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FW: Stinson Reliant's CG Recalculation

1 message

Tandy Walker <rdb435021@icloud.com>
To: Trevor Boundy <jtboundy@dcsi.net.au>

Fri, Jul 10, 2020 at 5:40 AM

From: Sergio [mailto:jsmontes1937@gmail.com]
Sent: Monday, January 21, 2019 5:41 PM
To: Tandy Walker <rdb435021@icloud.com>
Subject: Re: Stinson Reliant's CG Recalculation

Tandy,

I can see no problem with your spreadsheet calculations. My main concern with the theoretical methods is this: they assume that it is possible to replace the actual wing chord with a mean wing chord, and on this mean wing chord the calculations are based. It happens that the Stinson has a very complicated wing shape, thus it is possible that the mean wing differs from the actual wing more than in the case of other airplanes for which the calculations have proved accurate.

Having said that, I am sure the CG positions you have found for 15% and 20% Static Margins are quite realistic and should lead to safe first flights. On top you have a way of correcting instabilities with the stab elevon setting, should the model be over or under-elevated in the glide.

Please let me know how these first flights are going, if you have some good local weather.

best regards

Sergio

On 1/21/2019 6:15 AM, Tandy Walker wrote:

Good Afternoon Sergio,

I am having to wait for our weather to warm up (it is 22° F right now) before I can conduct the Klass Kote spray test for the Lancer 850. So I decided to go back and recalculate the Stinson Reliant's CG for a 15% SM using Alfredo's Excel spread sheet from your notes.

In Report No. 151 posted in August of 2016 and attached above, the Hank Cole Method calculated CG was 6.39" forward from the wing's trailing edge. This corresponds to CG of 30.7% MAC for a 15% SM.

The Stinson's planform geometry attached above Alfredo developed using his ACAD program.

Using Alfredo's Excel spread sheet attached above with column Q changed to (L14-K14), I did the iterations necessary to recalculate the CG for a 15% SM, which turned out to be 6.37" forward from the wing's trailing edge. This corresponds to CG of 31.0% MAC for a 15% SM. These two methods produce essentially the same answer.

I did additional iterations to recalculate the CG for a 20% SM, which turned out to be 6.68" forward from the wing's trailing edge. This corresponds to CG of 26.4% MAC for a 20% SM.

If you have some free time, would you mind looking over the attached spread sheet and let me know if you agree with what I have done and also what balance point you recommend for the first flight.....Tandy