DON JUAN II

BY DON CURTIS

Photos by Jerry Kleinburg

FROM THE LONE STAR STATE COMES ONE OF THE MOST BEAUTIFUL PATTERN SHIPS WE HAVE SEEN TO DATE. FRENCH CURVES INSTEAD OF STRAIGHT LINES . . . . SOMETHING BETTER.

Don Juan II. Something above the crowd. French curves instead of straight lines. Different. Better. (Of course now fellows, this is just my opinion, I realize!)

However, I do think you will agree that this design definitely varies from the squarish shape of most of today's R/C models after having made a few noteworthy comparisons. Most obvious, of course, will be the extensive use of compound curves; the generous use of fillets; and the large, fully elliptical wing.

Why go to all the trouble of building an elliptical wing for an R/C pattern ship? I did it to be different – out of the ordinary. In addition, it is a well-known fact that elliptical wings have less induced drag, which in turn enhances high speed performance.

I decided in the early stages of development that this design had to be fast and as aerodynamically clean as possible in order to perform the large, smooth, high-speed maneuvers necessary in today's competition.

After the initial test flights it was easy to see that Don Juan II lives up to all my expectations. The ship flies at a constant speed throughout the pattern which, along with its smoothness, gives it a very graceful appearance in the air even though it is very fast. The model does beautiful, constant-speed axial rolls with very little elevator correction. The four point rolls, slow rolls and knife-edge flights are extremely smooth and easy to perform.

CONSTRUCTION

Since it is assumed that the construction of Don Juan II will not be attempted by an inexperienced builder, no step-by-step instructions will be discussed here. I will, therefore, discuss only the important construction features.

Fuselage

The 1/8" fuselage sides are constructed using full-length side sheets. Select medium grade balsa of equal density to allow equal bending. Be sure to use contact cement to install the 1/8" balsa doubler, starting at bulkhead A-1 and extending rearward to aft of the wing saddle.

Large triangular balsa strips (½" x ½" x 45°) and ¼" top sheet to bulkhead A-3 is used to allow liberal rounding of the fuselage, with the added effect of reducing the weight. All major stress points are assembled with epoxy.

The turtledeck is constructed of 1/8" formers planked with 3/32" x ¼" balsa strips. This method may be substituted (by those of you who like to whittle) with the hollowed balsa block method.

The nose of the fuselage is simply a carved balsa block hollowed to 1/8" consistency, with a cut-out to accommodate the engine. With this particular method the engine may be mounted in any position without any great deal of difficulty.

The fuel tank used is a 14-oz. Kavan, remolded to accept the retractable nose gear. The remolding method consists of placing the fuel tank into a pot of boiling water until it becomes pliable, removing it from the boiling water to reshape it by using the thumbs to form a semi-circular arc along the length of the bottom side of the fuel tank, and immediately running cold water over it to set the new shape. (If the new shape is not exactly what you want, reheat the tank by the above method to return it to its original shape and you can try again.)

The wing fillets are relatively simple. Solid balsa is used from the high point on the root rib forward. From the high point rearward the fillets are built-up, using a 1/16" plywood base which is butt glued to the fuselage and extends to the trailing edge of the wing. The concave shape of this section is formed using 1/32" sheet balsa, top and bottom.

The canopy is formed by carving a balsa plug, sanding and sealing it until a smooth surface is achieved, and then forming a sheet of heated celluloid (approximately .030 in. thick) around the plug.

Empennage

The vertical and horizontal stabilizer, rudder and elevators are typically constructed. Light-weight balsa should be used. The use of fillets in this area increases the strength and enhances the appearance of the design, with Epoxolite making an easy job out of this important step.

Wing

The wing is to be constructed in a jig such as an Ajusto-Jig. This type of jig allows you to build approximately 80% of the wing before removal. The dihedral is simple to set on this jig, with two degrees used for this model.

The ailerons are cut out after assembly, then lined with 1/16" balsa. The hinges are epoxied to the inside of the top wing sheeting.

The wheel wells are also constructed of 1/16" balsa and built to suit the type of retracts being used. The plans show the Pro-Line retracts I used.

After completion of the wing, the center section is fiberglassed to insure maximum wing strength.

With today's small equipment I decided the added weight of a few extra servos would be negligible. Therefore, a servo per landing gear leg was used. All three servos were electrically connected and plugged into one channel. This, I believe, gives a more reliable set-up with less strain on each of the servos. Consequently, I've never had any problems or failures with my Pro-Line gear.

I think you will find Don Juan II to be a very capable airplane which grooves nicely and is smooth enough to allow you to make a few mistakes and still survive.

Don Juan II is not a super-fast model to build, but I do think you will agree its uniqueness makes the model well worth the effort. □

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