Bipe '89

The Bipe is an aesthetically unique design, still viable today as a distinctive and compact Control Line Sport Stunt model. Dating back to 1945, this airplane still has lost none of its charm or its superior flight characteristics. ■ John Hunton

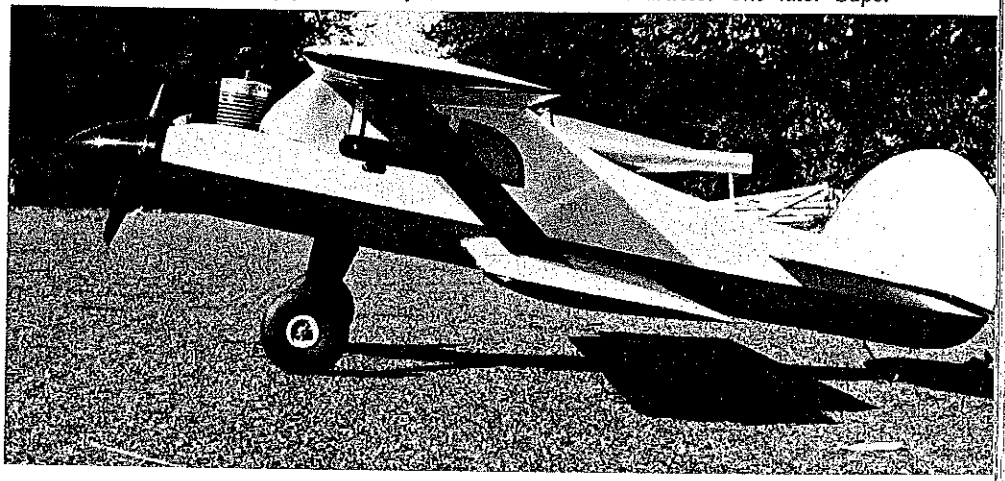
HAL deBOLT began his legendary career in model aviation by competing with Rubber models, then progressed to a successful career in gas-powered Free Flight. At the beginning of World War II, while serving at the Patuxent Naval Air Station in Maryland, Hal's interests turned to Control Line as an activity that required less space than Free Flight.

During this period Hal, who had experimented with various designs in Free Flight (Blitzkrieg, Thunderbolt, and Airfoiler in all three classes), focused this creativity on Control Line models. The excellent performance of his series of Bipe Stunt designs led to the formation of Dmeco (deBolt Model Engineering Company) to produce the kits. Hal's company went on to manufacture his other designs in sport, Stunt, and Speed, and his models became known as the standard in performance and quality of that era.

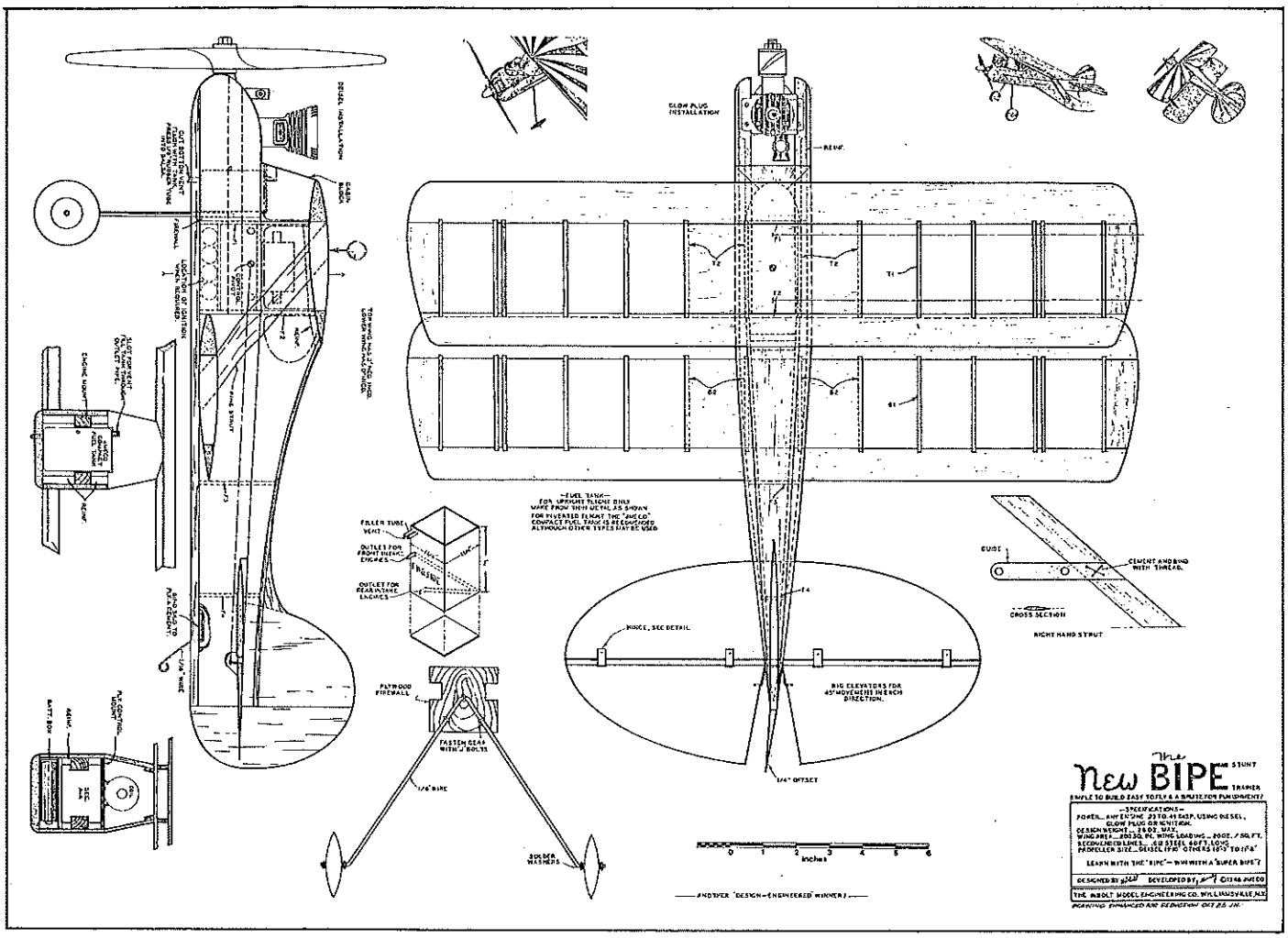
Later, Hal and Dmeco turned to RC and helped it through its infancy and into maturity. But it was the Bipe that began it all. Upon discovering that the AMA Museum had no example of this unusual model in its collection, I set out to remedy the situation. The Bipe detailed in this article is the result.

Not only is the Bipe a historic and significant design, it's also aesthetically unique. Harold deBolt's creation is still viable today as a distinctive and compact sport Stunt model.

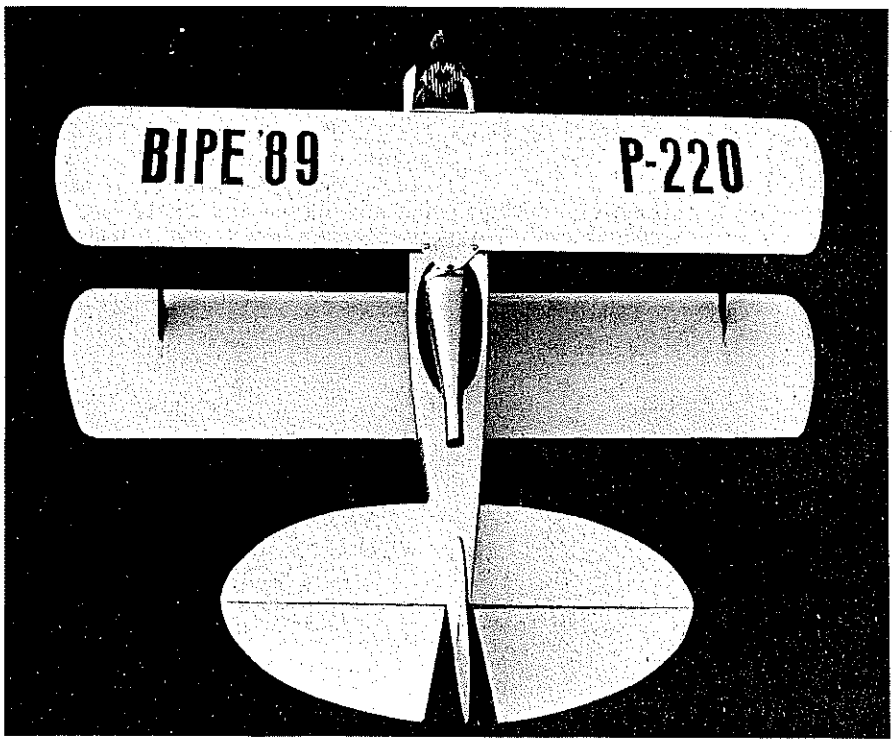
The first kits, known simply as the Bipe, were produced in 1945. This model had a 22½-in. wingspan and flat-bottomed airfoil. In 1948 the Bipe was updated with a 22-in. span and a symmetrical airfoil. That version, called the New Bipe, is the subject of this construction article. The later Super



Top: This ground-level view of Bipe '89 illustrates nearly full-stagger placement of the wings on this 1940s classic. Hal deBolt's Bipes led the way in Control Line Stunt, sporting a compact 24-in.-span symmetrical wing for inverted flight. Above: Bipe '89 with its modern glow engine, tuned pipe, large spinner, and short prop and landing gear. The original New Bipe of 1948 was designed for a Drone Diesel, the power plant of choice for Stunt in its day. The diesel swung a large prop, requiring a long landing gear. Bipe '89 otherwise incorporates only a few internal changes to simplify it. All photographs are by Bernie Stuecker of the NVRC Club.



Bipe was larger still, with a 28-in.-span top wing and 24-in.-span bottom wing. Both the New Bipe and the Super Bipe were capable of inverted flight and could execute most maneuvers.



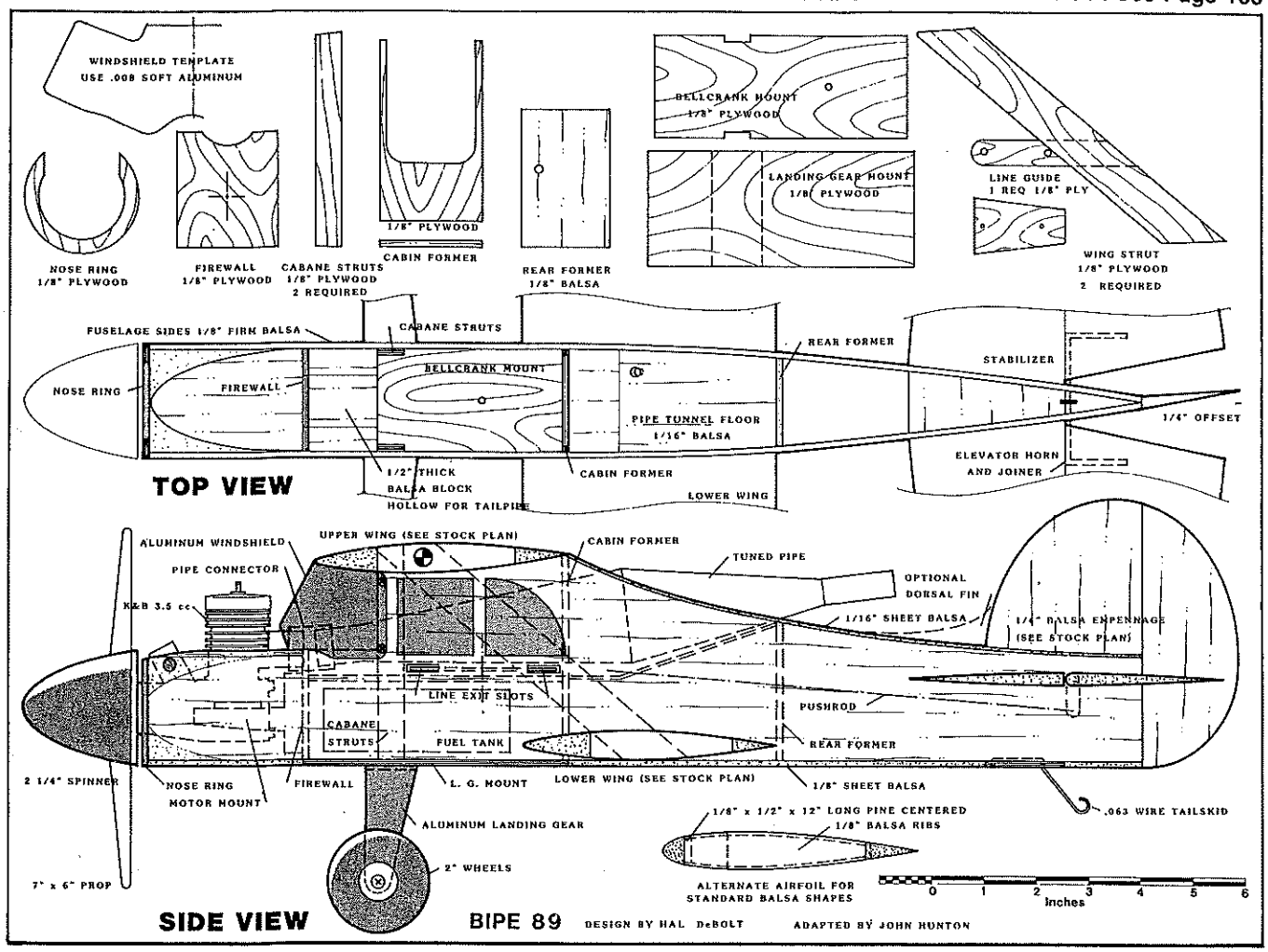
This view shows the optional tuned pipe installation. If you opt to use a tuned pipe, make sure the pipe tunnel is properly finished before the wings are attached. The number P-220 on the right wing designates an AMA Museum patron. With your patronage, you can help the museum grow as well as acquire your own two-, three-, or five-digit P-number. See the AMA Membership Manual for more detailed information on the benefits of AMA Museum patronage.

Plans for all three Bipes, as well as for most of the other deBolt (Dmeco) Control Line designs—the Stuntwagons, All Americans, and Speedwagons—are available from Fran Ptaszkiewicz, 23 Marlee Drive, Tonawanda, NY 14150. His price for the full-size plan of the New Bipe (as printed at small size with this article) is $6.00; order direct from Fran Ptazkiewicz.

The original plan for the New Bipe is intended to serve as a basis for your own interpretation. Since this model was configured for a Drone Diesel swinging a very large propeller, the landing gear is longer than necessary for most modern engines. Also, you may want to center the fuel tank on the needle valve so that the engine will feed uniformly when the model is inverted or upright. A side-mounted cylinder might work best for full Stunt flying.

The Bipe '89 interpretation adds a sport application, as shown in the modifications to the fuselage for the upright engine and tuned pipe. Being identical to the original, the wings and tail surfaces are not detailed—although an alternate wing cross section is shown for stock shapes. The model is well suited to the tuned pipe, which nests neatly in the space under the top wing. "Pappy" deBolt will probably be pleased with the good power and speed potential of the piped Bipe.

Construction



Fuselage. This configuration is intended for a 3.5cc K&B engine and filled nylon engine mount. Make design modifications as required for your own engine/mount combination.

Cut out the fuselage sides, formers, and plywood parts (use five-ply plywood). Premount the engine mount, bellcrank, and landing gear to the firewall top and bottom ply plates with 4-40 blind nuts. Epoxy the nuts into place. All other parts may be assembled with cyanoacrylate (CyA) glue, but the firewall should be epoxied into place.

Assemble the fuselage sides to the formers. Glue in the plywood parts after removing the screws. Add the tail skid assembly and the top and bottom balsa sheeting. Sand the fuselage to shape with coarse sandpaper, then smooth it with a fine grade.

Wings. Block up the leading and trailing edges over the plans. Use ½ x 1¼-in. balsa stock for the leading edge, ⅜ x 1-in. pieces for the trailing edge, and ⅛-in. stock for the ribs. Slip the ribs into the notches. After basic assembly, sheet the center sections and install the tip blocks. Sand the wings to accurate airfoil shape.

Cut the ¼-in. sheet balsa tail parts to outline, then sand them carefully to airfoil shape. Cut out the plywood wing struts, and round off the exposed edges.

Use the **windshield pattern** as a guide only. Cut out a stiff paper pattern and trim to final shape before cutting the soft aluminum.

Basic assemblies may be prefinished at this point, then completely finished upon final assembly. If you've chosen to use a tuned pipe, the pipe tunnel should be prefinished along with the corresponding portion of the top wing *before* wing attachment. The original Bipes were finished with silkspan and dope.

Install the control system, and assemble the model completely.

The following notes on flying are excerpted from the original deBolt construction information sent with each plan set.

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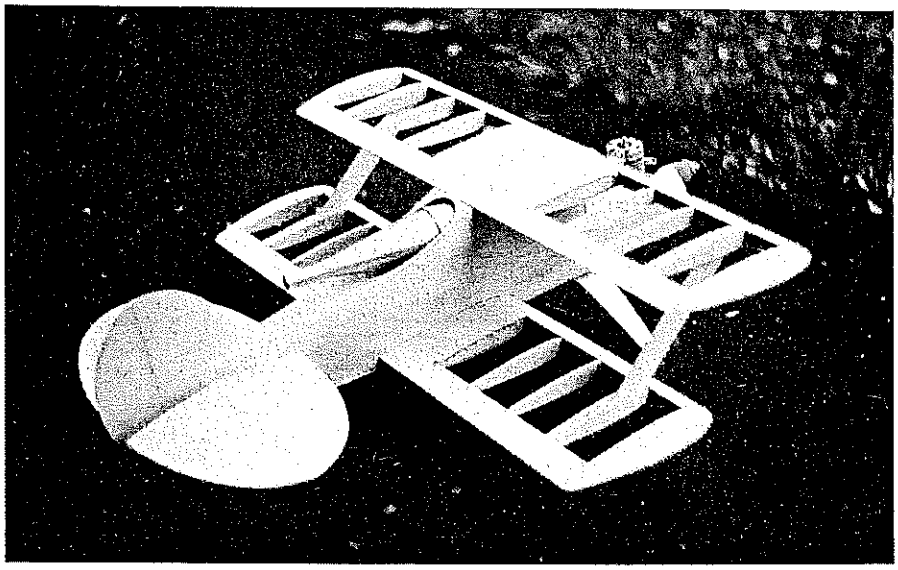

Bipe '89 in its bare bones. Note the slab-sided fuselage, simple framed wings, and sheet tail surfaces, marking the simple, straightforward construction of this tough Sport Stunter. The alternate wing section was incorporated on this airplane in order to maintain stock shapes. Also note the doubled ribs surrounding the struts, which give the wings great strength.