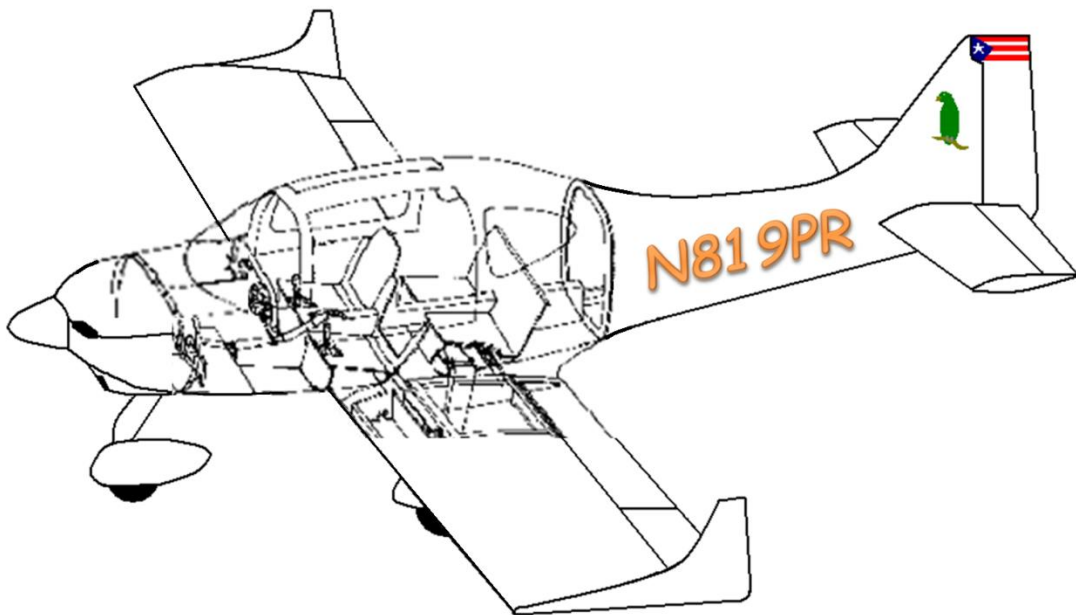


Jacking up a KIS4 Wing For Maintenance



SAFETY FIRST

Jacking up the airplane and getting a wheel off the ground is a common requirement for many maintenance procedures. Doing this on a KIS4 airplane is not a simple task and owners have had to improvise. This is a description of the method I use which has worked well for me over the last years.

The general idea is to use a low profile floor jack to raise the airplane high enough to slide a saw horse under the wing. Once the saw horse is under the wing, then you can lower the airplane so the saw horse holds the weight making it impossible for the airplane to fall off. This procedure is best done with little to no fuel in the wing. The less fuel you have in the wing the less strain you will place on the fiberglass so I do this with no more than 5 gallons in the wing. Remember, **SAFETY FIRST!** Make sure you do this procedure in a safe manner. If you don't think a step is safe **DON'T DO IT**. This is not a factory approved method so use it at your own risk.

STEP 1 – Equipment Required

For this procedure you need a few pieces of equipment. These are; a slightly modified saw horse rated for at least 1000lbs, an inexpensive 2 ton low profile floor jack and a thick mover's blanket.



Required Equipment

I bought the Saw Horse and a piece of 12" X 2" lumber at LOWE's, the floor jack at Advanced Auto and the thick movers blanket at a local U-Haul location.

This adjustable saw horse has been modified by bolting a piece of 12" X 2" lumber on it (counter sunk AN-4 bolts) and covering it with a thick piece of carpet. I used spray adhesive to keep the carpet from sliding off. The 12" X 2" lumber increases the area that comes in contact with the wing helping to spread the weight along a larger surface while the carpet makes it a non-scratch surface. Even with this, I use a folded mover's blanket to provide additional cushioning between the fiberglass wing and the saw horse.



Saw horse with the board and the mover's blanket.



2 Ton Low Profile Floor Jack

STEP 2 – Positioning the Floor Jack

First, make sure you place proper chocks under the two tires you are not going to lift. This helps prevent the airplane from shifting as you lift the wing. Once the airplane is properly chocked, place the floor jack under the wheel so it can be used and pre-position the saw horse so you can quickly slide it under the wing.



Airplane Chocked With the Floor Jack and Saw Horse in Position



Floor Jack Placement



Floor Jack Placement Close Up

Note that the higher part of this floor jack ("ridge") is between the bottom two main wheel bolts. Make sure the jack is positioned properly and it is firmly under those two bottom bolts. This helps stabilize the entire process and permits the floor jack to move ever so slightly as the airplane is raised. The biggest mistake is not having the floor jack completely under both bottom bolts. This can cause the airplane to slip off the jack as you are lifting it up. Also make sure the floor jack is not touching the brake assembly before proceeding to the next step. It may take a little bit of practice to get this correct. After a few time it becomes a fairly quick and easy.

STEP 3 – RAISING THE AIRPLANE

Once the equipment is correctly positioned, slowly jack the airplane up while insuring it will not slide off the floor jack. As the airplane is raised, the floor jack will move ever so slightly. This is normal. If the airplane starts to shift excessively, lower it back to the ground, reposition the jack and try again. Raise the airplane just enough so you can slide the saw horse under the wing. Make sure the saw horse is in a location where the main spar(s) are so the weight is properly supported. Use as much of the lower wing area as possible without damaging the flap.



Main Gear Raised and Saw Horse Under the Wing

Note that in this photo the movers blanket is folded twice. Most of the time I fold it four times just so it places a bit less pressure on the wing.

STEP 4 – Remove the Floor Jack

Once the saw horse is properly positioned, slowly lower the airplane until the entire weight is supported by the saw horse. Now you can pull the floor jack out and do whatever maintenance is needed. From this point on it is safe to work underneath the airplane. Note that the blanket in this photo is folded four times.



The Saw Horse Supporting the Airplane

STEP 5 – Lowering the airplane

It is a simple procedure to lower the airplane. If you have a helper, just get under the wing; lift it with your shoulders while the helper removes the saw horse. If you don't have a helper, do all the above but in reverse order.

Position the floor jack as in step 2 then lift the wing just enough to remove the saw horse. Make sure you can pull the floor jack away once the airplane is on the ground. Once the saw horse has been removed, slowly lower the airplane down. When the airplane is close to the ground, make sure the wheel brake assembly doesn't hit or jam up against the floor jack. This can damage the brake assembly so go very slow with this step.



The Airplane Back on the Ground

If a problem arises, bring the airplane back up, put the saw horse back in position and adjust the floor jack location. After a few times, this procedure will become easy and fast for you to do.

This is one of many different methods available to raise the tire off the ground for maintenance. I use it and it has worked well for me over the years. I hope it also works for you.

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