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pneumatics
process control
sealing & shielding



Fuel Dispensing and Transfer Filtration

For Clean Diesel Applications



ENGINEERING **YOUR** SUCCESS.

Why Pre-filtration?

Because of the difficulties of maintaining a clean supply of diesel at all times, more consideration should be applied to upstream sources of contamination as well as at the engine. Filtering recirculation systems can be applied to storage and onboard systems, along with high efficiency filters at the dispensing pump. Careful monitoring of fuel quality and filter performance is needed to protect sensitive diesel engine injection systems.

For example, the fuel used on a highway construction project may have travelled the following route:

Refinery - piped to storage - tanker to distribution center - tanker to local retailer - tanker to on-site storage.

Dispensing Filtration: FBO Series

Parker Racor's FBO assemblies are specifically designed to meet filtration requirements of today's high-pressure common-rail diesel injection systems.

Common applications include: mobile refuelers, refueling cabinets, fuel dispensing pumps, large diesel engines, bulk fuel handling, and fuel transfer.

Filter Options

FBO filter systems have three filter options to meet various requirements: Particulate filter, coalescer/separator filter, or water absorber filter. For fuel dispensing applications, a coalescer/separator filter is recommended.

Product Features

- Die-Cast Aluminum Head
- Steel Bowl Assembly
- Powder Coated Components
- Locking Ring Collar
- 1.5" NPT Inlet and Outlet Ports
- Maximum Pressure: 150 PSI (10 bar) and Maximum Temperature 160°F (71°C)
- Lockable Manual Drain Valve: 1/2" NPT (part# 73225-.5)
- Grounding Lug
- Manual Vent Valve

Technical Information

Specifications	Maximum Flow Rates	Clean	Change
FBO-10	Diesel	Delta P	Delta P
Particulate Filter	25 GPM (94.6 LPM)	2.5 PSID	15 PSID
Water Separator	20 GPM (75.7 LPM)	2.5 PSID	15 PSID
Water Absorber	20 GPM (75.7 LPM)	2.5 PSID	30 PSID
FBO-14	Diesel	Delta P	Delta P
Particulate Filter	30 GPM (113.6 LPM)	2.5 PSID	15 PSID
Water Separator	25 GPM (94.6 LPM)	2.5 PSID	15 PSID
Water Absorber	25 GPM (94.6 LPM)	2.5 PSID	30 PSID

How to Order

Guide to help you specify the right FBO system with the accessories you need.

F B O - 1 0 - D P

Flow Rates

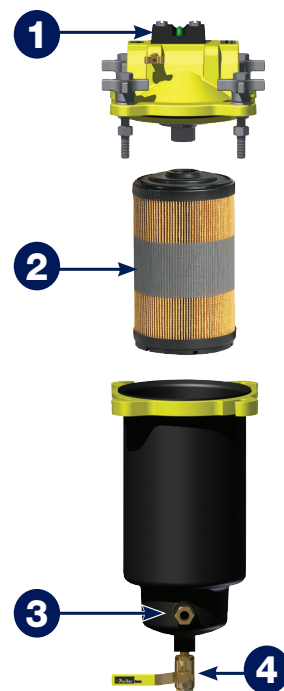
10 = 5-25 GPM (19-95 LPM)

14 = 10-30 GPM (38-114 LPM)

DP = Differential Gauge

DPL = Delta-P Gauge with
Liquid Sight Glass

MA = Marine Assembly



****Popular Option**

	1	2	3	4
	Delta-P Gauge	Filter	Sight Glass	Drain Valve
FBO-10		Order Separately (see below)		•
FBO-10-DP	•	Order Separately (see below)		•
FBO-10-DPL**	•	Order Separately (see below)	•	•
FBO-14		Order Separately (see below)		•
FBO-14-DP	•	Order Separately (see below)		•
FBO-14-DPL**	•	Order Separately (see below)	•	•
FBO-10-25M	•	FBO 60332	•	•
FBO-14-25M	•	FBO 60341	•	•

Replacement Filters

FBO	Micron Rating	Coalescer/ Separator	Particulate	Water Absorber
FBO-10 (6 X 10 Filter)	1	FBO 60327	FBO 60330	FBO 60333
	5	FBO 60328	FBO 60331	FBO 60334
	10	FBO 60353	FBO 60354	FBO 60355
	25	FBO 60329	FBO 60332	FBO 60335
FBO-14 (6 X 14 Filter)	1	FBO 60336	FBO 60339	FBO 60342
	5	FBO 60337	FBO 60340	FBO 60343
	10	FBO 60356	FBO 60357	FBO 60358
	25	FBO 60338	FBO 60341	FBO 60344

Coalescer/Separator

Coalescer/separator filters are a two stage element that removes water and contaminants from diesel fuel streams and are the most popular filters.

Particulate Filter

Particulate filters remove contaminants down to one micron. Particulate filters can also be used upstream, before a water separator filter, to extend filter life.

Water Absorber

Water absorber filters absorb water and filter out contaminants from diesel fuel.

Worldwide Filtration Manufacturing Locations

North America

Compressed Air Treatment

Gas Separation & Filtration Division

Airtek/Finite/donnick hunter/Zander
Lancaster, NY
716 686 6400
www.parker.com/faf

Balston
Haverhill, MA
978 858 0505
www.parker.com/balston

Engine Filtration

Racor

Modesto, CA
209 521 7860
www.parker.com/racor

Holly Springs, MS
662 252 2656
www.parker.com/racor

Hydraulic Filtration

Hydraulic & Fuel Filtration

Metamora, OH
419 644 4311
www.parker.com/hydraulicfilter

Laval, QC Canada
450 629 9594
www.parkerfarr.com

Velcon
Colorado Springs, CO
719 531 5855
www.velcon.com

Process Filtration

domnick hunter Process Filtration SciLog

Oxnard, CA
805 604 3400
www.parker.com/processfiltration

Water Purification

Village Marine, Sea Recovery, Horizon Reverse Osmosis

Carson, CA
310 637 3400
www.parker.com/watermakers

Europe

Compressed Air Treatment

domnick hunter Filtration & Separation

Gateshead, England
+44 (0) 191 402 9000
www.parker.com/dhfn

Parker Gas Separations

Etten-Leur, Netherlands
+31 76 508 5300
www.parker.com/dhfn

Hiross Zander

Essen, Germany
+49 2054 9340
www.parker.com/hzfd

Padova, Italy
+39 049 9712 111
www.parker.com/hzfd

Engine Filtration & Water Purification

Racor

Dewsbury, England
+44 (0) 1924 487 000
www.parker.com/rfde

Racor Research & Development

Stuttgart, Germany
+49 (0)711 7071 290-10

Hydraulic Filtration

Hydraulic Filter

Arnhem, Holland
+31 26 3760376
www.parker.com/hfde

Urdala, Finland
+358 20 753 2500

Condition Monitoring Parker Kittiwake

West Sussex, England
+44 (0) 1903 731 470
www.kittiwake.com

Process Filtration

domnick hunter Process Filtration Parker Twin Filter BV

Birtley, England
+44 (0) 191 410 5121
www.parker.com/processfiltration

Asia Pacific

Australia

Castle Hill, Australia
+61 2 9634 7777
www.parker.com/australia

China

Shanghai, China
+86 21 5031 2525
www.parker.com/china

India

Chennai, India
+91 22 4391 0700
www.parker.com/india

Parker Fowler

Bangalore, India
+91 80 2783 6794
www.johnfowlerindia.com

Japan

Tokyo, Japan
+81 45 870 1522
www.parker.com/japan

Korea

Hwaseon-City
+82 31 359 0782
www.parker.com/korea

Singapore

Jurong Town, Singapore
+65 6887 6300
www.parker.com/singapore

Thailand

Bangkok, Thailand
+66 2186 7000
www.parker.com/thailand

Latin America

Parker Comercio Ltda. Filtration Division

Sao Paulo, Brazil
+55 12 4009 3500
www.parker.com/br

Pan American Division

Miami, FL
305 470 8800
www.parker.com/panam

Africa

Aeroporto Kempton Park, South Africa
+27 11 9610700
www.parker.com/africa



Specifications:

Height: FBO-10 19.0" (48.26 cm)
with DP Gauge 20.08" (51.0 cm)
FBO-14 23.0" (58.42 cm)
with DP Gauge 24.08" (61.16 cm)

Width: 8.6" (21.8 cm)
with Bracket 10.7"[±] (27.9 cm)

Depth: 8.6" (21.8 cm)
with Bracket 9.8" (24.9 cm)

Weight: FBO-10-DPL: 15 lbs
FBO-14-DPL: 17 lbs

Ports: 1.5" NPT (Inlet and Outlet)

Service Clearance (Drop-down): 1.13" (2.87 cm)

Maximum Pressure: 150 psi (10.0 bar)

Max Flow Rate: 20 gpm (76 lpm) to 75 gpm (284 lpm)
based on housing, fuel type and element.

Fuel Type: Diesel (up to B20), Gasoline, or Kerosene

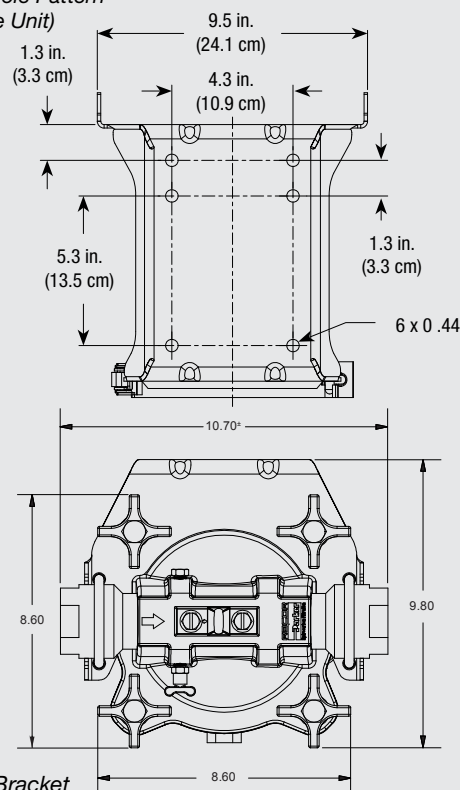
**** Filter elements ordered separately unless noted**

Create a Part Number

Housing Type	Housing Size	Optional Add Ons
Required	10" Height ** 14" Height **	Delta-P Gauge ** Delta-P Gauge/ Liquid Sight Glass ** 25 micron Element Included Marine Assembly - White Element Included
FBO	10 14	DP DPL 25M MA

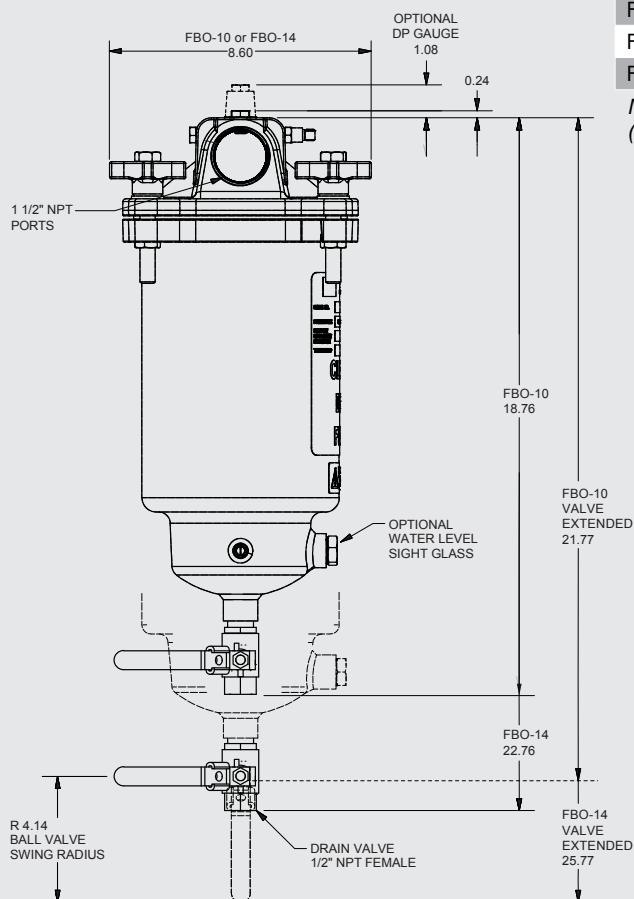
ASSEMBLY	DESCRIPTION
FBO-10	10" Assy., Drain Valve
FBO-10-DP	10" Assy., Drain Valve, Delta-P Gauge
FBO-10-DPL	10" Assy., Drain Valve, Delta-P Gauge, Sight Glass
FBO-10-25M	10" Assy., Drain Valve, Delta-P Gauge, Sight Glass, 25 micron filter
FBO-10-MA	10" Assy., Marine - Drain Valve, Delta-P Gauge, Sight Glass, Bracket/Fittings, 25 micron filter
FBO-14	14" Assy., Drain Valve
FBO-14-DP	14" Assy., Drain Valve, Delta-P Gauge
FBO-14-DPL	14" Assy., Drain Valve, Delta-P Gauge, Sight Glass
FBO-14-25M	14" Assy., Drain Valve, Delta-P Gauge, Sight Glass, 25 micron filter
FBO-14-MA	14" Assy., Marine - Drain Valve, Delta-P Gauge, Sight Glass, Bracket/Fittings, 25 micron filter

Mounting Bracket Hole Pattern (Standard on Marine Unit)



Top - with Bracket

Dimensions:

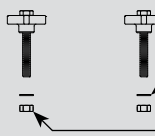


WARNING: The products described in this literature can expose you to chemicals including Diisononyl phthalate, Carbon black extract, which are known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

PARTS

FBO Series

1



1A

1B

1C

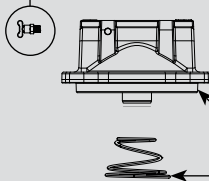
2



2A

2B

3



3A

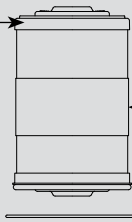
3B

3C

3D

4

FILTER CODE
C - COALESCER
F - PARTICULATE
W - WATER ABSORBER
10/ - FBO-10
14/ - FBO-14
1 - 1 MICRON
5 - 5 MICRON
10 - 10 MICRON
25 - 25 MICRON

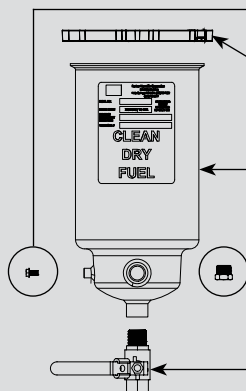


FILTER CODE EXAMPLES:
C10/1 = FBO 60327
F14/10 = FBO 60357
W10/25 = FBO 60335

4A

4B

5



5A

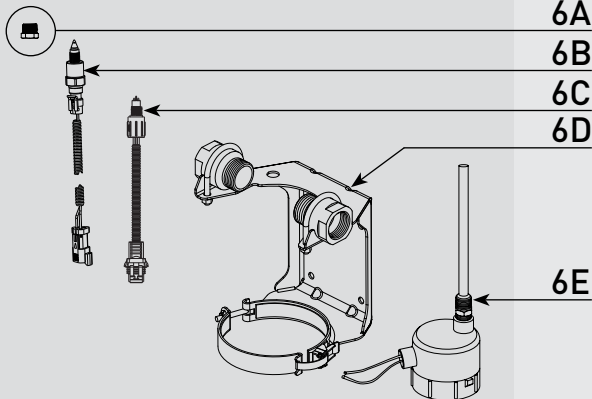
5B

5C

5D

5E

6



6A

6B

6C

6D

6E

Part # Description

1A	72712	FBO 1/2" Knob Handle Bolt
1B		FBO 1/2" Washer
1C		FBO 1/2" Hex Nut

2A		DP Gauge Heat Shield (included in Marine Assembly)
2B	72694	Differential Pressure Gauge (0-15 PSID)
	72783	Differential Pressure Gauge (0-30 PSID)

3A		1/8" NPT Brass Vent Valve
3B		1/8" NPT Brass Pipe Plug
3C		FBO Head (Yellow)
		FBO Head (White)
3D		FBO Conical Spring - Stainless Steel

4A	FBO-10 Replacement Elements Includes 4B	Micron	Coalescer/Separator C	Particulate F	Water Absorber W
	10/	1	FBO 60327	FBO 60330	FBO 60333
		5	FBO 60328	FBO 60331	FBO 60334
		10	FBO 60353	FBO 60354	FBO 60355
		25	FBO 60329	FBO 60332	FBO 60335
4B	FBO-14 Replacement Elements Includes 4B	Micron	Coalescer/Separator C	Particulate F	Water Absorber W
	14/	1	FBO 60336	FBO 60339	FBO 60342
		5	FBO 60337	FBO 60340	FBO 60343
		10	FBO 60356	FBO 60357	FBO 60358
		25	FBO 60338	FBO 60341	FBO 60344
4B	OV-13				FBO Viton® O-ring

5A		Ground Screw - #10-32 X 3/8 Slotted Hex Head
5B		FBO Flange (Yellow) - Includes 4B
	73153-W-KIT	FBO Flange (White) - Includes 4B
5C		FBO-10 Housing (Black)
		FBO-14 Housing (Black)
5D	72710	1/2" NPT Brass Sight Glass
5E	73225-.5	1/2" NPT Brass Locking Ball Valve

6A	RK18-1656	1/2" NPT Steel Adapter
6B	RK23191-01	Steel - 1/2"-20 Water Sensor - Requires 6A **
6C	RK30880E	Plastic - 1/2"-20 Water Sensor - Requires 6A **
6D	73084	FBO Mounting Bracket Kit (Black) with Brass Fittings
6E	FBO-HTR-KIT	45 watt, 120 VAC Heater **

** Note: Not for use in Gasoline Applications

FBO-MA

FBO Fuel Filter/Water Separator For High-Flow Marine Applications



FBO-10-MA and FBO-14-MA filter assemblies were designed to meet the toughest conditions and offer ease of filter cartridge changeouts. The FBO assembly can flow from 5 GPM (19 LPM) to 75 GPM (284 LPM), depending on which model, filter, and type of fuel to be filtered.

The assembly features a locking ring collar that attaches the filter housing to the aluminum diecast filter head with four bolts and metal hand knobs for ease of maintenance. No wrenches or other special tools are required, allowing one person to easily change the filter.

These versatile fuel filter/water separator assemblies have three filter options to meet various requirements; the fuel/water separator, silicone treated microfilters, and absorptive filters.



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.racorcustomers.com
www.parker.com/racor

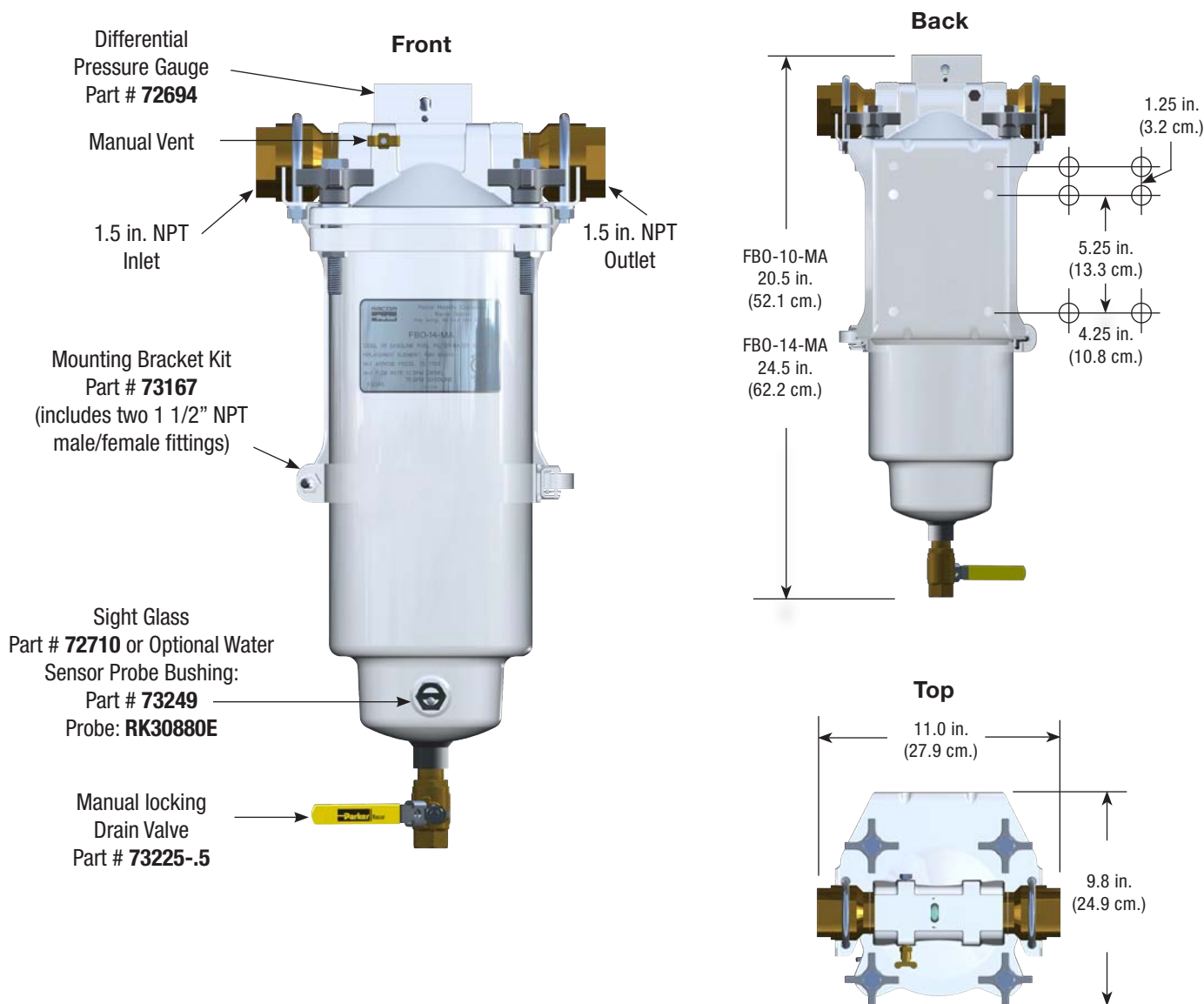
Product Features

- UL Listed
- Die-cast aluminum head
- Steel filter bowl assembly
- Powder coated components
- Locking ring collar - no V-clamps
- 1.5" NPT inlet/outlet ports
- Designed to withstand 150 PSI maximum pressure at 240°F
- Maximum operating temperature 170°F
- Manual drain valve
- Manual vent valve
- Sight Glass



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Overview



Specifications	Maximum Flow Rates			Clean	Change
FB0-10-MA	Diesel	Gasoline	Kerosene	Delta P	Delta P
Microfilter	25 GPM (94.6 LPM)	53 GPM (200.6 LPM)	35 GPM (132 LPM)	2.5 PSID	15 PSID
Filter Separator	20 GPM (75.7 LPM)	32 GPM (121.1 LPM)	21 GPM (79 LPM)	2.5 PSID	15 PSID
Absorber	20 GPM (75.7 LPM)	45 GPM (170.3 LPM)	35 GPM (132 LPM)	2.5 PSID	30 PSID
FB0-14-MA	Diesel	Gasoline	Kerosene	Delta P	Delta P
Microfilter	30 GPM (113.6 LPM)	75 GPM (284 LPM)	50 GPM (189 LPM)	2.5 PSID	15 PSID
Filter Separator	25 GPM (94.6 LPM)	45 GPM (170 LPM)	30 GPM (114 LPM)	2.5 PSID	15 PSID
Absorber	25 GPM (94.6 LPM)	70 GPM (265.0 LPM)	55 GPM (208.2 LPM)	2.5 PSID	30 PSID

Replacement Filters

Filters are used to protect the OEM supplied fuel system.

Water Separator

Water separator filters remove water and contaminants from hydrocarbon fuel streams and are the most popular filters.

Silicone Treated

Silicone treated fuel filters remove particle contaminants down to one micron.

Silicone filters can also be used upstream, before a fuel filter/water separator, to extend filter life.

Water Absorber

Water absorber filters absorb water and filter out contaminants from diesel fuel and other hydrocarbon streams.



FBO	Micron Rating	Water Separator	Silicone Treated	Water Absorber
 FBO-10 (6 X 10 Filter)	1	FBO 60327	FBO 60330	FBO 60333
	5	FBO 60328	FBO 60331	FBO 60334
	10	FBO 60353	FBO 60354	FBO 60355
	25	FBO 60329	FBO 60332	FBO 60335
 FBO-14 ¹ (6 X 14 Filter)	1	FBO 60336	FBO 60339	FBO 60342
	5	FBO 60337	FBO 60340	FBO 60343
	10	FBO 60356	FBO 60357	FBO 60358
	25	FBO 60338	FBO 60341	FBO 60344

Parker Hannifin Corporation
Filtration Group
Global Headquarters
 6035 Parkland Boulevard
 Cleveland, OH 44124-4141
 T 216 896 3000, F 216 896 4021
www.parker.com

North America
Compressed Air Treatment
Filtration & Separation/Balston
 242 Neck Road
 Haverhill, MA 01835-0723
 T 978 858 0505, F 978 858 0625
www.parker.com/balston

Filtration & Separation/Finite
 500 Glaspie Street, PO. Box 599
 Oxford, MI 48371-5132
 T 248 628 6400, F 248 628 1850
www.parker.com/finitefilter

Purification, Dehydration and Filtration Division
 4087 Walden Avenue
 Lancaster, NY 14086
 T 716 685 4040, F 716 685 1010
www.airtek.com

Sales Office
 5900-B Northwoods Parkway
 Charlotte, NC 28269
 T 704 921 9303, F 704 921 1960
www.domnickhunter.com

Engine Filtration & Water Purification

Racor
 3400 Finch Road, PO Box 3208
 Modesto, CA 95353
 T 209 521 7860, F 209 529 3278
www.parker.com/racor
www.parker.com/racorproducts
www.racorcustomers.com

Racor
 850 North West St., PO Box 6030
 Holly Springs, MS 38635
 T 662 252 2656, F 662 274 2118

Racor
 302 Parker Drive
 Beaufort, SC 29906
 T 843 846 3200, F 843 846 3230

Racor -- Village Marine Tec.
 2000 West 135th Street
 Gardena, CA 90249
 T 310 516 9911, F 310 538 3048
www.villagemarine.com

Hydraulic Filtration
Hydraulic Filter
 16810 Fulton County Road #2
 Metamora, OH 43540-9714
 T 419 644 4311, F 419 644 6205
www.parker.com/hydraulicfilter

Process Filtration
Process Advanced Filtration
 2340 Eastman Avenue
 Oxnard, CA 93030
 T 805 604 3400, F 805 604 3401
www.parker.com/processfiltration

Europe
Compressed Air Treatment
domnick hunter Industrial
 Dukesway, Team Valley Trading Estate
 Gateshead, Tyne & Wear
 England NE11 0PZ
 T +44 (0) 191 402 9000,
 F +44 (0) 191 482 6296
www.domnickhunter.com

Hiross Zander
Padova Business Unit
 Strada Zona Industriale 4
 35020 S. Angelo di Piove Padova, Italy
 T +39 049 9712 111, F +39 049 9701 911
www.dh-hiross.com

Hiross Zander
Essen Business Unit
 Zander Aufbereitungstechnik GmbH
 Im Teelbruch 118
 D-45219 Essen, Germany
 T +49 2054 9340, F +49 2054 934164
www.zander.de

Parker Gas Separations
 Oude Kerkstraat 4
 P O Box 258
 4870 AG Etten-Leur, Netherlands
 T +31 76 508 5300, F +31 76 508 5333

Engine Filtration & Water Purification

Racor
 Shaw Cross Business Park
 Churwell Vale Dewsbury,
 WF12 7RD England
 T +44 (0) 1924 487000,
 F +44 (0) 1924 487038
www.parker.com/rfde

Racor Research & Development
 Parker Hannifin GmbH & Co KG
 Inselstrasse 3 - 5
 70327 Stuttgart Germany
 T +49 (0)711 7071 290-0,
 F +49 (0)711 7071 290 -70
www.parker.com/racor

Hydraulic Filtration
Hydraulic Filter
 Stieltjesweg 8, 6827 BV
 P.O. Box 5008 6802 EA
 Arnhem, Holland
 T +31 26 3760376, F +31 26 3643620
www.parker.com/eurofilt

Ujala Operation
 Salmentie 260
 31700 Ujala as Finland
 T +358 20 753 2500, F +358 20 753 2501
www.parker.com/fi

Condition Monitoring Center
 Brunel Way Thetford,
 Norfolk IP 24 1HP England
 T +44 1842 763299, F +44 1842 756300
www.parker.com/cmc

Process Filtration
domnick hunter Process
 Durham Road, Birtley Co. Durham,
 DH3 2SF England
 T +44 (0) 191 410 5121,
 F +44 (0) 191 410 5312
www.domnickhunter.com

Asia Pacific
Australia
 9 Carrington Road, Castle Hill
 NSW 2154, Australia
 T +61 2 9634 777, F +61 2 9899 6184
www.parker.com/australia

China
 280 YunQiao Road
 JinQiao Export Processing Zone
 Shanghai 101206 China
 T +86 21 5031 2525, F +86 21 5834 3714
www.parker.com/china

India
 Plot EL 26, MIDC, TTC Industrial Area
 Mahape, Navi Mumbai 400 709 India
 T +91 22 5613 7081, 82, 83, 84, 85
 F +91 22 2768 6618 6841
www.parker.com/india

Japan
 626, Totsuka-cho, Totsuka-ku
 Yokohama-shi, 244-0003 Japan
 T +81 45 870 1522, F +81 45 864 5305
www.parker.com/japan

Korea
 1-C Block, Industrial Complex of Jangnan,
 615-1, Geumui-Ri Jangnan-Myeon,
 Hwaseong-City Gyeonggi-Do, Korea
 T +82 31 359 0771, F +82 31 359 0770
www.parker.com/korea

Singapore
 11, Fourth Chin Bee Road
 Singapore 619 702
 T +65 6887 6300, F +65 6261 4929
www.parker.com/singapore

Thailand
 1023 3rd Floor, TPS Building
 Pattanakam Road, Suanluang,
 Bangkok 10250 Thailand
 T +66 2717 8140, F +66 2717 8148
www.parker.com/thailand

Latin America
Parker Comercio Ltda.
Filtration Division
 Estrada Municipal Joel de Paula
 900 Eugenio de Melo,
 Sao Jose dos Campos
 CEP 12225390 SP Brazil
 T +55 12 4009 3500, F +55 12 4009 3529
www.parker.com/br

Pan American Division - Miami
 7400 NW 19th Street, Suite A
 Miami, FL 33128
 T 305 470 8800 F 305 470 8808
www.parker.com/panam

Africa
Parker Hannifin Africa Pty Ltd
 Parker Place, 10 Berne Avenue,
 Aeroport Kempton Park,
 1620 South Africa
 T +27 11 9610700, F +27 11 3927213
www.parker.com/eu



Marine Fuel Filtration

Marine FBO

2

The Racor Marine FBO assembly is specifically designed to meet the filtration requirements of today's high pressure common rail diesel injection systems. The unit is used for fuel dispensing pumps or as a primary fuel filter/water separator on large diesel engine applications.

Racor's new FBO-10-MA and FBO-14-MA filter assemblies were designed to meet the toughest conditions and offer ease of filter changeouts. The FBO assembly can flow from 10 GPM (38 LPM) to 75 GPM (284 LPM), depending on which model, the element, and the type of fuel to be filtered.

The assembly features a "locking ring collar", which attaches the filter housing to the aluminum die cast filter head with four bolts. The slotted "locking ring collar" allows maintenance personnel to hand loosen the four collar bolts, rotate, and lower the bowl assembly for element changeouts.

With a new element installed, simply raise the bowl and rotate into position on the locking ring and hand tighten evenly (evenly torquing the 4 closure bolts to 100 lb-in is highly recommended).

The closure hardware consists of stainless steel nuts, bolts, and washers with metal hand knobs for ease of maintenance. No wrenches or other special tools are required, allowing one person to easily change the filter element (no V-band clamps are used).

Features:

- Standard Differential Pressure Gauge
- Optional Water Sight Glass with Bowl
- Standard Mounting Bracket
- Optional Water Sensor Available



FBO-14



Parker Hannifin Corporation
Racor Division, PO Box 3208
Modesto, CA 95354 USA
Phone: 800.344.3286
Fax: 209.529.3278
E-mail: racor@parker.com
www.parker.com/racor

RACOR®

Marine Fuel Filtration

Marine FBO

Specifications FBO-10-MA	Maximum Flow Rates			Clean	Change
	Diesel	Gasoline	Kerosene	Delta P	Delta P
Microfilter	18 GPM (38 LPM)	52.5 GPM (199 LPM)	35 GPM (132 LPM)	< 2 PSID	15 PSID
Filter Separator	10 GPM (38 LPM)	31.5 GPM (119 LPM)	21 GPM (79 LPM)	< 2 PSID	15 PSID
Absorber	10 GPM (38 LPM)	31.5 GPM (119 LPM)	21 GPM (79 LPM)	< 2 PSID	15 PSID
FBO-14-MA	Diesel	Gasoline	Kerosene	Delta P	Delta P
Microfilter	25 GPM (95 LPM)	75 GPM (284 LPM)	50 GPM (189 LPM)	< 2 PSID	15 PSID
Filter Separator	15 GPM (57 LPM)	45 GPM (170 LPM)	30 GPM (114 LPM)	< 2 PSID	15 PSID
Absorber	15 GPM (57 LPM)	45 GPM (170 LPM)	30 GPM (114 LPM)	< 2 PSID	15 PSID

Element Chart	Micron Rating	FBO-10-MA (6 X 10 Element)	FBO-14-MA (6 X 14 Element)
Filter Separator	1	FBO-60327	FBO-60336
	5	FBO-60328	FBO-60337
	10	FBO-60353	FBO-60356
	25	FBO-60329	FBO-60338
Microfilter	1	FBO-60330	FBO-60339
	5	FBO-60331	FBO-60340
	10	FBO-60356	FBO-60357
	25	FBO-60332	FBO-60341
Absorptive Filter	1	FBO-60333	FBO-60342
	5	FBO-60334	FBO-60343
	10	FBO-60355	FBO-60358
	25	FBO-60335	FBO-60344



Marine Fuel Filtration

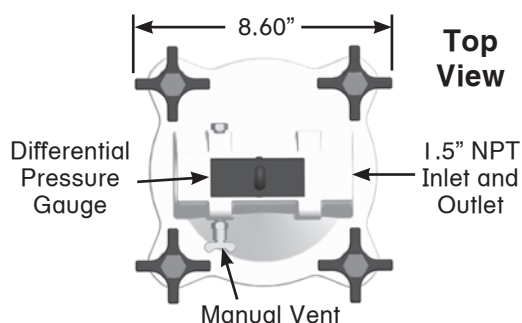
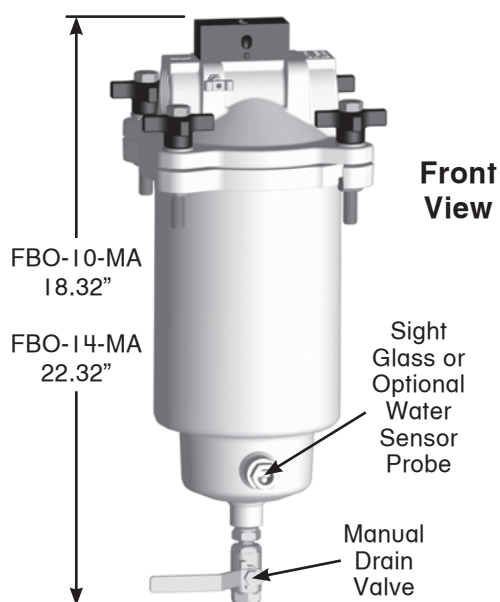
Marine FBO

2

How to Order

FBO	-10	-14	-MA
Basic Unit 1.5" NPT Inlet & Outlet Ports	add -10 For a 6x10 in. element and flow rate of 10-52 GPM	add -14 for a 6x14 in. element and flow rate of 15-75 GPM	add -MA for marine Assembly

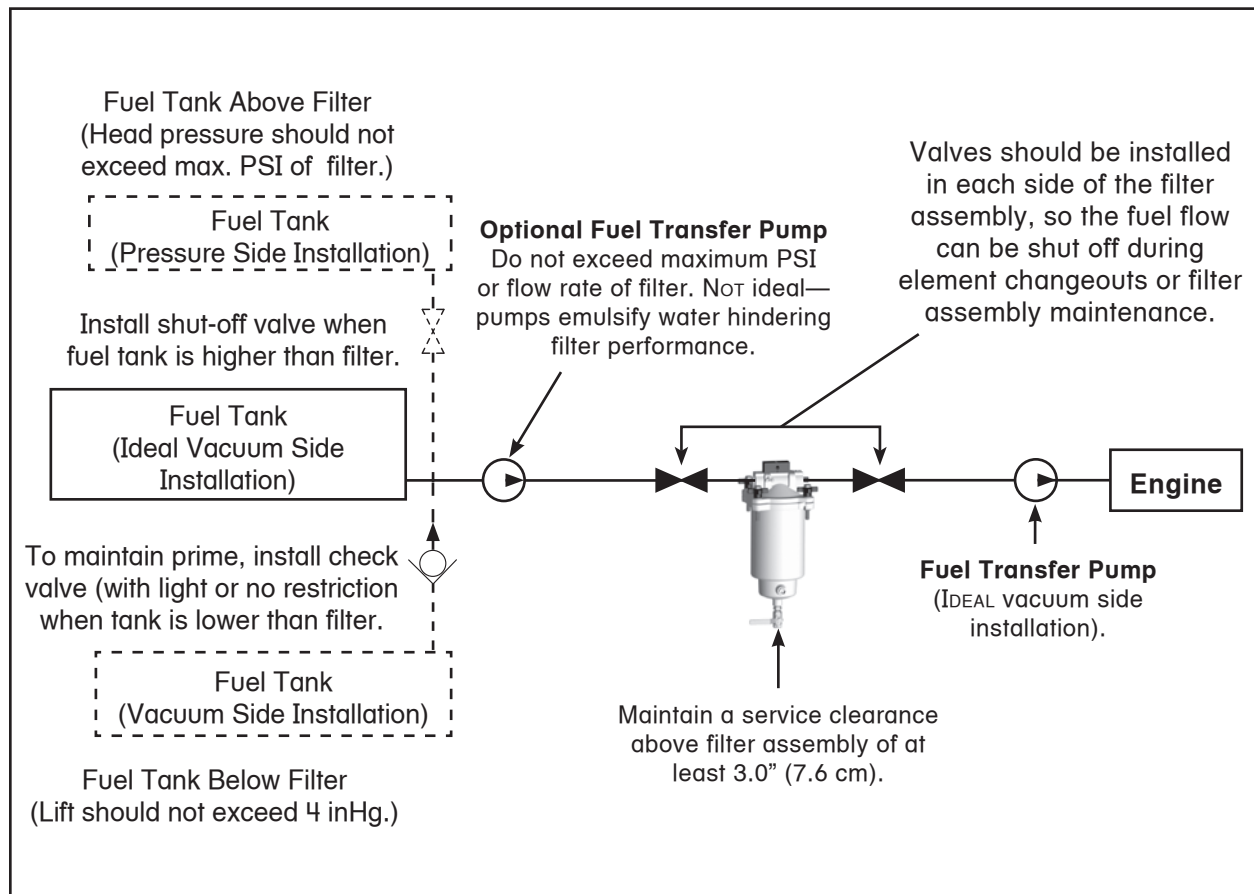
Mounting Information



Marine Fuel Filtration

Marine FBO

Installation Diagram



RACOR

Technical Support:
800.344.3286 ext. 7555
racortech@parker.com

Marine Fuel Filtration

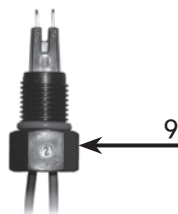
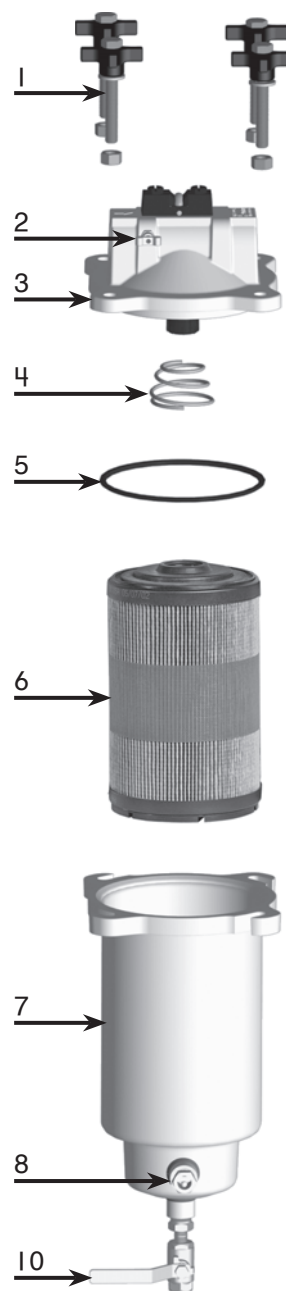
Marine FBO

2

Replacement Parts

FBO-10-MA & FBO-14-MA

	<u>Part Number</u>	<u>Description</u>
1.	72712	Handle Assembly
2.	72695	Pet Cock Assembly
3.	73152	Head Kit (1.5" NPT Ports)
4.	72368	Spring
5.	72699	O-ring
6.	Replacement Elements (see element chart)	
	FBO-10-MA	Use a (6"x10") Element
	FBO-14-MA	Use a (6"x14") Element
7.	73154	FBO-10-MA Housing Assembly
	73155	FBO-14-MA Housing Assembly
8.	72710	Sight Glass Assembly (.5" NPT)
9.	RK21069	Water Sensor
10.	71943-.25	Ball Valve



RK23191 and RK23191-01 Steel (WIF) Probe

Marine Type Approved For All Vessels

Instruction Part Number 14455 Rev -



This kit includes one water-in-fuel (WIF) probe and one connector harness.

The WIF is of rugged construction, designed to be used in marine machinery spaces that must conform to International Marine Organization (IMO) standards. This WIF is American Bureau of Shipping (ABS) certified for use aboard ABS classed vessels and may be acceptable under other International Association of Classification Societies (IACS) members.

In use, when the collected water level within the Racor filter bowl/sump rises to the height of the probe tip, a Racor Water Detection Amplifier (ordered separately) will detect the change in electrical resistance (ohms) of the fluid.

When this happens, the Amplifier will alert the operator that draining of the Racor is required.

This WIF may be used with all Racor Water Detection Amplifiers and the following Racor filter models: Turbine Series, Spin-on Series, DFBO, FBO and 800 Series.



Contact Information: Product Features:

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

parker.com/racor

- ABS Marine Type Approved, Cert. #11-HS800012-PDA.
- UL Marine Listed, 168Y.
- Meets requirements of ISO19921 fire resistance test.
- 303 Stainless Steel and Ceramic construction.
- SAEJ1926 Straight thread with O-ring sealing design.
- Fluorocarbon (FKM) O-ring for durable service life.
- Detachable Packard GT-Series 2-terminal connector.
- 36" long 18AWG yellow/black wires (no polarity) (RK23191).
- 8" long 18AWG yellow/black wires (no polarity) harness with Deutsch DT04-3P connector (RH23191-01).

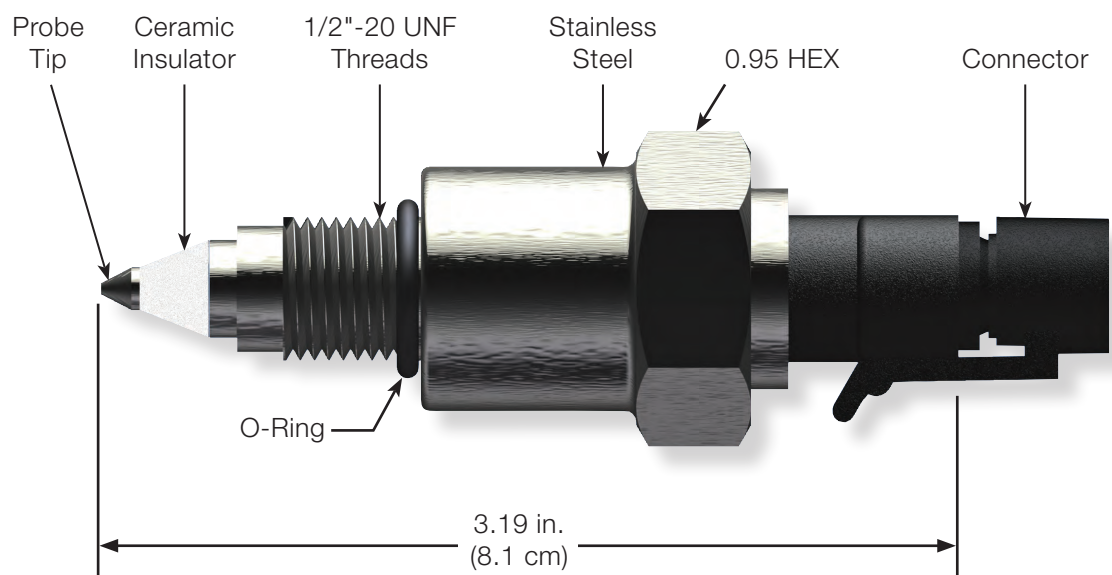


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Technical Information

Specifications	RK23191	RK23191-01
Volts	12 or 24	12 or 24
Wire Length	36.0 in. (83.8 cm)	8.0 in. (20.3 cm)
Internal Resistor	None	None
Mating Connector	None	Deutsch DT04-3P

Mounting Information



Installation Guidelines

Note: When installing the WIF in a DFBO, FBO, or 800 Series model, the use of a thread adapter (73249) is required. Apply thread paste to the male threads and install the adapter into the housing port. Tighten adequately and then continue.

1. The WIF is installed in Turbine Series or Spin-on Series contaminant collection bowls by removing the existing probe port plug. This plug will have 1/2"-20 straight threads and an o-ring will be present.
2. Clean the sealing gland of the port with a clean cloth to remove any debris.
3. Apply silicone grease or clean diesel fuel to the WIF O-ring.
4. Install the WIF into the port and tighten to 90 inch pounds (10 newton/m) max.
5. Refer to the instructions provided with the Racor Water Detection Amplifier to complete the wiring procedure.

Note: The WIF is passive so it has no polarity (no hot or ground) but you may use the black wire as the 'ground' and the 'yellow' wire for the signal wire, just to make it easier to hook the WIF up to your Amplifier wiring diagram. Use cable tie-wraps to secure the wires away from moving or hot surfaces.

6. Ensure the final connection of the harness to the WIF connector housing is made prior to testing the system.

Water Detection Modules & Kits

Part Number	Description	Voltage
RK 12870	Under-dash Water Detection Module Light and sound when water is detected. Water must be drained to reset light and stop horn. Plastic enclosure measures: 1.38" square x 1.25" deep.	12 vdc
RK 12971	Same as above	24 vdc
RK 20725	Under-dash Mount Water Detection Module Light only. Green 'ON' lamp illuminates with power on. Red 'DRAIN' lamp illuminates when water is detected. Initial power-up self diagnosis feature and circuit protection included. Plastic enclosure measures: 2.75" x 1" x 1.5".	12 vdc
RK 20725-24	Same as above	24 vdc
RK 20726	2" Gauge Type Water Detection Module Light and audio. Red 'DRAIN' lamp illuminates and horn sounds when water is detected. Initial power-up self diagnosis feature and circuit protection included. Plastic case, satin black dial with white lettering.	12 or 24 vdc
RK 11-1570	2" Gauge Type Water Detector & Filter Restriction Module Includes pre-set vacuum switch (7in.Hg.), connector, and outlet adapter fitting. Red 'DRAIN' or 'CHANGE FILTER' lamp illuminate and horn sounds when water is detected.	12 or 24 vdc
RK 14329	Remote Detection Unit Sends 12 V DC hot (+) signal when water is detected or an input ground signal from a vacuum switch (not included) is received. Must be used with a relay to power a horn or indicator lamp (if draw is over 1 amp). Plastic enclosure measures: 3" x 2.5" x .75"	12 vdc
RK 14321	Same as above	24 vdc
14332	Under-dash mount Same as RK14329 but sends a ground (-) signal. Enclosure size is same as RK 20725, above.	12 vdc



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

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Racor FBO Filter Trolley

Cleaner fuel means lower costs and less engine wear

The Racor FBO Filter Trolley is a new lightweight mobile unit ideal for on-site cleaning of fuel tanks, drums and bowsters. It incorporates state-of-the-art Racor fuel filter technology which removes potentially damaging contamination from your diesel fuel. Available with a range of filters from 1 to 25 micron it removes particles and virtually 100% water quickly and efficiently (flow rate of over 50 litres per minute).



Key benefits

- Excellent portability, delivering fast on-site fuel polishing
- Protects engines from failure and unscheduled shutdowns due to contaminated fuel
- Removes need for expensive additional on-engine filtering
- Eliminates cost of replacement fuel
- Safe, stand alone operation due to automatic shut down and in built alarm

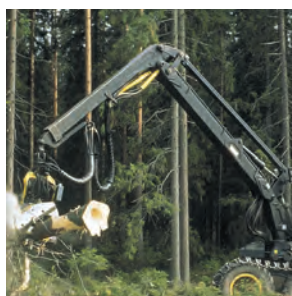
For more information on the Racor FBO Filter Trolley please contact:



Parker Hannifin UK Ltd. Racor Filter Division Europe

Tel: +44(0)1924 487000 Email: filtrationinfo@parker.com www.parker.com/rfde Ref No: FDRB455UK 05/10

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Racor FBO Trolley - Product Specification

Frequency:

50 Hz (nominal frequency)

Max. Variations:

Voltage: +/- 5% of nominal value
Frequency: +/- 2% of nominal value

Nominal Wattage:

500W

Nominal Current:

5.5 Amps

Motor Protection:

Single-phase motors are provided with automatic protection switch

Flow Rate:

Up to 50 lit/min

Filter Rating:

25 micron (standard)

Noise Level:

70 db at 1 meter from electric pump

Dry Weight:

48 Kg (not including delivery and suction hoses)

IP Rating:

IP55 (control panel)

System Pressure:

1 bar (14.7 psi) nominal working,
10 bar (147 psi) Maximum

Permitted Use:

Diesel fuel at a viscosity of 2 to 5.35 cSt @ 37.8 Deg C Maximum Flash Point (PM) – 55 Deg C

Part Number Matrix

See below

Model	FBO Type Housing	CE Mark	Voltage
800D = Filter Trolley	14 = FBO -14	CE = CE Marked	230V
	10 = FBO -10		110V

Example				Order Part
800D	14	CE	230V	800D14CE230

For more information on the Racor FBO Filter Trolley please contact:



Parker Hannifin UK Ltd. Racor Filter Division Europe

Tel: +44(0)1924 487000 Email: filtrationinfo@parker.com www.parker.com/rfde Ref No: FDRB455UK 05/10

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RACOR FBO FILTER TROLLEY

USER GUIDE FOR 800D14CE230V & 800D14CE110V

WARNING

1. This Racor Filter Trolley is only for use with diesel, blended diesel and fuel oil. The filter trolley must not be used with any other liquids as this may cause harm to yourself or the trolley.
2. Do not leave the equipment unattended when in use.
3. Keep away from children.

PRIOR TO FIRST USE:

Do not operate the filter trolley when completely dry to avoid serious damage to its components.

- Fill the pump body up with diesel fuel to make the priming easier.
To prime the pump:
 - Loosen both hexagon bolts situated on the top plate with "FILTER" written on it
 - Introduce diesel fuel to the pump and replace the top plate and bolts.
- Start the pump keeping the valve of the fuel delivery nozzle open. This is to allow any air to be evacuated from the system.

Please note:

- Fuel leaks can cause damage to equipment and people, please clean up all leaks in the correct manner.
- The pump unit is able to suck fuel with a maximum drop of 2 metres and with a loss of pressure till 0.5 bar
- Start or stop the pump by using the Off/On switch on the front of the control panel.

NORMAL USAGE INSTRUCTIONS

- Before starting the pump ensure that the isolator valve to the outlet is closed.
- Ensure that the unit is plugged into a suitable 110 or 230 volt fused supply (check what voltage is required for your trolley)
- Before starting ensure that inlet and outlet hoses are inserted into the fuel supply to be cleaned and into a suitable return vessel if it is not returned to the original tank
- Turn the Off/On switch on the front control panel to the ON position. The Orange beacon will flash and the alarm will sound for approx 3 seconds as a self check. (Note: If the alarm continues to sound this indicates that there is water in the filter bowl. Switch off the unit and drain the water from the filter canister)
- Once alarm has stopped the motor can be turned on by pressing the green run switch on the control panel
- To stop the unit press the Red stop button
- When unit operation is complete and the motor has stopped or when draining water from the filter canister always turn the On /Off switch to Off
- Never run the motor without fuel in the suction tube.

Parker Hannifin, Racor Filter Division Europe, Shaw Cross Business Park Churwell Vale, Dewsbury, WF12 7RD
Tel: 0044 1924 487000, email: filtrationinfo@parker.com



WATER IN FUEL ALARM.

During normal operation water is separated from the fuel by the process of coalescing, this water collects in the bottom of the filter canister and will activate the orange beacon and alarm. At the same time it will switch off the motor. When this occurs the water retained within the filter canister should be drained via the drain tap and drain tube located at the base of the filter canister.

Water should be drained into a suitable container and disposed of following local environmental requirements. This water may contain traces of diesel fuel and should be disposed of carefully.

Ensure the drain tap is fully closed prior to restarting the operation of the unit.

ELEMENTS REPLACEMENT

The contamination level of the diesel fuel determines the frequency of the element replacement. Fuel flow will become restricted as the element slowly becomes contaminated. Replace the element every 150 hours or if loss of flow is noticed. If an application seems to be heavily bio-film contaminated, change the elements and flush to prevent cross contamination.

The element should be replaced when the restriction across the elements reaches 15 psi or when the restriction indicator on the top of the filter shows RED.

To facilitate element removal, the assembly features a "locking ring collar" which attaches the filter housing to the aluminium die cast filter head with four bolts. The slotted "locking ring collar" allows you to hand loosen the four collar bolts; rotate the lower bowl assembly for element change out.

With a new element installed, raise the bowl and rotate into position on the locking ring and hand tighten the four bolts evenly. Always ensure that used filters are disposed of in accordance to local environmental requirements.

Always use Racor original replacement elements to ensure that the trolley continues to work at highest efficiency.

Note: Always carry an extra element as one tank full of excessively contaminated fuel can clog a filter.

The replacement part number for elements is FBO 60338 (25 micron), please follow the instructions provided with the new Racor element.

STRAINER.

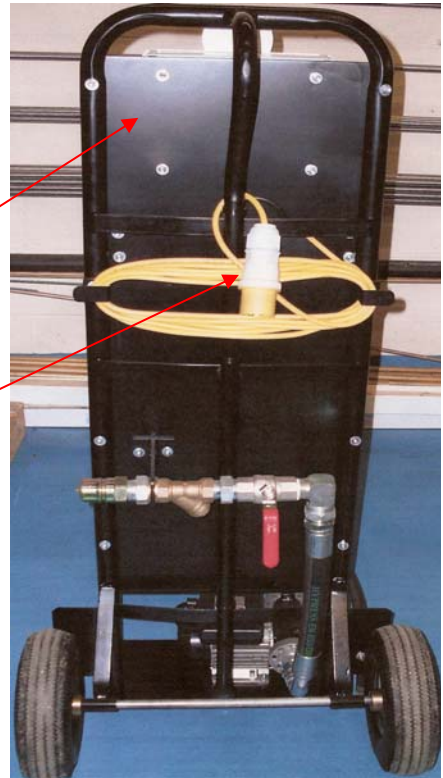
The filter trolley is equipped with an 80 micron filter on the rear of the unit. It is located after the fuel inlet shut off valve and ahead of the fuel pump. This strainer should be checked on a weekly basis and cleaned as necessary.

SPARE PARTS.

FBO 60338	Element 25 micron
FBO 60356	Element 10 micron
FBO-14-DP	Filter Housing
Z-OAB 3024	Strainer
Z-000480	Stone Stopper
X-CB-FPB-01	Panel

Back Panel

Plug and Cable

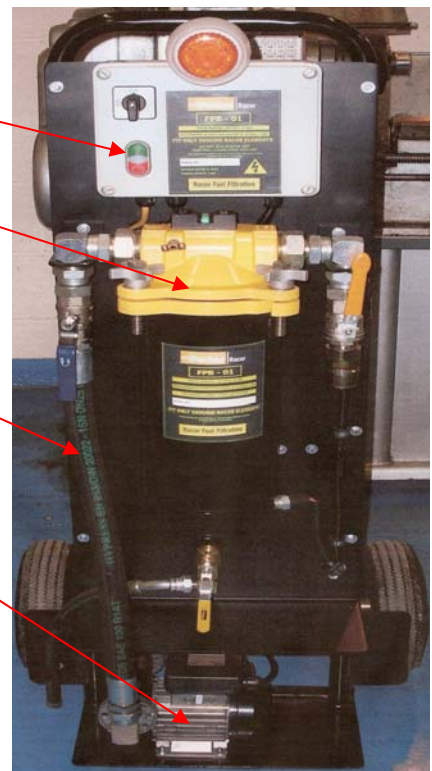


Power Button (On / Off)

Racor FBO14 Vessel

Hose

Pump Body



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TROUBLE SHOOTING FOR THE RACOR FILTER TROLLEY

<u>PROBLEMS</u>	<u>POSSIBLE CAUSE</u>	<u>CORRECTIVE ACTION</u>
The Pump Motor doesn't work	Power supply loss	Check connections and the system. If you need a supply cable replacement contact customer service.
	Pump cut out due to over heating.	Wait for the engine cooling, check the start again and look for the over-temperature
	Motor problems	Get in touch with your service agent.
Low or no discharge	Low level suction tank	Fill the tank up
	Clogged filter, or the bottom valve is blocked	Clean the filter and / or replace the valve
	Extreme low pressure during suction	Lower the pump under the tank level
	Entry of air to the pump or the suction hose	Check connections and seals around the top of the filter
	Restriction of the hose during suction	Avoid deflection of the hose
	The sucking hose rests on the bottom of the tank	Lift the hose up
High pump noise	Air could be is present in the fuel	Check Connections

RACOR FILTER TROLLEY TECHNICAL FEATURES

PUMP

- Induction motor with aluminium casing 230V/50Hz or 110V/50Hz , 500 W
- CE certified
- Protection degree IP55
- Continuous running
- Cast iron pump casing , treated against corrosion and paint-finished

FILTERS

- FBO-14-DP
- Replacement element part numbers: FBO 60356 (10 Microns).
FBO 60338 (25 Microns).

HOSES & CONNECTIONS

- Parker ITR Carbopress 10 Bar R< 1 Ω ISO R 1307 suction & pressure hoses
- Parker Fittings and connectors.

MODEL NUMBERS

800D14CE230V - Suitable for use with 230V supply.

800D14CE110V - Suitable for use with 110V supply.

Racor FBO Filter Trolley

Specification for 800D14CE230V

System Power Requirements:

Power Supply: 230 volt (nominal voltage)

Frequency: 50 Hz (nominal frequency)

Max. Variations: Voltage: +/- 5% of nominal value
Frequency: +/- 2% of nominal value

Nominal Wattage: 500W

Nominal Current: 5.5 Amps

Motor Protection: Single-phase motors are provided with automatic protection switch

Flow Rate: Up to 50 lit/min

Filter Rating: 25 micron (standard)

Noise Level: 70 db at 1 meter from electric pump

Dry Weight: 48 Kg (not including delivery and suction hoses)

IP Rating: IP55 (control panel)

System Pressure: 1 bar (14.7 psi) nominal working, 10 bar (147 psi) Maximum

Permitted Use: Diesel fuel at a viscosity of 2 to 5.35 cSt @ 37.8 Deg C
Maximum Flash Point (PM) – 55 Deg C

Racor FBO Filter Trolley

Specification for 800D14CE110V

System Power Requirements:

Power Supply: 110 volt (nominal voltage)

Frequency: 50 Hz (nominal frequency)

Max. Variations: Voltage: +/- 5% of nominal value
Frequency: +/- 2% of nominal value

Nominal Wattage: 500W

Nominal Current: 5.5 Amps

Motor Protection: Single-phase motors are provided with automatic protection switch

Flow Rate: Up to 50 lit/min

Filter Rating: 25 micron (standard)

Noise Level: 70 db at 1 meter from electric pump

Dry Weight: 48 Kg (not including delivery and suction hoses)

IP Rating: IP55 (control panel)

System Pressure: 1 bar (14.7 psi) nominal working, 10 bar (147 psi) Maximum

Permitted Use: Diesel fuel at a viscosity of 2 to 5.35 cSt @ 37.8 Deg C
Maximum Flash Point (PM) – 55 Deg C

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Parker Hannifin, Racor Filter Division Europe, Shaw Cross Business Park Churwell Vale, Dewsbury, WF12 7RD
Tel: 0044 1924 487000, email: filtrationinfo@parker.com

