the Ampeer

December The EFO Officers 2007

President:
Ken Myers
1911 Bradshaw Ct.
Walled Lake, MI 48390
Phone: 248.669.8124

Vice-President:
Richard Utkan
240 Cabinet
Milford, MI 48381
Phone: 248.685.1705

Secretary/Treasurer:
Rick Sawicki
5089 Ledgewood Ct. W.
Commerce Twp., MI 48382
Phone: 248.685.7056

Board of Director:
David Stacer
16575 Brookland Blvd.
Northville, MI 48167
Phone: 248.924.2324

Board of Director:
Jack Lemon
8908 Sandy Ridge Dr.
White Lake, MI 48386
Phone: 248.698.4683

Ampeer Editor:
Ken Myers
1911 Bradshaw Ct.
Walled Lake, MI 48390
Phone: 248.669.8124

Ampeer subscriptions are $15 a year US & Canada and $20 a year worldwide

The Next Meeting:
Date: Thursday, December 6 **Time:** 7:30 p.m.
Place: Ken Myers's House (see above for address)

What's In This Issue:

A Smaller Super Miss

From Rich Flinchbaugh
South Dennis, MA

Dear Ken,

I have been looking forward to sending this note, for months.

I completed this smaller version of the original Hobby Lobby Super Miss since our return from Florida and have been flight testing it since. I believe that this little floatplane may be of interest to some of your readers as it is a ***superb flier*** on land and water.

As shown, it has a wingspan of 53" with a 7.5" chord and a wing area of 2.6 sq.ft. or 374.4 sq.in. It weighs 37 ounces with the floats.

The fuselage is 31" long and the Edo floats are the usual 75% or the fuselage length or 24".

It floats nicely on them with a total weight of 37 ounces. The weight per sq.ft. is a reasonable 14.4 oz./sq.ft. I am using a brushless outrunner ACn 16/25/4 Mega motor turning an APC 9x5 prop. The ESC is a Castle Creations Phoenix 35 and the receiver is the new, miniature Berg 4L.

The first flight lasted 20 minutes on a 2100mAh Cellpro 11.1v 3S Li-Po pack. The pack weighs 5.7 oz. The flight included four letter-perfect takeoffs and landings. I hope that some of your readers will be inspired to build one!

With best wishes,
Rich Flinchbaugh

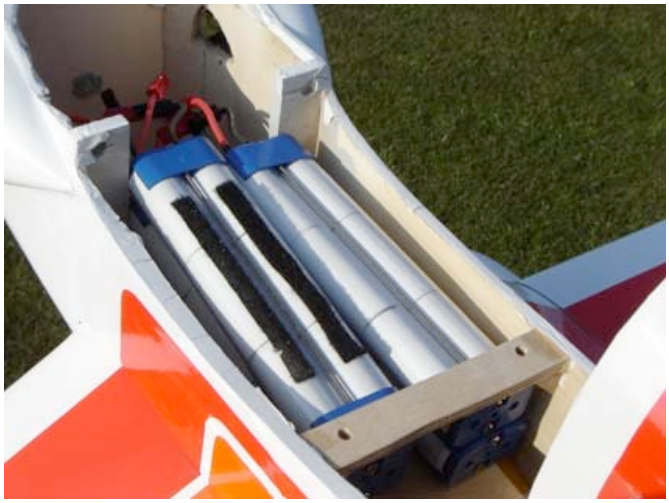
(*Thanks Rich. You can send postal mail to Rich Flinchbaugh, 7 Avon Ln., South Dennis, MA 02660. KM*)

Cobra Takes to the Air

From Walt Thyng wthyng@earthlink.net

After weeks of frustration caused by weather and work I finally maidened the Cobra today! WOW! The airplane is everything Dan Santich said it would be in his *Model Airplane News* (MAN) write-up when he published the plans.

Details: 76" top wing, 61" bottom wing. Plan weight 15-22 lbs.



Mine came in at 19 lb. ready to fly! Power was a MegaMax 3.7 2Y on 12S2P A123s. Prop was an APC 16/10. The amp draw is about 52. All that power is handled by a Castle Creations HV85 electronic speed control (ESC). The radio was a Tracker III with an Airtronics receiver and JR Sport servos.

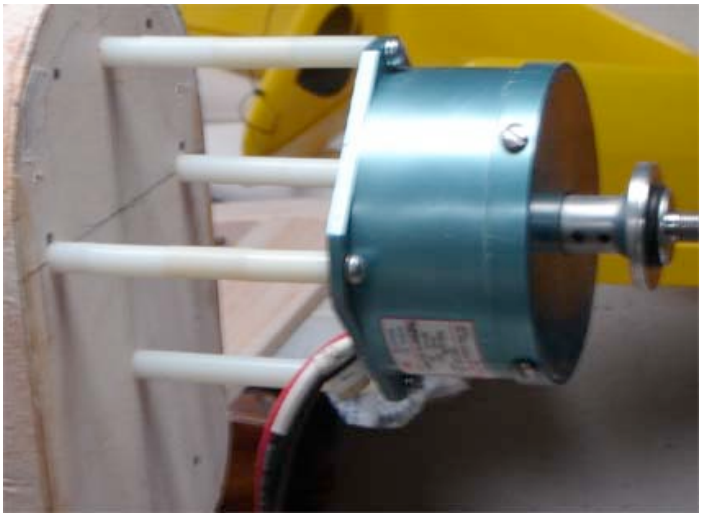
Take off was a total non-event. However it was immediately evident that it was flying behind the power curve. At first I thought it was tail-heavy, but I needed significant up-elevator, which didn't make sense. Once I got the wings trimmed level and tried a high-speed dive it was clear that I needed more speed. The Cobra was so stable that I flew four point rolls, immelmans, loops, split esses, wing overs, knife-edge and inverted on the test flight. Stalls were amazing; more like a trainer than a high-performance racer --- absolutely no break, just a gentle mushing. I tried a high-speed pylon turn and it just whipped around like nobody's business. The landing was another non-event; the Cobra just slowed down until I flared; rollout was less than 50 feet.

My primary weight-saving technique was to go down one size on all wood --- no lightning holes. I also made balsa ply for all the formers instead of using light-ply and substituted hard balsa longerons for spruce.

The plans call for a main spar made of four 1/4 in. aircraft plywood laminations. I used two with a 1/2 inch balsa filler and carbon fiber to save weight.

I made all the decals and lettering (except for the "N" number) on my ink-jet printer using both MicroMark and Testors decal paper.

Covering is UltraCoat; again, to save a little weight I made skins for the wing color scheme rather than just layering the UltraCoat.



The photo of the MegaMax shows the standoffs made from nylon spacers purchased at Ace. This is an early test-fit photo, before base washers at the firewall were added.

The wheel-pants, canopy and cowl are from Fiberglass Specialties.

This is a later version of the Forbes F1 racing bi-plane that was modified by Doug Watts as an air-show stunt plane. The original is in the Aero Education center at the Little Rock, Arkansas. A local modeler took detail photos and e-mailed them to me.

Walt

Sources:
Model Airplane News (MAN):
http://www.modelairplanenews.com
MaxCim Motors:
http://www.maxcim.com/MEGAMax.html
Castle Creations:
http://www.castlecreations.com/products/phoenix_hv-85.html
Fiberglass Specialties:
http://www.fiberglassspecialtiesinc.com/
M1 (A123 Systems) cells:
http://homepage.mac.com/kmyersefo/M1-outrunners.htm#SOURCE

November 2007 EFO Flying Meeting

Saturday, November 3, 2007 turned out to be a great flying day for the EFO.

The weather was about as good as it ever gets here in Michigan in the first part of November. The temperatures started in the mid-40's and migrated to the mid-50's by afternoon. Until about 1:00, the winds were moderate and the turn out was very good.

Roger Wilfong had his new, scratch built from plans, 4 Star 40 ready for its maiden flight. It uses a

geared cobalt Astro Flight 40 and 6 M1 (A123 Systems) cells.

The 4 Star can be seen on a landing approach after the very, very successful maiden.

Jim Young had several of his planes flying well.

Tom Bacsanyi's P-38 is always a pleasure to watch. The first photo shows the size of this beast and the second shows it on final.

Dave Stacer had a lot of fun with his QuickWing, especially the last flight of the day when he and Ken were flying in "quite a breeze." Where the heck did that come from?

Thanks again to James Maughan for several of these photos!

It was a great day, and we are now looking towards spring and the 2008 flying season.

The Next EFO Meeting

The meeting will be on Thursday, December 6, 7:30 p.m. at Ken Myers's house. The address and his phone number are in the *Ampeer* header. Everyone is welcome. Bring your latest projects and gadgets to share.

The 2007 Mid-Am Report

The 2007 Mid-Am, once again took place on two hot days in July. It was well attended, and as usual a lot of fun with a lot of camaraderie, sharing, and flying.

Keith and I started the Saturday morning welcome by inviting all in attendance who flew with us "at the beginning" in Saline, MI to join us for a photo. It was so good to see so many "old friends" still with us!

As usual, there was a lot of flying on Saturday, which continued after the awards and potluck and well into the evening hours.

Dave Hares did his usual outstanding job in fixing the meat and getting everything ready for the annual potluck. Thanks a ton Dave.

Saturday's Awards

All up/Last down – Jack Iafrat/Super Ava

Most Beautiful – Doug Jablonski/Ford Fliver 3
Best Scale – Jim Young/WACO YMF
Best Ducted Fan – Dave Grife/Vampire
Best Sport Plane – John Lewis/E-Venture
CD's Choice – Don Belfort/Quickee

Sunday's Awards

Best Scale – Jim Young/Laird-Turner Special
Most Beautiful – Bob Livin/Buccaneer
Best Mini-Electric – Joe Hass/Micro Sukhoi
CD's Choice – Martin Irvine/Llyod biplane

Because of the extreme heat on Sunday, the flying stopped about 1:00, with the awards presentation and the announcement that the Midwest RC Society, host club field, had lost the use of the 5 Mile Rd. Flying Field. As of this writing, the 2008 Mid-Am plans are on "hold."

Some of the folks who flew with us in the "early" days!
L to R: Dick Flemming, Don Belfort, Jim Young, Martin Irvine, Phil Alverez, Keith Shaw, Ken Myers, Dave Grife, Plenny Bates

At the pilots' meeting

Some of Dave Grife's planes

Bob Livin's and Plenny Bates O.T.s

Laddie with his always interesting planes including an e-powered North Star

Don Belfort with his award winning Quickee

Some EasyStar Upgrades

From Fred Marion
25349 Macarthur Ave.
Mattawan, MI 49071

Fred found some changes he wanted to make to the Multiplex EasyStar, and he wanted to share these changes with the Ampeer readers. I am still flying the stock RTF version except that I now use 2 M1 (A123 Systems) 2300mAh cells instead of the supplied 6-cell 600mAh NiCad.

You'll find my review posted here; http://homepage.mac.com/kmyersefo/easystar.htm KM

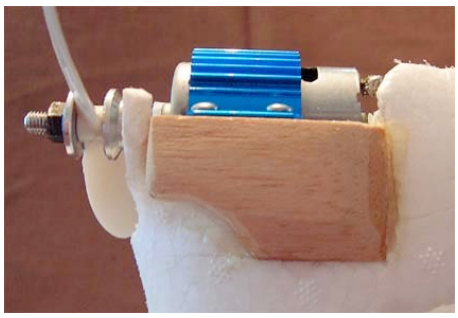
Ken,

Here are the changes that I made to the Multiplex EasyStar. After a dozen flights and one or two hard landings, everything is holding together.

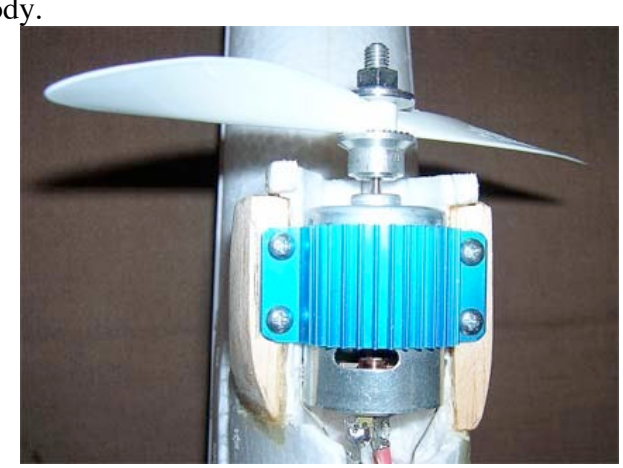
I also bought a battery pack from Mike Frederick, Cheapbatterypacks.com, and I was pleased with what they did. Thanks for the tip about them. I wasn't too sure with just the name to go by what kind of a source they would be.

With the 7-cell NiMH 1500mAh pack, I am getting 12 to 15 minutes of flying time.

I rarely build anything strictly stock. The following changes added less than one ounce to the overall weight, which does not affect the super flying quality of the EasyStar, but I think they will add to its longevity.



1. Multiplex cautions to let the motor cool down between flights. No wonder, it is encased in foam to keep it hot! I cut the top half of the motor capsule off, kept the angle of the motor the same but added two hard balsa pieces. I used half of a motor clamp with cooling fins screwed to the balsa to hold the motor down. I put double stick tape around the motor before clamping in place. This prevents the motor from sliding forward and the prop striking the foam body.



2. Multiplex has the two motor wires embedded in the foam inside the fuselage, but after gluing the sides together you would never be able to move them. I didn't want connectors at the motor, so I soldered the wires to the motor and ran two small plastic tubes from just in front of the motor up to the cockpit. Now I can take the motor out and pull the wires back to solder them to another motor.
3. Multiplex had the prop glued to the motor shaft. I used a collet type prop adapter from Maxx Products to hold the prop. I had to ram the prop by about 0.015

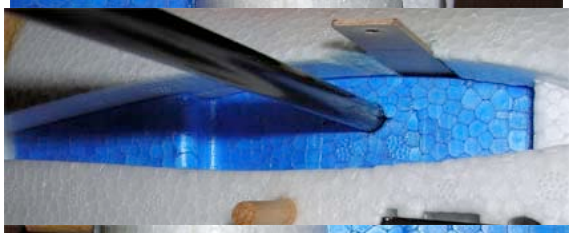
to make it fit the adapter. (*The prop adapter can be seen in the motor mount photos. KM*)

4. Multiplex supplied a white plastic tube to go on the bottom of the fuselage for the antenna wire. This still left the antenna exposed where it exits the fuselage and right where the plane lands. I ran the same small plastic tube from the cockpit to the tail for the antenna to be inside the fuselage.

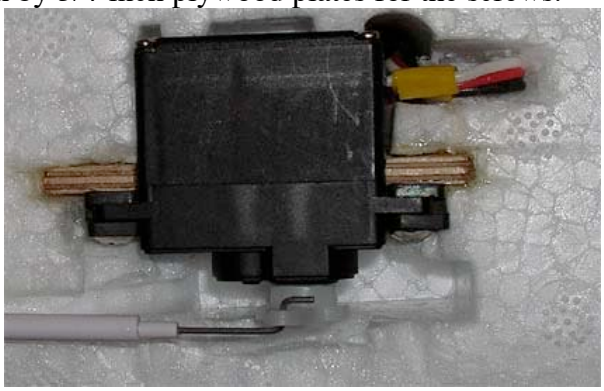
5. The foam fuselage, from behind the motor to the rudder, seemed flimsy. I added a 1/4-inch diameter dowel from the motor area to the tail. I embedded this in the center of the fuselage before I glued the two sides together.

6. I keep all of my planes rigged so that I don't have to reverse servos. To do this, I moved the elevator control horn to the top of the elevator. I added a thin piece of plywood on the bottom of the elevator and used #4 sheet metal screws through the control horn and into the plywood. I used the same anchor system on the rudder control horn.

7. The foam hinges for the elevator and rudder seemed weak to me. I used 2-inch wide clear packing tape over the hinges to make them stronger. Use a Popsicle stick to force the tape down into the joints. Sand the mold bumps to make the control surface smooth so the tape will stick.



8. I was concerned about the wing becoming loose in the slot in the fuselage after time. I glued a 1/2-inch wide by 4-inch long piece of thin plywood to the top of the slot for the wing and used two sheet metal screws into the wing to keep it in place. The picture shows an embedded (glued) 1/4" diameter birch dowel to hold the screws. The dowels split in the first hard landing. I replaced them with 1/8-inch by 3/4-inch by 3/4-inch plywood plates for the screws.



9. I didn't like the idea of gluing the servos into the pockets. I made two 3/32-inch plywood "U" shaped plates and epoxied them into the servo pockets so that I could use servo-mounting screws. It is a solid mount and will make changing servos easy, if I ever need to.

10. I have had trouble keeping the battery packs in place. My fix was to cut a 2 1/4-inch front to back and full body width hatch in front of the cockpit to create a pocket to contain the pack. I put a foam wall

between the battery compartment with enough space for the wires to slip under the foam and into the cockpit. It is deep enough to keep the pack in the compartment.

11. To allow novices to fly the EasyStar easily, it has great stability. Unfortunately I think that they over did it on the rudder. I added a piece of 3/32-inch thick by 1/2-inch wide balsa to the trailing edge of the rudder. I put clear tape over the joint and painted the addition with whiteout.

The Elapor foam appears strong but has a surface coating. Multiplex says not to use epoxy, but I think that by removing the outer skin and putting holes into the foam, that will allow the epoxy to hold. I used epoxy on the motor mount and the control horns. Time will tell if I was right.

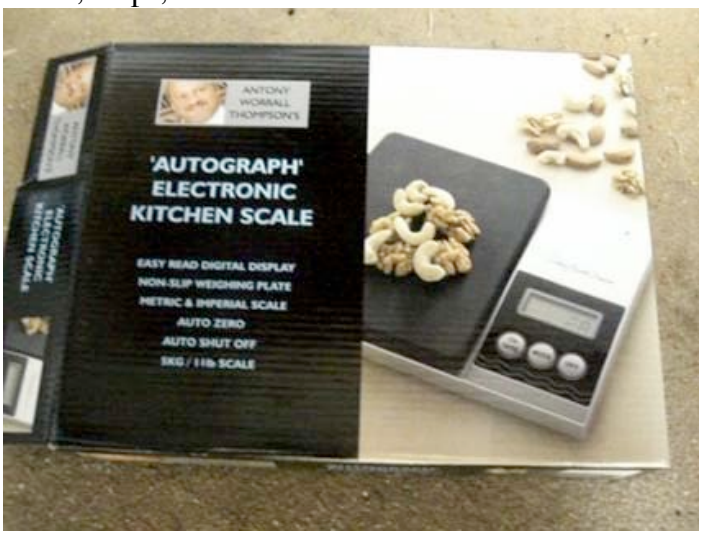
An Electric Ducted Fan (EDF) Test Rig

From Michael Southwood
michael.southwood@ntlworld.com

Michael has written up several articles for the Ampeer. His most recent was the "KATANA MD: Advanced Freestyle EP Model Review" in the September 2007 issue. KM

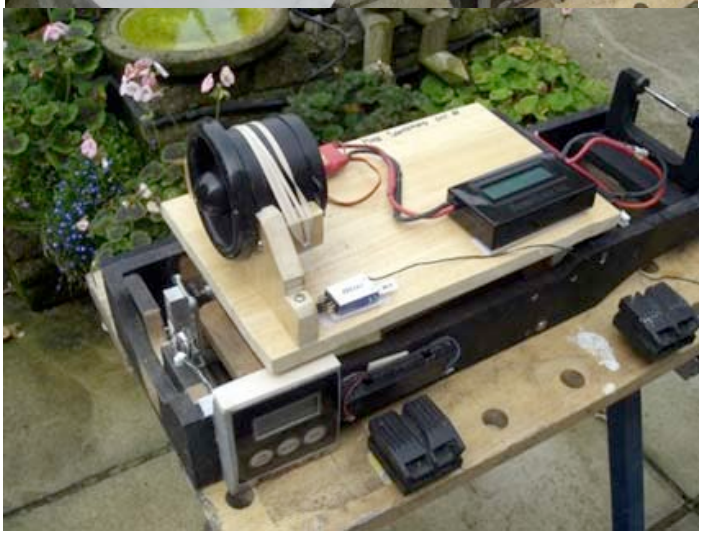
Ken,

You might be interested in my homemade test stand for Electric Ducted fans. It uses a chopped up set of digital scales. The top board floats on vertical hinged pillars so that it pushes on one end of a load cell removed from the scales. I have various fixtures, which allow me to fit almost any EDF and check the thrust, amps, watts and volts.



The Box the Scale Came In

Three Different Systems Being Tested



I use an Astro Flight Inc in line power meter (Whattmeter), a spare Hitec receiver and an old Jeti 40 amp ESC. The power is provided by a 2200mAh 20C Li-Poly. Thrust is shown on the digital readout either in pounds or grams.

Because I am designing a Gloster Meteor, I wanted to get the best combination of fan and motor. The units I've tested so far included the Air Power 70 with a Vortex motor, Hyperflow, bought direct from Tower Hobbies in USA, with AMMO motors, and the TowerPro units with both 3.9Kv and 5.1Kv motors. It has all been very instructive.

The AP 70 has proved the best combination and is just being fitted in to my North American Fury for a try. The smaller Hyperflow are definitely the best combination, but are small and will require a re-design of my Meteor to suit. The Tower Pro, prove that you get what you pay for. Even after a lot of very careful balancing they are not very good. The blade design is poor and the pitch change from root to tip is wrong. They do however produce a lot of thrust; 780 grams using the 5.1Kv motor, but draw about 46 amps, 450 watts at 9.8 volts to do so. My 2200mAh Li-Poly from HiModels, rated at 20C, is not good enough and my 40-amp speed controller packs up.

I have also learned that one needs to be very careful assembling these things. Locktite all the bits, balance the impeller if you can, although I have

learned that getting the static balance perfect is not enough as it can still vibrate at speed. Dynamic balance is not possible for a poor modular! The little Hyperflow are quite smooth. The AP 70 is fairly vibration free but does howl! The Tower Pro 70mm units vibrate and go through resonant stages (critical vibration). Static balance was very poor.

My EDF test rig has however proved a useful tool. It is simply made from MDF and old shelves, a cheap pair of scales and a bit of ingenuity and a scrap box for bits.

Static thrust does not truly reflect what you get in the air, but at least one can be fairly certain that it will get away at launch without having to use a bungy!

My AirPower 70 with 1lb 9 oz thrust should fly my North American Fury at 2 lbs all up weight quite well. The next step is to try the whole plane on the test rig to see how much is lost or gained by the ducting!

Regards,
Mike Southwood

And In a Follow-up Email

My FURYis now getting the AP70 to replace a TowerPro fan unit. It did fly superbly for its only flight so far, but the ESC could not handle 45 amps. The plane is scratch built from small plans of the full sized version. It is built around the ducting, which was rolled first and formers slid over before planking and covering with Pro Film silver. The weight is quite good at 2 lbs. with a 49" span.

The attached picture is a cheat, it was hung on a string and then the string removed, but it did look good flying.

Mike Southwood
Hemel Hempstead, England

Upcoming Event of Interest:

Skymasters R/C of Michigan would like to welcome your club to join us for: Spread "Spektrum"
Wednesday January 9, 2008 – 7PM
Featuring a discussion with John Adams the Technical Director Spektrum at Horizon Hobby.

Come learn everything you wanted to know about: Spread Spectrum Technology with a Presentation, Hands On, and Q&A.

The Location is Larson Middle School, 2222 E. Long Lake (18 Mile), Troy, MI 48085

Free Admission!
All Welcome!!!

It is sure to be an interesting evening!

For additional information visit the website at www.skymasters.org or call Joe Hass at 248-321-7934!

From Gordy Stahl GordySoar@aol.com

For Sale - Pulsar 2005 Ready to Fly!

This was sold, but the buyer ran into some bad luck, so its back on the runway: Includes Extra motor/gearbox/batteries/props also, all brand new.

Flown 6 times. Everything top of the line performance stuff.

Not a toy ship, serious full 78" span, pops together in minutes, screw on stab and vertical, easy traveler!

It is called a Pulsar 2005/6. Xtail, super light, super easy battery change system.

It is ompletely ready to fly with FM Rx, Programmable speed control for Li-po or NiMH, Carbon Prop, spare different size carbon prop, Cosmotech Sp400 and gear box, 1 7-cell 1100mah pack, 1 8-cell 1100mah pack.

Rudder, elevator, ailerons, flaps. Plus SPARE High Performance Race 480 motor with Cosmotech 4.5.1 gearbox and carbon prop.

Red and yellow Transparent covering ('organic' construction).

Same as shown in this thread, but with a working rudder and ready to fly
http://www.rcgroups.com/forums/showthread.php?t=657867

You can also see it at Soaring USA
http://www.soaringusa.com/products/...category_id=266

Assembled by Kurt at NiagraModels . Flown 6 times, owner just doesn't have time for electrics.

Complete with tidy wooden box for transport.

Airframe was $430

For Sale (cont. from p. 10)

Motor/speed control, gearbox, spinner another $180

Race 480, gear box, carbon prop, spinner $120

Electrical connectors and wire $20

Servos another $120

Batteries another $60

Assembly another $200

Wood Storage Box $30

Total paid $1,300.00

Selling for $750 shipped.

Contact me off line, first yes gets it, can ship ASAP.

Gordy Stahl, 9303 Lebeau Ct, Louisville Ky 40299

502-727-9595 cell

Pulsar

Ampeer Paper Subscriber Reminder

When subscribing to or renewing the paper version of the *Ampeer*, please make the check payable to Ken Myers. We do not have a DBA for the *Ampeer* or EFO. Thanks, Ken

Upcoming E-vents:

Thursday, December 6 EFO Flying meeting at Ken Myers's house. 7:30 p.m. Bring latest projects and questions

The Ampeer/Ken Myers
1911 Bradshaw Ct.
Walled Lake, MI 48390
http://members.aol.com/kmyersefo

The Next Flying Meeting:
Date: Thursday, Dec. 6 **Time:** 7:30 p.m.
Place: Ken Myers's house
1911 Bradshaw Ct., Commerce Twp., MI 48390
248-669-8124