug a filter.*

1. Close inlet fuel valve (if applicable) and completely drain filter assembly.
2. Remove T-handle, lid, and lid gasket.
3. Remove filter from inside housing and dispose properly.
4. Install only new Racor filters.
5. Install new lid gasket into lid groove.
6. Prime fuel system following manufacturer's procedure or refer to Priming The Unit.



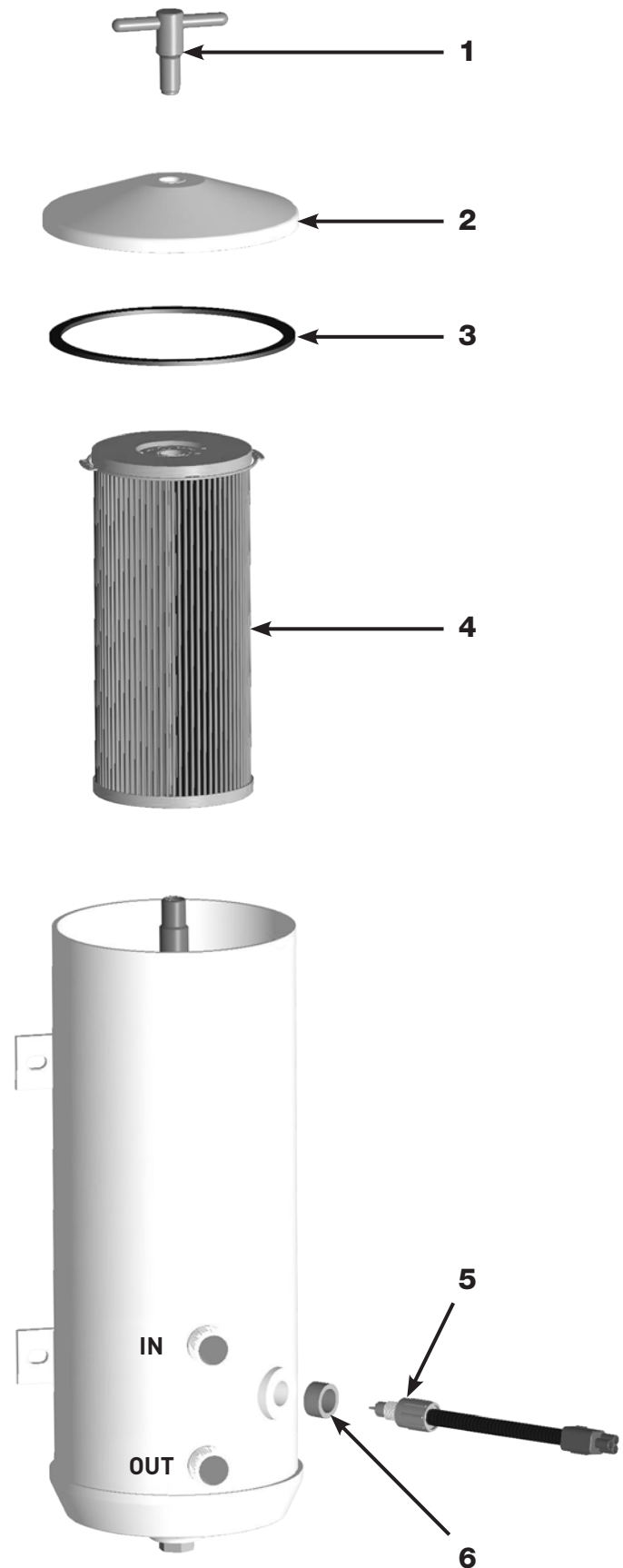
# 804MA

## Replacement Parts

<u>Part No.</u>	<u>Description</u>
1. <b>RK 22688</b>	T-handle Kit (includes T-handle and T-handle O-ring)
<b>RK23024</b>	Filter Restriction Fitting (stainless steel, replaces T-handle, must also order a restriction gauge - not shown)
<b>11350</b>	T-handle O-ring (not shown)
2. <b>RK23179</b>	Lid Kit (includes lid gasket)
3. <b>RK 22609</b>	Lid Seal Kit (includes lid gasket (#3) and T-handle O-ring)
4. <b>2020TM-OR</b>	10 Micron Replacement Filter
<b>2020PM-OR</b>	30 Micron Replacement Filter
5. <b>RK23191</b>	Optional Steel Water-In-Fuel (WIF) Probe/Sensor (use with item 6 and a genuine Racor water detection amplifier, such as RK 20726 - shown on page 6)
6. <b>RK18-1656</b>	Adapter, 1/2" NPT x 1/2" SAE (required when using item #5)

### ***Also Available***

<b>RK11-1676E</b>	Restriction Gauge (0-30 inHg, 2" dial, 1/4" NPT bottom mount - shown on page 7)
<b>RK19476</b>	Compound Gauge (0-30 inHg/0-15 PSI, 1/4" NPT bottom mount - shown on page 7)
<b>RK18-1371</b>	Optional Water Level Sight Gauge (shown on page 6)



# Troubleshooting Procedures

A major cause of power loss or hard starting is result of an air leak (or clogged filter). If your unit will not prime or fails to hold prime, check that drain,

lid, and T-handle are properly tightened. Next, check all fitting connections and ensure fuel lines are not pinched or clogged with contaminants. If problems

persist (and filter is new) call Racor Technical Support for assistance: (800) 344-3286 or (209) 575-7555.



Specifications	804MA	75804MA	79804MA
<b>Maximum Flow Rate</b>	240 GPH (908 LPH)	480 GPH (1,817 LPH)	720 GPH (2,725 LPH)
<b>Port Size</b>	3/4" NPT	3/4" NPT	3/4" NPT
<b>Element Replacement</b>	2020 Series (1 per assembly)	2020 Series (2 per assembly)	2020 Series (3 per assembly)
<b>Micron Rating</b>	10 or 30	10 or 30	10 or 30
<b>Height</b>	19.9 in. (50.5 cm)	19.9 in. (50.5 cm)	19.9 in. (50.5 cm)
<b>Width</b>	6.6 in. (16.8 cm)	17.5 in. (44.6 cm)	25.5 in. (64.8 cm)
<b>Depth</b>	8.7 in. (22.1 cm)	15.5 in. (39.4 cm)	15.5 in. (39.4 cm)
<b>Weight (dry)</b>	26 lbs (11.8 kg)	62 lbs (28.1 kg)	93 lbs (42.2 kg)
<b>Min. Service Clearance</b> <b>Above</b> <b>Below</b>	10.0 in. (25.4 cm) 6.0 in. (15.2 cm)	10.0 in. (25.4 cm) 6.0 in. (15.2 cm)	10.0 in. (25.4 cm) 6.0 in. (15.2 cm)
<b>Max. Working Pressure</b>	10 PSI (0.69 bar)	10 PSI (0.69 bar)	10 PSI (0.69 bar)
<b>Differential Pressure</b>	0.6 PSI (4.1 kPa)	0.6 PSI (4.1 kPa)	0.6 PSI (4.1 kPa)
<b>Burst Pressure</b>	15 PSI (103.4 kPa)	15 PSI (103.4 kPa)	15 PSI (103.4 kPa)
<b>Water In Sump Capacity</b>	61 oz (1.8 L)	122 oz (3.6 L)	183 oz (5.4 L)
<b>Water Removal Efficiency</b>	99%	99%	99%
<b>Ambient Temp. Range</b>	-40° to +255°F (-40° to +121°C)		
<b>Fuel Temp. Range</b>	80° to 190°F (27° to 88°C)		

# Accessories

## RK18-1371 - Water Level Sight Gauge

This steel and glass water-in-fuel (WIF) level sight glass has 1/2" NPT male threads and withstands temperatures up to 200°F (93°C). The captured ball floats in water but not diesel fuel.



## RK23191 - Steel WIF Sensor

All steel and ceramic construction, the water-in-fuel (WIF) probe detects the presence of water in diesel fuel when used with a Racor Water Detection Amplifier. Note: 3/4" NPT to 1/2" SAE Adapter, RK18-1656 required. Kit includes installation instructions.

## RK 20726 - In-Dash Water Detection Amplifier/Module

Specifications	RK 20726
<b>Voltage</b>	12 or 24 vdc
<b>Features</b>	Light and Buzzer
<b>Description</b>	Red DRAIN lamp illuminates continuously and buzzer sounds momentarily when water is detected. Power-up self diagnosis feature and circuit protection included.
<b>Dimensions<sup>1</sup></b>	2.2" Diameter x 3.2" Depth
<b>Power Draw:</b> (12 volt) (24 volt)	3 Milliamps 13 Milliamps
<b>Max. Internal Load</b>	30 Milliamps
<b>Weight</b>	0.4 lb (0.2 kg)
<sup>1</sup> Cut 2.0" diameter hole to mount gauges in instrument panel.	



# Accessories

## RK11-1676E - Vacuum Gauge

Vacuum gauges are available to monitor filter condition and as the filter slowly becomes clogged with contaminants the restriction (resistance to flow) increases. The fuel pump still tries to draw fuel (suction) but because of restriction, less fuel is delivered to the engine and instead more air is pulled from it (fuel de-gassing). Results can cause an engine to lose power and eventually stall.

By installing a vacuum gauge in the fuel system, on the outlet side of the filter, visual monitoring of element condition is possible.

Specifications	RK11-1676E
<b>Description</b>	Silicone dampened, 0-30 inHg
<b>Threads</b>	1/4" NPT bottom boss mount
<b>Dimensions</b>	2.0" W x 1.1" D
<b>Dial</b>	2 in.
<b>Weight</b>	0.3 lbs (0.1 kg)
Special Note: For severe vibration applications, mount gauge on stable, remote location and connect using flexible tubing.	



## Steel Drain Valve

This 3/4" NPT steel drain valve is available from Parker Fluid System Connectors Division, part number XV500CS-12. Find a local distributor for this part at <http://www.parker.com> or call 1-269-694-9411.



## RK23204 - Steel T-handle Adapter

Use the RK23204 adapter with the vacuum gauges shown on this page as an optional mounting location. Install this adapter in place of the T-handle, then install a gauge in the top of the adapter.

## RK 19476 - Compound Gauge Kit

Compound gauges are recommended for applications where pressure is occasionally present. These conditions are typically a result of 'head' pressure which is present in overhead fuel tank installations. Whatever the reason, compound gauges should be used because damage may result if a straight vacuum only gauge is used. Liquid filled (glycerin) gauges are recommended for high-vibration and pulsation applications (not engine mounted).

Specifications	RK 19476
<b>Description</b>	0-25 inHg / 0-15 PSI
<b>Threads</b>	1/4" NPT bottom mount
<b>Dimensions</b>	2.0" W x 1.1" D
<b>Dial</b>	2 in.
<b>Weight</b>	0.2 lbs (0.1 kg)
Special Note: For severe vibration applications, mount gauge on stable, remote location and connect using flexible tubing.	



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