

## **Progress Report 17**

**1-10-18**

### **Completion of ASTM Flight Testing**

The Outbound equipped with the Rotax ULS has completed and passed all flight tests required by the ASTM standard. In a matter of a few weeks we will have been granted SLSA status for S-21, which will be designated S-21LS.

We are now accepting orders for ready-to-fly S-21LS's. Please refer to our web site for pricing and options being offered. This is an important move that will benefit the EAB program. Having Outbounds constantly in the build process at the factory provides real-time assembly experience, which improves tech assistance and visual aids to builders taking tours of the plant. As we develop refinements in the process of assembly these will end up in the kits. It will also give us the opportunity to develop options, accessories and the possibility to add additional power plant choices.

### **Titan 340 Powered Raven and Outbound**

We are about to begin flight testing for the S-20LSM. This model designates the metal wing equipped Raven. This particular plane also has the Titan 340. We predict pretty exciting performance with this combination. This will also provide insight to the performance of the 340 equipped Outbound.

### **Flight Report of the Rotax Powered S-21**

I have flown the S-21 for over 12 hours and it has been fun getting to know this new plane. The flight test cards required by the ASTM standard are pretty good about proving out the handling, stability, and performance (although, we add in several tests above and beyond the standard). At the end of the flight testing you will know the airplane intimately. Since the wing and prop and engine were thoroughly proven on the Raven, I predicted it would be familiar. That did prove to be the case to a large extent. However it has a character of its own, and I like it a lot! It is delightfully light and responsive in roll, pitch and yaw feels just right. Rudder tending is minimal, since adverse yaw is substantially less than the Raven and is more on par with the S-19. I have yet to explore the aerobatic envelope, but I feel it will be respectably responsive and fun to carve out some figures. The full glass doors are an excellent way to go, and may be a big part of why

this plane lands itself. Like the Raven with the 141 wing, you can prop it stiff and get extra speed with very little loss to climb rate, but with added take off roll. My tests show as much as a 10 MPH gain in cruise speed if you are willing to add 50 feet to your take roll.

A light-weight CS prop may be a great option for those looking to optimize the performance of the Outbound airframe equipped with a ROTAX 912ULS.

Below is the preliminary performance we are currently getting, using the Whirlwind 75" STOL prop and the 912 ULS and a gross of 1320 pounds.

<b>Take off roll.....</b>	<b>325 ft.</b>
<b>Rate of climb.....</b>	<b>1000 ft. per min.</b>
<b>Service ceiling.....</b>	<b>14,000 ft.</b>
<b>Cruise*.....</b>	<b>118 MPH</b>
<b>VNE**.....</b>	<b>165 MPH</b>
<b>Stall Clean.....</b>	<b>46 MPH</b>
<b>Stall Flaps.....</b>	<b>38 MPH</b>
<b>Roll Rate.....</b>	<b>95 degrees/sec</b>
<b>Glide Ratio*.....</b>	<b>8.8</b>
<b>Landing roll.....</b>	<b>225 ft.</b>

**\* with tundra tires and no fairings**

**\*\* SLSA**

### **Full Kit Projected Shipping Date**

We are aiming for the end of March to begin shipping full kits. We will announce and notify depositors of any sub kit availability and type prior to full kit shipping.

### **S-21 Workshop**

Hands-on workshops are planned to begin later this year. The schedule and details will be developed and posted on the website, Facebook, and emailed to everyone on the

Outbound email list. Most likely it will be a single day program with a rudder assembly. This should take only half a day. The rest of the day we plan on flight demos and possibly going into other assembly aspects. The cost of this workshop should be no more than the rudder kit, which will be yours to keep.

## **Flush Rivets**

We have tested several pull-type flush rivets and found them to be acceptable. We believe the use of flush rivets in general, on the exterior of the S-21 Outbound, will match or exceed the strength of the standard pull rivets. However, until we have built and flight-tested the S-21 with flush rivets, in places beyond where used in stock configuration, we will not be offering this as an option.

Thank you for tuning in, stay tuned for more! RJS

