

the

Ampeer

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Ampeer subscriptions are \$10 a year US & Canada and \$17 a year worldwide	The Next Meeting: Date: Thursday, February 3 Time: 7:30 p.m. Place: 5089 LedgeWood Drive, Commerce Twp
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I Hate When This Happens!

I was just doing my “finish reading” of the January 2005 issue of *Fly RC*. My “finish reading” includes reading the ads for something new on the e-scene. On the first inside page is an ad for the AMMO brushless motors from Great Planes marketed by their ElectriFly branding. At first I simply noted that they had very little useful information in the ad, and gave those pesky Kv numbers as the only motor parameters. But the Kv numbers listed (3600, 4300 and 5100) indicated that these were motors are to be used in small ducted fans or with gear drives. The ad did note that the motors are for use with 6-10 cells, with a Maximum constant current of 10-12 amps and surge current of 18-20 amps. Those specs indicate a Speed 400 replacement, but the 20-size designation on the case was a puzzle to me.

I visited the Electrifly.com site to see if there was any more information there. Here are the specs from the Web site:
 Length: 1.57" (40mm)
 Diameter: 0.79" (20mm) – (*This is*

where the 20 designation comes from KM)

- Shaft diameter: 0.08" (2mm)
- Shaft length: 0.32" (8mm)
- Weight: 2oz (57.7 grams)
- Input voltage: 7.2-12 volt DC
- RPM per volt (kV): 3,600
- Max. Constant Current: 10-12amps
- Max. Surge Current: 18-20amps

The information is not all that useful, except that the shaft is 2mm, so the gearbox must have a pinion for a 2mm shaft.

Here is what Great Planes said about prop adapters and gearbox on the AMMO Web page.

“A 2mm prop adaptor if using direct drive (not currently available)
 A gearbox if wanting to run geared (not currently available)”

Now let me see if I have this right? It's a U.S.A.-made high performance, affordable brushless motor with a 2-year warranty that you can't run a prop on. Interesting!

Not wanting to let it go at that, I searched the Web and found a very interesting and useful thread at RC

Universe. Donnie Wollard, from Brushless Motors Inc. (www.brushless-motor.com) had the following to say about the Ammo motors and the Chili Pepper motors, “The Chili motor and the Ammo motors are made with the same coil technology. The Chili is the hand made performance motor, where the Ammo is its mass produced brother. You'll see similar results and performance out of either motor.”

Ah, the light now goes on. I am familiar with these little gems, since Dave Thacker of Radical RC (www.radicalrc.com) has been touting the Chili motors for quite a while now.

Things became even more interesting when I visited the brushless-motor.com site. Donnie has a lot of motor data there for the CP-20's. One of the really interesting things is that the CP-20's can be had with either a 2mm or 2.3mm (approx. 3/32”) shaft. That really opens up the gearing options.

The following is a quote from the brushless-motor.com site:

“CP 20 Series motors have 16mm mount spacing and 2.3mm shafts, like standard ‘Speed 400’ motors.

Geared versions suitable for Planetary gearboxes or 300-350 drive gearbox with very little modification. The CP20 has 9.5mm mount spacing and 2mm & 2.3mm shafts.”

Dave Thacker has the following on his site and this is how it appears on the brushless-motors.com site:

CP20L - 3600 Motor, prop, and gear chart.

Gear Ratio	Prop	Volts	Amps	Thrust Oz.	Pitch Speed	Watts
Direct	4.1-4.1	9.6	14.1	12	104	123
Direct	4.5-4.1	8.4	14.5	12	88	110
Direct	4.75-4.75	8.4	17.1	13	90	126
3.8:1	8-4	12	8.3	18	39	96
3.8:1	8-6	12	11	21	55	124
3.8:1	9-6	12	15	28	51	163
3.8:1	11-7	8.4	15.8	24	38	118
3.8:1	12-6	8.4	17.4	26	31	128

Dave @ Radical RC provided us with these numbers that may be helpful to you flyers!!

While Dave lists some direct drive applications, they are over the recommended amperage draw and pretty small to be effective for this motor! The gearbox applications do go over the recommended draw in some instances, but the ones that are overdrawn would be suitable for 3D applications where the high currents would only be used in the vertical.

Dave sells a 3.8:1 planetary gearbox for the 2.3mm shaft version of this motor for only \$20 when you order it with the motor and another \$63 will get you a Castle Creations Phoenix 25. Dave's price for the CP motors is \$89.10.

Here is the data on the CP motors:

Motor Model Number	4200	3600	3100
Idle RPM's per Volt	4200	3650	3250
Maximum RPM's	50,000	50,000	50,000
Recommended ESC Rating	25A	15A	15A
Current @ Maximum Efficiency (amps)	15	12	10
Power in watts	225w	200w	175w
Internal Resistance (Ohms)	0.040	0.055	0.070
Idle Current (Io) @7v	2.4	1.8	1.2
Idle Watt Output @7v	18w	14w	9w
Inductance (mH)	0.010	0.009	0.014

You can get the CP motors directly from brushless-motors.com for \$99.95 and get either shaft size, or you can get the AMMO motor from Great Planes for \$69.99. Remember that the GP AMMO motor is not hand-wound and comes with the 2mm shaft only.

I've have yet to figure out why suppliers make us jump through so many hoops to get the info we need.

On page 19 of the same *Fly RC* issue I found that the Cobri 20 gearbox should work on the AMMO motors. It comes with a 2mm pinion and fits 20mm cases. It looks like a well-made unit and comes in many different ratios from 3.4:1 through 8.44:1 and sells for \$29.95 at www.e-flightline.com.

I also found that the Himax gearbox number ACC3966 for 20mm motors w/2mm shaft for \$25.95 with 3 gear ratios from Maxx Products (www.maxxprod.com) should also work on the AMMO.

You can find a review of the Great Planes Electrify Ammo 4300kV Motor & 2s 1500mAh LiPo by Sam Schmidt at The E Zone (<http://www.ezonemag.com>).

Upcoming Sharks All Electric Fun Fly #2

From Graham McAllister gm@mcallisterdesigns.com

Saturday, AUGUST 13th, 2005

Pilots briefing 9.00am

Tx impound controlled flying until 4pm

Sunday, AUGUST 14th

Stay the weekend & fly with us

Electric only 8am until Noon

(camping on site but no hookup)

Spectators are welcome and entry to the field is free.

Pilot's Fee \$5.00

Proof of AMA Membership and Insurance is required for pilots

This is an ALL ELECTRIC FUN FLY... The focus will be on YOU flying and having a great day. No competitions will be flown, just bring your electric models, fly them and have a great day with us!

We are hoping to have a few 'cottage industry' model traders to add to the interest of your day.

Graham McAllister Designs: Park Flyer kits, bits & more will be there plus others as they confirm.

The SHARKS flying site is located near Sheboygan Falls, WI. South of Highway 23. On County Highway 'C' west of Sheboygan Falls, between County M and Willow Road. Sheboygan Falls is near Sheboygan on the shores of Lake Michigan and due north of Milwaukee along I43.

We have two blacktop runways, NS & EW. Each is 500x35 feet with parallel cut grass areas with clear approaches. This is a great airfield to fly from.

You will have access to our hard surface pits and grass pits with double safety fencing to protect the pits and spectators beyond. Pilot stations are similarly fenced.

Great food will be available at our accompanying BRAT FRY. Sweet trays and cold refreshments should satisfy every taste. In other words if you go home hungry it is your fault!

Come and join us for a great weekend of Electric Flying.

If you are new to 'electric' then this is the fastest way to learn. Come along and pick our brains, see what works and ask why. Most electric flyers will talk your leg off given half a chance so don't be shy about asking!

OK... so it's a date then... see you there!

Graham

See the Web site

<http://www.mcallisterdesigns.com/elec05.htm> for map and updated information.

RE: Comparison of AXI 2212/26 and Top Creations 22S4019A Geared 5.28/1 – data from 10/04 Quiet Flyer p 21.

From Warren Plohr j-w-plohr@juno.com

Ken:

Your October 2004 *Ampeer* analysis indicated that the AXI was less efficient than the Top Creations motor. Your readers have been critical of your analysis, suggesting that the ideal motor analysis is biased against Outrunners.

I believe that you were correct in your major conclusion, but were misled in the detail analysis by bad data. I used a simpler way to analyze the QF data. My analysis uses the same basic equations that you used, but I calculated only the relative efficiency, not the absolute efficiency. By calculating only ratios, I canceled out the parameters that provide absolute numbers. That elimination may make the analysis more convincing to the skeptics. Here is where I come from:

It is possible to evaluate the relative efficiencies of two motors, if the motors are run with the same propeller, on the same test stand, under the same atmospheric conditions. The power output of a motor that is absorbed by a propeller is proportional to the

cube of the prop RPM. This permits an analysis that uses the ratio of the two motor's RPM cubed to calculate the power output ratio of the two motors. If the power input for both motors at the measured RPM is known, the power input ratio can also be calculated. The ratio of the power output ratio to the power input ratio is the ratio of the efficiency of the two motors.

Here is a "limit" example: If two motors ran at the same RPM, their relative efficiencies would be the ratio of the power input. On the other hand, if the power input were the same, the relative efficiencies would be the ratio of the RPM cubed.

I ran the analysis for the four props. The data of the three higher pitch props indicated that the average AXI efficiency was 0.92 of the TC, including gearbox loss. The fourth (10x3.8) prop calculated a 0.84 efficiency ratio. I note that your calculation was based on the 10x3.8 prop.

My conclusion? The AXI is less efficient than the TC, including gearbox losses. However, it is probably not as bad as your analysis calculated. There is probably something wrong with that 10x3.8 prop data - - possibly an error in the RPM reading. Note that it would take a difference of 300 RPM, instead of 100 RPM, between the two motors to calculate a 0.92 efficiency ratio for the 10x3.8 prop.

I believe the "theory" is correct, but my arithmetic may not be - - so use my numbers with care - - please check the math!

Warren P.

New Canadian Chat Group

From Rod Woolley rwoolley@sympatico.ca

Hi Ken,

Since I am sure you get a lot of Canadian readers looking at *Ampeer*, perhaps you wouldn't mind mentioning that there is a new Canadian e-flight chat group at <http://www.canadianelectricflight.com/phpbb2/index.php>. It has about 45 members at present, and so we are trying to let all Canadian e-flyers know about it. It is operated by Doug Burt who is the e-flight committee chairman for our governing body (MAAC). Why do we need a separate Canadian chat group when the ezone one works so well? Well, there are some topics that are only of interest and concern to Canadian modellers, plus it gives us a chance to bring our e-

flyers in closer contact, and helps when discussing and promoting Canadian e-flight events. At present there is a highly contentious issue being discussed, and that is the mandatory safety fence in front of pilots that MAAC has introduced effective Jan 1, 2005. No problem for guys at permanent fields, but a real pain for folks flying in parks, on farmers fields and at sod farms. Personally, I much prefer AMA's policy of making recommendations but leaving it up to clubs what safety measures suit them, and are most appropriate to their flying field and the types of models they fly etc.

Rod Woolley (in Ottawa)

Mods for the EP Superstar

From Dick Corby

Hi Ken:

I thank you for the blurb about our SuperFly in September. As you are aware an event like this takes a great deal of time so we are well into the process already.

Well, believe it or not even here in Vegas we lose flying in the winter. It's a balmy 50 Degrees outside, Sun out in all it's glory, sky a beautiful blue - and the wind is blowing 15-20 knots with gusts to 30. Not conducive to flying little airplanes, or big ones either.

Back in July I got my Son-in-Law into the hobby, with the Hobbico EP Superstar. While training him, I got a lot of stick time on the plane, and rather liked it. It flies great as it comes out of the box. My Daughter then got me one for my birthday and since July I have been flying it and upgrading it to what is now the final configuration. (Maybe)

Attached is the latest configuration. It is aerobatic enough for my taste when under full power, and yet still slows to trainer speed and perhaps will still thermal at 1/4 throttle. And it doesn't look bad in the air either.

I present this as a good first plane for a beginner. It allows a person to get into the hobby with a good flying model, very little work, and for under \$200 complete. Then as their skills, and finances allow, it can be improved on and upgraded. It ROG's well after putting some toe-in to the landing gear, and hand launches are no problem.

The Change to Li-Poly was the first change and it reduced weight and increased times drastically. Then came the Ailerons a few weeks later, much improved control. Last month the AXI brushless motor that I had lying around from another project. And then most recently the aluminum Landing Gear and the Wheel Pants.



The Specifications are as follows.

Motor - AXI2820/12 Brushless Outrunner (a bit strong)

Prop - APC 9/6 E

Batteries - Kokam 3s/1p 2000MAH Hi capacity

Cells

ESC - Jeti 30 Amp Brushless.

Current Draw - 30A Static

Controls - Ailerons, Elevator, Throttle and Rudder

Weight - 33 Oz. for 161 Watts per pound

Flight times are in the 10-12 minute range flying wild and crazy, and it may still thermal when they are present. Throttled back it flies as it did originally, slow, predictable and longer than the pilot can keep his neck twisted up.

I really enjoy your EFO magazine, and look forward to it every month.

Dick Corby
Las Vegas Soaring Society

4-Motor Seniorita

From Claude G. Vest cvest17@msn.com

Here are a couple pictures of my 4 (Speed 400) engine Seniorita. I built the wing flat so it would be easier to line up the nacelles. Props are APC electric 8 by 6 with Dymond gearboxes. I plan to run it on 14 to 16 cells once I can afford new ones. My current battery packs (2 paralleled in series pairs) still bench test at 95% rated capacity, but I believe either they're internal resistance has become too high, or the motors are mislabeled and I need more cells or lower voltage

motors. The sticker on the nose says, "Anything But Normal".

Claude G. Vest
President Lafayette Cloud Jockeys



It's a Conspiracy!

By Ken Myers

I love *Fly RC* magazine. It is a GREAT, new magazine. I pour over every issue, back to front, front to back. Read and reread every article. It is just great, but I believe the staff there is trying to drive me nuts! (For me it is not much of a drive, more like a short walk! Okay, so you've heard that before, but if you know me, you know it's true.)

The January 2005 issue of *Fly RC* had three articles that I physically found almost impossible to read because the text did not contrast from the photographic background. I emailed *Fly RC* and received a very good response from Tom Atwood and Thayer Syme. I had also noted that while the top RPM was given in three of the review articles, there was NO prop size given. Thayer emailed the missing prop sizes, and Tom said he notify the layout department about the readability problem.

Unfortunately, it appears that the February 2005 issue of *Fly RC* went to press before the layout folks had a chance to look at it, as Tom Atwood's "Megatech House-Fly" article, p. 96-97, suffers from the same readability problem, text too small and not contrasted with the photographic background!

Before I go on, I must confess that these *Ampeer* pages, over the years, have been full of typos, accidental omissions, and some downright incorrect information! This is a one-person operation. I do it for fun and to share.

The “problems” I’m going to describe next take nothing away from *FLY RC* magazine as a whole, but with folks being paid to do a “professional” job, I think they could really do better!

The pullout plan for the Race-E, in the February 2005 issue, piqued my interest, especially after seeing the movie *The Aviator* on Christmas day. It is, according to the designer Harry Stewart, a “stand way off and squint” sort of Hughes H1. Actually, it is just a nice looking, simple sport plane for an AXI motor.

This is where the problems begin. Which AXI motor? According to the construction data;

“**Power System:** AXI 2208/26 or 2212/34, APC 7.5x4 prop, Jeti Advance 8-amp Brushless Controller, Tanic 2S 1050mAh Li-Poly battery”.

A photograph, in the construction article, shows the two listed motors in two different prototypes. The AXI 2208/26 has a black prop attached in that photo as well as what looks like a black prop in a flying photo, definitely not an APC. The motors’ photo shows the AXI 2212/34 with what looks like either an APCe or APC SF. Most likely the SF as it is extremely “thin” in the photo. I checked the Landing Products Web site (<http://www.apcprop.com/>) and found that the only 7.5” prop available is the 7.5X7 Racing-Prop. There is no 7.5x4 available in either an APCe or SF series prop.

At the end of the construction article there is a list of Links that lists Web sites for the manufacturers and suppliers mentioned. There is no link for Landing Products, the supplier of APC props, but there is a link for Master Airscrew. The Master Airscrew link is mentioned because the MA razor plane was used in the construction of the wing, but thinking that the black prop shown in the photograph might be a Master Airscrew, I checked the Master Airscrew Web site (<http://www.masterairscrew.com>). I could find no 7.5” prop from Master Airscrew (Windsor Propeller Company). Measuring the propellers in the motors’ photograph showed the black prop to be of slightly larger (approximately 1/2”) diameter than what appears to be the APC prop. Therefore, the prop used remains a mystery.

The two recommended motors are not at all similar, and they wouldn’t use the same prop on the same 2S1P Li-Po pack!

The AXI Motor Data: (from the AXI Web site <http://www.modelmotors.cz/>)

2208-26: Kv 1420, Rm 0.155, and Io 0.6

2212-34: Kv 740, Rm 0.345, and Io 0.4

Just a simple glance at these numbers should suggest that using the same prop and same battery pack will yield entirely different results with the same battery and prop, as the Kv for the 2212-34 is about 1/2 that of the 2208-26!

It is my belief that the author may have used a 3S1P pack on the 2212-34, but it was not mentioned in the article. If a 3S1P pack was not used, then the stated “**Top RPM:** 4,850” might be correct for the 2212-34 on a 2S1P pack. I can’t believe that could be the recommended setup because the model’s speed, at full power with a 4-pitch prop, would be less than 20 mph.

Another problem arose when I checked the data for the 2208-26 on the Model Motors site. The manufacturer claims 8,630 RPM on a 2-cell Li-Po pack when turning a 7.5x5 Graupner CAM folder, which does exist! While packs, systems and props vary; a difference of almost 3800 RPM is extreme, which also indicates that maybe the 2212-34 was used with the 2S1P pack.

The very basic electric flight question remains unanswered; what motor, battery and prop do I use for this project? That’s not too good for a construction article that should be able to provide the needed information.

There were other things that were not explained.

While it was noted that different covering material was used on the different prototypes, as well as different servo types, and different motors and props, no finished model weights were given for the various prototypes with only a range of 9 – 11 ounces being given on the plans. It was noted that all the prototypes came in under 10 ounces, but specific weights are nice when the exact equipment is listed as well.

The plan top view shows a fuselage F2 former, yet no F2 former appears on the plan parts. I have a suspicion that it may be a cross former at the top of the fuselage for the large hatch area. The fuselage side view shows what appears to be the carbon fiber rod landing gear legs sandwiched between two F3 formers which are supposed to be grooved for the LG rods, but don’t show “grooving” on the side view. F2 does not show on the side view either. The construction article mentions formers F3 and F4 making up the landing gear block, while the plan just calls out two F3’s with no F4 shown.

The plans state a wingspan of 40.5 inches, while the multiplier noted on the plan of 1.75 gives a span

of 40.6875 inches. This is a very, very small difference of only 3/16", but you might think you made an error when enlarging the plans if the enlarged plan didn't come out to 40.5-inch span.

I realize that *Fly RC* and the author were only trying to be helpful and provide alternates to the power system, covering and onboard radio system, but without all of the details it can be quite confusing to someone new to electric power.

Once again, I appeal to all publications, print or electronic, please give us ALL of the CORRECT information and stop thinking we won't read the article because it becomes too long, or won't fit on "the page", when including all of the important information.

My Race-E

By Ken Myers



The photo shows my Race-E, built from the free pullout plan in the February 2005 *Fly RC* magazine. The AXI 2208-26 using a 7x4 prop powers it. It weighs 10 ounces and is finished with the silver/gray and blue of the Hughes H1.

You won't be seeing it at the flying field yet, since it only exists virtually, as a model for the REFLEX XTR flight simulator!

I do plan on building the real model very soon, and hope to be able to show it to you in these pages before the spring thaw, as I now have the perfect flying field for it right outside my backdoor.

Prognostications

By Ken Myers

The EFO Web site has been called "The Future is Electric", since its beginning in 1996. (The EFO was founded in 1988.) It certainly seems that the future has arrived. I doubt that there are few people involved in the RC flying hobby that would deny that electrically powered models are now very much mainstream.

This is neither good nor bad. It just is.

Since it is still near the beginning of a new year, I'm going to try and make some predictions as to what will be happening in "Electric Flight" and RC in general in 2005.

ESC's

"Smart ESC's" will become the rule. The ESC will sense what type and how many cells are hooked up to it.

The FMA Direct (www.fmadirect.com) "Super" series is an example. The FMA Direct Super 20 ESC features BEC, EPA and auto-detecting LVC for LiPo/NiCd/NiMH packs. It is designed for Li-Po/NiCd/NiMH cells, detects cell voltage, and optimizes the cutoff, preventing deep discharge of cells.

Specs:

1.15" X 0.71" X 0.40"

1-4 Cell Li-Po

3-12 Cells NiCd/NiMH

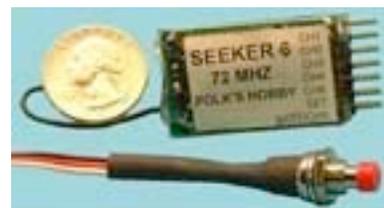
18 grams



Receivers

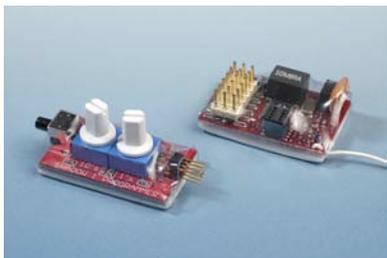
Synthesized frequency transmitters have been on the market for a long time and now synthesized receivers will become much more common allowing frequency selection at the field as necessary.

The Seeker 6 receiver, from Polk's Hobby (<http://www.polkshobby.com>), is a 6 channel micro receiver (0.5 oz.) with full range. It is a dual conversion receiver without a need for crystals and will work with any FM radio.



The Shadow-1 is another type of synthesized receiver. It is available from Bishop Power Products

(<http://www.b-p-p.com/>). It can be found on the accessories page.



The Shadow-1 features:

Dual conversion, full range. Ultra narrowband (5kHz or better)

Most advanced DSP signal detection, noise control and glitch suppression algorithms combined in the Smallest and the lightest 6-channel synthesized receiver in the world

Excellent sensitivity and IP3 performance

Synthesized “crystal-less” operation

Frequency selection through a modular programmer utilizing Sombra Labs' patented technology.

Frequency programmer included with every receiver. Extremely rugged, reliable and easy to use.

In-field frequency re-programming can be achieved 100% reliably even in an extremely busy RF environment

Compatible with most of the FM/PPM transmitters

Works with high-rate transmitters (KO Propo, etc.)

Automatic positive/negative transmitter shift detection

Reprogrammable channel assignment for servo pins 5 & 6

Shadow-1 will seamlessly cover 50Mhz (ham), 72Mhz (Air), 75Mhz (Surface) bands; from channels 00-99

Fully FCC/ic (Industry Canada) compliant, meets all AMA guidelines

Weight: 8 grams (0.28 oz.)

Size: 35mm x 22mm x 15mm

Perfect for Air or surface operation, the Shadow-1 represents a new leap in receiver technology. Never again worry about missing & broken crystals or switching crystals to the right channel. With the included programmer, changing channels is a snap and can be done within seconds. Use with synthesized

transmitters such as Hitec Spectra equipped models to achieve true channel freedom!

Shadow-1 w/programming unit (Shadow1rx) - 69.95

General

More people than ever before will try RC with cheap, unflyable “toy” planes and be disappointed. The majority of these “toy” planes will be electrically powered.

More club flying fields will be lost to urban/suburban sprawl than ever before.

More people will take up flying alone because of the loss of “official” flying fields, thus frequency control, as we know it, will be almost nonexistent in urban/suburban areas.

How about some of you folks sending me your predictions to share with the other *Ampeer* readers?

Upcoming February EFO Meeting Very Important – Please Read and Note!

We are planning on having the **February meeting at Rick Sawicki's house on Thursday, February 3 at 7:30 P.M.** Please read the following note from Rick very carefully!

“The only complication (and hopefully it will not happen) is that Kathy and I will be with our snowmobile club doing a guided tour circuit of the Canadian Lake Superior area for the 5 days prior to the EFO meeting. This tour (650+ miles) will be over on Wednesday, February 2 and I plan to drive home that evening/night. Only problem could be if we have a heavy snowstorm that Wednesday, which might strand us in the upper or even in Canada. Once again it probably won't happen but...

Regarding a map...Mapquest is best...address to be used for mapquest is **5089 Ledgewood Drive, Commerce Twp 48382.**

Please add a note that the house is on the Southwest corner of Ledgewood Drive and Ledgewood Court West with the house facing the Court. (Commerce Road ... to Ledgewood Drive...south on Ledgewood Drive to the sixth house on the right.) Ledgewood Drive is on the south side of the road only (off of Commerce Road)... 1 mile east of Duck Lake Road...or 2 1/2 miles west of Boggie Lake Road.

It is a two story colonial with a white picket fence around the court. There should be no problem

with parking since I have both a circular drive and regular drive ...in addition parking is allowed on Ledgewood Court West (not Drive).

Once again, I'll be glad to host the meeting. Hopefully the potential snow transit delay will not happen.
Rick"

To check to see whether the February meeting is on or not, please call Ken on Thursday, February 3 at 810.679.3238.

Super Universal Mounting System

Taurus Engines Southgate Aero Inc.

PO Box 1076, Southgate, MI 48195

Phone: 734-283-4813 Fax: 734-283-0650

http://www.taurus-engines.com/taurus_electrics.html

JonMcVay (Togflier@aol.com) forwarded me an email about a new supplier for the **Super Universal Mounting System** manufactured by Chris Balsler of Cambria Tool & Machine, Inc., 121 West Mechanic Street, Hillsdale, Michigan 49242. Thanks Jon!

This mounting system was presented in the April '03 *Ampeer*. To learn more about this excellent motor mounting system for most electric motors, visit the Cambria Web site at <http://www.cambriatool.com> and click on the Super Universal Mounting System link.

The following is from the Taurus Engines site:

“The Super Universal Mounting System is for Firewall Mounting of virtually all Electric Motors and Gearbox combinations.

The Advantages: Rigid, Light Weight, Adaptable, Slim Profile, Easy Installation

Motors: Hacker, Astro, Mega, AXI, Phaser, and many other motor/gearbox combinations

Length adjustment is accomplished using extension rods and spacers”



Image from Taurus Web site showing AXI 41xx mount

Other suppliers for this mounting system, according to the Cambria Web site are:

Esprit Model

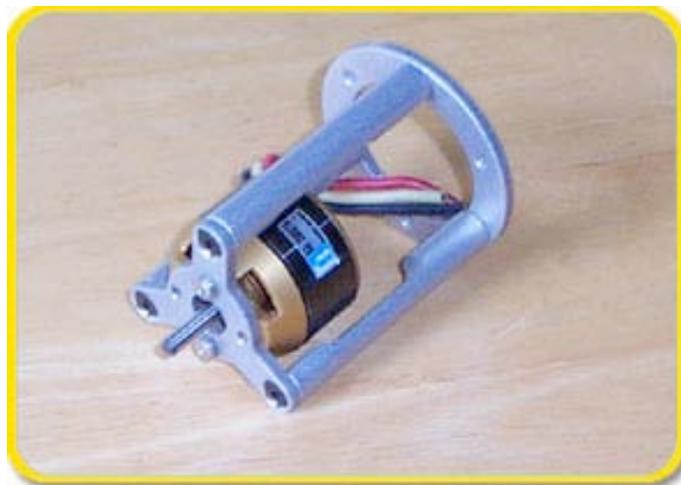
1114 Lynbrook St.

NW Palm Bay FL, 32907
<http://www.espritmodel.com/>
Phone: 1.321.729.4287

New Creations R/C
P.O. Box 496
Willis, TX 77378
<http://www.newcreations-rc.com/>
Phone: 1.936.856.4630

Atlanta Hobby
2320 Kitfox Circle
Comings, GA 30041
<http://www.atlantahobby.com/>
Phone: 1.678.513.4450
These products will soon be listed on this site.

Here are a few more images to give you an idea of how these mounts work:



An AXI 2808 shown in mount



Astro Flight Brushless w/gearbox

**Upcoming E-events
2005**

April 16, (Tentative), Electric Model Aviation Show and AGM, Toronto Aerospace Museum, Toronto, Canada - Robert Pike, 416-724-7615 pikefly@sympatico

April 21-24, 2005 Southeast Electric Flight Festival

We have moved the event earlier in the spring so that we can get some cooler weather! Average high is 79 degrees :-)

DATE: April 21-24, 2005

WHERE: Americus, GA - Hodges Hobbies

EVENTS: LMR Sailplane competition on Thursday, Open flying the rest of the weekend.

WEBSITE: www.koolflightsystems.com/seff.htm

May 15 - Rain Date: May 22 - KISHWAUKEE R/C

FLYERS 2nd Annual Electric Fly-In

Registration: 8:00AM Fly: 9:00AM

Site: Kishwaukee R/C Flyers Club Field, Dekalb, IL

Contact: Brad Evenson eflyer201@atcyber.net, phone: 815-522-3344 (after 7pm) or Rocko McCombs

nightz13@yahoo.com, phone: 815-756-9313 (after 7pm)

August 13 & 14 Sharks All Electric Fun Fly #2, Sheboygan Falls, WI, Web site www.mcallisterdesigns.com/elec05.htm for map and updated information.

November 12 & 13, The Las Vegas Soaring Club SuperFly IV, Located at Bennett Field in Las Vegas, Nevada, Information will be updated at the date approaches on our website at www.lasvegassoaring.org,

Please get meet info to Ken Myers ASAP for 2005

Very Important: EFO Members!
Please note the day, time and location of the February EFO Meeting, also the special instructions to call Ken on the meeting date to see whether it is a go or not! Ken has a new phone number, 810.679.3238, use it.



The Ampeer/Ken Myers

5256 Wildcat

Croswell, MI 48422

<http://members.aol.com/kmyersefo>

The Next Flying Meeting:

Date: Thursday, February 3 **Time:** 7:30 p.m.

Place: 5089 Ledgewood Drive, Commerce Twp

(see Feb. Meeting Note in this issue)