

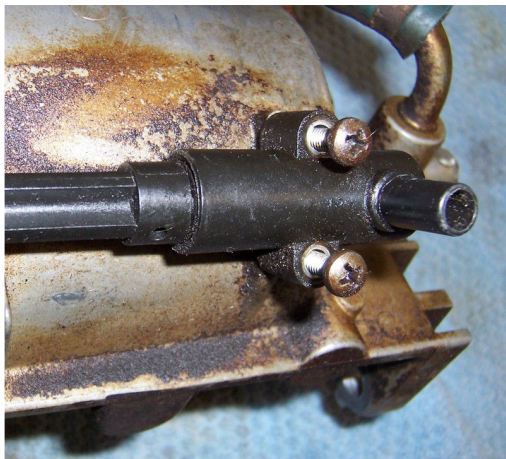
1994.5-1997 Ford 7.3L Diesel Fuel Bowl Rebuild Instructions

These instructions are based on a 94-95 fuel bowl and there are some slight differences between the 94.5-95 and the 96-97 fuel bowl with port locations but the largest difference is the type of screen filter on the FPR. The 94.5-05 has a plastic canister for the filter where the 96-97 has a flat screen with a plate and cir-clip along with a solid fuel line coming from the bottom of the fuel bowl.

Begin by draining the fuel bowl by opening the drain valve located at the front of the fuel bowl. Attach a piece of hose and catch the fuel in an appropriate container. Disconnect the electrical harness located on the side of the fuel bowl.

Remove the lid from the fuel bowl, remove the fuel filter and replace the lid on the bowl. To remove the fuel bowl from the engine compartment, remove all the fuel lines from the fuel bowl; remove the two bolts holding the fuel bowl to the block at the bottom of the fuel bowl.

With the fuel bowl on the workbench, you can begin to disassemble the components from the main canister.



Remove the Fuel Drain Valve: Use a #2 Phillips screwdriver and remove the 2 machine screws that hold the valve to the bowl. The extension handle will separate from the valve once the unit is removed. The keyway is configured so the handle extension will only couple with the valve in one position so there is no need to be concerned with handle orientation. Set the drain valve aside to be cleaned with the other parts.



(94-95 ONLY) There is a small check ball and cover located under the upper fuel bowl drain valve port. Carefully remove this cup and ball from the port as you will need to clean the area and the parts may become dislodged during the process of cleaning the fuel bowl. Set these parts aside for cleaning.



Remove the Fuel Bowl Heater Element: To remove the element you will need a 7/8" crowsfoot wrench. The black filter stand pipe must be removed by un-screwing it from the fuel bowl. It is a **left hand thread** and once you break it loose it will unscrew by hand. Once you remove the stand pipe, you can reach into the bowl with a pair of needle nose pliers and disconnect the heater's electrical plug.



Remove the Fuel Restriction Sensor: This sensor is threaded into the Fuel Bowl pressure line. On the 94-95 models it is at the bottom of the bowl while the 96-97 models have it threaded into the Fuel Pressure Relief body. Set the sensor to the side to be wiped clean as it should not be submerged in cleaning solvent. **When reinstalling this sensor, do not over tighten as the aluminum casting can easily be cracked.**



Remove the Fuel heater electrical connector & Water in fuel Sensor: The Water in Fuel sensor will unscrew from the fuel bowl by using a 9/16" box end wrench. Set it aside to be cleaned with other parts later.



The Fuel Heater electrical connector is a little trickier to remove. You must twist the entire connector to unlock the top tab from under the aluminum locking tab of the fuel bowl. Once you have turned it 45 to 90 degrees from its original position, using a very thin flat screwdriver, gently pry the fitting from the bowl by going around the circumference of the connector. It may take a few times of going around the connector and prying up just a small amount until the entire fitting lifts from the bowl. By gently prying in various locations around the connector, you are trying to keep from cracking the unit by putting too much force on one spot.



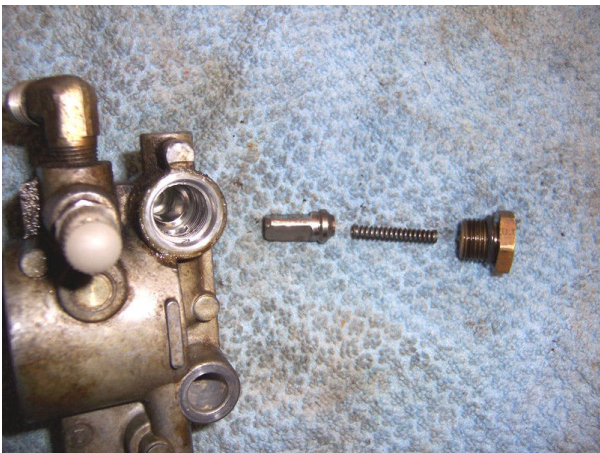
Remove the Fuel Pressure Regulator assembly: Two 10mm head bolts are all that hold the FPR to the fuel bowl. The 94-95 models will have a black plastic canister hanging from the FPR that contains a screen filter within it. The 96-97 models will have a hard line fitting connected to a plate under the FPR. When separating the FPR from the bowl, there is a small screen that may try to fall out from between the two bodies. Watch for this screen so you will not lose it.



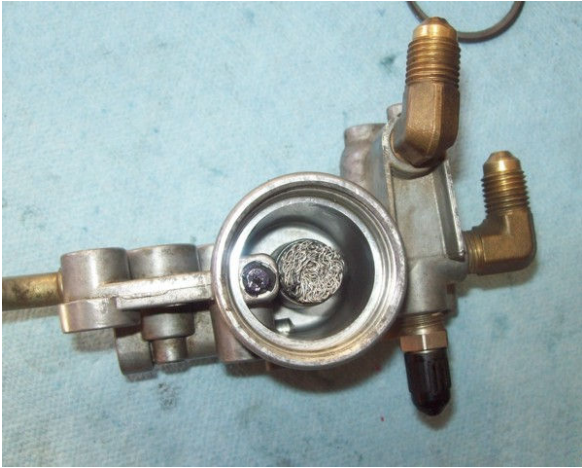
Here is the small screen that is located between the FPR and the fuel bowl. Notice the accumulation of debris on the screen that almost occludes the flow of fuel into the FPR. The screen is sitting on what appears to be a white nylon part that functions as a bleeder orifice for the FPR. There are two o-rings on this white bleeder orifice.



Be very careful removing the bleeder orifice as there is a check ball sitting in the recess below it. This check ball has a lot of bounce and will be difficult to locate if it falls out and decides to leave. In this photo you can see the check ball, bleeder orifice with the two o-rings, the sealing o-ring between the FPR and the fuel bowl body and the screen.



Here is the Fuel Pressure Relief Valve removed from its containing port. There are only three parts to this valve, the seat, spring and brass cap. Set all these parts aside to be cleaned in the parts cleaner tray.



(96-97 Only) When removing the c-clip and plate from the regulator assembly, the filter is exposed. This filter can be removed and washed in solvent until the fluid runs clean.



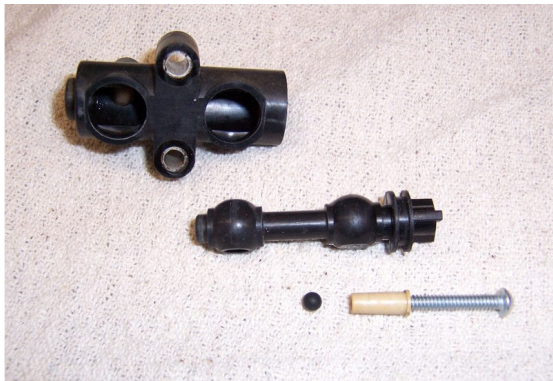
(96-97 Only) There is a plastic snubber that is in the port leading to the Fuel Restriction Sensor that can be removed by gently prying it out with a pick tool. This will open the internal port for additional cleaning.

The metal filter element can be cleaned nicely by soaking it in concentrated Simple Green® cleaner.



The 1994-1995 models have a screen filter canister that is attached to the FPR. It simply unscrews from the FPR. The screen element slips over the tube that is cast into the FPR and the spring that sits in the bottom of the canister holds it in place. You will want to use a soft bristle brush to thoroughly clean the filter and blow dry with compressed air.

Take all your loose parts, springs, plugs and main bowl to the parts wash tub and thoroughly clean with a stiff bristle parts cleaning brush. Rinse all parts with fresh solvent and blow dry with compressed air. Lay out your cleaned parts on the workbench, grouped by general placement.



To disassemble the drain valve, remove the two main o-rings and turn the stem 180 degrees from the normal drain position so you can see the flat side of the upper ball through the main o-ring opening. In this position you can lift the stem out of the valve body. If you use a #6-32 machine screw, slightly threaded into the white “cone” that is inserted into the top of the stem. You can use the screw to assist in removal of the stem. Once the stem has been removed, pull the cone from the stem using the #6-32 machine screw but be careful not to loose the small check ball that sits under the cone (**many of the 94 and 95 models do not have this ball**). Remove the old o-ring from the stem and clean all parts including inside the valve body with special attention to the bottom.

REASSEMBLY:



Lube the top stem o-ring with diesel fuel and “roll” it on to the stem (**O-ring #2** in the Size Comparison Chart included in the o-ring kit). Insert the stem into the valve until the stem o-ring touches the valve body. Turn the valve upside down so the top of the valve is on the workbench and the bottom of the valve is pointing upwards. Using the palm of your hand, push on the bottom of the valve until you feel the stem o-ring pop into place in the body. Turn the stem 180° to the normal drain position. You should be able to see a hole in each of the two stem valve “balls” through the main o-ring openings when it is in the correct position. Insert the two main o-rings (Size Comparison Chart **O-rings #1**) and seat them by pushing them in with your thumb. (for 94-95 models: Put the small cup and check ball back in the upper bowl drain hole and secure the valve back on the fuel bowl with the two Phillips headed machine screws).



After cleaning the Heater electrical connector, use the **O-ring #4**. Lube the o-ring area with some light oil or motor oil and insert it back into the heater port on the fuel bowl. Rotate the connector so the tall tab interlocks under the tab cast in the fuel bowl.



After cleaning the Water In Fuel Sensor, use the **O-ring #6**. Lube the o-ring area with some light oil or motor oil and screw it back into the WIF port below the Heater connector.

FPR Reassembly:



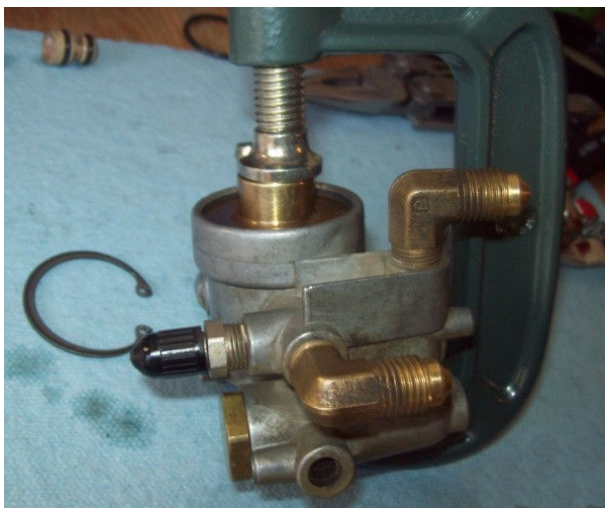
The main FPR seat valve is straight forward - seat, spring and cap in that order. Install the new o-ring on the brass FPR cap (use the **O-ring #8**). Lube the o-ring area with some light oil or motor oil and screw it into the port making sure the spring is center on the pointed spike on the brass plug.



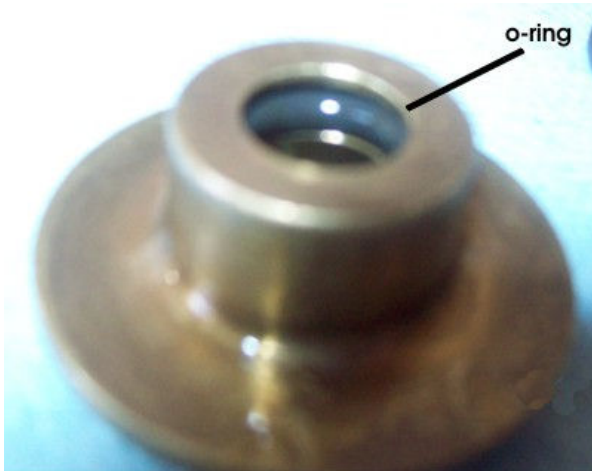
The FPR bleed port is the only direct physical connection between the fuel bowl and the fuel pressure relief valve. It is there to allow any trapped air in the fuel bowl to escape back to the tank. There are two o-rings on the white bleed port, the smaller o-ring that goes into the FPR first is the inboard o-ring (use the **O-ring #7**). The other larger o-ring is the outboard o-ring (use the **O-ring #6**) Lube the o-ring areas with some light oil or motor oil as this part is tough to get seated back into the FPR. Drop the ball in the FPR and push the bleed valve in as far as you can set it for now. The screen and o-ring will not be used until we get ready to bolt the FPR to the bowl.



This is the Filter screen canister for the **94-95** models. The canister will use the **O-ring #9**.



IMPORTANT STEP FOR 96-97 FPR: Don't forget to re-install the plastic snubber into the restriction sensor port! To keep from damaging the o-ring that seals the plate to the FPR body, use a c-clamp to keep the plate parallel to the body while you compress the o-ring enough to re-install the c-clip. **INSTALL THE O-RING ON THE BRASS PLATE FIRST, THEN SET THE PLATE INTO THE REGULATOR. IT FITS ON THE LOWER SHOULDER OF THE PLATE.** Keep in mind that if the plate tips to one side, it will try to push the o-ring into the area that seats the c-clip. When the plate straightens out it will cut the o-ring, damaging it where it will not seal properly. Use **O-ring #10** to seal the plate to the FPR body and use **O-ring #3** to seal the hard line to the plate.



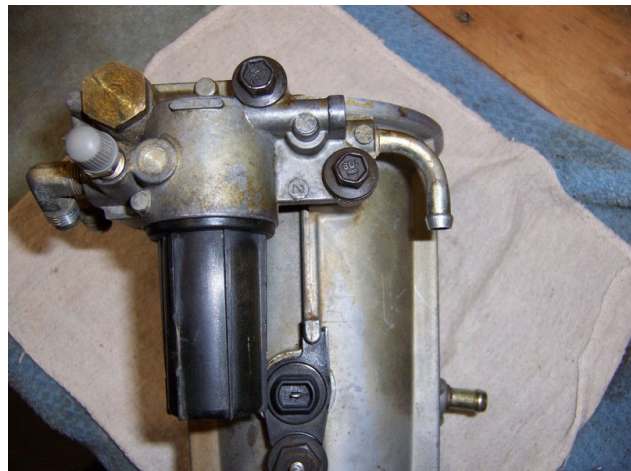
(96-97 models Only) Here is the **O-ring #3** inserted into the recess in the FPR base plate that seals the hard line to the FPR.

Mount the FPR to the Fuel Bowl:



Place the cleaned screen filter into the port opening on the fuel bowl and set the new **O-ring #5** into the recess.

(96-97 bowls) It may be easier to insert the hard line into the FPR base plate and then slip the o-ring over the screen and then secure the FPR with the 10mm bolts.



Set the reassembled FPR over the port making sure that the white bleed valve stays in place in the FPR. Secure the FPR to the Fuel Bowl using the two original 10mm bolts.

Fuel Heater Element:



Set the heater element sideways into the fuel bowl. This will allow you to reach in and plug the element into the electrical connector with your hand or by using a pair of needle nose pliers.



Place the heater element on the stand pipe port with the tab of the element plate **to the left** of the aluminum tab cast into the fuel bowl. These tabs keep the heater element from turning while tightening the stand pipe and causing damage to the electrical wire and connector.



You can now remount the fuel bowl in the engine bay and reconnect the wiring harness and fuel hoses. It will be necessary to connect the hose attached to the bottom of the fuel bowl prior to bolting the bowl to the engine.