

SELECTION - SECTION 2

DIESEL, KEROSENE AND GASOLINE FUEL FILTERS:

Note: Most products in this section are Underwriters Laboratories Listed for Marine use and many are U.S.C.G. Accepted or meet A.S.T.M. Specification F-1201. Documentation or certification is available upon request.

1. Find the **application**: Diesel #2, Kerosene or Gasoline.
2. Find the **installation**. Will the unit be installed on the suction (vacuum) or pressure side of the fuel pump? Racor units are most efficient when installed on the suction side of the fuel system. If the filter is a replaceable engine spin-on type, go directly to the 320 Engine Spin-on Series.
3. Find the **total fuel flow rate**. This is the total flow that will pass through the filter. You may obtain this information from your engine or equipment manufacturer or your Racor dealer. Use this information to select a Racor filter that has a greater flow rating than your equipment's total fuel flow rate.

If this information is not available use the following formula for estimating.

Diesel or kerosene fuel systems:

Gallons per Hour is Engine Horsepower (maximum) multiplied by 18% or $GPH = HP \times 0.18$

Gasoline fuel systems (carbureted):

Gallons per Hour is Engine Horsepower (maximum) multiplied by 10% or $GPH = HP \times 0.1$

Gasoline fuel systems (fuel injected):

Use a straight 40 GPH figure. Smaller outboards will use a 25 GPH figure.

4. **What other conditions apply?**

Water contamination. A water detection package should be added to inform the operator of water build-up and necessary servicing. Water detection packages are available for use with all models in diesel fuel applications, only.

Does the engine need to run continuously, not allowing a shut-down for needed servicing, such as a generator? If so, see 'Turbine' models with the '75, or 79' prefix in the part number.

What type of filter element best suits your vessel? The 'Turbine' series have element cartridges that are serviced from the top and all other units in this section have a removeable spin-on type canister that is serviced from the bottom.

A convenient feature may be a head mounted, hand operated priming pump. See models 215MAM, 230MAM, and 245RMAM as well as 445MAM, 460MAM, 490MAM and 4120MAM models.

5. **With the above information, review the models suggested that best fit your installation.** Most of the Model Groups have additional information to help in identifying the exact model for your needs. Call your Racor distributor or Racor customer service if you need additional assistance at: (800) 344-3286, or e-mail us from our website at www.parker.com/racor.

HYDRAULIC FILTERS, LIQUID TRANSFER SYSTEMS, FUEL / AIR SEPARATORS and DRINKING WATER FILTERS:

1. Go directly to those Sections for specific selection information.

Marine Products Index**Fuel Filter/Water Separators**

Gasoline Series	Application	Installation	Flow Rate		Page
025-RAC-01, 02	Outboards	Suction	25 GPH	95 LPH	95-96
025-RAC-05	In/Outboards	Suction/Pressure	25	95	95-96
B32013, B32014	Outboards	Suction	60	227	95, 97
B32020MAM, 21MAM	In/Outboards	Suction	60	227	95, 97
120R-RAC-01	Outboards	Suction	30	114	98-99
320R-RAC-01, 02	Outboards /Both	Suction	60	227	98, 100
660R-RAC-01, 02	Outboards /Both	Suction	90	341	98, 101
3120R-RAC-32	Both	Suction	120	454	98, 102

Diesel Spin-on Series

110A	Diesel	Suction/Pressure	15	57	105-106
120RMAM	Diesel	Suction	15	57	105, 107
215, 230, 245RMAM	Diesel	Suction	15/30/45	57/114/170	105, 108
445MAM, 460MAM	Diesel	Suction	45/60	170/227	105, 109
490MAM, 4120MAM	Diesel	Suction	90/120	341/454	105, 109

Series MC

60MC, 90MC, 180MC	Diesel	Suction	60/90/180	227/341/454	111-112
7590MC, 75180MC, 79180MC	Diesel	Suction	180/360/540	681/1363/2044	111-113

Turbine Series

500MA	Diesel	Suction	60	227	115-117
900MA	Diesel	Suction	90	341	115, 118-119
1000MA	Diesel	Suction	180	681	115, 120-121
73/1000MA	Diesel	Suction	360	1363	115, 122-123
75/500MAX	Diesel	Suction	120	454	115, 124-125
75/900MAX	Diesel	Suction	180	681	115, 126-127
75/1000MAX	Diesel	Suction	360	1363	115, 128-129
77/1000MA	Diesel	Suction	540	2044	115, 130-131
79/1000MAV	Diesel	Suction	540	2044	115, 132-133

Hydraulic Filters

Racor Marine Hydraulic Filters		Pressure	See product listings		135-137
Reservoir Breathers & Adapters					137

Liquid Transfer Systems

Guardian Fuel/Oil Filter/ Transfer System		Suction/ Pressure	240	908	139-141
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Fuel / Air Separators

LG50	Gasoline	Fuel tank vent line	12 CFM	90 GPM	142-143
LG100	Diesel/Gasoline	Fuel tank vent line	17 CFM	127 GPM	142-143

Drinking Water Filters

WFA12-S5	Sediment Removal	Pressure	6 GPM	23 LPM	144-145
WFA12-T5	Taste and Odor	Pressure	3 GPM	12 LPM	144-145

Marine Engine Air Filters/Silencers

AF M408512, AF M501012, and AF M601212			See product listings		146-147
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Discontinued Models /

Marine Accessories					148-151
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Selection Information

Power Boats with Inboard Gasoline Engines:

1. Power boats with inboard gasoline engines must use units equipped with metal bowls.
2. Stock carbureted engines can use all units.
Fuel-injected or high performance engines (or severe service applications) should use units with a flow rate between 40 to 120 gallons per hour (GPH).
Consult the engine manufacturer for the exact fuel filter flow rate.
3. For boats where a fuel filter/water separator is already installed:
This is generally a MerCruiser or OMC style filter (fuel ports on top of filter head).
Use the B32020MAM (MerCruiser) or B32021MAM (OMC).
If there are no filters already installed, specify the 120R-RAC-01, 320R-RAC, or 660R-RAC units. For high-performance boats the 3120R-RAC-32 is recommended.

IMPORTANT: All units must be installed on the suction (vacuum) side of the fuel or transfer pump.

Power Boats with Outboard Gasoline Engines:

1. Power boats with outboard gasoline engines can use either see-thru blue bowls or metal bowls.
2. Stock carbureted engines can use all units.
High performance engines (or severe service applications) should use units with a flow rate between 40 to 90 gallons per hour (GPH).
3. For boats where a fuel filter/water separator is already installed:
This is generally a Quicksilver or OMC style filter (fuel ports on top of filter head).
Use the B32013 (Quicksilver) or B32014 (OMC).
If there are no filters already installed, specify the 120R-RAC-01, 320RRAC, or 660RRAC units. For high-performance boats the 3120R-RAC-32 is recommended.

IMPORTANT: All units must be installed on the suction (vacuum) side of the fuel or transfer pump.

Gasoline Powered Boats-Continuous Operation:

1. For engine(s) that must run continuous and/or cannot be shut-down for servicing, specify only MAVM or MAXM units (with metal bowls) found under 'Fuel Filter/Water Separators, Turbine Series', which follows this series.
All other boats that are routinely serviced daily may specify any series model with a metal bowl.

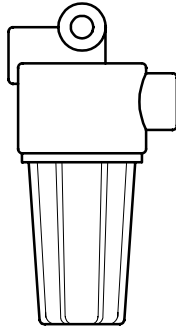
SELECTION:

1. Along with the information you obtained in SECTION 2, SELECTION (page 94), consider the following: Are there any space limitations in the available location? The location should provide adequate space for removing the element, draining off contaminants from the bowl.
2. What filtration rating is needed? Gasoline spin-on filters are standard with 10 micron media. Turbine models can be ordered with 2, 10 or 30 micron media.

Using this information, select a unit from the next page, or check the models which follow to find just the right unit for your application.

For additional information, call your Racor dealer or call Racor customer service: (800) 344-3286, 6 AM to 5 PM, Pacific Time, or e-mail us from our website, www.parker/racor.

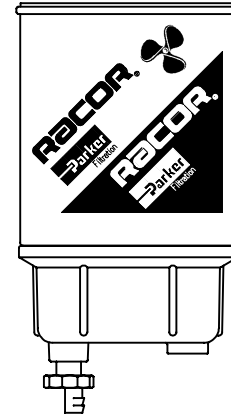
Model Illustrations



025-RAC-01,
025-RAC-02



025-RAC-05



B32013,
B32014,
B32020MAM,
B32021MAM

2

Special Notes

- 025-RAC-01 and 025-RAC-02 configurations are for outboard engine applications **only**.
- B32013 & B32014 model configurations with blue, see-thru bowls, are for outboard engine applications **only**.
- MAM metal bowl units are approved for gasoline service. UL Recognized.
- For additional information and availability, contact customer service: (800) 344-3286, 6 AM to 5 PM, Pacific Time, or e-mail us from our website, www.parker.com/racor.



Specifications

BASIC MODELS		025-RAC-01, 025-RAC-02	025-RAC-05	B32013, B32014	B32020MAM, B32021MAM
Maximum Flow Rate	GPH LPH	25 95	25 95	60 227	60 227
Filter Element Part Numbers		S2501/ S2502	N/A	S3213/ S3214	S3220UL S3220UL
Filter Element Center Threads		N/A	N/A	11/16-16	11/16-16
Head Port Size		N/A	N/A	1-12	1-12
		1/4-18NPTF(2)	N/A	N/A	N/A
Height	in. mm	4.31 109	4.75 121	6.75 171	6.75 171
Width	in. mm	2.25 57	2.30 Dia. 58 Dia.	3.75 Dia. 95 Dia.	3.75 Dia. 95 Dia.
Depth	in. mm	2.10 53	2.30 Dia. 58 Dia.	3.75 Dia. 95 Dia.	3.75 Dia. 95 Dia.
Weight (dry)	Lbs. kgs.	0.3 0.14	0.27 0.12	1.2 0.54	1.6 0.73
Clean Pressure Drop	PSI kPa	0.26 / 0.35 1.8 / 2.4	2.5 17.2	0.61 ¹ 4.23 ¹	0.61 4.23
Max Pressure	PSI	100	30		
Element Removal Underbowl Clearance	in. mm	1 25.4	N/A	1 25.4	1 25.4
Operating Temperature		Temp. ²	-40° / +255° F	/ -40° / +121° C	

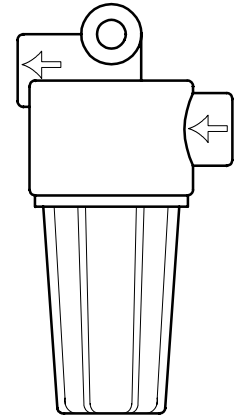
¹ Acquired using 320R-RAC mounting head.

² 025-RAC Series: Operating Temperature: -10° / +180° F / -23° / +82° C

SPECIFICATIONS are found on the introduction page.

How to Order -The example below illustrates how the part numbers are constructed.

025-RAC	-02
25 GPH (optimum flow rate) Cast aluminum mounting head with 1/4"NPT inlet and outlet fuel ports. Features one hole for mounting with up to a 1/4" diameter capscrew. Reusable, spin-on see-thru collection bowl.	Filter Media: '-01' 250 micron plastic fuel straining element (#S2501 Not for water removal). '-02' 10 micron Aquabloc™ filter element (#S2502).
WARNING! FOR OUTBOARD ENGINES, PERSONAL WATER CRAFT AND OTHER APPLICATIONS. DO NOT USE THIS FILTER WITH INBOARD ENGINES OR STERN DRIVE BOATS - USE RACOR U.L. LISTED MARINE FILTERS. SEE INDEX.	



025-RAC-01/02

Replacement Service Parts -Elements include replacement bowl O-ring.
Note: Replace filter annually or at the first indication of power loss, whichever comes first. Always keep an extra filter element on hand.

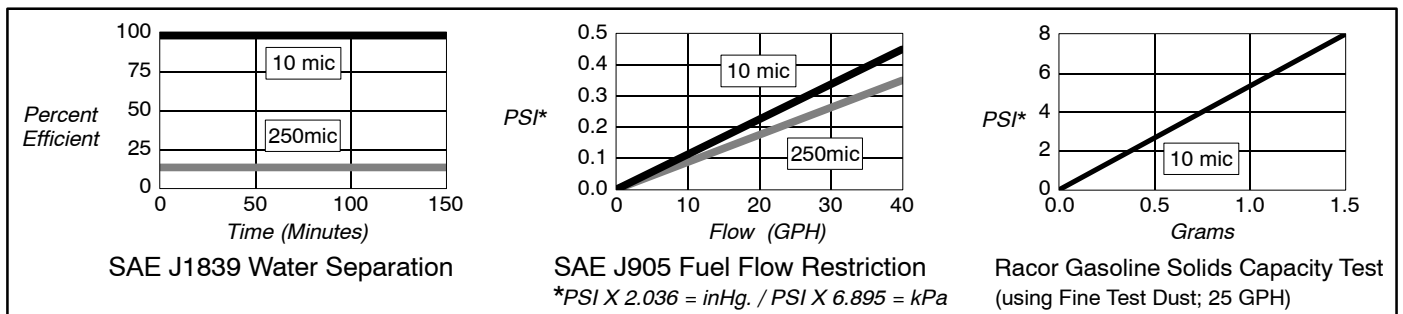
025-RAC-01 use **S2501** 250 micron plastic fuel straining element.

025-RAC-02 use **S2502** 10 micron Aquabloc™ filter element.

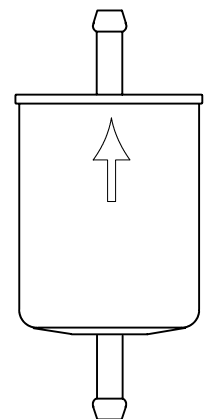
31391 Replacement See-thru Bowl

31185 Replacement Bowl O-ring only (for both models).

Performance Graphs -Results are from controlled laboratory tests. Field results may vary.



025-RAC-05	Features:
In-line Filter, 25 GPH. 5/16" Hose beads on inlet and outlet fuel ports with 10 micron filtering media. Secure hoses with hose clamps (not provided).	<ul style="list-style-type: none"> • All Stainless Steel construction • Black 'E' coating for corrosion protection • Only 2.5 PSI restriction @ 25 GPH. • Can withstand up to 30 PSI.



025-RAC-05

Replacement Information

This filter may be used in all suction (vacuum) side fuel system installations or in pressure side installations up to 30 PSI.
The filter should be replaced annually or if there is a noticeable loss of power, whichever comes first. Always carry a spare filter onboard as one tank full of contaminated fuel can easily plug a filter.

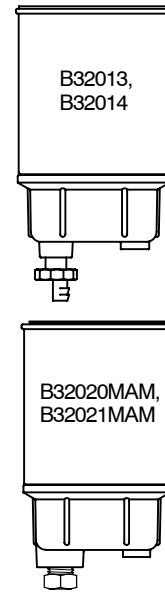
SPECIFICATIONS are found on the introduction page.



Underwriter's Laboratories
Recognized Component

How to Order - The blocks below detail the features of these units.

B32013	B32014	B32020MAM	B32021MAM
60 GPH. Fits 11/16"-16 Quicksilver heads. S3213 10 micron Aquabloc™ media & blue see-thru collection bowl. For outboard engine applications only.	60 GPH. Fits 1"-12 OMC heads. S3214 10 micron Aquabloc™ media & blue see-thru collection bowl. For outboard engine applications only.	60 GPH. Fits 11/16"-16 MerCruiser mounting heads. S3220 10 micron Aquabloc™ media with metal collection bowl and 3/8" drain plug. <i>UL Recognized Component</i> For inboard or outboard engine applications.	60 GPH. Fits 1"-12 OMC mounting heads. S3221 10 micron Aquabloc™ media with metal collection bowl and 3/8" drain plug. <i>UL Recognized Component</i> For inboard or outboard engine applications.



2

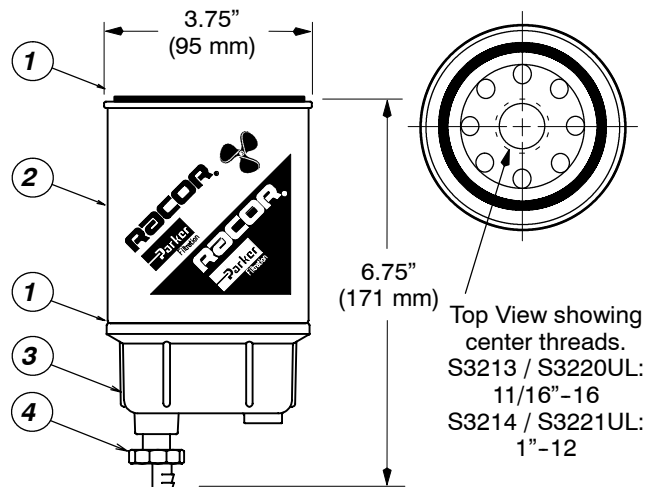
Quick Cross Reference Chart - for Racor units with bowls

Note: For replacement filter elements only, see item 1 in parts list below.

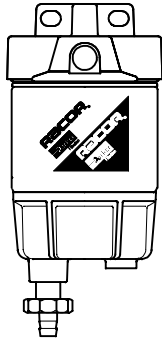
<u>Aquapower</u>	<u>RACOR</u>	<u>PCM</u>	<u>RACOR</u>
6001	B32013	R080020	S3228UL (without bowl)
6031	B32020	<u>Sierra</u>	
6040	B32014 / B32021	18-7845	B32013
		1807850	B32020MAM
<u>Baldwin</u>		<u>Suzuki US</u>	
BF791	B32013 / B32020MAM	99105-2004	S3227 (without bowl)
<u>Fram</u>		<u>Volvo</u>	
PS3808	B32013 / B32020MAM	855686-0 / -2	B32020MAM
<u>Quicksilver (Mercury Marine)</u>		<u>Wix</u>	
35-807172 / 35-60494-1	B32020MAM	33225	B32013 / B32020MAM
35-805269-1 / 35-807172 / 35-805269-1	B32013	<u>Yamaha</u>	
<u>OMC</u>		ABA-FUEL-FLTR	B32013
502905	B32014	MAR-23452-00-00	S3220UL (without bowl)
174144	B32021MAM		

Parts List

Item/Part No.	Description	Case Qty.
1 20707	O-ring / gasket pack: all units	1
2 S3213	'B32013' Element -10 micron	12
S3214	'B32014' Element -10 micron	12
S3220UL	'B32020' Element -10 micron	12
S3221UL	'B32021' Element -10 micron	12
3 RK30747	See-thru Blue Bowl (shown)	1
RK30473-02	Metal Bowl & NPT plug, white powder 'paint' coating (MAM)	1
4 RK30476	Plastic Drain Knob	1
RK22099	Drain Gasket	
918-N6	Metal Plug, 3/8" NPT (MAM)	1



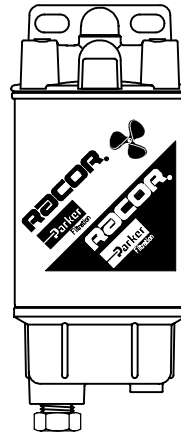
Model Illustrations



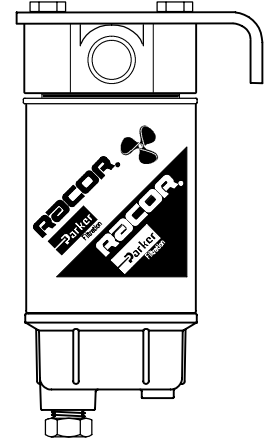
120R-RAC-01



320R-RAC-01,
320R-RAC-02



660R-RAC-01,
660R-RAC-02



3120R-RAC-32
(side view)

Special Notes

1. 120R-RAC-01, 320R-RAC-01, and 660R-RAC-01 configurations with blue, see-thru bowls, are for outboard engine applications **only**.
3. MAM metal bowl units are approved for gasoline service. UL Recognized.
4. 320R-RAC-02, 660R-RAC-02 and 3120R-RAC-32 configurations are approved for inboard engine or outboard engine gasoline service. UL Listed.
5. For additional information and availability, contact customer service: (800) 344-3286, 6 AM to 5 PM, Pacific Time, or e-mail us from our website, www.parker.com/racor.



Specifications

BASIC MODELS		120R-RAC-01	320R-RAC-01 320R-RAC-02	660R-RAC-01 660R-RAC-02	3120R-RAC-32
Maximum Flow Rate	GPH LPH	30 114	60 227	90 340	120 454
Filter Element Part Numbers		S3240	S3227/ S3228UL	S3232/ S3232UL	S3232UL
Center Threads		M18 X 1.5	1-14	1-14	1-14
Head Port Size		1/4-18NPTF(4)	1/4-18NPTF(3)	3/8-18NPTF(4)	1/2-14NPTF(2)
Height	in. mm	6.5 166	9.38 238	11.00 280	10.38 264
Width	in. mm	3.2 81	4 102	4.2 106	4 102
Depth	in. mm	3.2 81	4 102	4.5 114	5 127
Weight (dry)	Lbs. kgs.	1.1 0.5	2 0.90	3 1.4	2 0.90
Clean Pressure Drop	PSI kPa	0.15 1.03	0.61 4.23	0.61 4.23	0.15 1.03
Max Pressure	PSI	7			
Element Removal Underbowl Clearance	in. mm	1 25.4	1 25.4	1 25.4	1 25.4
Operating Temperature		-40° / +255° F / -40° / +124° C			Temp. ¹

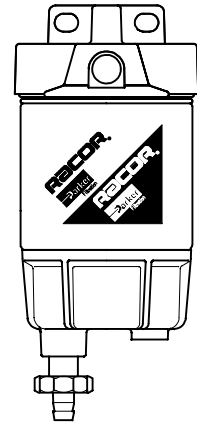
¹ 3120R-RAC-32 Operating Temperature: -10° / +180° F / -23° / +82° C

SPECIFICATIONS are found on the introduction page.

How to Order

120R-RAC-01

Fuel Filter / Water Separator Assembly. This unit is designed for smaller gasoline applications and may handle fuel flows up to 30 gallons per hour (GPH). The assembly has an anodized base plating and is then coated with a durable electrostatically applied powder coating for superior corrosion resistance. The spin-on filter design is simple to replace and the reusable plastic contaminant collection bowl features a self-venting drain valve for removing unwanted water.



120R-RAC-01

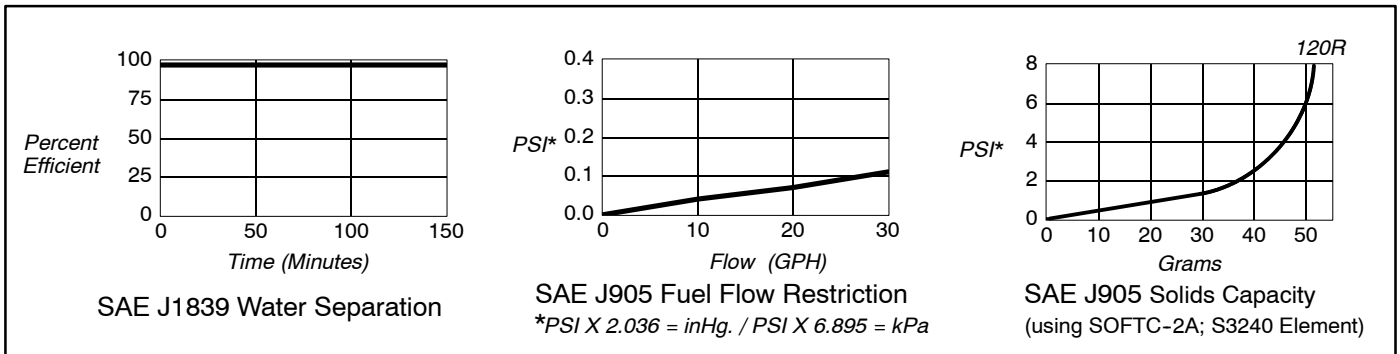
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Replacement Service Element -12 per case, element seals included.

Element Part No.	Micron Rating
S3240	10

Performance Graphs

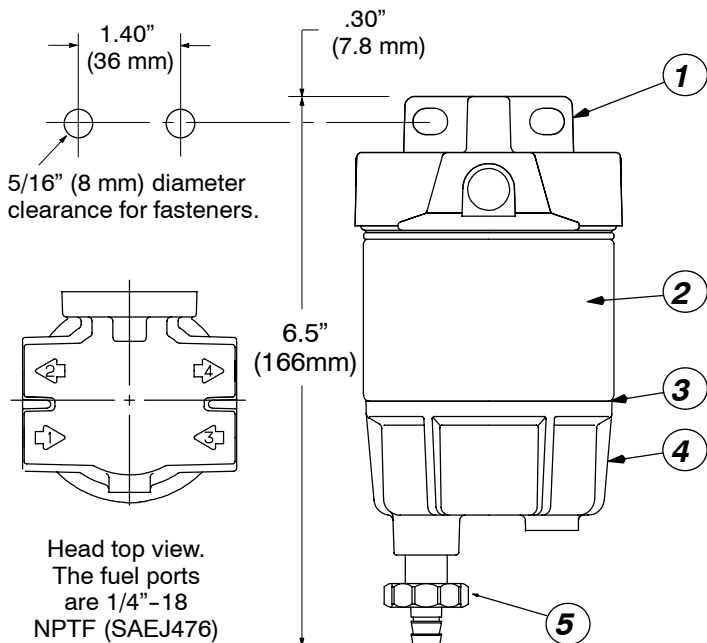
-These results are from controlled laboratory tests. Field results may vary.



Mounting Pattern / Parts List

-The circled number / corresponds to the item number shown below.

(Not to scale)

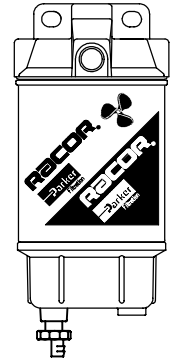


Item/Part No.	Description	Case Qty.
1 RK10214-01	Head, 1/4" NPTF Ports	1
918-N4	1/4" steel port plugs	1
2 S3240	Service Element, 10 micron	12
3 RK10012	Bowl O-ring	1
4 RK10222	See-thru Bowl / Drain	1
5 RK30476	Drain Valve Assembly	1
10223	Installation Instructions	

SPECIFICATIONS are found on the introduction page.

How to Order -The example below illustrates how the part numbers are constructed.

320R-RAC	-01
<p><u>Basic Model</u> 60 GPH. Three port head with 1/4" NPT tapered pipe threads, anodized base plating, and white powder 'paint' coating.</p>	<p><u>Bowl Configuration:</u> '-01' for See-thru bowl (outboard engine use only) '-02' for Metal bowl (inboard or outboard engine use). UL MARINE LISTED</p>



320R-RAC-01

Replacement Service Elements

SERVICE ELEMENT INCLUDES REPLACEMENT TOP AND BOTTOM SEAL.

320R-RAC-01 use **S3227**, 10 micron.

320R-RAC-02 use **S3228UL**, 10 micron. UL Recognized element.



320R-RAC-02



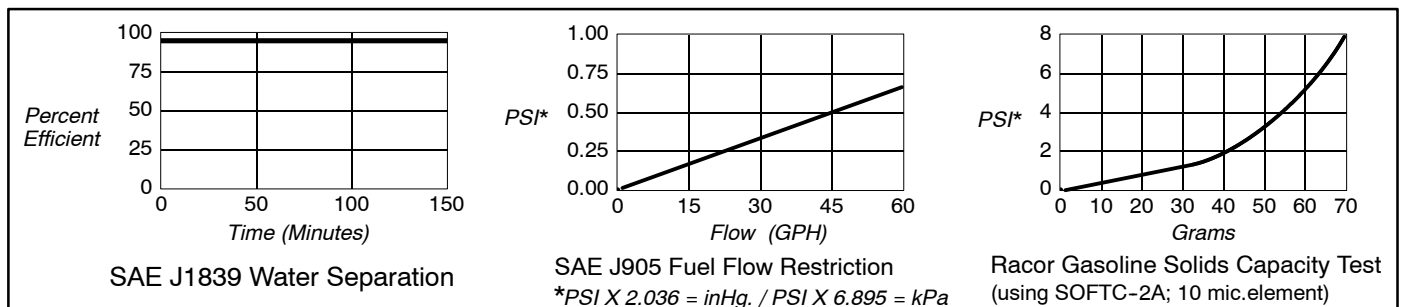
Mounting Hole Pattern / Parts List

Item/Part No.	Description	Case Qty.
1	RK20180 Mounting Head	1
2.	20707 O-ring / gasket pack: all units	1
3.	S3227 '01' Element (10 micron)	12
	S3228UL '02' Element (10 micron)	12
4	RK30747 '01' See-thru Blue Bowl (shown)	1
	RK30473-02 '02' Metal Bowl and NPT plug, White powder 'paint' coating	1
5	RK30476 '01' Drain Knob	1
	918-N6 Steel port Plug, 3/8" NPT	1
	22237 Installation Instructions	

Head top view. Fuel ports are:
1/4"-18 NPT (SAEJ476)

Performance Graphs

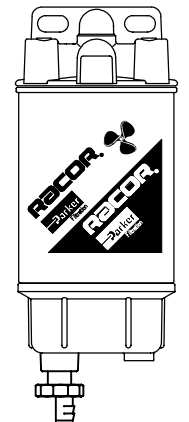
These results are from controlled laboratory tests. Field results may vary.



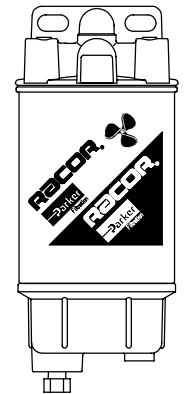
SPECIFICATIONS are found on the introduction page.

How to Order -The example below illustrates how the part numbers are constructed.

660R-RAC	-01
<p><u>Basic Model</u> 90 GPH. Four port head with 3/8" NPT tapered pipe threads, anodized base plating, and white powder 'paint' coating.</p>	<p><u>Bowl Configuration:</u> '-01' for See-thru bowl (outboard engine use only) '-02' for Metal bowl (inboard or outboard engine use). UL MARINE LISTED</p>



660R-RAC-01



660R-RAC-02

Replacement Service Elements

SERVICE ELEMENT INCLUDES REPLACEMENT TOP AND BOTTOM SEAL.

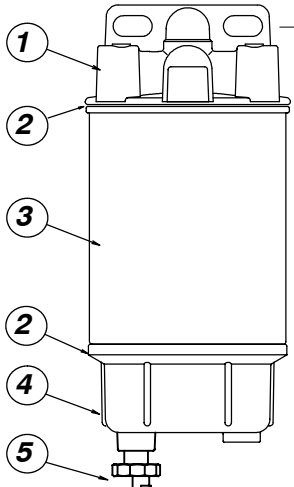
660R-RAC-01 use **S3232**, 10 micron.

660R-RAC-02 use **S3232UL**, 10 micron. UL Recognized element.



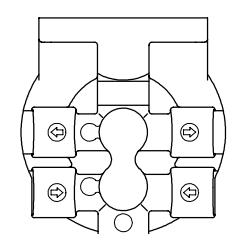
Mounting Hole Pattern / Parts List

Item/Part No.	Description	Case Qty.
1 RK21411	White Mounting Head	1
2 20707	O-ring / gasket pack: all units	1
3. S3232	'01' Service Element	12
S3232UL	'02' Service Element	12
4 RK30747	'01' See-thru Blue Bowl (shown)	1
RK30473-02	'02' Metal Bowl & NPT plug	
	White powder 'paint' coating	1
5 RK30476	'01' Drain Knob (shown)	1
918-N6	Steel port plug, 3/8" NPT	1
21385	Installation Instructions	



2.25" (57 mm)

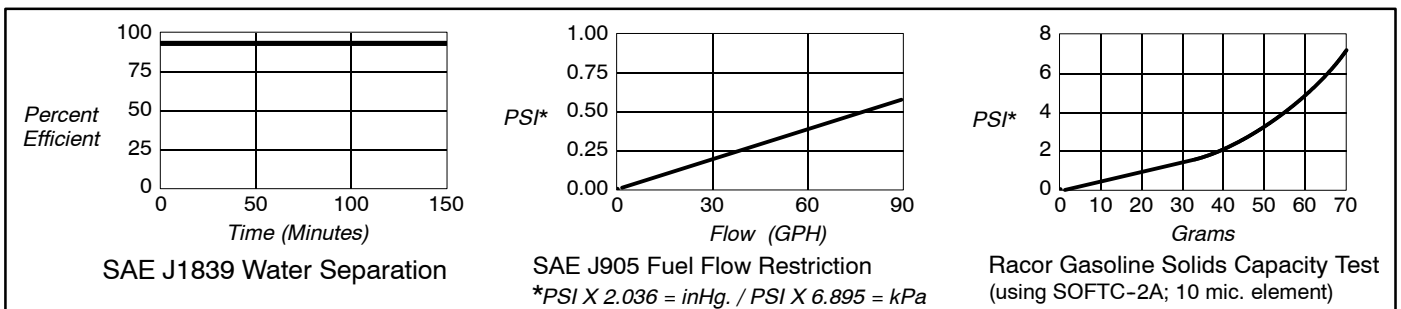
3/8" (10mm) diameter clearance for fasteners.



Head top view. Fuel ports are: 3/8"-18NPTF (SAEJ476)

Performance Graphs

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

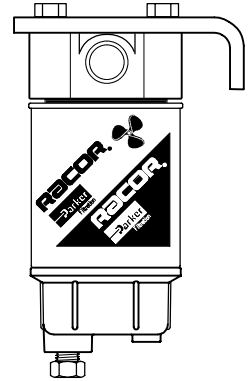


SPECIFICATIONS are found on the introduction page.

How to Order

3120R-RAC-32

Fuel Filter / Water Separator Assembly. This unit is designed for high-performance gasoline applications and may handle fuel flows up to 120 gallons per hour (GPH) or 2 gallons per minute. The assembly is coated with a durable electrostatically applied powder coating that resists corrosion. The spin-on filter design is simple to replace and the reusable metal contaminant collection bowl features a plug for removing unwanted water.



3120R-RAC-32

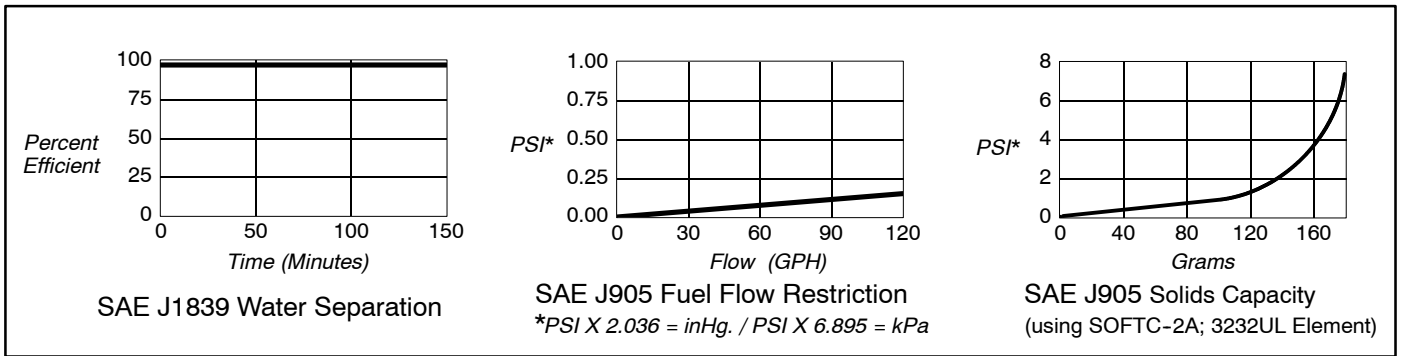
Replacement Service Element -12 per case, element seals included.

Element Part No.	Micron Rating	Element Height	Overall Height
S3232UL	10	5-1/2"	10-3/8"



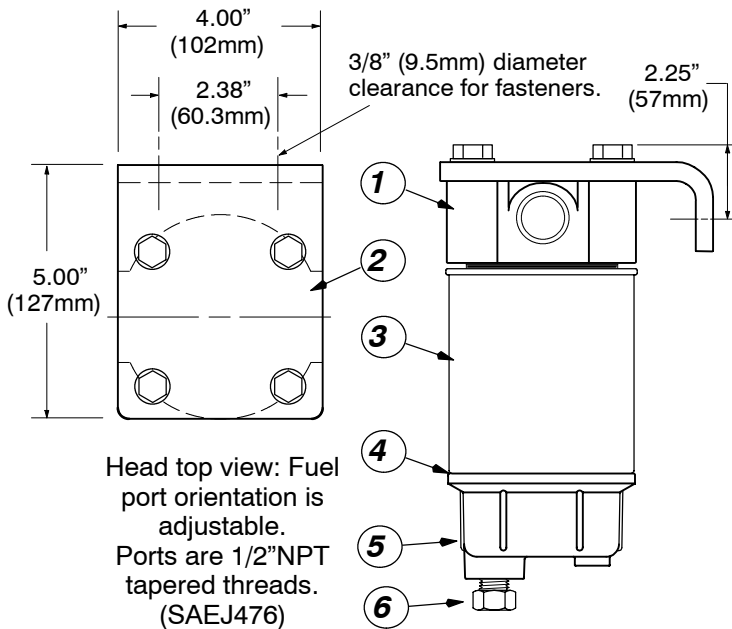
Performance Graphs

-These results are from controlled laboratory tests. Field results may vary.



Mounting Pattern / Parts List

-The circled number / corresponds to the item number shown below.



Item/Part No.	Description	Case Qty.
1 RK30308-01	Filter Head with 1/2" NPT fuel ports and white powder 'paint' coating.	1
2 RK30288-01	Mounting Bracket with white powder 'paint' coating & fasteners.	1
3 S3232UL	Replacement Spin-on Element, 120 GPH, 10 micron.	12
4 RK30076	Bowl O-ring	20
5 RK30473-02	Replacement Metal Bowl. White powder 'paint' coating.	1
6 918-N6	Steel Plug, 3/8" NPT	1