

User Manual Turbine Manifold Series



GRIFFIN GTB228DM / GTB341DM / GTB455DM / GTB681DM / GTB681TM Turbine Manifold Series Fuel Filter / Water Separator for Diesel Engines

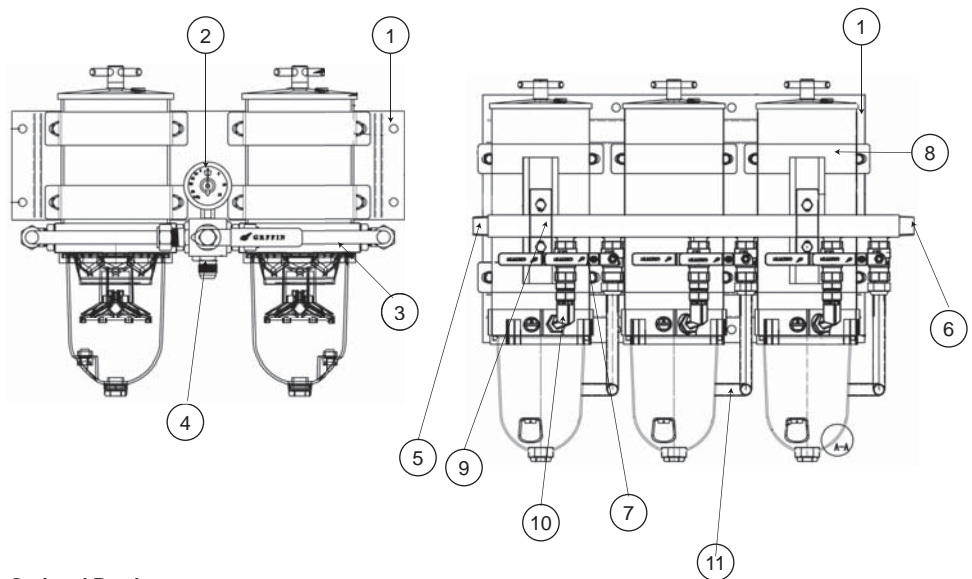
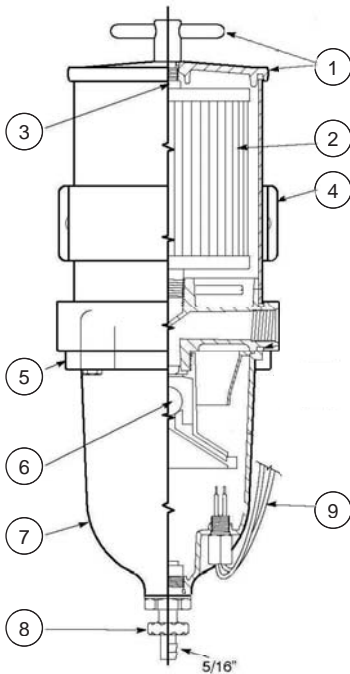
^{*}DM = Double Manifold / TM = Triple Manifold
(This user manual can be used for Griffin basic turbine series, stainless steel S4 series, GA series, marine MA series, MAC series and MAS series)

Griffin's Turbine Manifold Series GTB228DM / GTB341DM / GTB455DM / GTB681DM / GTB681TM of fuel filter / water separators are designed for powerful diesel engines and transfer pumps, efficiently protecting precision engine components from dirt, rust, algae, asphaltines and varnishes. Griffin's unique **MICROBLOC[®]** multigrade filtration media also efficiently remove contaminants separates water from fuel. A clear bowl allows for visual inspection of water and contaminants removed from the fuel by the filter. Griffin filters remove contaminants and separate water using a four stage process:

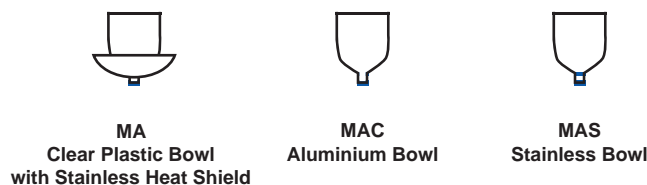
- 1. Centifugal Action:** Larger solid contaminants and free water are separated
- 2. Coalescing Action:** Smaller water droplets and solid contaminants are filtered out by **MICROBLOC[®]** multigrade filtraion media, causing them to coalesce together and fall into the collection bowl
- 3. Micro Action I:** Micro action filtration removes the smallest water droplets and solid contaminants from fuel
- 4. Micro Action II:** A second micro action filtration ensures nearly 100% pure fuel filtration

Griffin's Turbine Double Manifold Series GTB228DM / GTB341DM / GTB455DM / GTB681DM features a unique control valve that allows the operator to isolate one filter at a time for servicing, even during engine operation, if necessary. The valve inlet and outlet fuel ports are 7/8"-14 SAE J514,37° male flare fittings. The clear water and contaminant collection bowl allows the operator to easily check for water and solid contaminants. A standard Griffin vacuum/pressure gauge indicates the timing for replacement of the elements on all DM models.

SPECIFICATION	GTB228DM	GTB341DM	GTB455DM	GTB681DM	GTB681TM
Maximum flow rate	120 gph / 454 lph	180 gph / 681 lph	240 gph / 910 lph	360 gph / 1363 lph	540 gph / 2043 lph
Height	11.5" / 292mm	16.2" / 412mm	14.3" / 365mm	21.3" / 542mm	21.3" / 542mm
Width	18.6" / 472mm	18.7" / 476mm	18.6" / 472mm	18.7" / 476mm	18.7" / 476mm
Weight	15.2 lbs / 6.9kg	23.3 lbs / 10.6kg	16.5 lbs / 7.5kg	27.7 lbs / 12.6kg	52 lbs / 23.6kg
Port size valve	7/8 - 14" UNF	7/8 - 14" UNF	7/8 - 14" UNF	7/8 - 14" UNF	3/4" NPT
Clean pressure drop	0.7psi / 4.83kPa	1.7psi / 11.7kPa	0.7psi / 4.83kPa	3.7psi / 25.5kPa	2.5psi / 17.2kPa
Max operating pressure	14.93psi / 103kPa	14.93psi / 103kPa	14.93psi / 103kPa	14.93psi / 103kPa	14.93psi / 103kPa
Replacement element	GTB22	GTB34 / G2040	GTB45	G2020 / GTB68	G2020 / GTB68
Removal clearance	4.01" / 102mm	5" / 127mm	4.01" / 102mm	10" / 254mm	10" / 254mm



Optional Bowls:



Turbine Manifold Series (continued)

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GTB228DM / GTB341DM / GTB455DM / GTB681DM / GTB681TM TURBINE MANIFOLD SERIES REPLACEMENT PARTS LIST

Item	Description	Part No.		
1	T-handle / lid assembly:	GTB228 / GTB455	PTHLA24	
		GTB341 / GTB681	PTHLA36	
	One piece lid :	GTB228 / GTB455	PLA24	
		GTB341 / GTB681	PLA36	
	T-handle O-ring:	GTB228 / GTB455	POR24	
		GTB341 / GTB681	POR36	
	Lid gasket:	GTB228 / GTB455	PLG24	
		GTB341 / GTB681	PLG36	
	2	GTB228 Rpl. element:	2 micron	GTB22-2
			10 micron	GTB22-10
30 micron			GTB22-30	
GTB455 Rpl. element:		2 micron	GTB45-2	
		10 micron	GTB45-10	
		30 micron	GTB45-30	
GTB341 Rpl. element:		2 micron	GTB34-2 / G2040-2	
		10 micron	GTB34-10 / G2040-10	
		30 micron	GTB34-30 / G2040-30	
GTB681 Rpl. element:		2 micron	GTB68-2 / G2020-2	
		10 micron	GTB68-10 / G2020-10	
		30 micron	GTB68-30 / G2020-30	
3	Return tube:	GTB228 / GTB455	PRT24	
		GTB341	PRT34	
		GTB681	PRT68	
4	Mounting bracket kit:	GTB228 / GTB455	PMBK24	
		GTB341 / GTB681	PPBCB36	
5	Ring for water collection bowls:	GTB228 / GTB455	PBR24	
		GTB341 / GTB681	PBR36	
6	Turbine cone kit include check ball and seal:	GTB228 / GTB455	PTCK24	
		GTB341 / GTB681	PTCK36	
7	Clear bowl with water sensor port:	GTB228 / GTB455	PCB24-2	
		GTB341 / GTB681	PCB36-2	
	MA bowl & water sensor port: with heat deflector shield	GTB228 / GTB455	PCB24	
		GTB341 / GTB681	PCB36	
	Metal bowl with water sensor port:	GTB228MAC / GTB455MAC	PMB24	
		GTB341MAC / GTB681MAC	PMB36	
	Stainless steel bowl with water sensor port:	GTB228MAS / GTB455MAS	PMB24S	
		GTB341MAS / GTB681MAS	PMB36S	
	8	Water drain valve:	GTB228 / GTB455	PWDV24
			GTB341 / GTB681	PWDV36
9	Water alarm:	GTB228 / GTB455	PSALM	
		GTB341 / GTB681		
*	Seal service kit:	GTB228 / GTB455	PSSK24	
		GTB341 / GTB681	PSSK36	

PART ONLY FOR GTB228DM / GTB341DM / GTB455DM / GTB681DM / GTB681TM TURBINE DOUBLE AND TRIPLE MANIFOLD SERIES

Item	Description	Part No.	
1	Mounting plate (one piece, shown):	GTB228DM / GTB455DM	PMBDM24
		GTB341DM / GTB681DM	PMBDM36
		G1000TM	PMBTM68
2	Gauge assembly	PAU2436	
3	Inlet manifold pipe: (2 required)	G228DM / G455DM	PRTA24
		GTB341DM / GTB681DM	PRTA36
4	Valve assembly	PVA2436	
5	Inlet triple manifold pipe:	GTB681TM	PIMP68
6	Outlet triple manifold pipe:	GTB681TM	POPM68
7	1/2" ball valve assembly: (6 required)	GTB681TM	PBVA68
8	"U" bracket:	GTB681TM	PUB68
9	Clamp bracket:	GTB681TM	PCB68
10	Inlet formed tube:	GTB681TM	PFTA68
11	Outlet elbow:	GTB681TM	POE68

INSTALLATION INSTRUCTIONS

(Please read before installation)

Before Installation of Filter Assembly:

1. Make sure that you have all the tools and components necessary to install your filter;
2. Ensure that your workspace is well lit and has sufficient ventilation;
3. Confirm that the engine is off, batteries have been disconnected, and that surfaces are cool to the touch;
4. Extinguish any open flames, cigarettes, or other ignition sources.

Mounting your filter: Please refer to the mounting hole pattern dimensions on below and on the following page(s) when drilling holes or positioning the unit. The filter should be mounted vertically with the T-Handles at the top and the clear plastic bowls at the bottom. Use a level to make sure the filter does not tilt more than 10°.

Installation:

The filter assembly should be installed between the fuel tank and fuel pump inlet. For proper operation and optimum water separation efficiency, the filter assembly should be installed on the suction (vacuum) side of the fuel pump inlet between the horizontal plane of the bottom of the fuel tank and the inlet of the fuel pump. Ensure that the fuel hose is not pinched during installation.

There are three recommended installation of the filter assembly:

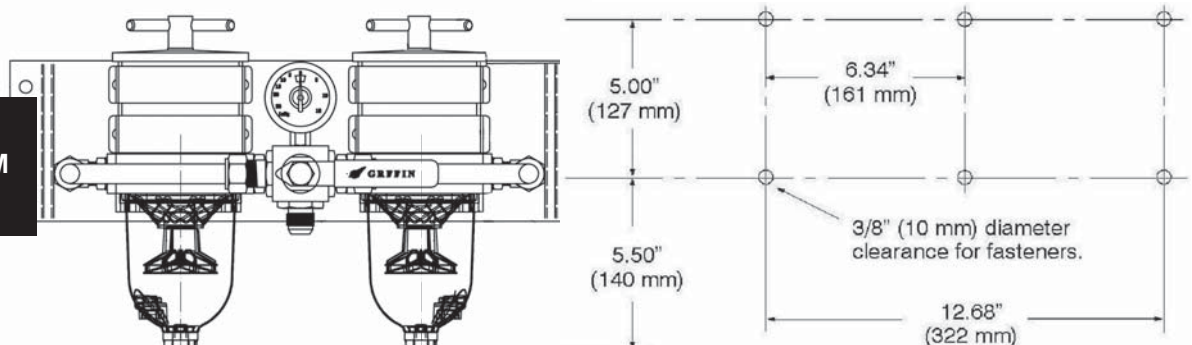
1. Fuel tank level with filter(vacuum-side installation): This is the preferable location for installation. The ideal location for installation of the filter assembly is between the horizontal plane of the bottom of the fuel tank and the inlet of the fuel pump.
2. Fuel tank above filter: If the filter assembly is installed below the fuel tank you must install a shut-off valve between the fuel tank and filter inlet to permit shut-off of fuel line during servicing or replacement of filter elements.
3. Fuel tank below filter (vacuum-side installation): If the filter assembly is installed above the fuel tank you must install a shut-off valve with little or no restriction in order to maintain prime during servicing or replacement of filter elements.

Regardless of installation location:

1. Remove all other vacuum side fuel filters in order to minimize restrictions in fuel flow; non-removable filters should be serviced with new filter cartridges.
2. Maintain proper space above (5" or 12.7cm) and below (2" or 5.1cm) the filter assembly to allow for easy maintenance of the filter assembly, element replacement and water draining.
3. Ensure that the filter assembly and fuel lines are not mounted near a heat source or sharp edges.
4. Avoid making kinks in the fuel line; do not make sharp bends with a flexible fuel line; Where possible use 90° elbow instead of two 45° elbows.
5. It is recommended that you use the maximum size fuel line.

Mounting Hole Patterns:

Refer to the dimensions below when drilling holes or positioning the unit. Reference your unit for exact location of mounting holes.



GTB228DM / GTB455DM

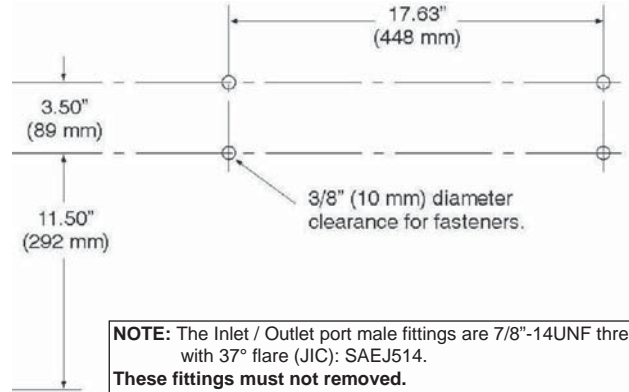
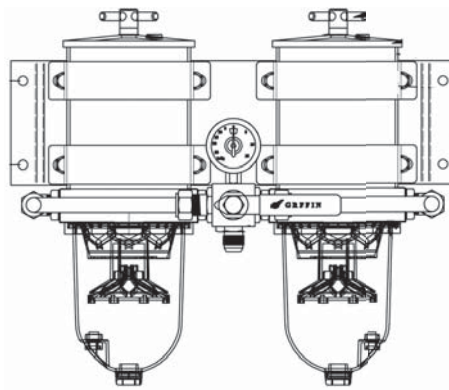
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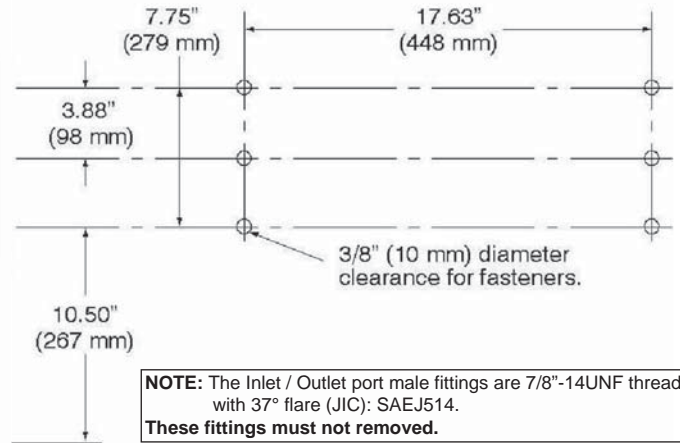
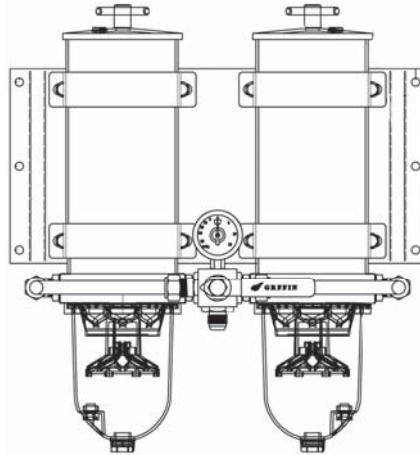
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GTB341DM



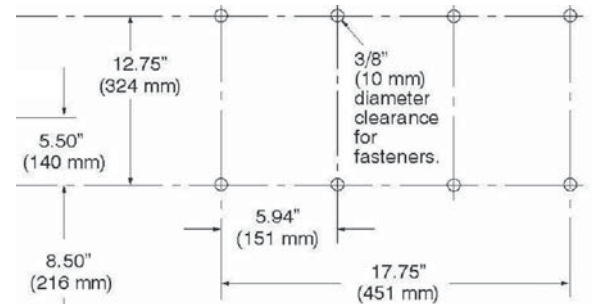
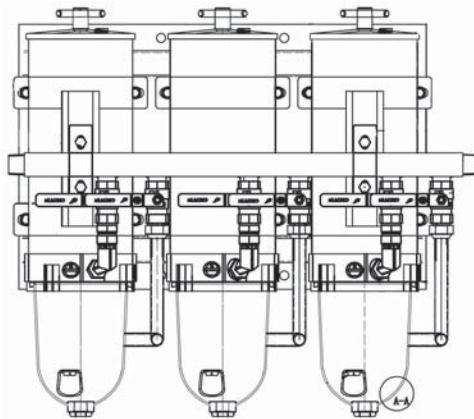
NOTE: The Inlet / Outlet port male fittings are 7/8"-14UNF threads with 37° flare (JIC): SAEJ514. These fittings must not be removed.

GTB681DM



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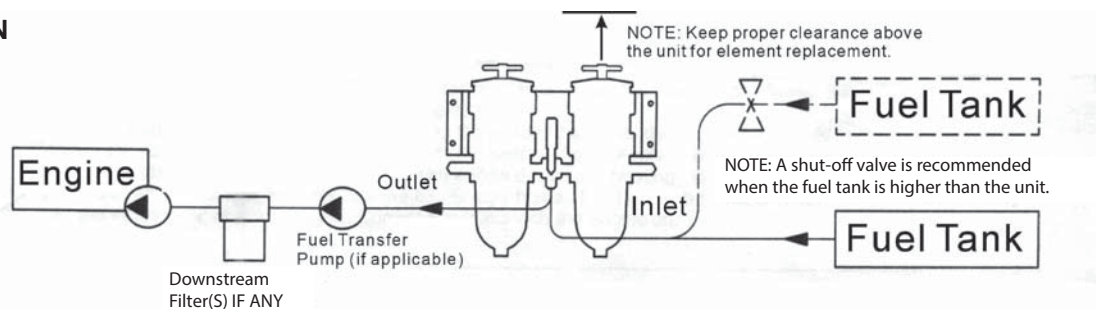
GTB681TM



NOTE: The Inlet / Outlet port male fittings are 3/4" NPT MALE threads with 37° flare (JIC): SAEJ514. These fittings must not be removed.

SUCTION SIDE INSTALLATION

For All DM Models



NOTE: Keep proper clearance above the unit for element replacement.

NOTE: A shut-off valve is recommended when the fuel tank is higher than the unit.

= Shut Off Valve

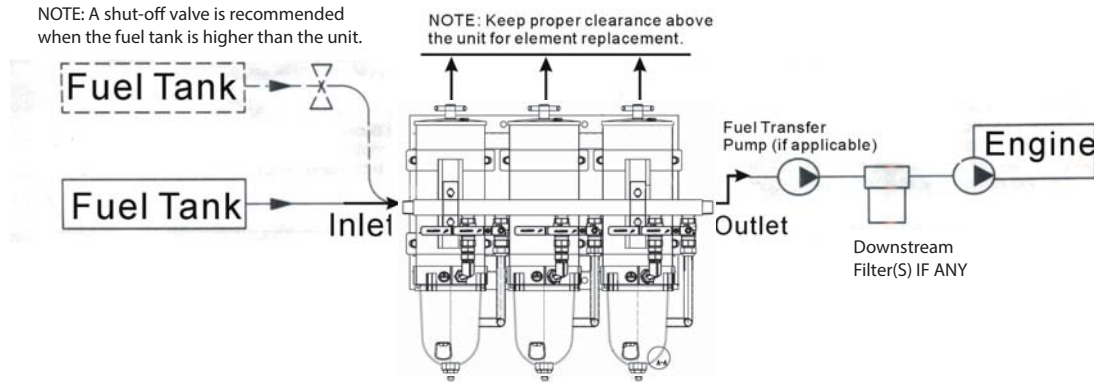
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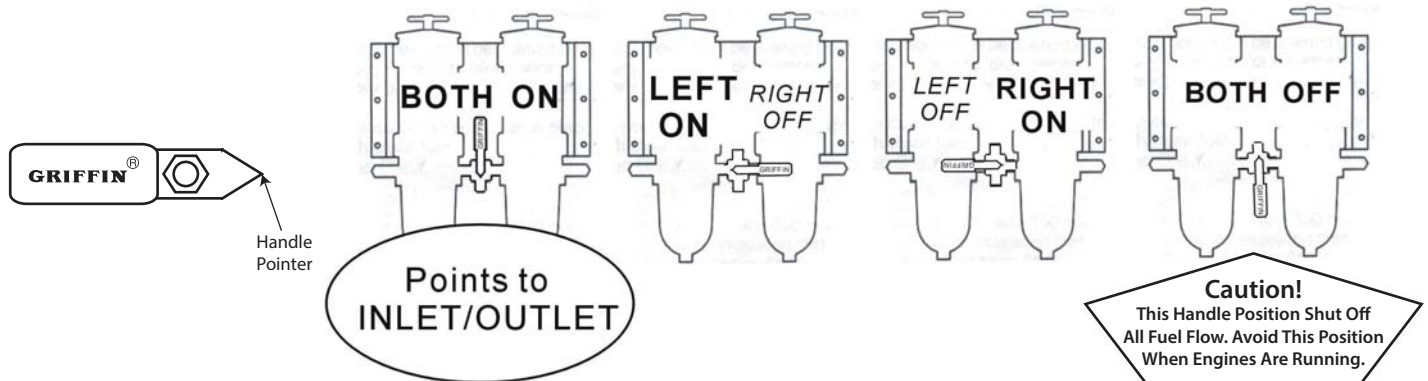
For GTB681TM Model



SELECTOR VALVE:

The GRIFFIN DM series allows the operator to isolate one filter at a time for servicing even while the engine is running.

The handle *PONTER* always indicates which option is selected! To take one filter off-line for servicing while the engine is still running, select the filter to stay ON, and then begin servicing the other. Note: the handle can rotate 360° therefore avoid the "BOTH OFF" position (arrow up) if the engine is running. See the illustrations below.



Priming:

Remove the lid and fill the filter with clean fuel. Coat the O-ring with fuel and use the T-handle to tighten the lid by hand, do not use any tool. If applicable, refer to your machine instructions / user manual to complete the fuel priming. Start engine and check for leaks.

Troubleshooting:

An untightened lid or restriction in the fuel line will cause engine power loss and make the engine difficult to start. If the filter does not prime or it is hard to hold prime or air bubbles are visible in the clear bowl, check the T-handle and drain valve, and check the connection of all fittings. Make sure that the fuel line is not pinched or clogged with contaminants. If there is an in-tank strainer, make sure it is not clogged with contaminants. If you still are encountering difficulties with the operation of your filter, please contact your Griffin distributor or representative.

Maintenance:

The level of contamination of your fuel will determine how often it is necessary to check the level of contaminants and to drain water from the unit. We suggest inspection and/or draining (if necessary) of the collection bowl of water daily and replacement of the element every 12000-20000 kilometers. If the level of contaminants in your fuel is known to be high, or you are experiencing power loss, it is recommended that you replace the element as soon as possible.

Suggestion: Always carry a new Griffin element.

Draining:

Open the drain valve to drain the water and contaminants. If necessary, open the lid and fill with clean fuel to wash. Replace the lid and tighten the T-handle by hand. Start engine and check for leaks.

Warning: Do not leave the water drain valve open too long as it could drain the entire filter and possibly the entire fuel system.

Element Replacement:

Only Griffin's original **MICROBLOC**[®] multigrade filtration media provides the best water separation function. The elements are designed to be removed by hand via twisting the pull-handles. Every Griffin original element comes with new O-rings. Replace the element and the lid O-ring. Coat the O-ring with clean fuel and use the T-handle to tighten the lid by hand. Start engine and check for leaks.

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