

## Larry Conover's PAN AM CARIBBEAN CLIPPER

■ There is something fascinating about a flying boat. Way back in 1912-1914 Glenn Curtiss, and others, did some dandy R.O.W. experimenting. Osa and Martin Johnson explored stone-age African lakes, rivers, and jungles with their twin engined Sikorskys. Pan American World Airways opened new aerial highways in the early 30's across the Caribbean. They did it with the Sikorsky S-40.

A bit later (!) in 1959, Pan Am announced the 020 gas event for model aircraft competition. Clipper Cargo a la Pee Wee power was also included in their model aviation program.

Now here was a challenge. Take a bit of the legend of Pan American and its flying boats, design and build this spirit into a competition aircraft with all weather capability, and a potential for taking prizes.

The designing began with a little aerodynamic type thinking. So we have

these features: The propeller is completely exposed, and the air which it thrusts backward is used only for pushing the model forward. No torque or turbulence wasted on dirty fuselages. The strut-mounted wing is high, away from fuselage or slipstream interference.

Weight and strength can be concentrated in the small fuselage. The tail booms, wing, and cabane struts are all rubber banded together. In even the worst crash, things just shift or rubber bands break. Nothing else, usually.

The dethermalizer is a standard pop-up tail, with its fuse placed forward to eliminate C.G. shift due to the long tail moment arm.

The takeoff gear is rubber banded to the fuselage for flexibility and simplicity. It can be made to retract either by hand, or automatically. This is done by different methods of wrapping the rubber bands around the gear struts, or the stop.

The pilot's compartment allows moving the dummy to adjust C.G.

This is a multi purpose airplane. It can be used for Clipper Cargo by following the suggestions on the plans. Maximum load lifted so far is eighteen ounces on single flights. The little ship climbs so high as a payload gas model, that I have used it in regular 1/2A events.

Construction is a bit more challenging than the usual pylon model, but you can do it. Start by making the main fuselage box. Don't forget the 1/16 sheet doublers in the pilot's cabin. The cabane struts are sandwiched between plys on former #3 and #5. Note that #3 has strut arm pointing aft, and #5 is forward.

The top of the lower box is a piece of 1/16 sheet, cut roughly to shape, glued on, and trimmed later. When this is dry you can cut the opening for the dummy pilot.



Pan American's Sikorsky S-40 went into service in 1932. Original Caribbean Clipper (below) established world's record for longest over-water route, 600 miles. Craft carried 36 passengers at 115 mph.

Cabin formers, sides and top are next. Bamboo or 1/16 dowel cabin struts support the thin celluloid windshield.

The firewall should be good birch plywood, and must be bound with cloth. Plenty of glue, or fiberglass resin is even better. Glue the engine mounting nuts securely to the back of the firewall as you mount it.

The fuel system is very simple, and works well if you learn to use it. Drill a 1/8 inch hole in the tank near the top. Disassemble and connect a length of 1/2 A fuel line to the fuel connection inside the tank. About eight inches of line will do. Run the line into the fuselage as indicated. It must be secured on the outside, but more about that later. You may wish to leave the top open in this area until the exact line length is determined.

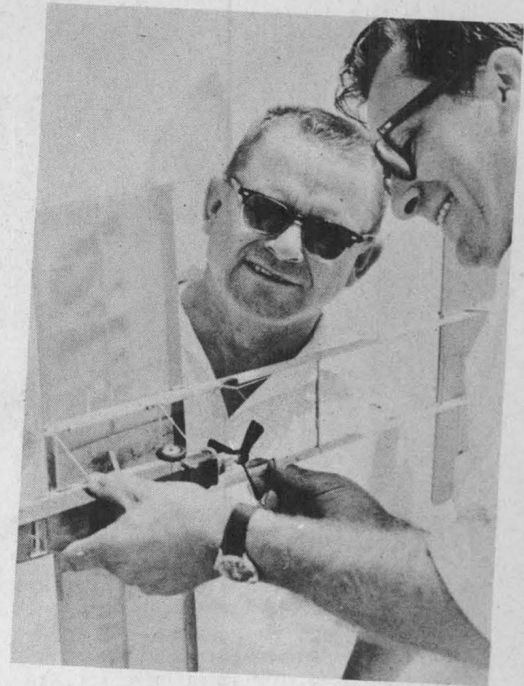
The nose block of medium balsa is added. If you plan to fly Cargo, install a socket of 3/34 inch aluminum tubing for the front skid. This will allow removal, or replacement with a different length. Also for Cargo flying, the whole top cabin section just under the wing mount should be made into a removable hatch. You need clearance for the cargo box into the lower fuselage. This box should be made of thin plywood.

Securely glue the 1/16 dowel pieces

which form a saddle for the landing gear. A short piece of rubber tubing or "spaghetti" (radio type) is slipped on the gear wire during assembly. This makes the gear operate smoothly. The gear is made from .045 music wire. Bind the joints with thin copper wire. Then solder. The wheels have aluminum hubs, rubber tires. This gear will take all the weight you can pack into the fuselage. It gives straight takeoff runs.

The original fuselage was covered with blue Sig silk on the lower half, and white above. Four coats of clear butyrate finish.

The tail booms should be carefully chosen. They must be strong but not too heavy. Select medium hard "A" stock (long grain) balsa 1/4" by 3/8". Be sure they're straight. Add the wing and tail incidence wedges before tapering the booms. Then pin them together and drill the holes for the cross bars. Assemble directly over the plans. Rough up the surface of the aluminum tubing so the glue will stick. Apply double coats of cement at all joints. The finish is two coats of butyrate clear. Add DT hook, and line guides for the double tethered pop up tail. The dacron thread brace "wires" actually do brace the boom. Make them tight. Do not use



Engine maker Roy Cox (left) examines Larry's mini-cargo flyer. Three bladed prop gives extra thrust, rpm.

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Airfoil:	Wing loading:
NACA Symmetrical	16 oz./sq. ft.
Flying weight: 5½ to 7 lbs.	Model weight minus R/C:
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Weight: 3½ to 4½ lbs. Power: .15 to .25 Eng.

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Wing span: 56" Wing area: 600 Sq."  
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## CLIPPER ...

nylon thread here because it gives too much.

The finished tail boom assembly is not glued to the cabane struts. It is rubber banded on. The wing is then banded to that.

The wing is conventional. Airfoil is a ten percent Lindy section. A double notch is cut in joint ribs to allow spars to cross. The tip is 1/16 sheet, glued on to the end rib in a curve. Tissue covering fills out the shape. Cover the wing with Sig Jap tissue, with a double covering on the center section where it takes abuse. Dope with four coats of butyrate clear, plasticized with two drops of TCP per ounce. Be sure to key the wing to the mount. Warp a small amount of washin at each tip.

The tail assembly must be kept light weight. Choose your wood carefully. The fins should be light "C" stock.

Additional construction instructions appear on the full size plans.