



# DE HAVILLAND 4

By WALTER A. MUSCIANO

**One of the most famous "crates" in history makes an exceptional control-line model for C and D motors**

A BRITISH design, the De Havilland 4 was one of the few designs built in the U. S. during World War I. Primarily intended for reconnaissance duty, it wasn't long before the D.H. 4 was bombing by day and night and engaging enemy fighters in combat. To say it was a rugged ship would be an understatement. Powered by either Rolls-Royce, Hispano-Suiza or the famous Liberty engines, the craft was turned out in great quantity during 1918 and came in a variety of modifications.

The first U. S. Air Squadron to fly in sorties over enemy lines used Liberty-powered De Havillands. This was in France on April 8, 1918. On April 19, 1919, Capt. E. F. White flew from New York to Chicago (738.6 miles) non-stop in six hours and fifty minutes. Average speed was 106 mph and this flight established a distance record.

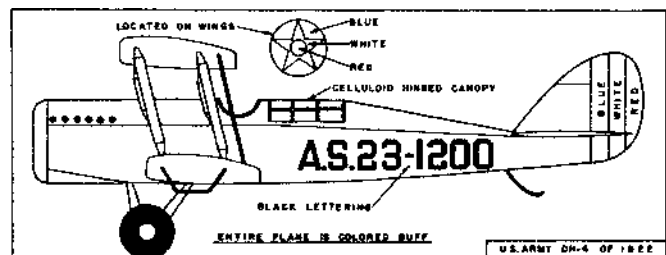
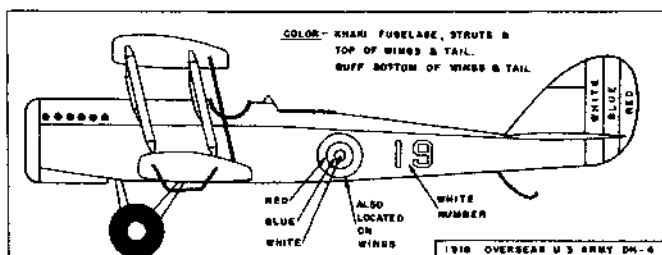
Four D.H. 4's covered 9,329 miles from New York to Nome, Alaska, and return with an average speed of 80 mph. Numerous stops were made. This flight took place during July 17 to 20, 1920.

Many De Havillands were used on the early mail routes and were standard army equipment as late as 1925. A famous plane? You bet!

The Liberty-powered D.H. was selected for our control-line model because it was used not only by the English and Americans during the war but retained by the U. S. Army and Navy after the war and used for flying the mail. This fact allows a variety of insignia and color to be used.

The fuselage sides are cut from 1/4" medium sheet balsa. Be sure to cut away for the lower wing. Cement the mounts in their proper location. While this is drying, cut the bulkheads, bellcrank mount and horizontal tail surfaces. Bevel the rear of the fuselage as the plan view indicates and cement the sides together with the aftermost bulkhead in place. Attach the stabilizer atop the fuselage and let dry. Now bend the landing gear which is made in three pieces. These pieces are assembled before the landing gear is installed.

The joints should be bound (*Continued on page 80*)



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with fine soft wire and soldered well. Install the remaining bulkheads and bellcrank support.

If you use electric ignition it is advisable to install it now. Solder all connections well. Attach the control lead-out wires to the bellcrank and bolt the bellcrank to the support. The elevator is now hinged in place and the control rod connected. Install the fuel tank (plug all openings to keep out foreign matter) at this time. Use a wedge type of tank only if inverted flight is contemplated, otherwise a rectangular or cylindrical tank will do. Cement all fuselage formers in place and plank the fuselage top. Attach nose block but not bottom nose piece and carve to shape. Cover fuselage bottom but be sure to allow for the lower wing insertions. Sandpaper the fuselage well and apply a coat of clear dope. Cut out the cockpits and engine holes and add coaming. Sand and add vertical fin and rudder. Dope again.

The wings are next. With 440 square inches of projected wing area and a slim fuselage, the model D:H. is perfect for stunting. It will be noted that both symmetrical and Clark "Y" airfoils are shown. Use symmetrical for stunts and Clark "Y" for conventional flying enjoyment. Note the different angles of incidence for each airfoil.

First cut the ribs from the specified stock and sand smooth. Cut the pine spar to the correct lengths and assemble to the correct dihedral using the ply-

wood joiners. When thoroughly dry, cement the ribs to the spars and add the notched trailing edge. Leading edge and 1/8" square auxiliary spars follow now. The soft balsa tips are added after the 1/16" sheet balsa leading surface is in place. The latter is cemented to the auxiliary spars, ribs and leading edge. Soft balsa wing tips complete the wing structure. When dry, sand the framework lightly and cover with heavy Silkspan. Clear dope twice. Leave the center section of the lower wing uncovered.

Cement the lower wing in place at this time. While this is drying, the struts can be cut from pine. These are sanded to a streamline shape. Be sure to cut the struts about 1/2" longer than required so the ends can be pushed into the ribs and fuselage. By this time the wing joint should be dry. The landing gear assembly is wrapped to the plywood bulkhead and joiner with strong thread. Apply several coats of cement to the joint. The bottom nose piece is now added and sanded smooth. Cover the lower wing center section bottom with Silkspan.

Apply two coats of wood filler to the fuselage and tail, sanding well between coats. Add the interplane struts to the lower wing and the cabane struts to the fuselage, using a liberal quantity of cement and inserting the struts about 1/4" into the fuselage and ribs. Dope the wings twice more.

We are now ready for the paint job. As mentioned previously, a slight variety of color and insignia, is available and this is illustrated in the small profile views of the plane. At least three coats of colored dope should be applied.

This should be thinned considerably for the last application. A light sanding and use of rubbing compound after the last coat will enhance the finish. The original model has five coats of colored dope.

Mark off the strut locations on the bottom of the upper wing and groove to fit the struts. Cement top wing in place. Rigging can be added now. This can be made of heavy button hole thread or fine music wire. The .049" music wire control-line guide should be liberally cemented to the struts as indicated. Optional scale detail such as Lewis gun, radiator cap and generator complete the model.

An engine of .60-cubic-inch displacement must be used for stunting and is also well suited for sport use although engines in the .49 class can be used for sport flying. The rudder should be offset as the plan indicates and the engine should be offset two degrees to pull the model away from the center of the circle. For flying, use only .016" lines from fifty to eighty feet long. Test with the shorter line. The model should balance one inch forward of the bellcrank pivot point. Shift batteries or add lead weight to achieve this balance.

Considerable power should be used for the first flights and controls should be handled with extreme care in order not to overcontrol the model. In spite of predictions to the contrary, the author's D.H. 4 flew well inverted with scale dihedral. It is suggested that the builder familiarize himself with the model's flying characteristics before trying stunts. However, if stunts are not contemplated you will still be the owner of a good "Sunday Flyer" and potential beauty winner.