

Product Review

Advanced Scale Models Pitts Special ARF by Les Marriner.



I will start this review by quoting page one of the instruction manual, as it gives a fascinating history of the Pitts Special.

“It is hard to believe that it was as long ago as 1943 when Curtis Pitts built the first of a series of aircraft that would dominate competition aerobatics throughout the 70s and 80s. Christened the “Pitts Special” it went on to be the successful and easily recognizable American built aerobatic design. It was certainly evolutionary and because of its small size, lightweight, short wingspan and extreme agility, it remained unbeaten until it was finally toppled by the Russian Yak-50.

While there have been many versions of the Pitts Special – in both single and two seat versions – it is widely accepted in the aviation community that the Pitts Special is THE standard by which all other aerobatic planes are judged – and few have ever matched. The design has been continuously refined, however, the current Pitts Specials still remain close to the original in concept and in actual design ... a testament to the genius of Pitt’s original concept.”

MODEL SNAPSHOT

I was going to leave the flying bit to later on in the article, however I felt the need to give you the good news from the start. The Pitts Special is a delightful aircraft that is very safe and satisfying to fly. Ground handling was very easy to control and the flight characteristics are impeccable. It flies like it is on rails; the stall is a non-event and shows no tendencies to drop a wing. The test flight was conducted in a 15-knot breeze and both into and down wind manoeuvres were performed with full confidence.

The Pitts Special would have to be one of the easiest models to land, and was able to be slowed up to just above walking pace whilst in the breeze. I am extremely impressed and will love flying this one for a long time. Advanced Scale Models have

produced a very attractive scale model of the Pitts Special. It is intended for 120 four-stroke power, however I fitted the review model with my OS 91 two stroke, turning an APC 15 X 8 propeller. It has a wingspan of 1588mm (62.5 inches) and a length of 1372mm (54 inches). It requires a 4-channel radio and 5 servos. The flying surfaces are fully built up and film covered. The fuselage is blow moulded with an internal ply and carbon fibre tube framework.

Building is quite straightforward by following the steps set out in the 10-page instruction manual. With a 1500mah receiver battery mounted on the fire-wall, the review model weighed in at 4.8kgs, and achieving the recommended Centre of Gravity without the need for adding ballast. If you are after a 3D Fun Fly, then I suggest that you go and by one, but if you are after a scale aerobatic model that looks and flies like the full size, then the “Advanced Scale Models Pitts Special ARF” is what you are after.

KIT CONTENTS.

The wing panels are joined at the factory and only require the installation of aileron hinges and servos. The blow-moulded fuselage comes painted and fitted out with all the required internal framework. The vertical fin is moulded into the fuselage and only requires hinging to attach the built-up and covered rudder. The tailplane is a built-up and film covered, one-piece construction that slides into the fuselage,

then glued. The elevators are built-up and film covered. The fibreglass cowl is of a very high standard and is a good fit to the front end of the fuselage.

All the centre struts are factory fitted and the outer wing struts are pre-built and match the wing surfaces perfectly. The aluminium undercarriage is strong and shouldn’t cause any concern. A very comprehensive package of accessories is included and is of a high quality.

Construction commences with the fitting of the ailerons to both the upper and lower wing panels. Cyano hinges are supplied and can be used with confidence. The lower wing has a pre-installed cotton pull through, which makes installing the servo leads a very easy and straightforward task. I used Hitec servos throughout, and opting for the HS 625 MG (metal gears) for the elevators as both are activated by the one servo, using a Y-pushrod.

All servo cutouts are made to fit the standard size servos. A 300mm extension lead will be required for each servo, or a Y lead can be used if you are using a 4-channel transmitter or receiver. Once the wings are completed to this stage, they can be both placed out of harms way, as they are not required until final assembly.

FUSELAGE ASSEMBLY

The first job is to install the dural undercarriage, wheels and wheel pants and tail wheel. Following this order of assembly effectively gives you a stable stand for the



First job is the undercarriage as it also provides a stable stand to work on the fuselage. Each spat has a separate locating screw to prevent rotation.

next step, which is fitting the engine, cowl and fuel tank. Mounting the engine is a simple task of fitting the engine to the engine mounts. I fitted my OS 91 engine so that it measured 125mm from the back of the mount to the engine thrust washer. The engine mount has adjustment slots, which allow for the various engine widths, and are attached to the mounting box using 4mm bolts and pre-fitted captive nuts. Once the engine is in position, now is a good time to complete the front end by fitting the throttle servo pushrod, fuel tank and plumbing.

The remaining servos for rudder and elevator can now be fitted with the fuselage resting on the tail fin and the top wing central struts. To keep the model in the upright position, I use a pair of full fuel containers, one on each side. This gives the required support, whilst you are working inside the fuselage. The plastic fuel containers also have enough give in them so as to not damage the sides of the fuselage, however the other alternative is to make up some form of model support out of material that will not cause any damage during assembly.

TAILPLANE AND RUDDER

The tailplane is a one-piece item and is slotted through the fuselage. Fitting involves measuring, and marking where the covering film requires removal. Care is of the utmost importance when cutting the film so as to avoid cutting into the balsa sheeting surface. Once the film has been removed, using a heating iron, I seal the edges of the cuts and then strengthen the balsa skins using thin cyano glue along the cut line. The tailplane is then installed using slow cyano, following the method shown in the instruction manual. Once the tail plane is glued to the fuselage, the elevators can then be installed using the cyano hinges and thin cyano. The rudder can then be fitted and is a simple task that is fully shown in the manual, making sure that the top of the fin and rudder are equal of height. This ensures that the decal lines carry through to the rear.

RADIO SET UP

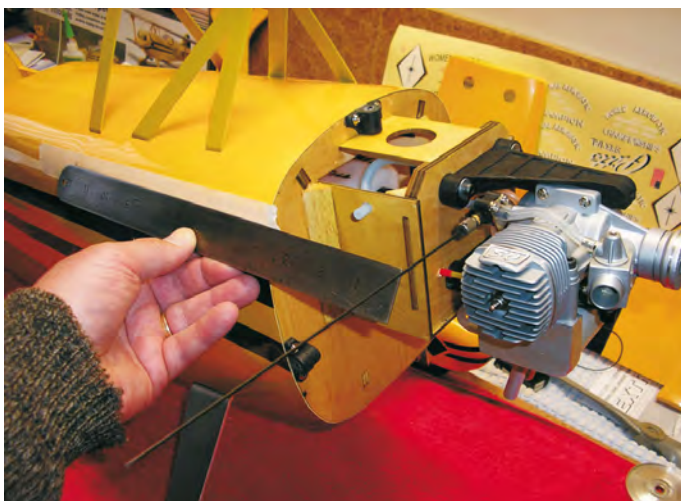
I used a Hitec Supreme 8 channel FM receiver, with Hitec HS 325 HB's on ailerons, throttle and rudder and a Hitec MG 625 for the elevators. The control surface throws are quite mild, yet responsive with ailerons being set at 12mm up and down with 30% expo, elevators set at 40mm up and down with 20% expo



A little bit of Marriner engineering expertise is applied to the plumbing. A fuel bung is inserted into the vent at the bottom and removed for filling.



With the battery pack mounted up front the the centre of gravity was spot on.



Measure 125mm from the thrust washer to the rear of the mount for the OS91 FX. The mount is adjustable for a wide variety of two and four stroke engine sizes.



Masking tape makes it easy to check measurements to fit the cowl and place the needle valve opening in the correct spot.

and rudder being set at 50mm left and right with 60% expo. This set up gives you smooth, yet positive control of all flying surfaces, and allows you to get to know the model with safety. Control throws are an individual thing, but this will give you a starting point.

When deciding on where to run the receiver antenna, make sure that you keep it as straight as possible, and avoid running it past switch harness and servos. The only other area that is to be avoided is letting the antenna come into contact with any metallic objects, such as the elevator push rods.

To demonstrate what I mean, it is an interesting exercise to run the antenna close to or touching the areas that I just mentioned and then do a range test. I guarantee that you won't have much of a range with the transmitter antenna fully down. It is also very important to perform a range test with the engine running and have someone rotate the model slowly through a full 360 degrees whilst the model is still on the ground. You should get a glitch free range of at least 20 to 30 meters.

Just out of interest, I will share with you this short story regarding radio glitches. I had a junior member of my club come to me with his father and explain that he was unable to get any further than 3 meters from his model before it went crazy with all servos glitching. I noticed that the antenna exited the side of the fuselage, in close proximity to the on-off switch. The wing came off and the antenna was repositioned so that it exited the fuselage on the opposite side.

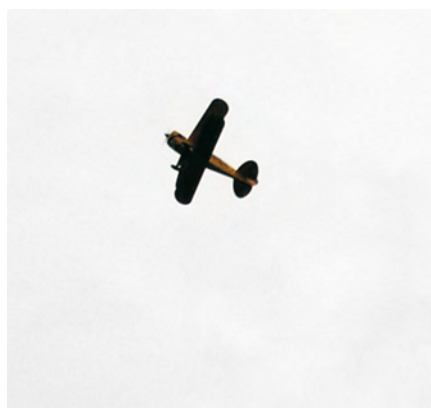
A range test now gave him a glitch free range of approximately 30 meters and both father and son were shocked at the difference. My reward was seeing the huge relief on the father's face and watching the enjoyment that ensued from a glitch free flight.

SUMMARY AND TEST FLIGHT

There was some urgency to get the test flight out of the way, as I was about to go on holidays for a couple of weeks, which would have made the magazines cut off date too close for comfort. With the Pitts going together well, and the fact that I was able to achieve a safe Centre of Gravity without adding ballast, I felt confident that I was going to be in for a pleasurable experience. The OS 91 is a powerful and very user-friendly engine and I thoroughly recommend it for the Pitts.

Ground handling is very predictable and the steerable tail wheel gives good directional stability. The way the undercarriage is set up, means that the wings are present-

Ready to go and when you are ready to go the Pitts fits easily into a wagon in one piece.



Plenty of performance on tap as it pulls up into a snap



It's also easy to land

ed to the airflow on take-off at a shallow angle of attack; resulting in a model that is not prone to any ground looping.

I put the Pitts Special through the Gold Wings Schedule, completing each manoeuvre with ease. Inverted circuits were a breeze and I felt confident with the handling for the entire flight. I am not going to go on and on about how good it flies, but this model is a real winner, and I am more than happy to thoroughly recommend it.

The OS 91 two stroke delivers ample power and anything bigger would be an

overkill and only result in adding weight. If you were to opt for a four stroke, then a 120 size would handle the job with ease.

If I can be of any assistance to you regarding this model, you are more than welcome to contact me via email on marriner@alphalink.com.au Regards, Les Marriner

The Advanced Scale Models Pitts Special ARF is distributed to hobby shops by Model Engines Australia Tel 03 8793 5555 www.modelengines.com.au