MODEL AVIATION'S
Sport Aviator
The e-zine for the new model pilot

Most of us in the sport knew that this was coming. Electric-power technology has been rapidly progressing the last few years. Major companies outside the model aircraft industry, and the military, have been pouring huge amounts of money into electrical storage devices (batteries) and motor systems for the last 25 years.

Cell phone, laptop computer and automotive companies have fueled rapid battery development to heights we couldn't dream of ten years ago. Automotive, aircraft and electrical motor companies, along with the military, have increased small motor performance ten-fold or more.

So it had to happen. With that much money being put into these advances, the model aircraft industry just had to find ways to use this new stuff being developed for the world at large. But you know, that is just the kind of people we model aviation folk are. Give us a range of high performance equipment, little of it developed for models, and we will take it and make more of the technology than its inventors thought possible.

Photo 1

So someone just had to combine all this new technology and come up with a practical, Ready-To-Fly, 40-sized, 63 in. wingspan, 4-channel, 6+ lb. Basic Trainer. From the box in photo 1, there is no doubt that the Hobbico people were the folks to do it. The ELECTRISTAR Select is a true RTF, electric-powered aircraft that is identical to most popular 40-sized glow-powered Basic Trainers.

Photo 2 Photo 3

Just from looking at the component photos above, it is not possible to see any major differences between the ELECTRISTAR on the left and the popular Tower Hobbies Trainer 40 on the right. The wings are about the same size as are the fuselages. But the ELECTRISTAR's wing spar is light aluminum tubing instead of the glow airplane's heavier metal rod. The wood construction is identical except that the ELECTRISTAR's vertical fin is firmly attached to the fuselage saving the builder some time while making the airplane more durable. About the only difference easily noted is that the ELECTRISTAR is lacking that big, messy aluminum muffler

Photo 4 Photo 5

All the hardware to assemble the airplane is included, even the Velcro strips to hold the batteries in place. Those small white "buttons" comprise a unique, and ingenious, method that many Hobbico trainer aircraft use to cover the wooden dowel ends that protrude from the fuselage. These parts will be covered later on. As is usual with most Hobbico kits, the instruction book is over flowing with helpful photos and complete, detailed assembling and setup instructions.

Photo 6

Just as any RTF aircraft includes everything needed to get flying except field equipment (one exception) and fuel (no exceptions), the ELCTRISTAR package includes everything needed to get into the air except the batteries (fuel) and charger (starting equipment). The ELECTRISTAR comes without the battery pack or charger to allow the pilot to select which battery system to use. The Electronic Speed Controller (ESC) installed in this aircraft (the ElectriFly 45A brushless ESC) can draw power from either Ni-MH or Lithium Polymer (Li-Poly) battery packs. The speed controller automatically senses the battery type being used and adjusts accordingly.

Since the ELECTRISTAR is designed for the newest pilots, the easy to manage Nickel Metal Hydride (Ni-MH) system is probably the best starting system. Ni-MH battery packs are easy to manage and safer when compared against Li-Poly battery packs.

Great Planes offers a packaged battery system just for this aircraft. The battery packs are, 8.4-volt 3000 mAh Ni-MH packs. The ELECTRISTAR uses two of these high-capacity battery packs per flight. The packs are already wired using W.S. Deans® Ultra Plugs™ for a secure connection and maximum conductivity. The Great Planes order number is: GPMP0355.

The Hobbico Pro Series™ Dual Peak Charger ™ (HCAP0255) will *simultaneously* charge both Ni-MH battery packs in about 1 hour. This charger will supply 5 amps of pulsed charging current. It is a peak detecting charger that will fully charge the batteries without over-charging. Once peak is reached, the charger switches to a pulsed “trickle charge” rate that keeps the batteries at full charge without overheating. Hobbico recommends this system for the ELECTRISTAR.

Most pilots in training will *usually* (this is a generalization here) fly about two flights per hour. After all, your instructor will need some recovery time too! The suggestion is that you get two sets of Ni-MH batteries. Fly with one, put it on charge and fly with the second set of packs. By the time the second flight is over, the first set of batteries will be fully charged.

The battery packs are only $25 each so you may even want to buy two more packs (3 sets in all) to be sure to average two flights per hour for several hours. The Hobbico dual battery pack charger costs $50 and works off any 12-volt source.

There is an option to install 3600 Ni-MH motor battery packs to extend flight times. These battery packs weigh 17.5 ounces each for a total weight of 35 ounces. That is a lot heavier than the two 3000 mAh battery pack’s 28 oz. weight. Using the recommended 3000 mAh battery packs, the ELECTRISTAR will fly about 10 minutes per flight at training power levels. While the 3600 mAh packs would theoretically offer 20% more flight time, their extra weight would require the motor to use more power for the same flight performance. Flight time will probably be extended by only about 10-12% in reality.

The ELECTRISTAR weighs 6lb. 7 oz. with the smaller battery packs and, while the airframe handles this weight very well, this is about all you would want to ask this airplane to carry for optimum performance. Besides, the larger battery packs cost $40 each making the total battery cost $80 instead of $50 for the 3000 mAh packs. Buying three sets would cost $240 instead of $150 for little real gain. Just an opinion here as the final battery choice is up to the pilot.

Photo 6A

The computer transmitter supplied with the ELECTRISTAR is the Futaba 4EXA. Currently, only a very few RTF airplanes are supplied with computer transmitters. But this will probably become more common in the future. Computer transmitters have become so easy to use, less expensive and just are so much more capable than analog transmitters that it doesn't make a lot of sense to not use one. But for now, the ELECTRISTAR is one of only two RTF aircraft supplied with a computer transmitter.

The 4EXA is basically a simplified version of Futaba's 6EX transmitter without the dual rate switches. The transmitter has memory space for 4 different aircraft while having just 4 control channels. But it does have a "wing" function that allows elevon (for delta wing aircraft where the elevators are also ailerons) or V-tail operation (no vertical fin as elevators also serve as the rudder).

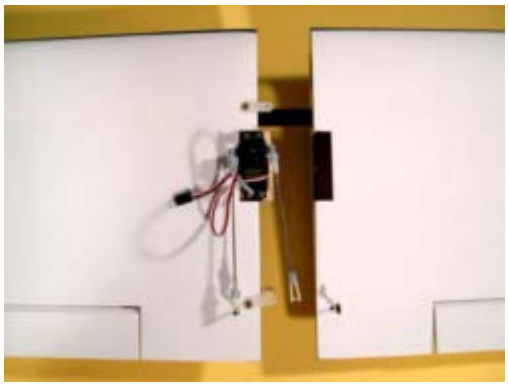
Each channel has full end-point travel adjustment (easier setup) and a really great function: electronic trim memory. The transmitter remembers the trim setting of a given airplane after the flight. This allows centering the trim levers without changing the original trim adjustments and is very useful if there are several aircraft on one transmitter. There is also servo reversing of course along with the trainer function and a low transmitter battery alarm.

Of wider interest is the exponential function on the elevator, rudder and ailerons. "Exponential" is a very useful feature that is much underused in our sport. By entering exponential, the control surface (the 4EXA allows setting differing exponential for each surface) moves either less or more for a given control stick movement around the center. Setting the aileron exponential for less movement around center makes it easier for a new pilot to control the aircraft. The airplane responds more slowly for a given stick travel. The aileron still moves the same total travel but most of its movement will occur near the end of the stick movement.

This is called a "soft center" and was pioneered by competition pilots to achieve better looking and smoother flights while maintaining full aerobatic capabilities. The smoothness required for competition translates into a Basic Trainer that is less prone to over-control by the newer pilot while maintaining full control authority for slow flight and landing.

Having electronic trim memory and 3-channel exponential (throttle doesn't need it) on an RTF basic transmitter is very unusual. The 4EXA is a better transmitter than would normally be expected in an RTF aircraft.

Assembling the ELECTRISTAR Select



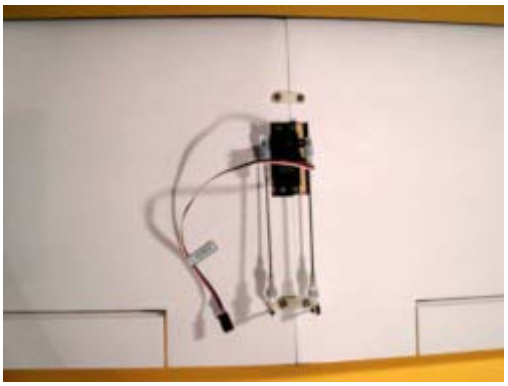


Photo 7 Photo 8

The ELECTARISTAR is constructed of all wood and covered with Monokote™ covering. This makes for a strong, light-weight aircraft that can be “worked” using standard modeling tools. A regular heat-shrink covering iron or heat gun can be used to remove wrinkles (this ELECTRISTAR didn’t have any) safely, using standard Monokote heat settings.

The all wood construction does allow some repair work in case there is a minor unplanned air/ground interface during the training process (we never use obscene 5-letter words such as C***h in Sport Aviator). Hobbico offers parts kits such as wings, fuselage, etc. for major repairs. Combining strength, light-weight and reparability makes for a very good and practical airframe. Lightweight is especially important to an airplane that will be carrying 28 oz. of battery

Hobbico took a few extra steps to guarantee light weight in the ELECTRISTAR. Most Hobbico RTF aircraft use a solid steel rod for the main wing spar, sometimes even two rods. However, this aircraft uses a very strong, but very lightweight aluminum tube spar. High-performance aerobatic airplanes use this system for the same reasons, reduced weight and extra strength.

The black tube just forward of the aileron servo and even with the white tie strap in photo 7 is the aluminum wing tube. The aileron servo is factory mounted and even hooked to one of the aileron torque rods. Slide the other wing half onto the tube, make sure the rear wooden alignment pin inserts into the matching hole in the other wing half, and fasten with the two tie straps already half installed on the wing half with the mounted servo.

Connect the aileron push rod and the wing is done. But remember to check that the torque rods are free to move as far as the servo will push them. Unlike so many RTF airplanes, this ELECTRISTAR was nearly flawless to assemble. The only difficulty encountered in the entire process was that the right aileron torque rod could not move as far as required. About 3 minutes with a sharp hobby razor knife removed the small sliver of wood forward of the torque rod horn that was preventing full aileron movement.

Photo 9 Photo 10

The ELECTRISTAR arrives with all the equipment fully installed and mounted in place. Photo 9 shows the receiver/ESC switch, the ElectriFly 45 Amp Speed Controller, the Futaba R-168 receiver and the two Futaba S-3303 servos that control the elevator and rudder. Everything is connected, securely mounted and ready to fly.

Look closely at photo 10 and you will note a rectangular cube, colored a truly ugly shade of green, fastened in place between the speed controller and the receiver. This is the battery that powers the receiver and servos just as you would find in a glow-powered airplane. The Futaba 4.8-volt, 600 mAh NR-4QB Sanyo battery pack is notable by its presence. Most electric-powered airplanes use the speed controller's Battery Eliminator Circuit (BEC) to power the on-board radio equipment.

But Hobbico spent the extra money to include a high-quality Sanyo battery pack for this task instead of using the BEC. I am not sure why they did this but I do know that I like it. I have seen two very expensive electric-powered competition airplanes saved when their motor battery packs shorted because they also had a separate battery powering the radio system. Without the dedicated receiver battery, control is lost if the motor battery dies or shorts out (not common with Ni-MH batteries but sometimes happens with Li-Poly batteries).

Having a receiver battery also allows all the motor battery's power to be used for just that, powering the motor. This means longer flight times and increased motor power, climb rate and airspeeds. Being a true, 40-sized airplane, the ELECTRISTAR's flight performance is unaffected by the few extra ounces the separate battery adds to the airplane's flying weight.

Photo 11 Photo 12

With the fuselage still upright, about the only assembly task is to attach the two wing hold down dowels. On most of their RTF airplanes Hobbico uses a neat plastic end cap system to hold the dowels firmly in place while hiding the bare wood structure. Screw a cap onto one end of each dowel as in photo 11. Note in photo 11 that the dowels are different lengths. The *front* dowel is about 0.25 inches longer than is the rear one.

Insert the longer dowel into the front fuselage holes as shown in photo 12. Then install another plastic cap on the bare wood end. Do the same, using the shorter dowel, at the rear of the wing saddle. Btw-Hobbico even provides the rubber bands for the first few flights. But a good idea would be to also buy a bag of number 64 rubber bands at your local office supply store. The sun's ultra-violet light, even in the absence of fuel residue, does degrade the rubber bands so a new set each flying day can't hurt much.

Photo 13

The ELECTRISTAR's vertical fin and rudder are factory installed onto the fuselage. The rudder pushrod is even connected and locked in place. This saves a lot of fumbling and installation effort. The only surface to install is the horizontal stabilizer assembly.

Photo 14

The elevator is already attached to the horizontal stabilizer and the control horn is factory installed. The stabilizer is held in place using two wood screws. The wood screws go through the factory drilled mounting holes shown in photo 14.

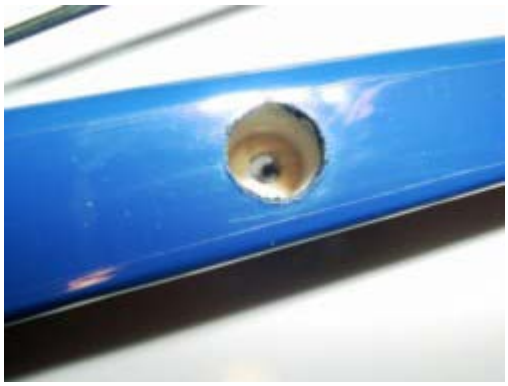


Photo 15 Photo 16

Here is an important suggestion you should consider. Mount the stabilizer in place using the wood screws. Tighten the screws as if permanently mounting the stabilizer. But do not over tighten. Remember that is soft hardwood those screws are going into and over tightening them could cause the threads to “strip”, making it impossible to tighten the screws at all. If the threads are stripped, you will have to glue the stabilizer in place and that defeats the RTF design.

Once the stabilizer is installed, remove the screws and the stabilizer. Inject a few drops of *thin* CAA into the fuselage screw holes. Allow the CAA to dry for at least 5 minutes. The thin CAA hardens the threads in the wood, greatly extending the durability of this assembly. Now re-install the stabilizer, tighten in place and connect the elevator to the pushrod. Remember to install the clevis lock as well.

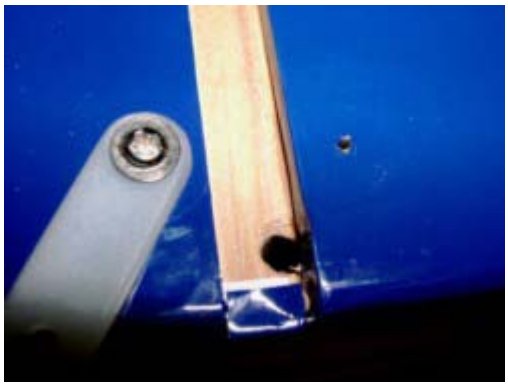


Photo 17 Photo 18

This aircraft has another good feature to aid the first-time builder. In many other Sport Aviator reviews, you will find this tip about installing the main landing gear. “Use a drill bit or sharp hobby knife to remove some wood from the inside portion of the fuselage gear leg mounting hole. This allows the landing gear to be fully recessed into the fuselage slot.”

Somebody at Hobbico must be a regular Sport Aviator reader because, as photo 17 shows, Hobbico has already cut this recess into the gear mounting holes. This is the very first time, after assembling more than 25 RTF and ARF Basic and Advanced trainers, that this recess has been factory cut. Good job on this one, Hobbico.

Slide the gear leg uprights into the holes, firmly insert them into the fuselage slot and secure with the two nylon holders. The holes are pilot drilled for the builder. The wheels are already installed at the factory. But it is a good idea to tighten the wheel collar screws just to be safe.


Photo 19 Photo 20

Before completing the assembly by installing the propeller, tighten all the front end bolts. Better yet, tighten all the motor mounting bolts (photo 19) and then remove each bolt *one at a time* leaving the other three bolts in place. Apply some removable thread locking compound to it and tighten the bolts back into place. Do this for all the motor bolts. Repeat this process for the bolts holding the nose gear in place. Don’t forget to tighten the steering control arm screw also.

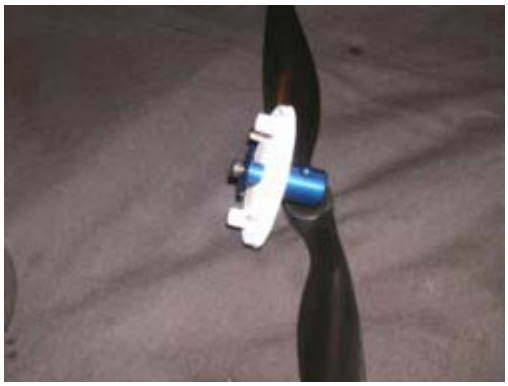
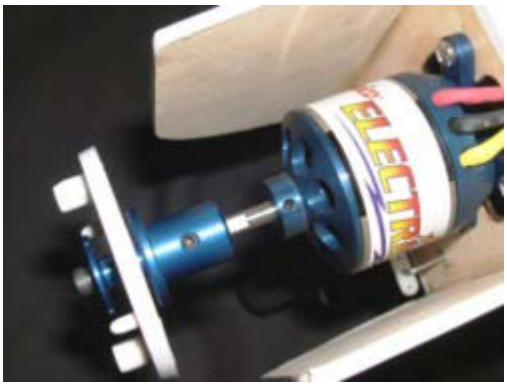



Photo 21 Photo 22

The propeller mounting assembly arrives attached to the spinner (photo 21). Slide it over the motor’s output shaft as shown in photo 22. Make sure that the slot in the motor shaft is directly under the Allen screw hole in the assembly.

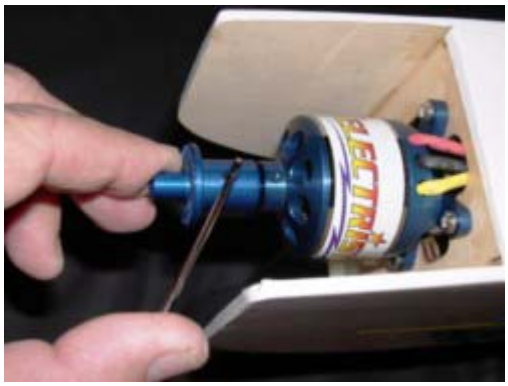
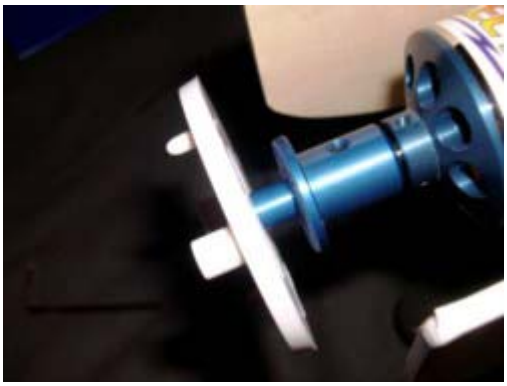



Photo 23 Photo 24

Apply some removable thread locking compound on the Allen screw and tighten in place. Again, make sure the screw is firmly seated into the motor shaft slot. Remove the center propeller locking screw and the blue washer then install the spinner backplate onto the blue propeller mount.

Photo 25

Finally, slip the propeller onto the mounting assembly. Make sure the rear of both blades rest against the small white stops on the back plate (photo 25). This positions the propeller so the spinner cone's propeller holes line up with the mounting screw holes. Tighten the propeller in place. Do not over tighten as electric motors must be tight, but not as tight as glow engines need since there is no vibration or "kick backs" with electric motors.

Finally, screw the spinner cone in place. Again do not over tighten as these screws are just going into plastic. The ELECTRISTAR is now ready. The timing on this assembly was really amazing. Counting the 3 minutes spent fixing the aileron movements, the 4 minutes tightening the front end bolts and the 5 minutes or so applying thread locking compound and CAA to the bolts and screws, the ELECTRISTAR Select required 35 minutes to assemble. Not bad for a high quality, 63 inch airplane.

Preparation for Flight

Charge both the receiver and motor batteries. Charge the Futaba 4EXA 4-channel computer transmitter as well. Charge the receiver and transmitter batteries for at least 15 hours using the included 120-volt wall charger. The motor batteries only need an hour on the Dual Charger.

The Instruction booklet details how to get the airplane ready for its first flight. It even discussed lateral balancing. This is the first time I have seen an instruction booklet deal with this subject. This has always been my pet project. How to do it is outlined in the Sport Aviator article "Ready to Fly?...Maybe." Read this article and perform all the adjustments on the ELECTRISTAR. If Hobbico's instruction booklets all get this good, they may do me out of a job!

It must be noted that the ELECTRISTAR did not need its control surfaces centered. All surfaces already

were. That is another first for Sport Aviator. The instruction booklet provides control surface movement for both high and low rates. But since the Futaba 4EXA transmitter does not have rate switches, everything was set for “high rate” movement: elevator 5/8 inch, ailerons 3/8 inch and rudder 1 inch, all settings both ways.

The main front-to-back Center of Gravity (CG) is set at 3.5 inches back from the leading edge of the wing at the fuselage. This proved to be a good setting and remained unchanged during flight testing. The airplane required only one 2 in. finishing nail in the right wingtip for proper lateral balance. Since there is no heavy muffler sticking out one side, there is not a lot of side weight on the fuselage. The small balance weight addition was probably caused by a few “heavy” ribs near the left wingtip.

Photo 26

The battery compartment is accessed through a hatch on the fuselage bottom, just forward of the main landing gear. Two pivoting nylon straps hold the hatch closed in flight. Inside are two thick nylon brackets (unseen inside the fuselage) that hold both Ni-MH battery packs in place along with two hook and loop fastening strips (omitted for clarity). The two 3000 mAh battery packs are wired in “series” providing 16.8 volts to the motor. The supplied connectors are the heavy duty “Deans Ultra” type that provide very efficient current flow with minimal loss.

At the Field

Photo 27 Photo 28

The ELECTRISTAR Select is a true 40-sized aircraft. I am not a small guy by anyone’s description yet the aircraft still looks big next to me. Photo 28 shows that this is an attractive airplane with some unique trim colors. Hobbico didn’t neglect the underside either. There is a broad red stripe, trimmed with blue pin stripping, on the underside of the left wing. The bottom of each wingtip is colored bright yellow. The combination allows the pilot to easily tell right side up from vice versa.


Photo 29 Photo 30

With the cameras rolling, the ELECTRISTAR taxied out to takeoff position. Unlike many electric-powered trainers, this airplane taxis just like any other, glow-powered, Basic Trainer. Moving over grass is no problem. Photo 29 shows the very start of the first takeoff run. Even before the airplane starts to move, the nose wheel is already lifting out of the grass.

At full power, the airplane lifted off a little bit before the pilot's mind did. There is a lot of motor power in this airplane and Hobbico picked a very efficient propeller to match. But as can be seen in photo 30, the airplane needed a lot of "up" elevator to leave the ground (more later).

Photo 31

Once airborne, the ELECTRISTAR flew like any other excellent Basic Trainer. "Cruise flight" was at about 70% throttle. The ELECTRISTAR did require some "up" trim and that is normal.

Important Lesson Follows:

But it also required left rudder and right aileron trim for straight flight. I was a little surprised at the airplane's needing left rudder trim, most airplanes need right trim. Right aileron trim on a laterally balanced airplane with centered control surfaces is also unusual. Had the lateral balance been done wrong? Was the wing warped? Maybe the vertical fin was factory installed pointing off center a little?

Even though only "two clicks" of each trim was required, the trim requirements got my attention. "Cross" trims like this should *always* get every pilot's attention whenever this condition occurs. Do not ignore it for it could indicate that something is coming loose.

Hobbico does not make crooked airplanes! But the rudder trim requirements were independent of power settings and that is usually a sign something is bent somewhere. So I landed quickly (more on landing later) to see what was happening.

What was happening was that, while Hobbico doesn't build crooked airplanes, the pilot can make their airplane crooked if the wing is not properly centered. I had neglected an important assembly step

needed on all aircraft using rubber bands to secure the wing.

Always put a small pin hole in the *exact* center of the fuselage just forward and rearward of the wing. When mounting the wing, make sure the wing center is aligned with these pin marks. This insures that the wing is always in the exact center of the airplane.

Guess what? The wing was 1/8 in. too far to the right. This is a big wing and having it mounted off center like this makes cross trimming necessary. The wing's being offset to the right meant that there was more lift on the right side so right aileron trim was needed to give the left wing a little more lift while removing some from the right side to compensate. Since there was more leading edge, and more wing, on the right side, the air drag caused a yaw motion to the right. That was where the left rudder trim came from.

Photo 32

Once corrected, the next takeoff went fine, well almost fine. Remember that the 4EXA transmitter has this nifty electronic trim memory ability? Well, it works and works well even if the pilot doesn't remember it is around. Taking off with right aileron trim when the aircraft no longer needs right aileron trim makes your takeoff look like photo 32. Sometimes I despair of ever becoming a good pilot. Of course, Sport Aviator's faithful photographers, Frank Costello and Bob Karasiewicz, were there to record my dumbness.

But the ELECTRISTAR handled my insults with no problems. It took just seconds to center the trims again. Once flying straight, the aircraft need much less "up" trim as well. It is a good thing that Hobbico knows how to design an airplane that will tolerate bad settings and poor piloting. The ELECTRISTAR proved itself an excellent and forgiving Basic Trainer that will gracefully handle any abuse a new pilot hands out.

Photo 33

The ELECTRISTAR flies almost like every other 40-size Basic Trainer. Its power level is right up there with all the sport .40 glow engines. Rolls happen about once every two-three seconds, a great rate for

flight instruction. The airplane needs about half “down” elevator during the roll to stay level. As an alternative, the pilot would need to point the nose up about 35 degrees before the roll to finish in level flight without using any ”down” input.

Photo 34

Straight inverted flight uses the same 50% of the available “down” elevator to maintain level. There is enough reserve “down” remaining to make level inverted turns. There is not sufficient power or elevator authority to perform outside loops. But then, flat-bottom winged Basic Trainers are not supposed to be doing outside loops. Very few will even get close.

Photo 35

There is more than enough power for 75 ft. verticals and stall turns. Loops are in the 50-75 foot diameter range. The aircraft tracks well in all flight regimes, including vertical and looping. True vertical flight requires some right rudder to hold the fuselage to a straight line path.

Photo 36

Steep turns is where the ELECTRISTAR’s 6 lb. 7 oz. flying weight begins to show. Most glow-powered .40 size trainers weigh under 6 pounds. The Tower Hobbies .40 RTF Trainer weighs 5.6 pounds for

example. The ELECTRISTAR's batteries add 28 oz. to the airframe. In steep turns, the pilot must input a little more up elevator than that required by a glow-powered trainer.

Fortunately, the ELECTRISTAR's powerful outrunner motor does not let the airplane noticeably slow in the turns. Therefore, not as much extra "up" elevator is needed as would otherwise be the case with most electric-powered trainers. In fact, I think only an experienced instructor will be readily able to tell the difference and the student will not because this is the "First Airplane." This is superior electric performance by today's standards.

The ELECTRISTAR's 709 sq. in. of wing area is carrying 20.92 oz. per square foot. The comparable glow-powered airplane, the Tower Trainer.40 has a 19.1 oz. per square foot wing loading. The ELECTRISTAR is therefore, about 10% heavier on its wing. This is not really a major difference and the airplane's flying abilities do not seem to suffer much at all.

But this might be a good point to remember that ElectriFly offers a Li-Poly battery option for this airplane. Their 7.4 volt, 3200 mAh Lithium Polymer battery weighs just 6.2 ounces. Instead of the 28 oz. NI-MH motor batteries, the Li-Poly option reduces that weight to just 12.4 ounces. This would reduce the ELECTRISTAR's flying weight to only 5.5pounds. The new wing loading would be only 17.87 oz. / sq. ft. That is 6.5% *lower* than the glow-trainer.

True, motor voltage drops from a nominal 16.8 volts to 14.8 V. But considering how more efficiently Li-Poly batteries deliver their energy to the motor, there probably will not be much difference in available motor power. We have not yet tried this option in the ELECTRISTAR, but you can bet we will be doing so and reporting it in a follow-up section to this article.

Photo 37 Photo 38

Landing the ELECTRISTAR is a little easier than landing a similar glow-powered trainer. Electric motors have an important ability often overlooked. Electric outrunner motors like the one in the ELECTRISTAR have the ability to idle at about 600 rpm. The best glow engine idle speed is around 2,100 rpm. This means that the electric motor offers better aerodynamic braking than does the glow engine. True, the forward airspeed does have a greater effect speeding up an electric motor's idle than it does to a glow engine, but not by that much.

Having the extra braking allows the pilot greater control over the ELECTRISTAR's airspeed and glide path during landing approaches. The difference is very noticeable. While the ELECTRISTAR's approach speed seems just the smallest amount faster than other .40 trainer's, it is easier to control and match to the airplane's needs during the approach. Extra airspeed control is a great feature when learning to land.

There is enough elevator authority to pick the airplane's nose up for those pretty nose-high touchdowns even during very slow landings (photo 38).

Photo 39

Crosswind landings seem easier than usual in the ELECTRISTAR. My own opinion is that the airplane's slightly heavier wing loading, combined with the powerful motor, allows it to handle gusty conditions better than glow-powered .40 trainers. The airplane's wind abilities certainly surpass any of the more common smaller electric trainers by a huge margin.

Summary

The ELECTRISTAR Select is one of the first electric-powered, .40-sized, 4-channel Basic Trainers available. Its flight performance is outstanding, far above any RTF electric-powered Basic Trainer tested so far. Hobbico supplies top quality, advanced equipment not usually found in most RTF airplanes. At $350, this is not the cheapest RTF Basic Trainer available but it is also not the most expensive. Considering the quality and extra abilities of the supplied equipment, like the 7-channel receiver, the price begins to look cheap for what you get.

The ELECTRISTAR does require an additional $100 for flight batteries and field charger. However, a similar glow-powered airplane requires $15 for fuel, $40 for a starter, $25 for a fuel pump and $20 for a starter battery. Don't forget the $20 glow plug igniter either. That totals about $120 making the extra costs about even. The glow airplane will need far more than one gallon of fuel but the ELECTRISTAR only needs $50 more for an extra battery set. In the end, the supplemental costs are about even.

No matter how it is stated, the ELECTRISTAR is an excellent airplane and a good value. For more information on this electric flight training system, please go to:
http://www.hobbico.com/airplanes/hcaa12.html

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AIRCRAFT SPECIFICATIONS

Manufacturer: Hobbico

Cost: $350.00 **+** $100 bat/charger
Length: 53 in.
Wingspan: 63 in.
Wing Area: 709 sq. in.
Wing Loading: 20.92 oz./sq. ft.
Weight: 6.44 lb.

Radio: Futaba 4EXA trans./ R168 rec.
Servos: 3 x Futaba S3003
Engine: 42 mm Outrunner brushless

Airfoil: Flat Bottom

Special Airframe Features: Ready to Fly; Attractive Cessna-like appearance; Great bottom side detail for extra visibility

Notable Positives
Excellent training abilities
Extremely fast, 35 min., assembly
Very good looks
Excellent wind handling ability
Good motor power and flight times
Excellent airspeed control

Notable Negatives
Airframe at about max. weight for great flight training.