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THE PREDATOR

- Breezing Along in a Breezer
- Sport Pilots and Air Space
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The PREDATOR Powered Parachute takes the cover of EAA's Sport Pilot mag and the top awards at Oshkosh!

PREDATOR - the powered parachute "GRAND CHAMPION" award winner at Oshkosh (2006 & 2007)

The powered parachute sky may indeed belong to
the...

PREDATOR™



With small aviation companies, one will often find that the personality of the business is often the personality of the business initiator. And when this theory is referenced to SkyTrails LSA - well, this is a good thing, a very good thing. For Fredrick Scheffel the company's CEO and Scott Hughes, the primary entrepreneur & designer behind this innovative Powered Parachute Manufacturer are both self-less men devoted to the sport of powered parachutes. You will find that both Scott & Fredrick definitely have a strong admiration of life, with great senses of humor and these are two that love to share their love-affair with the sky with others.

It was a clear; calm (typical southwest Utah) November day when our Test pilot got his first opportunity to fly the PREDATOR 2-seat powered parachute. One of the first things that he noticed about the aircraft as he approached to do his preflight was the fresh, narrow frame layout. This sleek design logically appears to allow for a cleaner, undisturbed air flow to the propeller. The one piece pylon tube added to the slim profile and this single tube constructed pylon (no plates or bolts connecting the two pylon sides) diminishes any torque from twisting the frame or prop-ring during a hard landing. *(Note: Since he has witnessed torque from student 'heavy' landings actually twist the frame and prop-ring to the degree of causing a propeller strike and the loss of 3 blades in a two piece pylon - he know that the PREDATOR's clean, single tube pylon design is a valuable and well thought-out asset to this aircraft.)* The gas tank was also a strong, first impression component. The unique, smooth cylinder shape of the gas tank not only benefits the propeller with more uninterrupted air, but its dual interior baffles prevent fuel



'sloshing' during flight maneuvers. Another component that lends itself to the sleek 'first impression' is the narrow custom radiator. This radiator that is custom sized for both the Rotax 582 & 912 cleanly fits inside the pylon's borders; which again improves the airflow to the pusher-propeller. And while one's eyes are focused up to the radiator, it is easy to appreciate the custom aluminum oil tanks and radiator overflow containers. These two items also add to the professional look of this aircraft.

Once he completed his preflight of this Rotax 582 driven unit, he soon discovered another joy that this ergonomic frame design delivered - it has a far easier entrance and exit from the cockpit sling seat (as well as from the rear seat that he tried later in the day). No



more 'monkey squeeze' to get seated. The narrower frontal bars and the single cockpit stick accommodated a smooth transition into the front seat. The control stick is a comfortable arms reach away from the seated pilot and the tall instrument pod permits a clear, clean view of the switches and the Super EIS.

The single lever between the pilot and the instrument pod also allows for easier, more convenient cockpit management, as either hand can operate this dual-function control. This one lever intuitively controls both the throttle and the ground steering. And the solid engineering of the combo-stick provided effortless, uncomplicated movement throughout the entire range of motion for both the throttle and the ground steering. The throttle action of the stick (fore & aft) is likened to that of an airplane's yoke; to ascend, the stick is pulled back (increasing the engine's RPM) and to descend, the stick is pushed forward (reducing the RPM's). Additional points worth noting about the patent-pending dual control stick is that movement of either function does not affect the stick's other purpose; and the ground

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steering (left to right stick movement) is self-centering. This self-centering ground steering naturally assists with the common straight-in PPC landing.

The take-off from the field was smooth, with the 550-sqft wing kiting easily. With the narrow frontal bars, the sense of flying is indeed, very OPEN! Even with the additional safety of frontal bars, the 'open' feeling was present. The openness definitely adds to the pleasure of the flight, as well as to the well-being aspect of greater peripheral visibility. The day was relatively calm, so he could not confirm the lateral stability with natural wind gusts. However, by inducing a side to side rocking by alternating the wing 'brakes', he definitely got a sense of the benefits of the high attachment points and lower CG when he let go off the steering controls while swinging and found that the cart almost immediately solidly relocated itself directly below the wing. This PPC also seemed to gain altitude better than most - although he does not know whether to attribute this sensation to the narrower design and hence cleaner air flow to the propeller, or to the larger diameter propeller*.

[Note: Even though he is confident that he was climbing at a faster than average rate, he was unable to put the same wing on another manufacturer's similar two seat PPC model to confirm the exact increase during the same weather (i.e., density altitude) conditions.]*



Design Distinctions

Overall, he was impressed with the results of the NASA engineering consultation meetings and the testing that had been done on the design concepts of this new powered parachute cart. *(There are obviously some benefits to having your manufacturing facility in Houston and having friends at NASA.)*

As an example of some of the testing that was done - testing even down to the seat comfort was repeated over hours of time as to the contentment of different pilots *(with different bottom structures)*. Subjects were asked to sit in several seat setups while watching TV and observed for 'wiggles' or 'squirms' to determine seat ergonomics. Seat construction from hand contoured, plush looking models, to simple, 'butt' forming sling seats were tested with multiple subjects.

Some of the notable improvements that he found while examining the PREDATOR and interviewing Scott Hughes, the designer, were...



- Reinforced seat webbing. With re-enforced fabric like that used by skydiver rigs, the seat webbing is planned out to hold the 'bottom' of a pilot throughout a worst case scenario.
- FAA TSO'd certified seat belts. These seat belts run through the seat back (to prevent the shoulder harness from slipping down) to the frame of the unit for added strength. The buckles of the seat belts are a durable construction that can smartly be Un-buckled - even from an upside-down position with just the fingers of one hand - and yet hold thousands of pounds of pressure when secured.
- The seating setup allows for a lower CG (Center of Gravity) for the pilot. This gives the unit a more stable pendulum platform.
- Throttle/Ground steering. The throttle (or as some like to consider it in this configuration, the yoke) is a clean, sturdy construction that blends the ground steering and the throttle into one lever. Move forward

on the lever - like a yoke for descending (lowering the engine's RPM); Rearward - like a yoke for ascending (increasing the RPM); move the stick to the Right - to ground steer right; and to the Left - to ground steer left.

This feature is great for the photographer - inside almost every powered parachute pilot - as it allows the PPC to be flown with either hand and to always have one hand (and a 'clicking' finger) free from either side of the cart.

- Nose Steering Bearing. The superior nose steering bearing is notable because it allows the front fork to be almost friction free. *(Perhaps some will consider this to be 'overkill' for PPC engineering, however during the test flight he found this to be a valuable safety feature as he was able to ground steer with far more agility than the average PPC. This manufacturing facet allows for a tighter, cleaner, turning radius - and thus a greater safety margin should animals run into your ground path.)*
- Wheel bearings. Precision wheel bearings that ride against the bearing's race - reducing friction and reducing the tendency of the pilot to over torque and damage (via crushing) the wheel bearings.
- Front Wheel. An ideal front wheel castor angle that looks clean and allows for a greater turning range.
- Tube Clamps. "C"-clamps are used on ALL joints in the main cockpit cage. Using these clamps that work in compression can add 3-times the strength to frame joints when compared to other PPC using "U" brackets functioning in shear construction.
- Tubes. All tubes are either 4130 Chromolly (Chromium Molybdenum) or T6 6061 aircraft aluminum. All the tubes are plugged with Delrin at both ends. This prevents tube crushing *(and for those who cautiously - or even recklessly - fly over lots of water - well, you may note that this will give you more float time, should you find yourself caught between ocean wave swells!)*
- Bolt together. This is a tube & bolt together unit. This feature is a definite plus for those who cannot or do not wish to weld repairs.
- Titanium Nose Plates. These lighter and stronger nose



plates are the front tie for the frame rails of most PPC's. Hence having the only PPC with a titanium nose plate option is a definite plus for the planes specifications.

- Frame Rails. The Chromolly "4130" frame rails are the backbone of the PPC. The chromolly gives foundational strength and memory to the tubes.



- Pod. A perhaps, oversize instrument pod allows for easy viewing of switches and instrumentation from the pilot seat. The pod also gives the owner that option of incorporating many accessories directly into the pod, like their GPS with a large screen area.
- Fuel Tank. This aircraft grade aluminum tank is pre-drilled for a gas probe and has inserted baffles which prevent fuel starvation during quick flight maneuvers. Sport Pilot & Light Sport Aircraft thoughts have gone into this fuel tank as well, as it can easily be expanded to a 15 or 18-gallon capacity without affecting the CG. The mounting of this tank also deserves mentioning, as it is secured on vibration isolators over 2"x2" steel braces - thus adding to the frame's strength & safety.
- Prop Guard Ring. The tubes surrounding the propeller are professionally bent to accept up to a 68" propeller that can be placed on a 3.47 or 2.62 gear box. And the double-tubed ring adds to the rear rigidity (especially practical while hand-

pushing the cart around) and significantly prevents lines from becoming accidentally acquainted with the propeller during wing inflation. Also to note are the button covered bolts heads around the rear ring and the milled saddles that are shaped to receive the support tubes, adding to the ring guard's strength.

- **CG/Riser Plates.** The CG/riser plate spread (of 51 inches) puts that near perfect shape into the average ram-air wing. (*This is where the NASA engineers really helped.*) The height of the CG/riser plate is also one of the highest (relative to the CG) in the industry. This definitely adds to increase the pendulum stability noticed by PREDATOR pilots. Another CG/riser related noteworthy item, is that the CG/riser plates, while in flight, match the angle of the wing's fabric (multi-colored) risers. This angles reduces friction points between the quick-links and the CG/riser plates, as well as gives this unit cleaner lines (both cosmetically and structurally) while in flight.
- **Electronics.** The battery tray and associated electronics (such as the solenoid) are on the forward side of the pylon. This position diminishes any chance of electrical contamination if the radiator fluid was over filled.
- **Engine Mount.** The term the factory used for this distinctive engine base setup was 'dyna-focal' mount (patent pending). And in pilot terms, this means that the shapes (bends) in the mounting plate are calculated to lessen engine-to-frame vibrations - a very nice, 'two-thumbs up' feature.
- **Center of Gravity.** Perhaps this observation is a bit subjective, but our test pilot cannot remember piloting a PPC with a lower (vertical) CG. And with the secondary seat (the Sport Pilot passenger seat) directly over the horizontal CG, the weight of a passenger truly become irrelevant in reference to the passenger's weight affecting the aircraft's CG.



Buyers

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Relative to potential buyers, one should be aware that SkyTrails LSA offers monthly specials in addition to their high quality/dollars value of their powered parachute. For instance, last month the factory gave a \$1000 coupon towards training at one of their professional training centers. The training centers need to be mentioned also for their standardized training programs created by SkyTrails Ranch & Fredrick Scheffel, associated with a PREDATOR sale.



Features:

- Training Manual. Currently the "Sport Pilot Powered Parachute Training manual" on DVD is included with each unit; the information in this manual will prepare the anxious client for any one of the PREDATOR training centers Sport Pilot programs.
- 10-gallon fuel tank
- Color schemes. The frame color can be highly & uniquely accented with colored brackets, colored pod and decals. Standard highlighting colors currently available are: Red, Blue, Purple, Gold, Yellow, Green and Black.
- 500 or 550-sq ft; in-stock wings supplied are PD, Quantum and Elan
- 68", 3-blade propeller (Warp Drive or 'F' model Powerfin)
- Rotax 582 with a 3.47 or 2.62 'E' gear box. A 68" prop with 3.47 gearing setup appears to be one of the quietest arrangements in the marketplace.
- Tundra tires

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- Ceramic coated exhaust
- Dual Shocks. The dual shocks allow for an excellent 6" of travel; travel that is indeed appreciated on those not so pretty landings!
- Super EIS (by Grand Rapids Technologies)

PREDATOR Pricing (as of this writing, with the above standard options):

582 - 65 hp	912 - 80 hp	912 - 100 hp
\$19,500	\$28,900	\$31,500

Options/Upgrades:

- 912 engine upgrades (to either the 80-hp or the 100-hp)
- Front Brake
- Custom color combinations
- Dual strobes
- Trim locks
- 4 & 5-blade props
- Fuel Probe
- Factory setup/installed communications & helmet systems (Comtronics, Sport-Link or Lynx)
- Rock guard
- 500 or 550-sq ft wing; there is a wide selection of upgradeable wing manufactures: PD (USA-Florida); Quantum or Elan Rectangular or Chiron (Israeli)
- Custom wing logos & designs are available
- Landing & Positioning Lights packages
- Flashy Light package (*for those who want to be noticed*)
- Smoke setup (*a nifty benefit for air shows*)



Currently the PREDATOR is offered with a reliable Rotax engine (582 or 912). However, other engine options are being explored by the factory, and may be offered on near-future models.

Dealer Network

For those who are interested in becoming Dealers for the PREDATOR and future products of SkyTrails LSA...

- Consideration will be given for existing Dealers (relative to their time in the PPC industry, their Sales history, their reputation and just as importantly, training

history) when taking their place in the factory Dealer sliding-scale commission levels.

- Dealer territories are setup to truly be protected. The size and shape will be based on dealer history, reputation and geology and will be established by zip codes. Any dealer selling to an assigned zip code of another dealer will be paying a sizable commission from the sale back to the dealer of that client's territory. *(Note: This is similar to the way that the successful Harley-Davidson dealer network is setup. And as a previous dealer of multiple PPC manufacturers, both Scott & Fredrick sincerely understand the need for this type of dealer respect.)*
- No factory sales will be written for clients in protected dealer zip codes.
- Every client will be instructed to a high training standard and syllabus. That means if a client completed training to level 5 in one part of the continent, and then if that client moves to the opposite coast, that another dealer continuing that client's training at level 6 will know exacting what the student has already been taught and what he can improve upon.
- Planes will be stocked and ready for shipment from the factories when an order is received. Since there are standard frame colors, it is feasible for the factory to stock every part - ready for next day shipments and frames ready for assembly.



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For new Dealers just entering the ultralight and sport pilot markets the arrangement between the company and the dealer is established as:

1. First PPC will be purchased at retail value.
2. Second unit will give the dealer 50% of the sliding-scale (approximately \$1000 for a PREDATOR sale)
3. Third sale will receive an additional \$500 commission
4. Fourth sale, another \$500 bonus commission
5. And on the fifth sale - *and this may be the best part* - on the fifth sale of a PREDATOR completed in one year, all of the full commissions will be paid on the previous 4 sales.

Note that the dealer percentages are based on the normal Rotax 582 engine unit. As accessories and engine upgrades are installed, commissions increase.



This company will do much to support those dealers sincerely dedicated to the support and safety of this 'low and slow' sport. Varying the degree of factory to dealer rebates, and then giving bonuses to the dealers selling more than 5-units a year seems to be a 'plus, plus' for the dealer that should work its way to a more satisfied, skilled and safe client

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If one is interested in becoming a dealer for SkyTrails LSA, please visit the company's website (www.SkyTrailsLSA.com) and complete the online application or call the office: Phone 979-282-2005; or even stop by their Wharton airport hangar #31 just 60-miles southwest of Houston, at: 882 Robert Vanderau, Wharton, TX 77488

For future reference, as the dealer network develops, the company plans to setup distributors in the major regions of the continent.

PREDATOR - moving forward...

The near future holds a multitude of phases for this pioneering company. Phase 'One' is the subject of this article, the PREDATOR two-place powered parachute. Phase 'Two' is the building of the single-seat "103" unit. Phase 'Three' will bring the companies direct focus on the expansion of Centers. Phase 'Four' will take from the drawing board to the production line. And Phase 'Five' will address military issues.



their Training 'Four' will take from the drawing production line. will address

Scott, the designer, truly exceptional love importantly he is back to the teaching all the brought him joy:

PREDATOR has an of life, and more one who gives world by things that have Skiing, Skydiving,

Powered Parachuting. And now he want to give the world a PPC that through his vast PPC & flex wing experiences and insights has already brought innovations to the PPC world - as noted by his "Innovation Award" & the "Gold Grand Champion" awards at Oshkosh. And relative to the Light Sport Aircraft world, the PREDATOR meet ASTM requirements and began building their S-LSA models in November of 2008.

It was both a privilege and a joy to pilot the PREDATOR. While flying this PPC the Test pilot was instilled with that simple, but awe feeling of "WOW". And even though it is the performance that stands out while flying this PPC, it is the knowing and understanding of the safety concepts that are engineered into the machine that gives the pilot that sense of comfort. After a single flight, it becomes very obvious to the pilot that the clean, narrow

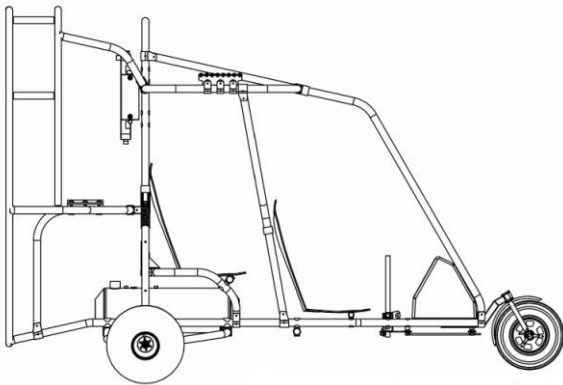
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design of the PREDATOR allowed more uncontaminated airflow to the propeller, thus adding more thrust from the standard Rotax 582 than one is accustomed to.

In conclusion, perhaps no one precisely engineered item; no one innovation will make it to the powered parachute Hall of Fame. But when all of these 'niceties' are viewed together, then this PPC unit stands out in a crowd - like a PREDATOR among herbivores!

Specifications

Note: All specifications and performance figures were provided by the factory.



Dimensions (with standard 550 sq ft rectangular wing)
Length: 124 inches (~10.5 ft)
Width: 80 inches (~6.7 ft)
Height 89 inches (7.5 ft)
Empty Weight: 420 lbs
Gross Weight: 1150-lbs (with a PD 550 wing)
Useful load: over 700 lbs at sea level
Fuel capacity: 10 US gallons
Wing loading, when fully load: 2.1 lbs/sq ft

Std Engine: Rotax 582, 65-hp
Seating: two, front to back

Performance

Stall speed: 16-mph at sea level, 300 lb payload

Ceiling (Private Pilot): 17,999 feet, 11.9 inches EXACTLY!

Note: figures for Climb rate; Takeoff distance, Landing distance vary so much in a powered parachute with wind speed, field altitudes, field conditions, density altitude and Gross weight that he believe you would find little realistic value in these numbers. You may want to call the factory or a factory authorized instructor for these performance details in your area & situation.



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