Product Review

Seagull Models AT-6 Texan

by Stephen Green.

Wingspan 2,103 mm, 120-200 engine, fixed gear-retracts optional, 5 channel minimum.

The AT-6 Texan is an advanced two seat trainer and was another of the very successful designs by the North American Aircraft company. With a constant speed prop and retractable undercarriage an endorsement on this aeroplane could be the next step for a ticket for a seat in that manufacturers most famous aircraft, the P-51 Mustang. There are quite a number of Texans on the Australian Civil Aviation Register that regularly perform at airshows around the country and in America the AT-6 Texans are also raced. Should you feel the need to punt one of these around the pylons the Seagull AT6 is the second of this manufacturers products that are eligible to compete in the large scale air racing events conducted in this country. The majority of modellers would more likely be interested in a well engineered and light ARF scale model which I can report that this model is just that.

The airframe is a balsa-ply affair and is covered in Profilm heat shrink material. The kit is supplied with fixed landing gear but the wheel wells are already in place if you opt to fit retracts. The engine cowling is fibreglass and the paint match is spot on and another good paint job has been applied to canopy frame. A few items to enhance the scale appearance under the canopy have also been included. There are two pre-painted pilots (identical twins) complete with beards plus a pair of seat backs and what I think is some sort of roll bar. A comprehensive decal sheet with US Air Force insignia is provided to further enhance what is outside the cockpit. The hardware package includes the engine mount, fuel tank, control horns, pushrods and wheels.

The model was put together as per the instructions although I always start at the front and work my way back. I leave gluing the tailplane last because it is much more convenient moving the model around when installing the gear. Starting at the fire-wall the first thing I noticed was the mounts for the pair of elevator servos and the single rudder servo are inside the engine bay. This is a somewhat unusual practice but the reason is simple enough because most models of radial engine powered aeroplanes usually require ballast. This feature is all about achieving the correct Cof G without adding additional but non functional weight.

My Panther jet had a few servos in close proximity to the thrust tube and they coped with the heat so I had no reservations about installing them ahead of the fire-wall on this aeroplane. I won't be flying it in the rain though.

Don't change anything

The Texan will take a variety of engines up to a 200 four stroke but the model has been designed with the OS 120 AX in mind. The standard OS Powerbox muffler fits perfectly inside the cowl.

ARF models are made so accurately these days that changing a key component often creates complications down the track. I fitted an OS Engines 120 AX metal engine mount instead of the two piece nylon mount that is supplied. The standard unit is adequate for its intended use however I intend to race this model and the difference between a metal mount compared to the more flexible nylon unit can be 200-300 R.P.M. The OS mount is wider which meant the engine was offset to the right. Rotating it ten degrees aligned the crankshaft back up with the centreline but this meant the cowl mounting frame and part of the fuselage had to ground away in order to fit the muffler.

The next item little snag caused by my modification was the needle valve. The carburettor on the 120 AX has the needle angled back away from the prop. After mounting the engine I then discovered the needle valve lined up perfectly with the right hand elevator servo. I could have cut a ply disk and moved the mount forward but an easier fix was an OS remote needle assembly.

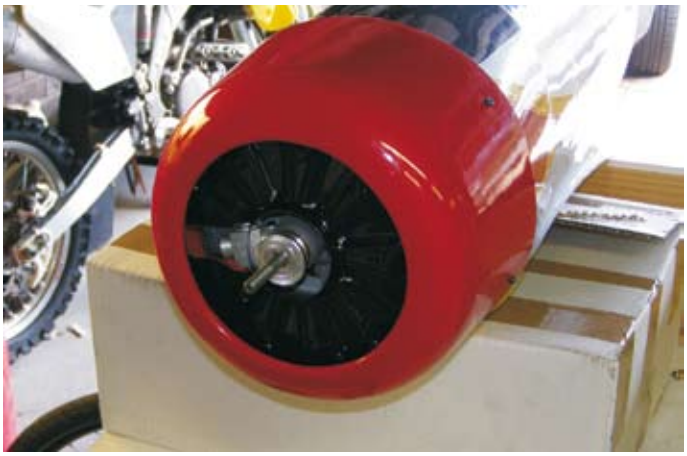
Just to recap if you use the engine mount supplied with the kit none these snags will occur. I do suggest that before drilling the holes in the mount for the 120AX move the engine forward until the needle valve extension (supplied with the engine) clears the elevator servo.

Cowl

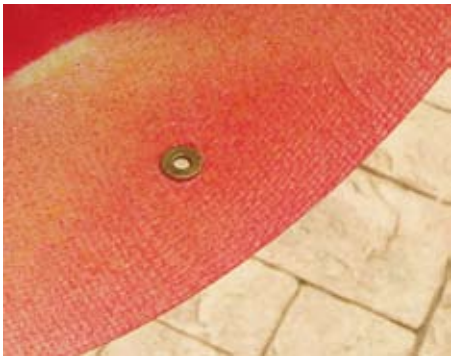
This is my fourth Texan (please don't ask why) and so speaking from experience, compared to the others, mounting the cowl is an absolute cinch on this model. It only took about fifteen minutes. The blind nuts are already installed and the frame assembly lines up perfectly with screw holes in the fuselage.

The frame can be screwed on but I glued and then screwed it on. I trimmed a cooling

A metal mount will add 200-300 R.P.M more than the two piece nylon mount that is supplied. This is not needed for sport flying but worthwhile in Scale Air Racing. The OS 120AX metal mount is wider and therefore it had to be canted a few degrees to swing the crankshaft back along the centreline.

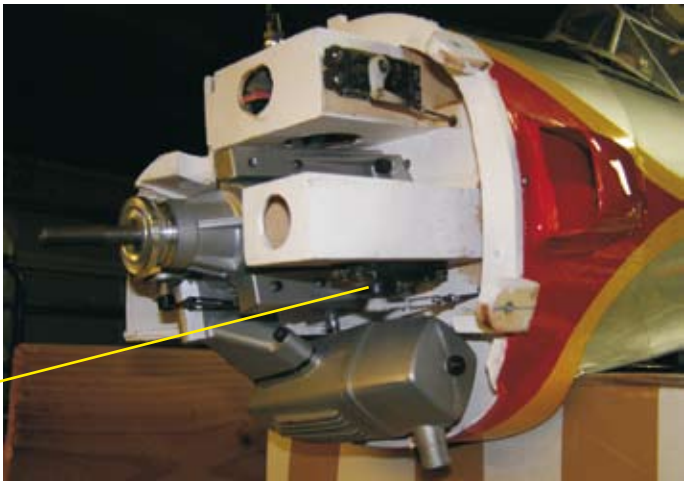


The cooling air slot is easy, cut one cylinder off the dummy radial engine.



Above left ; the cowl mounting frame fits like a glove.

Left; to prevent the hole opening up because of engine vibration glue a washer to the inside of the cowl.

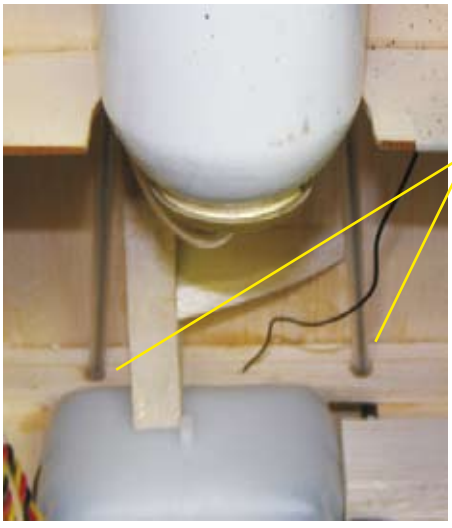


Right; the rudder servo and OS Powerbox muffler.

Standard tank pressure test. Pressurise the tank and if it bubbles tighten the bung half a turn each time until it stops.

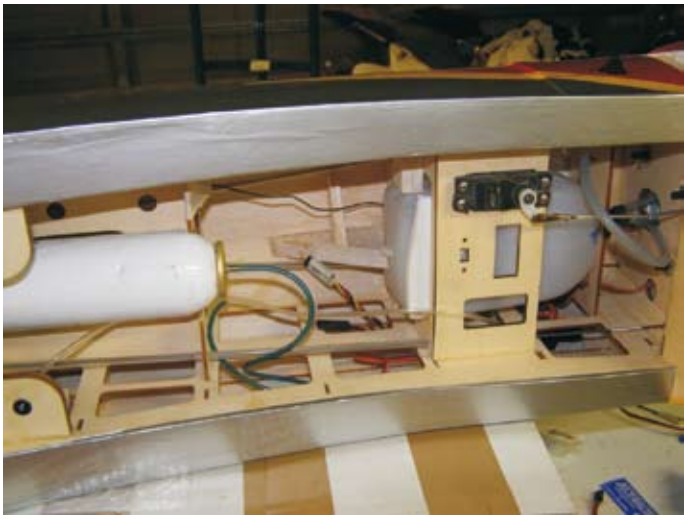
air slot between the cylinders on the dummy radial engine and glued that component to the cowl with silastic. The easiest way to exhaust the hot air is to cut a slot in the cowling, on the underneath. The golden rule is that the exhaust area should be double that of the intake. As you can see by the photographs I went to a considerable amount of work on the cooling air system because in racing that is vital. For sport flying I would not have bothered quite so much although some ducting is still worth doing

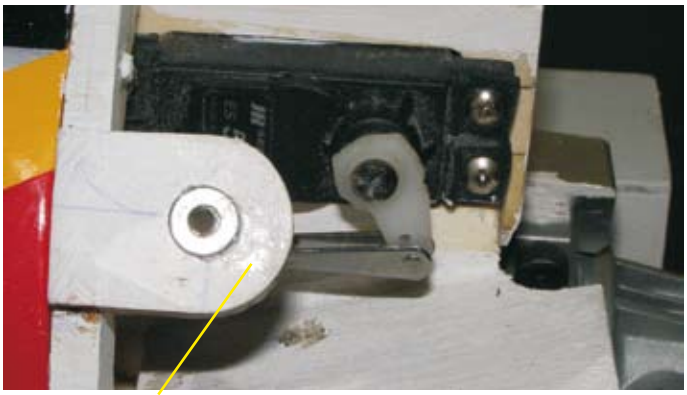
The next step is to install the three servos then start behind the fire-wall. The fuel tank should be next however I feel compelled to comment on the wire elevator pushrods before the tank is installed. The wires run through inside a plastic outer tube but there is too much friction and if left alone the elevator will not centre



Break the elevator pushrods out and position them in a straight line. Build a mount out of 5mm balsa and re-glue them in place. The tank will have to be angled down but this simple modification is worth the effort.

Right; a couple of balsa blocks glued in behind is a simple way to stop the tank sliding aft.





Part of the cowl frame with the blind nuts already installed.

Left; the elevator pushrods are right on the limit of their adjustment. An easy fix is to just angle the elevator servo arm forward one notch on the output spline.

Angling the aileron servo arm forward provides mechanical differential. Don't forget the output screw.

Left; the Dubro DBR 840 Fill-It system is very reliable, inexpensive and very easy to fit.

Holding the fin assembly in place until the 30 minute epoxy dries.

Nifty CA hinge applicator by

accurately. Installing very powerful digital servos may overcome that friction but I doubt it and anyway it really is best to have all controls as free as possible. A simple and cheaper fix is to break the outers from the bulkhead above the tank. This removes the bend and they no longer stick.

A balsa mount was glued in place to support them Remember I said what happens if you change something? The balsa mount necessitated modifying the tank bulkhead by grinding it in order to lower the rear of the tank. This new position meant that the bottom of the tank now fouled the throttle servo. The easiest thing to do was grind the front mount and move the tank over to one side and two 10mm pieces of balsa superglued to the floor held it in place. Job done. The next item was to fit a remote fuel filler and my favourite is the Dubro (DBR# 840) because it is simple, reliable and inexpensive.

There is plenty of room for the receiver and battery pack and mine were mounted in individual foam boxes cut aout from Dubro latx sheets (#DBR514) and placed in the framework above the fuel tank. Once in place I pack them with foam to stop them moving about. I glued the air bottle for the retracts in two dobs of silastic and mounted the air valve and the switch harness in the fuselage side.

The next step was installing the rudder and elevator control horns then the hinges. The trick with CA hinges is to uses plenty of glue, not just two or three drops.

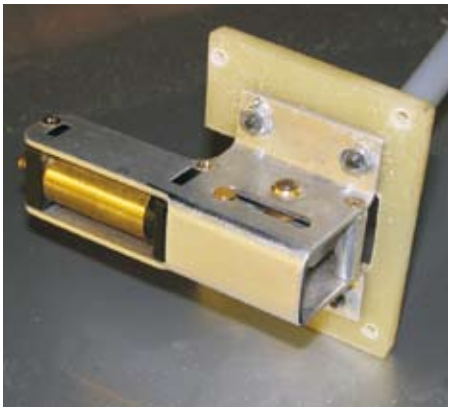
Mounting the tailplane and fin is just like my Seagull Sparrowhawk and the tailplane consists of two stabs that slide onto an aluminium tube. I glued them with thirty minute epoxy and when that dried the whole assembly was then glued to the fuselage. To maximise the amount of glue for what is a vital component I ran a sharp knife around the edge and removed some more of the covering, leaving about 1mm inside the fuselage edge.

Hooking up the pushrods revealed that the elevator linkages were a little too long and they were at the end of their adjustment, ie no thread left. A simple fix was to move the servo arm around one tooth on the spline. Technically that would provide some differential movement but the control surfaces on the tail are quite large therefore not very much movement is required.

Canopy

It is much easier to sit the fuselage upside down without the canopy on so I left this until the wing was completed. because the model was going to be underweight i installed some avionics plus the twins and the associated cockpit detail. After scraping off some paint from the floor and I glued them in with silastic. The canopy is a rather tight fit and there is not very much overlap and I had difficulty in making it square. I drilled three holes down each side then it was glued on with silastic.

I prefer gluing canopies for improving the safety record of my race score. Strictly speaking being hit on the head by a canopy is a safety issue but most unlikely to cause an incident, unless you are flying overhead. In racing there is a "Jettison Rule" and if anything falls off the model it must be



My retracts were too small for the mounts so a plate was cut from fibreglass circuit board material. The oleos legs are Robart 653 (left and right hand) 10mm (3/8″) Robo-struts.

Two pilots, the seats and a roll bar are included.

If you are scratching your head about if installing retracts the Eurokit AT-6 units are the easiest to install because the struts have been designed for this sized Texan. They will also need the mounting plate.

landed immediately. This means you fail to finish and lose the score for that round.

Wing and retracts

The wing is in three pieces and the outer panels slide onto an aluminium tube. You have the choice of making the outer panels removable but I decided to glue them in place. The fixed gear bolts in place but I wanted retracts because they add about 20 k.p.h and I needed the weight anyway. The minimum weight for racing a Texan is 6.35 kg.

The retract mounts will take the larger style units and there are a few choices available. I fitted an old pair of legs with Robart Robo-struts. Seagull have provided a mount for the air valve and servo in the centre section and this all went together pretty quickly. The wing has a ply mount at the front with two nylon bolts near the trailing edge.

Flying

I could have written this without having to fly the model. Whether it is rolling along the ground about to take off or when it is in the air this Texan flies just like any other Texan. Or any other model for that matter. Okay it is a scale model but with the light wing loading it really flies like a sport model. Like any other radial cowled model that have I seen, (except for a certain Antanov biplane) the AT-6 has a certain charm and I think it looks much bigger than it actually is. It will perform most aerobatic manoeuvres although accurate rolls are little beyond it due to what is essentially a flat bottom wing section.

When it comes to landing they do have a couple of idiosynchrasies. With practice these little quirks are quite manageable but I mention them because I think the time to find out is best not at the conclusion of the test flight. The recommended landing technique is a wheeler although I sometimes I do three point mine but I have to be feeling pretty sharp. If at a race meeting I only do it on the last round. Why?

Because they are very easy to bounce. It is much easier to fly it on with a few extra knots and this gives the undercarriage time to sort itself out while there is still some control authority. If there is a crosswind, crab it in and put it on it one wheel first. be very gentle with the rudder. Why?

The other quirk is a powerful rudder. When it deflects more than 20 mm a strong tendency to push the nose down is produced.

The last suggestion is the selection of propeller. The APC 15x10 is a control prop we use for air racing with a 120 two stroke but for the test flight and general sport flying I would opt for something with eight inches of pitch, say a 16x8. The other prop is bit quieter and faster but it does takes a lot longer to slow up for landing and therefore a longer flat approach is required. There is a little more information that is relevant to those interest in racing this model in my Large Scale Air Race column on page

Summary

Generally speaking the parts fit is excellent but the more discerning buyer might notice a few little items that could be improved. For example at leading edge of the wheel wells the edge could be rounded off a little more. The small gap where each tailplane fits is acceptable but none the less noticeable, as is the canopy. All in all it is well engineered product, light and strong in all the right places and it has good presence in the air. If you are after something bigger than average this model does it so well on just a 20cc two stroker or a 30cc four banger. Plus you can race it if you're game.

The Seagull AT-6 Texan is distributed to hobby shops by Model Engines Australia www.modelengines.com.au
tel 03 8793 5555