



Chuck Hollinger's

Radio Controlled
Fairchild

PT-19

PART ONE

■ Who sez all low wingers are foolish flyers? This may be true for most, but there are exceptions to all rules and our case in point is the PT-19. Fairchild engineers designed this primary trainer for the Army Air Corps in 1938. As a trainer it had to be not only a sturdy ship but also a forgiving one in which student pilots could learn the "feel" of a fighter with a minimum risk. Its low wing, wide-spaced wheels and low center of gravity assured excellent take-off and landing characteristics. The model exhibits this same ease of handling, as every one of its flights (76 at this writing) have been from take-off. Never has it shown the slightest tendency to ground-loop!

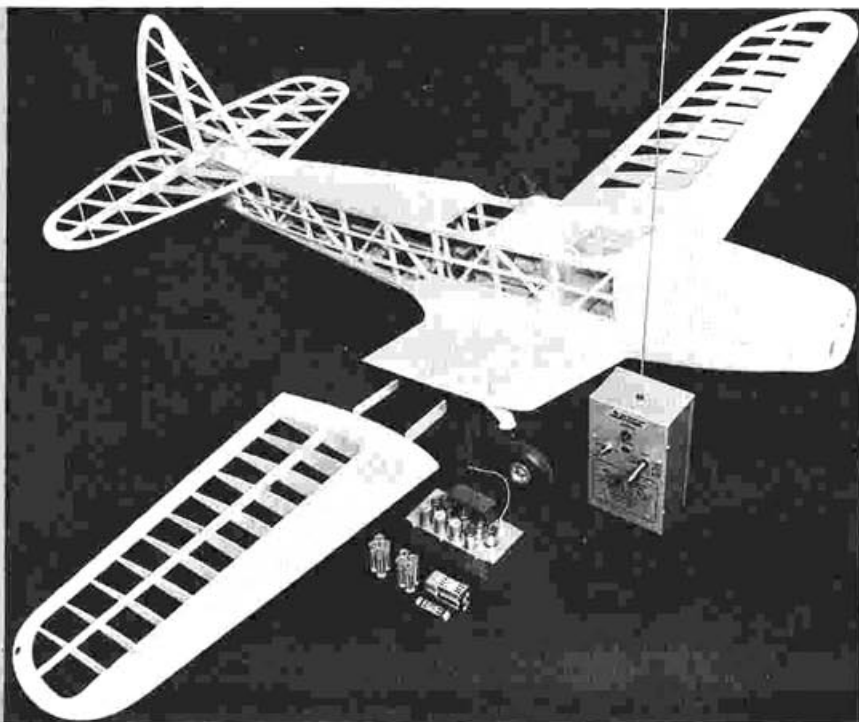
Under the cowl was an inverted Ranger of 175 hp. This marginal power didn't exactly make for VTO's; however, it was more than adequate for aerobatics. In fact it was while

viewing some old Air Force instructional movies at a club meeting in which the PT-19 performed all the maneuvers—rolls, loops, Immelmans, etc—that I became convinced that here indeed was a plane worth modeling!

There were three configurations; PT-19, PT-26 and PT-23. The PT-26 was a Canadian-built version of the PT-19 except for the cockpit canopy, and was known as the "Cornell." The PT-23 was identical to the "19" except for a 220 hp radial Continental in the nose. After the war hundreds of these trainers were sold as surplus and can still be seen at most any airfield.

Modelwise the PT posed but one major structural problem; how to handle the wing. This actually resolved itself into an asset after I decided to use a variation of the British "tongue and box" system. In this way the wing panels outboard of

All this beauty and performance too! The designer of the now famous R/C Cub went back to his drafting board and produced the best-looking low-wing model we've ever seen. With more than 75 flights to her credit, she's already racked up one spectacular win—first place at the big Northwest Meet in multi-control event! All flights have been rise-off-ground variety



the landing gear are removable per scale. By joining them with expendable balsa stubs the wings are protected under all conditions and the dihedral angle may easily be varied; 15 degrees for the first flights and straight plugs, 11 degrees after you've had a little "stick" time. This may seem like excessive dihedral—however, the full-size ship has $7\frac{1}{2}$ degrees in each panel. All photos show the model with straight plugs.

Many Modelers Flew the Real Thing

Since commencing work on the plane I have been surprised to learn that so many modelers have either trained in the full-size jobs during the war or owned one at some time. Earl Witt flew them and Earl Cayton says he still has a soft spot for the old PT-19, having learned to fly in one back in 1943. He says, "It got as low as 10 degrees below that winter, and we about froze our tails off in those open cockpits." Bill Dean of England told about flying the Cornells off the Sahara Desert, where because of the high altitude the flaps had to be lowered in order to take off!

Although the model didn't fly perfectly right off the board, after only nine test hops plus more right and down thrust we entered a big meet at Yakima. There she easily won first prize in the multi-control event. This speaks well for both the flying qualities of the model and the usual reliability of Babcock 2-channel equipment. Underscoring these points is the fact that the author had never before flown any kind of multi-control ship. Actually, the vertical dive and inside loops (real smooth) on the winning flight were the first ever attempted—haven't had the gumption to try inverted flight as yet.

Low Wingsers Much Maligned

The most remarkable characteristic discovered about low wingsers is the more power you give them the easier they are to fly—which is not true with the high wingsers. There's plenty of power in the K&B .29 when opened up and on low speeds it idles down so the PT doesn't budge an inch even on the smoothest runway. The author took a tip from Johnny Brodbeck of K&B when he recommended one or two extra head gaskets in order to lower the compression ratio. While this may cut the peak rpm slightly, it creates a higher cylinder temperature and less resistance on the up stroke, thereby making the Torp exceptionally smooth and reliable at idling speed.

Maybe a few words about additional features offered by the Fairchild PT-19 will get you to reach for the old glue tube. First of all the steerable tail wheel enables the "pilot" to taxi to any desired spot, take off, and upon landing with power on, taxi right back to the starting place. Believe me, this is just as exciting as flying and really impresses spectators and modelers alike.

The two open cockpits plus removable hatch allow unequalled accessibility, since everything from the escapement, elevator servo, batteries, switch, receiver, fuel tanks, and motor control unit are within easy reach.

Note the extra long nose—this is a life saver for you fellows who always have to add lead to the front end of your R/C jobs. Here's one model that won't require this as there's plenty of leeway for shifting the batteries and/or receiver till she balances.

The fuselage construction of the prototype lends itself to a light but sturdy structure, and as a result the model weighs only six pounds ready to fly with a Babcock 3-channel receiver installed. From all indications the PT would also make an excellent flyer with single channel equipment, as a free-fighter, or even U-control scale.

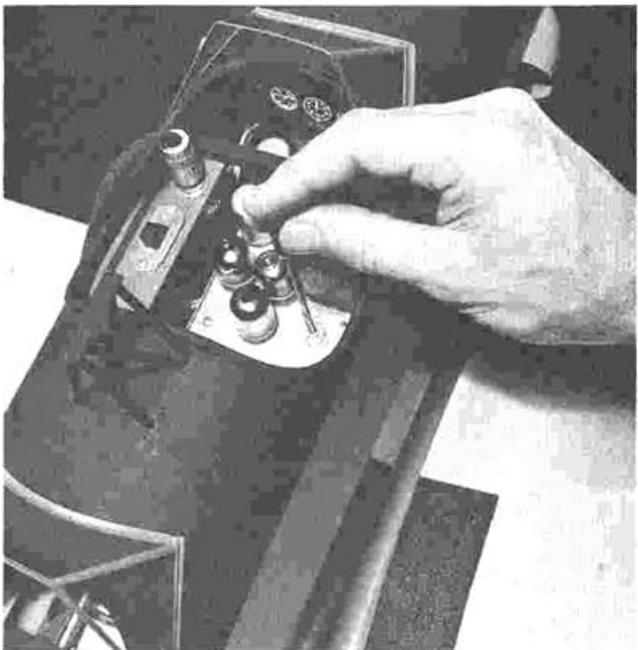
Follow R/C Maker's Instructions!

Two years of flying the J-3 Cub (over 350 flights) and now 76 trouble-free flights so far for the PT-19 have convinced me of the reliability of Babcock equipment. Right here is a good time to stress the point that regardless of the make of R/C equipment you may prefer to install in your PT, by all means follow the manufacturer's instructions right to the letter!

Whether you choose to build the PT-19 as a radio control, free-flight or U-control, she will most certainly be a standout not only appearancewise, but will fly with the best of the "boxes." Before starting the construction I would like to express my thanks to Pete Bowers for the use of his photos of the real PT-19 from which were copied authentic details and markings. My thanks also to Bruce Becker for working with me on the flight shots, and to Washington Skyways of Ephrata, Wash., for the loan of their Army Training Order Handbook. (Complete building instructions are available on the full-size plans.)



Inverted Torp gives no running problems, reports CH, because of choke installation. Motor is mounted on an adapter plate.



Easy to get at this radio equipment! Two open cockpits plus removable hatch permit fast accessibility to all the controls.



Full size plans for PT-19 are on Plan #856 from Hobby Helpers, 770 Hunts Point Ave., New York 59, N. Y. (50c)

Latest word from Chuck is that his low-wing beauty has racked up over 100 flights and won another meet! Makes a giant-size control line model, too

■ In our previous article (*Young Men*, August 1956 issue), we presented drawings for the fuselage, fin, rudder and cowl of our radio-controlled Fairchild PT-19. We gave the background of the big plane, and our success to date with the R/C model.

Since starting this project I have acquired one of the new Babcock Mark II compound escapements. After extensive test flying it has proven to be just what I needed for the big R/C ships. It not only handles fully wound $\frac{1}{4}$ " brown rubber but the thicker English "Dunlop" rubber as well! This combination is a "must" for the PT's large rudder and steerable tail wheel. Follow the installation sketch on the drawings.

The Babcock motor control unit has been used on the last thirty or so flights and is the simplest and most reliable type of motor control so far devised.

Once the model is completed and still minus receiver and batteries, pick it up by the top longerons and see how she balances. The required balance point depends upon several factors.

First of all, the C.G. as shown on the drawing will give extremely smooth longitudinal stability as required for control line and elevator controlled R/C. If your PT-19 is to be flown F/F or rudder-only R/C, balance it $\frac{1}{2}$ " behind the spot shown. A K&B Torp .19 would be more than power enough for F/F, in which case only 3 degrees right thrust should be used.

Shift the batteries and receiver until she balances level when lifted at the aforementioned spot. Now mount your receiver as shown on the drawings. A suggested means of holding the batteries in place is to hollow out a piece of styrofoam (which acts as a shock base) with rubber bands stretched over all.

For the benefit of modelers not acquainted with the way Babcock 3 channel equipment operates, here are a few pointers. Pulsing the stick to either side actuates the compound escapement just as a button on the single channel sets do. Therefore one pulse is right rudder; two pulses, left rudder and three and

release is a change of motor speed.

The elevator is operated simply by pushing the stick forward for down and back for up, the elevator staying in whatever position desired even when the stick returns to neutral. As you can see this is different from the self-neutralizing type which causes a model to act jerkily. The "trimmable" type gives the smooth flight characteristics of full scale aircraft and when combined with a plane as stable longitudinally as the PT, even the inexperienced modeler will find flying a cinch.

Dick Schumacher's method of handling the "stick" is to "beep" the stick a given number of pulses depending on the degree of elevator travel desired. For instance, starting with the elevator in the neutral position—four short beeps will give full up, four more forward on the stick will bring it back to neutral.

A practical example is to say we're going to do a wingover: with the PT cruising along in level flight give two beeps forward on the stick. As she goes into a shallow dive apply two beeps back, and when she starts up kick left rudder, which will result in a near vertical bank. Touch of right and she's leveled out heading back!

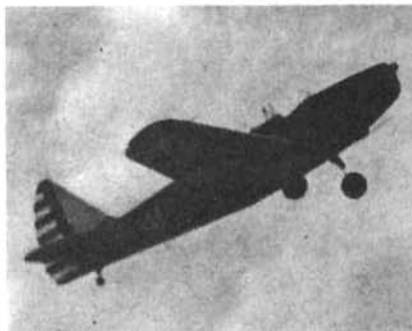
A few minutes' practice at home will soon give you the "feel" of the controls.

With your model completely finished, make a check of everything while at home, and that includes operating all controls with the motor running. Experiment with various glow-plugs to get the best two-speed operation. Generally a low nitro content fuel such as Supersonic 100 will prove the best for all conditions. At last that's the way it has worked out for me.

Since the first article was written the PT-19 has won another first place and she now has a total of 103 flights!

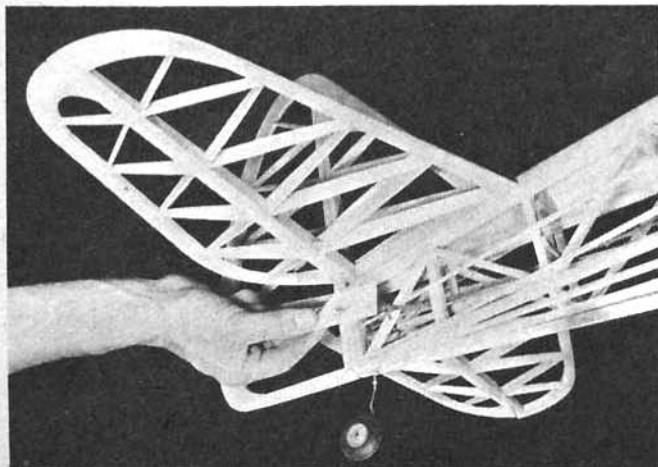
Take a little extra time and you will have a model to be really proud of, whether on display or in the air. Good luck. If you have any questions write me c/o *Young Men*.

(Complete construction instructions are available with the full size plans.)



Full-size plans for PT-19 with instructions on Plan #856 by Hobby Helpers, 770 Hunts Point Avenue, New York 59, New York (75c).

Good idea of tail surface construction come from this close-up. Rubber is two strands of $\frac{1}{4}$ " which runs to Mark II.



Antenna runs through starboard wing. Here connection is being made to center section. Plane can be made as U/C.

