

Franklin Fuel Pump Overhaul Instructions

If you're going to overhaul both fuel pumps remove the right one first then remove, overhaul, and reinstall the left one before reinstalling the right one. The reason for this is that the left pump is harder to get at because the carburetor heat unit and the throttle cable bracket are in the way. With the right pump out of the way you can get at both sides.

To remove the right fuel pump remove the lower cowl section and the intake pipe between the carburetor mount and the manifold. Disconnect the fuel lines from the pump, remove the screws from the circumference and take off the outer section of the fuel pump. Turn the propeller until the fuel pump diaphragm is in the farthest out position (the cam follower will not be riding on the cam in this position so the pump will be easier to remove and reinstall). Remove the mounting bolts and remove the pump. (Helpful hint: spread a piece of cloth under the fuel pump before beginning work so any dropped parts won't fall to the bottom of the engine compartment.)

Pump disassembly: Thoroughly wash all the oil out of the pump (do not skip this step, if you do the oil viscosity will make it nearly impossible to unhook the rod). Then with the large metal diaphragm washer resting on your vise jaws gently tighten the vise on the next smaller sized washer. (The reason the diaphragm rather than the pump needs to be in the vise is that the lever in the pump must be hanging downward.) This next step is tricky and will probably take several attempts to succeed. Press the pump body down compressing the spring then try to move it in the direction of the cam lever end. As you see (or not) the end of the diaphragm shaft is flattened and has a small slot in it. This slot fits a small lever in the pump which is free-floating -- it is not rigidly attached to the cam follower. This is what makes it so tricky to unhook. You just have to keep trying compressing the spring different amounts and try moving the shaft slightly right or left or twisting it a little.

Cheer up, the rest is easy. The overhaul kit comes with parts I don't use and probably neither will you, such as new valves and a pivot for the cam follower.

To reassemble the pumps you will need to make two special tools to hold the spring compressed so you won't have to work against it. From coat-hanger wire make 2 broad U-shaped tools with square corners, the "uprights" of the U 1/4" long and the bottom of the U 7/16." Now firmly attach a 6 or 8 inch length of .032 safety wire to the bottom of the U's (these are to pull the U's off the springs). Compress the spring in the corner of the vise jaws so the U-tools can be installed 180 degrees apart and hold it compressed as you open the vise. Now place the body of the fuel pump in the vise and hook a single length of string or heavy thread under the hook, pull it up, and holding it tight wrap it around the cam lever and tie it. Note if there is any difference how the screw holes in the diaphragm line up with the holes in the pump body and be sure to keep it in the best alignment. Now place the compressed spring on the diaphragm shaft then the washer as it came off, then the oil seal. I dislike oil leaks so I apply some Permatex gasket sealant around the edge

of the seal where it contacts the pump body. Now carefully place this assembly on the pump body and hook the eye of the shaft onto the lever. This could be a 2-person job; someone to hold the seal out of the way so you can see inside the pump and maybe to hold a flashlight. Now cut the string holding the hook and remove it. Press the oil seal in place with a small screwdriver or some such tool. Now you are ready to release the spring by pulling your special U-tools off. If the spring isn't properly centered it can be repositioned with the small screwdriver. Do not install the outer section of the fuel pump at this time. The body of the fuel pump is much easier to work on on the engine with this part off and the outer part is easy to install on the engine. When you are ready to install the outer pump section turn the propeller until the diaphragm is flat with the pump body then install the outer section but only put the screws in finger tight. Turn the prop 2 or 3 turns then tighten the screws.

Also note: when the propeller was positioned to remove the right pump you will need to turn it one full turn to remove the left pump (the fuel pumps operate from the camshaft and one turn of the prop is 1/2 turn of the camshaft). It is also very important to keep track of which pump is left and right and not mix them up. They are not interchangeable -- the fuel inlet and outlet are opposite.