

## Pre-Paint>Fuselage>Pre-fit doors

### Objectives of this task:

In this task you will size and pre-fit the doors to the fuselage then pre-fit the door jamb, all of which will be finally fitted after the fuselage has been painted. In the photos that follow the pilots door is shown, however the exact same technique is used for each door.

### Materials required:

Card # J1 'Doors', 5-minute Araldite and flock

### Prepare the opening

Using a sanding disc, sand around the entire inside of the opening removing any roughness. Apply some filler and finish with a long sanding block on the flat surfaces. Bear in mind that you will see this opening every time that you open the door and finish it accordingly.



### Size the door

The door may require a slight trimming to fit the opening: either tape the door in place or have a friend hold it in place. Working from the inside, make sure that the door is **centred** in the opening - this is particularly important because if the door is not centred it may bind when the door jambs are fitted - and mark the inside of the door around the edge of the opening.

Remove the door and use a sanding disc to trim the door to the mark. Hold the door in the opening and carefully mark and sand as required until the door is a good snug fit all round.

### Fit the hinges



Fit the top and bottom hinges to the arms on the door, then tape the door back into position and mark the centreline (vertically and horizontally) of each hinge screw. Remove the door and extend the marks to locate and drill each hole. It may be necessary to level the area around each hole but in any case roughen the area to provide a good key for the Araldite/flock mixture. Apply wax to the hinge and screw to prevent them sticking to the flock.

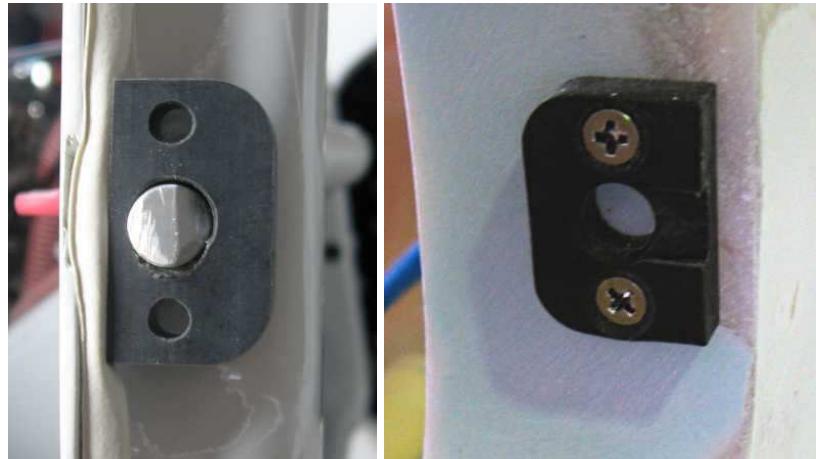
Cut a few washers from the yellow neoprene sheet that is on the 'Undercarriage' card and use them to pack out the hinges until the door sits smoothly in line with the sides of the fuselage.

Loosen the hinge screws, mix a batch of 5-minute Araldite and flock and fix the washers in place then tighten the hinge screws and check the alignment and leave the flock mix to cure.

Use a long sanding block to remove any binding points around the door – the door should open and close smoothly with nothing rubbing at any point right around the opening.

## Fit the striker plate

Place the striker plate onto the latch pin on the door with the rounded corners facing into the cabin as shown at right, then close the door until the rear of the door is flush with the fuselage and carefully mark the location of the striker plate on the door jamb.

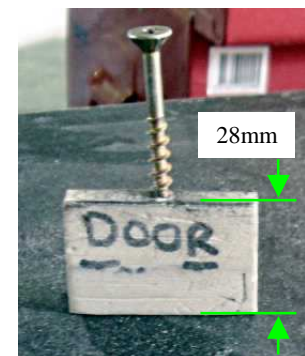


Mount the striker plate to the door jamb in the marked position using countersunk self-tapping screws and drill the centre hole through the fibreglass.

## Fit the door jamb

Now you will need to mark a line around the opening to locate the jamb: there needs to be an allowance made for the thickness of the door skin plus 2 compressed layers of door seal: one seal (white) is glued to the door and one (black) is glued to the jamb. Note that the seals are glued in place *after* painting is complete – do not mount them at this time.

Make up a gauge to mark the position of the door jamb: in the factory we use a simple plastic block that is 28mm from front to back (which is the width of the jamb plus the compressed door seals) with a screw as a handle as shown in the photo at right.



With the door taped or held flush at the top and bottom (the front is now held by the hinges and the back is now held by the latch) hold the gauge against the inside of the door and mark a line around the opening with a pencil held against the back of the gauge.

The resulting mark around the opening will allow for the varying thickness of the door skin, which is thicker around the hinges.

There are pre-formed top and bottom jamb sections for each door: mount the inside of each jamb on the line that you have just marked using countersunk self-tapping screws at 100mm centres.

Start from the striker plate and work your way around the opening drilling, countersinking and fitting one screw at a time until you arrive at the front of the opening at the top hinge. The gap between the top and bottom jamb should be enough to clear the top hinge arm.

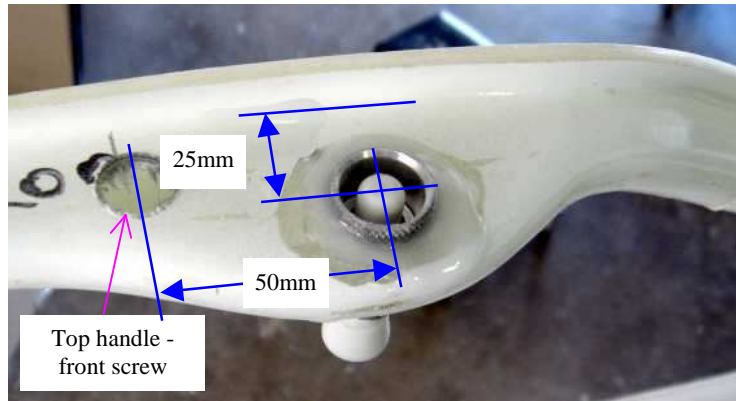
Each screw hole should be countersunk just enough to place the head of each screw slightly below the surface of the jamb.



## Fit the top latch

There is a curved section at the top front of each door for the top latch. Measure in 25mm from inside the door skin and drill a pilot hole and then a 3/4" hole down through the door frame. Refer to photo at right:

Close the door and fit the latch barrel up through the hole until it is about 2 or 3mm clear of the door jamb and mark that position, then open the door and flock the barrel into position with 5-minute Araldite and flock.



Make sure that the open end of the barrel faces upwards as shown in the photo above. Smooth the flock to a uniform radius around the top and bottom of the barrel and leave to cure.

With the door closed, hold the top front of the door flush with the fuselage and drill a 3/8" hole up through the latch-pin hole in the barrel and right through the door jamb and opening. This hole will pass through part of the jamb.

Open the door and fit the latch pin to the barrel from the bottom with the rubber sleeve and circlip fitted from the top as shown above. Test the latch for free but firm movement.

Fit the top handle 50mm behind the top latch – mark and drill the screw holes through both surfaces then drill the top holes to 1/2" for access to the screws.

## Final fit the door

Shut the door using both latches and check right around the door to see if there are any areas that need final adjustment, for example if the door does not fit easily inside the opening, and sand to fit as required.

## Fit the fairing to the top hinge

Test fit the fairing to the upper top and cut to suit the hinge arm and the fuselage joggle then fix in place with 5-minute Araldite and flock.

Test that the door can open and close freely and adjust the clearance of the hinge arm slot if required.

## Fit the fairing to the bottom hinge

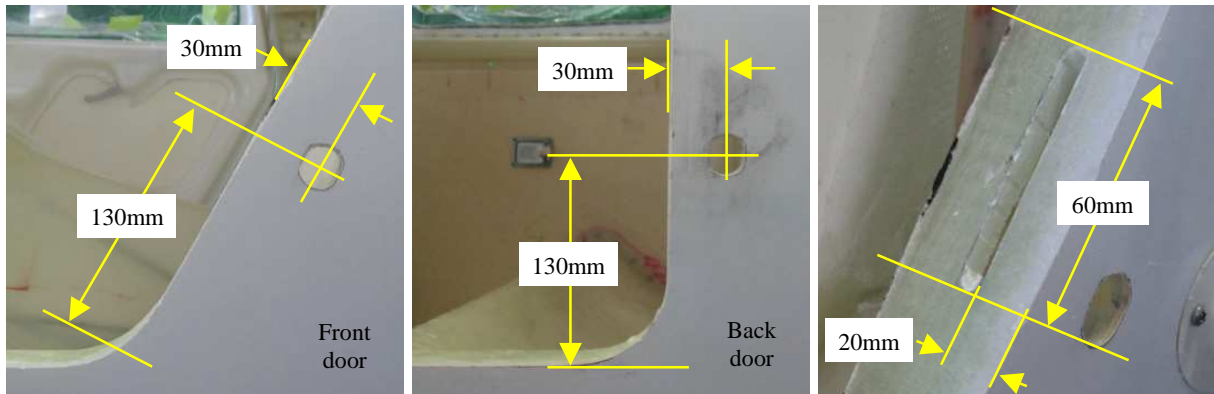
Centre the fairing on the bottom hinge and tape it in place then test that the door can open and close freely and make adjustments to the hinge arm slot as required then fix into place with 3 x 6G self-tapping screws.

Retest the hinge arm for clearance and adjust if required.



## Fit the key lock

Remove the bottom section of the door jamb and set aside for the moment.



Mark a position 30mm out from the rear of the opening and 130mm up from the bottom of the opening and drill a pilot hole, then drill out to 18mm and elongate the hole with a round file until the door lock barrel can be mounted snugly into the hole.

Now mark and cut a slot 60mm long and 6mm wide 20mm in from the fuselage skin in the door opening, with the bottom of the slot square with the bottom of the lock hole. This is the slot that the lock arm will operate through. Close and latch the door and mark the slot onto the back of the door – use a builder's pencil or any similar thin marker and mark through the slot.



Mark and cut the slot into the door jamb and then refit the door jamb.

Cut the slot in the back of the door and check that it matches the slot in the door opening.

Fit the lock barrel into the elongated 18mm hole and secure with the large retaining nut then fit the lock arm, which may need to be bent slightly in order to swing freely into the slot.

Turn the key so that the top of the key moves forward and fit the arm in the locked position.

Test that the door can be locked and unlocked with no binding of the lock arm.

Leave the doors fitted for now, they will be removed later in *Painting > Pre-paint disassembly*.

This completes the *Pre-Paint > Fuselage > Pre-fit doors* task.