



Crosswinds

August 2006



Newsletter for the Spring Area Radio Kontrol Society

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From the Cockpit by President Chris Fredona

Welcome to the August 2006 Crosswinds newsletter.

There are several issues I would like to address in this month's column. The first is the recent damage to our flying field. On Monday, July 24th, a herd of cattle escaped from a neighboring field and walked and grazed on our flying field. As the ground was soft from the recent rains, the cattle hooves left deep impressions in the field which could damage or destroy our aircraft. Through Doyle Kay, I was able to contact the cattle owner and get his support in removing the cattle from our property but the damage remains and requires repair. **I ask all club members to participate in a work day on Sunday, July 30th starting at 8:00 AM (weather permitting) to fill the holes and repair the pilot station safety fences, as was discussed at the last meeting.**

The second topic concerns flight safety in the proximity of full scale aircraft. Several pilots, including an FAA check pilot, from Hooks Airport have reported incidents in which our model aircraft have flown dangerously close to their airplanes and in one instance caused the pilot to take evasive action. These aircraft were reportedly flying at 1000' in the vicinity of our field. Extreme care must be taken to avoid flying near full scale aircraft. **More details on this issue are provided in a separate article in this newsletter.**

A new club flyer is being developed to advertise our club. Once completed, it will be given to the various area hobby shops to give out to interested people seeking a flying site. In previous years, these flyers have attracted new members for us and I hope it will do so again. If not, the club can consider other more focused promotions.

The next SPARKS RC club meeting will be on August 2, 2006 at the Valley Ranch. One of our topics of discussion will be desired events for this year. Bring your ideas and suggestions of what you would like to see or do.

Fly Safely!

July Meeting Highlights.....

Photo to right - Retiring President, Duane Neeffe was presented with a well deserved Certificate of Appreciation for his meritorious service for the Club year 2005-06.

Photo below - Instructor Duane Neeffe presented a Solo Certificate to Dexter Christilles who completed the Flight Proficiency Test with flying colors.



Greg brought two models for his demonstration

Greg Riede presented an informative "Helicopters - 101" discussion of various aspects of construction, repairs, dynamics of flight and his personal experiences with helicopters.

Greg also pointed out the numerous advancements in helicopter technology that have taken place since he first became interested in rotary wing flight. Thanks, Greg for an enjoyable and informative presentation.



Thanks to Edie Jacobsen for the custom designed windsock. It looks great and is very visible.



July Model of the Month - Roderick Kuntz and the Royal JU-87 Stuka



Maiden flight July 9th.



At the July Meeting

The Ju-87 Stuka was Germany's leading dive bomber from the invasion of Poland to the final defense of Berlin. It served in Italy and Russia, England and Egypt. From beginning to end, the Stuka was on the front lines battling it out.

When I moved to Houston three years ago, I bought the very same model from someone in the club, but due to my inexperience, I was not able to finish it and I sold it. At a fly-in at Alvin two months ago, I was given another chance to finish this model. My model was built from a Royal kit. As I received it, the wing was built, covered, and painted.

The fuse was about 90% built. As I finished building the fuse, I made some minor changes..... such as putting a micro servo on the fire wall to use for my throttle control, and continued on to glass it. With the exception of the bottom of the wing, I repainted the entire aircraft.

Two Tower Hobbies servos are in the wing and all others are standard JR servos. The cockpit came almost completed, but the gunner's area was missing. This I built with balsa and a stick pin and used fuel tubing for the lamp. It was painted and the canopy was glued on. The canopy took almost 2 hours to mask off but I was done painting it in about 5 minutes... go figure. This plane was a joy to work on and you just can't beat that value!!

The maiden flight was Sunday, July 9th, and was.... scary to say the least. The O.S.-91 FS up front hauls the plane around with authority. Take off was smooth and controlled. The aircraft was responsive and quick as I gained altitude, it required some aileron trim and some rudder trim to get it flying hands off... due to an aft cg I had some trouble getting the plane down smoothly. However, I did so without breaking anything.

The scale flaps are wonderful... when deployed they had no effect on the trim of the aircraft and slowed it down while adding stability..

I love this plane!!!! I t is beautiful to look at on the ground and in the air...not to mention it is an awesome flyer!

Roderick Kuntz

Flying with the Big Boys - Models and Full Scale Aircraft Safety

By Chris Fredona

Recently, a former SPARKS member and full scale pilot, notified me of several incidents in which SPARKS model aircraft flew near full scale aircraft flying over our field. To further explain the situation I am including the email messages I have received.

Message 1

I have been a member of SPARKS ... but have not been active recently. I have been busy flying a full scale plane out of Hooks. Recently I have heard three complaints I need to pass on to someone in the club. Three times in the last month pilots of full scale aircraft have complained of large models being at their altitude or above when they were passing near our flying field at about 1,200 feet MSL which would make them about 1,050 above the ground. Of the three complaining pilots, one is a FAA check pilot. He was very concerned since the model was close enough to him he took evasive action to clear the model. He knows I am a member of the club and told me about it. I told him I would pass it on to an officer of the club. That is you. He could shut us down with one phone call. Please pass this on to whoever needs it. I am sorry I have not been active enough to know exactly who to send this to. Please pass it on to whoever needs it. Thank you,

Message 2

I went out to the field today (Tuesday) and talked to Dean and several of the other members that fly smaller planes. Dean did not think he was involved because he always flies with a "caller". That might be the answer to the problem. If everyone that thinks they might get above 400 feet fly with a "spotter/caller". If I remember correct, the AMA rules are that we are not supposed to go above 400 feet. Just a thought.

The FAA guy said that a large "Extra" type model climbed straight up and did a hammerhead turn directly in front of his aircraft. It was close enough he felt it necessary to turn away. All of the incidents occurred with aircraft departing Hooks to the west. This would have them approaching the model pilot from his back. With his eye on the model, it would be easy for him not to be aware of the full scale. The FAA guy did not make any threats. He just told me I should talk to someone in the club.

Both of the SPARKS flying sites are located within a few miles of airports and are in potentially high traffic areas. The Telge site is surrounded by airports such as Hooks, Weiser, May and Dry Creek and is in the approach and departure path for these active fields.

Simaron Ranch is also close to an active glider field and could be used as an emergency landing site for gliders unable to reach the normal field.

Although the reported incidents were at or above 1000', it is not unusual or illegal for full scale aircraft to fly as low as 500' above unpopulated areas.

AMA safety rules do restrict model aircraft flight to 400'.

All club members should be aware of the flight hazards when full scale aircraft are in the area and remain at low attitudes until the aircraft are a safe distance away. The use of a caller/observer is suggested especially if large vertical maneuvers are expected.

All clubs members present during flying should look for approaching aircraft, particularly those coming from behind the pilot stations, and warn those flying.

Everyone is responsible for safety.

¼ Scale SPACEWALKER project by Rod Kuntz

About 18 months ago, I acquired a Great Planes ¼ scale Spacewalker ARF as part of an estate purchase I made. At the time it looked like a neat plane so I kept it. Well, I finally got the time, courage, and I thought the necessary experience to put it together and fly it (hopefully). While I was waiting, I accumulated some “goodies” that I thought I would use for the build (servos, engine, etc.).

First a little history:

Although it looks very 1930's in design, the full-sized Spacewalker was designed by Jesse Anglin of Hendersonville, NC. He built it as a personal fun plane and it flew for the first time in 1986. As you can see it is a really beautiful low wing, open cockpit tail dragger, and Warner Aircraft still produce the kit plane. In its current single place version it comes with a standard 65 hp engine.

My Spacewalker measures in at 79" wing-span which makes it IMAA legal (more on that later). The kit is of the usual Great Planes high quality, with a full load of hardware, up to and including fuel tank and color matched spinner (more on that later as well). Build instructions were clear, detailed and easy to follow, even for me. One suggestion for any new builders (like me)...always read at least 2 or 3 instruction points ahead of where you are building. It sometimes prevents you from getting ahead of yourself and making a mistake (not that I ever did, just heard about others that had that problem).

As with any wannabe builder, the first thing I did was look and see what I could “improve”, and actually found a lot of opportunities. The first thing to note is that the plane is IMAA legal; however the control rods/hardware supplied is all 2-56 size, which is not IMAA legal. To fly in any IMAA event, all hardware must be at least 4-40 size. So the first thing I did was put all the

provided hardware aside, and purchase what I needed to upgrade to 4-40 stock.

The control surfaces were installed with heavy duty CA hinges. I drilled 1/16" holes in the center of the CA hinge slots on all surfaces to allow the CA to wick into the hinges fully. The slots were pre-cut and absolutely perfectly aligned. The only change I made was to use Robart hinges on the rudder due to its size (also may have had something to do with not reading 3 instructions ahead).

The original design called for rudder & elevator pushrods to be constructed of the 2-56 rods and wood dowels in the center. The elevator being two pieces, required you to fabricate a Y-yoke at the back end of the dowel and then bend the two pieces properly to exit the slots to the elevator halves. As I had decided to upgrade to 4-40 this was no longer an option. I replaced the designed pushrod for the rudder with a 4-40 pull-pull cable system connected to a JR NES-4131 coreless dual BB servo with 90 oz-in torque (should get the job done). Rather than install a split control rod for elevators, I installed 2 separate servos and ran one for each half, connected with a Y-harness. I used standard Hitec HS-425 ball bearing servos (46 oz each side) for the job. The big interior of the fuselage makes this type of modification a piece of cake (maybe bigger is better). This resulted in a nice tidy back end of control rods/cables.

(See photo 1 & 2).

Photo 1



¼ Scale SPACEWALKER project by Rod Kuntz (con't.)



Photo 2

Ailerons were installed again with 4-40 pushrods, and I used a pair of JR NES-4031 coreless BB servos (approximately 60 oz-in each).

Now we get to the good part...the plans called for a .70-.91 4-stroke engine. PUH-LEEZ, this thing is BIG. So I decided to install a pumped OS 1.20 4-stroke turning a 16x8 prop (just happened to have one around). Mounted on an aluminum Tatone mount, it required me to install ¼" spacers behind the engine mount to get the right positioning for the cowl. I cut them from ¼" aircraft plywood with a hole saw and just bolted the mount through them. (See photos 3 & 4).

Photo 3

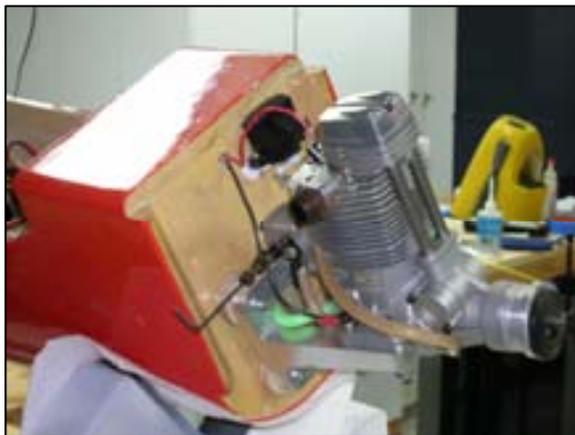
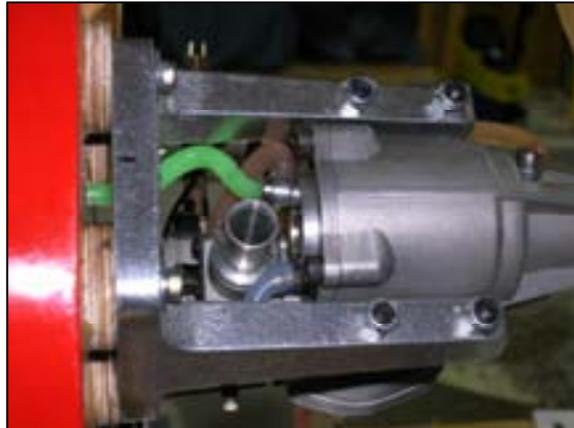


Photo 4



I decided to try and make it look as clean as possible so inverted mounting seemed to be the way to go. Very little cowl cutting was necessary, and was even able to make a cut-out for the muffler and install once the cowl was in place. Again, I could not leave things alone, so I purchased a RAM50 on board glow system. It is adjustable, and I have it set to come on when the throttle comes back to about ¼. I was concerned about the engine loading up on low throttle settings being inverted. The RAM has its own 1300 mA sub-C cell and Y's into the throttle plug on the receiver. For throttle control I mounted a Hitec HS-81 mini servo right behind the engine on the firewall, with about a 2" piece of 4-40 cable....works slick.



Power to the whole thing is from a JR 1800 mA 4.8V battery.

I guess the only thing I was not happy with were the wheels. Great Planes supplied 2.75" wheels which fit into the wheel pants provided. However, on our field, and with this big a plane, they are really too small. For flying I put on a set of 4" wheels, and when it is time for display, the small wheels come out and wheel pants get installed.

Well, you might have guessed by now that the original design weight may have been altered just a bit (the 1.20 alone is 9 oz heavier than the suggested .91 4-stroke). Add the heavier hardware, extra servo, glow system, lots of CA and epoxy in key areas, etc. and you now have a plane that weighs 9.8 lb (instead of the design weight of 8.5 lb). Oh well, that's why we have the extra hp on the front. To avoid having to tie a brick to the back end of it, I pre-installed (guesstimate) 6 oz of weights about 6" back of the servo compartment inside the fuselage. Then I mounted the battery as far back in the compartment as possible. Result was pretty good, and it only took an additional ½ oz of weight at the back of the plane to balance out.

How does it fly? Maiden flight was delayed due to weather for a week, but I finally could not avoid it any longer, and put it in the air Sunday, July 9. I taxied around a bit to get a feel for the ground handling (pretty good), then pointed down the runway and gave it about ½ throttle. A little right rudder was needed to keep it straight, tail came up quickly, and I then gave it full throttle and it was up. (Have to be careful here, as very little ground clearance with 16" prop) Very scale take-off. Took a few laps to trim out, with a bit more down elevator than I liked...so will evaluate the weights on the tail again. You have to use rudder to turn this plane, and that was one thing I will have to work on. It does have a tendency to drop the nose down during turns, so again something to get used to. It motors around great at a little more than ½ throttle.

Landing was actually easier than I expected, dropped it back to about ¼ throttle as I turned on final approach and then slowly eased it back as I was over end of runway. Plane settled nicely on main wheels.

During second flight I discovered that you cannot slow it to a crawl and then stall it out on the runway like some of the other planes I have.

It dropped a bit hard on the main gear, tilted forward a bit before I could get elevator on it and broke the prop. Oh well. Overall it flies great, very scale like, and I don't feel like it is overpowered with the 1.20.

Pre-maiden flight (for posterity)...



Everyone should have one like this....maybe I'll get the big 1/3 scale next.

You can't always believe what you think you see!

Submitted by Lee Dillenbeck

Here is a great optical illusion photo taken of a Lufthansa 747-400 and a United 757-200 that were on simultaneous approaches to runways 28L and 28R at San Francisco (SFO).

The separation requirement for flying parallel and simultaneous approaches is 225 meters (about 750 feet). These two aircraft are at a safe distance for the approaches they are each flying. Due to the 747 being three times larger than the 757, and being slightly behind, it gives this incredible optical illusion.



Flying is a family tradition..

Photo to right: New members Luis Rodriguez and his son Ricardo with Dad's modified "Insight". Welcome to both....Luis is a seasoned "Pattern Guy" and Ricardo, a student pilot

Photo below: Zack Johnson, was in town recently to visit proud Grandfather Paul Johnson. Looks like a fun time for both....



Photo to right: What is Jake Doing??

Either Jake has a very tiny new craft or he is practicing maneuvers with a tool or both!!



SPARKS very well represented in the Pattern Competition at the Nats.... Submitted by Nick Marson

The AMA National Aeromodeling Championships were held in Muncie, Indiana during the month of July. July 17 through July 20th the Pattern Guys got their turn on the field. The following Sparks members participated in the competition....

Mark Hunt, Richard Lewis, Jim Sheffield, Glen Watson and Brett Wickizer.

Well done Guys !!

We will have more coverage in next month's issue of *Crosswinds*.

In case you want to review the various contests for all the events, here is a link to "Nats News", their official publication. The winner's photos on page 10 were taken from their Friday, July 21 edition.

<http://www.modelaircraft.org/events/natsnews.asp>

The results in FAI and Masters are as follows:		Intermediate and Advanced finished Wednesday and the finishing order was as follows:	
FAI	Masters	Advanced	Intermediate
Quique Somenzini	Ryan McLaughlin	Brett Wickizer	Ryan Archer
Chip Hyde	Cameron Smith	Mike Hester	Ryan Smith
Jason Shulman	Glen Watson	Mark Hunt	Chuck Hochhalter
Don Szczur	A.C. Glen	Keith Black	Gary Courtney
Sean McMurtry	Rusty Fried	Scott Smith	Jim Sheffield
Andrew Jesky	John Fuqua		
Chad Northeast	Jeff Carder		
David Lockhart	Archie Stafford		

Team Texas !! More photos are promised for next month....



Richard Lewis posted these 3 photos on RCUniverse.





Photo left: Masters winners
back row: Rusty Fried, **Glenn Watson**,
 Archie Stafford
Front: John Fuqua, Jeff Carter,
 AC Glenn, Ryan McLaughlin, and
 Cameron Smith

Photo below: Advanced Winners
Mark Hunt, Mike Hester, **Brett**
Wickizer, Keith Black and Scott Smith



Photo above: Intermediate Winners
 Ryan Smith, Chuck Hochhalter,
 Gary Courtney, **Jim Sheffield** and
 Ryan Archer in front

Photo to right:
 Happy winners of each Class:
 Quique Somenzini, Ryan McLaughlin
 {front} Ryan Archer, **Brett Wickizer**.



Ready to try some "Precision" Aerobatics?

SPARKS SPORTSMAN SHOOTOUT

AMA CLASS "401" AEROBATICS CONTEST/SEMINAR

When: Saturday, September 2nd, 2006

Pilots Meeting will be held at 8am sharp

Where: SPARKS club field www.sparksrc.com

Entry Fee: \$5.00

- This will be a non-sanctioned, one day event.
- Any AMA legal aircraft may be flown. If your sport plane can loop, roll, and stall turn, it can perform the sportsman (AMA "401") aerobatic sequence.
- Experienced pattern nuts will be on hand to help in any way possible, including plane setup, calling maneuvers, judging, and answering all questions.

401 CALL SHEET

- 1 TAKEOFF (U)
ENTER THE BOX
- 2 STRAIGHT FLIGHT OUT (U)
- 3 ½ REV. CUBAN 8
- 4 STRAIGHT FLIGHT BACK (D)
- 5 ½ CUBAN 8
- 6 2 LOOPS
EXIT THE BOX
ENTER THE BOX
- 7 TWO POINT ROLL (D)
- 8 STALL TURN
- 9 COBRA W/O ROLLS (U)
- 10 IMMELMAN TURN
- 11 ONE HORIZONTAL ROLL (D)
- 12 SPLIT ESS
- 13 DOUBLE IMMELMAN (U)
EXIT THE BOX
- 14 LANDING

- Visit www.nsrca.org for the "401" sportsman sequence call sheet. We will clarify all questions about the sequence and fly a demo sequence flight at the pilots meeting.
- Any questions? Contact Mark Hunt at: flyintexan@houston.rr.com

Directions to the field

Beltway 8 to highway 249 north. 249 Freeway will end, third light will be Boudreaux Rd., turn left. Left at the stop sign to stay on Boudreaux. Boudreaux will "T" into Telge Rd., turn left onto Telge Rd. Quickly look for a shell station on the right and the field entrance will be on the left opposite the shell station.

2nd Annual SPARKS Pattern Contest



When: October 7-8th, 2006

SPARKS field located in Northwest Houston www.sparksrc.com

Entry Fee: \$25 (food available on site)

Trophies will be awarded in all classes through 3rd place

Any AMA legal aircraft may be flown in Sportsman – go to www.nsrca.org for more information on the Sport of Pattern flying.

Field will be available for practice on Friday, Oct. 6th

Pilots Meeting will be at 8am SHARP – (our field faces west)

Questions? – Contact Mark Hunt at: 281-290-0327 or email: flyintexan@houston.rr.com



Announcements

A work Day has been called for Sunday, July 30th at 8:00 a.m.

Please the President's message for the details

Many thanks for the following members who
contributed photos,
articles and interesting items for this issue...

Please send yours to dqmarson@earthlink.net

**Lee Dillenbeck, Jim Greer, Rod Kuntz,
Richard Lewis and Nick Marson**

Mark your calendar for next Wednesday night
August 2, 2006 at Valley Ranch and Grill
For the regular monthly SPARKS meeting.

"Scratch Built for Dummies" - Part One by J. R. Carpenter

If you would like a challenge, need to enjoy the delight of creating something of your own. "I can't believe my eyes. It is of such great quality. I can repair it, not an ARF, it was so easy to build" remember the days of the "Ugly Stick" the tried and tested of the years?

You'll like this one better even though it has the same building style. It has the same-powered by nitro methane. It is not a 3-D, it is not an electric, it is not a pattern ship, and it is not a "big bird" costing the arm, leg and farm. It flies like a beginner would fight for. Interested? Read on. If you have a 60 and a surplus radio we are in business. If you have a 4 stroke 90 you can take off and immediately invert it. Rolling circles—no problem.

The plane that we have selected to build will have a 60 2s or a 90 4s. Bigger is better and easier to fly. It will cost a little more but it will take about the same time to build. The author/builder hereafter known as (the a/b) finds the bigger plane easier to build.

The selected rib is semi symmetrical (flies great upside down). It has a chord of about 13 inches, two main spars and four mini spars. The ribs are cut from 1/8 in. balsa. The rib will have a 1/2 x 1/2 balsa leading edge, 4 - 1/8" x 1/8" mini spars, 2 - 1/4" x 3/8" spruce main spars and a trailing edge of 1/8" x 2" balsa. The (a/b) will provide a template.

Materials for the basic part of the wing leading edge

- 2 - 1/2" x 3' balsa ribs
- 3- 1/8 "x 6' x 4' feet balsa
- main spars 4 - 1/4" x 3/8" x 3' - spruce
- mini spars 8- 1/8" x 1/8" x 3' - balsa
- trailing edge 4- 1/8" x 2' x 3' -balsa (about \$ 40)
- aileron-tips-sheer strips and planking to be added

Here's a Outline for the necessary work area

the (a/b) had a 32 "x 32" table over which he placed a parent size piece of chip board from a print shop.

Ten vertical lines were drawn at intervals of 2", the following at 3 1/2" with the last at 4 ".

"Scratch built for Dummies" by J. R. Carpenter — continued

We now have (starting on the left- or left half of the wing)

interval 1 - 2 "

interval 2 - 3 1/2 ",

interval 3 - 3 1/2 " etc, etc

interval 9 - 4 " for a total of 30 1/2 " span.

The leading edge of the wing will be near you. The rib to the left will have a 3 degree tilt to the right. This will give the wing dihedral. The (a/b) used a red pencil to make the reversal or right wing half starting with the 2 " interval on the right. We are now ready to start cutting ribs.----put a band aid on the right pinky over the friction point of the balsa. This will save a sore blister.

Score the ribs one time over with an Exacto knife followed by a coping saw or blade. Remove the blade for hard to get places. A handkerchief will act as a handle.

FACTOID- you will need an Exacto knife and blades. I like TIGHT BOND glue and you will need 3 minute and 30 min. EPOXY glue.

OPTIONAL you can inset the trailing edge of the rib 1 3/4 in. by 1/8 inch. gives a smoother finish.

After you have cut out the 21 ribs (one for crashes) make sure they have the top side identified. Some ribs will be a little wider (place them in the center with the thinner ones to the edge). Number them 1 through 20 with a spare.

FACTOID INSERT - 13 1/2" scratch chord - 48" fuse with 90 4 s
12" chord - 46" fuse with a 60 2 s
11 " chord - 44" fuse with a 45 2 s
(there is leeway in the above figures)

Use 1/8" material to align the ribs. Vice grips are aids in forcing the wig pins into the ribs. After the first pin align the trailing edges prior to forcing the second pin in place. Cut a 3 in. piece from the leading edge, main spar, mini spar and trailing edge. These pieces are used to fit the channel tightly. A combination of a steel ruler, Exacto knife, mortar board (nails), coping saw and a delicate touch will do the trick. Sand and rechannel.

Scratch built for Dummies, part two, will continue in the September issue.....

Two Planes For Sale by Jim Greer
Extreme Flight 30% Yak-54 w/DA-50R
and 22X10 Mejzlik prop \$ 1,750

And includes the following

- * WS- 87 in.
- * WA- 1490 sq in.
- * Aileron servos (2) Hi Tec HS-5945MG 180 in/oz torque
- * Elevator servos (2) Hi Tec HS-5945MG 180 in/oz torque
- * Rudder servo (1) Hi Tec HS-5955TG Titanium gears 333 in/oz
- * Throttle servo (1) Hi Tec HS-645 MG
- * Choke servo (1) Hi Tec HS-645 MG
- * JR R-700 Slim line 7 channel receiver
- * Carbon Fiber Wing tube
- * Carbon Fiber horizontal stab tube
- * Carbon Fiber tail wheel assembly
- * Carbon Fiber control horns
- * All Titanium push rods w/ captured 4-40 ball link connectors
- * 4 in. Tru Turn spinner w/ lightened back plate.
- * 2 new 2100 mah Sanyo battery pkgs. 1 ign., 1 rec.
- * 2 Heavy duty MPI switches w/charge recpt.
- * EF wing bags
- * EF Fuselage bag
- * EF horizontal stab bags
- * 16 Lbs. 5 oz.

This airplane has never been crashed or even landed hard. Airplane has pipe/canister tunnel.
All decals are easily removed. This is one Awesome flying plane.

35% Wild Hare Extra 330 LX \$ 798.00

Includes the following and more:

- * WS 106 inches
- * WA 2,090 sq in.
- * TBM Carbon Fiber Wing Tube
- * TBM Carbon Fiber Tail Wheel Assembly
- * All Titanium or Carbon Fiber push rods w/ titanium threads
- * (2) Hi Tec HS- 5945MG servos on Rudder 360 oz. torque
- * (2) Hi Tec HS- 5945 MG servo on each aileron 360 oz. torque
4 servos in all on ailerons
- * Set up for DA-100 cc engine (engine not included)
- * All servos have Air Wild MLP Aluminum servo arms
- * Flying weight w/DA-100 27 Lbs 12 oz.
- * Throttle and Choke push rods installed and ready to go
- * Airplane has never been crashed or landed hard
- * Aluminum landing gear

Contact Jim Greer for more details 281-370-5615 713-412-6482 cell

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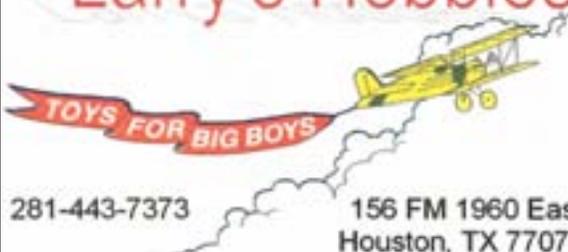
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