

1941 TAYLORCRAFT

Didn't every modeler build a Comet Taylorcraft as a youngster? I never did. It was just too big at 54" and too expensive with a cost of a whopping \$3.00 in the early 60s. I have a younger cousin who finally put together the Comet kit and it was just beautiful. It made a lasting impression on me.

In fact, when searching for scale model candidates for the Leisure LT 50 gear drive system, I just couldn't make up my mind until I saw the modern version of the Comet kit on the local hobby shop's free flight shelf. The modern Comet kit is just the same as the old time version --- just a new box. Right then I knew I wanted to construct a T-Craft.

I found a super three-view by Don Pratt in the February 1968 American Aircraft Modeler (now defunct). The version Don documented was the 1941 BF 12-65. This was blown up to 63" span to give you the model presented in this article.

The history of the Taylorcraft goes back to 1929 when C.G. Taylor and his brother founded the firm.

Prior to WW II, the Taylor Brothers Aircraft Corporation designed and built the Taylorcraft models B, C, and D. The models C and D were produced under a licensing arrangement by Taylorcraft Aeroplanes Ltd. of England, which eventually became Auster Aircraft Ltd.

The L-2 Grasshopper is a military version of the model D. Over 2000 of these were built by the Taylor brothers for the Army Air Corps and sported the olive drab paint scheme used on WW II observation planes. The company went bankrupt in 1947, was re-formed under the name of Taylorcraft Incorporated, and produced a variety of models until it ceased operation in 1958. The manufacturing rights for T-Craft production were obtained by the Univair Corporation of Colorado, but no new ships were built.

In 1968 Charles and Dorothy Ferris became interested in manufacturing the old classic. Charles had been a Taylorcraft distributor in the Chicago area since 1937, and arranged to purchase the Taylorcraft design right

BF12-65

1941 TAYLORCRAFT BF 12-65

Designed By:

Jim Zarembski

TYPE AIRCRAFT

Sport Scale

WINGSPAN

62½ Inches

WING CHORD

9½ Inches

TOTAL WING AREA

550 Sq. In.

WING LOCATION

High Wing

AIRFOIL

Flat Bottom (Clark Y)

WING PLANFORM

Constant Chord

DIHEDRAL EACH TIP

2 Inches

O.A. FUSELAGE LENGTH

38 Inches

RADIO COMPARTMENT SIZE

(L) 8¼" x (W) 4¾" x (H) 6"

STABILIZER SPAN

19½ Inches

STABILIZER CHORD (incl. elev.)

6¾" (Avg.)

STABILIZER AREA

136 Sq. In.

STAB. AIRFOIL SECTION

Flat

STABILIZER LOCATION

Top of Fuselage

VERTICAL FIN HEIGHT

8¾ Inches

VERTICAL FIN WIDTH (incl. rud.)

7" (Avg.)

REC. MOTOR SIZE

Leisure LT 50 w/3:1 Gear Drive

CELLS REQ'D

7 cell Sanyo 1.2 AH

LANDING GEAR

Conventional

REC. NO. OF CHANNELS

3

CONTROL FUNCTIONS

Rud., Elev., Motor

BASIC MATERIALS USED IN CONSTRUCTION

Fuselage Balsa & Ply

Wing Balsa, Ply & Spruce

Empennage Balsa

Wt. Ready To Fly 46 Oz.

Wing Loading 12 Oz./Sq. Ft.

from Univair in 1968.

The new Taylorcraft Aviation Corporation spent its first five years servicing the many older T-Crafts still flying, and redesigning the new model F-19 Sportsman 100.

The F-19 Taylorcraft was first built in 1973 and is very similar to the old models B, C, and D, but used a 100 hp Continental O-200-A flat four-piston engine. The cruise speed is 115 mph with a range of 400 miles. The Sportsman production run was completed in 1980, with 150 of these ships constructed.

At that time, the F-21 Taylorcraft was introduced sporting a Lycoming O-235 L2C engine, which is rated at 112 hp. Twenty-one F-21s were built, followed by five F-21A's, which is the present model produced by Taylorcraft Aviation. The difference between the F-21 and F-21A is that all of the fuel tanks have been removed from the fuselage to the wings in the newer F-21A.

Charles Ferris passed away in 1976. Since that time Dorothy has operated the small aircraft firm. The Taylorcraft factory in Alliance, Ohio, has 13 full time and part time employees, and will continue to build this classic aircraft for years to come.

I called Scale Model Research, 418 E. Oceanfront, Newport Beach, California 92661, to find out if they had any documentation in the form of photographs and data sheets on the model B. They didn't have the model B, but had a complete Foto Paak, #506/3B, for the Taylorcraft Model F-21. The Foto Paak contains 33 photos showing every possible angle of N 2006 T which is red with white trim. This brand new ship sports wheel pants and a nice looking spinner. With a minor modification of the window and cowl areas, you can model the F-21 or F-21A from the plans presently here in RCM. The cost of the Foto Paak is \$16.50 plus \$1.00 for postage. If you're into scale, it's a must.

Incidentally, the contemporary T-Craft is available in orange, with white or black trim; red with white or black trim; orange yellow with blue or black trim; or white with blue, orange, red, or black trim. Clearly a choice for

A classic Stand-Off Scale version of the 1941 Taylorcraft BF12-65 designed for electric power.

By Jim Zarembski

everyone.

The Taylorcraft model was designed to use the LT 50 gear drive system (competition wind) with a 3:1 gear ratio and seven cells of 1.2AH capacity. The pattern wind LT 50 with a 2½:1 gear drive also works very well on seven cells, but with a little less duration. Construction is similar to the old Comet kit: Balsa sticks, longerons, stringers, etc. The result is a strong, lightweight model --- so let's get on to the building.

Construction

Fuselage:

Place the plan on your building board of Celotex or ceiling tile and cover it with waxpaper or Saran Wrap. Pin the top and bottom 3/16" square balsa fuselage longerons in place and carefully cut the uprights and glue them in position using a "thick" cyanoacrylate. I used Super Jet by Carl Goldberg for virtually all of the construction with the exception of epoxy on the landing gear support and dihedral braces. (The beauty of cyanoacrylate is that when one fuselage side is finally complete after cutting and gluing the last piece in place, you merely have to wait a half a minute to remove the completed structure from the plan.)

After building two fuselage sides, add 1/16" x 3/16" balsa strips at the forward section and cover the front sides with 1/16" sheet. Be sure to cut out the window openings at this time.

Place the right fuselage side outside down on the board and glue F-4 and F-7 in place, making sure they are vertical by using small triangles. Then, cement the left fuselage side to F-4 and F-7, making sure they line up at the rear of the fuselage.

At this point, the 3/16" top and bottom cross members can be cemented in position, followed by the side, top and bottom stringers.

Cement F-5, F-6, and B-3 in place. After adding the 1/8" square balsa cowl top support, soak a piece of 1/16" sheet balsa under hot water. Use the Super Jet to glue it on one of the fuselage sides and then add Super Jet to the top of F-4, 5, and 6, and roll the cowl in position. Finally, trim away the excess material at F-4 and F-6, and you've just produced a beautiful cowl top.

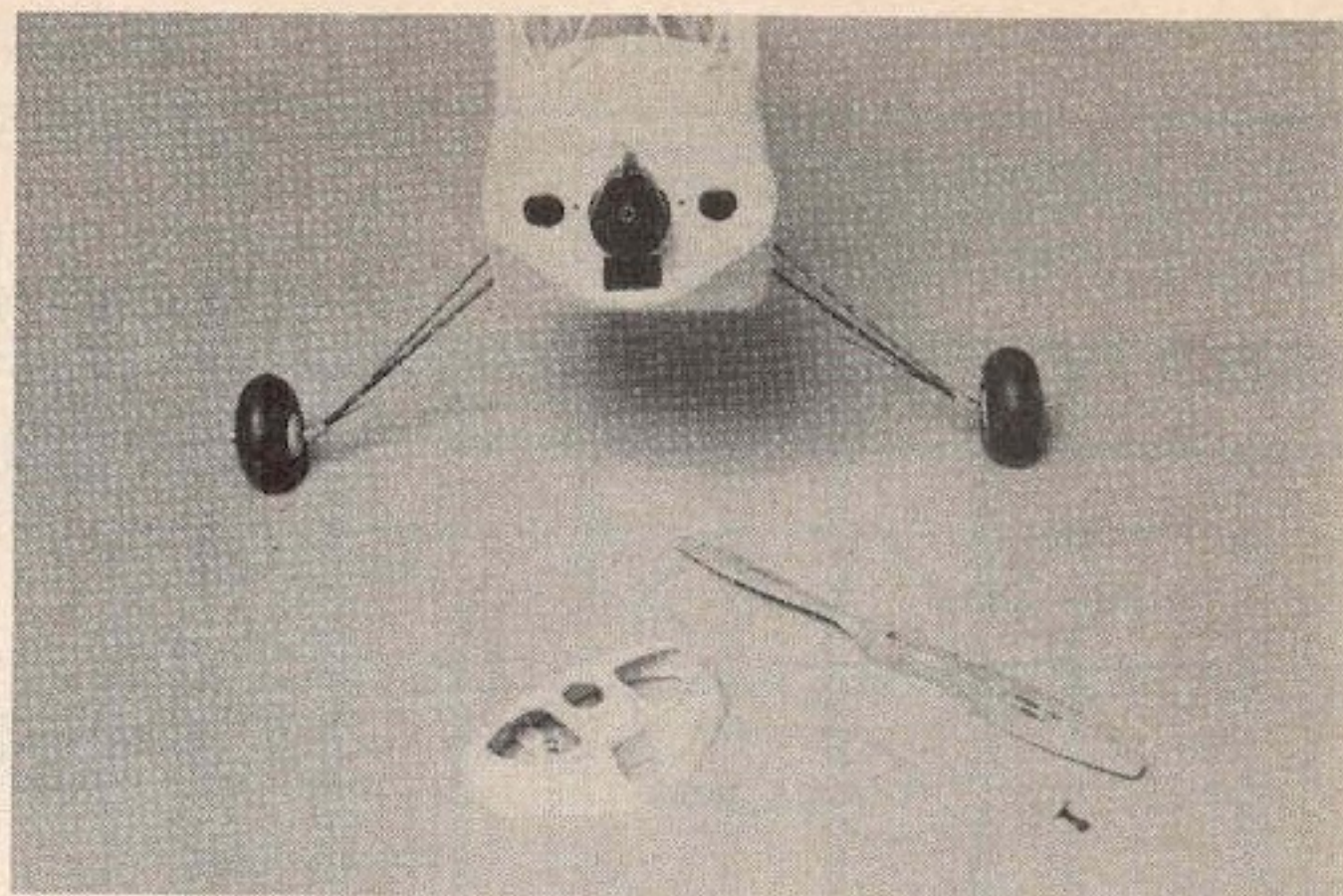
To form the cowl bottom, cement B-1 in position and then use a sanding block with a rotating motion to form a flat plane for mounting the B-2 cowl sides.

Complete the basic fuselage by sheeting the fuselage bottom, adding the tail wheel, epoxying in place the brass landing gear tubes, and epoxying F-9 in place.

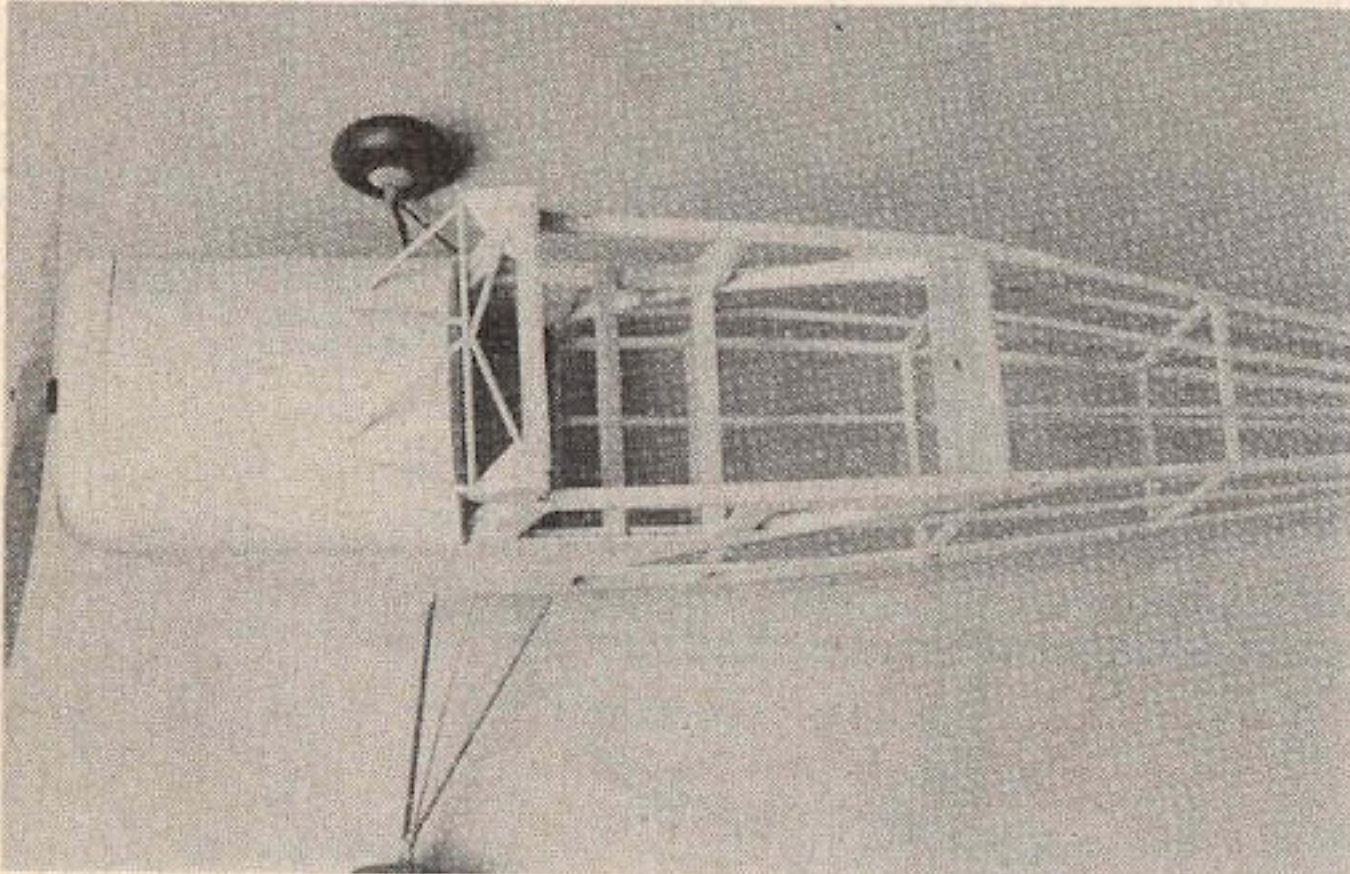




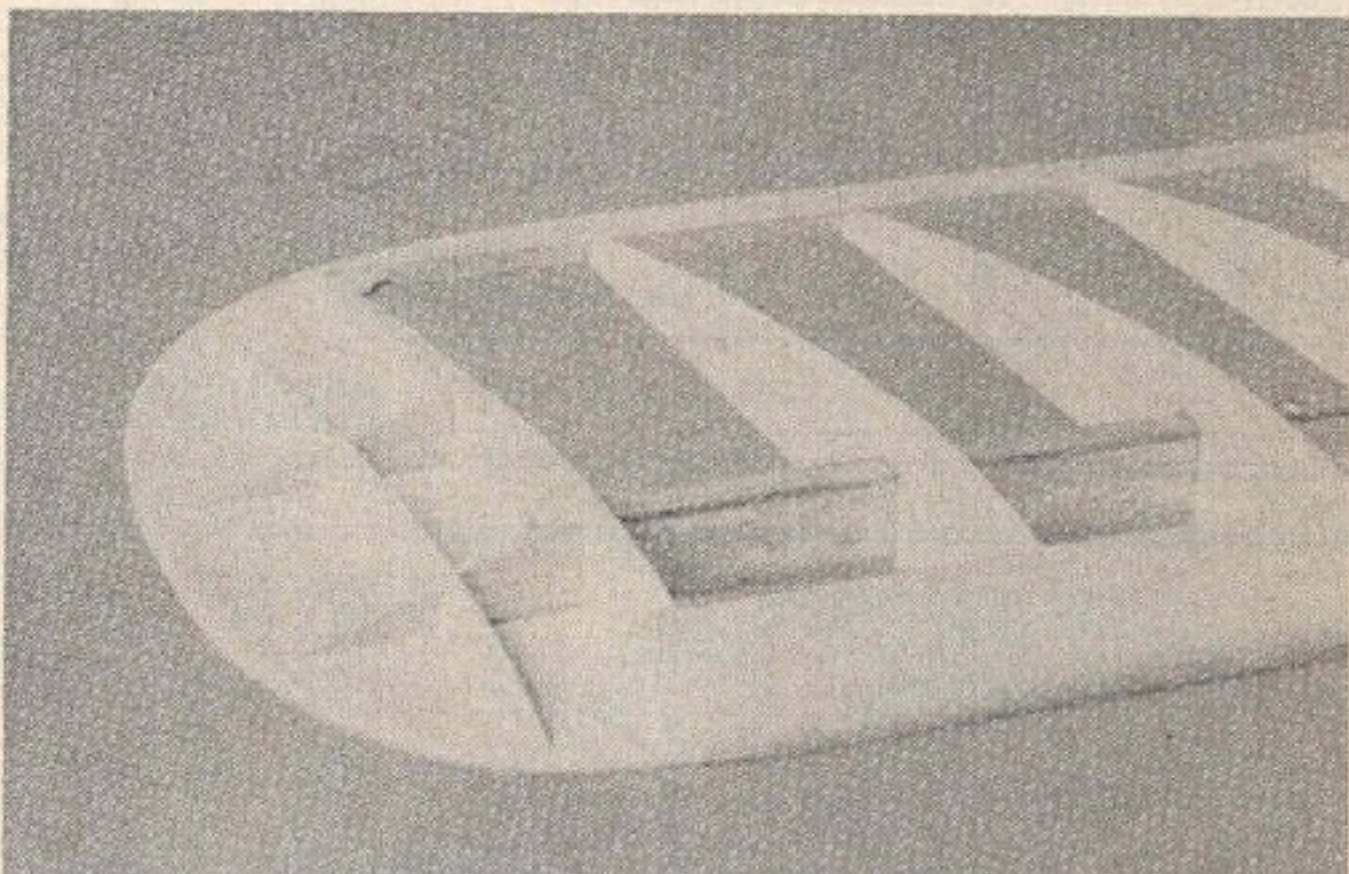
Uncovered electric powered Taylorcraft sports lightweight stick construction.



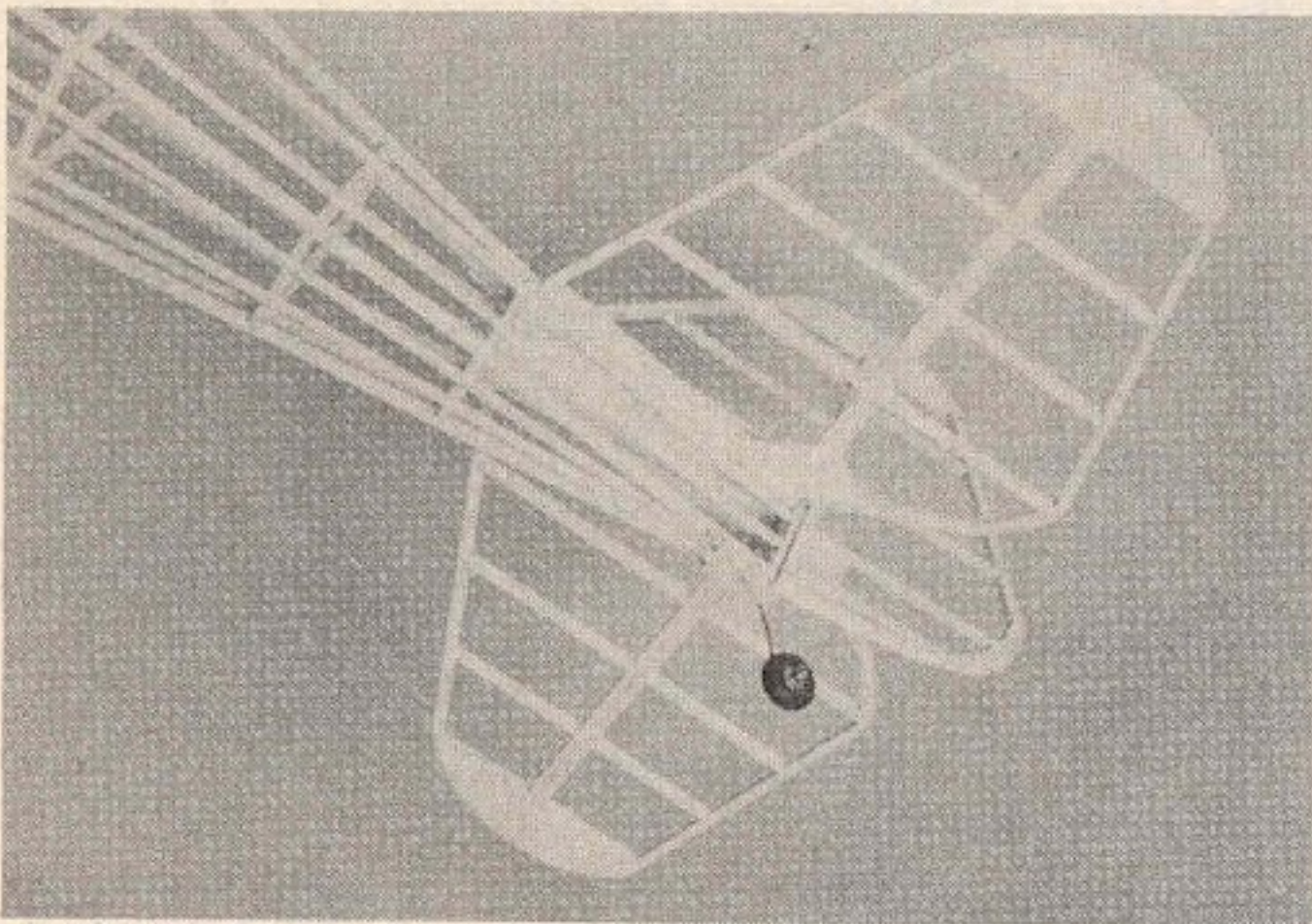
Nose of the T-Craft.



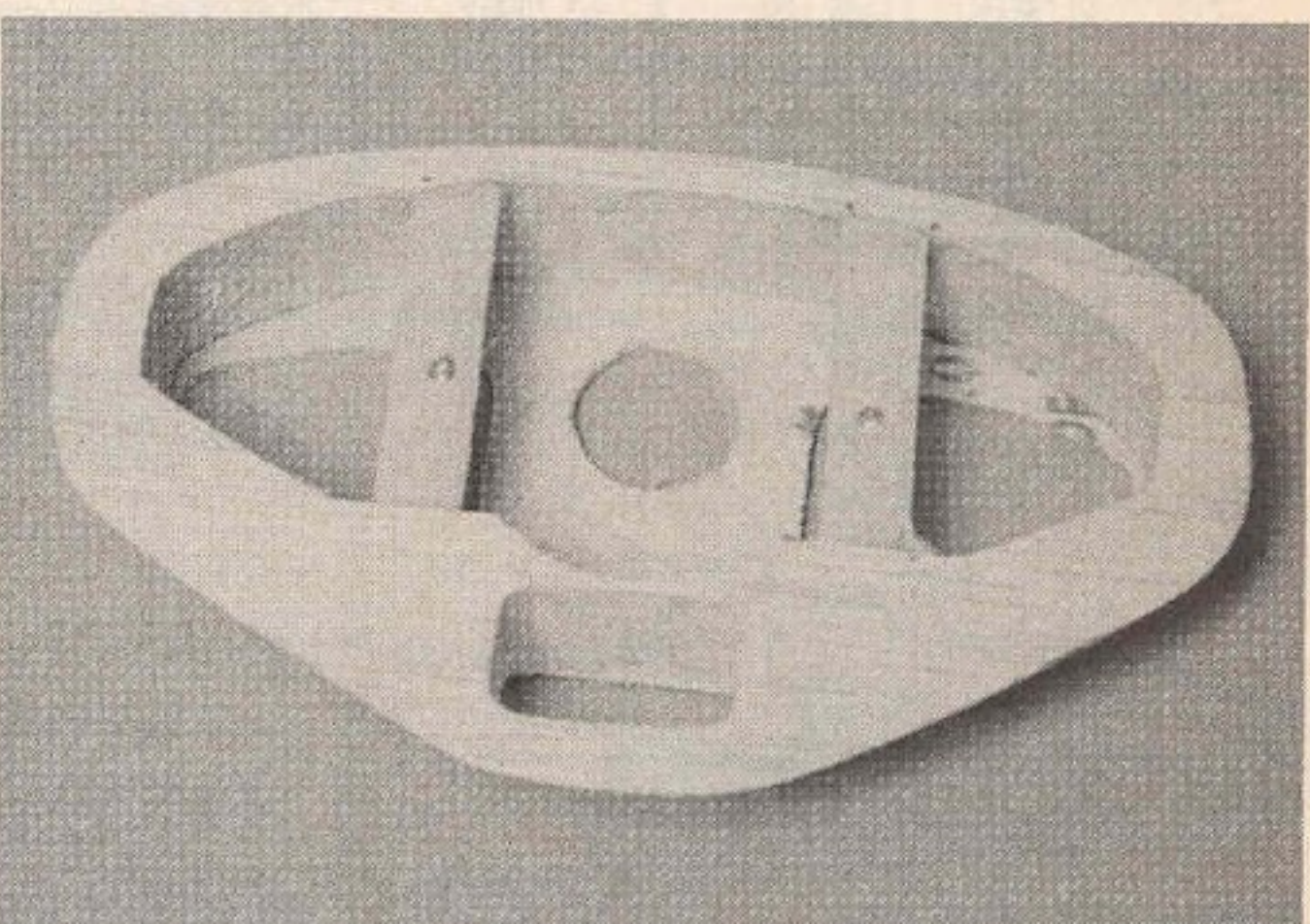
Detail of windshield supports.



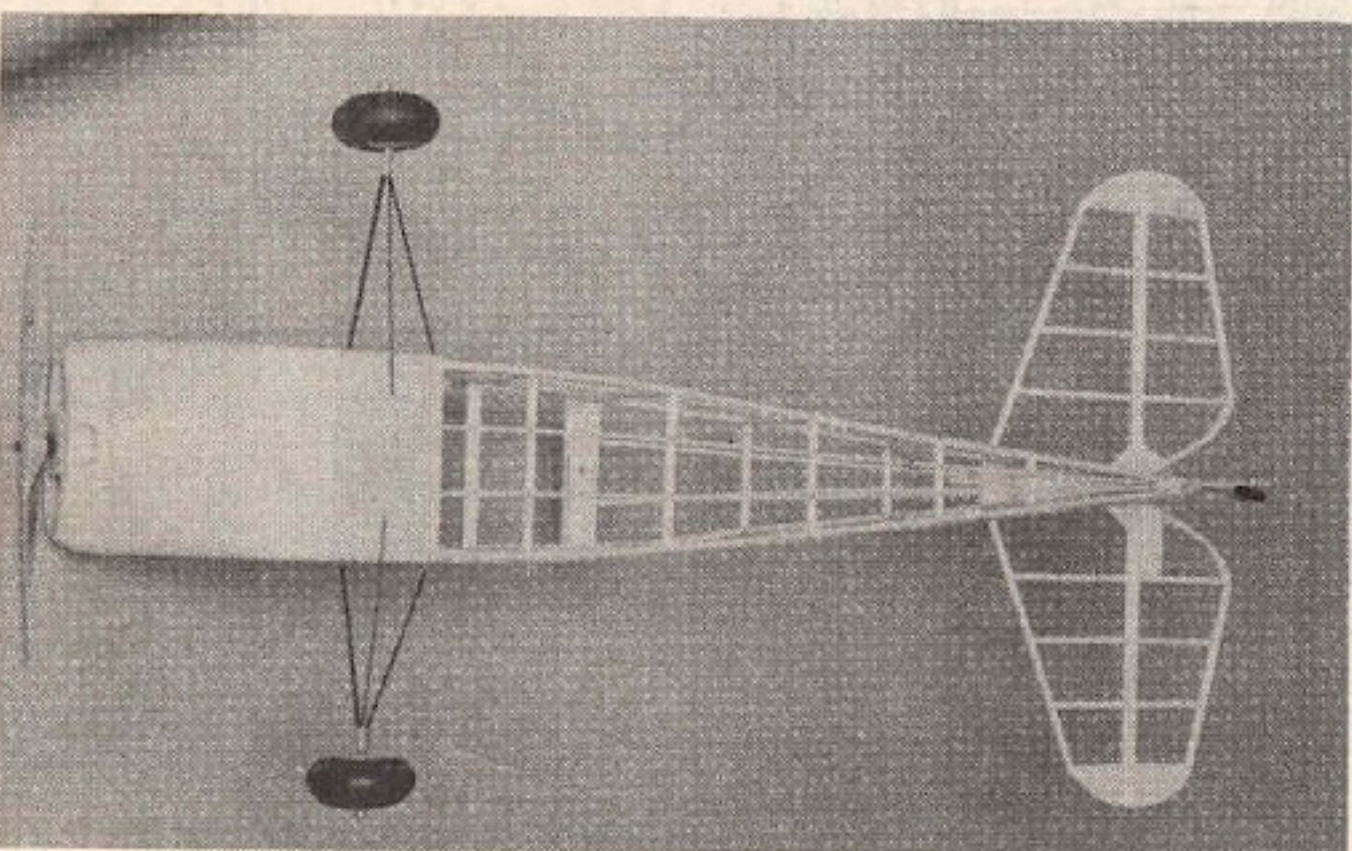
Wing tip detail.



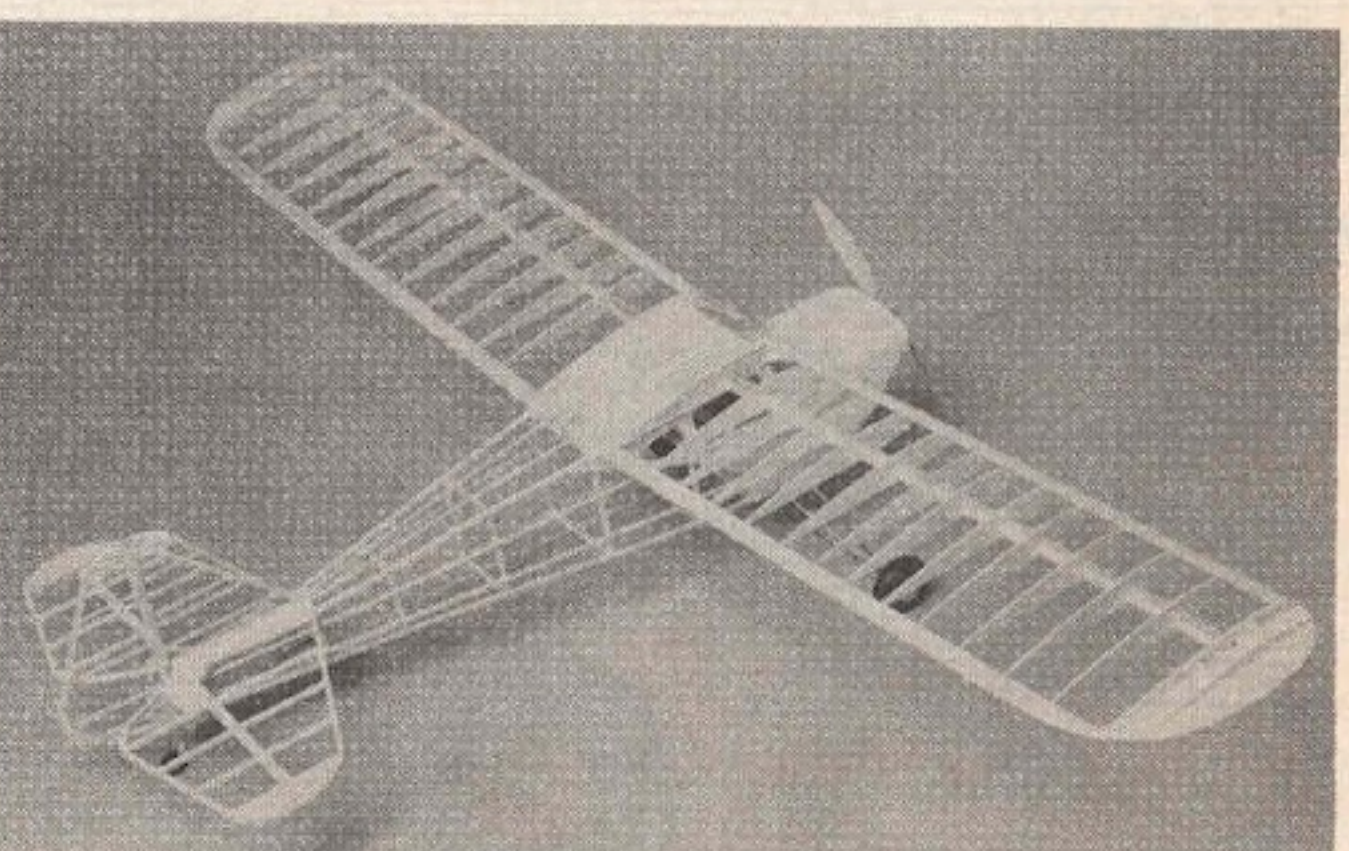
Tail wheel assembly.



Cowl detail.



Fuselage bottom.



Nice from all angles.

Front Cowl:

Cut out F-2 and glue the two F-3 pieces in place. Cement F-1 to this sub assembly and screw the unsanded cowl on the front of the fuselage. Use an X-Acto #26 blade to carve the rough cowl shape and sand it into final form using successively 100, 200 and 400 grit sandpaper. Sand the fuselage all over, readying it for covering.

Landing Gear:

Bend the landing gear wire in your vise to the shape shown on the plan. A Dremel cut off disk works well on piano wire. Place LG-1, LG-2, and LG-3 in position in the landing gear mounting tubes, bind with copper wire, and solder in place. The 1/32" plywood strut covers are cut out and can be held in place for covering with cyanoacrylate.

Stab, Fin and Rudder:

Cut out the components for the tail feathers from 3/16" sheet and build the fin and rudder over the plans. Build the right half of the stab first, remove it from the plan, reversing it, and then build the left stab over the same pattern. Sand to a streamline shape ready for covering.

Struts:

The struts are formed from balsa strips. Cut to size and sand to rounded cross section **before** assembling. Slot the ends and add the aluminum tabs in place with Super Jet. The uprights are added later by pinning them to the struts using shortened straight pins.

Wing Construction:

Begin building the spars by gluing the two spruce caps in place after the 1/4" x 1/2" balsa spar core has been pinned to the building board. Make sure to use a straightedge to align the balsa sticks since they are often warped. Cut the three spar pieces to size, using the dihedral angle shown on the plan.

Start construction with the right wing panel. Mark the trailing edge for the ribs and notch them with your Dremel Saw. Pin the trailing edge and spar over the plan and cement the wing ribs in place.

You'll have to trim the ribs for an aileron installation if you desire this feature. We've found ailerons somewhat ineffective on this model because of its slow flying speed, so it is recommended that you omit the ailerons and simulate the outline with striping tape.

Cement the leading edge in position using cyanoacrylate to complete the shell of the right wing panel and remove it from the building board.

Repeat the construction step for the left wing half on the reverse of the plans (use a pencil to outline the reverse image). Then, cut the trailing edge to fit the center wing section.

Use 2" blocks under each wing tip and epoxy the dihedral braces in position using C-clamps. Add W-2 and

W-1 over the 1/16" center section bottom sheeting, and then carefully epoxy W-4 in place.

Mount the partially assembled wing on the fuselage and drill the hold-down dowel holes in W-4, using F-7 as a guide. Remove the wing after epoxying two 3/16" dowels on the inside of W-4. Sheet the rest of the center section and cement the 3/32" stringers in position. A piece of 3/32" plywood is used to provide rigid support at the wing bolt area.

Add the 3/32" square balsa leading edge sheeting support between W-2 and W-3T and sheet the leading edge with 1/16" sheet balsa.

Build right-hand and left-hand wing tips by gluing W-5 to the balsa sheet wing tip panel, and adding the wing tip fillers. The tips are cemented to W-3T, lining them up with the center of the leading and trailing edges.

Drill and tap the hold-down and bolt the wing on the fuselage. Then add the strut supports and strut upright guides to the wing bottom and drill to match the holes in the strut tabs.

When complete, remove the wing and sand for covering.

Aircraft Completion:

Add balsa blocks to F-7 at the wing leading edge to form the top of the windshield. Cover the fuselage complete and add the 3/32" dowel windshield supports. I painted them black before assembly.

The rest of the model can now be covered and assembled. I chose Solartex orange and antique to cover the model, and used black MonoKote for the wing numerals. The rudder I.D. numbers are peel off vinyl, available in office supply stores and many model shops. I used the 1/2" Helvetica plastic letters produced by E-Z Industries of Westminster, Maryland 21157. It adds a nice touch. You'll note that the color scheme I chose matches the Comet kit box rather than the yellow and brown Taylorcraft scheme used in 1941.

Now you can install the radio and flight system. Shift the flight battery in place for proper balance and stick it into place with double-sided mounting tape.

Construct and cover an air intake, and make an exhaust stack out of 1/4" dowel. Cement in place and you're ready to roll.

With the LT 50 racing motor and the 3:1 drive, the model will roll off short grass and paved surfaces using an 11/7 Rev Up special pro propeller.

The model is slow and stable, and requires a moderate amount of rudder throw for sharp turns. Best of all, it looks great in the air. C.G. Taylor, Charles Ferris, and Joe Konefes, who designed the Comet model back in the 40s, would be proud!



