

Building and Flying a Zirol P40E Kittyhawk... Instalment 11 Pre-flight testing & Flying



Pre Flight Testing:

I took the model down to the field today for some more engine runs and to check tracking when taxiing. As luck had it, FFF was in attendance and was grounded due to a gusty westerly so kindly offered to check the plane for heavy model certification. David gave the plane a very thorough going over and the static checks are now behind us, thanks Dave.

New **DLA56** Motor Runs: I wanted to put 60 minutes or so of running on the new motor and I was also interested in the static thrust achieved when comparing the **Bolly** 21 x 12 three blader Vs the **Mejzlik** 20 x 10 three blader.

The plane was tied to the fence and without the cowl fitted the motor was run for about 10 minutes flat out. The tank is quite small in this plane but after ten minutes there was still half a tank of fuel left. These gassers sure are miserly with their fuel use, my **OS160FX** would have used twice as much of more expensive fuel in the same time.





The fuel I am using is a 37:1 mix of straight unleaded with **Valvoline** high performance air cooled two stroke oil. This is a mineral oil.

I ran the motor for a further twenty minutes fiddling with the high end needle to achieve maximum revs with a small margin of safety by backing off to rich to drop 100 revs. The low end needle was not touched and has not been touched from delivery setting, this thing idles beautifully and is rock solid at 1500rpm

The **Bolly** prop is spinning at 5900—6000 rpm flat out and produces a static thrust of 9.3 to 10Kg.

The **Majzlik** prop is spinning at 6000—6300 rpm flat out and produces a static thrust of 9.5 to 10.1 Kg

There is not much in it so I've gone with the **Bolly**, thrust is ample with either and the **Bolly** is a more substantial prop being solid carbon versus a hollow carbon build up, besides I have already decorated it with decals and tip colour.....



Next job was to remove prop, fit cowl, prop and spinner and repeat engine runs. This was done without any dramas so on to taxing testing.



Wheel alignment and Taxiing:

The day was sunny with a blustery south westerly wind. Two members had attempted to fly but the wind rotors and general turbulence apparent was making it obvious that I needed to be careful that I didn't drop a wing or worse, pop up into the air, stall, drop and somersault.

The eastern end of the

field had the cleaner air so I taxied down to the long grass, pointed her up the field and slowly throttled up. The first thing I noticed was how fast this plane picked up speed compared to previous models. I suppose 14Kgs Vs 16-17Kgs might have something to do with it also the



rolling resistance of the **Zirol** wheels is a helluva lot less than the **Williams** wheels that I had used on previous aircraft.

She tracked straight, the tail came up without any dramas so tick off taxiing OK.

After an afternoon at the field I stripped the plane down to check what had come loose and if there was any signs of overheating, all was well but after checking the battery reserves I decided to double the capacity of the 6V battery supplying power to all the servos. I made up another pack of 5 x NiMh cells of the same brand as the installed ones and connected the pack in parallel, this gives me a total servo battery capacity of 4400mah. Could be accused of belt and braces mentality here but they don't fly real well without control surfaces working!

Control Surface Deflections:
Measured at the widest chord.

Elevator:	UP 37mm	DOWN 35mm
Ailerons:	UP 35mm	DOWN 25mm
Rudder	40 mm each way	
1st Flaps:	35mm	
Full Flaps:	70mm	

As there are no snags to be rectified all I want now is a nice onshore breeze so I can do the certification flights landing to the sea, back to weather watching with the clock ticking!

Pre-flight Check List:

- Transmitter battery fully charged.
- Three onboard batteries fully charged.
- Ignition arming switch to ON
- Retracts tanks at 120psi, no leaks.
- Fuel tank full.
- Retracts cycle OK and wheels free to rotate.
- Range check—Motor OFF.
- Range Check—Motor ON.
- Run up Motor—check peak RPM approx 6000.
- Check all control surfaces for free and correct movement.
- Check Flap deployment.
- Down count timer on transmitter set to 10 minutes.

Test Flight Profile:

- Taxi to end of runway—start transmitter timer.
- Take off—shallow climb—retract undercarriage.
- Two mistakes high over field and trim for hands off.
- Check pitch, roll and yaw sensitivity.
- Deploy flaps to first position.
- Check pitch coupling with flaps down.
- Deploy flaps to full down
- Check pitch coupling with flaps full down.
- Retract flaps.

- Two mistakes high—crack flaps to first switch position downwind—lower wheels—turn upwind and lower flaps to full down—simulate landing approach and flare—check for tip stall—speed and sink.
- Retract wheels and flaps.
- Overhead figure eights, low passes for camera and upward climbing roll .
- Land. Stop T/X timer.
- Check servo current used.
- Check engine temp
- Check exhaust area for any signs of burning.
- Check all fasteners for tightness.
- Check remaining air pressure in retract tanks.
- Check remaining fuel in tank. Calculate total endurance.

Flight Certification Day:

Two flights were carried out on the 29th March to obtain the necessary heavy model certification so I could enter the plane at Bowylie. Thanks David for your time and moral support.

I don't know why we do this to ourselves as I was very nervous about flying this thing for the first time even though I have been flying more or less identical planes since 1996.

The plane was prepared in line with my pre-flight check list and taxied out to the western end of the field to take off down the hill. The takeoff wasn't very scale like as she swung to the left and I had to give it the gas to get up before the long grass but fly she did, very much easier to fly than her predecessors, marvellous what a difference a couple of kilos make. The flight was relatively routine as I went through the test flight checks but I noted two adjustments I needed to make before flying again and they were to reduce the expo on the ailerons and to stiffen up the ratchet on the throttle stick. The ailerons as they were had no feel in the centre and the plane was slow to bank until the stick reached a certain point in the travel when they applied a heap of movement to cause the plane to roll to vertical. I had 40% negative expo which I reduced to 20%. The other problem I was having was that the plane only needed about half throttle to fly realistically and I was having trouble flying at a constant speed because every time I moved the ailerons I was moving the throttle. The **Hitec Aurora 9** has an adjustment to increase or decrease the ratchet tension on the throttle stick and this needed to be wound right up so I would get more resistance to vertical stick movement. I flew for about 7 minutes and landed uneventfully to my great relief.

The second flight on the day was much more fun with the above adjustments made, I felt more confident with the plane and felt I could start throwing it around a bit as the motor was running flawlessly and had plenty of power. I did several consecutive loops and a few upward climbing barrel rolls without anything falling off it and finished up with a proper full flap landing. I am pretty happy with it now and will pull it to bits tonight to make sure nothing has come loose before flying it again.





Bowlye—Scale Rally 9-10th April.

After the condensed preparation all the stuff required to attend a three day event was stuffed into the car with some clean jocks and a jumper.

We drove down to our accommodation at the [Rydges](#) motel outside of Canberra on the Thursday with the idea of having a look at the field prior to practice scheduled on Friday. This didn't happen as we were late

getting away so didn't see the field until Friday morning. We set up Col's beautiful new gazebo, registered and then put the models together..

The conditions were perfect with the exception of a tricky wind that was about 45 degrees across the strip.

Our host rocked up to check out the action





Above is a view of Col's new gazebo that provided some much needed shade for us humans.



Next is a general view of the pit area.

Alongside is ditto but looking toward the bitumen strip. This strip runs roughly North to South.





I flew the plane for the third time and first Bowylie flight on the North—South bitumen runway with a 45 degree cross wind. Having only flown off a bitumen runway once before I can only say that I was lucky to get into the air in one piece. I tried to hold the plane straight with the tail wheel but as the tail lifted the fin and rudder made the plane act like a weather vane and

swung it at 45 degrees from where I wanted to go, all very hairy. The landing was equally difficult as I found it hard to judge how far the plane was going to be blown from the windward edge of the tarmac when trying to land up the centre of the strip.





Col and I decided that we would have a go at the East—West grass runway for our next flight. This was a marginal decision as the take off area was short, rough and close to the North— South runway separated by a barbed wire fence. We got away with it but it wasn't pretty or comfortable..

My third Bowylie flight and as it turned out my last Bowylie flight was back on the bitumen in the quiet of the Saturday evening and was good fun without mishap. In hindsight a lot of time and effort expended to get only three 10 minute flights in two days





Down in one bit, all good so far.

Photo below is of us storing the models in Dicks Toy Shed Saturday night



Sunday dawned with overcast and steady rain. It was obvious to us that we were not going to fly at all so we packed up and headed for the Gundaroo pub for a very pleasant afternoon re-flying the previous days. We were flying pretty well by the end of the afternoon!.

Post Mortem:

The **Ziroli** Kittyhawk is an easy and well mannered plane to fly providing the weight is less than 14kgs and the motor is reliable. When landing the flaps are very effective and when fully deployed require good throttle control to bring her in, just like a full size really, strange that.

I can unreservedly recommend this model to any scale aficionado that enjoys a bit of a build.

What would I Change if I did it All Again:

Not a helluva lot with this model,

- I would plank the top rear of the fuselage with 3/16" sheet instead of the 1/8" sheet that I used as after three days in the sun you could see the planks under the glass when the fuselage expanded with the heat.
- I would spend the extra money on the **Ziroli** fibreglass cowl as the Model Design cowl was such a cow to fit and the panel lines were inaccurate.
- If I had a bit more time I would have liked to have fitted a full depth cockpit and a scale pilot of the owner.

That's about it....

One of the things I will be playing with as I go forward with this model is a hydraulic system to actuate the undercarriage. The **Ziroli** wheels are pretty heavy and I noticed that when I did a zoom climb with a lot of positive G applied the wheels peeped out of the wheel wells as they compressed the air holding them in the retracted position but there is always something to play with on a scale model....That's the pleasure of making and owning one.

Thanks to Lib, Mike and Doug for the pictures, to David for certification and to club members that have commented that they have enjoyed reading the build story.

Regards

Stan

PS.....What's next??? Don't know yet but I reckon a 100" wing span EDF version of the RAAF Meteor based at Temora would be a good thing. We'll see....