Make a rear lower trap door

GENERAL - In aircraft over 30% there is usually wiring and linkage in the rear of the fus that becomes hard to get to, if there is service required. Adjusting CG would be easier if you could get into the rear of the plane. If you have removable stabs, then the servo wire will dive back into the fus and you will have a lovely hour trying to fish it back through the hole in the side of the fus.

The solution is a trap door in the lower rear of the fus. This is the way I do this and though it is not the only (or even best) way to do it, I have been very pleased with the trap doors I have made over the years. The concept of tack-gluing things to be taken apart later is an old one and this is just another application for that old woodworker's trick.

FIRST - invert the fus and plan for the size of the trap door.

SECOND - since you will need a plate to hold the tail wheel, make a ply plate and make it extend ahead of the tail wheel bracket so that we can mount down the trap door. Securely glue this in place as it will hold the tail wheel and the trap door in place. Make sure it is flush with the rail so that the trap door will fit tightly.

THIRD - put the fus bottom in place and cut it off just ahead of the plate we just put in. Make two formers out of 1/8" ply and shape them to match the fus bottom. Drill holes for the two dowels and make it tight in the aft piece and loose in the forward former.This will form the front of the hatch and we will be able to pull the formers apart later.

To the right is another view of the bottom of the fus with the former glued into the forward end of the hatch.

FOURTH – next, lay balsa down on the fus side rails so that you build up the area to be trimmed down later. This can be done with sheets and then hollow it out later, or you can build it with sticks and then shape it. The first balsa to go down on the fus rails is tacked down in two places with medium CA. That will hold it during the shaping process.

FIFTH - shape the area to follow the lines of the fus bottom. In the photo on the right, you can see that I built around the tail wheel bracket that will bolt to the ply plate we put in as the first step. The trap door is now sanded on the plane and there is a hard point installed just ahead of the tail wheel bracket slot.

It is a dowel that was glued in and then sanded to the final shape of the fus bottom. By sliding your knife along the bottom rail, you can cut the tack-glued areas, and the hatch will slide off as shown on the right. The dowels will locate the trap door perfectly.

SIXTH - is to replace the door and check it for perfect position. Drill through the center of the hard point and through the ply plate with a small drill (smaller than a 6-32 bolt). Remove the trap door and drill the trap door hard point so that the 6-32 bolt will pass through. Counter sink the hole so that the head of a socket bolt will not be seen.

Drill the ply plate for a 6-32 blind nut and put it in place on the under side of the plate. Remember to get some medium CA on the blind nut to help hold it in place (obviously - take care not to get any CA on the threads or you will be running a tap through the blind nut to get it to work). This will give a long-term way to tighten the trap door.

SEVENTH - Assemble the door and the tail wheel bracket to be sure it all fits. You can see that the bolt is pulled tight inside the hard point and with a little lock-tite, it will never fail you.

Now just cover it and put it in service. I hope you will never need to get back into the fus, but it can be done with ease, if the situation warrants. As you can see, the trap door fits so well that it is invisible until it is needed.

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