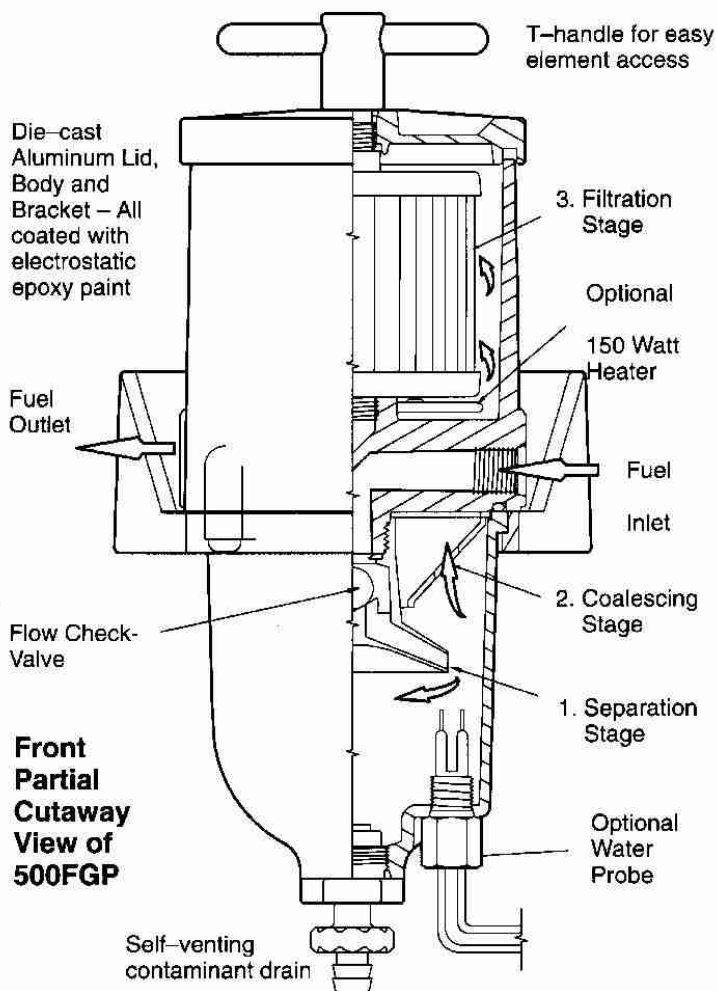


# 500FG Series Fuel Filter/ Water Separators for Diesel and \*Gasoline Engines

\*Use the metal bowl 'FGM' unit for gasoline applications.



SPECIFICATIONS	500FG	500FGSS
Fuel Ports, SAEJ1926	3/4"-16 SAE/16mm	3/4"-16 SAE/16mm
Maximum Flow Rate	60 GPH / 227 LPH	60 GPH / 227 LPH
Replacement Element	2010 (see parts list)	2010 (see parts list)
Overhead Space Req'd.	4" / 102 mm, min.	4" / 102 mm, min.
Clean Pressure Drop*	.6 PSI / 4.23 kPa	.6 PSI / 4.23 kPa
Height	11.5" / 292 mm	11.5" / 292 mm
Width	5.8" / 147 mm	6.50" / 165 mm
Depth	4.8" / 122 mm	5.13" / 130 mm
Weight, Dry	4 lbs. / 2 kgs	4.6 lbs. / 2.1 kgs
Temperature Rating	-40° / +250° F -40° / +121° C	-40° / +250° F -40° / +121° C

\* Specifications result from tests conducted at the maximum flow rate.

**Simplified Flow Rate Formula for Medium Diesel Engines**  
Horsepower X .006 = Approximate (GPM) fuel pump flow rate.  
Consult your engine manufacturer for exact specifications.

## RACOR®

Parker Hannifin Corporation  
Racor Division  
P.O. Box 3208, 3400 Finch Road  
Modesto, CA 95353 USA  
209/521-7860 800/344-3286



Filtration

The Racor 500 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. 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.

The 500 Series units are designed for installation on the vacuum side of the fuel transfer pump for best efficiency.

The fuel ports are standard 3/4"-16 SAE J1926 O-ring seal type. 16mm metric ports are optional. Fittings are not supplied with this unit but are available from your Racor dealer. Please refer to the fittings chart on the back page.

Two brackets styles are available: A one-piece type (shown) or a three piece body-clamp bracket. Metal bowl units use the three piece clamp bracket only.

The see-thru collection bowl allows the operator to check water and solid contamination at a glance.

**OPTIONAL FEATURES:** See Accessories  
A *water probe* alerts the operator when it's time to drain the bowl. This feature is especially useful for models with a metal bowl. (Must be used with a Racor water detection kit). For use with diesel applications, *only*.

An *in-filter 150 watt heater* is available to quickly warm the fuel, providing easier starting in colder climates. For use with diesel applications, *only*.

A *vacuum gauge kit* is also available to inform the operator when it's time to change the element.

### PART NUMBER IDENTIFICATION:

The example below illustrates how the part numbers are constructed.

500FG	-P	-12	SS	-10
Basic Model	Add 'P'	Add '12'	Add 'SS'	Specify Element:
Add 'M' for metal bowl (500FGM)	for Water Sensor Probe.	or '24' for Heater (volts, DC)	for 3-piece bracket	2 micron 10 micron 30 micron

# INSTALLATION INSTRUCTIONS

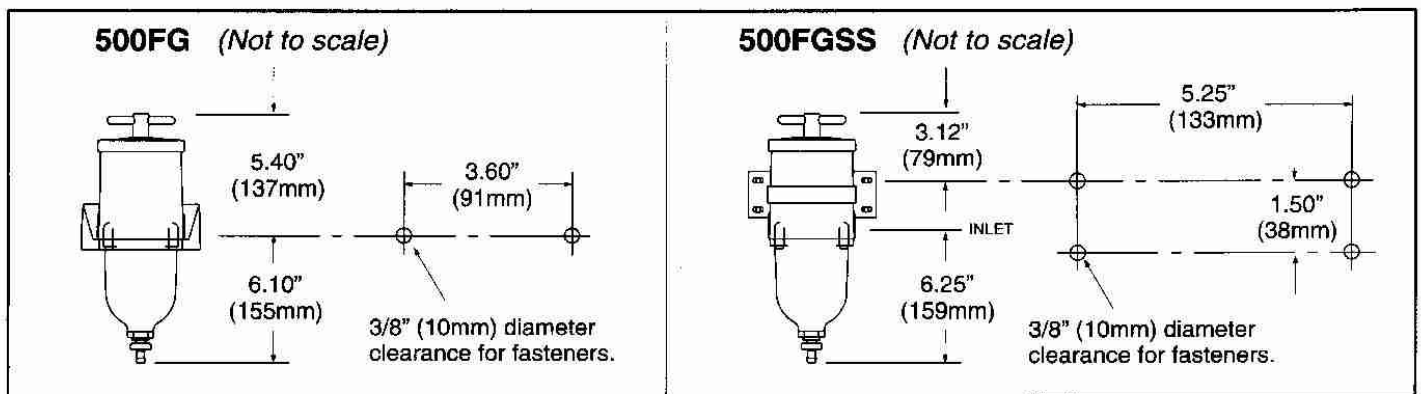
## WHEN POSITIONING THE UNIT:

1. The Racor 500 Series 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. Head pressure will be placed on the unit if it is installed in an application where the fuel tank is higher than the Racor filter. In these applications, a shut-off valve must be installed on the INLET side of the unit for use when servicing the replacement filter.
3. Maintain clearance of at least four inches (4" /102mm) above the unit for element servicing.

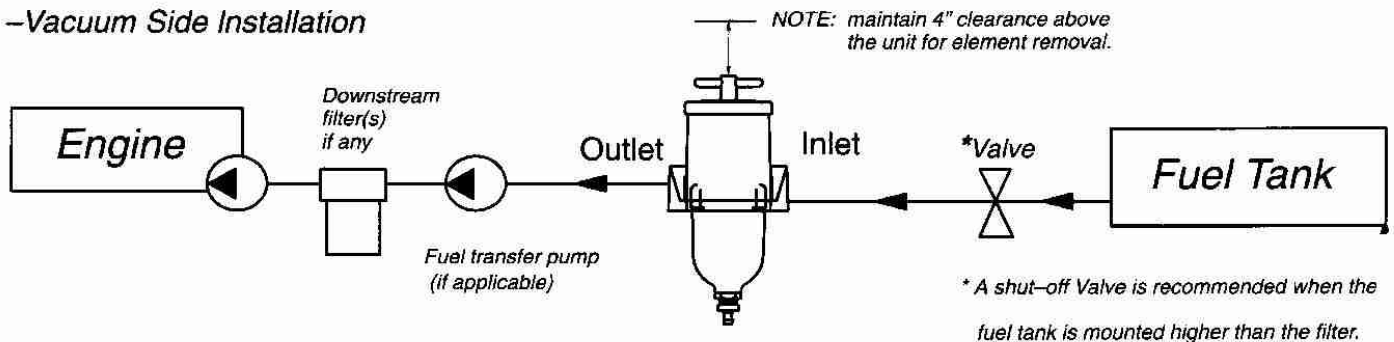
## BEFORE INSTALLING THE UNIT:

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 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.



## -Vacuum Side Installation



## INSTALLING THE UNIT:

1. Completely remove any vacuum side filter(s) in the fuel line between the fuel tank and fuel pump. This is where your Racor filter will mount. Leaving these filters in place will only add to fuel line restriction. Filter heads cast into the engine 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 flow restriction. Do not make 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° elbow fittings where one 90° elbow will work.
4. When routing fuel hose, avoid moving surfaces, sharp edges and hot surfaces such as exhaust piping.

## FUEL SYSTEM PRIMING:

Remove the T-Handle and lid. Fill the unit with clean fuel and coat the lid seal with fuel as well. Replace the lid and 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. Correct with the engine off.

## TROUBLESHOOTING PROCEDURES:

A major cause of poor starting or power loss is the result of a clogged filter or a fuel system air leak. 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 T-handle and drain valve 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, Pacific Standard Time.

## INSTALLING OPTIONAL FEATURES

**NOTE: RACOR ELECTRICAL OPTIONS ARE FOR USE WITH DIESEL FUEL ONLY.**

**WATER PROBE.** Most Racor units can be specified with a water probe. 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. See Optional Accessories for part numbers. You may order kits from your Racor Dealer.

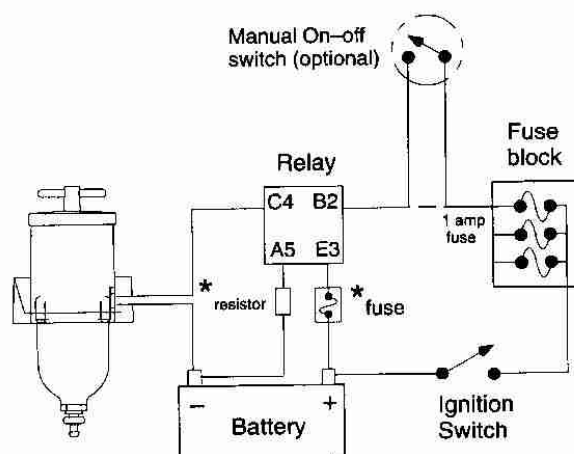
**IN-FILTER HEATER.** The in-filter disc heater is a cold weather starting aid with an internal automatic thermostat that turns the heater on if the fuel temperature drops below +35°F (+1.7°C). Heat is supplied in the unit just below the replacement element to melt the wax crystals and allow fuel to pass through the element for quick, easy starts. The 150 watt heater is available in 12 or 24 vdc (volts, direct current). The heater is operated by turning on the ignition switch for a minimum of five minutes prior to starting the engine.

### CUSTOMER SUPPLIED ITEMS.

1. Because of the heater power demand: 10 amps for 12 vdc and 5 amps for 24 vdc, an additional relay is recommended for the safest method of installation. Racor offers two relay kits available from your dealer: RK11861 (for 12 vdc) and RK11862 (for 24 vdc). These kits include an in-line fuse holder (and fuse) and the RK11862 kit also includes a resistor. Use the 25 amp fuse with 12 vdc and the 15 amp fuse (and resistor) with 24 vdc systems.
2. An on-off toggle switch may be used to control power to the heater relay. This is useful during summer use or just to cut power.
3. All wires should be at least 14 AWG (gauge) on the installation.

### INSTALLATION

1. Either heater wire may be used for Hot (+) or Ground (-).
2. Wire / terminal connections should be crimped and soldered.
3. Run wires in protected locations. Avoid hot surfaces and places that could pinch or rub on the wires.



\*Use resistor and 15 amp fuse with 24 vdc systems.

## SERVICE

Frequency of water draining or element replacement is determined by the contamination level of the fuel. The 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'. Inspect or drain the collection bowl of water daily and replace the element every 10,000 miles, every 500 hours, every other oil change or if a power loss is noticed, *which ever comes first*. If a vacuum gauge has been installed on the outlet side of the filter, change the element between 8 to 15 inches of mercury (restriction). The actual measurement varies in different fuel systems. *Note: Always carry an extra element as one tankful of excessively contaminated fuel can plug a filter.*

### TO DRAIN WATER:

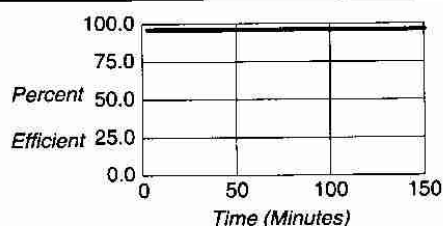
Open the self-venting drain to evacuate contaminants. If necessary, remove the lid and prime the unit by filling with clean fuel. Replace the Lid and tighten the T-Handle by hand only.

**TO REPLACE ELEMENT:** Only genuine Racor replacement filter elements feature specially treated **Aquabloc™** media and the exclusive lip seal design to resist element fuel by-pass. A convenient molded handle in the top cover simplifies removal.

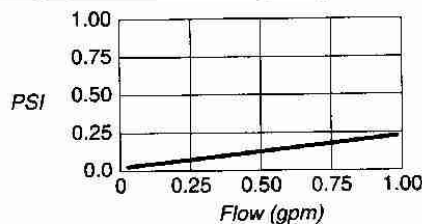
Remove T-Handle and lid. Remove the element by slowly pulling upward on the molded handle with a turning motion. Replace the lid gasket and the T-Handle O-ring with those supplied with the new element. Apply a coating of clean fuel to the seals prior to reassembly. Fill the unit with clean fuel, then replace the lid and T-Handle. Tighten by hand only. Start the engine and check for leaks. Correct any leaks with the engine off.

## PERFORMANCE GRAPHS

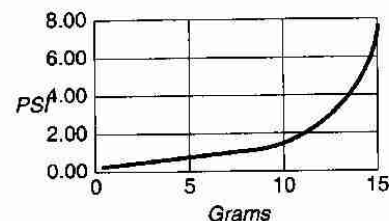
*These results are from controlled laboratory tests. Your results may vary.*



SAE J1839 Water Separation



SAE J905 Fuel Flow Restriction



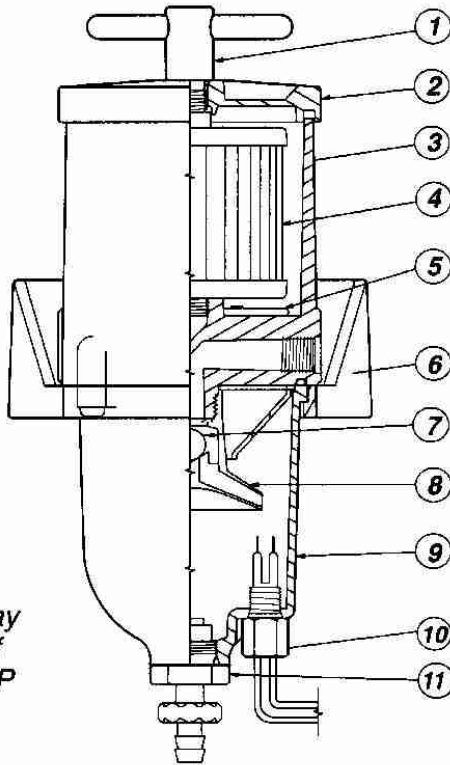
SAE J905 Solids Capacity  
(using SOFTC-2A) @ 10 microns

## 500 SERIES REPLACEMENT PARTS LIST

Item	Part No.	Description (quantity is one each)
1	RK11888	T-handle Assembly
2	RK15078	Lid Assembly
3a	RK15377-01	Body Assembly, 3/4"SAE ports
3b	RK15377-02	Body Assembly, 16mm ports
3c	RK15377-03	Body Assembly, 3/8"NPT ports
4a	2010SMOR	Rpl. Element, 2 micron
4b	2010TMOR	Rpl. Element, 10 micron
4c	2010PMOR	Rpl. Element, 30 micron
5a	RK15310-01	12vdc Heater w/ base feed-thru
5b	RK15310-02	24vdc Heater w/ base feed-thru
6a	RK15090	Bracket, One-piece (shown)
6b	RK15300	Bracket, 3-piece Strap type
6c	RK15035	Bowl Ring (used on 'SS' models)
7	RK15010B	Check Ball and Seal
8	RK15013D	Turbine & Centrifuge
9a	RK15279	See-thru Bowl w/Water Sensor Port
9b	RK15301	Metal Bowl w/ 1/4"NPT drain thread
9c	RK15215	Metal Bowl w/ Water Sensor Probes*
10	RK21069	Water Probe for See-thru Bowl *
11a	RK30488	Self-venting Drain Valve
11b	RK11042	1/4" NPT Brass Petcock Drain
12	RK15211	Seal Service Kit (all models)

\* Must be used with Detection Module. See Accessories below.

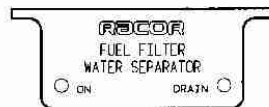
Front  
Cutaway  
View of  
500FGP



## ACCESSORIES

### Water Detection Kit # RK20725

is a 12 vdc underdash module which illuminates an LED when water is detected. Measures 2 3/4" by 1" by 1 1/2" deep. Hardware and instructions included. Wire and terminals are customer supplied.



### Water Detection Kit # RK20726

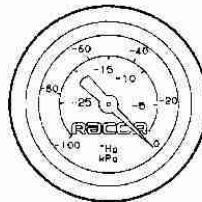
is a 12 or 24 vdc gauge type module which illuminates an LED and sounds a momentary buzzer when water is detected. Fits 2 1/16" diameter openings. Hardware and instructions included. Wire and terminals are customer supplied.



### Gauge-Type Element

### Restriction Monitor Kit #1606B

Plumbed on the outlet side of the filter, the gauge monitors element restriction. Helpful in determining when it's time for a filter change. Most hardware and instructions included.



## FITTINGS CHART

PLATED STEEL FITTINGS FOR 3/4"-16 SAEJ1926 PORTS \*

Description	T2	Part Number
SAE 37° Elbow		9/16"-18 913-08-J6
		3/4"-16 913-08-J8
		7/8-14 913-08-J10
SAE 37° Straight		9/16"-18 911-08-J6
		3/4"-16 911-08-J8
		7/8-14 911-08-J10
NPT Female		1/4" NPT 911-08-F4
		3/8" NPT 911-08-F6
		1/2" NPT 911-08-F8
Barbed Elbow		3/8" Hose 913-08-H6
		1/2" Hose 913-08-H8
		5/8" Hose 913-08-H10
Barbed Straight		1/2" Hose 911-08-H8
		5/8" Hose 911-08-H10

\* Order metric fittings from your PARKER dealer. Call 1-800-C-PARKER for the dealer nearest you.

**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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