ELECTRIC WAKEFIELD

by Jack Hiner

The SAM R/C Electric Powered Wakefield Event

Ed Shilen came up with this electric powered R/C event about 2002, and we flew the event at the 2003 Claremore, Oklahoma SAM Champs as an unofficial event. The event was sponsored by Ed Shilen. Since then this event has been flown at all SAM Champs as an official event.

Models must be Wakefield designs with no scaling allowed. Wakefield designs are 200 sq. in. wing area plus or minus 10 square inches. Complete rules for this event can be found on the SAM web site or purchase the new 2015 SAM rule book.

Originally the SAM R/C Electric powered Wakefield event was flown with a maximum of seven cell Ni-Cd motor packs of any capacity. Even with BEC these models were heavy and the glide suffered.

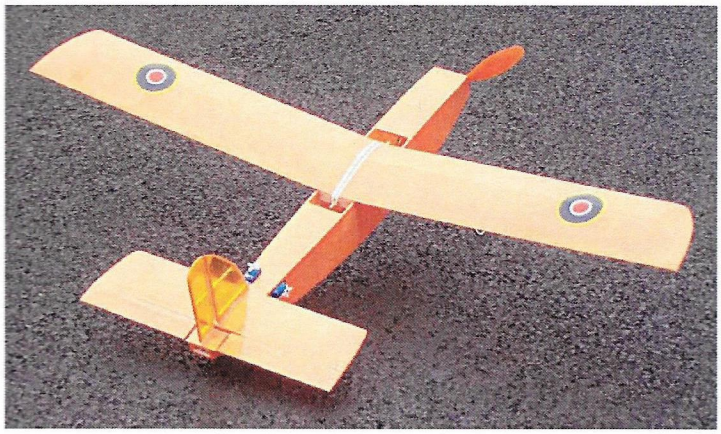
When Lipo battery packs came on the scene the rules were changed to also allow two cell Lipo of any capacity. With the Lipo packs and BEC, models were much better in the glide. At first max flight times were 5 minutes. Not that easy to achieve with the heavy Ni-Cd packs. But with Lipo and the weight reduction the max times were raised to 7 minutes.

Go to the SAM web site and click on "Approved Lists" on the left. Then look at the "Rubber Model List (by Dale Hannum)". On pages 21-23 you will find a list of legal 1942 or earlier Wakefield models.

This year the cut off date has been extended to 1950. I am sure a number of SAM folks are looking at some newer designs of Wakefield models both for rubber power and electric power.

If you see a Wakefield on the list you like check out Bob Holman's Plans web site. Look under "Rubber Models" and you will find a number of Wakefield designs as short kits with plans. I have flown the Earl Stahl Gypsy since 2003 in this event and can recommend it.

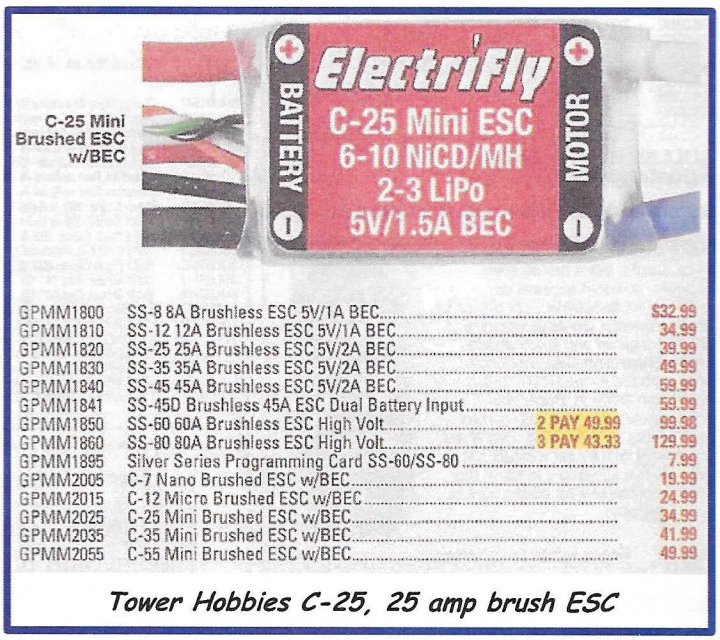
The SAM SPEAKS issue of May-June, 1991 has a great article on the Wakefield history written by Gerald Ritz entitled "The Wakefield Story". It is six pages in length with a two page centerfold. The centerfold is from the March 1948 Aeromodeller.



FALCON 1928 Wakefield

The first Wakefield Cup winner was T. H. Newell of England with his FALCON design in 1928. In the early years the competition was between Great Britain and the United States. Soon other nations joined in. WW II ended the competition after 1939 with Dick Korda taking top honors that year. After WW II the competition resumed in 1948.

The electric motor of choice for this event has been the Graupner Speed 300 6 volt. Graupner no longer offers this motor but you may find some in Hobby Shops, the Toledo Trade Show or swap meets. SAM has added the MAXX Products Promax Speed 300 Part # ACC 337 as a legal motor for this event.



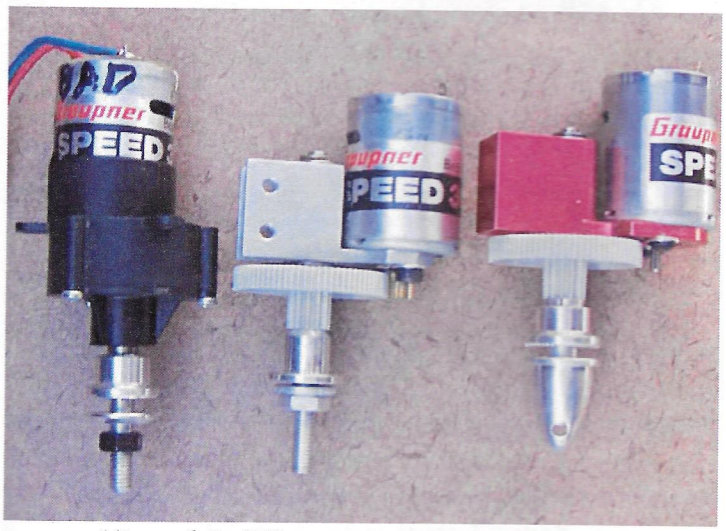
Tower Hobbies C-25, 25 amp brush ESC

These are brush motors, not brushless and require a brush ESC. A brush motor ESC has two leads to the motor and the brushless ESC has three leads to the motor.

Tower Hobbies sells a 25 amp brush ESC for two cell Lipo batteries. It is the C-25 Mini Brushed ESC w/BEC. There are other brands of brush ESC. I would use a 20 or 25 amp ESC with BEC and brake.

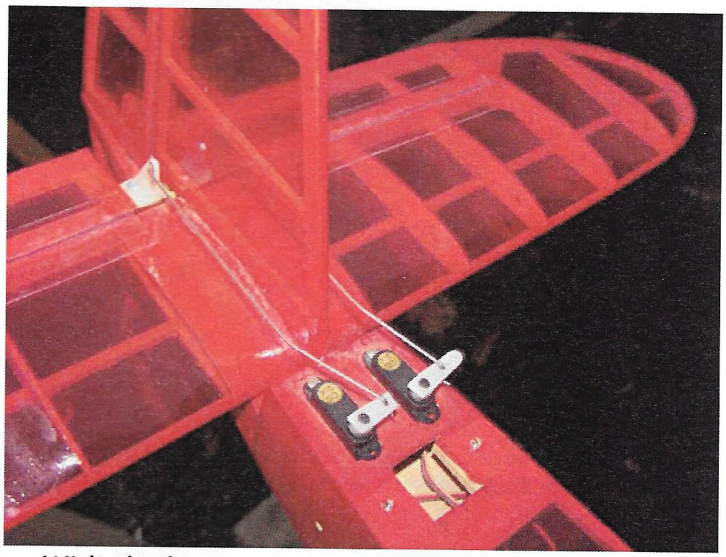
You probably will be only drawing 10 amps or a bit more but it is best to have a safety margin. A brake is required for a folding prop. Kirk Massey at New Creations R/C located in Willis, Texas has got me hard to find electric power items over the years. Phone 936-856-460.

To get the best performance with the Speed 300 6 volt motor in the Wakefield event a gearbox is required. This allows a larger more efficient prop turning at lower speed than the direct drive smaller prop. Some folks do use the simpler direct drive set up but give up altitude in the 60 second climb.



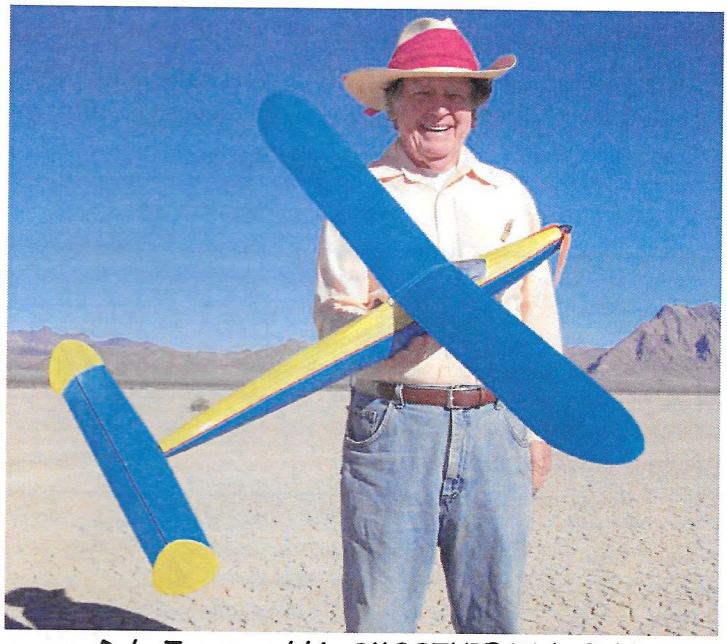
View of 3 different Speed 300 gearboxes

I have included a photo of three gearboxes that can be used with the Speed 300 motors. The black one on the left is the MP Jet geared either 4.5 or 5 to one. This is used by many folks but no longer manufactured. The one in the middle is the Hyperion XG-V2 and based on the GWS 76 tooth spur gear. Install a 13 tooth pinion gear on the Speed 300 2 mm shaft and you have a gear ratio of 5.8:1 great with a 10/8 folding prop. The red body gearbox on the right in the photo is the Cobri 20. Also based on the GWS 76 tooth spur gear. This gearbox is designed for a 20 mm motor but can be modified to fit the Speed 300 motor. Some file work with a small round file can make the two motor mount holes fit the Speed 300 motor.



With the long nose moments on some rubber models servos can be placed in the rear of the fuselage to maintain a proper CG location.

I have some new unused Hyperion and Cobri 20 gearboxes with prop adapters as seen in the photo. I have used the Hyperion for Speed 300, Astro 010 brushless and other electric motors over the years. You need two machine screws to mount the Speed 300 motor to the gearbox. The screw size is 3 mm and 6 mm long and you need two thin washers. Also a brass 13 tooth pinion gear to fit the 2 mm Speed 300 shaft.



Dale Tower and his SMOOTHIE Wakefield

Ken Kullman with his Cleveland GULL

If you can not find a gearbox for Speed 300 and want one send me an email at

J.hiner@comcast.net or call at 630-780-3074

I will give you a good price.

Kirk Massey can probably supply the pinion gears. Another source for pinion gears is Dave Radford at Air Craft World located in Japan. One of Dave Harding's favorite suppliers of electric R/C stuff. Both of these folks can probably supply you with a folding 10/8 prop to match the 5.8 gearing when using 76 tooth spur gear and 13 tooth pinion gear.

You will need a couple of two cell Lipo batteries to power your model. Most use 800 mAh capacity but some as much as 1300 mAh capacity. This size two cell Lipo batteries are not expensive and no high "C" rated units are required for this event.

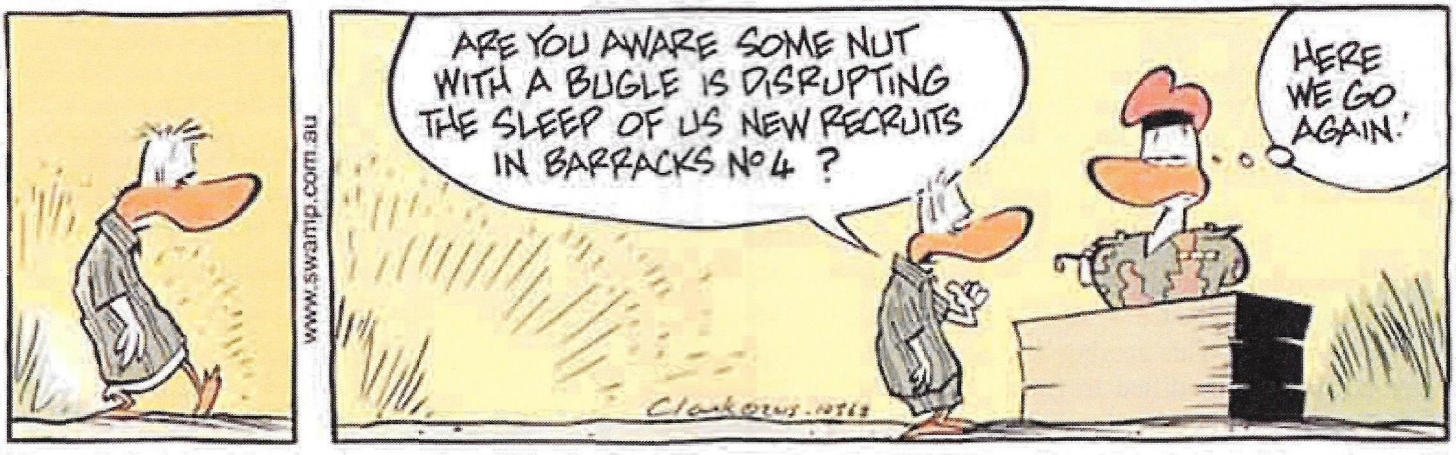
Check out HobbyKing for low prices on two cell Lipo in this capacity range. HobbyKing now has a USA WEST WAREHOUSE and a USA EAST WAREHOUSE for faster shipping to customers in the USA.

If you live in an area with electric powered R/C flyers check with the locals for chargers, connectors and other equipment recommendations. Good luck and hope to see more flying this event in the future.

If you are not into competition but like to fly rubber models with electric power build a Wakefield and install a small out runner electric motor. Small and light enough to fly at small fields. And no noise.

Jack Hiner

Kent Meglemry holds his dog SAM and his Stahl GYPSY



Electric Wakefield Notes

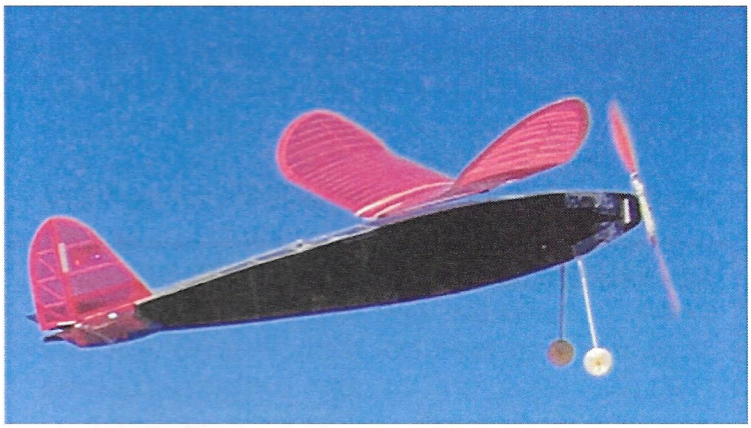
by Jack Hiner

Here are some good photos I got from Dave Harding of SAM R/C Electric Wakefield models and pilots.

Dick Bartkowski holding Filon (French Wakefield) built and flown by Mick Harris

Dave Harding getting ready to launch the R/C Electric Wakefield Filon

The next photo shows the late Dick Griswold with Al Lidberg holding his Cabin Version Lanzo Duplex.



Dave Harding's 1939 Jack North Wakefield in flight

Glen Poole with his Stahl Gypsy for SAM R/C Electric Wakefield event

I wrote the article on the SAM R/C Electric Wakefield event for the May-June 2015 SAM Speaks and made a mistake when I identified the gearbox in the center of the photo of three Speed 300 gearboxes as Hyperion XG-V2. It is another brand that I used for the Electric Texaco event years ago. I'm not sure of the brand of this gearbox.

Dave Harding sent me an email on the Hyperion HP-XG-300V2 gearbox and where to get this item. Available (99 in stock) and cheap at $6.60 each. A 68 tooth spur gear with 5 different pinions for a variety of gear ratios. Dave has tried 5:1 and 6:1 for the SAM R/C Electric Wakefield event and he recommends the 6:1 for Wakefield.

The Hyperion gearbox is a bit lighter in weight than the three gearboxes in the May-June 2015 SAM Speaks photo. You will need a collet to fit the gearbox 3 mm shaft of the gearbox. You will need a long collet for the folding prop hub.

Here's Dave Harding's remarks on this gearbox and link to purchase the gearbox.

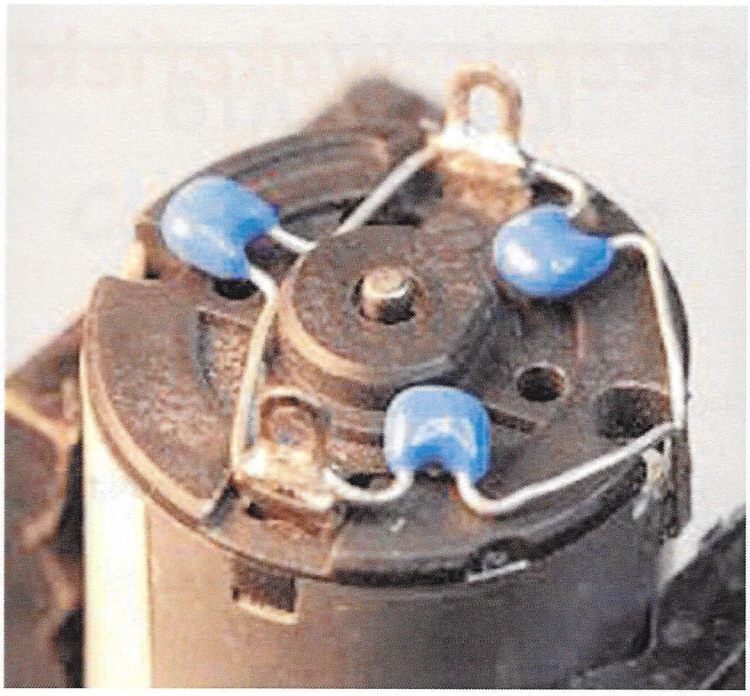
This is the one I used Jack. From Nippon Dave; excellent service, cheap shipping and usually get it in five days from Japan.

www.aircraft-world.com/en/p1074436-hp-xg-300v2

I have also had some questions on arc suppression for the Speed 300 motors. The Speed 400 motors we use have arc suppression capacitors inside the motor can, but the Speed 300 motors do not.

Many of us use a small PC board catalog number POT101 with three surface mount capacitors that attaches to the rear of the motor. Makes for an easy set up for arc suppression but they are no longer available.

If you can not obtain a POT101 you can solder three arc suppression capacitors to the motor. One capacitor from the motor plus and minus motor terminals. Another from the plus terminal to the motor can. And the third from the negative terminal to the motor can. See attached photo.



Kirk Massey at New Creations R/C has a kit of three capacitors for brush motor arc suppression. His phone number is 963-856-4630. Years ago you could get these capacitors at Radio Shack. Recently I have purchased electrical components on line from Digi-Key.

A bit about props, gearing and amps. A 6:1 gearbox can handle a bigger prop than the 4.5:1 or 5:1 set up.

At full throttle I like to run at 10.5 amps with the Graupner Speed 300 6 volt motor. At higher amps the Graupner Speed 300 6 volt motor will have a short life. If you keep the max amps at 10.5 the Graupner Speed 300 6 volt motor will last a long time.

I have not flown with the Maxx Products Promax part #ACC337 so do not know how this motor holds up. Folks have used props from 9/6 to 10/8 (narrow blade) for this event with a gearbox.

If you are pulling too many amps with a certain prop you can always fly at partial throttle. I have done this in the past and works well, until you forget and fly at full throttle and the motor overheats weakening the magnets.

Jack