AIRCRAFT INFORMATION

Pipistrel
ALPHA Trainer

80 HP (Rotax 912 UL2)

Introduction

This document is published for the purpose of providing general information about the Pipistrel ALPHA Trainer Aircraft. Distributors/promoters and customers should familiarize themselves with this document to assist in their evaluation of this aircraft.

Should more information be required, please contact

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This document has been produced for the release of the Pipistrel ALPHA Trainer in May 2012. With the ongoing development of the aircraft Pipistrel reserves the right to revise this document whenever occasioned by product improvement, government/authority regulations or any other good cause.

General description

All information herein applies to the Pipistrel ALPHA Trainer aircraft fitted with Rotax 912 80HP engine. The Pipistrel ALPHA Trainer aircraft is a pre-molded, composite built, two seat, single engine, high wing, tricycle design, high performance and very economical Light Sport Aircraft (LSA). The aircraft is available in a fixed configuration of instrumentation and is targeted directly to flight schools and the training market but can also be used by recreational flyers looking for a fully featured aircraft at very reasonable pricing.

Basic Information

ALPHA Trainer	Dimensions
wing span	34’ 6’’ (10.5 m)
length	21’ 4’’ (6.5 m)
height	6’’ 9’ (2.05 m)
wing surface	100 sqft (9.29 m^2)
vertical fin surface	11.8 sqft (1.1 m^2)
horizontal stabilizer and elevator surface	11.6 sqft (1.08 m^2)
aspect ratio	11.8
flaperon positions	0°, 15°, 25°
center of gravity (MAC)	25% - 38%
propeller – fixed – Pipistrel FP02-80	63” dia (1620 mm)

Weights, center of gravity and fuel information

The design maximum takeoff weight for the new Pipistrel ALPHA Trainer is 1210 lbs (550 kg) with 602 lbs (250 kg) useful load and the fuel capacity is 13.2 US gallons (50 liters) providing around 4 hours total flight time.

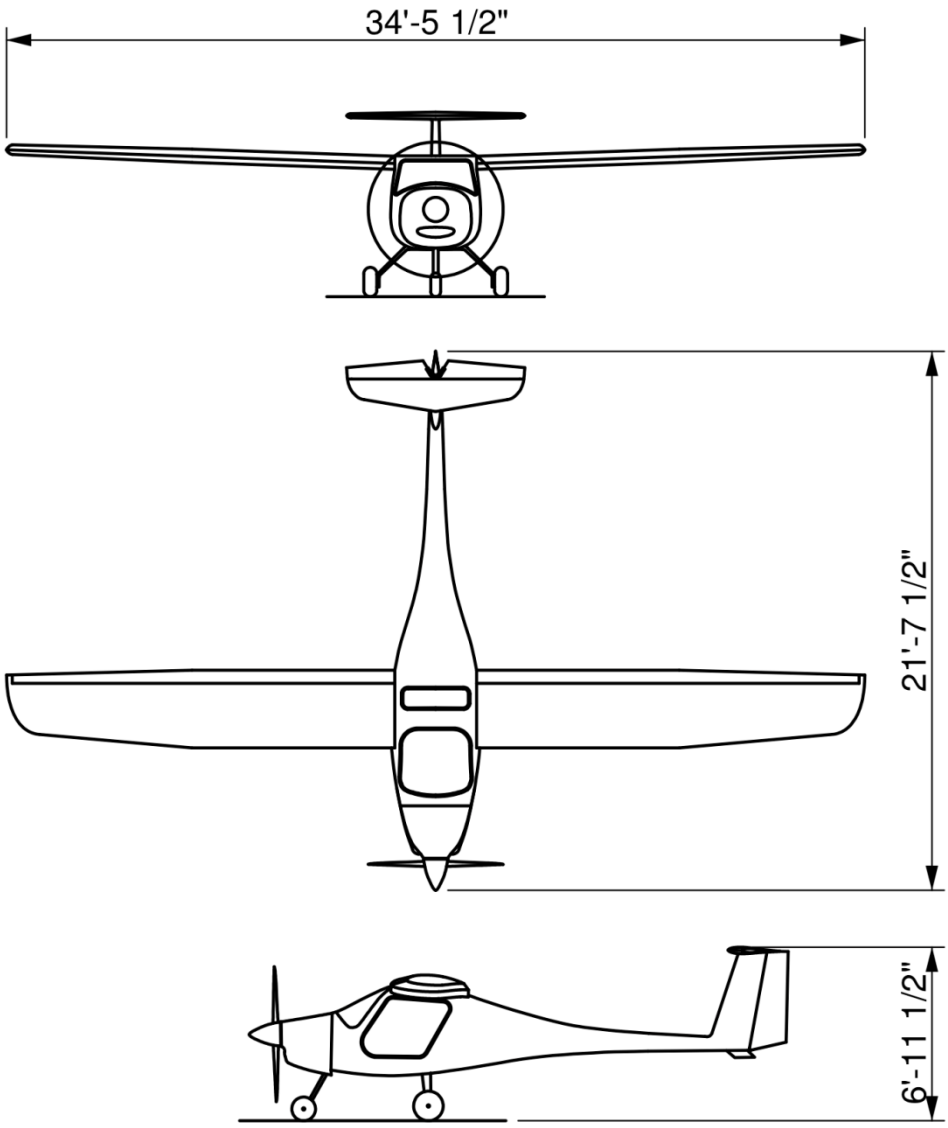
ALPHA Trainer	**80 hp Rotax 912**
maximum takeoff weight	1212 lbs (550 kg)
maximum landing weight	1212 lbs (550 kg)
typical empty weight	615 lbs (279 kg)
payload without fuel	597 lbs (271 kg)
payload with full fuel	518 lbs (233 kg)
baggage allowance, maximum (baggage floor limit)	55 lbs (25 kg)
baggage allowance, typical with full fuel	22 lbs (10 kg)
fuel capacity, total	13.2 US gal (50 l)
fuel capacity, usable	12.7 US gal (48 l)
fuel weight full	79.3 lbs (36 kg)
standard endurance 108 knots cruise	3.0 hours + 30 min reserve
standard range at 108 knots cruise	324 NM (600 kms)
fuel flow at 108 knots cruise speed (typical)	3.6 gph (13.6 l/h)
best speed for max endurance	90 knots 4900-5000 rpm
max endurance at 90 knots	3.6 hours + 30 min reserve
takeoff - ground roll - at MTOM	459 ft (140 m)
takeoff total distance over 50 ft obstruction at MTOM	738 ft (225 m)
landing distance over 50 ft obstruction	1510 ft (460 m)
absolute ceiling at MTOM	18,000 ft (5500 m)

Design loads

+4 G, -2 G All parts have been tested to a minimum safety factor of 1.875, meaning they were subjected to a load of at least 7.5 G during testing.

3-view drawing

Showing the Pipistrel ALPHA Trainer in Nose Wheel (tricycle) configuration, dimensions are in feet and inches.



Performance

Data published here is for take-off weight of 1212 lbs (550 kg), ISA conditions at sea level.

	Velocity	IAS [kts (kmh)]	Remarks
VS	Stall speed clean	**43 (80)**	Stall speed flaps up
VS0	Stall speed landing configuration	**37 (68)**	Stall speed flaps full
VFE	Max. speed flaps extended	**70 (130)**	Do not exceed this speed with flaps extended (+15, +25 degrees)
VA	Design maneouvring speed	**86 (160)**	Do not make full or abrupt control movements above this speed
VNE	Velocity never to be exceeded	**135 (250)**	Never exceed this speed in any operation
VNO	Velocity for normal operations	**108 (201)**	Maximum structural cruising speed in turbulent air

Airspeed indicator markings

MARKING	IAS [kts (km/h)]	Definition
White band	37 -70 (65 - 130)	Full Flap Operating Range. Lower limit is the maximum weight VS0 in landing configuration. Upper limit is maximum speed permissible with flaps extended
Green band	43 -108 (83 - 201)	Normal Operating range lower end is maximum weight VS1 at most forward C.G. with flaps retracted. Upper limit is maximum structural cruising speed
Yellow band	108 - 135 (201 - 250)	Maneuver the aircraft with caution in calm air only
Red line	135 (250)	Maximum speed for all operations. VNE
Blue line	76 (140)	Best climb rate speed (V_Y)

What is new?

The new Pipistrel ALPHA Trainer is the latest release in the Pipistrel family of aircraft; introduced at Aero Friedrichshafen in April 2012 it has already been a success with more than one dozen orders prior to its release. The Pipistrel ALPHA Trainer aircraft has been designed as an entry level aircraft perfect for flight schools and training organizations looking for a fully featured aircraft at a very reasonable price.

Geometry

The main differences from the existing Pipistrel aircraft and the new Pipistrel ALPHA Trainer aircraft is the aircraft has been designed from the ground up for flying school operations. The aircraft has a reduced wingspan to make hangerage easier; there is a new more robust undercarriage and shorter nose leg offering improved visibility from the front of the aircraft.

Structure

The structure on the Pipistrel ALPHA Trainer aircraft utilizes composite technologies introduced by Pipistrel since 1995. More than 500 aircraft have been serially produced using the same technologies before the Pipistrel ALPHA Trainer has entered service. The entire structure is made from composite materials utilizing predominantly carbon fibre, Kevlar and fiberglass in different areas.

Optimized for durability and SAFETY

The Pipistrel ALPHA Trainer aircraft uses reinforced undercarriage and composite structure to withstand the abuse of student pilots and flying school operations. The directly steerable nose wheel provides perfect ground handling and taxiing. Each Pipistrel ALPHA Trainer is equipped with a ballistic parachute as an additional safety measure; this rescue system can be deployed at maximum speeds and very close to the terrain.

Cruise speed at 75% is 108 knots (200 kph) with the Rotax 80 hp engine at 5200 rpm, at 5000 rpm this speed is reduced to 100 knots (185 kph). The slow flying behavior is very typical of Pipistrel aircraft and the ALPHA Trainer remains stable and completely controllable right up to the 37 knot (68 kph) stall speed. The Pipistrel ALPHA Trainer conforms to all rules and regulations for the LSA category and can be flown at a maximum takeoff weight of 1212 lbs (550 kg).

The Pipistrel ALPHA Trainer has a 13.2 gallon (50 l) fuel tank which is sufficient for 3.0 hours plus a 30 min reserve at 108 knots cruise speed. Typically the aircraft will burn around 3.6 gallons per hour (13.6 lph) at the economy cruise speed of 90 knots and even less in circuits.
All control surfaces are completely balanced and harmonized making this aircraft ideal for new students. The aircraft is stable in all flight regimes and is very stable in turbulence.

Standard equipment

The Pipistrel ALPHA Trainer is targeted to flight schools and flight training operations. The aircraft is delivered standard with a complement of instrumentation including flight instruments, engine instruments, radio, transponder and Garmin GPS. At the time of release the aircraft is supplied with both analogue and glass instrumentation in the standard package.

Livery and tinted glass

Pipistrel wants to clearly differentiate the Pipistrel ALPHA Trainer from other aircraft and this is why the Pipistrel ALPHA Trainer carries a whole new design including the ability to customize logos on the aircraft for different flying schools and universities prior to delivery. The windows and doors which are made of lexan feature a very light tint to reduce fatigue and temperatures in the cockpit and give a sporty yet luxurious appearance.

Frequently Asked Questions (FAQ)

This section is an attempt to sum up various questions people may have about the Pipistrel ALPHA Trainer.

NASA Challenges

What are NASA Challenges and what exactly did Pipistrel win in 2007, 2008 and 2011?

See links:

http://www.pipistrel.si
http://www.pipistrel-usa.com
http://www.pipistrel.si/news/nasa-says-pipistrel-virus-is-worlds-best-aircraft
http://www.pipistrel.si/news/pipistrel-big-winner-of-nasa-challenge
http://www.pipistrel.si/news/pipistrel_is_the_big_winner_of_nasa
http://www.pipistrel.si/plane/virus-sw/records--awards

Can I do aerobatics, spins in the Pipistrel ALPHA Trainer?

The Pipistrel ALPHA Trainer design follows the strictest ASTM LSA certification standards, as well as their FAA FAR counterparts and the ASTM standards for LSA aircraft.

More than six months of ground, structural and vibration tests went by without a glitch, followed by an extensive flight test program with more than 100 hours of cumulative tests. The Pipistrel ALPHA Trainer aircraft was designed for the training market but still offers exceptional and sprightly performance. The

aircraft is however not suitable for aerobatics, despite the +4 G, -2 G allowable loads.

Pipistrel cannot prevent people doing aerobatic maneuvers in the Pipistrel ALPHA Trainer, but we do not approve it – the reason is in aerodynamics. The Pipistrel ALPHA Trainer has so little drag that it picks up speed MUCH quicker than other aircraft with little drag. This can be dangerous in aerobatic maneuvers (also spins, which are completely recoverable) and an average pilot can very quickly overstress the airframe because the VNE can be exceeded in a steep dive in just 5 seconds!

Exterior paint

The paint used on the Pipistrel ALPHA Trainer is a special acrylic based pigment, which is applied to the molds during the manufacturing process. Pipistrel aeroplanes are not after-painted like many other aeroplanes – instead, paint is applied onto/into the structure while molding. This makes the paint much more durable and resistant to UV light and environmental contaminants. Recommendations for care and cleaning of the aircraft can be found in the Flight manual and Maintenance manual, section Handling and Maintenance, chapter. Keeping your aircraft in perfect shape.

Wheels/Tires

Standard wheels have large 4-ply tires, which are adequate for use on grass/gravel and light use on hard (asphalt, tarmac, etc.) runways. If you anticipate using the aircraft on asphalt only, consider ordering six or eight ply tires which will last much longer. Pipistrel offers tires with 4, 6, 8 or 10 ply's, additionally, tires are available from companies like Aircraft Spruce who offer overnight US delivery at very reasonable pricing.

Certification

The Pipistrel ALPHA Trainer aircraft is certified and approved in the LSA category (in the USA) the aircraft would also qualify for certification approvals in other countries.

Cockpit

The upholstery offered with the Pipistrel ALPHA Trainer is very durable fabric which has been offered by Pipistrel with all of their aircraft since 1995. This upholstery matches the seats, firewall, carpet and also the wing spar cover which is now offered as standard.

Real life performance

True to Pipistrel performance, all data published for the Pipistrel ALPHA Trainer is accurate and acquired from flight testing. Please note that the data is published for the take-off mass of 550 kg and ISA Sea Level conditions.

On a hot summer day expect the cruise speed figures to be a maximum 10 km/h (5 kts) less than those in ISA Sea Level and take-off performance degraded by maximum 20%. Further information about aircraft performance in hot conditions and on grass runways is also included in the flight manual.

Baggage allowance

The Pipistrel ALPHA Trainer contains a luggage area behind the seats which is easily accessible from the cockpit. The baggage allowance varies depending on the fuel quantity in the aircraft. The Pipistrel ALPHA Trainer has not been designed as a touring aircraft but as a training aircraft, there is more than enough room however for an overnight bag, limited spares, tie downs etc. The recommended maximum full fuel weight in the luggage area is 22 pounds although the aircraft can carry up to 55 pounds with reduced fuel capacity. This baggage allowance is additional to the ballistic parachute which is installed as standard.

Is it possible to have Rotax 100 hp or 914 Turbo engine?

No. The Pipistrel ALPHA Trainer has been designed as a training aircraft and the 80 hp engine is more than adequate for operations at the maximum takeoff weight. Typically at maximum takeoff weight the aircraft will still climb at 800 fpm. 100 hp would be overpowered in the Pipistrel ALPHA Trainer aircraft.

Can I have an in-flight adjustable or feathering propeller?

No, the Pipistrel ALPHA Trainer is only offered with a fixed pitch propeller, it is designed as a training aircraft and not as a glider.

Can I fit airbrakes or spoilers?

No, the Pipistrel ALPHA Trainer is not available with airbrakes as an option.

Can I get a larger fuel tank?

No, the fuel tank capacity is fixed.

Can I use fuel with ethanol?

Yes, the fuel tank and the fuel lines are protected for ethanol up to 10% which is the current limit set by Rotax.

Can I change the instruments?

No, to keep the cost of the Pipistrel ALPHA Trainer as low as possible the aircraft is only available in a set instrument configuration.

What is the Pipistrel Alpha Trainer warranty?

The warranty on Pipistrel aircraft is 12 months or 100 hours whichever comes earlier. The airframe is covered by Pipistrel, the engine is covered by Rotax International warranty and individual warranties are carried by the instrument and avionics manufacturers. A full copy of the warranty conditions is available on request.

Wingspan and wing removal

The wingspan of the Pipistrel ALPHA Trainer is 34’ 6’’ (10.5 m) which is 18” (0.5 m) less than a Cessna 172. The wings can be removed in around 15 minutes.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