RACOR®

Operation and Service

Parker Filtration

DIESEL FUEL FILTER/WATER SEPARATORS

HOW THE RACOR FILTER/ SEPARATOR WORKS

The three stages of the Racor filter/ separator work in series to progressively clean the diesel fuel. Because virtually all water and particles of solid contamination are removed in the primary and secondary stages, the effective life of the fine micron replaceable element (the third stage) is 2-3 times longer than standard filters.

Primary Stage (Separation)

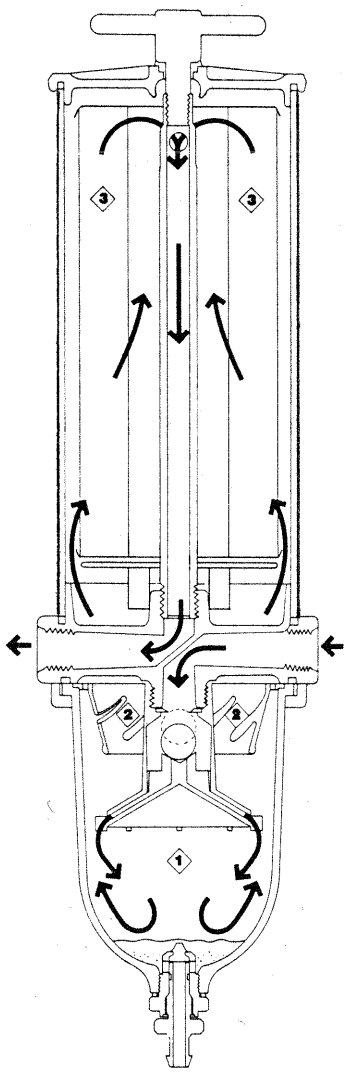
In the primary stage, liquid and solid contamination down to 30 micron are separated out by centrifugal action created by the turbine centrifuge. There are no moving parts in this highly efficient design. Because the contamination is heavier than the fuel, it falls to the bottom of the clear bowl.

Secondary Stage (Coalescing)

This stage functions when minute particles of liquid contamination (lighter than the fuel) remain in suspension and flow up with the fuel into the lower part of the filter/separator shell. Here the minute particles tend to bead on the inner wall of the shell and the bottom of the specially treated replacement element. As the beads accumulate, they become larger and heavier and eventually fall to the bottom of the filter/separator bowl.

Final Stage (Filtration)

In this stage, the fuel flows through the replacement element where the minute solids are removed.



SERVICE

a) REPLACEMENT ELEMENTS

Racor manufactures a complete line of high quality replacement elements for all Racor products. All genuine Racor replacement elements contain a specially-formulated resin-impregnated media designed to repel water and perform the ultra-fine filtration necessary to protect the engine system. An exclusive "lip" seal, designed to prevent element by-pass, contains a molded handle for ease of element removal.

1. Element should be changed at 8 to 15 inches of Mercury restriction. Measurement is made at the pump inlet.
2. On 75/ and 79/ Series models with valving, all valves are in the open position for normal operation. For continuous operation, one unit may be shut down while under power to change element. During element change, reduce fuel flow rate to idle condition.
3. Remove t-handle and lid. Inspect seals and replace if necessary. SEAL SERVICING KITS ARE AVAILABLE FROM YOUR DISTRIBUTOR.
4. Remove element by holding molded handle and slowly pulling upward with a turning motion.
5. Insert Genuine Racor Replacement Element over center tube with downward turning motion.
6. Top off by pouring clean diesel fuel into filter/separator housing until full. Replace lid and hand tighten t-handle.

b) DRAINING THE FILTER/ SEPARATOR BOWL

Bowl must be drained at or before contaminants reach the bottom of the turbine centrifuge assembly. Water Sensor Kits are available as options for Racor Filter/Separators.

1. If fuel tank is BELOW filter/separator:
   a. To break vacuum lock, remove t-handle and lid. Inspect seals and replace if necessary. SEAL SERVICING KITS ARE AVAILABLE FROM YOUR RACOR DISTRIBUTOR.
   b. Open drain valve. Drain accumulated water and contaminants. Close drain valve.
   c. Prime the system by pouring clean fuel into filter/separator housing until full. Replace lid and hand tighten t-handle.
2. If fuel tank is ABOVE filter/separator:
   a. Open drain valve.
   b. Drain accumulated water and contaminants.
   c. Close drain valve.

c) CLEANING THE FILTER/ SEPARATOR

IMPORTANT: INSPECT ALL SEALS AND REPLACE IF NECESSARY. SEAL SERVICING KITS ARE AVAILABLE FROM YOUR RACOR DISTRIBUTOR. CLEAN UNIT AND LUBRICATE ALL SEALS BEFORE INSTALLATION WITH CLEAN DIESEL FUEL **ONLY.**

1. Remove t-handle and lid. Inspect for damage and contamination. Clean.
2. Remove and discard replaceable element.
3. Drain unit completely through drain valve. Remove drain valve.
4. Flush unit with clean diesel fuel.
5. If an excessive amount of contamination is present in the bowl:
   Remove bowl retainer screws and lift retainer ring off over bowl.
   Remove bowl and clean with diesel fuel **ONLY.**
   Replace bowl gasket, place bowl on base, put bowl retaining ring over bowl and tighten retainer screws. (40 inch lbs. max. torque)
6. Install drain valve to bowl (30 inch lbs. max torque) and close.
7. Replace element with new Genuine Racor Replacement Element.
8. Prime the system by pouring clean diesel fuel into the unit until full. Replace lid w/gasket and t-handle w/gasket and hand tighten t-handle.

TROUBLE SHOOTING PROCEDURES

RESTRICTION

Normal vacuum reading can be 1" to 5" Hg at full governed RPM, depending on the hose I.D., length, elbows, pump efficiency, and height of lift from tank.

Idle RPM should be "0" reading with clean element where pump capacity is dictated by engine RPM.

If vacuum reading does not return to 1" to 5" Hg after element change, check for the following:

- collapsed fuel lines
- tank shut-off valves closed
- plugged fuel lines

If the inlet to the Racor filter/separator is plugged, disconnect inlet line, open drain valve, and blow out with compressed air. In case of severe stoppages, remove bowl and centrifuge and clean with compressed air.

AIR LEAKS

Racor filter/separator systems eliminate the need for "sight glasses" to check air suction leaks. If air bubbles are rising from centrifuge action in the clear bowl, the air leak is between inlet side of the Racor system and tank.

Check for:

- loose fittings
- pin holes in lines
- cracked tank stand pipe
- out of fuel condition
- O-ring not seating
- improper flare angles on hose fittings.*

If no bubbles are noted in bowl and air suction is still evident, check outlet side of Racor system to fuel pump.

Check for:

- loose fittings
- pin holes in line
- O-ring not seating
- improper flare angles on hose fittings.*
- fuel pump seals
- bleed-off fitting on top of Cummins fuel pump
- top gaskets on Racor filter/separator.

*(For example, a 37° flared female hose fitting pulled up tightly to a 45° male fitting sometimes causes a hair line crack, resulting in air suction.)

If Racor filter/separator is sucking air at bowl drain fitting gasket or T-handle and top and cannot be stopped by wetting gasket with fuel and *hand tightening only,* **replace the gasket(s).**

BLEED BACK

If fuel in the filter/separator bleeds back to the tank an air leak or check valve seating problem is indicated. To inspect check valve seat, remove bowl ring, bowl and turbine centrifuge, turning counterclockwise. (See Parts Diagram for identification of parts.)

Inspect check valve and seat. Clean or replace seat and check valve and reinstall centrifuge *hand tight*. Overtightening causes gasket to warp. Replace bowl ring gasket and reinstall bowl and ring. Fill unit with fuel.