

## **IMPORTANT THINGS TO CONSIDER WHEN PURCHASING A GYROPLANE:**

### **1) SUSPENSION: THIS IS OF VITAL IMPORTANCE:**

*SPORTCOPTER II: Has an Incredible State-of-the-Art Suspension System! It has 11" of travel and rate sensing shocks with heavy-duty springs, designed for fast rates of descent with safe recovery. It can easily handle rough field landings and take-offs and as you can see in the video footage you can drop it in from as high as 15 ft. and with its incredible suspension it allows complete absorption of impact which cushions your descent makes any landing look easy. Also the geometry of this suspension is attached at the strut Not the axle, which is seen in other designs. This eliminates the "scrubbing" affect of the tire. Scrubbing is the peeling of the tire, off it's rim and results in unusual wear.*

[Some gyroplanes come without suspension, which makes it extremely dangerous for ground handling, landings & take-off. It is impossible to do "rough field" take-offs. If you come in for a rough landing, the airframe, alone, without suspension, cannot absorb the shock, which will in-turn compromise the integrity of the entire aircraft. After a rough landing sometimes the damage is not visible from the exterior, so you only can guess if it is safe for the next flight. This will also cost you money when you need to replace the airframe parts, IF the damage is not beyond repair.]

### **2) DIRECTIONAL CONTROL NOSEWHEEL:**

*SPORTCOPTER II: We have an independent system: First, our nosewheel is free-castering, so it aligns itself instantly upon ground contact even if you misalign by a few degrees, eliminating any tendency to ground-loop. You can even land or takeoff with the nosewheel still making contact on the ground! Second, our nosewheel features an ingenious high-viscosity shimmy-dampening system which provides unsurpassed stabilization at all speeds. Third, our nosewheel uses double swing-arm suspension with twin-impact compression bosses which offers the Sport Copter unrivaled stability and controllability-even at high speeds and over very rough terrain. In short, our nosewheel system design is amazingly simple and effective...and the only one of its kind.*

*Finally, there is the matter of steering a Sport Copter on the ground with a free-castering nose wheel. Traditionally, non-steerable nosewheels have displayed rather demanding taxiing characteristics, but in the case of the Sport Copter series, steering is easy and smooth. There are three primary reasons for this:*

- 1) *The high-viscosity anti-shimmy mechanism defeats the "hunting" tendency of a free-caster to amplify or over-steer answers to steering inputs. The viscosity mechanism instantly "brackets" all steering commands.*
- 2) *Primary steering input is accomplished by independent toe-operated hydraulic disk brakes, integrally mounted with the rudder pedals (all four pedals in the two place model). These brakes are thoroughly effective and show no propensity to fade.*
- 3) *It is axiomatic that for any ground vehicle, a properly-designed steering system will seek to center itself in the absence of any other input. The Sport Copter accomplishes this by a single spring-loaded centering device which effectively maintains whatever steering input has already been "bracketed" by the viscous damper.*

*The net result is not only authoritative steering, but an aircraft that practically "nails" itself to the runway centerline during take-offs and landings.*

[On most gyros, the nosewheel and rudder are interconnected (BIG MISTAKE) which creates an inherent problem for cross-wind take-offs and landings: Exceedingly low take-off and touch-down speeds are true hallmarks of gyroplane performance; however, in cross-wind situations, a low forward speed makes any cross-wind component potentially destabilizing if the nosewheel is not aligned with the aircraft's actual path when contacting the ground. With an interconnected nosewheel and rudder, the alignment of the nosewheel is dictated solely by the position of the rudder, which means that in typical cross-wind maneuvers (such as forward slips, pilot-induced aerodynamic skids or "crabbed" lift-offs and touch downs) the rudder-and therefore the nosewheel-will not be aligned with the actual ground path, which can result in the classic ground-loop.]

### **3) DIFFERENTIAL DISK (HEAVY-DUTY) BRAKES:**

*SPORTCOPTER II: Has special billet machined calipers. Tire replacement calipers pull off for easy maintenance*

### **4) CONTROL SYSTEM:**

*SPORTCOPTER II: So while other gyroplanes and most helicopters continue struggling with over-sensitive controls, the Sport Copter II now has a control system that provides the response and feel of a high-performance Humanized Roto-control System, separate linkage stick controls gives better feel, comfort and handling of your aircraft...ie: no compensations needed as there is no tilting.*

[This will ultimately make or break your joy for flying. An aircraft that can provide ease in its control system and bring you stability of movement will make the flight experience...the one you dreamed of. It is very important especially for the seasoned pilot to feel the ease of the usual stick control, which is the traditional "feel" on most aircraft. When the stick is laterally connected to another "user", as seen in some situations, the controlling of the aircraft and movement of the stick is very unnatural.]

## **5) STRONG CONSTRUCTION:**

*SPORTCOPTER 2 : Body, clean, aerodynamic in all areas, construction all pre-preg epoxy which is stronger and far superior to wet lay-up. The glass is made of honeycomb core and pre preg cloth which are cured and manufactured comparable to military specifications.*

[Most other designs use the cheaper "wet" lay-up for construction]

## **6) PREROTATOR SYSTEM:**

*SPORTCOPTER II : Powerful Mechanical Prerotator System provides a smooth, fast, high RPM Spin up. The latest outstanding design from Sport Copter.*

## **7) SEATS:**

*SPORTCOPTER II: Provides the ultimate in comfort and safety for the pilot and co-pilot. The seat backs are adjustable and provide relaxation along with the extra long leg room. Ergonomic Cyber Seats with ejection seat impact cushioning. "Comfor" foam cushion, not only provides the best in comfort but also they absorb hard impacts thus protecting the spine. This uniform-pressure characteristic translates into unmatched comfort for extended periods, but even more impressive is its ability to provide very high-impact cushioning without rebound. Comfor Foam encapsulates the pilot with full support all the way to the top of the helmet and is located in both the back and seat areas with an adjustable "lumbar support" option (same feature as seen in the Columbia Aircraft). Also both seats provide adjustable backs, for extra comfort, while traveling.*

[Most other designs use very crude seat-tanks, wherein the pilot and passenger sit directly on the fuel which is inherently dangerous. Also most seats do not provide a comfortable quality seat which also gives complete support to from the spine all the way to the back of the neck.]

## **8) RUDDER PEDALS:**

*SPORTCOPTER II: This unique rudder pedal design is the first of its kind. It is a specially designed "Adjustable Rudder Pedal" system which instantly can change settings to custom fit the correct positioning for pilot and co-pilot. Whether you're 4' 11" or 6'5", you will be guaranteed absolute control of the pedals. Also the pedals control your disc brakes at the toe. Nice fit to the foot for comfort and ease of maneuverability.*

[Most gyros, as discussed above under "Directional Control Nosewheel" most gyro's interconnect the rudder to the nosewheel which is dangerous & quite frequently causes a ground loop.]

## **9) ROTORHEAD:**

*SPORTCOPTER II: All CNC machined parts. Sport Copter is known for its quality and engineering when it comes to this rotorhead design. The rotorhead components have built-in, replaceable **bumperstops** made of a new broad-temperature polymer which protect all moving parts from each other as they reach the limits of their respective movement-arcs. The components of other rotorheads simply mash into one another when they reach their arc-limits, leaving dents, scoring and an occasional crack.*

*The rotorhead itself is actually **shock-isolated** from the aircraft by a compression-type shock-mount for the rotational pivot. This isolation is achieved within the longitudinal carry-through by means of specially-formed polymer and Teflon bushings, compressed and mounted with machined stainless steel retainers, caps and bolts. This results in a significant reduction in shock and vibration transfer between the rotor and the rest of the aircraft. Both the bumper/limit-stops and the rotorhead isolation are intelligently engineered features found in no other gyrocopters, but in time they will almost certainly become accepted design standards throughout the industry.*

*The Sportcopter II is equipped with a heavy-duty, upper rotorhead with a double-bearing stack and taller towers for the proper undersling for heavier loads and a stabilizer bushing to prevent side-load flexing of the tower plates.*

[Most other designs lack attention to this crucial area in where we find holes drilled so close to the edge of the metal that it compromises the integrity of the structure rendering it "weak" and this is where safety is most important.]

## **10) INSTRUMENTATION:**

*SPORTCOPTER II: The instrument panel is large and easy to reach and see! There is room for two EFIS glass panel's instrumentation. This glass panel is conveniently and neatly designed aesthetically to compliment the clean functionality of the cabin.*

## **11) ROTORBLADE SYSTEM:**

[Typically most rotorsystems do not have the technology of Sport Copter's "Sport Rotors" also known as the "Safety Rotors". Please read about the Sport Rotors below and compare to other rotorsystems and you will see that our system stands out from all the rest in design, impeccable construction and outstanding performance.]

*SPORTCOPTER II: The "Sport Rotors" latest breakthrough in the design of their new rotor systems is seen in our larger, 8.5" chord blades, specifically at the hub bar. This is unlike any other hub bar design you have ever seen. In adding a polyurethane mount, with a spherical bearing, to the connection area of the blades, it allows the blades to pivot. Also due to this configuration the rotorblades are able to find their own lead, lag and coning*

*angle. This simple design gives separate pitch and track adjustability allowing them to fine tune their position. The special mounting renders smoother movement during rotation and this feature of self-aligning is helpful, especially for the pilot who removes his blades from the hub bar between flights.*

*This new rotor system was designed for longevity, in that, any wear points (flexing on the bushing) can be replaced. Designed for Long Life! Also we balance, track and fly every set of Sport Rotors before they ship!*

## **12) YOUR INVESTMENT DOLLARS:**

***It has been said ( on the Rotary Forum Site) that to find a used "SPORT COPTER" gyroplane is like looking for the Holy Grail. When an owner has to sell his Sport Copter, he usually can get more than what he paid especially if the gyro is fully assembled. They hold their value and the quality will last as long as the machine is stored and cared for properly. Our designs can be well maintained throughout your lifetime as the quality of each component insures longevity to the buyer's investment (and fun!).***