



# Guillow's DC-3

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**A**lmost everyone is familiar with the name Paul K. Guillow. Anyone who's ever walked into a hobby shop or the local five & dime store as a youngster saw the stick and sheet gliders or rubber powered fliers and begged your folks to buy you one. Years later Guillow's is celebrating its 90 year anniversary. Beginning production during 1926 in the family barn, the company grew from there. The history of Guillow is a great read and can be found on the company's website.

With this intro we do indeed have a Guillow's project. The editor and I have discussed a project like this since the 2015 NRHSA show. You all have customers who have rolled their foam micro aircraft into a ball, leaving a pile of parts too far gone to repair, yet too valuable to toss in the garbage. The goal is to move this pile of trash into a flyable radio control scale aircraft that the builder can be proud of.

The idea is nothing new to the dyed in the wool micro pilot, but it's new to these pages. Building a scale aircraft takes time, especially when working a fulltime job [To a true hobbyist, work is the foulest of all the four-letter words – Ed] so this will be a two-part article on the building and conversion to micro radio control of the Guillow series 800 Douglas DC-3. The purpose for presenting this is for your information to pass on to your customers, and I cannot deny I love a good build and a challenge.

The Douglas DC-3 was chosen for a few reasons; it has a 35 inch wingspan, which will keep the wing loading light (lighter is better). The bulbous body of the DC-3 provides plenty of room for radio equipment and flight battery, and the long nose will make it easier to set the center of gravity. I'm a lover of WWI biplanes and Guillow's offers many models from this era, but airframes with short noses are tough to balance, so for the first

project we'll do something simple. [Like a twin engine airframe (said with sarcasm) – Ed]

By design the DC-3 model is primarily a static model, meaning for display. However the kit already has provisions and parts for movable ailerons, elevator and rudder. I suspect the only reason the DC-3 is not a rubber powered model is the very short distance between the propellers and the wing's trailing edge. There is simply just not enough room for a rubber motor, but there is plenty of room for a small geared electric motor, and this is the path we will take.

Dealers should note that for the purchaser's information the build will incorporate the modifications for control surfaces, but for the most part the DC-3 will be built exactly as per the plans. For those who never built a Guillow model, there are a few items you need: a building surface, sewing pins (much finer than hobby grade pins) and regular t-pins, single edge razor blade (my choice) or a #1 modeling knife, thin and

medium CA, good ole wood glue and a cutting mat. From this list you see the many add on sale item opportunities.

Just about anything a pin can be stuck in can be used for a building surface, but it should be at least large enough to accommodate the largest single item you need to build. This is usually the fuselage as the wings can be built in halves and each half is usually shorter than the fuselage is long. The absolutely most important thing to pass along is the building surface must be absolutely dead straight. A crooked building surface will equal a warped airframe. [I've screamed at modelers, "How do you expect it to fly straight if you didn't build it straight?" – Ed] There are commercial building boards available, or you can make your own. For smaller models like the DC-3 I usually recommend a sheet of two-inch thick pink insulation available from any building supply store. The foam board is my pinning surface, and when



One of the first steps in building any kit is to become familiar with all of the different parts and pieces of the kit.

the project is completed it goes into the trash bin.

Let's get started. First take stock of the parts and become familiar with the plans. It sounds simple enough, and even though it makes building easier and more enjoyable when you don't have hunt for parts, newer modelers still ignore the advice. Guillow kits have great instructions so let's do something different and follow them. The parts are lettered, numbered and grouped together for easy locating. The Letters on the parts also match the intended location, as an example: W# parts are for wings, F# parts are for the fuselage and so on.

Starting with the wing center section, first lay the plans down centered on the building board. Then cover the plans with wax paper or clear plastic film. The idea is that waxed paper is mostly transparent and it will prevent the builder from gluing the various assemblies to the plans. Locate the parts required for the sub-assembly and remove them from the carrier using the razor blade as needed. Obviously care must be used when removing the more fragile parts, which should be common sense. The die-cutting used by Guillow's is very good, but a little effort is still needed to remove the individual parts.

Once the parts are all located a dry fit is mandatory for a straight build before any glue is applied. Lay the parts on the plans and key them together. Use the pins as needed to hold the parts to the board. Double check to be sure all of the parts fit and surfaces are smooth and tight to the building board. For any parts that need trimming: do it now before gluing. If something is amiss, check to make certain all of the carrier wood has been removed as they should all fit fine. Once the fit is satisfactory,

## What it takes to convert a kit to radio control.

apply the slightest amount of thin CA possible on all of the joints. In areas where higher strength is required, use a stick (a bamboo skewer works great) or brush and standard white craft glue. Epoxies are far too heavy for such light-weight models but if needed for strength they should be used sparingly.

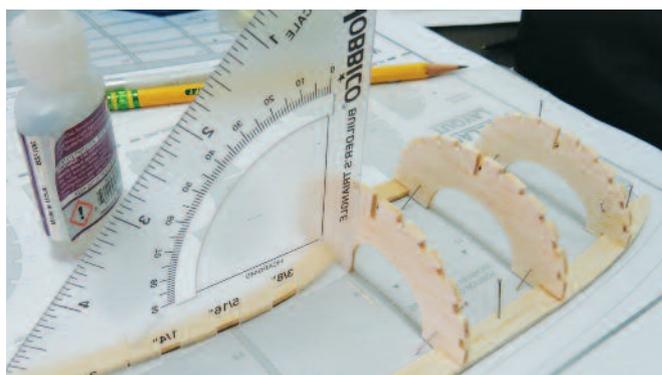
There is a lot to build and the pages are limited, so it is time for a little fast forward. One item that was new to me were the stringer slots or in some cases lack thereof. The stringer slots are little square cutouts where 1/16 inch square balsa sticks are glued in to create the body shape. In looking at the sheets, I see a single cut where the stringer should bottom, but not the two on each side. Way back when I built an ME-109 with my son, they were there, but depending upon wood density, the cuts would be clean or "die crushed." This meant time gluing pieces back to the individual formers. To prevent this, what Guillow's has done in some of its more recent kits is to provide the bottom cut, but require the builder to make the two side cuts.

This makes a bunch of sense to me, no die crushed parts. And completing the slots is easy. Although this kit is die-cut, many of the kits in the Guillow's line have been switched over to laser cut. Having a conversation with Guillow's designer Mark Tennant, this is an ongoing process and in time all of the Guillow offerings will be laser cut.

This is a model of a DC-3, but the process for any of the Guillow's line of models is the same. During the coming month we will continue the build and modify a few areas to facilitate the motor and R/C equipment installation. Next month the aircraft should be completed and weather permitting we will experience the maiden flight. **HM**



*Starting with the wing's center section, all of the pieces were separated from the carrier sheets and were dry-fitted in place before any glue was used. This makes any minor trimming much easier to do than if there are blobs of wet cement all over the parts being installed.*



*A small builders triangle is absolutely mandatory when securing parts like fuselage formers to splines. Getting these placed perfectly square will have a huge impact not only on how good the finished airplane looks, but how well it flies.*



*At this stage the stringers have only been dry-fitted, as for a straight build they must be installed in opposing pairs to prevent warpage, but it's still pretty easy to see how the stringers begin to give the fuselage shape and dimension.*



*Continuing on with the wing's outer panels, and the tail surfaces, there is a lot of build left, but it's really been a fun project, and a good challenge is something a real modeler never walks away from.*