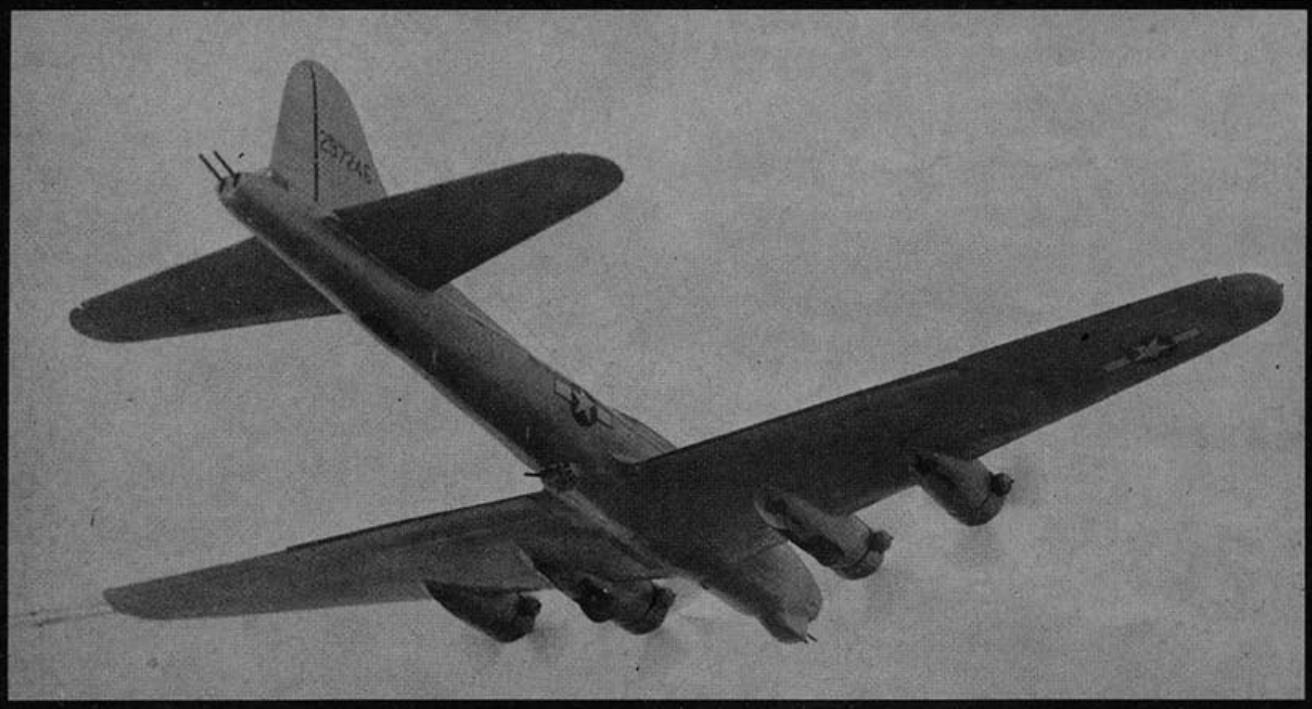
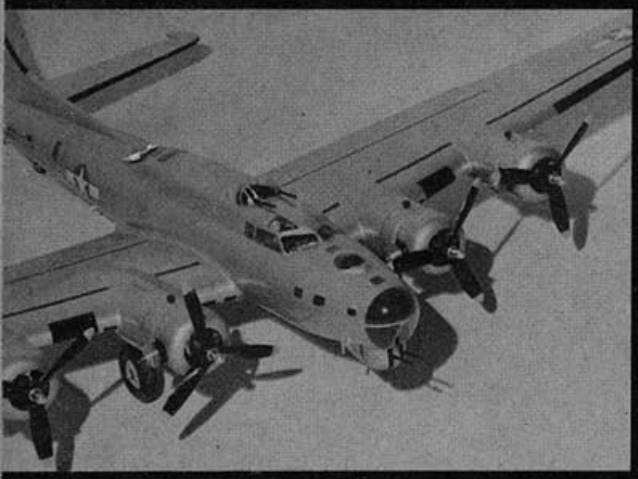




RETRACTING GEAR B-17G CONTROL LINER

British scale champ and noted American designer team up to produce fabulous 4-engine bomber with working flaps and landing gear, lights, even motor control!

BY KEITH LAUMER & JOHN SIMMANCE

■ We could begin by discussing the fantastic record of the airplane that started life as a heavy bomber and ended the war classified as "light" by contrast with the bigger, more modern aircraft that had come to supplement—but never to replace it—

But we won't. We picked the B-17 as our scale project because it's a model builder's dream ship; sturdy, straightforward, handsome—and a born flyer that will ride in on one engine just like the big ones.

You can build her with fixed landing gear and two engines plus two dummies—or go all the way with four operating mills, retracting gear, operating flaps, navigation and landing lights, throttle control, and little men in the cockpit. Either way, she's a project that will keep you off the streets for quite a few evenings—but she's worth it. The ship is not recommended as your first scale project. But there are no unusual techniques, tools, or materials required.

Spend an hour looking over the plans, then begin construction by laminating main and rear spars and making leading edge, taking care to build-in correct sweep-back.

Cut out all wing parts, then thread ribs A-E onto component "N" using slow drying white glue; add L.G. mounting plates and main and rear spars, then component "O." Align and set aside. When thoroughly dry, add remaining ribs and leading edge. Add trailing edges in front of flap and aileron stations, then use 1/16" sheet to cover the wing on both upper and lower surfaces aft of the rear spar, on upper surfaces only between main and rear spars, and on undersurface only forward of main spar to leading edge. Sheeting should be doped with clear fuel-proofer before installing.

Build the main gear assembly, using any suitable electric motor and gear train. Install main L.G. legs and center operating yoke assembly by binding and cementing brass bearing tubes to supporting plates. Use a stick-anything glue for this step.

Add both formers 3 and 4 to center section, then upper fuselage spine and former 2, followed by main L.G. unit already mounted on its 1/8" ply supporting platform, gusseting everything well with scrap balsa.

Build up fuselage by half-shell, add side numbers 15-17, and join to wing, cutting 16 away at main spar. Cut away bottom keel behind main spar back to former 4 to form "bomb-bay" battery compartment. Check alignment of the entire assembly and allow a few hours for cement to set hard.

The linkage from gear unit to L.G. is made and installed along with tail wheel assembly and push-rod from main gear. Nacelle components are cut and glued in position—cut away leading edges where indicated on inboard nacelles only.

Install bell-crank, lead-outs, elevator push-rod, throttle controls; trigger and limit switches and L.G. wiring.

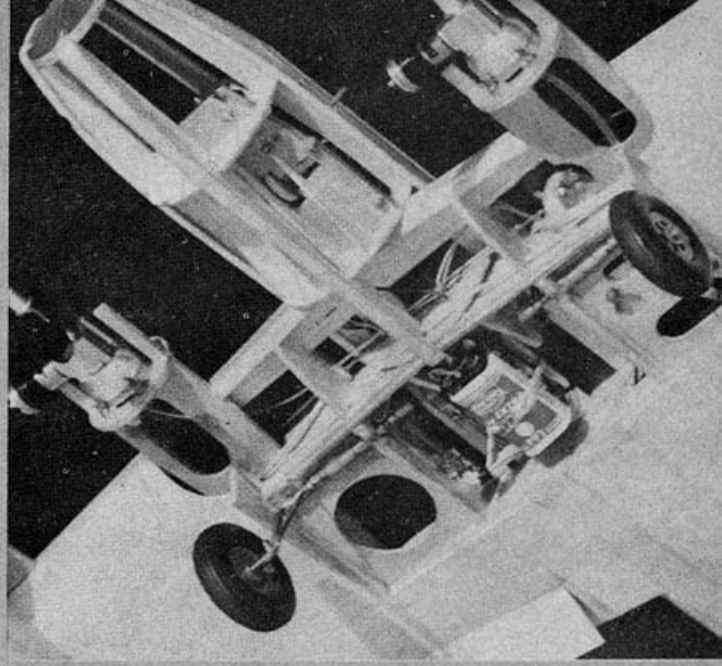
Sheet undersurface of wing between spars; add 1-oz tip weight to starboard panel, then add flaps and linkage and connect to L.G. push-rod.

Start fuselage planking with one strip of 1/8" x 1/4" medium soft balsa along each of the upper and lower spines and side members.

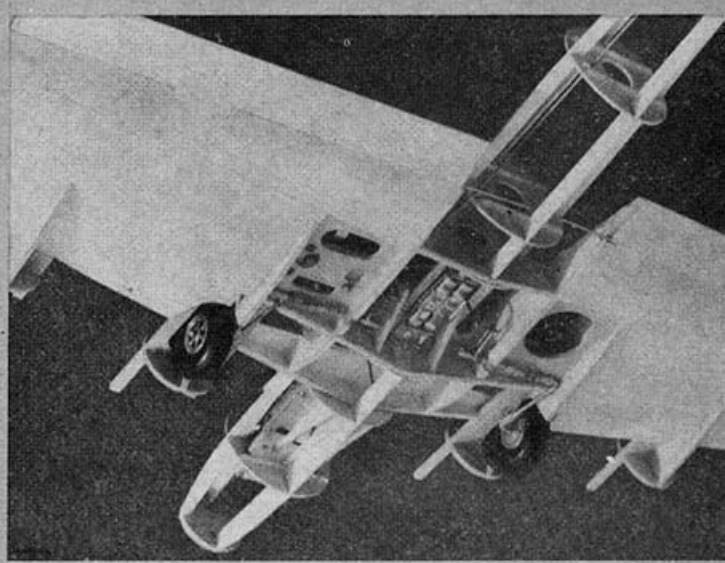
Construct and install stabilizer unit and elevators and connect to push-rod from bell-crank. Use light-weight balsa for all tail components.

Railroad type "grain of wheat" light on short pigtails are wired in, together with all wiring and main and landing light switches. All switches are made from small pieces of printed circuit board and thin brass, the landing light switch being closed by the L.G. yoke arm when in "down" position, the main switch being rotary in action operated

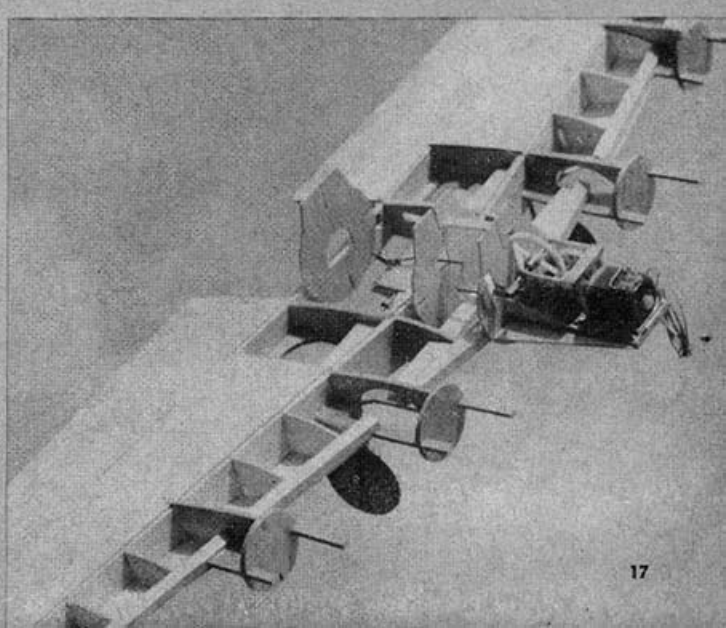
(*Continued on page 62*)



Working landing gear mechanism is shown above in "down" position. Designer Laumer went all out on this Flying Fortress project.



Gear is retracted (above). Mechanism, made up of generally available parts, presents a real challenge to the advanced U-control fan. Builder of this B-17 is John Simmance, British free flight scale champ for past two years; model will fly in '63 C/L event.



B-17

(*Continued from page 17*)

by a small screw head. Access with a screwdriver for switching-on is through an 1/8" diameter hole in the underside of the wing center section.

Batteries are installed and all systems tested.

If necessary, bolt sheet lead behind former 1 until model balances one inch forward of main wheels in down position.

Complete fuselage planking, wing sheeting, nacelle planking; add soft block tail end, fin and rudder, wing tips and ailerons. Complete the fitting of navigation and landing lights and glaze landing light apertures in wing leading edges.

Fill in nose section, cabin, and fuselage top glazed sections with soft balsa, lightly cemented in place so that these parts may later be cut away to be used as molds for the acetate canopies. Make separate molds for the gun turrets and tail gunner's station.

Sand entire aircraft smooth, apply 3 coats of sanding sealer, sanding well between each coat; build up wing and stabilizer root fillets with Plastic Wood.

Break out balsa canopy mold sections, mount firmly on 1" x 1" balsa hand grips, dope and polish glass-smooth and mold all acetate sections.

Cut out all windows from fuselage planking and dope matt-black all interior woodwork visible through windows and canopies. Fit cockpit details, pilots; fit all canopies and gun turrets and glaze windows with acetate sheet. With masking tape or adhesive-backed plastic sheet, cut out and fit individual clear area window masks over all acetate sections. This will take a little time but it's the only way of achieving a really professional job.

Spray all unmasked acetate sections light grey or green to give the appearance of internal paint color. Fill and sand smooth all cracks and imperfections around glazed areas.

From now on all work will greatly affect appearance of finished model, so take time to insure a good finish.

Build up cowlings from balsa, fit to nacelles and seal and dope. Sand entire model smooth again. Cover model all over with lightweight silk or paper, and apply three more coats of sanding sealer, then at least three coats of clear dope, thinning dope progressively each coat to achieve a really good basic finish. Dope should be sprayed, but a careful brush job will do. Use fuel-proof dope throughout.

Apply thinly sprayed color dope in any authentic scheme. Many photographs are available with either all-aluminum or olive drab finishes. If you choose an olive drab finish, then another cry from a scale modeler's heart: do not forget to apply a final last coat of clear matt varnish—please, NOT glossy!

When all color is on, together with serial numbers and markings, masks may be removed from glazed areas. Fit guns from aluminum tube, windshield wipers from straight pins and aerials from thin nylon thread. Test all systems and free up any working joints that may be clogged by dope.

With India ink and a fine pen, draw hatch detail onto model, taking care not to overdo it.

Points to watch to achieve a good finish: (1) Clean dope. (2) Clean, dust-free brushes. (3) Clean, dust-free room, not too cold. (4) Clean, dust-free model—wipe off frequently with clean cloth. (5) Let all coats dry before applying next. (6) Make certain basic structure and clear dope finish is really good before applying color, which should be sprayed on lightly. Two coats of color dope should be enough. This saves a lot of weight! (7) Don't panic! Take your time! The model will not go together in three evenings, but the finished job is worth the trouble.

Final weight trim is achieved if necessary by drilling a small hole underneath the chin turret, filling with cement and lead shot, until the model balances on the leading edge just outboard of the nacelles. This hole is easy to plug without marring the finish.

Test all systems again on the flying field, with lines connected and all engines going, once you have recovered from the effect of those four Cox's running wide open! This model not only looks like a B-17, it sounds like one! Test throttle response, adjusting so that starboard engines throttle down more than port engines. Open throttles wide, and as soon as L.G. starts up, close throttles slightly. This will stop L.G. on limit switches but has no noticeable effect on engines. Bring L.G. down, stop engines, fuel up and flight test.

Allow model to taxi out and keep her on the ground until speed is well up, then "up" elevator may be applied on ground run to prevent nosing over, but neutralize as soon as she lifts off. From then on you're on your own, but you will find the B-17 easy to fly and "groovy". And the joy of being able to haul those big wheels up forward into the nacelles, and as the third engine falters to bring down the wheels and touch down again for a perfect landing, applying up elevator again as soon as she rolls. Approaches are easy on low throttle, the engines still running fast enough to give good control.