VAGABOND

By William Winter

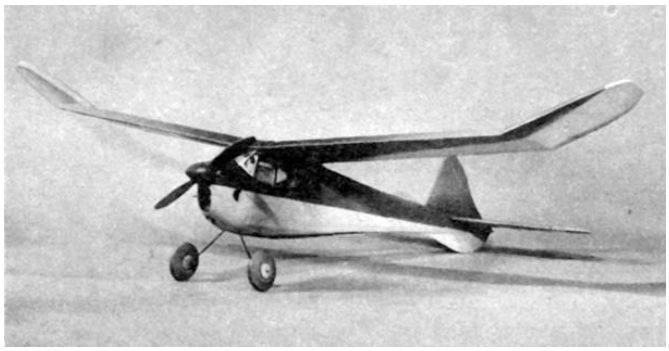
THIS SUPER ENDURANCE JOB IS THE ANSWER TO THAT OLD PROBLEM: THE COMBINING OF REALISTIC LINES WITH REAL FLIGHT PERFORMANCE

THE Vagabond was designed to fill an increasing need for a reliable cabin-type Class C model. Somehow, most of us have concentrated too much on the smaller A and B class ships. Though our Vagabond was powered with a good old Brown-a reliable engine if there ever was one-there is no reason why an Ohlsson, OK, or Super Cyke cannot be used. Because of the numbers of engines of various makes that are in operation, the plans have been drawn for one of them, the Ohlsson. The Brown, if you have one, requires relocation of the bearers at the bottom-of-the-window line.

Outstanding aerodynamic feature of the ship is the high aspect ratio wing. It is a fact that high aspect ratio wings have better performance both for climb and in the glide. However, Vagabond's wing is of a slightly lower aspect ratio than the one used on Wog in the February issue. Wing construction is conventional, calling for polyhedral and a sheeted leading edge. Two auxiliary spars besides the sturdy main spars, are sufficient insurance that the wing is strong enough for rough usage. The force diagram is approximately the same as we used on Wog: a high thrust line to reduce looping tendencies, a ***high*** center of gravity position in relation to a low center of lateral area, this latter characteristic having a great deal to do with the elimination of power spiral dives, the bane of so many otherwise good ships. The fixed landing gear has an important effect on the- flight characteristics of this ship so we urge you not to replace it with a retractable one.

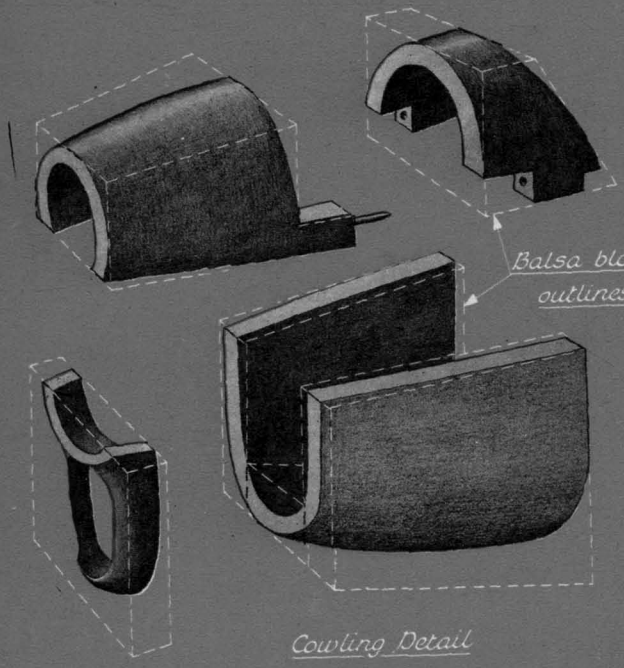
Construction is conventional. The fuselage is a box, rounded with sheet balsa formers and stringers on the bottom. The nose is made from soft blocks as shown in the detail on the plan. The top part of the block slides forward for removal. Simply take off the prop and pull the top block forward. Two plywood formers support the motor mount and the landing gear, which is held in place by glued hardwood blocks. Note the location of the battery box above the motor bearers and, directly below the batteries, *(Turn to page 90)*

The clean, crisp lines are outstanding. Note: staggered tail surfaces.

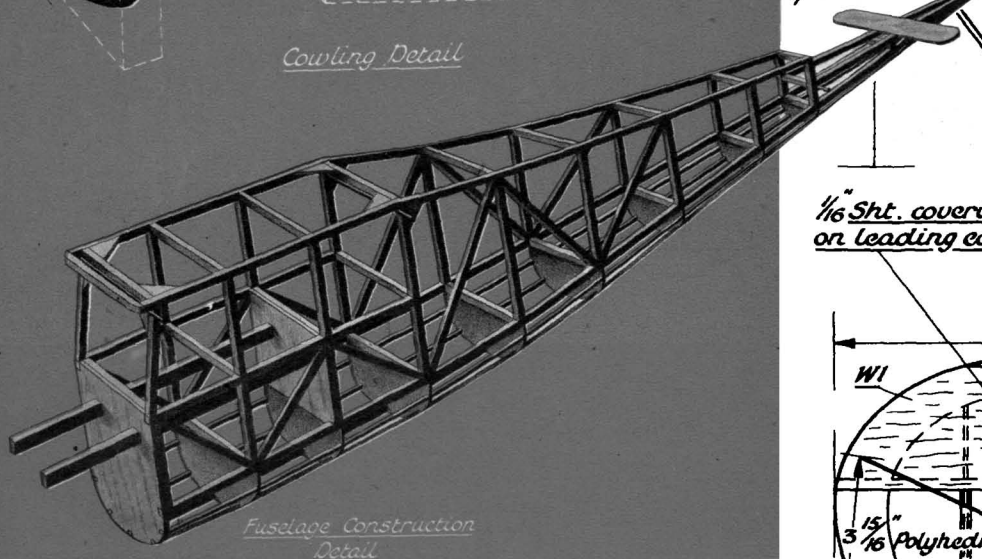


The realistic cabin, cowling, and spinner details are of simple construction.

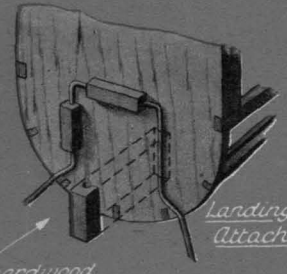
VAGABOND



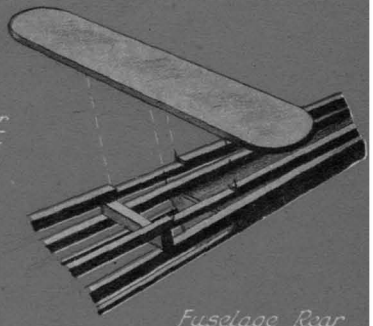
Cowling Detail



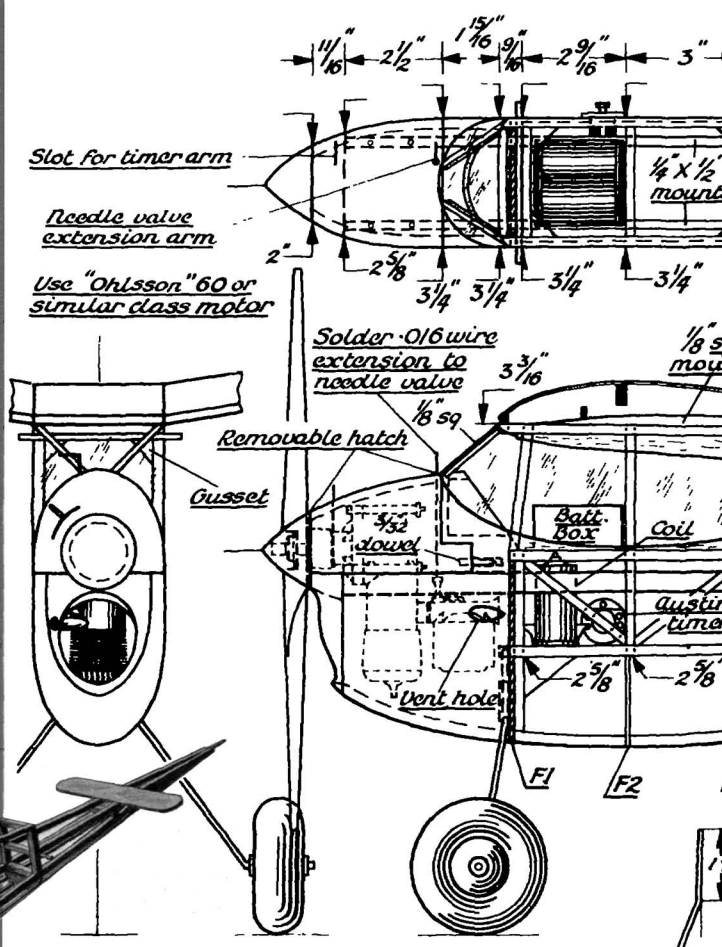
Fuselage Construction Detail



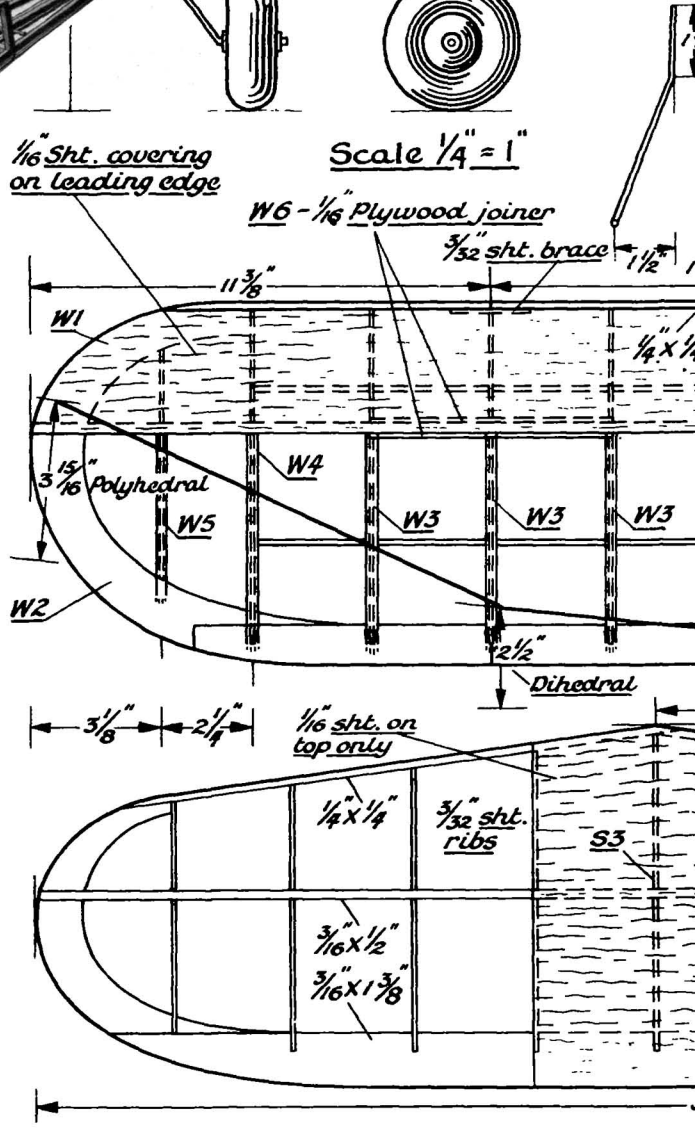
Landing Gear Attachment

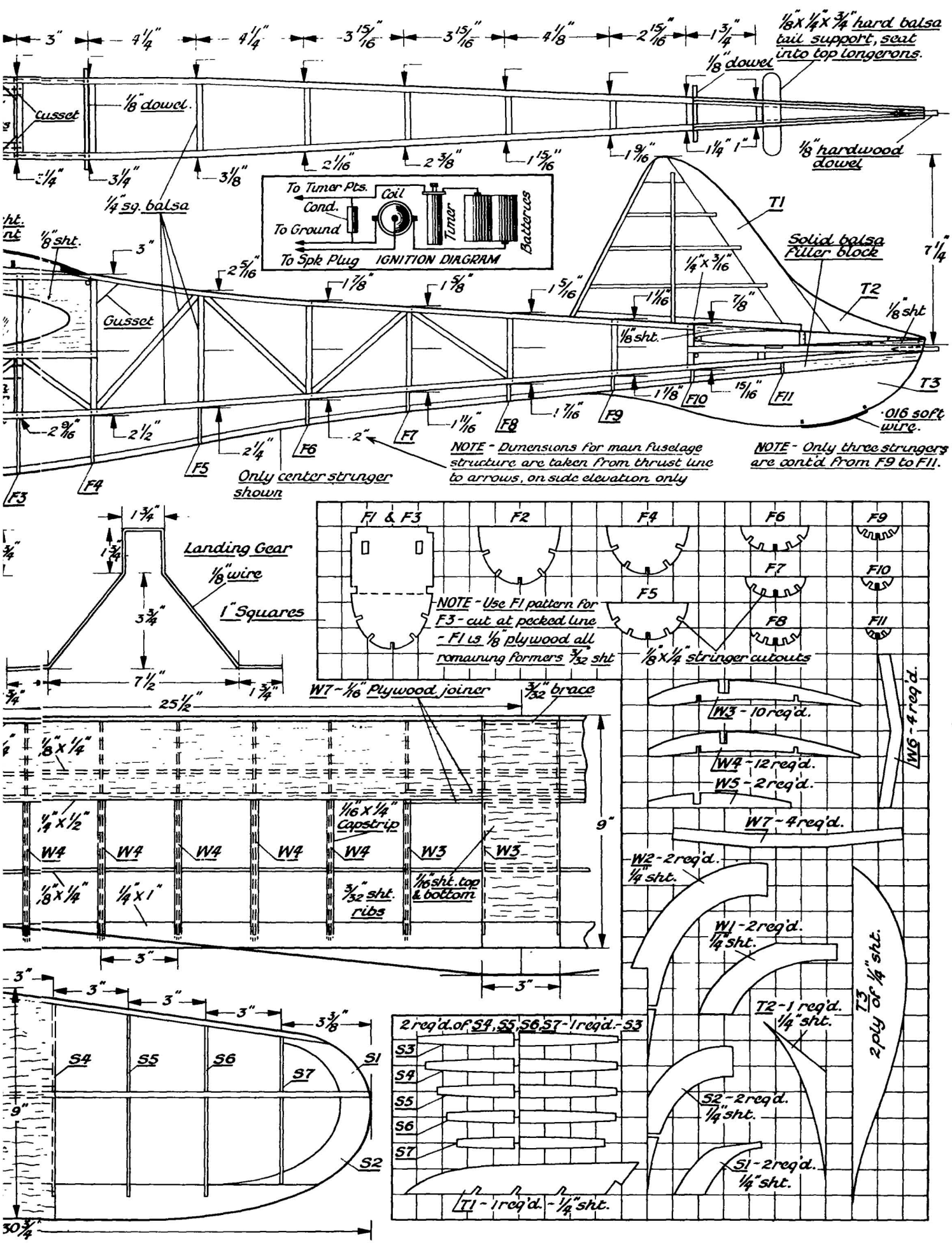


Fuselage Rear Detail



Scale 1/4" = 1"




3" 4 1/4" 4 1/4" 3 15/16" 3 15/16" 4 1/8" 2 15/16" 1 3/4"
1/8"x 1/4"x 3/4" hard balsa tail support, seat into top longerons.
1/8" dowel
Gusset
1/8" dowel.
1/8" hardwood dowel
2 1/16" 2 3/8" 1 15/16" 1 9/16" 1 1/4" 1"
2 1/4" 3 1/4" 3 1/8"
To Timer Pts.
Coil
Cond.
To Ground
Timer
Batteries
To Spk Plug
IGNITION DIAGRAM
1/4" sq. balsa
T1
Solid balsa filler block
7 1/4"
1/8" sht.
3"
2 5/16"
1 7/8"
1 5/8"
1 5/16"
1 1/16"
1/4" x 3/16"
7/8"
T2
1/8" sht
Gusset
1/8" sht.
1 1/8"
15/16"
F10
F11
T3
1 7/16"
F9
F8
1 11/16"
F7
2"
F6
2 1/4"
F5
2 1/2"
2 9/16"
F4
F3
.016 soft wire.
Only center stringer shown
NOTE - Dimensions for main fuselage structure are taken from thrust line to arrows, on side elevation only
NOTE - Only three stringers are cont'd from F9 to F11.
1 3/4"
1 3/4"
Landing Gear
1/8" wire
1" Squares
3 3/4"
7 1/2"
1 3/4"
F1 & F3
F2
F4
F6
F9
F7
F10
F5
F8
F11
NOTE - Use F1 pattern for F3 - cut at pecked line - F1 is 1/8" plywood all remaining formers 3/32" sht
1/8"x 1/4" stringer cutouts
W7 - 1/16" Plywood joiner
3/32" brace
25 1/2"
W3 - 10 req'd.
W6 - 4 req'd.
W4 - 12 req'd.
W5 - 2 req'd.
1/8" x 1/4"
1/4" x 1/2"
1/16" x 1/4" Capstrip
W7 - 4 req'd.
W4
W4
W4
W4
W4
W3
W3
9"
W2 - 2 req'd. 1/4" sht.
1/8" x 1/4"
1/4" x 1"
3/32" sht. ribs
1/16" sht. top & bottom
W1 - 2 req'd. 1/4" sht.
3"
3"
3"
3"
3"
3"
3 3/8"
T3 - 2 ply of 1/4" sht.
T2 - 1 req'd. 1/4" sht.
2 req'd. of S4, S5, S6, S7 - 1 req'd. - S3
S3
S4
S5
S6
S7
S1
S2
S4
S5
S6
S7
S1
S2
9"
S2 - 2 req'd. 1/4" sht.
S1 - 2 req'd. 1/4" sht.
T1 - 1 req'd. - 1/4" sht.
30 3/4"

(Continued from page 41)

the coil and timer. No fooling', it, was designed that way, so try to resist that urge to move things about. Both wing and tail are held in place by rubber. ***Flying:*** This is the period that can make or break a design. Properly adjusted and flown, a good model will prove a consistent winner; badly handled it can flop with the worst. Unfortunately, most individual builders aren't aware of the importance of adjustments. The fact of the matter is that the experts like to keep adjustments a "trade secret"; a model is only as good as the care and attention that it receives prior to its first real power. This care is basic and requires only the following balancing, alignment, test gliding, power test flights.

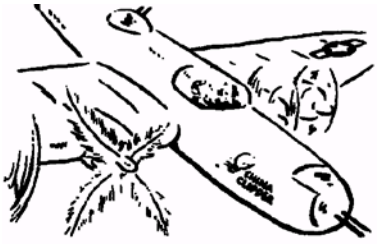
When balancing the model, have a friend grasp one wing tip at about 1/3 back from the leading edge. You then take the other wing tip and slowly raise the model from the floor. If the model tends to balance nose down move the batteries rearward in the cabin until the model assumes an absolutely horizontal position. If the model tends to balance with tail down move the batteries for-ward until the model assumes a horizontal position. After the model has been balanced, place it on a table top and sight from front to back. Check to see it the wing and stabilizer line up horizontally. If there is any misalignment, note whether the wing or stabilizer is low in relation to the vertical side of the cabin and, alter you have determined which surface is out of alignment, insert small pieces of balsa between the wing or tail-mounting cradle and the underside of the low surface until both wing and tail are square to each other and the fuselage. Glue the balsa inserts in place.

Test gliding requires the most attention. It may seem elementary but I would suggest for the first test glide that you grasp the model at the tail post, raise the rear of the fuselage, with the wheels on the ground, and run for-ward at a fairly rapid pace until this model leaves the ground. When this happens, release the tail and notice the flight characteristics. If the model tends to nose up, it is stalling. If it tends to sink very rapidly to the ground it is nose heavy. Try pushing your model from the ground a few times until you are sure of your first flight impressions. If the model tends to stall, raise the trailing edge of the wing by inserting a 1/32" sliver of wood between it and the fuselage. If necessary, add additional slivers until the model glides properly.

If the model tends to lay nose heavy raise the leading edge of the wing. using 1/32" sheet for incidence, insert a piece for each glide. In this manner you receive a more critical adjustment without going from one extreme to the other. If after you have inserted two pieces of 1/32" the glide is still fast, you start inserting the incidence under the trailing edge of the stab. When your model has reached the point where it neither rises nor glides too rapidly when you push it from the ground you can start hand-gliding the model. To do this, lift the model up until it is at shoulder high position; point the nose slightly toward the ground and launch the model at approximately the same speed as when you were pushing the model. This is the final phase of test gliding, so be sure to take your time. I continue to vary the incidence until the best possible glide is achieved. The best glide is when your model, after launching, goes between 50 to 60 feet forward before the wheels touch the ground. The model should continue to roll for-ward tail high for another eight to ten feel. Keep in mind throughout the en-tire glide that the model should not nose up at any time but continue in a direct line to the ground, slightly tail high As for turn, the model should turn to the right about five or six feet at the end of the glide. The following is the ideal method of adjusting the model for turn. It should turn under power, right turn in the glide. You receive the maximum efficiency of the model with this adjustment. Nine times out of ten there will not he any critical dip when the motor cuts, but a direct turn from power to glide without any loss of altitude

Alter the model has been adjusted so that it has the amount of turn suggested you are ready for power flights. For the first power flight I would suggest that you use approximately 1/3 power. You will be able to determine whether the model will have a tendency to turn too sharply under power. If the model has a tendency to turn sharply to the left due to torque, a little offset thrust to the right is very helpful. Right thrust means mounting your motor so that the crank-shaft points to the right instead of dead center. This will also aid in securing better turn in the glide. Keep using reduced power on your test flights until you are definitely sure that the model does not have any turn characteristics that may result in destruction or damage to the model. When you have reached this point you can really turn on the power.

AIR TRAILS PICTORIAL



". . . I've feathered No. 1 starboard"