

# Marine Turbine Series (all models)

Disassembly, Service, and Rebuild Instructions



## How It Works

Marine Turbine Series filter assemblies are designed to be installed on the vacuum side of the fuel transfer pump for best efficiency and protect precision engine components from dirt, rust, algae, asphaltines, varnishes, and especially water, which is prevalent in engine fuels. They remove contaminants from fuel using the following 3-stage process:

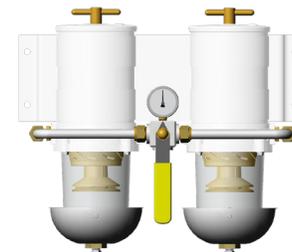
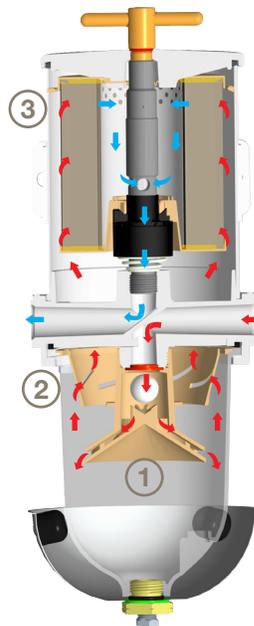
### Stage 1: Separation

As fuel enters the filter assembly, it moves through the centrifuge and spins off large solids and water droplets which fall to the bottom of the collection bowl.

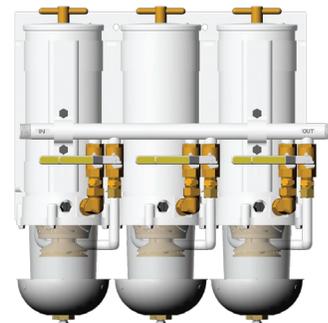
### Stage 2: Coalescing

Small water droplets bead-up on the surface of the conical baffle and cartridge element. When heavy enough, they fall to the bottom of the bowl.

### Fuel Flow Through 900MA Turbine



75900MAX



791000MAV

### Single Assemblies:

500MA  
900MA  
1000MA

### Duplex Assemblies:

75500MAX  
75900MAX  
731000MA  
751000MAX

### Triplex Assemblies:

771000MA  
791000MAV

## Contact Information:

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### Stage 3: Filtration

Proprietary Aquabloc®II cartridge elements repel water and remove contaminants from fuel down to 2 micron (nominal). They are waterproof and effective longer than water absorbing elements.

## Getting Started

Read through these instructions first to familiarize yourself with the necessary steps. Have a complete seal and gasket replacement kit on-hand before servicing (part number on page 2).

The following customer supplied materials should be on hand before beginning servicing.

- Shop towels
- Diesel fuel (about 1 gallon)
- Thread sealant (no thread tape)
- 3/8" socket/ratchet wrench
- Petroleum jelly or silicone grease (for lubricating seals)
- Torque wrench (inch lbs)



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# Disassembly

**Note:** Each item has a service kit noted where available. Clean all parts in a mild solvent or clean diesel fuel. Blow-out all passages with compressed air.

1. Remove T-handle and lid and set aside. Discard T-handle o-ring and lid gasket.
2. Use element bail handles and carefully remove contaminated element with a twisting motion. Discard element.

**Note:** Element should be replaced every 10,000 miles, 500 hours, every other oil change, annually, or at the first indication of power loss, whichever comes first.

- A) Position new element over return tube and push down until it bottoms.
- B) Lubricate all new gaskets and o-rings.

**Note:** Replace lid gasket with every element service (included with new elements). Verify sealing surface is free of debris.

3. Replace lid (with lid gasket) and T-handle (with o-ring). Hand tighten T-handle—do not use tools.
4. Do not over-tighten carriage bolt as this may distort bracket roundness.
5. The hollow aluminum checkball floats up against the seal when fuel is stopped thus preventing fuel bleed-back. If unit loses prime, inspect upstream hose connections first, otherwise, disassemble unit and inspect seal and ball.

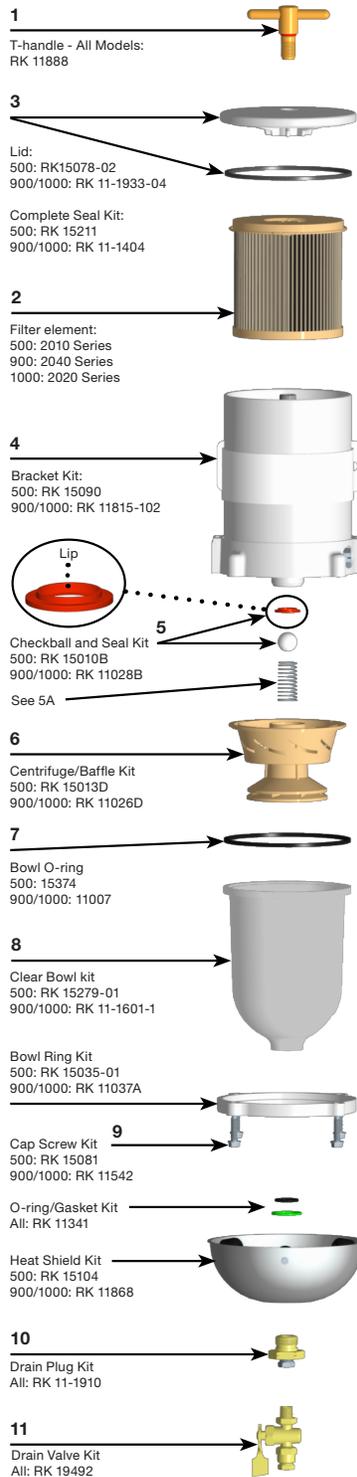
5A) For applications with little backpressure, order Checkball and Spring Kit (part # **RK11-1978**) to enhance function of one-way checkball valve (900MA and 1000MA models only).

**Note:** On 900/1000 models, lip on checkball gasket points up into housing and flat side faces checkball. On 500 models, the word "TOP" is placed towards the checkball.

6. In a counter-clockwise rotation, unthread centrifuge and baffle and set aside for reassembly. Checkball and seal should also come out at this time.

**Note:** 1. If checkball seal appears distorted or damaged at inside diameter, install a new one. 2. Inspect inside of centrifuge for debris. Remove or clean out as necessary.

7. Remove bowl gasket and discard. Lubricate new gasket provided and install into gland in filter housing.
8. Clean bowl in a mild solvent or with clean diesel fuel. New bowl kits come with drain and water sensor port plug. Contact distributor for metal bowl or water sensor probe options.
9. Do not over-tighten self-tapping screws, this may strip the base threads. Upon reassembly, start screws by hand prior to using tools. Maximum torque: 55-65 in. l



10. Remove brass drain plug from shield by prying the o-ring out of the gland. Do not scratch gland – use a plastic o-ring pick or similar tool. Clean o-ring gland of debris.

Lubricate o-ring and gland. Insert adapter through heat shield and place insulating gasket and then the o-ring in gland. Install adapter/shield onto bowl and start threads by hand. Tighten 40 to 50 inch lbs. Do not over tighten.

When draining water from bowl, hold adapter hex in position and with another wrench, loosen and remove plug. Ensure a large collection pan is used.

11. An optional UL marine listed drain valve is available to simplify draining of contaminants.

## Priming Instructions

**Note:** If element is changed or assembly drained for any reason, repriming assembly (filling with fuel) may be necessary. Fill to just above top of element before replacing lid.

- A. Remove T-handle and lid from top of Turbine assembly.
- B. Fill Turbine assembly with clean fuel.
- C. Lubricate lid gasket and T-handle O-ring.
- D. Replace lid and T-handle and tighten snugly by hand—do not use tools.
- E. Follow engine manufacturer's service instructions to complete system priming.
- F. Start engine and check for leaks; correct as necessary with engine off.



**RK11-1676E Vacuum Gauge**

**Features:**

1. Inlet snubber
2. 1/4" NPTF threads
3. Black restriction pointer
4. Setable change-out needle
5. Silicone dampened movement
6. Red tell-tale restriction pointer

## Troubleshooting

Refer to fuel system vacuum gauge (**RK11-1676E**) if equipped. If restriction is high, replace element or check for fuel line obstructions upstream of the gauge.

Excessive bubbles (more than a champagne bottle) from the turbine indicate high system restriction or an upstream air leak. Check the in-tank strainer for plugging.

It is normal for fuel level inside housing to be about 1/2 full after lid removal. If level is lower and engine was stalling, check fuel tank level and verify fuel delivery valves are open. Verify T-handle and lid gasket are correctly installed, bowl fasteners and fuel fittings are tight, and bowl drain is closed.

For some systems with low back-pressure, use check ball seal and spring kit #RK11-1978.

**Important Information:**

Never operate a filter assembly without element in place. Element safety valve on fuel return tube will not expose outlet hole if element is removed.