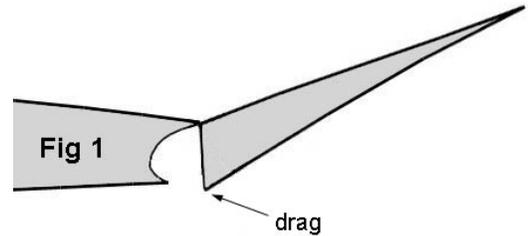


# Sealing that Hinge

*John Lightfoot*

Most hinges wind up having a V-slot on the surface opposite to the hinge. In some early designs (full-size and model) the effect was deliberately exaggerated as shown in Fig 1, taken from Evan Shaw's article on Silicone Hinges — Southeaster April 2003.

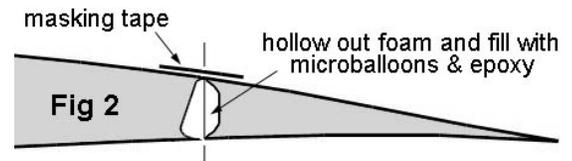
Drag is generated at the point shown, under the up-going aileron, and tends to counter-act the adverse yaw introduced by the down-going aileron on the opposite wing. The theory was that by countering the adverse yaw less rudder was required in a turn. More modern practice holds that any drag is a bad idea and degrades performance much more than any adverse yaw.



Modern designs try to seal the gap as much as possible. The use of mylar strips was once widely used, but they too often came loose and / or fluttered.

The best idea I know of involves creating what Hugh Edmunds has christened a "wiper", which closes what would otherwise be the traditional "V".

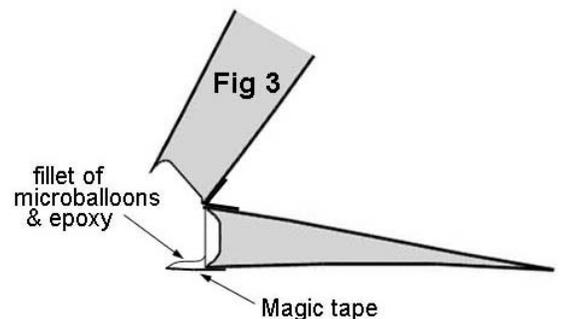
The start is very similar to Evan's approach but the aileron is separated from the wing with a vertical cut, not an angled one.



The leading edge of the aileron is hollowed out and filled with microballoons & epoxy, the rear of the wing is hollowed out as shown and the aileron attached by a temporary masking tape hinge, as for the silicone hinge.

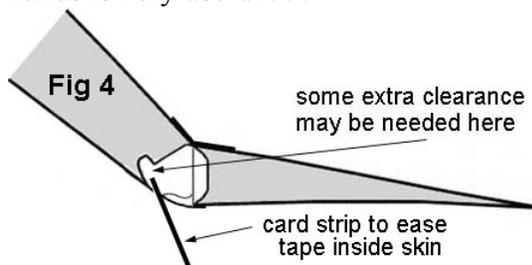
Now you need several thick books or wooden blocks to mount things at strange angles!

A strip of 12 mm wide Magic tape is positioned along the full length of the underside of the aileron, 1/3 on the aileron, 2/3 free. Now set up the wing as shown in Fig 3, with the aileron on a flat surface and the wing at the angle shown. Fill a syringe with microballoons / epoxy and form a fillet on the protruding Magic tape.



Here an extra pair of hands is very useful . . .

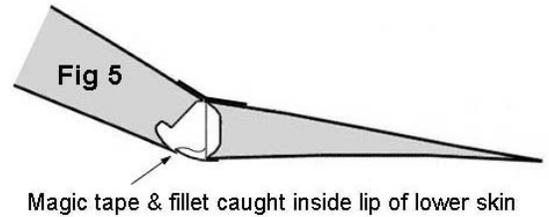
Insert a strip of length of the — gently close skin . . .



card, about 4 or 5 cm wide and the aileron into the gap as shown in Fig 4 until the tape just overlaps the lower

. . . and carefully remove the card.

Set the wing and aileron in the position shown in Fig 5 and allow to set. The Magic tape creates a filler with a natural curve from the aileron to the wing, but the foam may have to be dug out a bit to accommodate the "wiper" when the aileron moves down.



When set, open the gap, remove the Magic tape, clean off the sticky residue and sand gently. Sand the free edge of the fillet straight — you can use the trailing edge of the main wing as a straight edge for a pencil to mark a straight line on the wiper — and chamfer the last 1 mm so that it can slip inside the bottom skin when the aileron returns from more than normal movement.

It may be necessary to repeat the exercise if the wiper / fillet is too short, particularly if it is being used to close the slot in a flap with a large movement

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