the Ampeer

June 1998 Page 1

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The Next Meeting:
Date: Thursday, June 4 Time: 7:00 or earlier
Rushton Rd. Flying Field, South Lyon, MI

Corrections:

In the February issue of the *Ampeer* I mentioned Steve's article on making spinners. Unfortunately I gave the wrong source! Here's Steve's correction:

"*Thanks Ken, glad to help other people with their projects. And of course, it is good to support EFI (especially now that it is monthly!). However, the article wasn't sent to EFI - it appeared in EF-UK (the newsletter of British Electric Flight Association).*
Steve Kerry - Yorkshire, UK"

If the correction above looks familiar, it should. I ran it last month! It seems that I had Steve's article all the time! Here it is:

From the Pages of:
Electric Flight UK
edited by: Gordon Tarling
87 Cowley Mill Road, Uxbridge,
Middx UB8 2QD
gtarling@ndirect.co.uk

SCALE SPINNERS FOR SPEED 400
Some ideas by Steve Kerry

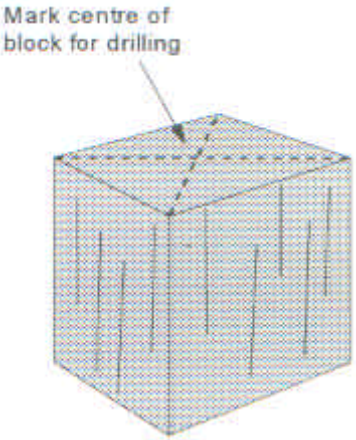
One of the biggest problems with Speed 400 motors is the ease with which you can bend the shaft on landing. I know I'm not the only one who has traced several wobbly propellers back to a slightly bent motor shaft. There are two ways around this: shaft savers and spinners. Shaft savers are great, I have a number of them and they work fine. But they don't look too good on a scale model.

A close fitting spinner is the other option. If you install a spinner so that it almost touches the nose of your model, you will eliminate 99% of bent motor shafts. Great! Unfortunately, the mass-produced plastic spinners available in most shops leave something to be desired. They are not wonderfully balanced, the quality is highly variable and the choice of shape very small. They also tend to distort at high speed, creating a lot of vibration.

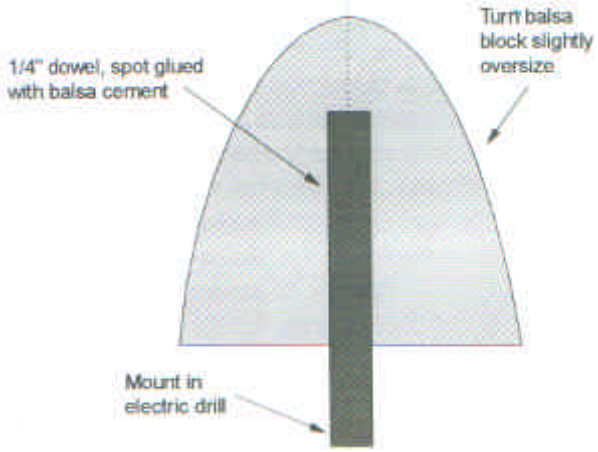
So, sooner or later, the modeler with a taste for small scale aircraft will need to make his own spinners. Now before you run away in horror, I'm not talking about casting your own spinners in GRP or vacuforming anything. These spinners are made from good old balsa wood. My objective was to find a simple, cheap way for anyone to make their own

What's in this issue?

spinner without recourse to expensive or complex equipment. The only hardware needed here is an electric drill, which most of us should have already. If the drill is in a drill press, so much the better - but it is not absolutely necessary.



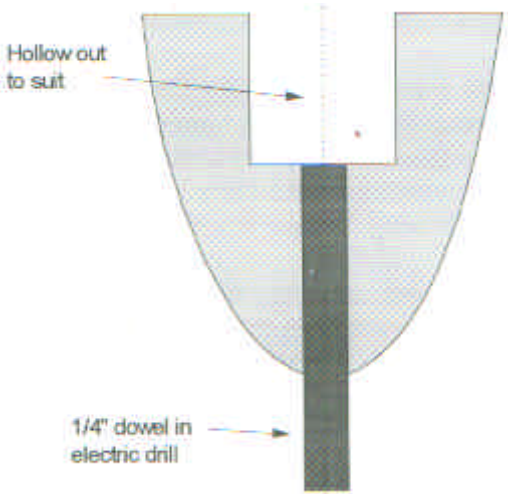
Start with a block of balsa slightly bigger than the spinner design. Square all the edges, and draw a couple of diagonals on the end grain to find the exact centre. Drill out a 1/4" hole in the centre (assuming an Aeronaut prop adapter), make sure you go at least halfway through the block. Knock off the corners to make an octagonal cross section, and glue a piece of 1/4" hardwood dowel into the hole. Don't smother it with



epoxy, just spot glue it with a dab of balsa cement so the dowel can be removed later.

When the glue is dry, mount the block in your drill and turn it to a shape that roughly resembles your spinner. The block will vibrate when you start, but as you smooth it down this should ease. Leave the spinner a bit oversize, to allow for final shaping later. Remove the dowel from the spinner by giving it a sharp tug.

You need to remove a bit more wood in the centre, to allow for the prop nut and washer. Do this by h and if you enjoy carving, or simply use the drill press with a larger bit if you have one. Otherwise, drill the 1/4" hole right through the block and out the other end (it would be easier to do this right at the start if you want to use this approach). Replace the dowel from the front this time, only going halfway through and again fix it with a spot of balsa cement. When dry, return it to the drill and remove a



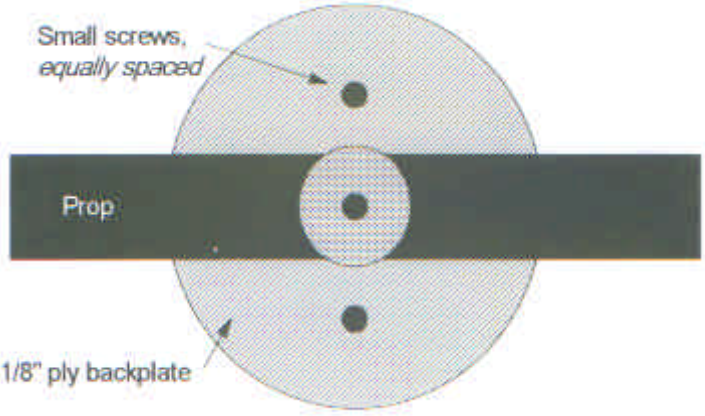
portion of balsa to suit the prop nut. BE CAREFUL! Don't just jab your knife into a whirling block of balsa, all you will do is snap the blade and send it flying across the room. Coarse sandpaper is a much better tool for this job. Don't remove any more wood than necessary, this is not meant to be a hollow block.

When you are satisfied that your prop adapter (with nut and washer) will fit inside the spinner, remove the hardwood dowel and replace it with balsa. Or, if you prefer, just cut the dowel off and glue it into place permanently.

Backplate

The primary function of the backplate is to stop the motor shaft bending when the prop hits the ground, so it needs to be rigid. 1/8" ply is probably better than 1/16" ply. Mark out a circle, drill the centre hole to suit your prop adapter, and cut the backplate slightly oversize. Mount it in your drill, and smooth down the edges with a file or coarse sanding block.

Okay, now for the tricky part. Mount the prop on the adapter, with the backplate behind it, and offer up your balsa spinner. Mark where the prop blades touch the balsa, and cut a small notch. Offer it up again, and cut another notch. I use a half round file, it matches the curve of th e



prop blade quite closely. When everything fits snugly, and the spinner is sitting flush with the backplate, give yourself a pat on the back - that was the worst bit!

On the rear face of the backplate, mark two holes for the

spinner mounting screws. Hold the spinner in place (tape it if necessary), and drill these out. Now remove the prop, mount the spinner to the backplate, and install it on your plane. You may wish to reinforce the holes in the balsa with a squirt of glue.

Mounting

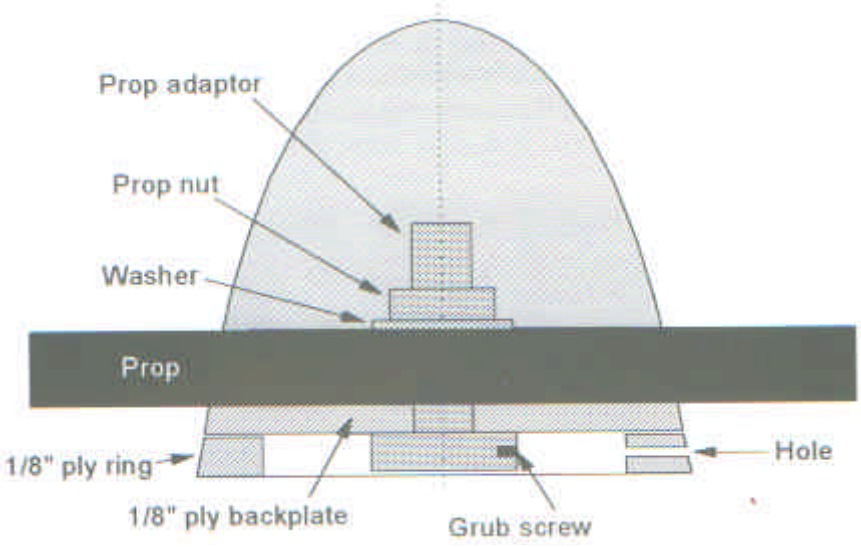
There is a problem here. Because the prop adapter stands proud of the ply backplate, you will have a gap of about 1/8" between the spinner and the nose. Cut a ring of 1/8" ply and glue it in place, then sand to match the fuselage profile neatly. Astute modelers will find that they cannot get to the grubscrew in the prop adapter any more! Drill a hole, or cut a thin slot in the ply ring to allow an allen key to fit through.

Run the motor up to full speed, and sand the spinner to shape using a *rigid* sanding block. When you are happy with the result, give the spinner a generous coat of glue (epoxy, PVA, etc.) and spin it up to full speed again to get rid of the excess. (Point the nose into a box or jar first, the glue travels a surprisingly long way when it flies off!). When dry, sand it smooth again and you're almost done.

Unless you are very lucky, your spinner will still have a slight wobble due to varying grain density in the wood. Lightly touch a pencil to the spinner while it is turning, this will show the heavy side. Remove a small amount of wood from the inner face, and try again. Repeat until the prop is balanced, then install the prop again (you did balance the prop beforehand, didn't you?). Make a small mark on the spinner, and a matching one on the backplate, so you always install it the right way around.

Of course a balsa spinner will not survive a serious crash. As the first part of the model to hit the ground, it will usually split in two upon impact. You may be able to glue the pieces back together, but this may give balance problems. One variation I have not tried is to make up the balsa block from laminations with the grain running in different directions, this would take longer but would give more resistance to splitting. I think it would be easier to make several spinners in the first place, building several only takes slightly longer than building one (the same is also true of entire planes).

If this article makes the process sound long and difficult, it is not. You can turn out a spinner in an evening, or several if you make them all together. It is not as fast or convenient as bolting on a commercial item, but it does allow you to build a much wider variety of prototypes.



Easy Electrics

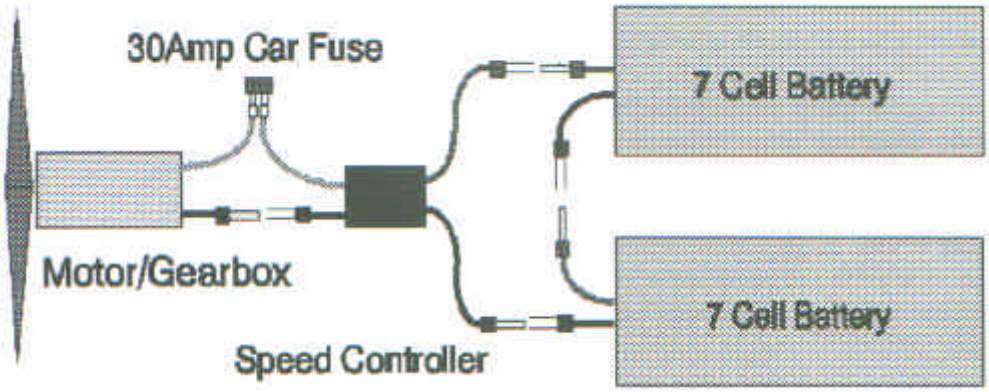
Alan Bedingham
via EFUK, Winter 1997

The usual route into electrics is 7 cells and a Speed 600, I suspect on the assumption that if it doesn't work, you won't have wasted much money. Unfortunately, 7 cell aeroplanes (i.e. power aeroplanes, not gliders) are critical on weight and you have to get the powertrain matched *very* carefully to the aeroplane for them to work well - sometimes for them to work at all! Then you have to buy mini-servos and a small receiver, which most power flyers don't already have. Before you know where you are, you've spent loads of money on an aeroplane that performs disappointingly, if at all.

I would suggest that an easier and cheaper route (honest!) is to go for 14 cells and .40 size aeroplanes.

For a start, you've probably already got a .40 size aeroplane that's suitable for electrics. Almost anything that weighs around 4 1/2 lbs in glow form and has a reasonable wing area will fly with 14 cells — *and* you can use standard size servos and receivers. It will end up weighing more than the glow aeroplane - typically around 6 lbs. but it will fly and do aerobatics. You want proof? Watch my Taube or Novice flying. I did as little as possible to convert them, pretty well just unscrewed the glow and all its bits and made up a battery box in the fuselage. I get 7 to 9 minute flights depending on how much I throw them around and they both take off in a manner that can best be described as sprightly.

But what about charging 14 cells? Don't you need horribly expensive chargers? Nope. Just split the battery into two 7 cell packs and use two 7 cell chargers costing £22 each! I use Speed One chargers from the local car racing shop or from Hillcott Electronics. Your money won't be wasted 'cos you can use them to charge your transmitter and receiver packs as well. Did you know the worst way you can treat your Tx and Rx packs is to overcharge them at the slow (C/10) rate? It's far better to fast charge them with a decent peak detect



charger than give them an overnight charge every time you fly, fast charging stops the dendrites forming.

The wiring in your plane will look like Fig. 1. Note the fuse and the way the male and female connectors are set up so that you can't plug things together the wrong way. This won't work with the common Tamiya connectors. Great! They're rubbish for electric flight - I'd rather use auto spade connectors than those things. Best of all are the 4mm gold connectors from Mike Donkin and others. Sermos Powerpoles are good as well but they are hermaphrodite (don't have a male and a female) so you can plug them in the wrong way round if you're not careful, and then you'll get a cloud of very expensive smoke.

What about motors? What you should use is a Speed 700 9.6V (£20) and a gearbox. Don't even think about running it direct drive, because ferrite motors (Astros have cobalt magnets, Speed series are nearly all ferrite) are very inefficient at low revs - a Speed 700 12V on direct drive with a 10x6 will turn at around 9000 rpm and have an efficiency of around 50%. That's right, you're chucking away half the power you're putting in! Not only that, but the piddly little propeller won't produce an awful lot of urge either. Put a gearbox on a Speed 700 9.6V and spin it at around 18000rpm and the efficiency rises to over 60% - plus - you can use a dirty great prop that really throws some air *and* you can use less current for the same thrust. Winner! Of course we all know that big props provide more thrust - how many helicopters would take off with a 10x6 as the rotor blades?

The Taube uses just such a set up. Speed 700 9.6V with a gearbox made out of the back end of an old electric racing car with a 16 tooth pinion on the motor and a 50 tooth gear on the propeller shaft (which was the rear axle). The only awkward bit is drilling out the pinion for the 5mm motor shaft. Or you can cheat like I did and run the motor against a grinding wheel until the shaft is down to 1/8in. You do need to make sure none of the grinding dust gets inside the motor by sealing it with tape. I use a 13x9 APC which turns at an apparently slow 6000rpm (hence the big pitch), but don't be fooled - the static thrust is over 3 lbs. More than enough for touch and go's and the kind of mild aerobatics this aeroplane can do.

Commercial gearboxes are available, ranging from the MFA Olympus belt drive with a 700 conversion kit at around £23, the Graupner belt drive at £38 and the in line Graupner unit which comes complete with motor at around £75. *(don't forget the very versatile Modelair-Tech Belt drives, either. - Ed.)* There's also the Flying Sparks TG4O by Dave Chinery, a ready made combination of gearbox and two car racing can motors at about £85 - expensive, but mine works very well. I once worked out that these little motors are turning at over 28000 rpm. Makes you think, doesn't it? Or you could always go for an Astro 25G at around £150. Guess why I made my own gearbox?

The really important thing you absolutely must do is to measure the current you're putting through the motor. It took me a long time to realise that the voltage rating of a motor doesn't mean much, it's just a guide to what sort of motor it is, what's really important is not to exceed its current rating. Three things will happen if you ignore this - one, the motor will get very hot and melt the windings - two, you'll get a very short run and three, the batteries will cook. Nothing kills ni-cads quicker than heat. Buy an ammeter (£12 from Hillcott) and use it.

Never exceed currents for popular motors are -

Speed 400 10Amps
Speed 600 25Amps
Speed 700 30Amps

Here are a couple of simple rules you can use to estimate if your proposed conversion will fly

You're going to need a minimum of 50Watts per pound of all up weight. What you do is to measure the motor current, assume each cell is 1 Volt and multiply the two numbers to get the Watts. For a Speed 700 on 14 cells that's 14cells x 25Amps = 350Watts. At 50 Wattts per pound, the maximum flying weight should not exceed 7 lbs - obviously, less is better. The Novice is flying at 7 lb, the Taube at 6 lb. A 40 with tank and servo, but no fuel, weighs around 16 oz, about the same as a geared 700, a 14 cell battery will weigh around 28 oz. Assume a six ounce tankful of fuel and you're adding around 22 oz by going electric. You could save some weight by using lighter wheels and taking out pilot figures. Maybe recover the wings with film.

The wing loading (all up weight divided by wing area)

should be less than 22 oz/square foot for this size of aeroplane. Quite apart from the fact that light aeroplanes fly better, keeping to this sort of wing loading will guarantee a brisk takeoff and make the landings a bit less fraught.

If you do these numbers for a Wot4 you'll see it makes less than an ideal conversion, it can be done, but you'll need more cells and it will be something of a hot ship to land. Could always build a wing with more span I suppose. Would certainly improve the appearance. Sorry, my prejudice is showing.

One other rule worth knowing if you're designing your own plane from scratch is that the powertrain - motor, gearbox, prop, battery and speed controller - should make up half the flying weight. Gulp.

The actual conversion is the easy bit just take out the glow motor, tank and throttle servo and mount the electric motor in it's place. Chuck away the engine mount, it's weight you don't need. 1/8 ply is thick enough for mounting electric motors.. For the Taube conversion, I carved a way nearly all the 1/4 ply firewall and mounted the motor by gluing 1/8 ply plates onto what used to be the 1/4 balsa motor cowling. Plenty strong enough - no vibration to worry about is there?

The battery box can made up of 1/8 hard balsa. Stop worrying about what the battery will do in a crash, there's no point. If you crash a glow plane you'll wipe out everything ahead of the wing, so what's different with an electric? It might be politic to put the speed controller out of the way of the battery, but you ain't going to stop 28 oz of battery from ploughing it's way to the front, so don't even try. Just make sure it's not going to crush anything expensive on it's way. All you need to do is make the battery box strong enough to stop the battery getting loose in aerobatics and landings and make it open enough that cooling air can get past the battery. The really good news is that you can chuck out all that lead you put in the nose to get the thing to balance, just move the battery forward a bit. Have you noticed how scale biplanes and vintage models always seem to come out tail heavy? Not any more!

Make sure that cooling air can get over the motor, the speed controller and the battery. This is usually fairly easy to do, but don't forget to have an exit for the air somewhere near the back of the fuselage. It will need to be quite a big hole, around an inch square.

Move the receiver back as far as you can and put a 250mAh battery in instead of the standard 500mAh. The idea of moving the receiver back is to get it as far away as possible from the biggest source of interference, the motor, which you suppressed according to the instructions, didn't you? A 250mAh battery is more than enough for a days flying and will save 2 oz. Just think how much time you normally spend fiddling with a glow engine to get it started and running right with the radio switched on. All that will be a thing of the past. Switch on, push the throttle forward and fly!

Talking of the throttle, if you're the kind of pilot who treats the throttle as an on-off switch, don't even think about getting into electrics. An electric aeroplane is a bit like a slightly over weight 40 glow model with a 2 oz tank. You're going to get 3-4 mins at full throttle, 7-9 mins if you throttle back as much as possible, even turn the motor off if you want to come down a bit - don't worry, it'll start again! Full power is only used for takeoffs, touch and gos and the entry to loops and stall turns. On the downward bit of aeros the motor will unload anyway and save you some current, turning it off will save even more. Climbing uses most power, which is why it is always better to over power an electric - you spend less time going up, so you get longer flights. It sounds illogical, but I know it's true, so trust me. All right, an example. F5B models use so much power (1500-2000Watts) that they can't run the motor for more than 10 seconds without a melt down. In that 10 seconds they climb vertically at over 100 mph to eye-straining altitude. Typical flight times are in the 15-30 minute range! All my landings are done motor off with maybe a trickie of power if it looks like getting a bit low on the approach. No, planes don't crash if the motor stops - they become civilised aeroplanes called gliders. Sorry, get off hobby horse!

In my opinion there's only one make of battery worth buying - Sanyo. 1700SCRs are now pretty cheap, I've seen seven cell packs for £30 at the shows, mainly because the new RC2000s have arrived which are the same size and weight but have 18% more capacity and a lower internal resistance. There are even rumours of some new nickel metal hydride cells suitable for electric flight that have twice the capacity of RC2000s. Wow! With these, I'll have the equivalent of a 40 with a 6 oz tank! Bet they'll cost an arm and a leg though.

Speed controllers are no problem, there's plenty out there that will handle 14 cells and up to 30A, and they're getting cheaper all the time. For instance, F2A Supplies do the Kontronic Easy 5000 for only £37.50.

Safety rules with electrics are the opposite to glow. If the propeller isn't going round, then it's probably going to. Keep your hands well away at all times, there might be a battery in the model and it might be switched on just waiting for a glitch to spin the prop or the throttle to be nudged open accidentally. A 14 cell model has the same power as a Black and Decker drill, in fact a fair bit more when stalled. You can just imagine the damage an APC on a Black and Decker can do to your fingers. Please don't find out the hard way. Get into a safe switch on routine.

Tx on, throttle closed, Rx on, then connect the battery with hands well clear of the prop.

Reverse this on landing. DO NOT swi tch off your Tx to retrieve your model from the patch. If you pick up interference the motor might start and you'll be chasing t he thing all over the field, or worse, trying to explain why little Johnny is missing a couple of fingers. Leave the Tx, still switched on, leaning on the upwind cone (don't take it with you, you might shoot some one down on an adjacent frequency) and walk out to get the model. As soon as you get it back, disconnect the battery and switch off the Rx and Tx - in that order.

Loads of other things to tell you about, but I've run out of space!

I think this is the easy (and cheap) way into electrics - what do you think?

SKAT Rating

Ricardo Jorge email: rjorge@mpc.com.br

Rating * * * *

The Skat is a Speed 400 pylon racer from Diversity Model Aircraft. Very interesting kit, with a LIGHT fiberglass fuse and foam core wings that caused me a little concern before building b ecause I've never built anything so small and delicate, but the actual construction is simple and quick, except for the aileron linkage that is a little complicated due to the proximity of the servo arms.
I used a Graupner Speed 400 6.0 V motor with 5X5 CA M prop, 7 600 AE Cells , FMA direct S80 Sub micro servos, FMA Direct Fortress micro receiver and the excellent Micro Demon 102 controller from Viper Model Products. Believe me, there's no room for anything bigger than that The flight performance is exce llent, provided you give it a good launch, strong, straight and level, otherwise it will soon be out of control. As it is made f or racing, this is what it will do best, so don't expect anything else from this plane. Landings are very easy, with a very sati sfactory glide.

PS please do note the slight change of the Home Page Address (www2)
yours, Ricardo
http://www2.mpc.com.br/users /r/ricardo.jorge/
http://www.geocities.com/CapeCanaveral/Hangar/3596/

A Little Indoor Info from Europe

Rob Bulk email: rbulk@worldonline.nl

I have been a little busy. I've had to make a lot of classic sailplanes for a German customer , but let me inform you about my latest experiences. Last week I was at an indoor fly-in. There was not free flight, but electric indoor fliers alone. It was in a local tennis hall which is

A Pair of MICROBE's

about 50 x 30 x 10 meters.

I thought it would be a good try out for the MICROBE design. Yes, it flew through the hall, but it was just a little fast (too fast). After a few rounds I couldn't make it any more and I crashed the MICROBE. (I had to build a new one anyway.) This design is okay for outdoor flying.
I saw many electric airplanes with the speed 300 motor, 8 cells 150ma, 9 gram servo's, indoor receiver (simprop), just all the goods from the shop and they all were flying great. Some designs looped and rolled. It really amazed me (I'm gonna build something like it in future.)

A friend of mine, Rick Ruysink, was flying the tiniest airplanes with a CO_2 motor, radio controlled, with a wingspan of about 25cm (He also makes world's smallest R/C systems)

The most amazing thing was the Chopper. They said it was the smallest in the world. It was not bigger than a magazine page and it flew radio controlled, yes really.

Where I live is in the middle of Holland a small village called Boskoop near GOUDA (f rom the cheese). Boskoop is famous because of treeplanters nurserys and so it also has 1600 km of waterways.
till next time, Rob
Visit Rob's Web site at: http://home.worldonline.nl/~rbulk

Heinkel HE162 Salamander...

Grant Calkins email: CasinoOp@aol.com

This plane is my completed Heinkel HE162 Salamander. The mo del uses an Electric Ducted Fan (EDF) for propulsion, umploying a WeMoTec 480 fan unit and a Graupner 480 BB Race motor powered by 8 700mAh cells. Fan speed is about 24,000 rpm, delivering about 13.4 oz of thrust. All-up weight is 42 oz, so the plane sh ould fly OK,

though not as an aerobatic wonder. Radio is JR, controls are aileron, elevator, and motor speed. No steering or rudder control is installed, but this may change is takeoff roll is not straight enough to ROG before hitting a cactus! Speed control is AstroFlight #217D (new and improved version of their #217F), servos are Dymond microservos. Length is 42", WS is 43", area is 330 sq inches, so wing loading is 17.4 oz/sq ft.

I built this model from Nick Ziroli plans and an accompanying construction article in the May 1996 isue of Model Airplane News. Abandoning the scale colors and German WWII markings, I chose frieldlier colors o f yellow wing and tail feathers, and USAF aluminum for the body and fins. The covering material is SuperKote from England via Hobby Lobby. This stuff shrinks more that MonoKote. I also added trycicle landing gear. A plane should have a landing gear!

First flight is coming up shortly when the Muroc flying site (Edwards AFB) is dry once again.

Update and Rating

Attached is a picture (JPG) of the Heinkel 162 Salamander that I built form Nick Ziroli plans. I rate it a solid * * * * (4 stars). The model uses a WeMoTec 480 fan with Graupner 480 BB Race motor, 8x700 mAh cells, JR radio, ailerons and elevator using Dymond microser vos, Astro Flight #217D ESC, and Sermos connectors throughout. All-up weight is 42 oz including the tricycle gear I added (an airplane should have a landing gear!). Thrust is 14 oz, putting the plane just on the 3:1 flyability ratio. Steering is my own design: ailerons move the nose wheel via 12 lb. fishing lines connecting the two - invisible, no drag, and saves one servo. Wor ks great. Plans and construction article were in May 1996 Model Airplane News.

I chose yellow and aluminum as colors, friendli er than the scale colors and markings. Covering is SuperKote from the UK (this stuff shrinks better than MonoKote).

Flies VERY well. ROG in about 120', climes slowly, banks nicely with good stability. The jet sound is great.

New Pixel Site

Alexander Van de Rostyne
email: Alex@staf.planetinternet.be

My Pixel site will (was km) be updated first week of April. I have added a complete coverage of Pixel III, my newest creation, plus lots and lots more information about how I build these bees. There are many more pictures, and if all goes well I will be able to offer a VHS tape with footage on Pixel II and Slow-fly airplanes.

I added two pictures to give you an idea how Pixel III looks like. My site address remains unchanged http ://www. planetinternet.be/pixel/

Pixel III is larger than the previous two, but is built around mainstream RC gear. That makes it a lot cheaper. Rotor is 52cm, weight is 290 grams with batteries, and autonomy is between 4 and 8 minutes depending on the power pack. Still 100% carbon construction.

The May Meeting

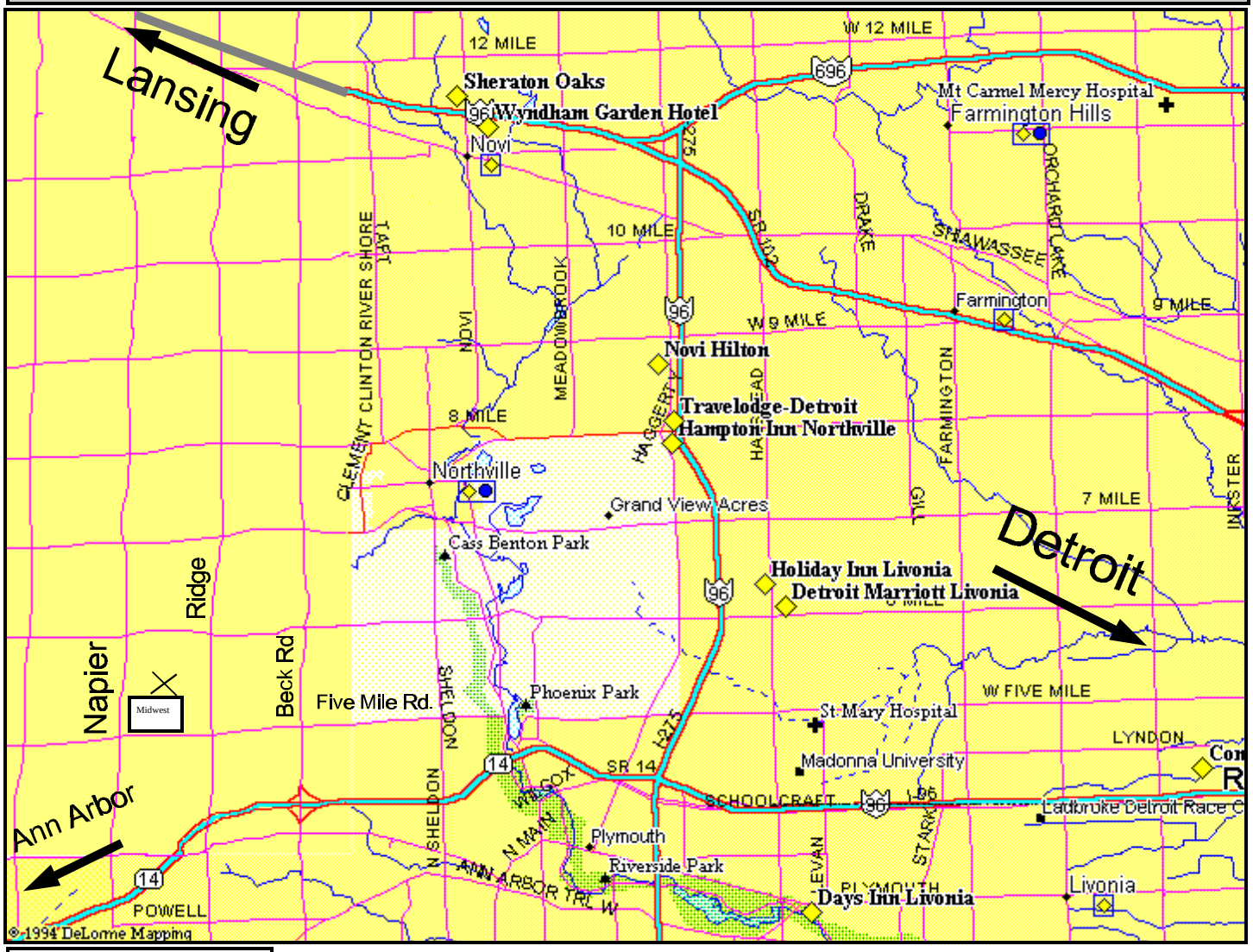
All things considered, the May meeting was well attended at the Rushton Rd. flying field. The threat of rain was in the air, and the wind was blowing 15 mph plus! Still, 6 of the nine folks attending the meeting chose to fly, and all left with whole planes. Nice job gentlemen. We'd like to welcome new member, Terry Povlich, on the far left in the top photo to the EFO. Remember that if we are rained or winded out, we will be going into the Big Boy at the corner of 9 Mile Rd. and Pontiac Tr. for refreshments and an informal meeting. Upper left is a picture of Richard Utkan with his Dymond Models Cub. Look for an upcoming report.

For Sale:

from Gordy Stahl - email: GordySoar@aol.com

I've got a bunch of 1700's, still $2 each plus shipping Min. order 50 cells. Cash or check

Gordy Stahl
9303 LeBeau Ct
Louisville,Ky 40299
Phone: 502 491 5001



Mid-America Flies Hotel List - 1998
(note: prices NOT updated for 1998)

Rates were believed to be per night on the weekend for 2, and were the best information I could get on 11/10/96. Please call for current rates

Novi Hilton
21111 Haggerty Rd.
236 rooms
800-445-8667
248-349-4000
$79

Sheraton Oaks
27000 Sheraton Dr.
206 rooms
248-348-5000
$75 - $85

Wyndham Garden Hotel
42100 Crescent Blvd.
152 rooms
800-222-4200
248-344-8800
$64 - $74

Hampton Inn Northville
20600 Haggerty Rd.
125 rooms
800-426-7866
313-462-1119
$76

Travelodge Detroit
21100 Haggerty Rd.
124 rooms
800-578-7878
248-349-7400
$55

Days Inn Livonia
36655 Plymouth Rd.
72 rooms
800-325-2525
313-427-1300
$41

Holiday Inn Livonia
17123 Laural Park Dr. N.
225 rooms
800-465-4329
313-464-1300
$85

Hotel Baronette
27790 Novi Rd.
149 rooms
248-349-7800
$79

Comfort Inn Livonia
29235 Buckingham Ave.
112 rooms
800-221-2222
313-458-7111
$65 - $95

Detroit Marriott Livonia
17100 Laural Park Dr. N.
227 rooms
800-228-9290
313-462-3100
$72 - $79

To locate the Midwest R/C Society flying field, site of the 1998 Mid-America Electric Flies, look on the far left side of the map, where X marks the spot near Five Mile Road and Napier. The field entrance is off of Five Mile Road. M-14 can be entered and exited via Beck Road.

Mid-America Electric Flies

AMA Sanctioned

Saturday, July 11 & Sunday, July 12 , 1998

Hosted by the:

Ann Arbor Falcons and **Electric Flyers Only**

Site Provided by the:

Midwest R/C Society

your Contest Directors are:

Ken Myers phone (248) 669-8124 or

KMyersEFO@aol.com

Keith Shaw (313) 973-6309 (**note:** correct phone number)

Flying both days is at the Midwest R/C Society Flying Field - 5 Mile Rd., Northville Twp., MI (see map)

Registration: 9 A.M. both days
Flying from 10 A.M. to 5 P.M.

Saturday's Events	**Sunday's Events**
All Up - Last Down	All Up - Last Down S400 only
Longest Timed Flight	Longest Timed Flight S400 only
Best Scale	Best Scale
Most Beautiful	Most Beautiful
Best Multi-motor	Best Mini-Electric
Best Sport Plane	Best Ducted Fan
CD's Choice	CD's Choice

All Planes Must Fly To Be Considered for Any Award

Night Flying Possible, Weather Permitting, Friday & Saturday Nights

Refreshments will be available at the field both days.

There will be a pot-luck picnic at the field on Saturday evening.

Come and join us for two days of fun and relaxed electric flying.
Even though this is called a contest, the purpose is fun and the enjoyment of sharing the electric experience.

Come, Look, Listen, Learn - Fly Electric - Fly the Future!

Saturday's & Sunday's Awards:
Plaques for 1st in each category

Merchandise drawing for ALL entrants

Upcoming Events:

May 30, Greater Detroit Soaring & Hiking Society Speed 400 Duration & Any Size Electric All Up/Last Down as part of a glider meet Sailplane Weekend. Addison Oaks Park, N. of Rochester, MI. The S400 duration will be 3 flights of 10 min. with a 50 point landing, charging between flights, time window 9 - 11, Any size Electric All Up/Last Down for any size electric plane, starts at 3 p.m. Contact: Ray Hayes at (810) 781-7018 or email: skybench@teleweb.net

May 30 and 31, PSSF Electric Fly-In, Lacey, Washington. No fees, no events, just come and fly. Free on-field BBQ. Bob Benjamin, bob@rcmodel.com, 360-352-2602 OR Lyle Hegsted, w7qcu@aol.com, 360-491-6692.

May 30, Ninth annual Burlington County R/C Club Spring Electric Fly, club field, off Rt. 206, near Columbus NJ. Paul Boxmeyer PBOXMEYER@AOL.COM

June 6, Central Indiana Electric Fly-in, IN contact Ralph Weaver email: weaverr@iquest.net

June 6 & 7 EMFSO Soggie Electric Funfly, near Cambridge, Ontario, Bud Wallace (905) 274-3177

June 13 & 14, Knights of the Air 1998 Land of Lincoln E-Fly in Springfield, Illinois. For more information, contact Tim McDonough

June 13 & 14 the **River Valley Flyers**: River Valley Electric Only Fun Fly in central Wisconsin (Wisconsin Rapids area). CD Richard Ida. For more information, contact Richard Ida at Inspctr398@aol.com or phone: 715-421-5994

June 13 & 14 LVRCS EFLY, Easton, Pennsylvania - Mike Stewart CD

June 26 (symposium), 27/28 (fly-in), **DEAF/Ezone Electric Expo** Sport/Fun Fly with User Friendly Competion - Anything Electric Goes! Either Irving RC Field (TX) Frank Korman (214) 327-8411/ email: FSKorman@aol.com or Jim Bourke (972) 680-1220/email: jbourke@ezonemag.com
website: http://www.ezonemag.com/pages/rally98.htm

June 27 & 28, Kingston Radio Control Modellers Electric Funfly, Kingston, Ont., Martin Irvine (613) 389-9457 mirvine@kos.net

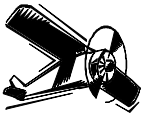
June 26th, 27th & 28th MARCEE98 At the 3M R/C flying field. E-mail info at: mlroerig@mmm.com, Phone: 612-426-5018 or for directions see http://www.isd.net/3mrcflyers/events.htm

June 27 Northern Connecticut RC Club 11th Annual Electric Fun Fly - Ellington, CT - Ron Torrito, 1625 Main St., East Hartford, CT 06108 w/SASE for maps and event brochure - email to 102127.1060@compuserve.com

June 27 and 28, ***Boeing Hawks Fly-In,*** This is the grandaddy of the Pacific Northwest fly-ins. Bernard Cawley is usually involved somehow and may have more details. (I will follow up on this one - km)

July 11 & 12 Mid-America Electric Flies to be held at the Midwest R/C Society flying field on 5 Mile Rd. near Napier Rd. in Northville Twp., MI, which is near Plymouth, MI. Hosted by the Ann Arbor Falcons, CD Keith Shaw, & the Electric Flyers Only, Inc., CD Ken Myers. Contact Ken for more details.

July 18 & 19 The Voltaires of Central New York Tenth annual All Electric Fun Fly - Grenadiers Field, Caughdenoy, NY. Contact Garret Wikoff 315-695-4271, wikoff@ibm.net or Gordon Wheler, 5 Old Farms Ln., Cazenovia, NY



The Ampeer
Ken Myers
1911 Bradshaw Ct.
Walled Lake, MI 48390

Next Meeting: Date: Thursday, June 4
Time: 7:00 or ASAP
Rushton Road Flying Field, South Lyon, MI
Rain, Windy or Shine – we'll go to Big Boy if it is too bad!