

JAN 83

#14

FROM THE
DESIGNER'S
NEST



Fellow Builders,

Well at long last I can give you a report on the stall fences I just evaluated.

To refresh your memory the first tests were done on Ernie Hummels Osprey last summer. Those results were not too impressive with a stall reduction of about 3 MPH.

The fences installed on the prototype were changed in shape in an effort to test my theory that the inboard section of the wing was partially blocked out by the wide forward hull and spray rails during high angles of attack as in slow flight or a power off stall. The function of the fence is to recollect the air flow in a span wise flow and keep it in the inboard section of the wing.

The new fences were reduced in height at the leading edge and increased about one more inch to the trailing edge with no tapering down at the rear as in Ernie's fences. The fences were made from .064 aluminum and wood screwed to the inboard side of the wing center section.

To keep the tests uniform the prototype was flown with full fuel and pilot only on a near standard day at 2,500 feet without the fences to get a fresh set of numbers. The gear was retracted. Without the fences the stall straight ahead averaged 64 to 65 MPH. Both left and right turning stalls indicated the same speed with a tendency for the left wing to drop in some of the steeper turning stalls. The accelerated stalls were done at 120 MPH. A very high frequency buss or shudder occurs with a minimum of back pressure on the stick. If you feed in a little rudder it will snap over the top if you let it go that far.

I was able to slow fly making gentle turns at 74 MPH. In about fifteen minutes of this I managed to lose 150 feet trying to keep it close to stall and still maintain altitude.

The fences were then installed and the Osprey was refueled. The straight ahead stalls came in at 59 to 60 MPH as did the turning stalls. There was no tendency for wing drop in any of the turning stalls. The accelerated stalls reduced the high frequency buss to a slow bobble and required much more back pressure on the stick. All of the accelerated stalls were in 70 to 80 degree banks in very steep turns. It was difficult to get the ship to snap as before when rudder was added.

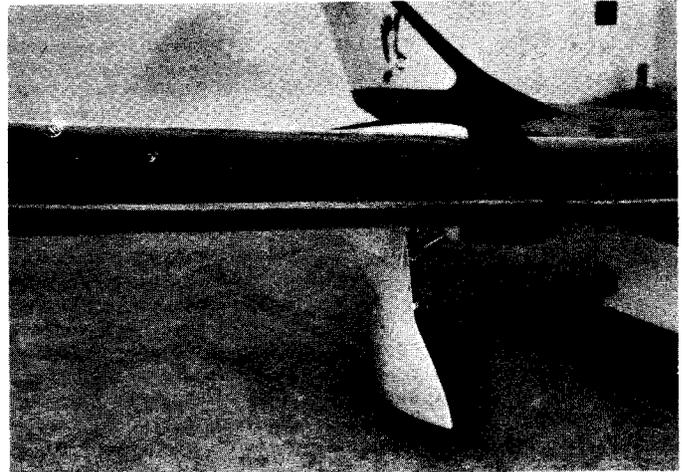
Slow flight was quite improved. I flew for about fifteen minutes at never faster than 70 MPH. The angle of attack seemed a bit higher than without the fences. I actually gained about 180 feet due to bad technic on my part which indicates that slow flight could be a bit slower than 70.

I can't remember ever making a final approach slower than 80 MPH but on this nice calm day I flew my approach at 75 and it felt solid all the way to touch down. The following day I was able to test a 45 degree cross wind component of about 15 MPH. The landing seemed quite normal using the recommended crab and a straight flair on touch down.

My conclusions are that the fences could help a low time pilot stay out of stall trouble under some conditions. The 5 MPH slower landing speed will be a definite benefit, particularly in water landings. The STOL Fence is by no means a cure all and it is not my intention to add them as another component to the plans. I will make the plans available to retrofit the fences to any Ospreys flying or under construction for \$5.00 to cover printing and mailing.

Regards to all,

George



A NOTE FROM ALAN DUNN

"You might mention that before I had received the No. 10 issue (the issue in which you presented my first letter) I had a phone call from Jeff Fraisure in Washington, and a letter from Geoff Wood in Australia yet! Since I had not seen my words in print, I was quite taken by surprise. The call and letter came on the same day. Since then, I have heard from Paul Pryor in Puerto Rico, Ernie Holmes in Everett, Ma, and Mac Winsor in N.H. The point of all this revelation is that it was great to have the reaction to the article, and the possibility of having such reactions might lure some other potential contributors out of the woodwork!

(How about it fellows - wouldn't you like to hear from some of your fellow builders from all over the world? We do and it's very rewarding and great fun! --- Write that article today!)

FOR RENT

My gear leg would not move smoothly in the tube of the truss. I found the tube to be out of round by .020 inches. I purchased an expensive hand reamer to solve the problem. Anyone that has the same problem is welcome to rent the reamer for \$20.

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