

# Pipistrel ALPHA Trainer Flight Review

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Evaluation by Michael Coates

Pipistrel are of the most prolific light aircraft manufacturers in the world, located in Slovenia which is surrounded by the borders of Austria and Italy this small country manufactures some of the most unique and advanced aircraft in the world. After attending Aero Friedrichshafen I had the opportunity to travel back to the Pipistrel factory and evaluate their very latest LSA release the new Pipistrel ALPHA Trainer.

The Pipistrel ALPHA Trainer has taken a back seat in the last few months to the much talked about and exceptionally received Pipistrel Panthera which stole the show at Aero Friedrichshafen winning all the major awards. This new four seat aircraft which cruises at 200 knots is certainly a showstopper but well beyond the budget of the average light aircraft owner. Roll in and introduce the Pipistrel ALPHA Trainer!

This new aircraft from Pipistrel was originally developed exclusively for the training market. Pipistrel identified the need for a fully equipped aircraft that is tailored to flying schools, full of instrumentation, strong, reliable and most importantly delivered to the customer at a very favourable price. The Cessna 162, the Tecnam and many other LSA aircraft are now up well above \$150,000 which is becoming too expensive for the average flying school that cannot repay or finance this sort of investment. The goal for the Pipistrel ALPHA Trainer was to provide a fully featured and perfectly behaved aircraft but at a selling price less than two thirds the competition and I am happy to say that Pipistrel has done this!

The Pipistrel ALPHA Trainer is fitted with the ever reliable Rotax 912 - 80 horsepower engine, the airframe is a composite, two-seat, side by side, high wing with exceptional performance even when fitted with the Rotax 80 horsepower engine, like all Pipistrel aircraft the ALPHA demonstrates very frugal fuel consumption averaging 13 lph (3.4 US gph) at cruise and only 8 lph (2.1 US gph) in circuits.

The aircraft's name ALPHA Trainer may be misleading, even though it was developed for the training market after my flight evaluation I cannot think of a better private aircraft to own. Based on the NASA awarded Virus SW the Pipistrel ALPHA Trainer shares the same fuselage shape and a very similar wing design to the Virus SW. The wingspan of 10.5 metres (34' 6") gives the ALPHA a wingspan slightly less than a Cessna 172 so hangerage should not be a problem. The Rotax 80 horsepower engine provides more than adequate performance when swinging the fixed pitch wooden Pipistrel propeller. The Pipistrel ALPHA Trainer has a very robust undercarriage, nothing is unbreakable but this configuration is certainly coming close and should endure the rigours of flight training over the years.

## The basic specifications of the aircraft are....

Empty weight: 279 kilograms

Maximum takeoff weight: 550 kilograms

Payload with full fuel: 230 kilograms

Baggage allowance: 25 kilograms

Cruising speed: 108 knots

Stalling speed: 37 knots

Endurance at cruise speed with 30 minutes reserve: 4.1 hours

Range at cruise speed excluding reserve: 390 NM (722 kilometres)

The Pipistrel ALPHA Trainer has 230 kilograms payload for pilot, passenger and luggage when the aircraft is fully fuelled, more than enough for two average people. The stall speed of only 37 knots is great for training aircraft and the cruising speed of 108 knots is perfect for cross-country flying. The endurance of 4.1 hours is more than enough for the average bladder and the aircraft can cover nearly 400 nautical miles between fuel stops. But let's talk about how the aircraft flies....

A quick walk around the aircraft for pre-flight is a very simple procedure; the total composite structure means there are very few wearing parts. All of the flight controls can be checked and inspected during the walk around as can all of the undercarriage and airframe structure. The engine oil level is easily checked by gaining access through the oil inspection door on the right-hand side of the engine cowling. Everything else is in easy sight for a quick and thorough pre-flight inspection

Entry into the aircraft is really easy. Firstly in the role of the training aircraft the wheel spats are gone allowing people to climb over the wheels without any fear of breaking the wheel pants then its bum first into the seat and then roll back into a slightly reclined but really comfortable position supporting your whole back and head with the adjustable head rest. The wing spar in the roof of the cockpit is now covered with a padded fabric. The cabin is extremely comfortable with everything being ergonomically positioned for the pilot and passenger. The four point seat belts hold you nice and tight and everything is within easy reach. The standard instrumentation package is more than sufficient for flying schools and the aircraft comes standard with radio, transponder, Garmin GPS, ballistic parachute system, and all of the flight instruments and engine instruments you could wish for. The rudder pedals can be adjusted on the ground or in the air for those with shorter legs by simply pulling a knob on the floor, once in the correct position the aircraft is taxied with the directly steerable nose wheel makes the aircraft taxi and track just like a car even over rough surfaces.

Typical of the Rotax 80 horsepower engine, start-up is immediate and the engine settles into a really nice smooth idle at around 1800 rpm, although I use 2400 rpm for a cold engine warm-up. Visibility from the aircraft is exceptionally good, shorter pilots may have difficulty seeing over the high nose of the other Pipistrel aircraft but the Pipistrel ALPHA Trainer has a shorter nose leg than the other models giving you much better visibility over the nose, the slightly bubbled doors close and lock in three places and give exceptional visibility forwards, aft and especially downwards, did I mention the doors are wind and waterproof and the ALPHA Trainer comes standard with door locks for the security conscious. The undercarriage feels firm when you taxi compared to the other models but still has enough "give" on even bad landings and I suspect will last in the training environment.

Ignition check and run up is typical of the Rotax 80 horsepower engine and the aircraft is held in place with the new centrally located hand brake which also acts as a parking brake, great for dual instruction. Entering the runway the strobes are switched on, these new strobes manufactured by Pipistrel using the latest LED technology simply fantastic. Both the navigation lights and the strobes are more than two times the brightness required by the FAA for night flying, they are so strong you can even see the

navigation lights in full sunlight when the aircraft is passing overhead at 2000 feet AGL, again strobes are standard with the Pipistrel ALPHA package.

Lining up and introducing full throttle the engine reaches 5700 rpm and its surprising how little noise is actually produced by both the engine/propeller and also inside the cabin which remains exceptionally quiet. The acceleration even on long grass at the Pipistrel airfield is more than sufficient and the aircraft is off in less than 100 metres on an average day, climb rate settles at around 850 feet per minute at maximum takeoff weight. Visibility remains good out the sides but suffers a little bit at the front with the high nose attitude during a steep climb out, the way around this is to slightly lower the nose and climb out at around 80 knots at 700 feet per minute. The aircraft has four positions for flaperons, -5 degrees is used for fast cruise, 0 degrees, +15 and +25 degrees are used during takeoff and landing phases. The Pipistrel ALPHA trainer has full length flaperons so there are not separate flaps and ailerons, rather the two are joined together to create less drag and better performance for the aircraft.

Passing through 500 feet the flaperons are moved from the takeoff position of +15 degrees, past 0 degrees and down to -5 degrees, the aircraft continues climbing at around 850 feet per minute. It is in this negative flaperon configuration the true performance of the aircraft is shown. Speed increases to around 85 knots and levelling off at the top of climb the aircraft easily achieves the stated 108 knots cruising speed at about 5250 rpm. All of the controls are really light and harmonised and take very little effort to fly the aircraft. Aggressive handling can give very sprightly performance but it is important to know that this is not an aerobatic aircraft but a training and pleasure aircraft. Dropping the RPM slightly to around 5100 rpm the cruising speed comes back to around 100 knots; still fast enough for most people but with an improvement in fuel consumption and range. At 4800 rpm we indicate 86 knots and this is a really nice speed to fully evaluate the aircraft's performance and right on VA.

The new addition of an electric trim system is a great improvement in the Pipistrel aircraft range; although trim is normally only used for landing and fast cruise it is still a really nice addition with a graphical display on the instrument panel showing you the exact trim location at any time. Trimming back very slightly to maintain 86 knots and the aircraft simply just sits there, if you point at North it goes North, if you point it South it goes South. The longer than most aircraft fuselage on the Pipistrel ALPHA Trainer provides for exceptional directional control and stability. Like most modern aircraft in the LSA category there is no real need to do aggressive manoeuvres with the control stick, basically everything you ever need to do only requires the movement of around 50 millimetres of the control stick in any direction, the Pipistrel ALPHA Trainer is no exception. When demonstrating the aircraft to other pilots I basically hold my fingers in the shape of a circle showing the size of an average grapefruit saying that you will never move the control stick further than this in normal flight.

Entering into a 45 degree turn is effortless, just the tiniest bit of rudder and ailerons to start the turn and then just the very slightest finger pressure backwards to hold the nose level throughout the turn, for those that are a bit more lazy just a quick of push on the electric trim will take out that finger pressure instantly, the aircraft will just sit there going around and around. Increasing the banking angle further to 60 degrees the aircraft does exactly the same thing; it sits there until you apply aileron and the very slightest amount of rudder to bring the aircraft out of the turn and flying straight level again. Pitch sensitivity has been reduced on the Pipistrel ALPHA trainer aircraft because of its training role but

it has a beautiful harmonised and coordinated feel which works in perfectly with the rudder and ailerons. This aircraft is just so well harmonised! The head of aerodynamics for the Pipistrel ALPHA Trainer explained that by increasing the dihedral in the wings by a very small amount further increases the stability of the aircraft, he was absolutely right!

Stalling in the Pipistrel ALPHA Trainer is really a non-event, power off stalls result in simply a mush. There is a lot of airframe buffeting which comes in at around 40 knots; it can easily be felt through the seat, the rudder pedals and also through the control stick. Simply release the control stick back pressure and the aircraft instantly recovers and continues flying with a loss of around 30 feet. If you keep the stick pulled back all the way to your belly the aircraft will just mush at about 500 feet per minute. Power on stalls can become a little bit more exciting, 4500 rpm on the Rotax produces a much higher nose angle but again no wing drop and a very gentle mush, even playing with ailerons and rudder the aircraft continues flying albeit with a nose high attitude. Full power stalls seem really uncomfortable to me because of the nose high attitude, the power to weight ratio in the Pipistrel ALPHA Trainer is pretty good. 80 horsepower running through an airframe with an empty weight of around 279 kilograms is a pretty good power to weight ratio. Full power stalls have the aircraft at around a 50 degree nose high attitude and still climbing; in this configuration don't expect to see anything out the front window except sky and clouds. The aircraft just hangs there; it feels like you are an aerobatic pilot climbing vertically. The aircraft still continues flying even in this excessive nose high attitude, you have to start mixing the controls to get the aircraft to break and stall and when it does the aircraft nose rotates to just below the horizon and the wing drops approximately 30 degrees and the aircraft recovers in seconds by simply releasing the back stick pressure. Overall a really predictable aircraft for use in training and something which will not provide too many surprises for the instructor but at the same time provides really good feedback through the controls for the student who is learning to get the feel of a stall before it actually happens.

Descent and landing in the Pipistrel ALPHA Trainer is a real joy, the complete circuit is flown just as you would a glider or any of the other Pipistrel aircraft. Entering downwind the throttle is reduced to idle and the aircraft is slowed down by just maintaining the nose attitude to the horizon. When the airspeed slows to around 70 knots you change from negative flap to zero flap and then at around 60 knots to +15 degrees flap. The aircraft is then flown like a glider all the way to the runway threshold, descent with +15 degrees flap is around 400 feet per minute, turning final full flap is introduced which is +25 degrees, the aircraft slows even further to around 50 knots which is the perfect "across the fence" speed in the Pipistrel ALPHA Trainer. Once in ground effect the aircraft settles nicely and just a gentle pull back on the control stick makes the aircraft flare nicely and land on the rear wheels with the nosewheel being held off until the speed decays to around 35 knots. Directional stability on final, flaring and landing is exceptional, again contributed to the long fuselage and balanced controls of the Pipistrel ALPHA Trainer. Braking is very easy with the centrally located handbrake, its powerful enough to skid the wheels on wet grass but it still provides a really good feel when applying the brakes normally, it is not too sensitive.

How does the Pipistrel ALPHA Trainer fit into the current line-up of Pipistrel aircraft?

Well for a start, its standard configuration includes a complete suite of avionics and instruments as well as a ballistic rescue parachute. This set configuration allows Pipistrel to 'production line' the aircraft and

pass the savings to customers because as Pipistrel explained there are large financial benefits in purchasing 20 radios, 20 transponders and 20 of everything else at the same time for the most competitive pricing. This results in a reduced selling price well under the current Sinus, Virus and Virus SW models. The Pipistrel ALPHA Trainer is absolutely unique, it does not replicate any of the other models in the Pipistrel range but I do expect it to offer some very strong competition to the standard Pipistrel Virus which most closely resembles the new Pipistrel ALPHA Trainer.

Today with the Internet and modern technology a flight test and review like this is not really enough unless we refer you to YouTube where you can watch the complete flight test in high definition giving you the complete feel of being in the cockpit and at the controls yourself. Please go to YouTube and search on "PipistrelMike" for all of the Pipistrel ALPHA Trainer movies.

End.