Newsletter

No11 2020 November

Twin or Single - That's the Dilemma *by Alan Veitch*

Paul I know has a thing for twin engine planes but they can be problematic. I only have one twin, and 15 single engine ones. But maybe that's because I prefer IC to electric power units. Both RC and full size IC twin engine planes are harder to set up, and maintain than single engine ones. Fortunately for Paul, the electric motor is a much less troublesome beast. Balancing the output from two identical IC engines is a whole new ball game, and if one engine fails it takes a skilled pilot to coax a twin into land. I quote here from the September 2020 Plane and Pilot magazine on why not so many twins?.....

Multi-engine, piston aircraft were very much in style back in the 1970s and 1980s. Those were the days of $1.50/gallon avgas. At the time Piper, Cessna and Beech collectively had thirteen twin-engine models in production in the late '70s. Today, Piper builds two, Beech offers one and Cessna has abandoned all twin engine, piston construction.

There are several reasons for the cutbacks, but the primary one is simply economics. Twins no longer make sense when avgas can cost $6/gallon and maintenance at any good shop will set you back $100/hr. Never mind how much is too much.

Additionally, even pilots with the means to buy and operate a twin are beginning to challenge the safety records of multi-engine piston airplanes over singles. The sad cliche in the industry is that the only real use for the second engine if the other one quits is to transport you directly to the site of your accident.

This isn't a knock against twins, . There's no question that pilots who operate over water or above mountains can benefit from the second engine. There's also no question that a multi-engine aircraft, properly flown following an engine failure, can save your life.

Here's a look at the remaining five of six piston twins on the 2015/2016 market. All prices are for 2015 models.

Beechcraft Baron G58

The Baron is one of the most expensive twins at a base price of $1,394,000.

Piper Seminole PA-44 $697,100

Piper Seneca $1,031,550

Tecnam P2006T $440,000

Vulcanair P68Vr $869,000

Whist the Tecnam P2006T weighs in at a base price of just $440,000 you could afford a fleet of 3 of these for a single Baron.

Of course no one can deny that we modellers are always up for a challenge. When John Carson gets his big twin out to play everyone drops what they're doing to watch, but maybe he's just waiting for one of the engines to splutter so he can practice single engine limping home. I wish I had his skill level. And we are all waiting for the day that Douglas Gilmour gets his Islander in the air, but if like me you're a scaredy cat here's a vintage cop out, the Cessna push me pull me plane, it's called the Cessna 337 Skymaster. I assure you it is as hard to fly on one engine as any twin, but the psychological stress is less until that engine splutters. The full sized model was in production up until about 1980, and thousands were built for the sport and leisure sector. The model version is very popular and lots are available second hand too.

Full size, and flying model photos so you know what I am talking about.

My only twin is an indoor plane with just an elevator and the motors for control. It's great fun to fly, but very complicated technically. It turns by speeding up the outside engine and the extra thrust created pulls the plane round the turn. Hence it utilises one of the major problems of a twin namely unbalanced thrust, as a control. Problem is that if it develops a fault, after banging off the sides of the sports hall in my case, it's hard to detect, and hence impossible to fix. Whereas if you move the sticks and the rudder doesn't move you can fix it mechanically. There's lots of them end up only being able to turn right, or only able to turn left.

The IC guys out there have to think more carefully than the electric squad as they need to deal with complicated throttle balance. No one can deny though that twins and in fact any multi engine planes at the field look and sound amazing, it's more if you can be bothered with the tinkering to get them right. I love watching them, unless of course it's my old push-me-pull-you Cessna 336, which looked great as it's open boom silhouette plunged earthwards many moons ago.

Hence, as always the choice is yours. Twin or single.

What Every Flyer Should Know and Have. An opinion *by Neil Grayson*

1. Aerodynamic principles. You don't have to study at university and gain a degree, but it helps greatly if you understand some of the basic principles of flight and how they affect your model's performance both in the air and on the ground. Do you know what type of wing section you need for an aerobatic model or what factors cause a stall? Do you know why your plane always seems to track to the left when taking off? Most model flyers will pick up the basics of aerodynamics just by flying and speaking to other flyers at the field but some reading should be part of your education.

2. Test flying and trimming. Learn how to test fly and trim your own models. It will give you a great feeling of satisfaction and hopefully improve your flying. Don't just give a couple of clicks on the trim switch on your transmitter and be happy with that. Balance your model both laterally and horizontally. Tweak and trim your plane over numerous flights until you have fully explored its flight envelope and make sure it is flying just right. It needs to maintain level flight at half throttle and climb at full throttle with no up elevator. There should be no turning to the left or rights when the ailerons and rudder are centred.

3. Engine tuning. The most important thing is to take time to thoroughly run-in your engines following the manufacturer's instructions. Adjust the idling setting and experiment in the air to find the best propeller for the engine depending on its use. Learn about the fuel and try different mixes and percentages of nitromethane. Also, learn when to stop fiddling and know when a good engine is working at its best.

4. Radio programming. Most transmitters these days are computer based so read the manual thoroughly and learn what functions are available. The simplest and most useful function is the timer, never run out of LiPo charge again! Do you know what exponential is? It can drastically improve the flight envelope of your favourite model. Discover the almost limitless adjustments you can make with a computer based transmitter.

5. Soldering. At some stage you are going to have to solder something, whether it is an electrical or mechanical joint. Even if it is changing from bulldog clips to banana clips on your glow plug lead or an undercarriage that needs to have a wheel replaced, it is inevitable that some soldering will be required. Whatever the situation, an inexpensive 40 - 50 watt iron will serve all your general needs. You will need some practice and reading to improve your technique in tackling any job that comes along.

6. Battery care. Learn about current and capacity, you don't need to be an electrical engineer. Battery failure is the second highest cause of crashed models after pilot error. Spend a little money on a multi-purpose unit with an LCD display instead of a plug in charger. You will save money in the long run as these units automatically cease charging

once the battery is full and will allow you to de-charge to a set voltage for storage. An LCD display removes the guesswork.

7. Pre- and post-flight checks. It is vital that your aircraft is checked after flying. Control horns come loose, mountings vibrate and cause nuts to loosen, fuel tubes split. You might think that inspecting an airframe before flying is a waste of time as it was inspected after it last landed but how was it transported, were you careful how you put it in the car? Anecdotally, more damage is done in a garage and in transit in the back of a car than when the plane is actually flying. Of course with an IC model it will need to be wiped down which will give you the opportunity to inspect for damage, but time also needs to be found for electrical models as well.

8. Balsa bashing. You might fly RTF or ARTF models but eventually these will need some repair. A lot of RTF or ARTF models have at least one design weakness which you will always be repairing. How about a new balsa tail instead of that floppy foam tailplane? How about a new battery hatch which you have replaced 3 times? It will make repair and fashioning new parts much easier if you have the skills of working with balsa and you understand the structures that you are trying to fabricate. Finally, you'll know when and which glues to use and, not least, how best to cover the repair.

9. A comprehensive toolbox. It takes a long time to acquire a good toolbox. You will always find that the ideal tool for a particular job is not there. Need a 2mm drill bit? you can guarantee that you have a 3mm drill bit and a 1mm drill bit but no 2mm drill bit! Clamps are always too small to hold that glued joint in place and don't start on screwdrivers, they are always slightly too small or too big. Build up your toolbox slowly, buying tools that you need as you go along. The most important thing though is – keep it tidy! There is nothing worse than knowing you have a particular tool but you can't find it.

10. That 6th sense. Good pilots know when something is wrong with a model. They can look at an aircraft in the air and just know that something is wrong. It could be an engine that is too lean or too rich, a loose hinge or control horn, a stuttering servo or a battery losing its charge. A good pilot will just know. This 6th sense is acquired over time and all flyers develop it eventually. Practice increases confidence. Good flyers are not born, they just fly a lot.

11. Wire bending. Learn how to bend wire to the shape that you want. You will need this skill for replacing landing gear wire and for your control rods. With a bit of practice you don't need "Z" bend pliers, just do it yourself! What is vital is a good, heavy duty vice especially if your landing gear is composed of 8swg piano wire which is notoriously difficult to bend accurately with a pair of pliers.

12. Spare parts. You are always going to need a comprehensive collection of spare parts. Horns, servo screws, hinges, props, spinners, glow plugs and tubing. The list is endless and you can guarantee as with your toolbox the part you want, you won't have. A big dilemma is what to store in your flight box as it can only carry so much and you don't want to have to

stop flying for the day just because you don't have a 11 x 6 prop to replace the one that snapped in half when your plane nosed over on landing. Once again keep it tidy and in order or you will never find anything.

13. A good list of reliable on-line shops. These days physical model shops are very thin on the ground and where they do exist they rarely have a large stock of aircraft parts and most seem to concentrate on model trains (boring!). Keep a note of where you bought that last glow plug or prop. That hard to find nut and bolt, which website was that? Glow fuel is best bought on line now and it is often delivered the next day.

Activity at the Field – October 2020

Saturday 3rd October 2020

Just Neil G, Douglas Fulton and Douglas Gilmour at the field. Douglas Fulton was running the engine on his Wot 4. Douglas Gilmour had 3 successful flights with his IC Arising Star. Neil flew his Tutor 2.

Tuesday 6th October 2020

Just Alan V and Douglas F at the field today. No flying but just engine testing and tuning. Douglas had his Wot 4 on the bench with a Supre Tigre 46 and managed nearly 20 minutes at an average of half throttle on a single tank of fuel. Alan was running his 88 inch wingspan Beaver with a new Zenoah 26cc petrol engine. It was the first time the engine had ever been started. The big Beaver couldn't be flown as some of the wing bolts had been left at home and the cables for the aileron and flaps were too short so couldn't be connected. It was however ran up and down the runway several times.

Thursday 15th October 2020

Lots of members there. Bert, Charles, Jim, Alan V, Mike, Douglas F and Neil. The wind was tricky with a North Easterly which varied from no wind to a strong breeze. Alan was there with his 80" Beaver. It flew well but came down west of the runway after having difficulty turning to line up. It sustained damage mostly to the undercarriage with the ply holders delaminating. Alan will have to cut out the whole of the undercarriage and replace the ply plates. This will be a difficult procedure as the plane is covered in fibre glass. He is tempted to rip out the undercarriage and just fit a wire or aluminium one and blow the scale aspect but knowing Alan he will put the time in and get it back to a reasonable state.

Bert flew his electric Arising Star but this also came down in the field, gusty conditions to blame again?

We suspect that Douglas had the most work to do with a glue gun than the rest of us. He came in over the edge of the runway with his Acrowot and the fence sucked his plane into the wire. At first he thought that it had cut his wings in half. But no, it was worse than that! The fuselage was broken in 3 places, carbon strips had been pulled out and a big chunk was missing out of the wing leading edge. There were wires everywhere. He was going to bin it but with a hot glue gun, it could be in the air again in no time. Faster than Alan anyway.

Jim and Mike did some hovering practice with their helicopters.

Charles successfully flew his Vulcan and Multiplex Easy Star powered glider which is about 15 years old. It flies for a good 20 minutes on a 2200 battery.

Neil attempted to fly his Tutor 2 but it crashed on take-off diving to the left and scaring Bert. The prop was broken and the hatch cover snapped in two. On further examination formers inside the fuselage were snapped and the fuel tank had come loose so quite a bit of work to do. Once again it appears the wind was to blame.

Mike had trouble starting his Magnum .61 on his biplane. It kept starting backwards. Finally he got it running but then it tipped up forward on the runway. On a further attempt he got the engine running in the right direction. He took off but the engine cut just after take-off landing in the next field. A broken elevator was the only damage which has now been repaired.

Sunday 18th October 2020

Tom was down in the morning to cut the grass. It hadn't grown very much from last week, but he nipped the top off it anyway and went over the runway with a grass rake to break up any clumps. He suspects that it won't be needing cut much more this year. There was a member there with a white transit connect van. He was there when Tom arrived and had a foam ducted fan jet. Tom told him he was going to cut the grass and he said he was going to have a quick flight. Whilst Tom got the mower out and started cutting the grass in front of the club hut he put his plane in the van and drove away. His name is unknown! Perhaps a member of the Wednesday gang?

Alan V arrived about 12.30 and was on his own. Wind was zero so he had 10, seven minute flights in nearly two hours. It would have been more but he needed to let the engine cool between flights or burn his hand refuelling on the exhaust. Rain started just after 2pm so he called it a day and headed for home. Alan's big Beaver is now ready for its next flight. It has some cracks on what was nice looking surfaces, so it's starting to look more like one of his planes instead of second hand. The plane was someone else's but the bashes are all his.

Wednesday 21st October 2020

Bert Nicholson visited the field in the morning. The weather was pleasant with a slight cross wind from the South. The ground however very damp. It was OK for foamies but heavier models with smaller wheels would have trouble taxiing.

Sunday 25th October 2020

Weather was atrocious with wind and rain but apparently Brian Barclay was at the field. It is not known what he was flying or if he was just standing in a wet Scottish field staring up into space.

Monday 26th October 2020

Alan V and Douglas F there from 10ish. There was very low cloud with drizzle falling but light wind. Unable to fly due to the visibility. They flew a couple of chairs under the cover for an hour watching the blue sky arrive slowly from the west. Having been unable to put the world totally to rights they braved the sunshine and increasing wind to fly their planes. George arrived for a quick chat and to pick up some goodies at lunchtime. Alan's repaired big Beaver flew well and he thinks that he is finally getting the hang of it. After a few circuits with a smooth landing, one flight was all he could fit in, as he had to leave. Whilst Douglas was thrashing the air with his Acrowot foamie, (yes the one from 15th October, that he was going to bin!), Alan dismantled the Beaver and had several flights with his Kingfisher. Complaints were

made initially about the rain and finally it turned out that the low sun wasn't suitable either. Never satisfied!

Good health to you all

KEEP WELL

The Committee