TOP FLITE MODELS

Beechcraft D-17 Staggerwing ARF

Fly this favorite classic beauty, without months of building!

by Matt Chapman

No one word can truly describe the Beechcraft Staggerwing. So many different lines, textures and feelings are experienced when you see your first Staggerwing. The smooth flowing silhouette, reverse stagger of the top wing and long tear drop fuselage make this plane appear to be speeding through the air even sitting still, with its gear down, and firmly tied down at the local airport. It is a sight you will never forget.

Top Flite Models has taken on the task of recreating this stunning design from the early 1930s. Do you remember when your mom told you that you only get one chance to make a first impression? Well, someone at Top Flite took this to heart when taking on this project. My first impression was a complete and utter "Wow!" I first saw the new Staggerwing at a local trade show and was instantly taken with the bright red model. I needed this one, from that very first glimpse. When I was offered the chance to review one of the first kits for *Fly RC*, I jumped at the chance.

PHOTOS BY JON MARTIN, OBLIQUE PHOTO

TOP FLITE BEECHCRAFT D17 STAGGERWING ARF

SPECS

PLANE: Beechcraft Staggerwing

MANUFACTURER: Top Flite Models

DISTRIBUTOR: Great Planes Model Distributors

TYPE: Sport scale Golden Age biplane

FOR: Intermediate and advanced pilots

WINGSPAN: 72.5 in.

WING AREA: 1,525 sq. in.

WEIGHT: 18.1 lbs.

WING LOADING: 27.4 oz./sq. ft.

LENGTH: 62.5 in.

RADIO: 6-channel radio with 7 servos required. Flown with Futaba 9Z transmitter, Futaba 149-DP receiver, Futaba servos, (6) S-9202, (2) S-3001, (1) S-9206

ENGINE: 1.60 cu. In. (25cc) two-stroke, 1.60 cu. In (25cc) four-stroke

PROPELLER: Zinger 18x10

SPINNER: Aluminum polished

FUEL: Morgan Cool Power, 15%

ONBOARD BATTERY: Duralite 4000mAh and regulator

PRICE: $449.97

COMPONENTS NEEDED TO COMPLETE: Radio, engine, prop, Y harness, extensions, fuel tube and Robart retracts and air kit (optional)

SUMMARY

Top Flite's much anticipated Beechcraft D-17 Staggerwing has arrived, with all the style and grace of the full scale original. Not only does this Top Flite recreation match the original in appearance, it also flies every bit as well as it looks. It offers smooth and solid handling, yet with more than enough power and control to arc gracefully through the sky. Any Golden Age fan worth his salt will have a tough time resisting the allure of this timeless design, possibly the most beautiful aircraft ever built.

THE KIT ARRIVES!

From the outside, the Staggerwing comes in a typical Top Flite box; big and colorful, lots of detailed photos, kit contents and highlights listed. Inside you are presented with a very well packaged kit. All major components are individually wrapped in plastic bags to keep from rubbing against each other, and are held in place with cardboard structures within the box. A few inner boxes hold smaller parts like the cowl, gear doors, hardware package and such. Everything is taped in place so it won't slide around in shipping. I was pleased, but not surprised, that my kit showed no signs of hanger rash. After checking the parts list and reviewing the manual, I got right to work.

TIPS FOR SUCCESS

Like most ARF kits, I started with hinging the control surfaces on the wings. The Staggerwing features ailerons on the top wing only and flaps on the bottom wing. The only issue with the CA type hinges was on the flaps. They are hinged on the bottom edge of the flap, and in the up position the front of the flap sits tight against the back of the rear wing spar. Once installed, the flap wants to stay up due to the stiff nature of the new CA hinges. I let the first flap I installed rest in the up position while the CA set. You guessed it, I had a bit of a time prying the flap free. Fortunately CA doesn't stick too well to MonoKote! I got smart for the next flap and just hung a roll of masking tape from the trailing edge to hold it away from the wing until dry. All of the hinges lined up perfectly with the pre-slotted parts. The covering needed minimal attention with the heat gun.

Servo installation was very straight forward. The designers went that little extra bit to keep a nice scale look. All the wing servos are installed on removable plates on the bottom of each wing panel, keeping them inside the wings and out of sight. You will need to take care when gluing the servo mounting blocks in place with epoxy. The blocks are very close to the plate in the wing and any excess glue may prevent the plate from sitting flush when installed. A few strokes with a file will clear any cured epoxy to adjust this fit.

One of the many great features of this plane is its ability to be broken down for easy transportation. The bottom wings plug into the molded fiberglass fuselage sub wing center section using an aluminum joiner and two anti-rotation pins. Both the left and right wing panels aligned nicely with the sub wing with the anti-rotation pins installed. However, with the aluminum joiner in place, the wings sat just a little low. If you see any misalignment in this area when you mount your wings, be sure to visit the Tower Hobbies web site for an addendum to the manual that will help in this area. The fix is simply a function of resetting the holes for the anti-rotation pins.

The two-piece top wing is also joined with an aluminum joiner and two anti-rotation pins. The manual makes a point telling you to glue the joiner into the left wing. Be sure to follow that advice. The two halves fit very nicely and were easy and quick to mount to the fuselage using wood dowels and 1/4x20 nylon bolts through the installed blind nuts.

The interplane I-struts are things of beauty! Molded fiberglass and pre-painted, they blend in to the wing's airfoil shape as if they were built as one. After just a few minutes to assemble the attach points and drill the struts, your wings are on and finished. Socket head screws make for ease of assembly at the field.

TAIL SURFACES

Once again, the tail surfaces are a well thought out and executed design. Hinging was easy and all components lined up well with pre-slotted parts. The stab is held on with two aluminum tubes running through the fiberglass fuselage. The tubes are not

AIRBORNE

Test flight day came and the sky was calm. I elected to use a paved runway for my first flight, due to the gear doors being as close as they are to the the longish grass. The plane taxied well, with no tipping tendencies at all. As I lined up and added the power, the tail came up nicely and the Staggerwing rolled fairly straight, lifting off in 50 to 75 feet.

I felt a great sense of confidence as soon as this graceful bird lifted off. It was tracking very true and was smooth and responsive on the low rate controls. The gear came up and the plane seemed to just take off and accelerate. I flew for about eight minutes or so doing basic air work with left and right turns, slow flight with flaps up and down. It was a hands off plane after only two clicks of down trim, and looked as graceful as could be as it traversed the sky. It didn't take much to imagine being on board with a few business associates during the 1930s, heading to a meeting in the next state, or beyond. Everything about the Top Flite Staggerwing says vintage grace, and in the air it only gets better. There was not very little pitch change with the gear retracted or extended. I did mix in 3 percent down elevator to the flaps, and that seemed just about right.

The overall handling is just what you would expect. This is an honest airplane that wants just a little rudder coordination in the turns, and won't surprise you as long as you don't try to get too slow. Even the stall is mild, with a bit of power on and partial flaps, the nose bobs a bit and the sink rate increases. Relax the back stick and add power, and it will start flying again as soon as it picks up a few extra mph.

This is a traveling machine though, and even in the 1930s people were in a hurry to get where they were going. The Staggerwing will do that with style. Pour on the coals, and it just sits so sweetly as it races across the sky. The O.S. 1.60 FX is really too much power for scale flight, but throttled back just a bit the sound gets about right and the speed looks great. Full power will take you nearly vertical as long as you want, or pull you through any traditional aerobatics. Certainly not scale, but definitely fun. I am considering repowering this beauty down the road with the O.S. 1.60 twin four-stroke for a realistic sound and more traditional performance.

The landing approach is smooth and very stable using half flaps, and it is easy to stabilize the sink rate with a little throttle manipulation. I carried a bit of power all the way down, and wheeled the plane onto the runway.

Top Flite and Great Planes have a winner with the Beechcraft Staggerwing, and I look forward to flying it for a long time to come.

glued in place, but the butt rib is scuffed and epoxied in place to the fuselage. The fit was perfect. The two elevator halves are joined with a bent metal joiner and braised control horn. I found it necessary to make a little more room for the joiner where it passes through the fuselage to avoid binding during elevator movement. The rudder is also controlled with a horn that is hidden inside the tail. Access for maintenance and setup is easy with the removable tail cone.

ENGINE INSTALLATION

I chose the recommended the O.S. 1.60 FX engine. Using the supplied template for alignment, bolting on the engine was very straight forward. Once the mounting bolt holes where drilled through the fiberglass and plywood firewall, I attached the supplied engine mount. I struggled for a few minutes trying to get the blind nuts on the back of the firewall. There is a lot of wood structure from the cabin forward, restricting easy access to your hands! The kit includes a 12-inch 4-40 threaded rod and nut for exactly this purpose. Thread the rod through the firewall and use it as a guide to place the blind nuts. I held them with my fingertip while screwing the bolt through the front of the firewall. I wanted to keep the scale look of the plane so I used a Bisson Pitts style muffler. This keeps all the parts very neatly inside the cowl. The throttle pushrod needs some bending forward of the firewall, but with a little thinking it went in well. The cowl fit very nicely and really completed the look of the Staggerwing.

The cowl comes with three pre-drilled holes for mounting. Once you have the cowl in the correct position, you simply drill a pilot hole and attach it using the supplied screws. I then installed the polished aluminum spinner, another part supplied standard with this very complete kit. The adaptor nut for the spinner ended up being a little too long to secure the spinner dome. I ground about 1/8-inch off the front of the nut before the spinner would fit. A couple of holes for the glow driver, needle valve and the exhaust completed the cowl installation in less than an hour.

The O.S. 1.60 FX is plenty of power for the big Staggerwing. It can easily fly the model at partial throttle and wide open takes it upstairs in a hurry. Note the throttle pushrod took a little bend to reach around the muffler and get to the carburator. The Bisson Pitts style muffler easily hides in the cowl.

RADIO INSTALLATION

Did I mention that the fuselage is molded fiberglass? It is a work of art. Painted bright red with the stripe and numbers already painted on, this adds to the overall appeal. The windshield is a major part of the molding and is also factory installed. The bottom wing center section is molded into the fuselage and is the location of landing gear, making transportation and assembly of the plane a snap. The servo trays are factory installed and have plenty of room for any gear. The

pushrod guides are in place, and line up well with the servos and control horns. While the cabin offers plenty of room, there is a lot of stuff inside and working around it takes time and requires some patience. The fuel tank, battery and receiver all sit in the front of the cabin and drop right in.

I set the throws and balanced the model at the factory recommended settings. With a servo in each wing, it is necessary to use Y-harnesses on both the aileron and flaps. Take care when setting the servos and control centers to get even throws all around. I used one servo for the retract air valve and mixed a second servo to an AUX channel for the tail wheel. A neat trick here is to add a servo delay at about 95 percent for a nice slow scale operation of the tailwheel.

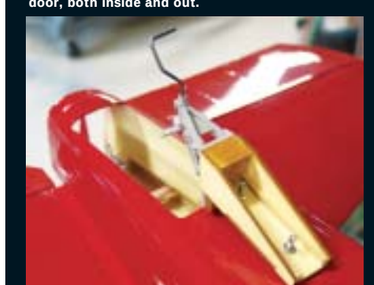
Looking forward in the cockpit. The servo tray is just behind the wing leading edge for easy linkage installation. The Robart air tanks, Futaba receiver, Duralite airborne battery with voltage regulator and fuel tank all mount forward closer to the firewall.

I finished up the interior with a quick installation of the floor boards, pilot and seat backs. The instrument panel is simply a black and white decal, but it does the job. Still, with all of the nice attention to detail of this kit, it would be nice to finish it off with a more scale panel.

ROBART Retractable Landing Gear

I installed the landing gear when suggested by the manual, but wanted to save it for last for a few reasons. First of all, one of the coolest things about this kit is the option to use the fixed gear supplied in the kit, or a set of purpose-made Robart retracts. The very clever design allows you to install either set, with no modifications required. Simply choose your gear and install it. The fixed gear is your basic bent wire type cleverly clamped between molded nylon mounting blocks and two metal plates replicate the Robart gear base. This simply drops into the molded gear rails and is screwed in place. Install the gear doors and the wheel well covers and you are finished.

Top: The stock wire gear is designed to mount using the same bearer blocks as the more realistic Robart retract strut shown sitting in place. Above: The Robart gear with its rear strut installed looks like it came right out of the Beechcraft factory. Note the detail of the gear door, both inside and out.



The Robart tailwheel bracket mounts to a plywood box that screws into the fuselage structure. I ran a pushrod forward to the servo to activate the retract mechanism.

Installation of the Robart gear is also easy, even for the first timer. Top Flite designed this system to be simple to install. The manual walks you through every step of the set up, leaving very little to the imagination. Just follow the manual and it will be a snap. A few things of note: Take care when drilling the mounting rails for the gear. It would be easy to drill through the rail and punch through the top skin of the wing. I used a masking tape flag on the drill bit to keep me from going too deep. The wheels supplied with the kit are fine, however the hub is bored for a larger diameter axle than the Robart axle. Using four 3/16-inch washers on either side of the wheel helps steady the wheel and keep it centered in the gear fork. The gear doors are really cool. The doors are pre-made with the bottom door hinged. The lower door opens as the gear extends and closes as the doors retract. As noted in the manual; take your time. This step took me about five hours to complete. Some extra tweaking was needed to make everything fit and work as desired. The air retract kit dropped in, and set up was a snap following the Robart layout.

Let me suggest that you confirm full engagement of the mounting screws into the hardwood bearing rails and the installation is solid. As with any ARF, I also inspect any critical glue joints that I can access. The kit includes 1/2-inch long wood screws for mounting the landing gear. I felt, and a call to the Top Flite R&D team confirmed, that 3/4-inch screws are appropriate for a more secure installation. Future kits will have longer screws, but measure yours carefully before installation. You certainly don't want to pull the landing gear out of this beauty.

The retractable tailwheel is also well designed. If you use the Robart tailwheel system, it will bolt directly onto a mounting assembly supplied in the kit. Now just slide the whole unit into the tail of the fuselage and bolt it in place. The tailwheel is retracted with a servo, however using an air cylinder would not be too difficult at all. I glued small blocks of scrap balsa inside the fuselage to help with the installation of the tailwheel gear doors.

CONCLUSION

Top Flite did an outstanding job with the Beechcraft Staggerwing kit. It is one of the most detailed, complex and well executed ARF kits I have seen. This plane will stand out at any field and will surely be a conversation piece wherever it flies. The kit is very complete and relatively easy to assemble for someone with moderate experience. In the air, it is a smooth, stable and enjoyable flyer. The O.S. 1.60 FX was plenty of power for sport flying and is very capable of pulling the big biplane through all basic aerobatics. I'll be back in the air with mine soon and enjoying many more exciting flights! Good luck with your Staggerwing, you won't be disappointed. ✪

Links

Bisson Custom Mufflers, www.bissonmufflers.com, (705) 389-1156

Cool Power Fuel, distributed by Morgan Fuel, www.morganfuel.com, (800) 633-7556

O.S. Engines, distributed exclusively by Great Planes Model Distributors, www.osengines.com, (800) 682-8948

Top Flite Models, distributed exclusively by Great Planes Model Distributors, www.greatplanes.com, (800) 682-8948

ZAP is manufactured by Pacer Technology, www.zapglue.com

For more information, please see our source guide on pg. 192.