



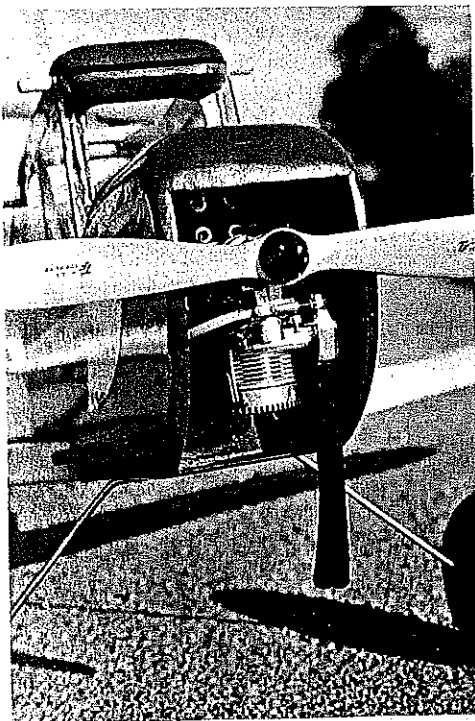
It may seem big for schoolyard flying, but the Dakota Grande is docile enough to handle small fields very well. Putting ailerons on both wings makes it capable of aerobatic flight. As is, you can count on low, steady fly-bys and solid touch-and-goes.

DAKOTA GRANDE

Kids were Dakota-crazy in the Fifties. The little FF critters just flew like mad on the "new" $\frac{1}{2}$ As. Fond memories of those Dakotas have inspired the RC .60-powered big brother we present here. It flies just as beautifully as the originals. And is it fun! ● Randy Wrisley



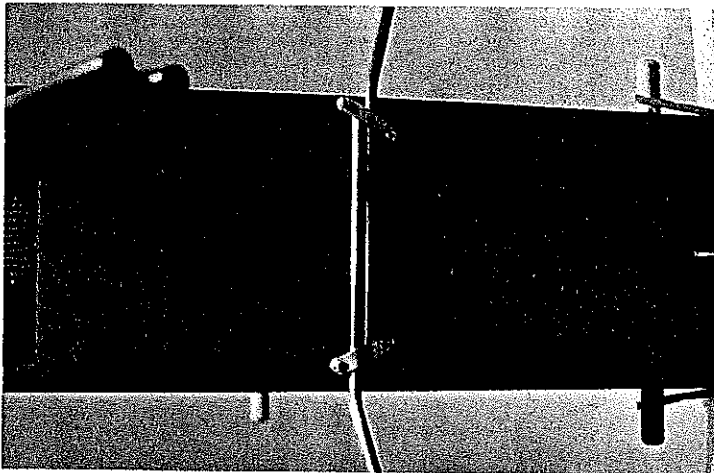
A family portrait of Dakotas. Ernie Wrisley's original Free Flight is at the right, followed by the author's North West version and the big RC bird.



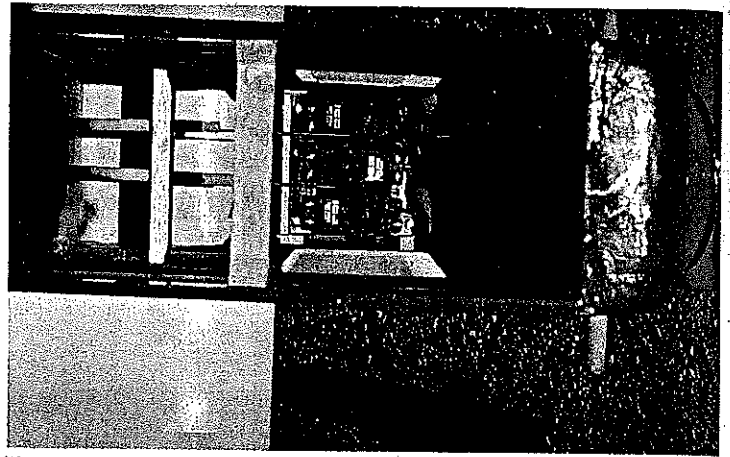
The engine room: simple and accessible. Just about any inverted muffler manifold could be used; shown is a Tatone Pitts-style.



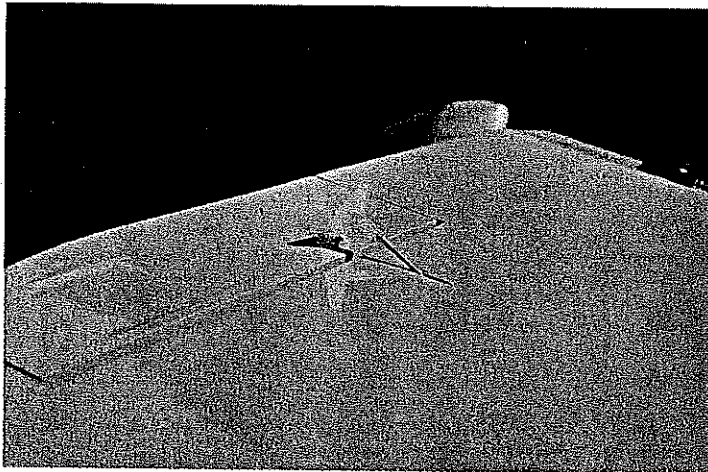
Square off the jaw a bit, and that could be Bill Winter looking out the Dakota's windshield. Seems appropriate, since Bill suggested this project to the author.



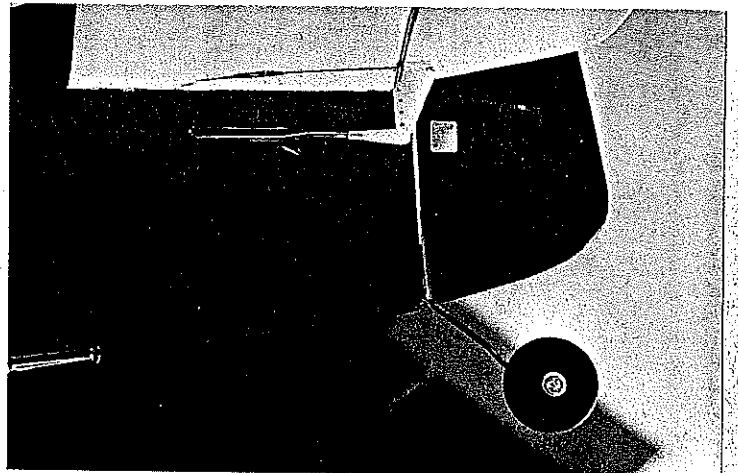
Landing gear are attached with nylon straps. Wheels are forward of the CG, which puts weight on the tail wheel to improve ground handling.



It's not so much a radio compartment as it is a radio room. Even old-style push-pull servos could fit here with room to spare. Since your fingers can get in easily, there's no excuse for sloppy installations.



The bottom of the wing shows the neat alleron installation. Turns are very scale-like as is, but more throw could easily be cranked in.



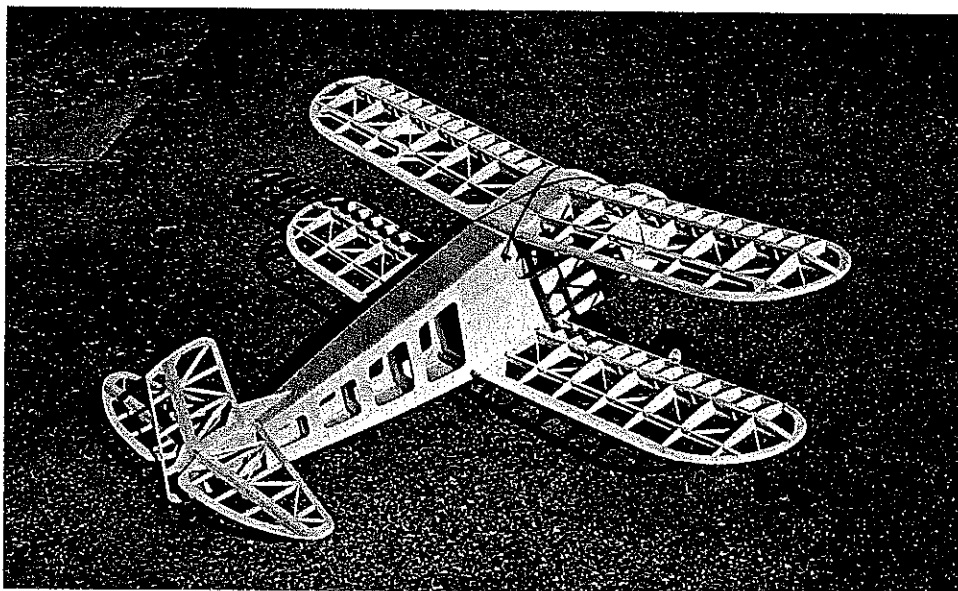
The Dakota doesn't need much elevator travel. The tail-wheel bracket is made of strip aileron hardware; tail wheel is one-inch diameter.

WAY BACK in 1950, Henry Engineering introduced a jaunty little Free Flight biplane into their product line. The Dakota was designed by Joe Wagner, and it was intended for the then-new $\frac{1}{2}$ A power plants. My father built one in around 1957. As a kid I would spend hours cranking the inverted Atwood .049 in its snout. If the well-

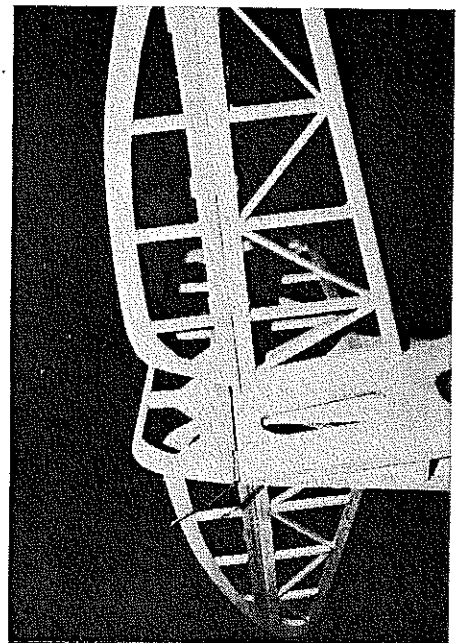
worn motor started, I would run fast and launch the model skyward. Next came the long chase. That old Dakota would fly forever.

When Clarence Haught enlarged Joe's design 25% back in 1978, I built an RC version. (Editor: Haught's FF Dakota for an .049, enlarged 25%; is available as MA Plan No. 242

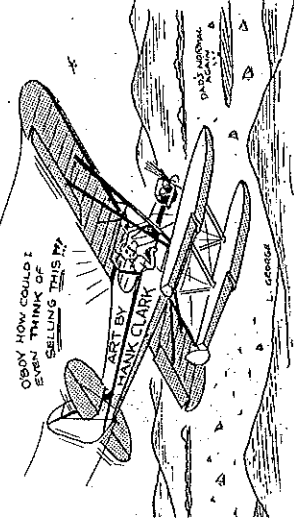
for \$2.75.) The major change I made was to convert back to the inverted engine mount I remembered so well. What I got for my money was the finest flying schoolyard-size model I ever



Even uncovered it looks cute. The wing halves should all be joined at the same time to ensure that your dihedral angles come out the same. .60 power allows a strong, heavy structure.

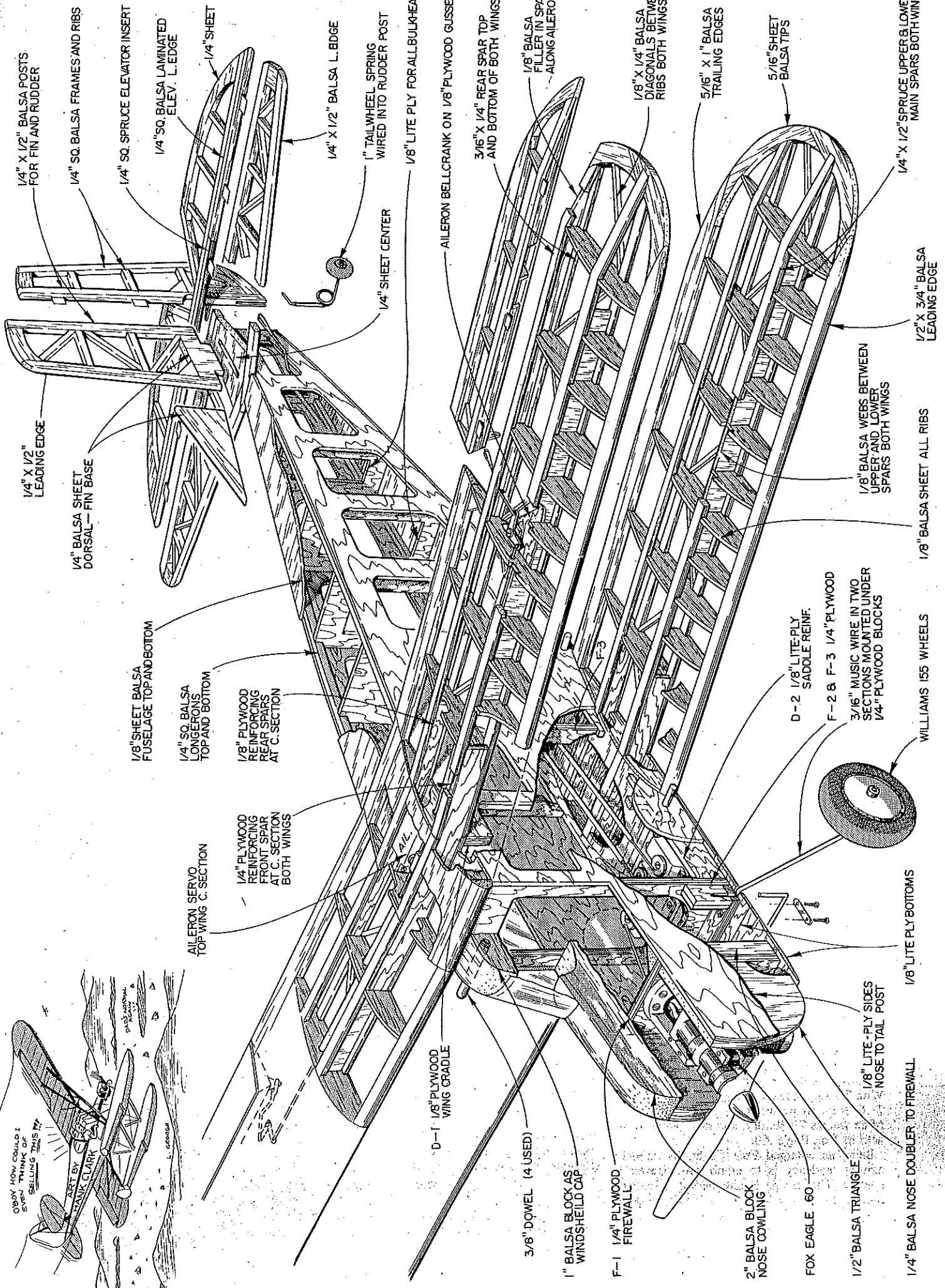


Tail feathers are light and strong, like everything else. Note tail-wheel bracket, made from strip aileron hardware.



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1/4" SQ. SPRUCE ELEVATOR INSERT

1/4" SQ. BALSAs LAMINATED
ELEV. L. EDGE

1/4" SHEET

1/4" X 1/2" BALSAs L. EDGE

1" TAILWHEEL SPRING
WIRED INTO RUDDER POST

1/4" SHEET CENTER

1/8" LITE PLY FOR ALL BULKHEADS

D-1 1/8" PLYWOOD
WING GRADLE

AILERON BELL CRANK ON 1/8" PLYWOOD GUSSET

3/16" X 1/4" REAR SPAR TOP
AND BOTTOM OF BOTH WINGS

3/8" DOWEL (4 USED)

1" BALSAs BLOCKS AS
WINDSHIELD CAP

F-1 1/4" PLYWOOD
FIREWALL

1/8" BALSAs
FILLER IN SPAR
ALONG AILERON

1/8" X 1/4" BALSAs
DIAGONALS BETWEEN
RIBS BOTH WINGS

5/16" X 1" BALSAs
TRAILING EDGES

2" BALSAs BLOCK
NOSE COMING

FOX EAGLE .60

1/2" BALSAs TRIANGLE

1/8" LITE-PLY SIDES
NOSE TO TAIL POST

1/4" BALSAs NOSE DOUBLER TO FIREWALL

1/8" LITE PLY BOTTOMS

1/8" SHEET BALSAs
FUSELAGE TOP AND BOTTOM

1/4" SQ BALSAs
LONGERONS
TOP AND BOTTOM

1/8" PLYWOOD
REINFORCING
REAR SPARS
AT C. SECTION

1/4" PLYWOOD
REINFORCING
FRONT SPAR
AT C. SECTION
BOTH WINGS

AILERON SERVO
TOP WING C. SECTION

1/8" BALSAs
WEBBERS BETWEEN
UPPER AND LOWER
SPARS BOTH WINGS

1/8" BALSAs WEBBERS BETWEEN
UPPER AND LOWER
SPARS BOTH WINGS

1/8" BALSAs SHEET ALL RIBS

WILLIAMS 155 WHEELS

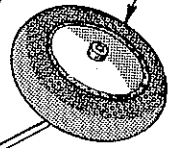
1/2" X 3/4" BALSAs
LEADING EDGE

1/4" X 1/2" SPRUCE UPPER & LOWER
MAIN SPARS BOTH WINGS

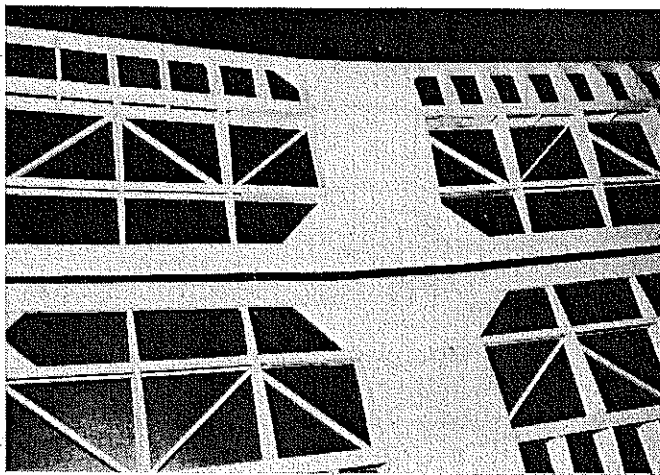
5/16" SHEET
BALSAs TIPS

D-2 1/8" LITE-PLY
SADDLE REINF.

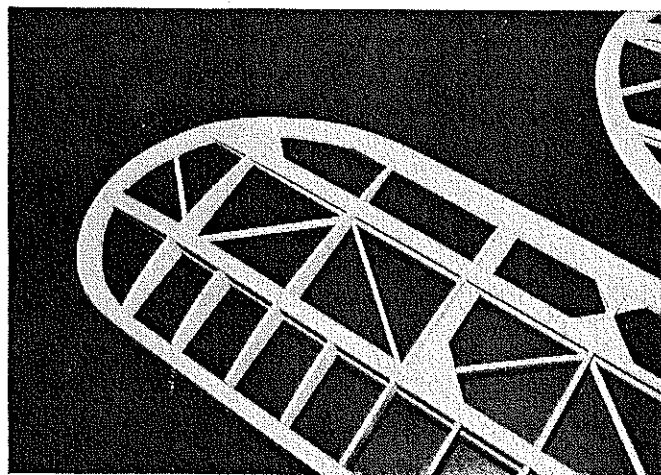
F-2 & F-3 1/4" PLYWOOD
3/16" MUSIC WIRE IN TWO
SECTIONS MOUNTED UNDER
1/4" PLYWOOD BLOCKS



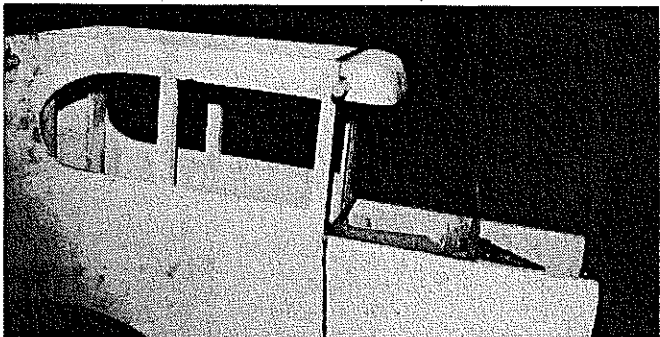
WILLIAMS 155 WHEELS



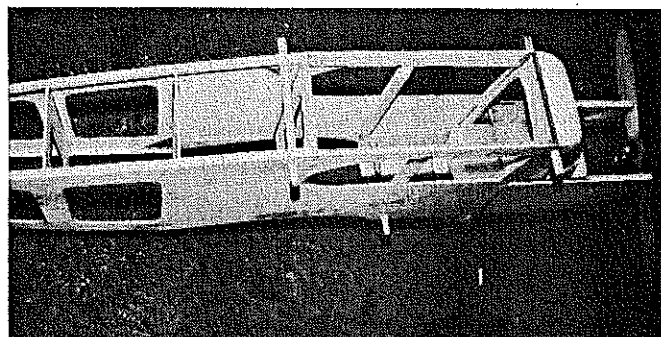
Views of the center section of both wings. Build the wings at the same time; it's easier to make sure that they have the same dihedral that way.



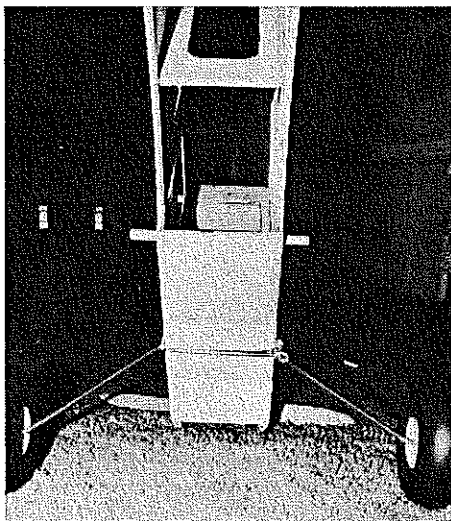
Wing tip construction is simple. False half-ribs save time, trouble, and balsa, and cross braces keep the structure strong.



The cabin top. Note the installation of the top block and wing hold-down dowel. Light ply fuse sides and lots of gussets make this a strong ship.



This view of the fuselage from the top shows off the hefty construction: loads of gussets, wing saddle reinforcements and the top "brow" block.

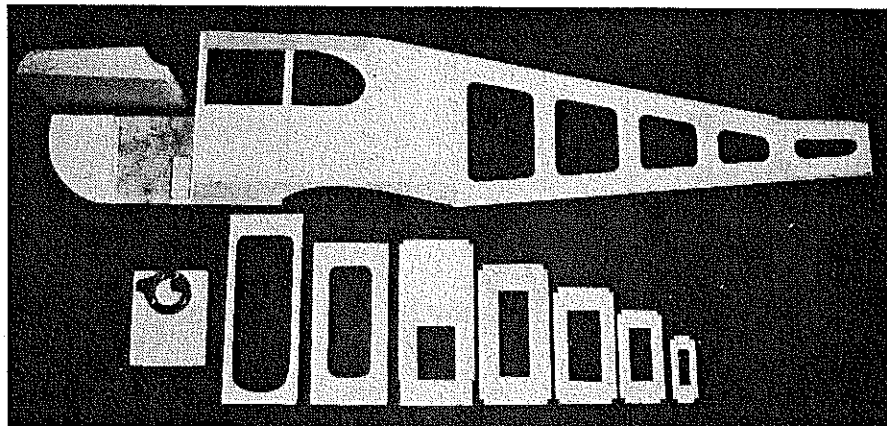


Landing gear construction is straightforward. Over-and-under wings allow easy access to the radio compartment.

owned. With the growing interest in giant scale models, why not a giant Dakota?

The Dakota Grande is 2½ times the size of the original. What was once chubby and cute suddenly became rather large and rotund! Friends and neighbors, I've built whole models that weighed less than *one* of this Dakota's wheels! With 7½ square feet of wing area to play with, a 7- to 9-lb. flying weight is not unreasonable. Mine weighs 7¼ lb. dry, and it is overpowered with its Fox Eagle .60.

Being an enlarged Free Flight, the model's natural tendency is to climb when power is applied. This design is intended as a realistic rumble down memory lane—at scale speed. If your idea of fun is flying around at ½ throttle, making low fly-bys down the runway, and wheel



Here's how the fuselage sides look from the inside. Don't feel too bad if you built two identical sides instead of one right and one left; just build another Dakota.

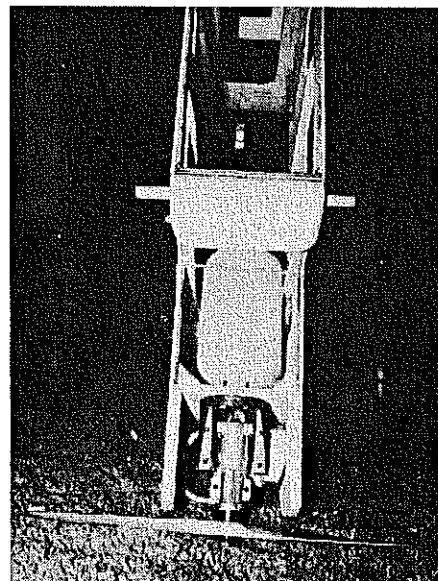
landings at sunset, this is your airplane. Roll up those shirt sleeves, and dig in!

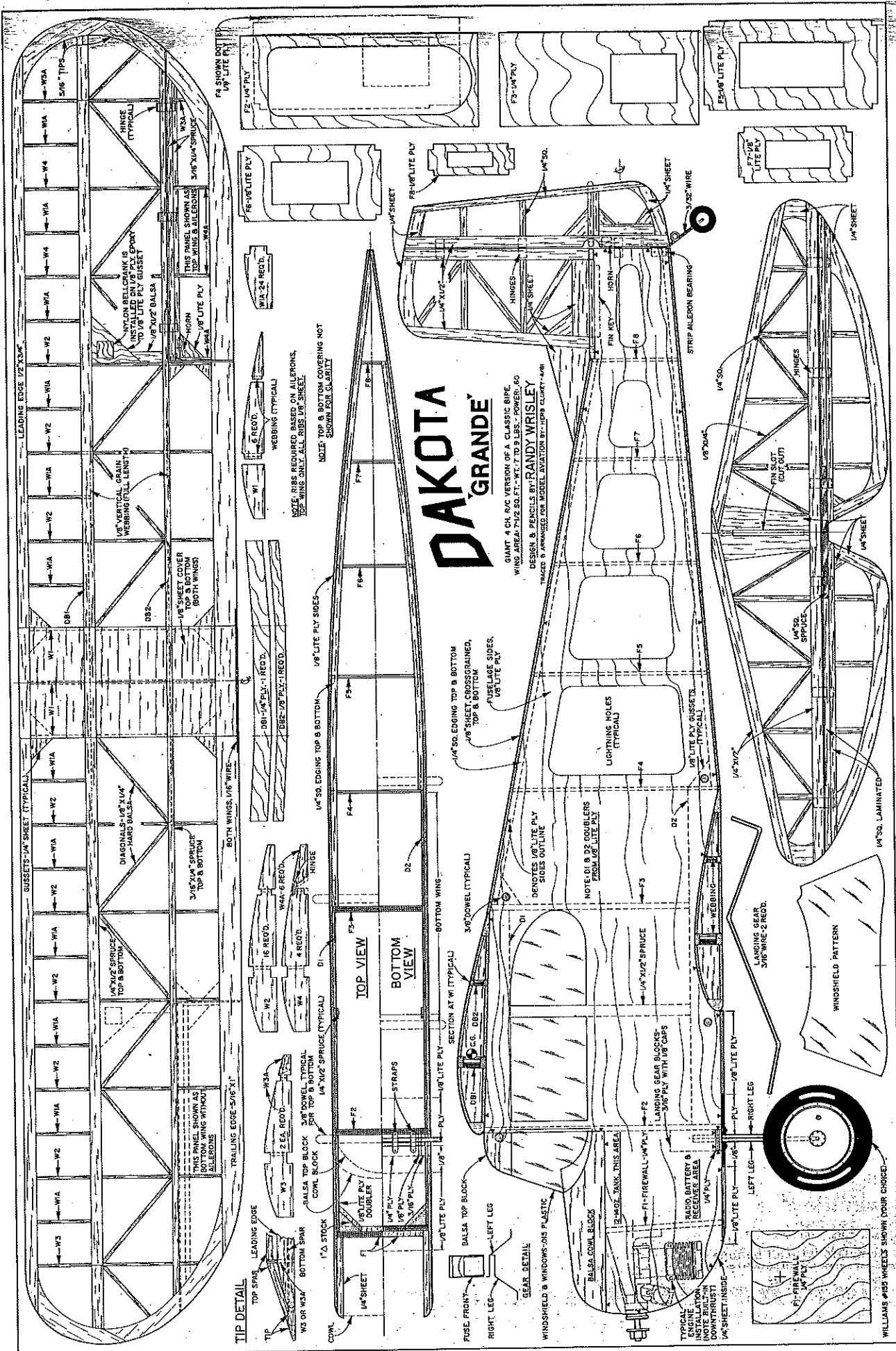
Construction. There is nothing difficult about building this bird. There is, however, a lot to build! I chose to build the fuselage from lite ply. Lumberyards sell "door skins," which also work well. The wings and tail are of conventional balsa, spruce, and plywood construction. I stuck with the inverted engine to preserve the character of the model's nose. After living with it awhile, I won't hold it against you if you mount the motor upright.

Rather than giving a lengthy, detailed step-by-step construction treatise, I'll just cover the high points and try to help you over the rough spots. Besides, if you're old enough to remember the

Continued on page 26

The firewall is braced from the rear with triangle stock after the engine mount is bolted on.



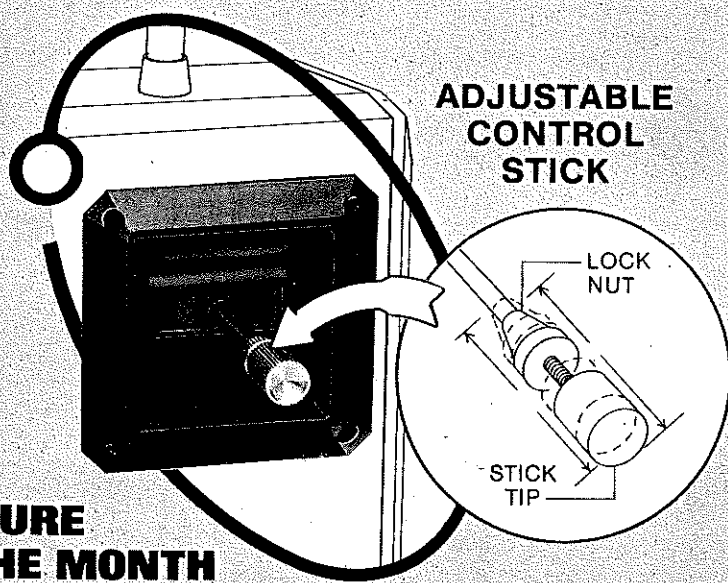


DAKOTA GRANDE

GIANT 4 CH. RC VERSION OF A CLASSIC BIPE
 WING AREA 770.50 SQ. FT. - 17.1 TO 25.5% - POWER .60
 DESIGN & PENCILS BY FRANDY WRISLEY
 THICKER & ARRANGED FOR MODEL AVIATION BY JERRY CLARKY-4-81

FULL-SIZE PLANS AVAILABLE ... SEE PAGE 140

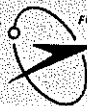
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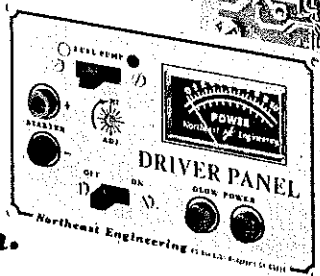
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original model, you won't have too much trouble!

Fuselage. Cut two identical sides from lite ply, and mark all the former locations on the inside. Cement doublers 1 through 4 in place, using the formers to help line things up. The 1/4 x 1/2 spruce cabin stiffener goes in next, along with the 1/4 square balsa edging aft of the cabin. Pre-drill the gussets for the wing dowels before you stick them in.

Now for the moment of truth! Check the sides to see whether you built both a left and right one. If not, you'll just have to build a matched pair of Dakotas! Join the sides by cementing formers 2, 3, and 4 in place. Do this on a flat surface, and check alignment carefully. Once the glue dries, add the rest of the formers aft of the cabin.

Bolt the motor mount to the firewall, and reinforce with slow-cure epoxy. The 1 in. triangle stock goes in now.

I built the landing gear blocks up from 3/16 plywood. You could use hardwood if you have a router to cut the grooves with. Epoxy the completed blocks in place, making sure the left leg leads. Bend the legs from 3/16-in. music wire. If the weight of your model goes up much over mine, you might consider 7/32 or even 1/4-in. music wire. Once this chore is completed, slip the legs in place, and slide on the wheels. Set the fuselage on the bench, and admire it a minute before we continue.

Plank the bottom ahead of the lower wing with lite ply. Everything else gets planked with firm 1/8 balsa applied cross-grain. Cut the cabin top block to shape. Carve a slot for the wing dowel before you epoxy it in place. Mount the motor and install the fuel tank before you epoxy the cowl block in place. Fiberglass the motor compartment, and add some cloth around the edges. I don't think one can build a firewall too strong! Do some sanding now, and catch any of those other little things you may have forgotten.

Tail surfaces. Build them strong and light. I bent the tail wheel gear from 3/32-in. music wire. Use a strip aileron bearing for the tail wheel bracket. Sand the surfaces, and set them on the fuselage until we need them.

Wings. Using a trusty template, cut out 20 main ribs. Cut six centersection ribs, four tip ribs, and 24 false ribs.

Pin the leading edge, trailing edge, and spruce bottom spars down on the plan. The trailing edge must be laminated, since you can't find 5/32 by 1-in. balsa strip stock. Cut the tip parts for both wings at the same time to ensure uniformity. Cement the tips in place, and plank the bottom center section area. Now you can start sticking in the ribs.

As drawn, the plywood dihedral braces are 1 in. too long to be cut from a 12-in. sheet of ply. I cheated and cut them from the shorter stock.

Once the panels are dry, raise each tip 2 in. off the board, and epoxy the dihedral braces in place. Doing them all at one time will help ensure that all the panels are equal. I built the ailerons into the top wing only. As designed, they bank the aircraft in a most scale-like manner. If snappier performance is desired, you could build ailerons into the bottom wing as well.

Now is the time to cement the top spars in place. The shear webs are next, followed by the center section planking and diagonals. Use a block plane to shape the leading and trailing edges. Before you cover the completed wings, imbed a piece of 1/16-in. music wire in each center section of the trailing edge to protect against rubberband cuts.

Continued on page 68



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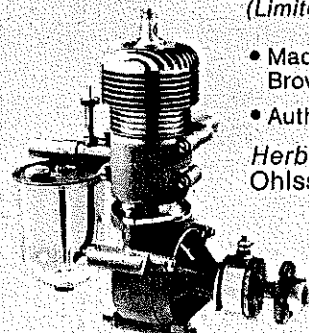
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Miscellany. Doug Pratt is video tape crazy. We play these Prince Valiant adventures through our color TV, and the guys go ape. You have no idea what you see *after* a session, or the gab between guys flying, and fascinating overheard conversations. Video will animate any club.

And we think all clubs should have at least one buddy box system. The rate of learning is fantastic. Confidence comes quickly. If you are a good pilot, a better one can sharpen you up more than you can believe—even to do maneuvers you think impossible.

Local show team has a Tartan Cub in the act, plagued by take-off engine failures. As we said two months ago, smoke does not always mean an engine is rich. When these chaps tached the engine and *opened* the valve three more turns, the rpm came up 1,000—to 7,000. We think an engine should be tached to max rpm from the rich side, then backed off a tad—and even the monsters need to be held nose-up for a lean test.

Bill Winter, 4330 Alta Vista Dr., Fairfax, VA 22030.

Dakota Grande/Wrisley

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Final assembly. Mount your radio, and route the pushrods before you cover the fuselage. Don't epoxy in the wing hold down dowels until after you cover. Install the windows and windshield only after you no longer need to reach through the holes. I used a Williams Brothers 3-in. pilot for added realism.

Now is the time to get critical. Does it balance? Is everything aligned properly? Do the surfaces move freely, and in the right directions? When you wiggle the rudder, does the pushrod flex? Does the engine idle properly?

Flying. Mere words can't describe the feeling one gets before a test flight of such magnitude. Go slowly! Make some fast taxi runs before you ease the model into the air. Once airborne, you will be pleasantly surprised.

I've found that you can fly with the rudder alone. Control climb with power. Trim the model a tad nose heavy to control float on final approach. Until you get the feel of flying your bird, make wheel landings.

As with her little sister, the Grande's forte is the fly-by. Time and time again you will find yourself flying down the runway, low and slow, drinking in the character of a true classic.

Write me in care of the editor, and send a picture of your Dakota Grande.

Nats General

Continued from page 29

The shifting of Nats activities from the San Antonio area was tremendously aided by the availability of another club closer to Seguin. The Tri-Cities RC Flyers, under the leadership of Russ "Bear" Snyder, normally flew on weekends at Seguin, so they were in a better position than the San Antonio ARCS to coordinate Nats matters with the Air Force and to physically assist with Nats preparations. Russ, together with other key Tri-Cities Club leaders—Kai Jensen, Jack Matlock, and Kelso Barnett—did the bulk of pre-Nats work and also during the Nats. In the end, however, all these area clubs contributed significantly: Tri-Cities, the ARCS, and the San Antonio

Continued on page 103