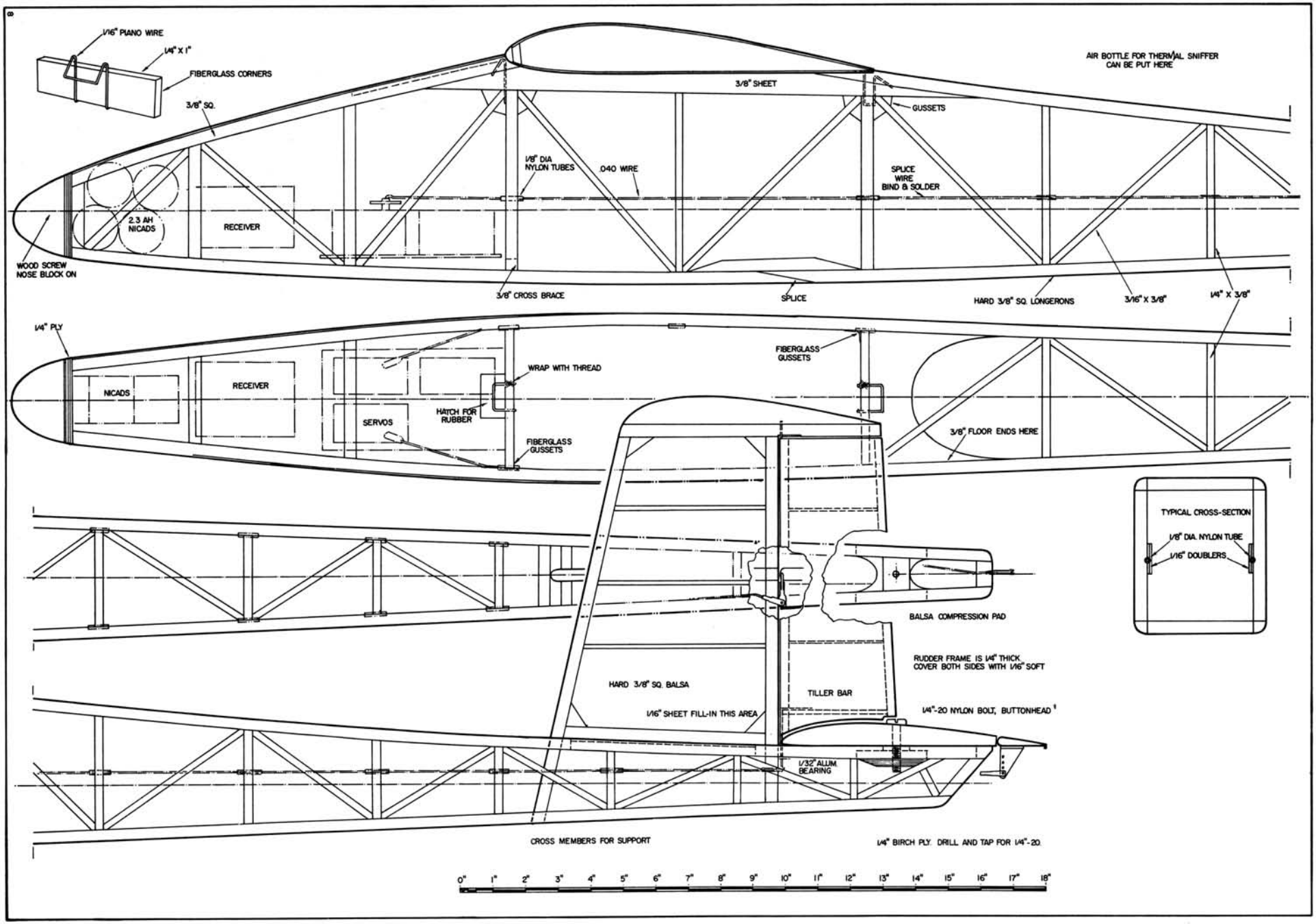

1/16" PIANO WIRE
1/4" X 1"
FIBERGLASS CORNERS
3/8" SQ.
AIR BOTTLE FOR THERMAL SNIFFER CAN BE PUT HERE
3/8" SHEET
GUSSETS
1/8" DIA NYLON TUBES
.040 WIRE
SPLICE WIRE BIND & SOLDER
2.3 AH NICADS
RECEIVER
WOOD SCREW NOSE BLOCK ON
3/8" CROSS BRACE
SPLICE
HARD 3/8" SQ. LONGERONS
3/16" X 3/8"
1/4" X 3/8"
1/4" PLY
FIBERGLASS GUSSETS
WRAP WITH THREAD
NICADS
RECEIVER
SERVOS
HATCH FOR RUBBER
FIBERGLASS GUSSETS
3/8" FLOOR ENDS HERE
TYPICAL CROSS-SECTION
1/8" DIA. NYLON TUBE
1/16" DOUBLERS
BALSA COMPRESSION PAD
RUDDER FRAME IS 1/4" THICK COVER BOTH SIDES WITH 1/16" SOFT
HARD 3/8" SQ. BALSA
TILLER BAR
1/16" SHEET FILL-IN THIS AREA
1/4"-20 NYLON BOLT, BUTTONHEAD
1/32" ALUM. BEARING
CROSS MEMBERS FOR SUPPORT
1/4" BIRCH PLY. DRILL AND TAP FOR 1/4"-20.
0" 1" 2" 3" 4" 5" 6" 7" 8" 9" 10" 11" 12" 13" 14" 15" 16" 17" 18"

It is fitting that we picture this. We tend to forget that Wilber and Orville Wright were model airplane builders. From their frail flying models came success in gliders and powered craft, and we see it today as the gigantic aircraft industry. A slice of the same inventive spirit dwells in the heart of all modelers which is the common denominator that binds us all together. This needs no caption.

A gliding monster you'll never forget:

MAYNARD HILL'S

"BONG-BOOMER"

FULL SIZE PLANS AVAILABLE THROUGH "MODEL PLAN SERVICE"...

...the F.A.I. World Altitude Record Holder

FLYING MODELS

♦ "Bong-Boomer"! What a name for a silent soarer that, at most, gives out a whistle far more faint than the mating call of a bashful teenager! Explanation? Well, the first real thermal that this model encountered was a "boomer" over Bong Air Force Base in Wisconsin on July 23 where the FAI Free-Flight finals were being held. So Bongboomer it is, even though it is a bit undignified.

A few small thermals had been found

11 foot 8 inch in span, but it comes apart, so don't panic.

.35 engines to .60 engines for optional power.

"BONG-BOOMER"

. . . continued . . .

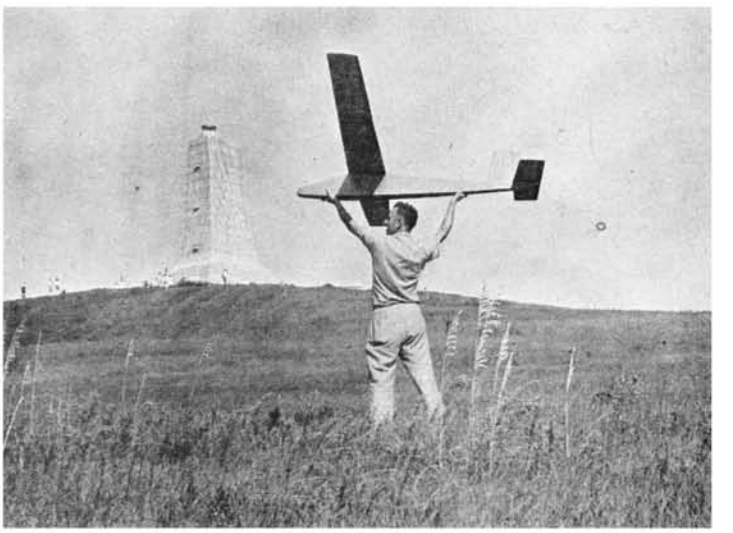
at the DCRC field during several weeks of earlier tries, but none like the boomer at Bong that went right up into the base of a fat cumulus cloud. There was a recording altimeter on board that reported the model had gone to 3,660 feet in about 35 minutes. This gave us a claim to a new world record to relieve Mr. Malikov of Russia of his soaring record of 2,860 feet. Those thermal sharks flying FAI free-flight models were no small assistance in spotting the big one. Also, it was quite a day weatherwise. Floyd Miller, C.D. of the FAI trials recently sent out a summary report showing that about 70% of over 300 flights on that day were "maxes."

But if "Bong-Boomer" is undignified, you should know about the name that hasn't been used yet (and probably never will be). When a Roaring .60 engine is installed on the firewall, this model is called "Foo Too You Too." Explanation? Well, this model was really built for possible alternate use in recapturing the word altitude record for power models from Bill Northrop who calls his 16,610 foot bird "Foo Too." This, as he explains, is a fine homonym for that famous high flying Lockheed U-2. "Foo Too You Too" seems like an appropriate triple homonym.

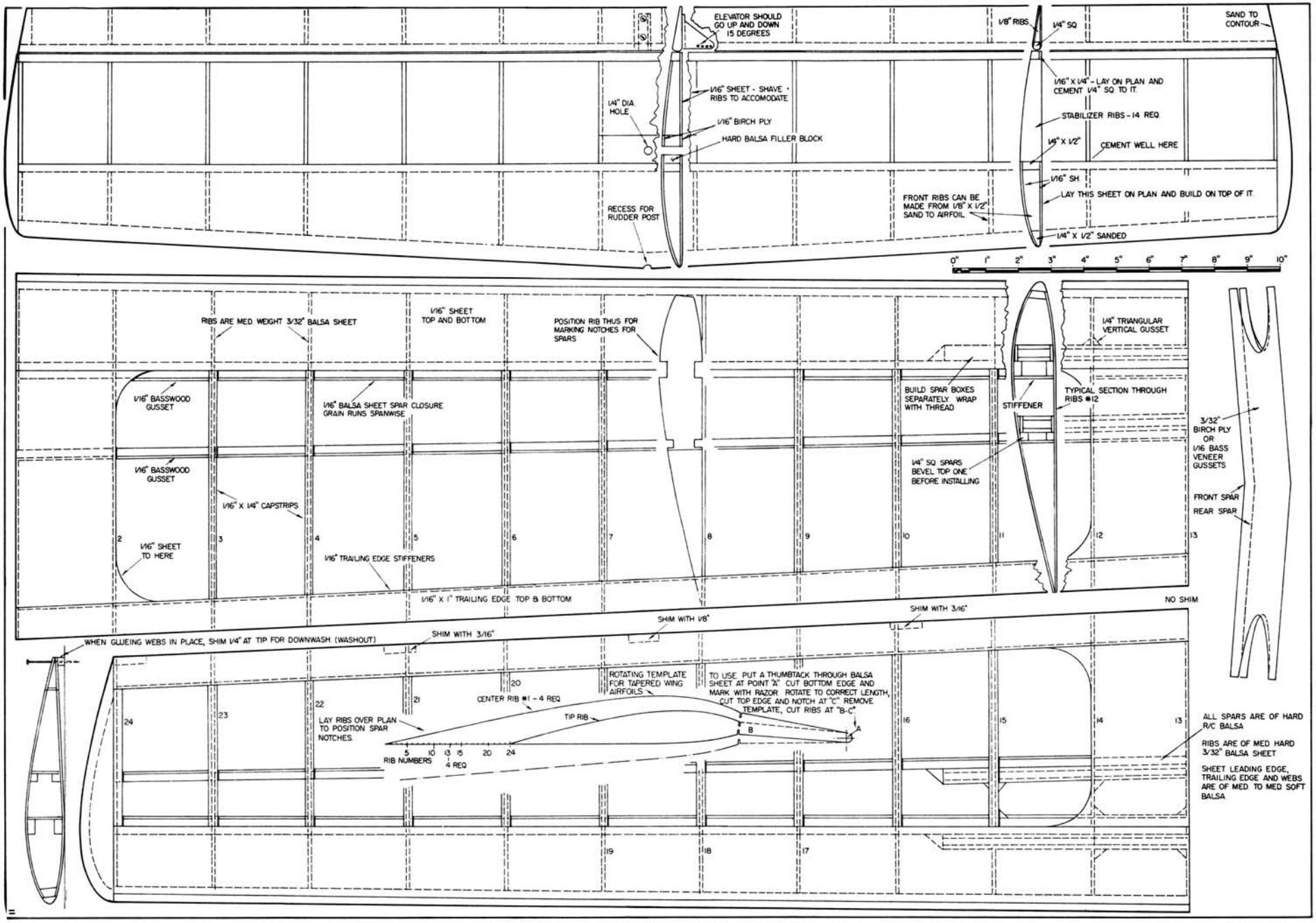
Mr. Malikov and Mr. Velitchkovski of Russia had a good thing going awhile back when they captured distance altitude and duration records from each other about once every year. They racked up quite a string of world records and they are both Soviet "Masters of Sport" now. I thought maybe Bill

Spanning just under 12 feet, with the high aspect ratio that marks the able soarer. Think big for once, it's a simple ship. When you're fat and ninety it's too late to think back and say "I shoulda' built Maynard's Bong-Bloomer or whatever it was." Be a big spender now.

Maynard discusses things with Cmdr. Paul Boyar at Glenview N.A.S. after setting World Altitude Record. Conversation goes like this: "Take your thumb out of my fuselage Paul, you'll rupture the MonoKote" . . . And Cmdr. Boyar replies: "Not until you take that antenna out of my eye will I stop squeezing this antique aerial scow!" Cmdr. Paul Boyar has long been helpful in A.M.A./U.S. Navy relations in organizing the Nationals on Navy bases for past 18 years.



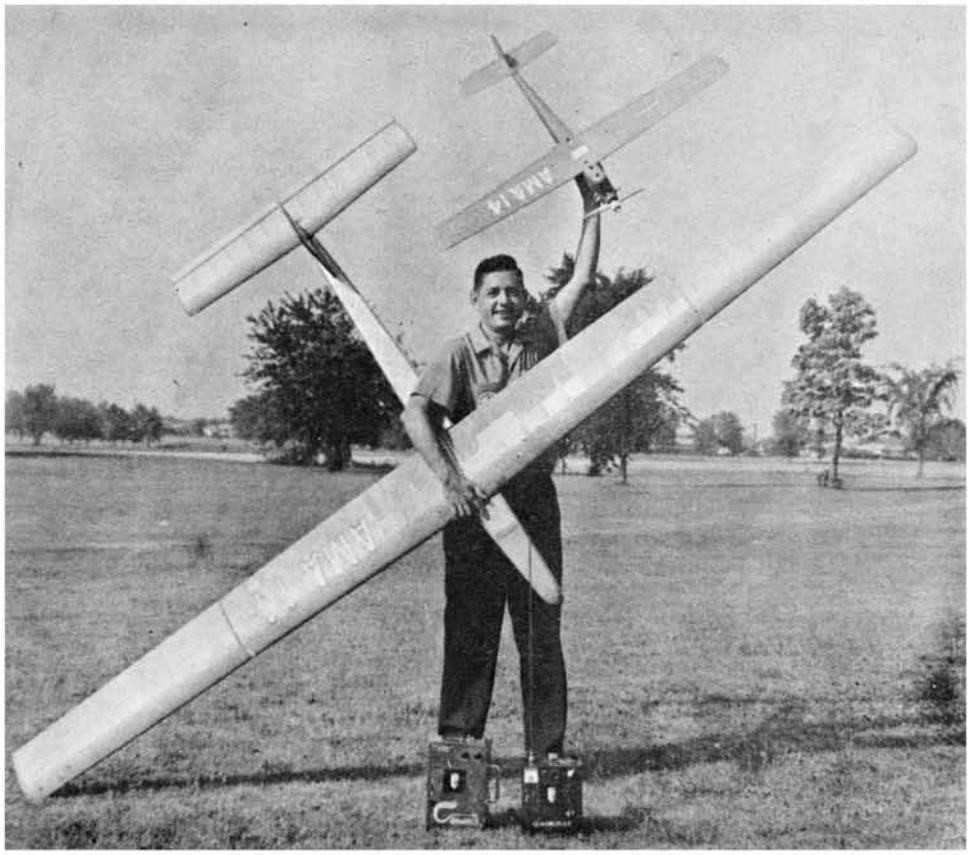
Where it all began. Kill Devil Hills, North Carolina, scene of the Wright Brothers momentous flight. Bong-Boomer feels at home here.


ELEVATOR SHOULD GO UP AND DOWN 15 DEGREES
1/8" RIBS
1/4" SQ
SAND TO CONTOUR
1/16" X 1/4" - LAY ON PLAN AND CEMENT 1/4" SQ TO IT.
STABILIZER RIBS - 14 REQ.
1/4" DIA HOLE
1/16" SHEET - SHAVE RIBS TO ACCOMODATE
1/16" BIRCH PLY
HARD BALSA FILLER BLOCK
1/4" X 1/2"
CEMENT WELL HERE
1/16" SH
LAY THIS SHEET ON PLAN AND BUILD ON TOP OF IT.
RECESS FOR RUDDER POST
FRONT RIBS CAN BE MADE FROM 1/8" X 1/2" SAND TO AIRFOIL
1/4" X 1/2" SANDED
0" 1" 2" 3" 4" 5" 6" 7" 8" 9" 10"
RIBS ARE MED. WEIGHT 3/32" BALSA SHEET
1/16" SHEET TOP AND BOTTOM
POSITION RIB THUS FOR MARKING NOTCHES FOR SPARS
1/4" TRIANGULAR VERTICAL GUSSET
1/16" BASSWOOD GUSSET
1/16" BALSA SHEET SPAR CLOSURE GRAIN RUNS SPANWISE
BUILD SPAR BOXES SEPARATELY WRAP WITH THREAD
STIFFENER
TYPICAL SECTION THROUGH RIBS #12
3/32" BIRCH PLY OR 1/16 BASS VENEER GUSSETS
1/16" BASSWOOD GUSSET
1/16" X 1/4" CAPSTRIPS
1/4" SQ SPARS BEVEL TOP ONE BEFORE INSTALLING
FRONT SPAR
REAR SPAR
2 3 4 5 6 7 8 9 10 11 12 13
1/16" SHEET TO HERE
1/16" TRAILING EDGE STIFFENERS
1/16" X 1" TRAILING EDGE TOP & BOTTOM
NO SHIM
SHIM WITH 1/8"
SHIM WITH 3/16"
WHEN GLUEING WEBS IN PLACE, SHIM 1/4" AT TIP FOR DOWNWASH (WASHOUT)
SHIM WITH 3/16"
ROTATING TEMPLATE FOR TAPERED WING AIRFOILS
TO USE PUT A THUMBTACK THROUGH BALSA SHEET AT POINT "A" CUT BOTTOM EDGE AND MARK WITH RAZOR ROTATE TO CORRECT LENGTH, CUT TOP EDGE AND NOTCH AT "C" REMOVE TEMPLATE, CUT RIBS AT "B-C"
20
CENTER RIB #1 - 4 REQ
22 21
LAY RIBS OVER PLAN TO POSITION SPAR NOTCHES.
TIP RIB
24 23
16 15 14 13
5 10 13 15 20 24
RIB NUMBERS
4 REQ
19 18 17
ALL SPARS ARE OF HARD R/C BALSA
RIBS ARE OF MED HARD 3/32" BALSA SHEET
SHEET LEADING EDGE, TRAILING EDGE AND WEBS ARE OF MED TO MED SOFT BALSA

...and the needle on the drum recorded 3,660 feet:

"BONG-BOOMER"

...continued...



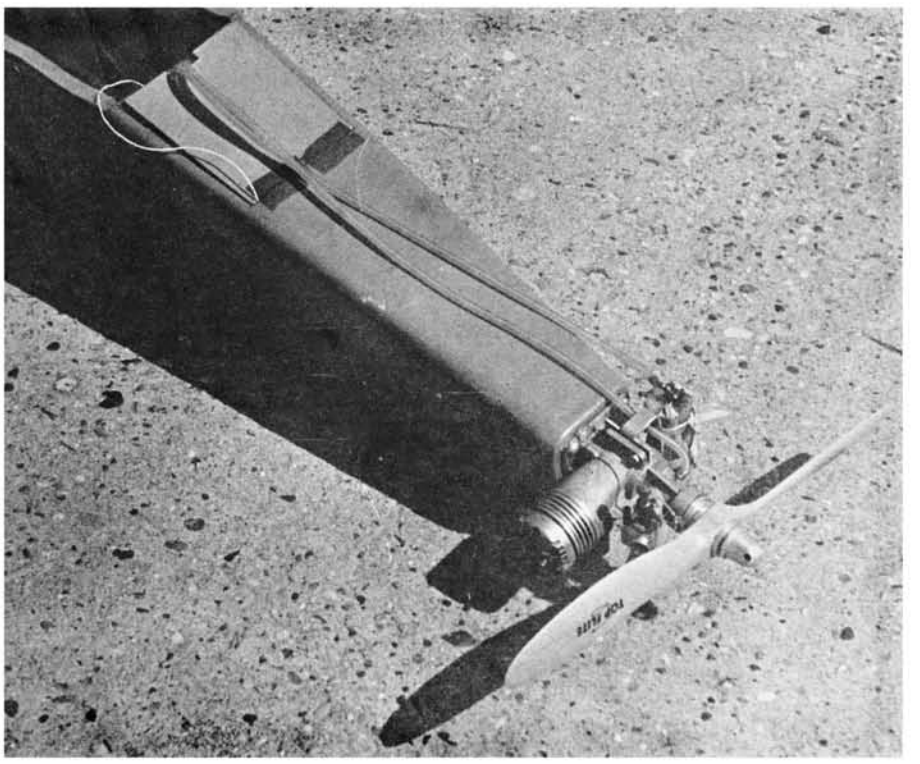
Contrast in two F.A.I. World Record holders is very pronounced. A 25 mph glide on the soarer, 140 mph on Maynard's R/C speed ship Quadruplex Proportional serve as the brains in both of his aircraft.

and I could play that game for awhile and we could become U.S. Masters of How to Have Fun at R/C. But "Gad Zooks"—he plays a rough game! 16,610 feet is a long way up there. So far it's been no-go and already one model has been lost to the crabs at the bottom of the wide, wide Potomac near Dahlgren, Virginia.

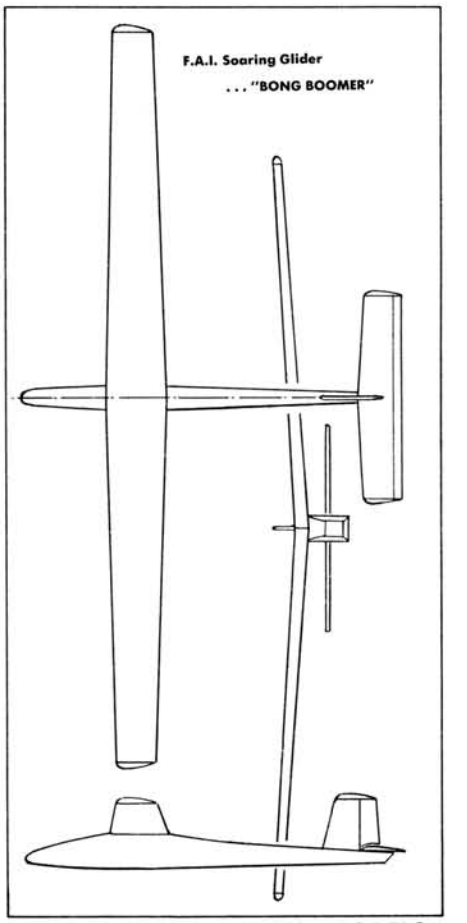
So back to soaring. It's an exciting and invigorating sport. With an automobile or electric winch for towing, there's just about as much exercise involved as in a good game of golf. But the pleasurable thing about it is that there's no 18th hole that you have to quit at—you can do it all day and still be eager for more. It has the gambling aspect about it, too. On every tow up, your thoughts are "Maybe this time I'll be able to hook a thermal and I won't have to hike over to the winch to get the tow hook." And when you do find the thermal you can break out the chaise lounge and lemonade and enjoy yourself in a game of guessing where the next one will be. It's quite a different sport from zipping a multi-mosquito all over the sky—and if you imagine it

(Continued on Page 27)

...and, coming next issue: **Maynard Hill's "BAROGRAPH" altitude recording device.**



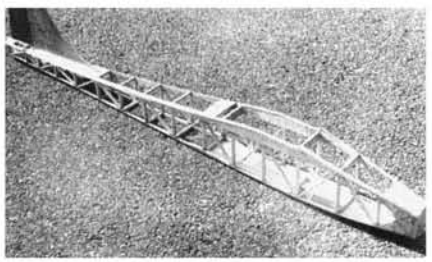
Gas it up on pay-day. Three quarts of fuel stash away in the fuselage on powered "Foo-To-Ycu-Too" version. Feeds the Merco .61's terrible thirst on duration hops. Crankase compression pumps it forward to small tank at engine with float chamber, demand valve, at a constant pressure for the engine. Maynard's alternate duration ship.



"BONG-BOOMER"

would be dull, you may be right. But then again, it might just be your kettle of fish. If it is, you can hardly imagine how well you'll sleep after a day of that kind of fun. A Mack truck in the basement would hardly distract you.

But how do you find thermals? Well, surely the first thing you need is a glider. This article shows one that's relatively easy to build. Your reaction to some of the photographs is probably "Gosh that monster is an ambitious project." But in reality, to build 'em big is hardly any more work than building 'em small because the same number of pieces are involved and there's room for clumsy fingers. The bill for balsa and dope is slightly larger than normal —and even with a 2½" wide brush, it takes a little time to paint. But there's



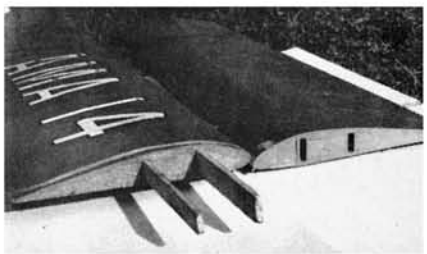
The basic bones. While glider is large, framework is very easy for any modeler. Durable too.

no need to be frightened by the size unless you're one of those guys who just must have a rubbed mirror finish on your models. For these guys, this is not a recommended project. However, one thing that's been proven is that it will fly with a dusty-musty finish with 15 or so gaping holes punched in the surfaces, for that was the condition of the one that flew at Bong.

The size of this model was decided by a very arbitrary factor—namely, the fuselage and center-section of the wing can just barely be squeezed into the trunk of a 2-door 1964 Chevrolet. If you own a Cadillac or a station wagon, you might want to make it even bigger. You can get it all into a VW, but your wife and kids will have to sit small and still!

If you have qualms about the size, you might prefer to blow the plans here into a 9-foot version. This would fly quite well with the normal load of R.C. multi equipment. And you'll have plenty of thermal fun at that size. The big one is more easily seen and you can be more bold about letting her drift further up and out when you do get in the big ones. That's the main reason for the size. At 3,660 feet and a mile downwind, you can still make out what the model is doing. Not well, mind you, but you can tell. Somehow it seems that all good thermals are downwind and that old ingrained R.C. habit of flying up-wind is one you've got to learn to break when soaring.

Construction of the model is fairly simple and conventional. The wing and stabilizer are the important elements and care must be taken to build them warpless. The fuselage is simply something that's needed to carry the radio and to hold the wing, stabilizer and rudder together in correct aerodynamic fashion. You may feel the same as some other people who've commented to me about the ungainly "pelican" appearance of square fuselages with droopy noses. If you do, there's no reason why you can't go creative and change the outline or cross-section of the fuselage so long as you maintain the lengths and decalage shown and wind up with the C.G. between 20 and 30% of the wing chord. For me, a square fuselage does the trick fine. It's quick, and you can't tell if its square,



Wing panels connect like so. Spruce spars, ski-waxed for easy insertion in humid hot weather.

round, sleek, or what at over 500 feet altitude, which is where the thing belongs anyway.

If you go the square route, build two fuselage sides on top of each other simultaneously. It's a good practice to double glue all butt joints, letting the first coat soak into the grain before finally gluing it into the structure. Don't worry about glue that runs down joints and fastens the two sides together. Simply borrow one of the steak knives from the kitchen and cleave the two sides apart after you've removed them from the board and sanded them to identical shape. When separated, file notches on the inner sides and install the nylon control guides and control wires right now. Put these at an appropriate position for your particular set of servos. Leave some excess on both ends of the control rod to make final hookup. You must do this at this point in order to get them installed in a straight line for low friction. Put the 1/16" doublers over the nylon guides. After cutting the 3/8" floor to proper shape, glue it between the sides to establish the top view shape. Put the top cross braces (with the wing hooks preinstalled) in at the wing leading and trailing edge stations at the same time and also at the very nose. Pins won't hold this large lumber together adequately unless you've got some extra large ones that are nearly nails. So grab a roll of masking tape and wrap several layers around each of three stations to pull it together tightly. Let it dry and then the fuselage can be completed easily from that point on. The diagonal bracing on top and side views is really necessary to get torsional rigidity—if you skip 'em you might see the tail section shake off when you try to dive out of that big "boomer."

The firewall of ¼" plywood is fiberglassed to the nose so you can put any engine from a .19 to a .60 up front if you decide not to be a purist. Removal

of the contoured nose block and replacement by an engine takes only 10 minutes—and engines are handy things to have on overcast days. A two ounce tank with a couple of soldered lugs can be bolted directly to the beam mounts on the engine to make the engine an integral package. Two ounces of fuel and a .35 engine will get you 800 feet of altitude to play with.

Wing construction is a conventional "D" spar type. A single rotating template shown on the drawings can be used to cut all ribs to their outline. Notching for the spars is done by placing the ribs at their proper station on the plan and marking with a pencil or razor cut. If you prefer, they can be stacked. nailed together and notched with a Zono saw.

The joiner spars for holding the tip panels on must be either a very hard balza or soft pine. A friend with a table saw is a handy thing to have to get these to the proper size. Sand these joiner spars smooth and coat them with ski wax, shoe polish or something similar. Wrap them with one layer of wax paper and then build the box receptacles around them using 1/16" birch plywood on top and bottom and 1/8 balsa for the sides. The wax paper will prevent you from glueing the spar to the

inside of the box. Wrap them generously with thread and coat them externally with glue. When dry, pull the spars out and saw the boxes to the proper length. Remove the wax paper and you should have a nice sliding fit. You must have a little slop in this fit—or else when you go flying on a humid day, you'll find the spars swollen and difficult to get into the boxes.

The wing is built in four separate panels. Pin down the bottom 1/16" sheet trailing edge and the front bottom spar. Jack this spar 1/16" off the board using slivers of 1/16" sheet. Install ribs and the top 1/4" x 1/2" spar and also the 1/4" thick leading edge. Now you can lift the panels from the board.

Sections of appropriate ribs are removed by means of a Zono saw to make place for the box spars after the "D" spar leading and trailing edges are completed. Then the wing panels are lightly pinned to a flat board and the boxes are glued in with the spars inside of them to insure proper alignment. Fill in the rib contours with scrap balsa and after drying, separate the tip panels.

After sanding the 1/4" leading edge support, the sheet leading edges, rear spars and trailing edge can be installed with the individual panels being held free in your hands. Don't worry too much about warps at this point. You'll find that when you install the vertical webs between the ribs at the leading and trailing edge, thus closing the "D" tubes, the structure locks into a warp-proof deal. (You can subsequently cover and paint without pinning down.) Be sure to put a glue fillet in all of the 90° corners formed between the webs and ribs. A small paint brush is handy for this. The center panels are pinned flat to the board for this webbing operation. However, on the tip panels, the front spar is pinned to the board, but the trailing edge of the wing is twisted up 1/4" at the tip by putting shims under the trailing edge. Installing the webs locks in this downwash. Webs are also installed on the rear spar to add rigidity. Let the glue dry thoroughly before unpinning the panels from the board.

Now, join the center-sections using 3/32" birch plywood or 1/16" single ply basswood gussets. Cover the appropriate remaining sections with 1/16" balsa and apply fiberglass to the dihedral joint. There's lots of stress at this point when pulling a loop—so do it well and put two layers at the center. Complete the wing by installing 1/16" x 1/4" cap-strips.

This wing is somewhat different from one of the common European practices of employing heavy piano wire at the center dihedral joint. By making the separation out at the half-span point, the stress loads on the joiners are greatly reduced. The wing as fabricated here is capable of withstanding a vertical dive of terminal velocity. This may not be true of some of the center joined wings which give the impression that they might make like an ornithopter and then shed wings in such maneuvers. One might perhaps presume that steep dives are an unnecessary capability, but in practice one soon finds it is sometimes difficult to get out of a boomer with mild dives, particularly if it's carried you up to a point where you can't see the model well. And should you ever encounter a large cumulus cloud that sucks you right into its hungry belly, your automatic reaction will be full down elevator to get back into sight. It could be disappointing to see three pieces instead of one come back out the bottom!

The "Bong-Boomer" wing and stab were covered with silron and doped a bright orange for good visibility. Some deep opaque color such as red, orange, or yellow should be used. Blue, green, and white are all pretty colors on the ground—but they are not very good in the air on a typical soaring day. A 2 1/2" wide brush is really not a bad instrument for getting the painting over and done with in a reasonable period of time. MonoKote was used on the fuselage in the glider version, and silron in the power version because it was felt the extra torsional rigidity that could be gotten with doped silron would be a safety feature, should the model get into a full power dive. This maneuver is untried to date and isn't recommended.

Unless your box spars are really very sloppy fits, friction is an adequate force to hold the tip panels onto the center-section. Mystic cloth tape is a useful thing to apply over the joints to buy a little extra confidence. At one time, I used quite soft balsa for the joiner spars on the theory that the tips might be knocked off with little damage in a hard landing. But!—even the jolt from a relatively soft landing sometimes resulted in cracks in the spars at the joint. One time we unknowingly towed it up on the winch with such cracks present. At the top of the tow, the left wing panel departed, and we had a glorious spiral dive that terminated in a furious dust cloud. Incidentally, up to that point, the model did have a very shapely oval fuselage—but I was now eager to get back to flying so its replacement turned out square. There was no noticeable difference in performance. Also, there have been no crack problems with the spruce spars now in use.

Well, now if you've got a glider built and ready to go, it's time to talk about how to fly it and find thermals.

With the C.G. at 20 to 30% of the chord, and the tow hook at the leading edge station you should have no trouble geting towed up with a winch, a bicycle or an automobile. You will find that you'll have to cram the radio and batteries as far up into the nose as possible to get the C.G. to 25%—and the 6 ounce hunk of brass in the nose fairing as shown will probably be needed in spite of this effort. A 6 to 15 ounce engine also makes a good counterweight and doesn't seriously impair the glide. The 6 ounce weight is really a good idea, for then you can install an engine with little change in trim or flight characteristics.

An electric winch is a handy thing to have—and one of these was described in Model Airplane News, August 1966. Cross-wind tows are a bit hairy, and you should avoid these until you've gained experience. You will not be able to tow by hand and running unless there is at least a 10 mph breeze. If you have an eager youngster at the field on a bicycle, he'll usually be delighted to hold one end of the line and pedal for all he's worth, which is what it will take on a calm day. Don't worry about his going too fast. Simply tell him to go for broke and then you compensate by applying down elevator if the model is ascending at a rate that makes you feel like the wings might come off. Actually, on dead calm days, we tow at 30 to 35 mph using an automobile and apply a little bit of up elevator during all stages of the tow. But for first flights, 25 mph is a safe figure to use. A passenger in the car can spot the model and tell the driver to increase speed if the model is not rising rapidly.

No radio release of the tow cable was used on "Bong-Boomer" on the philosophy that if your R.C. equipment is working properly, the model can be steered out of difficulty. And if the radio is not working, what good is a radio release? Most all the gliders in the DCRC club have a simple hook secured to the fuselage. You get off automatically when the tow stops, or you can either dive off or loop off by giving appropriate commands if you really want to get off early. We use 50 pound test line. The aluminum hook shown on the drawing will bend out and release you if you get to pulling too hard. We've occasionally torn 50 lb. test lines.

You get maximum altitude by towing at a speed that allows you to use some up elevator throughout the tow. This is about 30 mph with this model. We use nearly 1,000 feet of line and can get 600 feet of altitude with a winch on a day with a gentle breeze. 800 feet is often obtained with the automobile tow.

So now that you're up there, how do you find that thermal? Well, it seems the best way is for you to not try to find it with your little old radio. Instead, the best way seems to be to let the model find it for you. You can get some very good lessons by going to a Free-Flight contest. Those FAI finalists at Bong taught some techniques that are almost unbelievable. It seems they trim their models on the very brink of a stall. One after another, you could see those things sort of squeaking around the sky in a big mushy circle until they hit some turbulent air, whereupon one wing drops, the tail kicks up and away they go wheeling quite tightly. After

"BONG-BOOMER"

(Continued from Page 41)

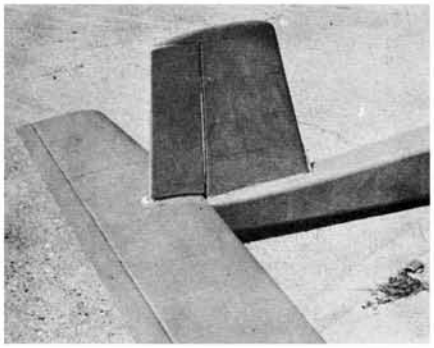
watching this for several hours and talking to some of these experts, I decided to take their advice and let the model do what it wished to do. The radio trim knobs we set so that in hands off attitude, that big old 12 foot wing would wheel around in about 50 foot circles. Then the stick was used only to trim into a larger circle at a near stalled attitude. As soon as I felt any turbulent—or uncommanded turns, I simply let go of the stick and let her wheel. Lo and behold, it went up—up and up until it was finally about a mile away and disappeared into a cloud at what we thought was about 5000 feet of altitude. On many flights since then, we've found this to be a good technique. Ray Smith of the DCRC club is really the best thermal sniffer around, and he uses essentially the same technique, except he flies practically all the time using only trim knobs. He has one other gimmick which we just pooh-poohed awhile ago—namely he uses a very flexible dihedral joint—and when his model enters a thermal, the wings make some visible joggles and flops. There is indeed a marked advantage to this structural approach, but I don't like the potential disadvantages that can occur if you get into trouble way up there in the sky.

One of the best ways yet that I know of to find a thermal is to follow Ray Smith around the sky. This is no joke. It does help to have four or five gliders up there at once. One guy finds a good one and we all pile on until it's over with. Then we fan out and look for another. Dale Willoughby with his Kurwi was no small help in this way at Bong. Buzzards are also very helpful—and they're not selfish about their thermals. They don't seem to mind at all if a monster four times their size joins up with them.

A variometer type of thermal sniffer has been developed. This uses a small transmitter in the airplane to send a signal to a ground receiver when the model enters a thermal. This was described in the February 1966 Model Airplane News. This is a good method, provided you have the patience to fuss with all the extra paraphernalia. But it turns out that the model's instincts are nearly as good as this more exotic method and so the device is seldom used. It was not on board at Bong.

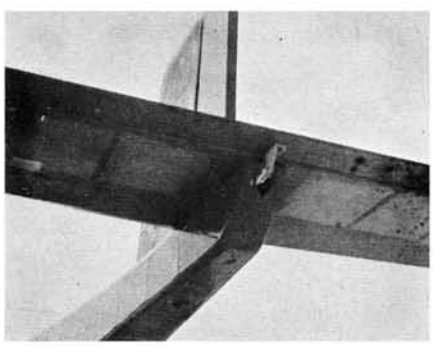
. . . something worse than "Dewey's Hill" even:

I have not yet had the opportunity to slope soar—but Dale Willoughby is quite an expert on this phase of it—and from his enthusiastic discussion, it can only be concluded that it's quite a sport. I cannot resist telling a little tale about Dale's enthusiasm. He served as C.D. at the Bong event—and we were tired, hot, hungry, thirsty, dirty, and many other things on the way home. But Dale had picked up a brochure at one of Wisconsin's excellent traveler's information booths. The brochure reported there was a ski slope about 30 miles southwest of Bong. We just had to drive by that way to see if it might be suitable for slope soaring. The ski hill was a mere 100 feet high, had telephone poles on it and didn't look very inviting to me. We nearly tore the tires off my Chevrolet trying to get up a steep gravel road (marked no trespassing) to look at the far side, which I felt sure also had telephone poles on it. I gave up before reaching the top and said "Dale—let's go eat and go home to bed." We stopped at a restaurant that had a picture window through which this little telephone-poled molehill could be seen. It was dead calm—and I kept telling Dale—"Now look here—there isn't enough wind anyway," but his enthusiasm just wouldn't die like the rest of the tired world does. Every time one of those little pennants at a gas station next door would wiggle the very slightest bit he'd jump up, point at it and exclaim, 'Hey Maynard! There's a hurricane out there!" Fortunately, it got dark while we were eating—or I'm sure we would have had to find another road up that hill.



¼/20 standard thread nylon screw is ideal for simple and quick stab attachment. Rudder hinges just forward of the stabilizer. Easy to build.

So here we are with you at the top of a thermal and we start telling stories. It would be best to talk a little bit about getting back down, for sometimes it's not as easy as you might expect. There are several cardinal rules you should follow. First, unless you've got a model that's been tested in steep dives, don't let yourself get so high that you can't make out the attitude of the model. You will be absolutely amazed at how violent a bunch of unintentional loops you can do and still gain altitude in a real "boomer." You should rig up the linkages so that full down will produce at least a 60 or 70° dive. On "Bong-Boomer"—this takes about 15° down elevator. On some days, it's not enough to just be able to dive in spirals—for you can get blown a long way downwind doing that. Some days you'll want to point that noise straight at you and come home as fast as you can. If you do get some altitude to burn, you'll find loops, wingover, tail slides, and even Immelmans are something different with a glider.



Over-hanging elevator makes for simple linkage.

When you've brought her back close to home and are preparing to land, there is another cardinal rule to follow. Namely, commit yourself to landing if you get below 100 feet. Follow this rule rigidly, or at least until you've got a pile of landings under your belt. It's extremely rare to catch a thermal at less than 100 feet anyway. When making your approach, kick in a bit of down elevator to keep the nose down and keep a bit of surplus speed—particularly if there's a row of trees or buildings nearby. Landing is the only time you'll feel you'd like to have ailerons on the model—and you feel the need desperately sometimes if you get to flying slow with up elevator and then hit a burble off the trees. The burble might leave you in a steep bank, and there's just no way to lift that wing other than to kick down elevator, build up speed and apply opposite rudder. If you let this happen to you at less than 30 feet, the ground will surely come up and hit you before you manage to lift the wing. So keep up that speed to keep both wings reasonably far away from the stall. Drive it right on down to three to five feet before you relax on the elevator—and then do it carefully so that you don't balloon back up and stall there.

You would be wise to wait for a calm day for your first landing attempts with any glider. It takes a little more turbulence to disturb this big bird as compared to smaller ones, but it also takes a little more air to recover if you hit it. On a calm day, you can make some long straight approaches and practice flying right down to the deck with excess speed—and this will put you in much better shape for flying in up to 15 mph winds. There's seldom any useful thermals on days when the winds are above 15 mph. These are good days to have a radio controlled sailboat stuffed in your automobile.

You may wish to struggle some ailerons onto the wing tip panels. This is more feasible with the tip separating design than with the center plug in type, but it's still an extra effort. My guess would be they'd have to be at least 1½" wide, move 15 to 20° and stretch the full span of the tips to do much good in slow speed flight. These

would doubtless be very helpful for slope soaring on molehills with telephone poles on them. But they are not at all essential for thermal soaring. The added complexity does not even seem worth the possible benefits in landing maneuverability—provided you pick up the habit of keeping up speed.

Now if you want to see something that looks peculiar, leave the wing tips off sometime and tow it up. This was tried as a glider speed model—and it flew quite well. It was more maneuverable in turns and didn't sink very rapidly. It would probably be O.K. as a slope soarer. The model has also been flown with power (a Merco .60) with and without the wing tips—and when throttled back to about ⅔ power, it felt like a fairly respectable training model. That enormous stab and long fuselage make it stable as a rock in pitch. A special cradle has been installed on a tool box for engine starting and there is no real difficulty in hand launching this bird one handed while holding the transmitter in the other. People look up at the weird short winged version and laugh their heads off. But fun is what this hobby is all about, isn't it? It really doesn't cost anything even if they are laughing at your expense.

The DCRC is contemplating a glider-only contest in 1967. We hope we'll see you there with a "Bong-Boomer" or some other breed of great pleasure in silent R.C.

"OK, I'll be there, I'm a big-plane nut too." . . . (The Editor). ●

Dale offers his congrats to Maynard after the record breaking hop at Bong Field, Wisconsin.