Pre-Paint>Fuselage>Firewall forward>Fit firewall> Procedure

Issue Revision Table

Issue	Date:	Change(s):	Issued by:
1			
2			
3	6/07/2021	Adopt "Section Only" Manual System, Add Issue Revision Table and model applicability. Remove FibreFrax Add note to use anti-blowout timber block during firewall sheet fitting	AS
4	5/11/2021	Add FibreFrax	SW

Model Applicability

Aircraft Model	J-160	J-170	J-230	J-430
Document Applicability	Yes	Yes	Yes	Yes

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| Issue: | 0 | 1 | 2 | 3 | 4 | | | | Issued by: SW | Page: 1 of 6   16 November 2021 |

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Objectives of this task:

To fit the stainless steel firewall plate to the fuselage. This task will require accurate measuring and bending of the firewall plate: it is possible to make an accurate bend by clamping the plate to the edge of a solid workbench between 2 lengths of heavy angle iron and use a solid length of timber or heavy angle iron to press the bend to a tight radius, but for a small fee many plumbers or sheet metal shops will bend the firewall plate for you, and provided that your markings are accurate this may be a good choice for many builders.

Note that the bends required are not sharp creases but rather tight radius (3mm) bends of 55°, which is the same type of bend that a plumber's sheet folder will make.
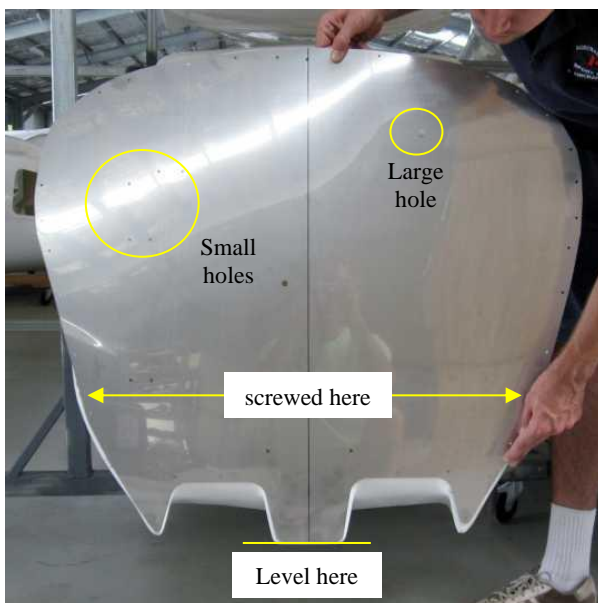
Materials required:

- Firewall plate (stainless steel)
- Dow Corning silicone sealant (dark green tube in kit – shown above right)
- Firewall insulation sheet (white roll in kit – shown right)
- 38 x 73 AS 5/32" rivets and matching washers

Mark and bend the firewall plate

The technique that we use in our factory is to temporarily mount the firewall near the lower bend with 2 self-tapping screws and mark the centre of the bend points, then bend the plate.

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Start by having someone help you to position the plate so that the bottom centre of the plate is level with the bottom of the fuselage and the plate is equally spaced side to side. It is important that the plate is positioned the right way around: the small holes must be in the upper left and the larger hole must be in the upper right when viewed from the front. Refer to the photo above left as an example of the correct positioning.

Drill a 3/32" hole through the plate and into the plywood firewall each side (as arrowed in the photo at above left) and fit a self-tapping screw, then mark the **centre** of the lower bend on each side (as circled at above right). Bend the plate slightly back at the lower bend as a reminder of the correct bend direction for later when you bend the plate.

Measure from the centre of the lower bend back to the centre of the upper bend on the fuselage and transfer that measurement to the firewall plate – note that the measurement may be slightly different from side to side so measure each side independently. Recheck your measurements and then remove the plate, transfer the lower bend marks to the back of the plate and take the plate to the bender.

It is particularly important that the bends are made in the correct direction: the lower bend should take the plate towards the rear of the aircraft while the upper bend should take the plate upwards, parallel to the lower part of the plate. Take care to make the bends in the correct sense – the plate *cannot* be reversed if the bends are made backwards.

These photos show the upper bend being made and the plate sitting in place. In our factory the bending process takes a skilled person about 15 minutes – it is not a complicated task so long as you take care to measure accurately and bend carefully and in the correct sense.

Fill the lower plywood firewall

Due to the moulding process there may be a slight depression in the lower centre of the plywood firewall where the nose gear will be mounted. Mix 80 grams of flock and apply to the area, then use the side of a mixing stick to level the area as shown at right.


Fit the firewall plate

Before fitting the firewall stainless steel sheet, run a ¼" drill through the engine mount holes in the upper firewall. This will make fitting the top engine mount much easier.
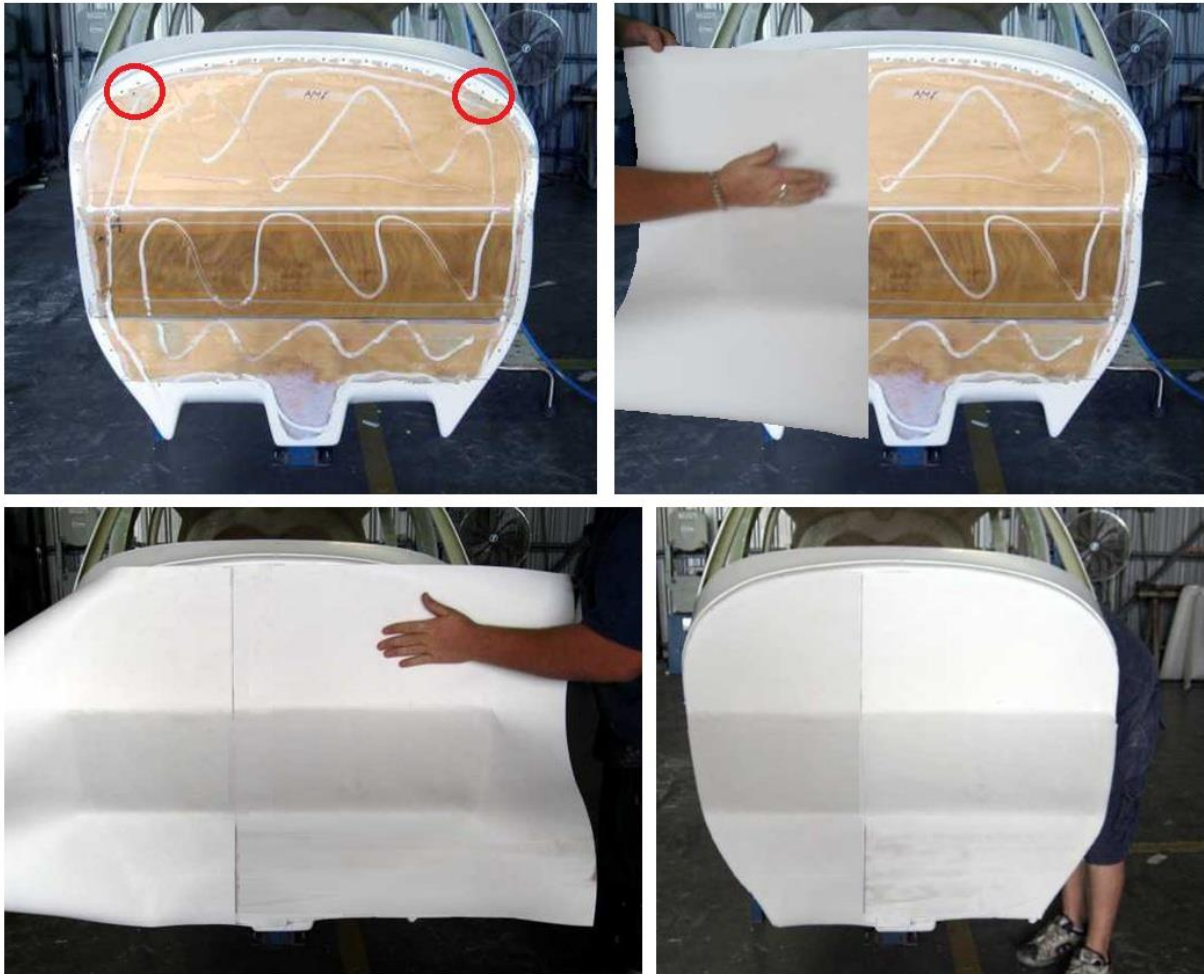
Apply a generous bead of the Dow Corning silicone sealant about 1" in from the edge of the plywood firewall all the way around the perimeter and also in a zigzag pattern across the firewall and then lay the small insulating sheet onto the plywood firewall to about 1/3 of the firewall so that it is held by the sealant. Lay the other large sheet and butt up to the first smaller sheet. Pat the sheets into place and then cut to size with a sharp knife.

Apply the Dow Corning silicone sealant to the back of the stainless steel firewall sheet: A bead around the outside about 10mm in from the edge and across the rest of the back in a zig-zag pattern with about 100mm spacing between each zig-zag, then place the plate onto the plywood firewall surface firmly into place using the lower part of the firewall sheet as a reference. Secure temporarily with 2 self-tapping screws at the base of the upper bend on both sides and 2 more in the holes just below the upper bend.
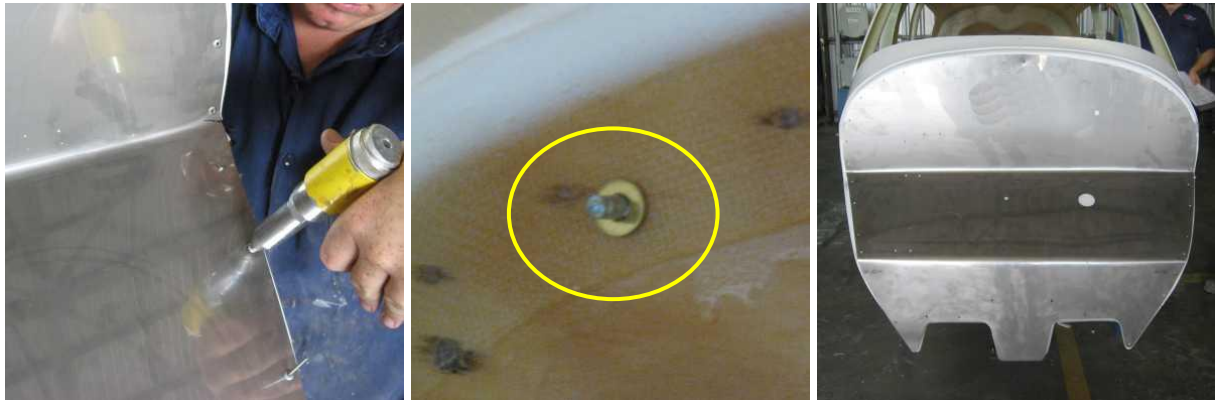
Once the plate is held in place in this manner you can start to fix it permanently with blind rivets, working carefully around the plate, drilling through the pre-drilled holes in the plate and through the plywood and taking care to always put a washer on the back of each rivet (circled above centre) – unless you have long arms you will probably need another person to help you with this step by holding the washers in place while you rivet.

Be particularly careful when drilling though the plywood firewall – if you push too hard then the drill can chip a section of ply out when it breaks through the back of the plywood, so drill using gentle pressure only. Have another person hold a block of scrap timber up against the inside of the plywood firewall in the position of each hole being drilled to prevent this 'blow-through' chipping.

Fit a temporary plate (plywood is fine, in the factory we use aluminium) across the lower centre of the firewall to hold the plate firmly against the flock filler. 3 screws (2 top, 1 bottom, arrowed) are sufficient to hold the plate in place overnight while the flock cures.

Next day remove the plate.

This completes the *Pre-Paint>Fuselage>Firewall forward>Fit firewall* task.