FRANKLIN ENGINE JACK (Tail shaft support)

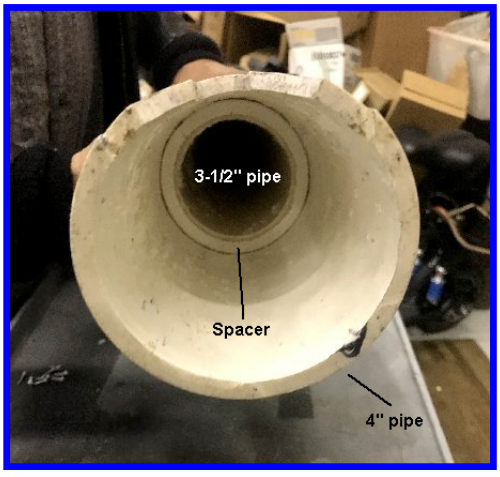
For all you Franklin engine operators, you know what a pain it can be to change the square air filter on the Franklin engine or change a fuel pump. I think a Seabee Club member has a fantastic solution; the **Franklin Prop Jack**. I have seen it in action and it is a definite winner. The good news is it's relatively inexpensive. The bad news…uh…there isn't any! If you are good with a "chop saw" and a reciprocating saw you'll find this an easy project.

The most difficult part is cutting the shape of the jack to fit snugly inside the 4" PVC pipe. A little cutting, filing, cutting, filling will do the trick. The "bottle" jack can be any that fit the pipe. A trip to Lowes or Harbor Freight will be required unless you have one lying around. It must fit inside the 4" PVC pipe. Below is a photo of the Franklin Prop Jack in use.

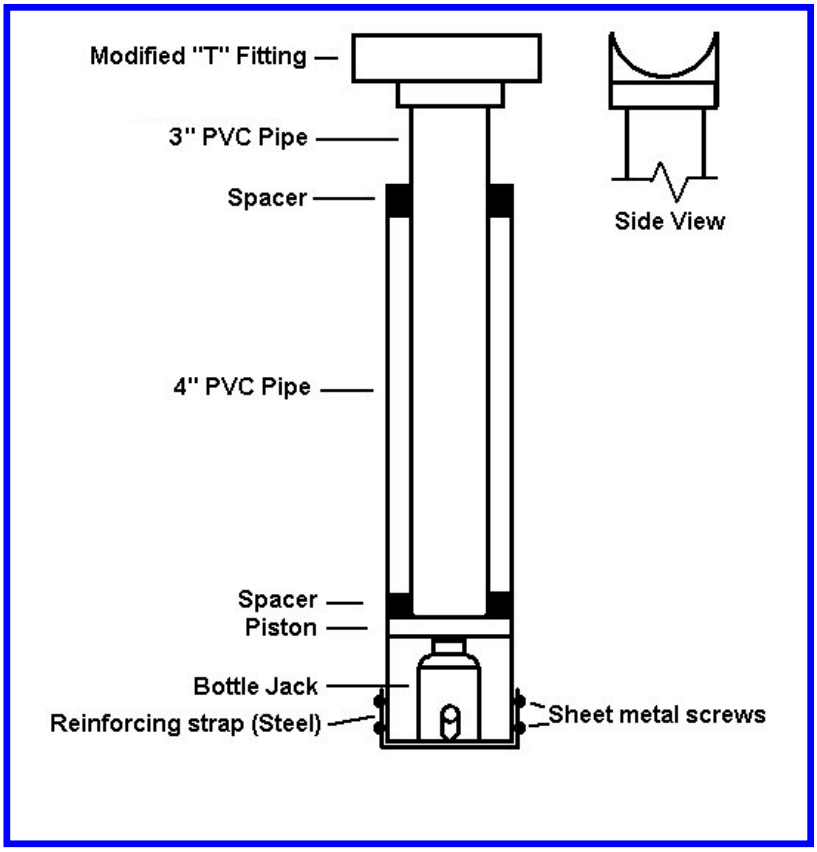
Franklin Prop Jack in position

The assembly is pretty straightforward. It is simply a 3" PVC pipe that fits inside a 4" PVC pipe with a small spacer around the small pipe. A "piston" is placed on top of the jack (inside the 4" pipe) and should be strong enough to prevent the jack from punching a hole up through it. The top of the 3" pipe has a modified "T" fitting or a "Y" fitting cut to allow the prop extension on the engine to rest on it. This prevents the prop extension from shifting. A piece of heavy-duty foam is used to cushion the prop shaft. The spacer inside the 4" pipe is the lower section of an adapter cut and trimmed to fit and allow the 3" pipe to slide easily through it. See photo below.

Lower components of Franklin Prop Jack
(L to R: Jack retainer, 4" PVC pipe with piston, bottle jack)



View inside lower end

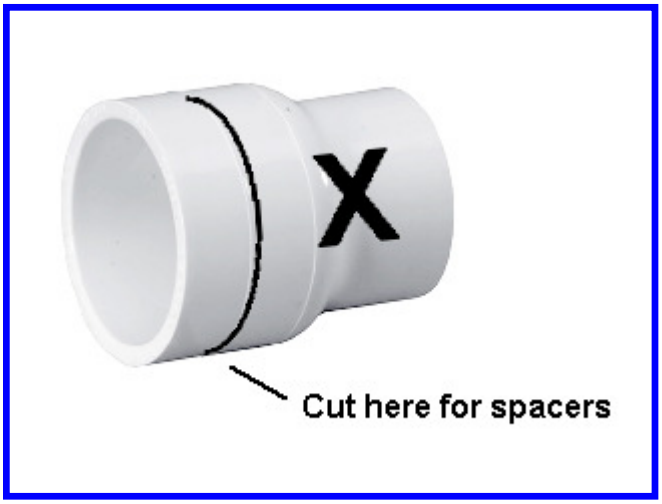


Plan view

Start by cutting the 4" pipe three feet long. Modify the bottom end to accommodate the bottle jack. It should fit snugly and almost flush with the bottom end of the 4" pipe. A reciprocating saw works well or any way you like to form the pipe to the bottle jack. A steel strap across the bottom of the 4" pipe holds the jack in place and prevents it from relieving itself through the bottom of the pipe. The strap is held in place with eight sheet metal screws; four on each side. Next, cut a 2-1/2' foot length of the 3" pipe. You may have to trim it down after assembly. By the way there is no glue necessary anywhere except to glue the spacers in place (more on that later).

Modify the top "T" fitting to accommodate the propeller shaft and use dense foam padding on top of the "T" fitting for protection.

The spacers (2 ea.) are simply the flanges cut off of a coupler that fit the 3" pipe. You must trim the small tabs on the side of the spacer, if they are there, and fit it into the 4" pipe so it slides smoothly but firmly. Glue this to the inside of the 4" pipe at the top. Make two of these spacers. The other spacer is glued onto the bottom of the 3" pipe and slides inside the 4" pipe. See photo below.

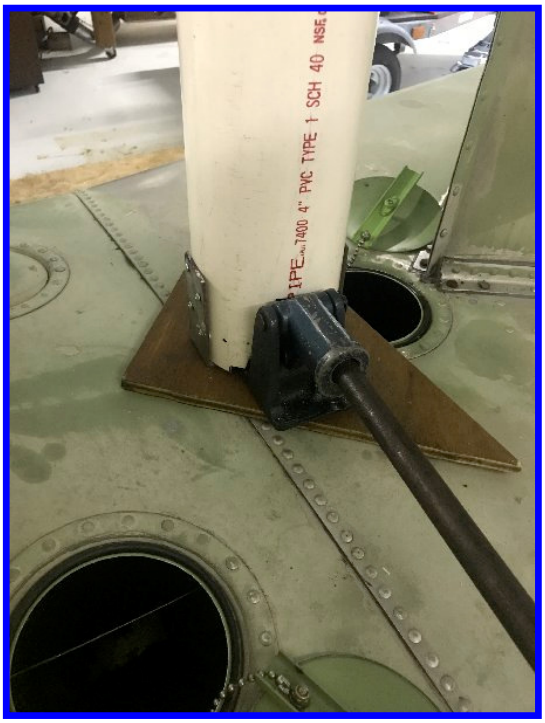


3" Reducer to make spacers
(The edges may not be smooth)

The piston is made from at least 5/8" material suitable to support the weight of the propeller shaft (approximately 200 pounds). Boat decking (King StarBoard) material works well and is available at marine shops. Cut it out to fit snugly into the 4" pipe. Get it as close to the inside diameter as possible to prevent it from jamming against the inside of the 4" pipe but small enough to allow vertical movement.

Top in place

Padding and a plywood board are used to protect the hull and is placed on top of the hull at the rivet line of the former under the propeller. (see photo)



Bottom of jack in place

<u>Adjustment</u>: Place the Prop Jack in position with the hull padding and plywood board on the hull. Pump the jack up to the propeller shaft and pump until the engine shaft is noticeably off the rear engine mount. The bottle jack should be at its lowest point before pumping the jack. If the Prop Jack doesn't fit, remove an appropriate amount from the <u>TOP</u> of the 3" pipe until you can fit the Prop Jack in place with no interference. Just a few pumps on the bottle jack should be enough to raise the propeller shaft.

This Prop Jack is designed to make it easier to change the air filter and replace or work on the fuel pump(s). Once the Prop Jack is in place and supporting the propeller shaft you can then loosen the aft engine mount at the propeller shaft and remove it or place it forward or aft, out of the way. No need to remove both sides of the engine mount unless you need access to that area.

If my estimates are correct, you can make this thing for about $50. It will pay for itself the first time you have to change that fuel pump or air filter! There is one big advantage to the Prop Jack: with the fuel pump removed it allows you to feel the low position of the cam lobe with your finger through the pump opening in the prop extension without having to move ladders or other climbing devices you may have in place. If you have ever changed a fuel pump you know it is very difficult to overcome the spring tension on the arm of the pump.

It never ceases to amaze me what things we can make with PVC pipe! Nice work! Let me know how it works for you.