Power Fluctuation With Ram Air Intake Box

Ian Wilde (England) - I have an O-235-L2A (118hp) powered Long-EZ with male air inlet. I had an Amsoil foam filter installed on the plans built version induction air system. I changed to a Hal Hunt ram air box in 1994 as I needed more room for a remote oil filter and was also attracted by the extra top end performance.

The top end performance seemed improved but a new condition appeared at lower speed and full throttle climb. I noticed initial static RPM was down by 25-50 RPM but recovered during take off roll (ram effect?)

If you establish 100-110 kt full throttle climb and then reduce airspeed by raising the nose, a slight vibration develops as airspeed falls below 85 kts. The vibration increases in intensity as speed is reduced to say 80 then 75 kts. It is quite unpleasant and not normal. (Low frequency vibration) Now if you throttle back slightly the vibration stops (starts again if full throttle is re-selected at less than 85 kts **or** if you lower the nose slightly and increase IAS above 85 kts, again back to smooth & normal **or** put in about 1/4 to 1/2 carb heat (alternate non-ram air)

Note: 1. Mixture has no effect 2. this **not** a carb ice problem 3. if the above exercise is done at 10,000' with the engine at full throttle (about 65% power) you still get the vibration problem. 4. a different prop has no effect. 5. problem did not occur with the previous air box which had a larger filter than the Hunt filter 6. Hal Hunt could not offer any explanation and said it had not occurred with any other unit that he knew of.

It seems the engine is "laboring" and thus the vibration due to lack of air for the full throttle setting. Once above 85 kts "ram effect" takes over and all is well.

Why isn't the carb getting the air it requires? Is the flow turbulent at less than 85 kts thus disrupting the airflow into the lower cowling? Selecting 1/2 carb heat would supply "extra" non-ram air from around the exhaust area and stop the vibration.

If the problem is turbulent flow which is reducing dynamic pressure at the air intake, what is the best way to cure this? Vortex generators on the underside of the fuselage ahead of the intake? How do I determine size location and number of them to use?

The Hunt air box front edge is about the same fuselage station as the firewall. It does not protrude forward of the firewall towards the air intake lip.

Why should the same problem show at itself at higher altitudes where it can't produce full power and doesn't need so much air?

Has anyone any comment to make? I would be interested to hear from anyone operating with a Hunt air box, especially with the standard male type air inlet. There must be someone out there who knows what the fix is. Please help me.

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I will refund postage incurred.

O-235 & Carbs For Sale

O-235-L2C, 2400 TT and 0 SMOH.
2- O-235 carburetors for O-235: one for 105 HP and one for 115 HP.
2- Bendix mags
1- Long-EZ engine mount **Contact:**
Will Kezele
2104 Summit Place
Twin Falls, ID 83301
208-734-1252

Alaskan Long-EZ First Flight

Mark Barker (AK) - We have been flying the Long-EZ all over the place. As you have said so many times - - what machine! After years of Beavers, Cessnas and Super Cubs it is a big change. After 7.5 hrs of ground runs and high speed taxiing, on April 29 N160GB flew for a short 45 minute flight.

We did all ground testing and subsequent tests out of Anchorage International. It was kind of fun working in and around all the 747s and MD11s. Luckily the tower folks have been great to work with and have given us all that we need.

Last weekend we completed our required 25 hours restricted test time and now have been spreading our wings a little more. Yesterday we did a trip to Fairbanks for lunch. It is normally a 6-1/2 hour drive but we did it in 1.5 hours up and 2.0 hrs back.