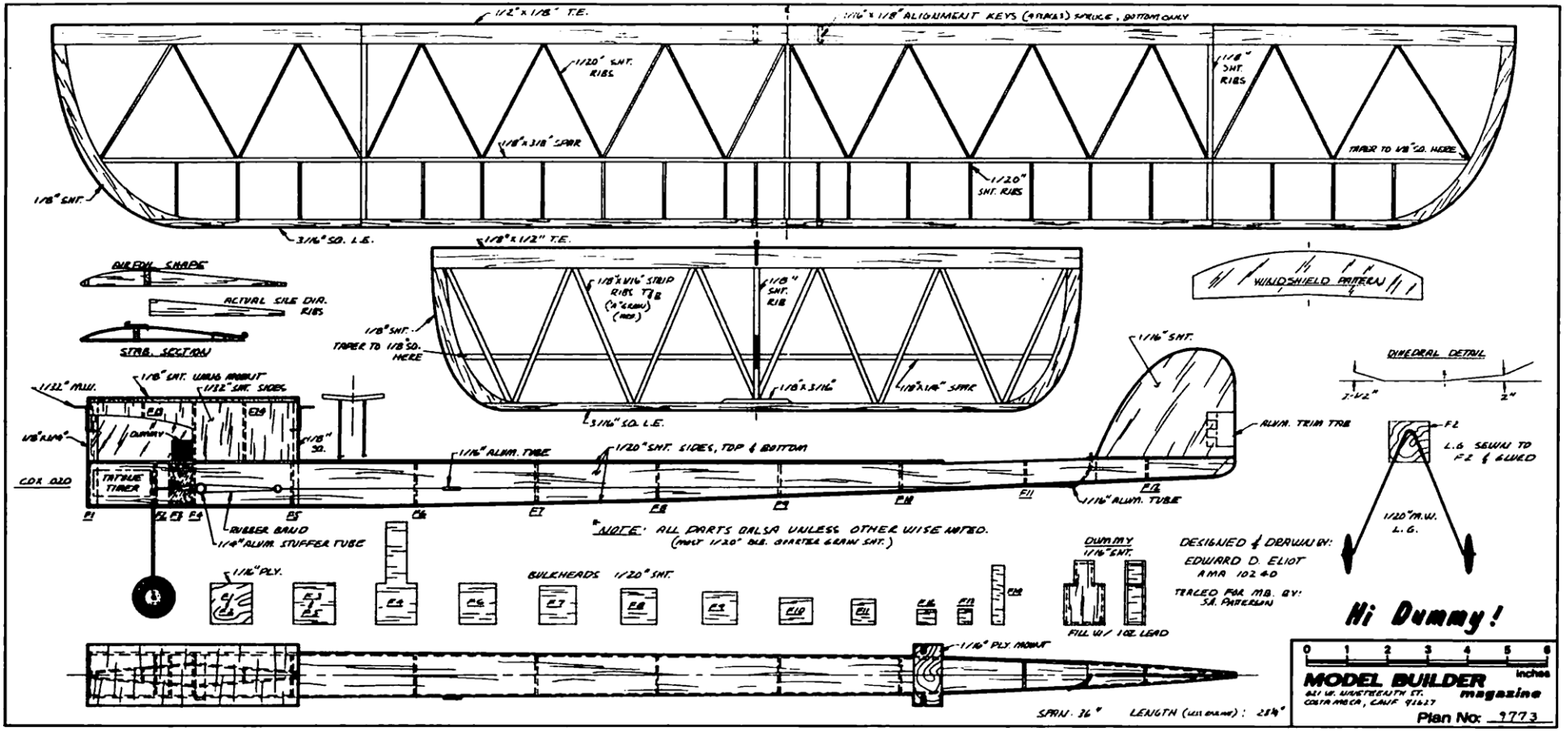

'HI DUMMY'

By ED ELIOT . . . A current Open National Record holder in Pay Load, this model has just won in its class at the United States Free Flight Championships, at Taft, California.

• Easy to build and fly, "Hi Dummy" reflects the current state of development of the Pay Load class model. This airplane can win for you this year and next. Because it builds easily and is easy to trim, it is an excellent design for a beginner's first gas powered model.

Hi Dummy currently holds the Open National Record in its class. To do this, it made consecutive flights of 3, 3, 3, 4, 5, 6, 7, and 8 minutes for a total of 39 minutes. These flights were made in a time-span of about 3 hours on a fairly windy day at Taft. It was no fluke day, and the model performed consistently throughout the contest. This time was high time for that day of any class model. Hi Dummy's most recent contest win was at the Free Flight Champs, this year.

My design criteria for any class model is that first and foremost, the airplane must be capable of consistent performance. This means that the model be so engineered that the power pattern is the same every flight. And *no stalls* allowed during the flight. To achieve these goals, the model must be designed with enough inherent stability to fly well in the wind. Hi Dummy meets the above objectives without special warps, gadgets, secret trimming techniques or an exceptional engine. My Cox 020's all turn a Cox Grey 5 x 2 prop trimmed to 4-1/2 x 2 at about 20,000 or so. This model will do about 2 minutes in the mythical "dead air".

If you are interested, get a set of plans or two and let's begin construction. A hint here . . . two airplanes build just about as quickly as one and give more than twice the enjoyment. Most all the cut-out parts in this model are from one sheet of 1/20th balsa. You will use it in the fuselage and on all ribs in the wing except those at the dihedral joints. The sheet that I used was quarter grained 8 lb. stock. The ribs in the stab are cut from 1/16th "A" grained sheet. I use Titebond glue for all joints except the firewall, dihedral joints, and the stab mount, where a slow-drying epoxy is recommended.

CONSTRUCTION

Following are some general notes on constructing the model. It is my intent to present a set of plans which are sufficiently detailed that you will be able to construct this model without any problems. If this is your first model, find a modeler in your area who can help you with the project, if you can. This modeler will be found at a local hobby shop or flying field.

DUMMY

The dummy may prove to be the hardest part of this model to construct. Mine is built from 1/16th sheet by cutting out the profile front and back and then piecing them together with additional pieces of 1/16th balsa for the tops and bottom. The dimensions shown on the plans are the minimum sizes for this class model. If you make your dummy larger, be sure to increase the size of your fuselage proportionally. Leave the bottom of the dummy open until you have put lead or shot inside. The finished weight of the dummy must be at least 1 ounce.

Young Master Eliot anchors his father's "Hi Dummy" for a photo. It's a National record holder, and just recently won at the 1977 U.S. Free Flight Championships. Not bad!

FUSELAGE

Cut out the sides and bulkheads. Note that the grain on the bulkheads is horizontal. Use epoxy to glue in the firewall and the bulkhead which has the wheels on it. The landing gear is sewn to the bulkhead which carries it, and a coat of glue rubbed in over the stitching.

Use fishing line or a good grade of thread. Don't forget to use gauze on the firewall. The windshield pattern on the plan is a little oversize. This should allow you to get a good custom fit on your model. Use slow-drying epoxy glue on the windshield joints. Cut the rudder to the exact size and shape given on the plans. If you decide to change the size or shape, you will have a differently flying model. Cut and install the aluminum trim tab. Use epoxy here also.

Trimming this model is simple if you install the trim tab. Try it, you'll like it. Mine is cut from aluminum, which is just a little heavier than beer-can material. Glue the rudder into the fuselage as straight as you can. Install the stab mount, using epoxy. Note that it is installed so that the right side of the stab is slightly higher than the left side. This gives us a right glide turn.

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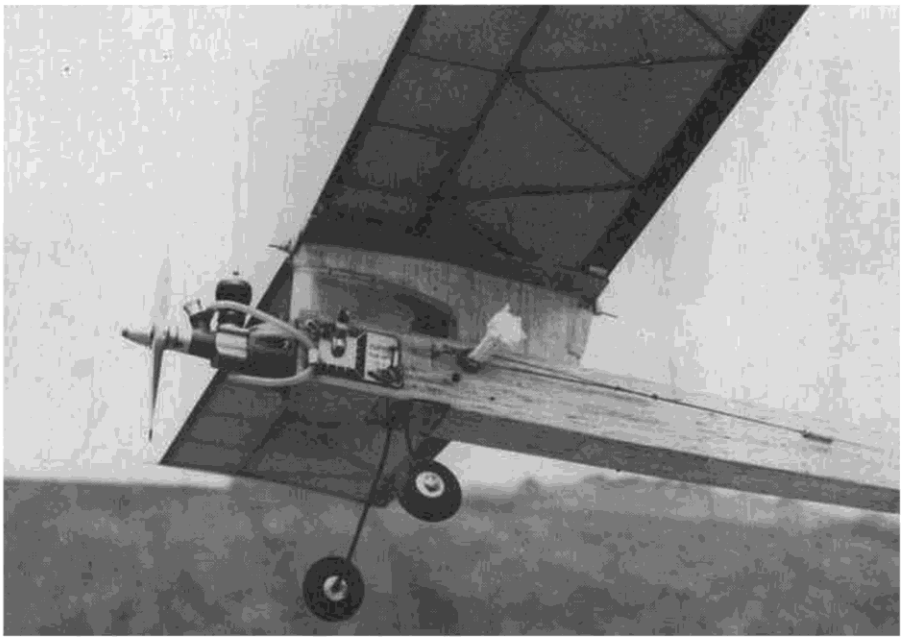

Close-up of the engine timer installation and the DT fuse set-up. Light-weight ships such as this should have the fuse near the balance point, as the fuse weight can be critical.

STAB

The stab layout is borrowed from the Ramrod. This type construction is light, warp-resistant, and strong. It is extremely durable. Start by cutting the tips from medium weight 1/8th sheet balsa. Lay out the underside ribs. Put in the spar and then place the upper ribs into position. Note, this assembly should be constructed so that there is as little stress built in as possible. Cut the ribs from medium weight 1/16th balsa.

WING

An experienced builder will complete the layout of the wing in about one hour. It's that simple! The resulting airfoil provides a better-than-average glide. This type wing construction is strong, light-weight and free of warps. You build it flat and it stays flat. The ribs are cut from 1/20th balsa. Take your time and fit each one into position with no gaps and no stress built in. If you cut one too short, throw it away and cut another one. The rib template on the plan is shown a little long so that you may sand the end of each one for a custom fit as you go. Use epoxy glue on the dihedral joints. Install the 1/8th ribs after the dihedral has been placed in the wing.

COVERING

Cover the wing and stab with Japanese tissue if you can find some. If not, use the lightest grade available. Water-shrink slightly and when dry, apply 3 or 4 coats of nitrate dope which is 1/3 dope and 2/3 thinner. Allow at least 2 hours between coats. The fuselage and rudder are finish-doped with 4 or 5 coats of 1/2 strength dope. This fills the pores of the balsa somewhat and provides a base for the epoxy finish to follow. Finish the model with one coat of epoxy. I use K&B epoxy, as it gives good protection against fuel and wear and provides an excellent gloss over nitrate dope . . . very nice when your model is almost OOS overhead. Let the final epoxy coat set up at least one week. An important part of the finishing process is the keying of the wing. Use small pieces of 1/16th by 1/8th spruce to do the job.

FLYING . . . FINALLY

Hi Dummy is a joy to fly. The most important part of the trimming process of this model should be done at home where there is no temptation to disregard this instruction and "fake it." BALANCE THE MODEL EXACTLY AS SHOWN ON THE PLAN. If you have to add weight to balance the model, do so! You can't tell a 5 oz. Pay Load from a 5-1/4 oz. Pay Load in a thermal, unless the 5 oz. one which is just a tad tail-heavy stalls all the way to the ground! I feel that a model which stalls once in a while will win you a lot of 2nd and 3rd place trophies! My preference is for first place.

Next step in the trimming procedure is to hand-glide your Hi Dummy and shim under the rear of the stab for a floating glide to the right. The third pre-flight adjustment is to put in about 1/32nd left trim tab in the aluminum tab. The last steps in the pre-flight tests are to make sure that your dethermalizer works and that your timer functions with the engine running. Always use a fuse or you will lose this model.

Hi Dummy flies in a right/right pattern. Begin flight testing using a five-second engine run with the engine at about 2/3rds power. The model should climb slightly in a right turn. Fine-tune the power pattern with the trim tab, and the glide with stab tilt and shimming the rear of the stab. Extend the engine run and power setting until your Hi Dummy shows a nice safe right-hand spiral in climb and a floating glide. My model makes 3 to 4 turns during its 15 second climb from ROG.

SUMMARY

Hi Dummy is a happy model. No vices, so to speak. It is my pleasure to share it with you. I hope that Hi Dummy will make you a winner, whether your objective is trophies or for flight after flight of fun flying. Good days! ●