

This is an "economic" 4-engine model. Only two 1/2A engines, diesel or glow, are needed to pull this 2-3 channel ship.



B-24J Liberator R/C

By Eric Clutton

B-24J Liberator R/C at a glance

| | |
|---|--|
| Wing span | 62 inches |
| Fuselage length | 38 inches |
| Airfoil | Flat bottom |
| Wing area | 360.2 square inches |
| Aspect ratio | 11:1 |
| Weight | 34.0 ounces |
| Wing loading | 13.6 ounces/square foot |
| Engine required | 0.03 Diesel or 0.049 glow |
| Radio requirements (rud, elev, opt. pwr) | 2-3 channel 2 to 3 servos (mini or micro) |

The B-24 was faster, had more range and carried a bigger load than the B-17 but had looks only a mother could love and was a much more demanding plane to fly, requiring a lot of extra effort in the all important formation flying compared to the B-17.

So why model a B-24? Apart from it having a high wing and a boxy fuselage, making it easier to model, I had a couple of other reasons. I used to work on RAF Coastal Command *Libs* in England during WW2 and the area where I now live in Tennessee was a hotbed of B-24 training bases. I was determined to have the first B-24 to fly over Tullahoma in 50 years!

I had also determined that using four engines added a lot of weight and would require a much larger model than I was comfortable with. So I chose—for reasons of economy and simplicity—to use two engines on the model. I also figured that once



PHOTOGRAPHY: ERIC CLUTTON

The outer props are removed when flying the model. Cox 5½-3 three-blade props on the two engines worked best. The nose turret is plug-in for access to the battery.

the model was airborne it would not be possible to tell it only had two engines instead of four.

Construction

Fuselage and tail. Start by making left hand and right hand side frames from ¼-inch sheet balsa, edging with ¼-inch square balsa. When cutting out the sides it is possible to use the piece cut from under the rear end to make up wood required on the top side of the rear. The ¼-inch square should be cracked or cut at each change of direction, not bent to a curve.

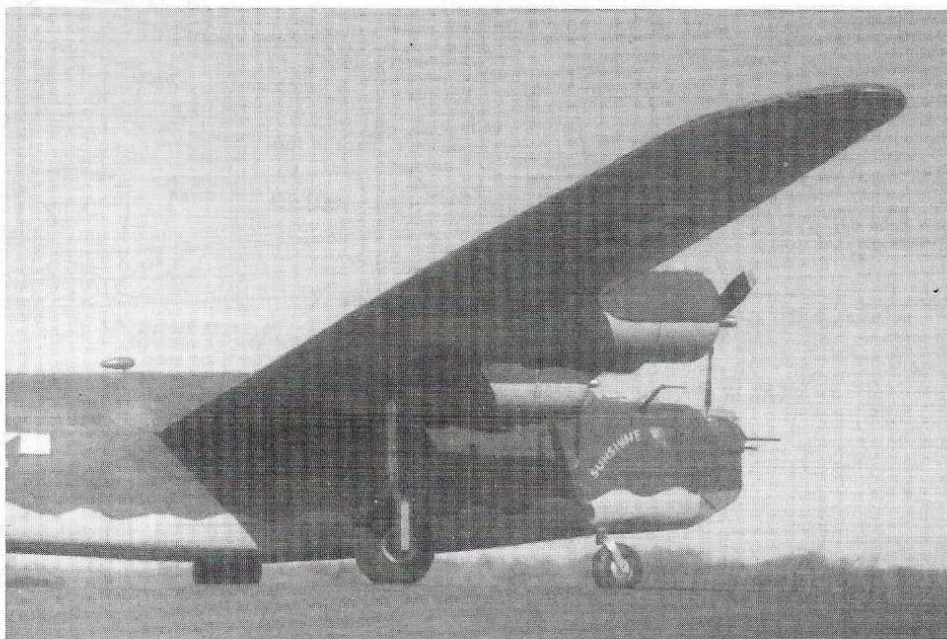
The sides can now be assembled using the formers. If the tops and bottoms of the formers are fitted as separate pieces this makes it easier to maintain a square and true assembly.

Top and bottom keels are now added and

the lower section covered with sheet as noted on the plan. The ¼-inch ply section is to take care of any landings on hard stuff! The ¼-inch sheet is easily sanded to blend in with the ¼-inch. Joints between sheets should be made so the butt joint is midway on the former.

Servos, pushrods and all that stuff should be sorted out at this point before completely covering the top with balsa sheet. If the horizontal stab is made it can be fitted and the various pushrods linked up. The elevator is only fitted to one side and is basically for trim purposes. My model made a good few flights as two-channel with only rudder and throttle control but elevator now allows me to flair out after a glide approach.

Wings. The basic wing structure is easily assembled once all those different ribs are cut out. Watch out for any waviness—use a



To keep the model light, Eric covered sheeted sections with tissue, and the open bays with a lightweight silkspan. He will supply vacuformed parts for the model. Address: 913 Cedar Lane, Tullahoma, TN 37388.

Materials List

FUSELAGE

| | | |
|-------|----------|---|
| Balsa | 3 pieces | ¼" × 3" × 36" |
| | 2 pieces | ⅛" × 3" × 36" |
| | 3 pieces | ⅓₂" × 3" × 36" |
| | 1 piece | ¼" × 3" × 36" |
| | 4 pieces | ¼" square × 36" |
| Ply | 2 pieces | ⅛" × 4" × 3" plus scraps of ¼" ply and ⅜" balsa |

WINGS

| | | |
|-------|----------|----------------|
| Balsa | 4 pieces | ¼" × 3" × 36" |
| | 1 piece | ⅛" × 3" × 36" |
| | 4 pieces | ⅓₂" × 3" × 36" |
| | 1 piece | ⅜" × 3" × 4" |
| Ply | 1 piece | ¼" × 2" × 9" |

NACELLES

| | | |
|-------|----------|------------------------------|
| Balsa | 1 piece | ⅛" × 3" × 36" |
| | 4 pieces | ¼" × 2" × 2½" |
| | 1 piece | ⅓₂" × 3" × 36" |
| | | scrap soft block or ¼" sheet |
| Ply | 2 pieces | ⅛" × 2" × 2½" |
| | 2 pieces | ⅓₂" × 2" × 8" |

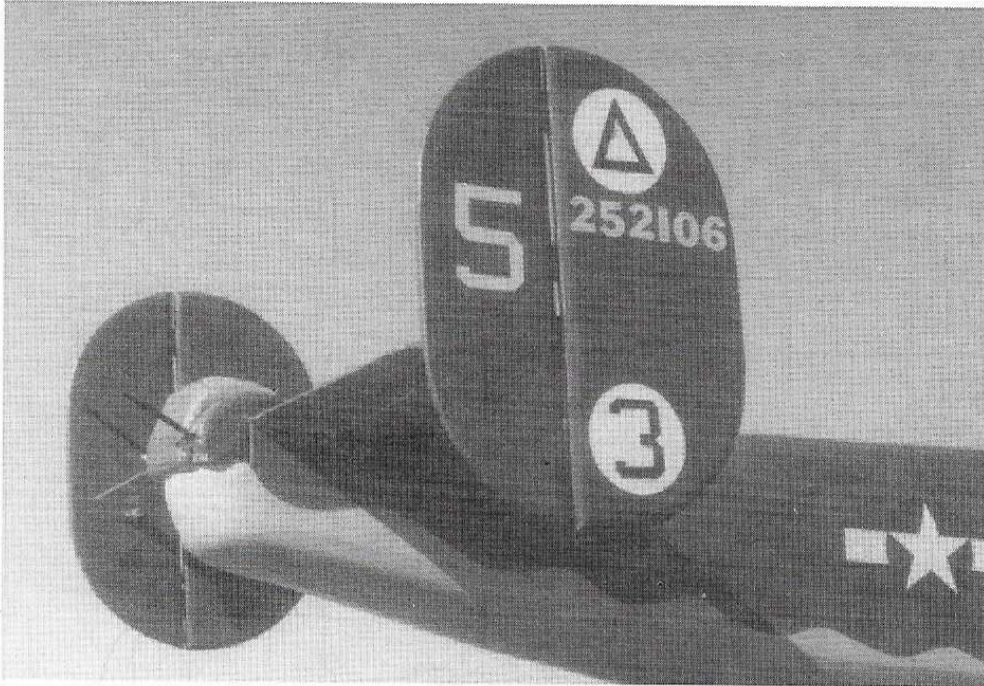
TAIL

| | | |
|-------|----------|----------------------------|
| Balsa | 1 piece | ⅓₂" × 3" × 36" |
| | 1 piece | ⅛" × ½" × 12" |
| | 1 piece | ¼" square × 36" |
| | | scraps of ⅓₁₆" sheet |
| | 2 pieces | ⅛" square × 18" |
| | 1 piece | ¼" × 3" × 18" |
| | | scraps of ⅛" and ⅓₂" sheet |

VACFORMED ITEMS:

- Cockpit cover
- Astrodome
- Nose and tail turrets
- Top turret
- Retracted wheels and fairings
- Turbocharger

B-24J Liberator R/C

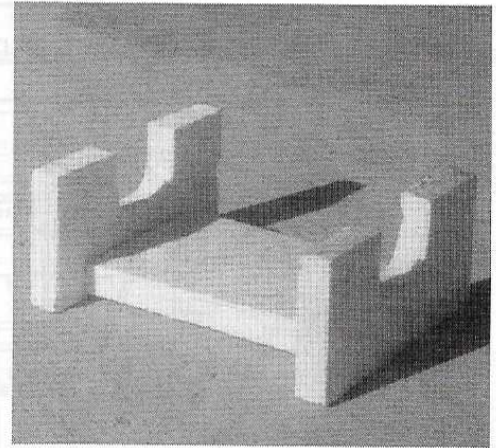


Originally Eric used only two channels: rudder and throttle! He said the plane flew fine this way, using throttle to adjust level flight. He added elevator later for convenience and shows this on the plan.

flat building board! After initial assembly of the bare frames, sand the ribs slightly to fit the 1/32-inch covering on the leading edge and center section plus the part where the outer nacelles attach.

Wings should be completely covered be-

fore fitting the nacelles and these are best lined up with the wing off the fuselage. I covered all sheeted surfaces with lightweight tissue doped on, followed by sanding sealer. Open framework was covered with heavy weight tissue. Main thing is to keep it light!



Since the gear plug in, and are removed for flight, you'll need a starting cradle similar to the one Eric made from some foam sheets. Text describes the starting procedure.

I used waterbase acrylics from Walmart™ Craft Corner™ or similar. All the colors you need are there. A quick spray over with clear polyurethane protects the paint.

Nacelles are very simple "cruciform" construction using 1/8-inch sheet balsa covered in 1/32-inch sheet balsa. The inner ones are shorter and have a 1/8-inch ply firewall to accept the radial mounted engines. Removable cowlings are made from a wrap-around of 1/32-inch ply. The blocks at the rear of the nacelles are best added after gluing nacelles to the wings.



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Finally available - Hardware and software package which includes landing gear, cowl, cabane struts, canopy, designer tail wheel, ribs, bulkheads and graphics. Soon will have wheel pants, partial kit just around the corner.

As the Nov. 1995 issue front cover Flying Models magazine stated I have 36 designs ready to turn into plans, and I am very happy to tell you that #2 is 90% complete and construction of #3 and #4 has already started. #2 soon to be flight tested, designed for land or sea flying-taking only minutes to switch from wheels to pontoons. Look for the up and coming esthetically magnificent early 1900 era 1/4 scale monoplane design. By the way, I call it JALOPLANE. IT'S FOR REAL!! Who has more fun than us? Quality modeling is back on track!! Thank you again.

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All R/C equipment must be "1991" capable, with an AMA gold Sticker on the transmitter. All 50 channels used.

For more info, contact:

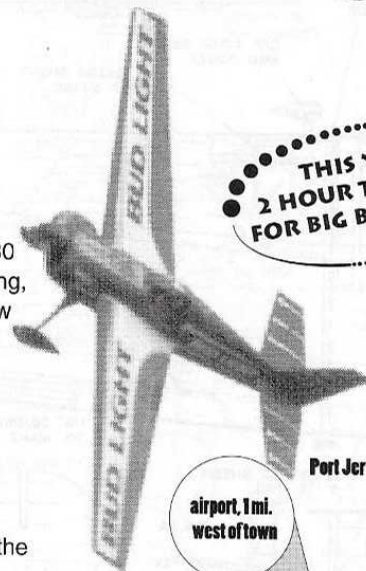
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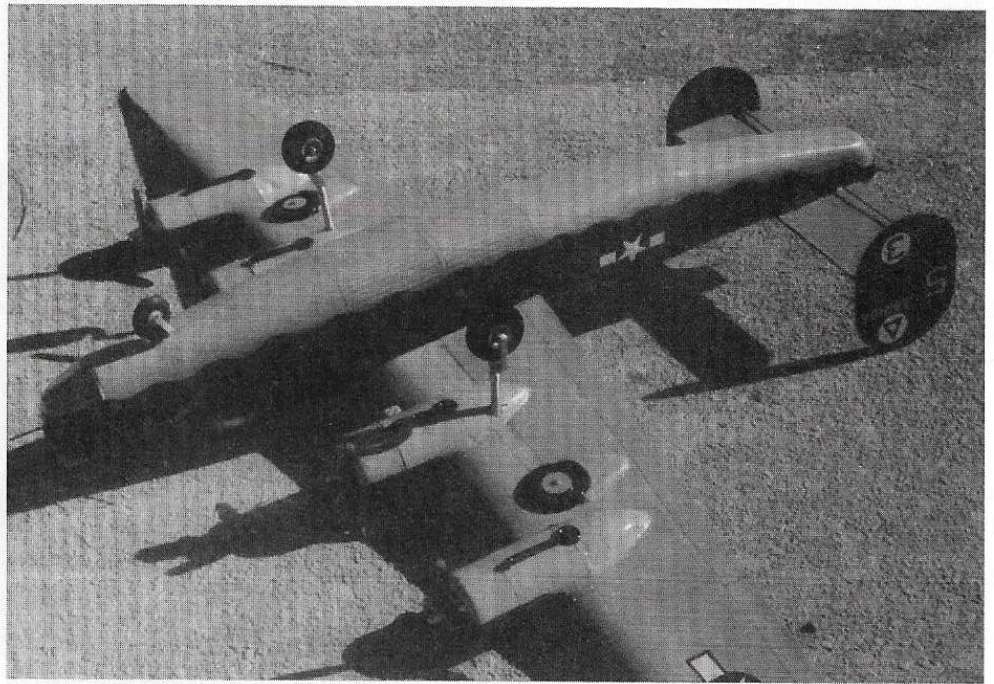
The vacformed parts are not at all difficult and there have been several descriptions of home-made vacformers. Mine is powered by a Shopvac. Forms may be built up from scrap balsa.

Flying

Make the starting cradle from 1-inch packing foam. Use epoxy glue. Fill both tanks and start one engine, tuning it to flight settings. Then stop the engine. Now start the other engine, once again tuning it to flight settings and checking reliable throttle response. Leave this one running and restart the first engine. Engines will sometimes go out of synch. This is remedied by partly reducing throttle settings and opening up again.

The model is hand launched with one hand more or less under the c.g. to support it and throwing it at the rear end with the other hand. A light breeze helps because it means you won't have to do a running launch! A trusted friend is a great help, together with long grass during the trimming flights. Rudder movement should be restricted as shown. Both rudders are in direct prop blast and very powerful in effect. Don't forget the right thrust on both engines. Without this the model will bank *hard left!*

I use Cox 5½-3 three-blade props on the PAW .03 diesels. These props are very close to scale and could also be used on Cox .049 glows. The Perfect #5 ½-ounce tanks used with the diesels give a 9½-minute run! Do not be tempted to fit freewheeling props on



This is a hand-launch model, so the gear are plug-in, and to be removed before flight. Dummy, retracted, vacuformed wheels are added between the nacelles. Note the ¼ rudder tie-rod wire beneath the elevator.

the outer nacelles. Remove them completely for flying.

Just remember that two .03s turning two props are not equivalent to one .06. It's more like an .09. The .03 diesels will turn the Cox props slightly faster than the reed valve Cox

.049 glows but there is adequate power in either case.

Side mounted engines are best. I fitted mine with both cylinder heads pointing toward the fuselage. This hides them well but is a matter of choice.

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