120RMAM Marine Series

Fuel Filter/Water Separators

Instruction Part Number 12945 Rev A

Overview

The 120RMAM fuel filter/water separator features 1/4”-18 NPTF inlet and outlet fuel ports and a unitized mounting bracket for mounting versatility. It also features an Aquabloc®II replacement element that repels water and removes solid contamination down to 2 micron. This rugged, compact filter assembly fits a variety of engine applications.

Contact Information:

Parker Hannifin Corporation
Racor Division
P.O. Box 3208
3400 Finch Road
Modesto, CA 95353

phone 800 344 3286
209 521 7860
fax 209 529 3278
racor@parker.com

www.parker.com/racor

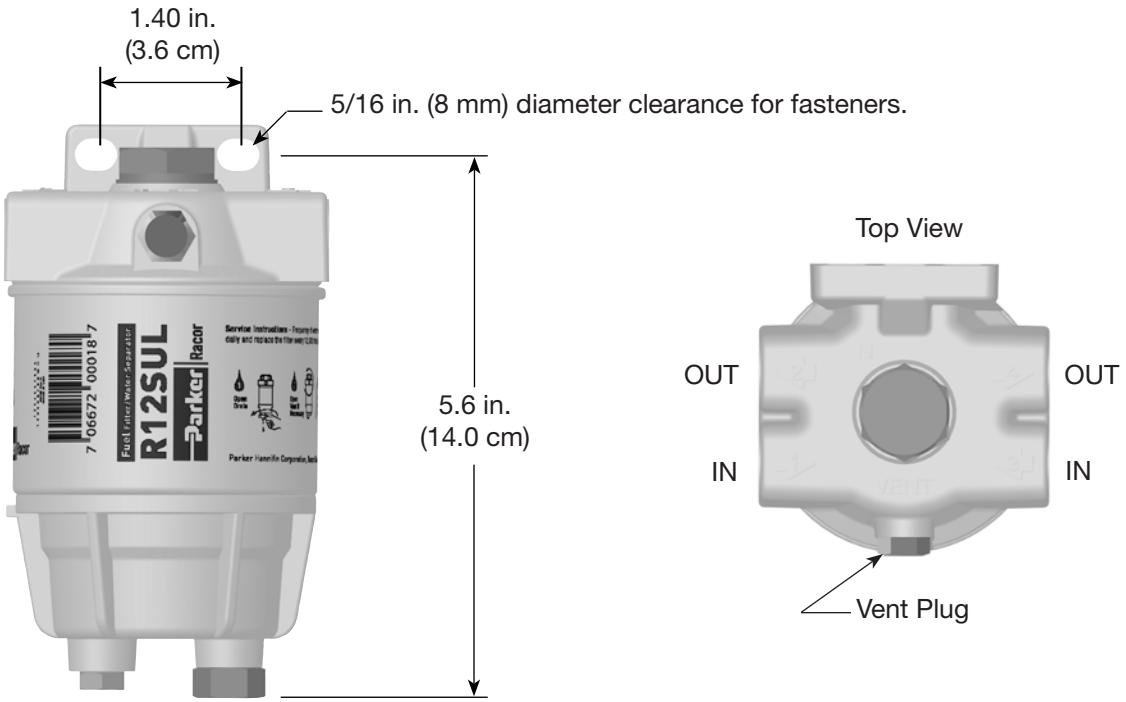
Product Features:

- **Removes 99% of free water**
- **UL listed and USCG approved for inboard marine use**
- **Superior corrosion resistance with electrostatic powder coating**
- **15 GPH (57 LPH) maximum flow rate**
- **4-port die-cast aluminum mounting head (2 inlets, 2 outlets) with 1/4”-18 NPTF threads**

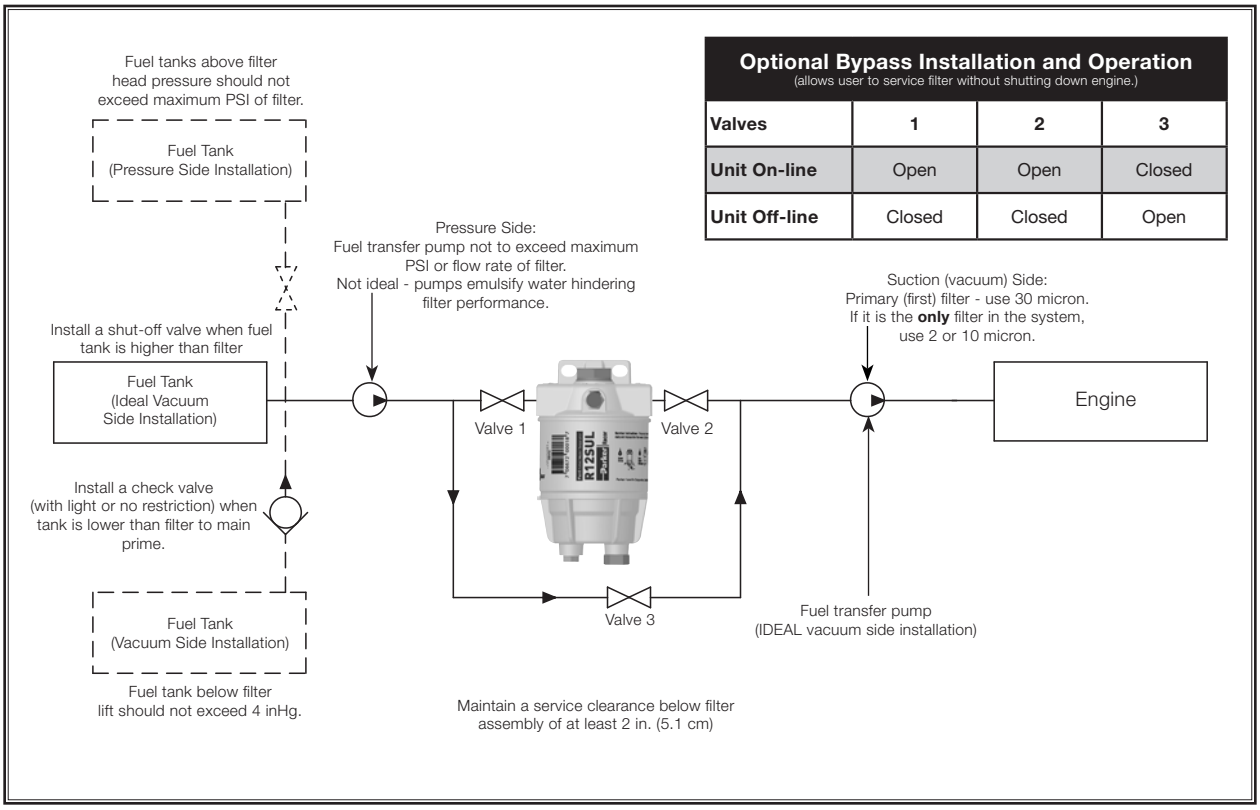
Parker Racor

ENGINEERING YOUR SUCCESS.

Mounting



Installation Diagram



Optional Bypass Installation and Operation
(allows user to service filter without shutting down engine.)

Valves	1	2	3
Unit On-line	Open	Open	Closed
Unit Off-line	Closed	Closed	Open

Installation Guidelines

Refer to Mounting Instructions and Installation Diagram and install as follows:

1. Make sure engine is off and cool to touch.
2. Find a mounting location near fuel supply hose.
3. Apply thread sealant to steel fittings - Do not use thread tapes as particles may break off and contribute to clogging the filter.
4. Thread fittings into appropriate fuel ports and tighten snugly. Plug unused ports (if any) with port plugs and tighten snugly.
5. Attach fuel lines to filter. Avoid tight bends, rubbing areas and heat sources when routing hose.
6. Follow Priming Instructions.
7. Make sure all fittings and connections are tight and secure.
8. Start engine check for leaks. Correct as necessary with engine off.

Service

Element replacement frequency is determined by contamination level in fuels. Fuel flow to engine becomes restricted as element gradually plugs with contaminants, resulting in noticeable power loss and/or hard starting. As a guideline, change element every 500 hours, 10,000 miles, every other oil change, annually, or at first indication of power loss, whichever occurs first. *Always carry extra replacement filters as one tankful of excessively dirty fuel can quickly plug a filter.*

1. Make sure engine is off and cool to touch.
2. Drain filter assembly of fuel.
3. Loosen head bolt with a 15/16" wrench.
4. Spin bowl and element (together) off of mounting head.
5. Spin collection bowl off and save.
6. Dispose of filter properly.
7. Lubricate new seals with motor oil or clean fuel and install only with new filter.
8. Install new O-ring onto collection bowl.
9. Install collection bowl onto new filter.
10. Install new gasket onto new filter.
11. Follow Priming Instructions.

Draining the Collection Bowl

Water is heavier than fuel and will settle to bottom of bowl and appear different in color. In high humidity environments, check bowl frequently (daily if a poor fuel source is suspected). 120RMAM Series bowls are equipped with a water sensor port that will accept a water probe (sold separately) and will alert operator of a high water condition in the filter.

1. Make sure engine is off and cool to touch.
2. Close shut-off valve between fuel tank and filter if applicable.
3. Open vent plug on mounting head with a 1/2" wrench.
4. Slowly open drain plug on bottom of collection bowl with a 7/16" wrench and allow only water to drain out - *do not leave drain open for very long as it will eventually drain the entire filter of all water and fuel.*
5. When fuel is detected coming out of drain, close drain quickly and tighten snugly.
6. Close vent plug and tighten snugly
7. Open Shut-off valve if applicable.
8. Follow - Priming Instructions on next page.

Priming Instructions

If fuel tank is **lower** than filter:

1. Loosen head bolt with a 15/16" wrench.
2. Spin bowl and filter off of mounting head (together).
3. Fill filter with clean fuel.
4. Apply a coat of motor oil or clean fuel to filter gasket.
5. Spin bowl and filter (together) onto mounting head tighten by hand - do not use tools.
6. Tighten head bolt snugly.
7. Start engine and check for leaks. Correct as necessary with engine off.

If fuel tank is **higher** than filter:

1. Close shut-off valve located between fuel tank and filter assembly.
2. Open vent plug on mounting head.
3. Slowly open shut-off valve until fuel begins to spill out of vent port.
4. Close and tighten vent plug.
5. Spin bowl and filter (together) onto mounting head tighten by hand - do not use tools.
6. Start engine and check for leaks. Correct as necessary with engine off.

Trouble Shooting

If filter assembly fails to hold prime, first check vent plug, drain valve, fittings, head, filter, and bowl are properly tightened. Next, check fuel line connections and verify they are free of pinches or unnecessary bends and check to see if fuel tank strainer (or pick-up tube) is clogged. If problems persist and filter is new, call Racor Technical Support at 800 344 3286, 8 AM to 5 PM, Pacific Time.

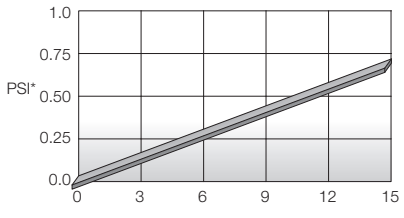
Certifications

For Marine Fuel Systems

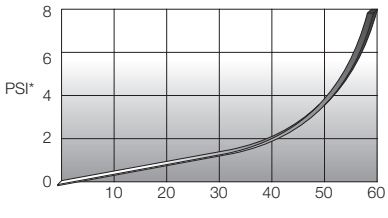
Underwriters Laboritories (UL), inc. Marine Listed (168Y).
United States Coast Gaurd (USCG) accepted for use aboard inspected vesels.
American Boat & Yacht Cousncil (ABYC), inc., Individual Standard, H-33 (diesel fuel systems), and H-24 (gasoline fuel systems).

Performance Information

Test results are from controlled laboratory testing. Field results may vary.



SAE J905 Fuel Flow Restriction



SAE J905 Solids Capacity
(using SOFTC-2A; R12T Element)

*PSI x 2.036 = inHg. (PSI x 6.895 = kPa)

Specifications

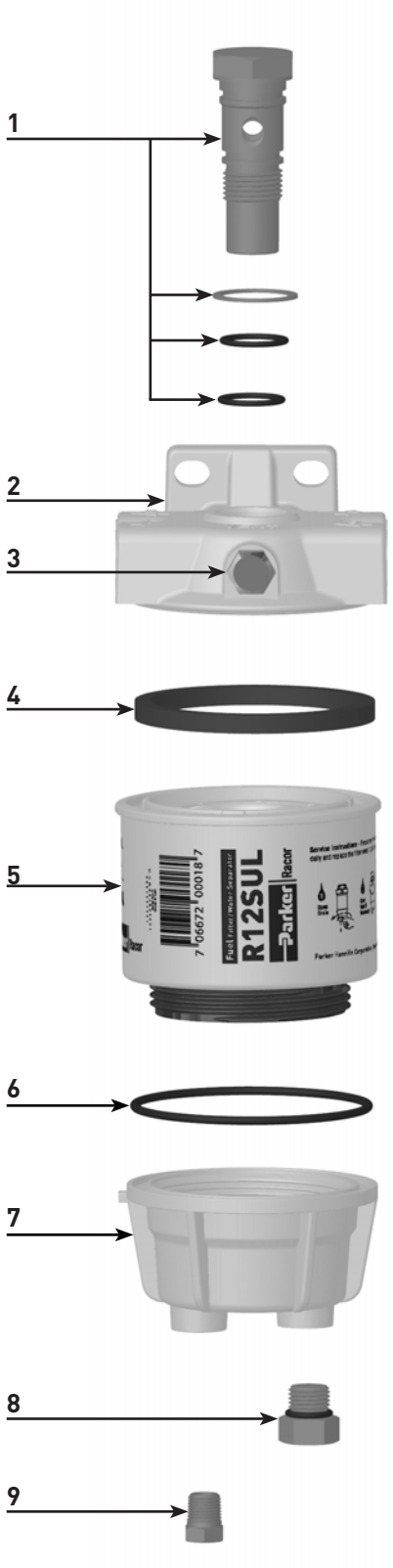
	120RMAM2	120RMAM30
Maximum Flow Rate	15 GPH (57 LPH)	15 GPH (57 LPH)
Port Size (SAE J476)	1/4”-18 NPTF	1/4”-18 NPTF
Total Number of Ports: ***(total inlets)*** ***(total outlets)***	4 2 2	4 2 2
Replacement Element:	R12SUL (2 micron)	R12PUL (30 micron)
Min. Service Clearance	2.0 in. (5.1 cm)	2.0 in. (5.1 cm)
Center Threads	M18 x 1.5	M18 x 1.5
Height	5.7 in. (14.5 cm)	5.7 in. (14.5 cm)
Width	3.2 in. (8.1 cm)	3.2 in. (8.1 cm)
Depth	3.2 in. (8.1 cm)	3.2 in. (8.1 cm)
Weight (dry)	1.4 lb (0.6 kg)	1.4 lb (0.6 kg)
Clean Pressure Drop	0.15 PSI (1.08 kPa)	0.15 PSI (1.08 kPa)
Max. Allowable Pressure[1]	7 PSI (48 kPa)	7 PSI (48 kPa)
Bowl Capacity	1.8 oz (52 ml)	1.8 oz (52 ml)
Water Removal Efficiency	99%	
Ambient Temp. Range	-40° to +255°F (-40° to +121°C)	
Max. Fuel Temperature	190°F (32°C)	

MARINE UL LISTED

1 Vacuum installations recommended. Pressure installations applicable to maximum PSI shown.

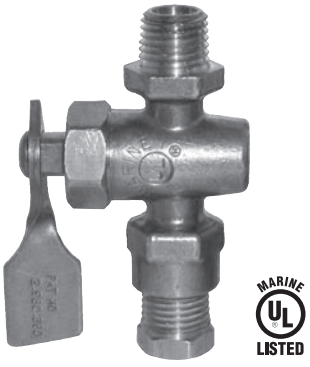
120RMAM
Replacement Parts

	Part No.	Description
1.	**RK 10006**	Head Bolt Assembly Kit (includes washer and o-rings)
2.	**RK 10117**	Head Kit (1/4”-18 NPTF Ports) (includes #’s 1 to 4)
3.	**RK 10110**	Metal Vent Plug Kit (3/8”-24 UNF)
4.	**RK 10503**	Gasket Kit
5.	**Replacement Filter** (includes #’s 4 and 6)	
	R12SUL	(2 Micron) UL Recognized
	R12PUL	(30 Micron) UL Recognized
6.	**RK 10012**	Bowl O-ring Kit
7.	**RK 10109**	Metal Bowl Kit (includes #’s 6 to 9)
8.	**RK 20022**	Metal Plug Kit (1/2”-20 UNF)
9.	**01SP-2S**	Steel Drain Plug (1/8” NPT)



Drain Valve Kit

UL Listed drain valve kit is available part number RK 19492.

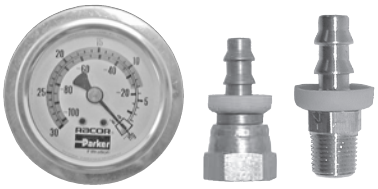


Accessories

Vacuum Gauges

Vacuum gauges are available to monitor element condition and as the filter element slowly becomes clogged with contaminates the restriction (resistance to flow) increases. The fuel pump still tries to draw fuel (suction) but because of restriction, less fuel is delivered to engine and instead more air is pulled from it (fuel de-gassing). Results can cause 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	1606B
Description	Includes gauge and two fittings. Instrument panel installation.
Threads	1/4" NPT back bracket mount.
Dimensions	2.0" W x 1.9" D
Dial	2 in.
Weight	0.4 lb (0.2 kg)
Special Notes: For severe vibration applications, mount gauge on stable, remote location and connect using flexible tubing. Additional gauges available - contact your local distibutor.	

Hose

Racor fuel hose is fire resistant and meets SAE J1527 Type A class and SAE J1942 standards. This hose delivers test proven performance in a wide operating temperature range, constant working pressure in popular sizes, long-lasting reinforced construction, kink and cut resistance, and compatibility with a variety of standard fittings.

Part Number	Hose ID	Working Pressure	Burst Pressure	Min. Bend Radius
CGH-5	1/4" (0.63 cm)	500 PSI (3.5 MPa)	2000 PSI (14 MPa)	1" (.25 cm)
CGH-6	5/16" (0.80 cm)	500 PSI (3.5 MPa)	2000 PSI (14 MPa)	1 1/4" (.30 cm)
CGH-8	13/32" (0.10 cm)	500 PSI (3.5 MPa)	2000 PSI (14 MPa)	1 3/4" (.45 cm)

Note: Additional sizes may be available - call your Racor distributor.

Additional Features

- High-tensile steel wire braid.
- No-Skive - does not require the removal of outer cover to install.
- USCG-rated for gasoline, diesel, lube oil and hydraulic systems.
- Working temperature of -4°F to +212°F (-20°C to +100°C).

Water Probe Kits

Racor offers a wide selection of water probes, each designed for use with particular models and installation requirements. These probes are available in various configurations to fit every Racor filter/separator. The water probe is only a component in the water detection system and will not work without a Racor electronic detection module.

RK 30880 has an electronic detection module built-in to its design and has the simplest installation procedure. Wiring instructions are supplied with each water detection module.

Specifications	RK 21069	RK 30964	RK 30880
Threads	1/2"-20 Threads	1/2"-20 Threads	1/2"-20 Threads
Description	One piece design with two wires. Requires a detection module.	Includes detachable 2-wire connector. Requires a detection module.	Includes detachable 3-wire connector, built-in detection electronics and under-dash warning light. Probe sends ground signal to light.
Voltage	12 or 24 vdc	12 or 24 vdc	12 or 24 vdc
Power Draw: ***(12 volt)*** ***(24 volt)***	N/A	N/A	5 Milliamps 10 Milliamps
Maximum Load	N/A	N/A	1 Amp
Weight	0.03 lb (0.01 kg)	0.02 lb (0.01 kg)	0.4 lb (0.2 kg)
Caution: Never wire a water probe directly to voltage or another brand of detection module.			

Limited Warranties Statement

All products manufactured or distributed by Racor are subject to the following, and only the following, LIMITED EXPRESS WARRANTIES, and no others: For a period of one (1) year from and after the date of purchase of a new Racor product, Racor warrants and guarantees only to the original purchaser-user that such a product shall be free from defects of materials and workmanship in the manufacturing process. The warranty period for pumps and motors is specifically limited to ninety (90) days from date of purchase. A product claimed to be defective must be returned to the place of purchase. Racor, at its sole option, shall replace the defective product with a comparable new product or repair the defective product. This express warranty shall be inapplicable to any product not properly installed and properly used by the purchaser-user or to any product damaged or impaired by external forces.

THIS IS THE EXTENT OF WARRANTIES AVAILABLE ON THIS PRODUCT. RACOR SHALL HAVE NO LIABILITY WHATSOEVER FOR CONSEQUENTIAL DAMAGES FLOWING FROM THE USE OF ANY DEFECTIVE PRODUCT OR BY REASON OF THE FAILURE OF ANY PRODUCT. RACOR SPECIFICALLY DISAVOWS ALL OTHER WARRANTIES, EXPRESS OR IMPLIED INCLUDING, WITHOUT LIMITATION, ALL WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE (EXCEPT FOR THOSE WHICH APPLY TO PRODUCT OR PART THEREOF THAT IS USED OR BOUGHT FOR USE PRIMARILY FOR PERSONAL, FAMILY, OR HOUSEHOLD PURPOSES), WARRANTIES OF DESCRIPTION, WARRANTIES OF MERCHANTABILITY, TRADE USAGE OR WARRANTIES OR TRADE USAGE.

Warning

Failure or improper selection or improper use of the products and/or systems described herein or related items can cause death, personal injury and property damage. This document and other information from Parker Hannifin Corporation, its subsidiaries and authorized distributors provide product and/or system options for further investigation by users having technical expertise.
It is important that you analyze all aspects of your application and review the information concerning the product or system in the current product catalog. Due to the variety of operating conditions and applications for these products or systems, the user, through its own analysis and testing, is solely responsible for making the final selection of the products and systems and assuring that all performance, safety and warning requirements of the applications are met.
The products described herein, including with limitation, product features, specifications, designs, availability and pricing, are subject to change by Parker Hannifin Corporation and its subsidiaries at any time without notice.

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 or reproductive toxicity'.

May 2008

Parker | Racor

ENGINEERING YOUR SUCCESS.