the Ampeer

July 2001 Page 1

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The Next Meeting:
Date: Saturday & Sunday, July 7 & 8 **Time**: 9:00 A.M.
Place: Midwest R/C Society 5 Mi. Rd. Flying Field

What's In This Issue:

Report from Oz

From: Peter Haworth
pjhaworth@tassie.net.au

Greetings from Oz. I've finally had the time to take a few pictures of my recent projects to share with EFO members. Today was a public holiday due to Easter, and what better time to go flying, especially with a new plane. When I first took up R/C electrics a few years ago, the second kit I bought was the Great Planes .40 size J-3 Cub, as it is a plane I really like. It has taken until now to finally do something with the kit.

My friend and mentor Jacques Wakae built the kit up for me, as my "real" work (as an Accountant), and my "play" work (Oz E-Flight) did not allow me to even look like getting the time to build it myself. Jacques built it largely as it came out of the box, except for individual aileron servos (JR E-381s) and the formers and braces in the nose were replaced by ones without any thrust built in. Of course a battery box was built in as well. Power is the Astro 40G (standard box) that I brought back with me from my trip to Mid-Am last year, on 20 Sanyo 2100 NiMH, Master Airscrew 12x8 and Orbit Control50 opto ESC.

I have attached some photos which show the layout in the plane, and also the battery configuration. A bamboo skewer through the balsa "dummy" cells on the pack and the top and bottom battery box plate is used to locate the battery. All up weight, without the sundry scale detailing I plan to do came out at 3790g, approximately 400g more than the maximum design weight. With the receiver battery under the trailing edge of the wing, the C of G was spot on, but the location may

be moved in order to balance when all detailing is finished. I will use registration VH-AGA which is an Australian registered yellow J-3, and the owner is kindly sending me some pictures to assist in detailing. On the 12x8, static current draw is about 29 amps, which, in the air, should unload probably 3 or 4 amps to leave the draw comfortably within the 30 amp max draw these cells can reliably put out. I will charge these at 4 amps using the Reflex mode on my Orbit Microlader Pro charger.

Jacques test flew today for me, as the wind was gusting 10-15 knots and I was not comfortable having a first fly in those conditions. Power from the 40G was more than adequate, and the take-off run seemed to be no more than 10 feet or so. It was easily able to penetrate the wind even at half throttle, and it seems as though all the control settings I had programmed in were spot on, although I will mix some right rudder with full throttle.

I can hardly wait for a calm day to have some flights myself. Jacques did a top job with the building (about 60 hours building time) and the Solartex covering, although heavier, really looks the part. The additional 400g does not seem to be any problem at all.

The second plane I'll report on is a Buzzard Bombshell old timer which I had converted to electric. When I bought the plane it had a PAW 35 diesel in it, with 500g or lead in the nose to make it balance. I stripped the wing and drilled lightening holes everywhere, only to save just a huge 17g - I really don't think it was worth it in the end, but it looks nice anyway!

That old enemy time got in the way again, and Jacques had again been my rescuer. He did the fuselage for me, including a new, extended nose, with sliding battery tray. This is located with a bamboo pin that can break allowing the battery pack to slide out if need be (it DOES work, I've found out already). Power is an Astro 15G (standard box), 12 x Sanyo 1900SCRs, and one of Jacques' ESCs, configured for BEC, 60 amp max (he is a man of many talents), Master Airscrew 12 x 8.

All up weight is now 2515g (including Olly, one of our Olympic mascots as pilot) compared to 2405g as purchased - an impressively small weight gain for a 1785mm span plane. Performance with the 15G is adequate, and extended flights are possible as this plane thermals exceptionally well (as do most FF Old Timers converted for electric).

I'll try to report next month on more goings on, in the meantime all the best to EFO members, Chris and your family.

Regards,
Peter Haworth
pjhaworth@tassie.net.au

PS I saw a 1985 issue of the AMA magazine which includes reports on 1984 KRC, and some photos of a much younger Bearded One - 'twas most interesting, particularly reports about the Horton etc.

Recommendations for Electric Powered Flight Systems
By Ken Myers
Part 1: February Ampeer 2001
Part 2: March Ampeer 2001
Part 3: June Ampeer 2001

Part 4
Defining Motor Use from Motor Constants
Goldberg Turbo 550

Motor Specs:
Direct drive: Kv = 2233 Io = 1.1 Rm = .126 Weight = 6.8 oz.
Belt Drive: Kv = 2233 Io = 2 Rm = 0.155 Weight = 8.6 oz.

The following is a brief explanation of how I look at possible uses for a motor.
6-cell example:
25 amps: volts to motor = (6 cells * 1.25 volts) – (25 amps * 6 cells * 0.0077 cell resistance) = 6.345 – (25 amps * 0.03 wire & ESC resistance) = **5.6 volts at the motor**
watts out = (5.6 volts at the motor – (0.126 motor resistance * 25 amps)) * (25 amps – 1.1 Io) = **58.6 watts out**

motor eff. = 58.6 watts out / (5.6 volts at the motor * 25 amps) = 0.418 or **42%**
(The battery resistance and wire and ESC resistance will be explained later.)

(Anything below 50% efficiency is unacceptable.)

20 amps: volts to motor = (6 * 1.25) – (20 * 6 * 0.0077) = 6.6 – (20 * 0.03) = **6 volts at the motor**
watts out = (6 – (0.126 * 20)) * (20 – 1.1) = **65.8 watts out**
motor eff. = 65.8 / (6 * 20) = 0.548 or **55%**
Note of Interest: When setting the amp draw at 25 amps, more power goes in than at 20 amps; 140 watts vs 120 watts, yet there is more power out at a 20 amp draw, 58.6 watts vs 65.8 watts.
back figure a plane weight:
power system weight = 6 * 1.5 cell weight (2000 NiMH or 1250SCR) + 6.8 motor weight = 15.8 oz. * inverse of 0.55 (1.8181818) = **28.7 oz. or 1.8 lb.**
watts out per pound equals = 65.8 / 1.8 = **36.6 watts out per** pound and suggest it might be useful in a glider type aircraft weighing 28.7 ounces
airborne radio weight = 28.7 * 0.15 = **4.3 oz.** (This is just barely doable, since for a glider/old timer type aircraft a receiver battery is necessary. It also means that the 15 and 10 amp draws do not need to be looked at for this motor, as the radio weight is the limiting factor and can't be much lower than this and include a receiver battery of decent capacity.)

With a finished weight of 28.7 oz., the suggested prop size would be Square Root((28.7 oz. * 2 glider/old timer prop factor)/Pi) * 2 = 8.55 or rounded to 9 inches and the pitch = 9 * .65 = 5.85 normally rounded to 6, but since this is a glider or old timer, it can be rounded down to 5 inches. The quick test is to look and see if it could work.
At 20 amps the RPM = (6 – (0.126 * 20)) * 2233 =7,770
prop watts = $(9/12)^4$ * (5/12) * 7.77^3 * 1.18 = 73 watts
(This indicates that the amp draw will be slightly over 20 amps because 73 watts is slightly higher than 65.8 watts and the RPM will be slightly lower, when using a 9x5 folder.)

Goldberg Turbo 550 Tables

Motor Specs: Direct Drive: Kv = 2233 Io = 1.1 Rm = .126 Weight = 6.8 oz.

5-cells

Not used because in ALL cases the weight of the actual power system is greater than the allowance for the power system for the type of aircraft.

Table 1: 6-cell Predictions, Direct Drive

Cells	6					Actual	Glider	Trainer	Bipe	Performance
Amps	Mtr. Volts	RPM	Watts In	Watts Out	eff.	Pwr. Sys.	Pwr. Sys.	Pwr. Sys.	Pwr. Sys.	Pwr. Sys.
10	6.48	11656	64.8	46.458	71.7%	11.00	11.68	9.09	8.18	7.43
15	5.97	9111	89.6	56.712	63.3%	14.00	14.26	11.09	9.98	9.07
20	5.976	7717	119.5	65.3184	54.7%	15.80	16.42	12.77	11.50	10.45
25	5.595	5460	139.9	58.4355	41.8%	18.80	14.69	11.43	10.28	9.35

To find out how this table was created, check the appendix.

A study of Table 1 shows that a 25 amp draw has an unacceptable efficiency and that the only likely candidates for this motor on 6 cells is the Glider/Old Timer type based on power system weight using amp draws of 10, 15 and 20.

Using the Information in the Table

Case 1: Glider/Old Timer type using 10-amp draw
Wing area = $(21.24 / 1.15 * 144)^{3/4}$ = **370 sq.in.**
Total Weight = 46.46 watts / 35 = **1.327 lb. or 21.24 oz.**
Power System Weight = 21.24 * 0.55 = **11.68 oz.**
Doable with cell weight not exceeding 11.68 – 6.8 (motor weight) = 4.88 / 6 = .81 oz. each
Radio Weight = 21.24 * 0.15 = up to 3.19 oz.
(Typical: Hitec 555 no cover 0.55 oz., 2 HS-60 0.49 ea, 150 mAh Rx pack 1.3 oz., ESC 0.6 oz. = 3.43 oz.)
While the radio weight can be reduced still, the first red light comes on here.
Airframe Weight = 21.24 * 0.30 = 6.37 oz.
With my building skills, I've found that, on average, I can build a "safe" thermal glider at about 0.025 oz. per square inch. 370 * 0.025 = 9.25 ounces
The best "I" could probably do is:
Power system with 600AE (0.7 oz. each) 11 oz. + 3.43 (radio) + 9.25 (airframe) = 23.68 oz. This would yield 31.5 watts out per pound, and would probably fly okay as a glider. An old timer would be unacceptable, as I can build that type of structure at about 0.035 oz. per sq.in. and that would mean an airframe weight of 12.95 oz. and finished weight of 27.38 ounces, or 27.28 watts out per pound.
The "recommended" prop would be:
Prop Diameter = SQRT(21.24 * 2 / Pi) * 2 = 7.35 in. rounded to **7**
Prop Pitch = 7 * 0.65 = 4.55 or round down to **4** because it is a glider type.
RPM = 11,656 (from table) at 10 amps

While it is easy to set up a prop/motor/amp table in a spreadsheet, I'm going to run through the "long hand" way to show it can be done without a computer.

7x4 folder prop watts at 11,656 = $(7/12)^4$ * (4/12) * 1.18 * 11.656^3 = **72.12 watts**

The prop output is too high. The output of the motor and the prop outputs should match. To slow the RPM and bring the motor and prop watts closer to equal, the amps must go up.

motor volts at 11 amps = (6 * 1.25) – (6 cells * 0.012 * 11 amps) – (11 * 0.03) = **6.378 motor volts**

motor out watts at 11 amps = 6.378 motor volts – (0.126 * 11) = 4.99 prop volts * (11 – 1.1) = **49.42 watts out**

RPM = 4.99 * 2233 = **11,143**

prop watts = $(7/12)^4$ * (4/12) * 1.18 * $(11.143)^3$ = **63 watts**

The prop output is again too high, as the output of the motor and the prop should match. To slow the RPM even more, the amps must go up.

motor volts at 12 amps = (6 * 1.25) – (6 cells * 0.012 * 12 amps) – (12 * 0.03) = **6.276 motor volts**

motor out watts at 12 amps = 6.276 motor volts – (0.126 * 12) = 4.764 prop volts * (12 – 1.1) = **51.93 watts out**

RPM = 4.764 * 2233 = **10,638**

prop watts = $(7/12)^4$ * (4/12) * 1.18 * $(10.638)^3$ = **54.83** watts

This is close enough to guess that a 7x4 folder will pull just over 12 amps at about 53 watts out. Using my simple motor-prop predictor spreadsheet, I found 12.3 amps and 52.5 watts out.

What we now know about a glider using this power system is:

Finished weight: 52.5 watts (computed using 7x4 folding prop) / 35 = 1.5 lb. or 24 oz.

Wing area about: 405 sq.in. (revised using 24 ounces as the completed weight)

Wing area range: 385 – 425 sq.in. (range is plus and minus 5% of the suggested wing area)

Power system weight: 11 oz.

Airborne Radio Weight: 3.6 oz.

Completed Airframe Weight: 9.4 oz.

Prop: 7x4 folder

Amp Draw: 12.3

RPM: 10,485

Watts Out: 52.5

While it is quite feasible to build this plane with this power system, it is not recommended, since the amp draw is a little too high for 600AE cells, and the airborne radio system allotment is too low to contain a reasonable receiver battery for thermal soaring of a glider or old timer.

Case 2: Glider/Old Timer using 15-amp draw and having a weight of **56.7** watts / 35 = 1.62 lb. or 25.92 oz.

Wing area = $(25.92 / 1.15 * 144)^{3/4}$ = **430 sq.in.**

Prop diameter = SQRT(25.92 * 2 / Pi) * 2 = 8.12 in. rounded to **8**

Prop pitch = 8 * 0.65 = 5.2 rounded to **5**.

RPM at 15 amps = 9,111 (from table)

8x5 folder prop watts out at 9,111 = $(8/12)^4$ * (5/12) * 1.18 * 9.111^3 = **73.45** watts

This is too high, as the output of the motor and the prop should match. To slow the RPM and drop the watts out, the amps must go up. The steps from above were repeated to find that an 8x5 folder would turn at approximately 8,398 RPM and pull about 16.4 amps with 57.5 watts out.

What we now know about a glider or old timer using this power system is:

Finished weight: 57.5 watts (computed from above) / 35 = 1.64 lb. or 26.24 oz.

Wing area about: 434 sq.in.

Wing area range: 412 – 456 sq.in. (range is plus and minus 5% of the suggested wing area)

Power system weight: 14.4 oz.

Power system weight: 6.8 oz. motor + 7.2 oz. (6 cell 800AR) = 14

Airborne Radio Weight: 3.94 oz.

(Typical: Hitec 555 no cover 0.55 oz., 2 HS-60 0.49 ea, 150 mAh Rx pack 1.3 oz., ESC 0.6 oz. = 3.43 oz.)

Completed Airframe Weight: 7.87 oz. + 0.91 oz. from extra for motor and radio = 8.78 oz.

My estimated weight for this size glider, the way I can build is 434 * 0.025 = 10.85 oz.

Prop: 8x5 folder

Amp Draw: 16.4

RPM: 8,398

Watts Out: 57.5

While it is quite feasible to build this plane with this power system, it is not recommended, since the amp draw is a little too high and the airborne radio system allotment is too low to contain a reasonable receiver battery for thermal soaring. Also, building a completed airframe of this size to this weight is difficult.

Case 3: Glider using a 20– amp draw having a weight of

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Walled Lake, MI 48390

65.32 watts / 35 = 1.87 lb. or 29.92 oz.
Wing area = $(29.92 / 1.15 * 144)^{3/4}$ = **479 sq.in.**
Prop diameter = SQRT(29.92 * 2 / Pi) * 2 = 8.72 in. rounded down to **8** inches.
Prop Pitch = 8 * 0.65 = 5.2 rounded to **5**.
RPM at 20 amps = 7,717 (from table)

8x5 folder prop watts out at 7,717 = $(8/12)^4$ * (5/12) * 1.18 * 7.717^3 = **44.63** watts

This is too low, as the output of the motor and the prop should match. To increase the RPM, the amps must go down. The steps from above were repeated to find that an 8x5 folder would turn at approximately 8,755 RPM and pull about 17.7 amps with 65 watts out.

What we now know about a glider or old timer using this power system is:
Finished weight: 65 watts (revised weight from above) / 35 = 1.86 lb. or 29.76 oz.,
Wing area about: 477 sq.in.
Wing area range: 453 – 501 sq.in. (range is plus and minus 5% of the suggested wing area)
Power system weight: 15.8 oz.
Power system weight: 6.8 motor + 9 (6 1250SCR) = 15.8 oz.
Airborne Radio Weight: 4.5 oz.
(Typical: Hitec 555 0.75 oz., 2 HS-60 0.49 ea, 300 mAh Rx pack 2 oz., ESC 0.6 oz. = 4.33 oz.)
Completed Airframe Weight: 9.63 oz.
Estimated building weight = 477 * 0.025 = 11.93 oz.
Prop: 8x5 folder
Amp Draw: 17.8
RPM: 8,710
Watts Out: 65

This appears to be the best way to use this motor on 6 cells. The airborne radio weight is just doable with a 270/300-mAh Rx pack, and the completed airframe weight could be reachable with the type of construction used on a glider. Doing the math reveals about 32 watts out per pound. Not great, but livable, if you wanted to.

Table 2: 7-cell Predictions, Direct Drive

Cells	7					Actual	Glider	Trainer	Bipe	Performance
Amps	Mtr. Volts	RPM	Watts In	Watts Out	eff.	Pwr. Sys.	Pwr. Sys.	Pwr. Sys.	Pwr. Sys.	Pwr. Sys.
10	7.61	14180	76.1	56.515	74.3%	11.70	14.21	11.05	9.95	9.04
15	7.04	11500	105.6	71.585	67.8%	15.20	18.00	14.00	12.60	11.45
20	7.072	10165	141.4	86.0328	60.8%	17.30	21.63	16.82	15.14	13.77
25	6.6525	7821	166.3	83.70975	50.3%	20.80	21.05	16.37	14.73	13.39

Looking at the Actual Power System weight column, it can be seen that this system appears to only be useful with glider or old timer types. Actually, I'd not recommend it with glider or old timer types, since the prop diameter is not large enough. Here is an example using the 20 amp draw:

Finished weight: 86 / 35 = 2.46 lb. or 39.36 oz.
Prop Diameter: SQRT((39.36 * 2) / Pi) * 2 = 10.01 inches rounded to 10 inches
Prop Pitch: 10 * .65 = 6.5 rounded down to 6 because it is a glider or old timer
RPM at 20: 10,165 (see table)
Prop Watts for 10x6 folder: $(10/12)^4$ * (6/12) * 1.18 * 10.165^3 = **299** watts

299 prop watts will not work. By computing it out, it can be seen that a 10x6 folder would have a current draw of 28.4 amps and efficiency of 42%. This indicates that gearing is now necessary for this motor to be useful.

What does all this math prove? Nothing that we in the electric flight community haven't known from practical experience for a long time. This is an inefficient motor when used direct drive and only has one real application as a direct drive motor – 6-cell. It can be used in a glider type plane with 450 sq.in. to 500 sq. in. when using an 8x5 folder, and cells weighing about 1.5 ounces per cell. The cells could be the NiCad Sanyo 1250SCR or CP-1700 or the Panasonic NiMH 2000. None of the applications that Goldberg has chosen to use it for are really acceptable. It certainly is not acceptable to use standard radio equipment with this direct drive power system. As a direct drive unit, it has an extremely limited application, because it is only "really" usable with 6 cells.

Next month I'll cover the geared applications of this motor, which do cover a broader range of model types and performance.

New Electric Airplane Releases!
From: Hobbico
For Informational Purposes Only

NEW COVERING FOR PARK FLYERS

Factory "doped" with a totally fuel-proof resin, CoverLite Iron-On Tissue Covering from Coverite is super lightweight, as well as stronger and more puncture-resistant than normal doped tissue. At only 1 oz per square yard (28g/m2), it's an excellent choice for covering weight-sensitive aircraft such as park flyers and models with wingspans up to 50 inches. CoverLite is heat sealed to the model - no dope is required (Balsarite Adhesive is recommended). It can also be painted with most model paints. Each sheet measures 36" x

19.5" (915mm x 495mm). Choose from nine popular colors; white, yellow, orange, red, blue, cream, black, dark green, and silver. Retail: $4.99

Visit the Coverite world wide web site at:
http://www.coverite.com

EASY DOES IT ENTRY INTO ELECTRIC R/C FLIGHT!

Everything about the Kyosho Spree RTF says easy! It comes nearly 100% assembled, and with just about everything included to get airborne. The Spree's quality stands up to the best-built kits, making it a trainer that any beginner will be proud to show off at the flying field - as well as a fun-to-fly electric alternative for experienced pilots.

It consists of balsa wood construction and the sophisticated electronics highlight the Spree's quality. All major sections are assembled and pre-covered in a colorful, durable film. Straightforward, illustrated instructions guide you through the final few finishing steps. It can be ready for takeoff in 15-20 minutes! The only tool required is a standard phillips screwdriver. A 380-size electric motor with gear drive powers this plane, and the Spree's high-wing design with flat-bottom airfoil offers exceptional flying stability.

It has a 2-channel, 2-stick Perfex radio. All on-board gear is pre-installed - the receiver is wrapped in protective foam. An auto cut-off unit is also pre-installed that reserves battery power for safe landings.

Specifications:

Wingspan: 40 in (1010mm)
Wing Area: 295 sq.in. (19dm2)
Approx. Weight: 1.5 lb. (670g)
Length: 30 in (760mm)
Motor Type: 380 class
Requires: 8 "AA" batteries for the transmitter, charger, phillips screwdriver
KYOA09** Spree Electric RTF Retail $239.99

Visit the Kyosho world wide web site at:
http://www.kyosho.com

AN INCLUDED PERFEX RADIO ADDS TO THE EP CESSNA'S APPEAL

When the EP Cessna 180 Trainer came out last summer, beginners were impressed by its level of pre-assembly, sturdy, lightweight foam construction and clean, quiet electric flight. Kyosho has now taken that concept even further with an RTF version that also includes a 2-channel radio - making this EP Cessna 180 a most complete electric trainer.

It arrives almost completely pre-assembled right out of the box, and its compact size allows flying in smaller areas. It has a pre-installed 550 direct drive electric motor and includes the spinner. Also included is the Perfex 2-stick, 2-channel radio and all on-board gear is already installed. An auto cut-off unit is also preinstalled that reserves battery power for safe landings.

Specifications:

Wingspan: 51.2 in (1300mm)
Wing Area: 408 sq in (26.3dm2)
Weight: 3.1 lb (1400g)
Length: 36.2 in (920mm)
Motor: EP550 (included)
Radio: Perfex 2-Channel (included)
Requires: 7.2V 1400 mAh NiCd battery, charger

KYOA08** EP Cessna 180 RTF Trainer w/Radio
Retail $239.99

THERE'S NO "TRICK" TO EASY AND AFFORDABLE ELECTRIC FLIGHT

It's more advanced than free flight, but less costly and complicated than a servo-equipped R/C trainer! The Sky Trick from FlyZone by Hobbico bridges the gap between free flight and R/C. It uses 2-channel radio control with a easy-to-operate 3-motor propulsion and

steering system. Made of lightweight, durable foam, the Sky Trick requires no gluing. The main wing and tail section mount with screws, and a screwdriver is supplied for convenience. Each motor (one in the nose, and one on each wing) has its own prop. The left stick controls forward flight and climbing, while the right stick controls the wing motors and props for steering. A Nickel Metal Hydride battery comes with the model, and the included field charger provides fast recharges. An auto cutoff feature shuts off the motors when battery power is low. There's even a free video included that offers helpful tips on final assembly and flying.

Specifications:

Wingspan: 35 in (889mm)
Length: 24.5 in (622mm)
Includes: 2-channel radio, (3) 180-size electric motors, NiMH battery, 12V DC field charger, video, screwdriver
Requires: 8 "AA" batteries for the Tx
Retail: $99.99
HCAA2009 Sky Trick EP RTF

Visit the Hobbico world wide web site at:
http://www.hobbico.com

HIGH-POWER ESC THAT KEEPS A LOW PROFILE

It's the newest, and most powerful, ElectriFly ESC yet, and it's designed for aircraft requiring up to 50A of continuous current. The C-50 High Frequency ESC from Great Planes has the same small size, light weight and easy setup that distinguish all ElectriFly ESCs, but with even more power. It comes equipped with fully proportional forward with brake, and smooth throttle response without noticeable "steps". It also features start-up near low throttle, with full power near full stick. An on/off switch and setup LED simplify operation, and the battery and radio connectors are preinstalled. A safe-start function prevents accidental motor spin at start-up, and low voltage cutoff maintains radio control in the event of low battery power. High-frequency operation optimizes battery run-time and aids in cooling, and BEC delivers adequate current for your receiver and three standard servos. Plus, the C-50 offers temperature protection, reverse polarity protection and fused overload protection.

Specifications:

Input: 5-10 cells
Output: 50A continuous max.
Operating Frequency: 1.5kHz
BEC: 5V/1.5A
Low Voltage Cut-Off: 4.6V
Dimensions: 1.5 x 0.78 x 0.38 in (38 x 20 x 10mm)
Weight w/Wires: 1.2 oz (34g)
GPMM2050 C-50 High Power Hi Freq ESC w/BEC Retail $79.99

Visit the Great Planes world wide web site at:
http://www.greatplanes.com

Mid-America Flies – Road Construction Note

If you come up I-75 to I-275, the interchange at M-14 is closed. Get off I-275 at Ann Arbor Road and go west to Sheldon Road. Go North on Sheldon Road to Five Mile Road. Go West on Five Mile Road to the Midwest R/C Society Flying field, which is located just west of Ridge Road and over the railroad tracks.

Richard Utkan's Miss 2 on a fly-by.

Skymasters' Meet

Pete Foss runs a great meet for electrics, sailplanes and small glow. If you live within an hour or two drive of Detroit, you ought to go next June.

Just a few of the many planes attending this meet. Look closely under the sunshade. Who's the prone Big Guy?

The June EFO Meeting

The June meeting was a flying meeting held at the Midwest R/C Society field. It was an absolutely perfect day for flying. The EFO members had the field mostly to themselves and had a ball. Only 3 glow planes showed up to fly, and a handful of helicopters flew at the helicopter field.

The lead picture is **Tom Bacsanyi** with his virgin House of Balsa FW-190 with geared brushless AF020 power. I had the pleasure of the maiden flight, and it did fly "right off the board" with no problems. Tom uses NiMH cells, and flights are long and fun. No bad habits at all. My much flown X-250 is in the lower left corner of this photo.

Rick Sawicki had a small fleet of great flying planes to take advantage of the beautiful day. His 20 (not 020) powered Lazy Tiger P-51 is quite a good flier.

Richard Utkan's Push-e-Cat can be seen in the background.

Mid-America Electric Flies
AMA Sanctioned
Saturday, July 7 & Sunday, July 8, 2001
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 (734) 973-6309
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.

Narrowband Transmitters are required - Channels 00 through 60, six 27Mhz frequencies, & eight 53MHz frequencies, will be in use. Flying on five 49 MHz frequencies may be accommodated on request - Narrowband receivers are recommended for flying on Channels 00 - 60 - Very Wideband 27, 49, & 53 MHz, receivers may be accommodated on request

Pilot Entry Fee $10 each day - - - - Parking Donation from Spectators Requested

Saturday's Events

All Up - Last Down, Longest Timed Flight, Best Scale, Most Beautiful, Best Ducted Fan, Best Sport Plane, CD's Choice

Sunday's Events

All Up - Last Down S400 only, Longest Timed Flight S400 only, Best Scale, Most Beautiful, Best Mini-Electric, Best Multi-motor, 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.

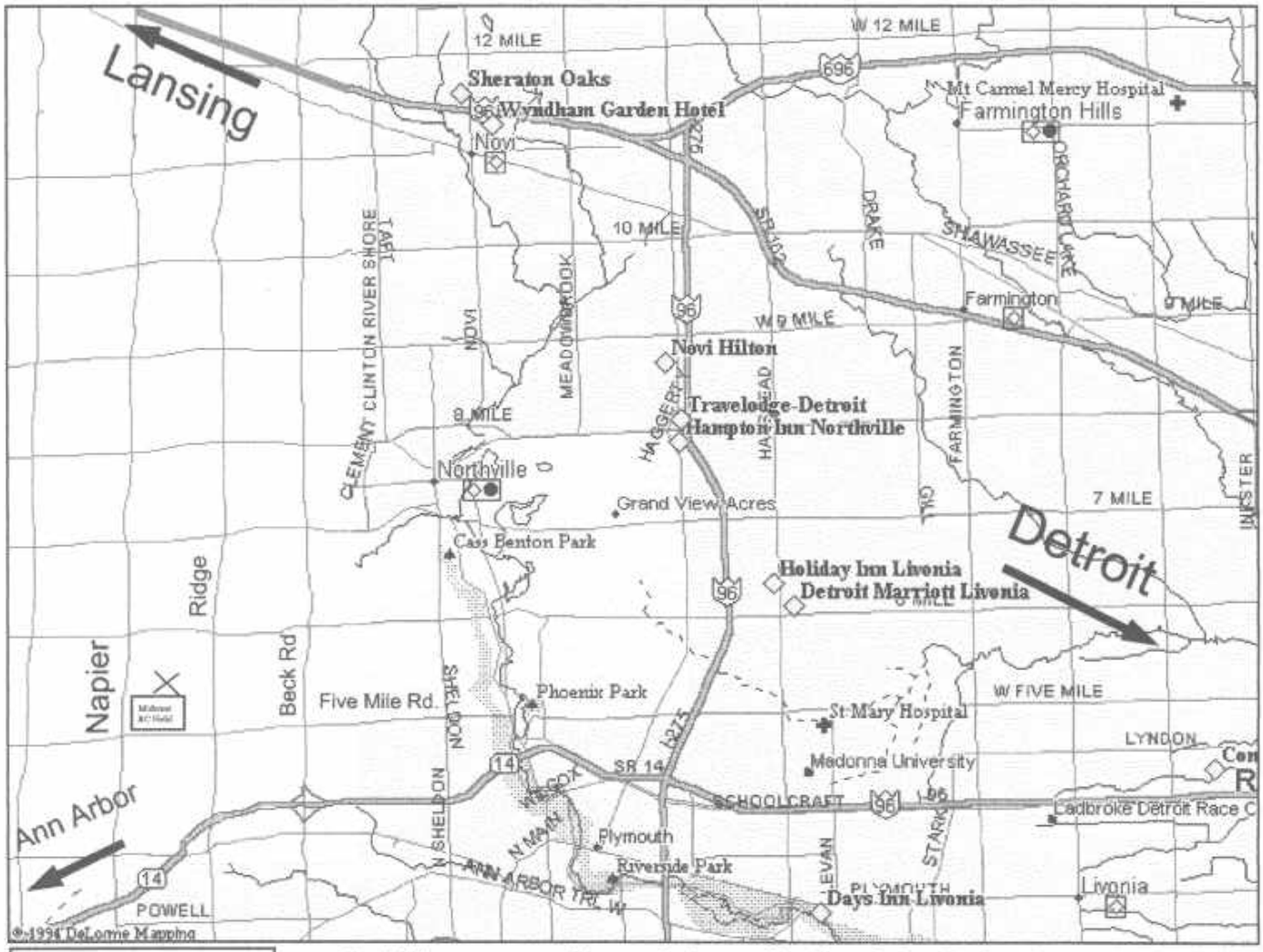
There will be a pot-luck picnic at the field on Saturday evening.

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



Mid-America Flies Hotel List - 2001
(note: prices NOT updated for 2001)

Rates were believed to be per night on the weekend for 2. 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

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

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

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

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

To locate the Midwest R/C Society flying field, site of the 2001 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.

Up Coming Events

June 30 & July 1 Kingston, Ont. E-Fly - Same setup as we have had for several years. Contact: Martin Irvine - mirvine@kos.net

July 7 & 8 Mid-Am 2001, Electric Fly-In, Northville Twp., MI Near Plymouth, MI. CD's Ken Myers and Keith Shaw. Contact: KMyersEFO@aol.com or 248.669.8124.

July 14 & 15 "World War I Electric Fun Fly" - Modesto Reservoir, Modesto, Califomia - Open flying on Saturday - fly what you bring! - Emphasis on "Great War" planes Sunday - No size limits - AMA required – Camping available on site, lodging close-by, Fishing, boating (seaplanes, too)
Hosted by the Modesto R/C Club www.modestorcclub.com
Contact CD, Mike Heer for more details fixostar@mediaone.net

July 21 & 22 Electric Fun Fly, Voltaires of Central NY --- emphasis is on Fun Flying - Grenadier's field about 15 miles North of Syracuse. **Contacts:** Garret Wikoff 9494 Pendergast Rd, Phoenix, NY 13135 315-695-4271 email: wikoff@attglobal.net. Gordon Wheler 5 Old Farms Ln, Cazenovia, NY 13035 315-655-9068

July 21 Lexington Miniature Aircraft Club (KY), second annual Bluegrass Electric Fly-In Lexington, KY. web page located at http://fly.to/lmac. Keith Hollifield

July 27 & 28 Canadian Electric R/C Scale Championships, Fairfield R/C Club, Chilliwack, British Columbia. For more information see www.canadianelectricflight.com or Contact Doug Burt flyinace@direct.ca

August 5 M.I.S.S. & EFO get-together at Camp Dearbom, Milford, MI. Electric and Sailplanes. This is the August EFO meeting as well. AMA members with e & s planes are invited to join us.

August 11 Fort Wayne Electri-Fly 8:00 a.m. until 4:00 p.m. General flying will be the order of the day – Camping available on site, with electric hookup. Contact Pat Mattes at: pat-ingrid-mattes@juno.com for more info.

August 18 Electric Fly, Grand Ledge, MI - Ray Hayes skybench. aerotech@gte.net, call or fax.....1-(219) 434-1322, 9218 Thunder Hill Place, Ft. Wayne, Indiana 46804 website.. www.skybench.com Lansing's GLASS Sailplane club's flying site, a huge sod farm near Grand Ledge. The club is gaining interest in Electrics.

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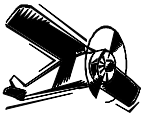
September 14, 15, 16 Neat Fair 2001 - Peaceful Valley Campsite



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

The Next Meeting:
Date: Saturday & Sunday, July 7 & 8, 2001 Time: 9:00 A.M.
Midwest R/C Society Flying Field, 5 Mi. Rd.
Mid-America Electric Flies